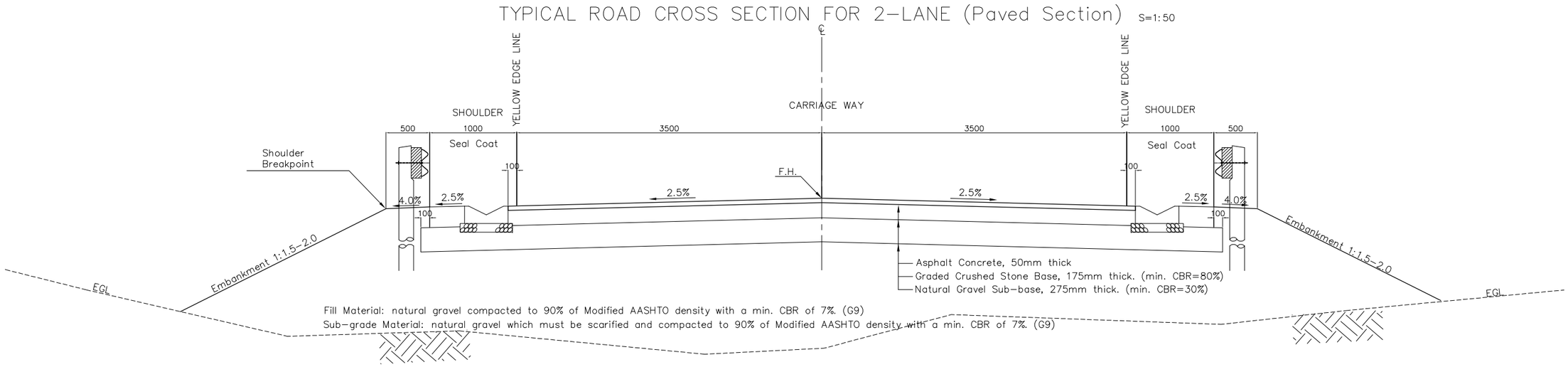
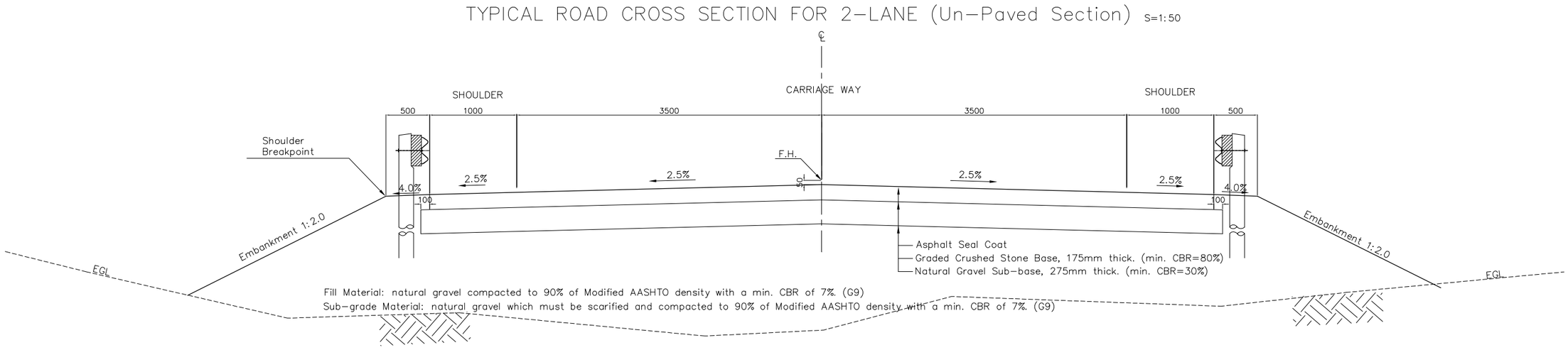
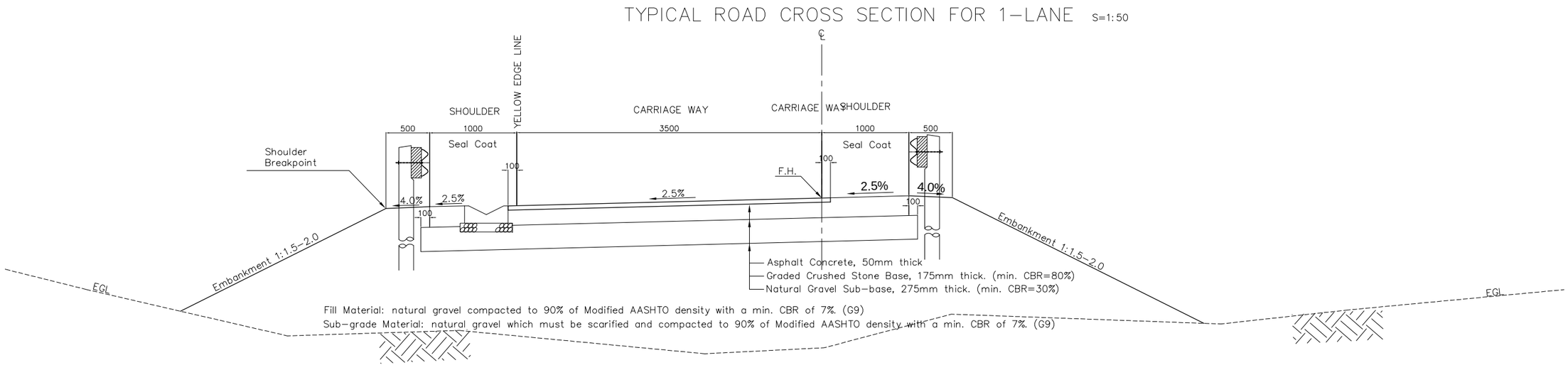
6.6 Outline Design Drawings



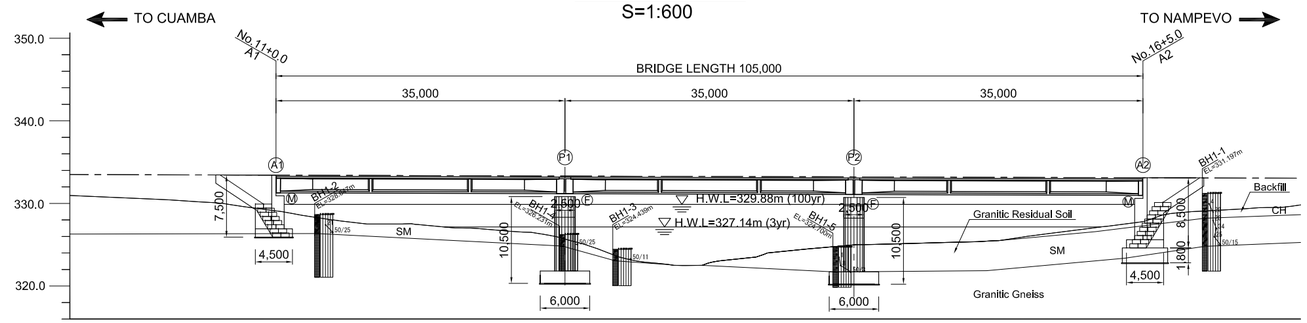




NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Typical Cross Section for the Approach Roads	S=1:50		

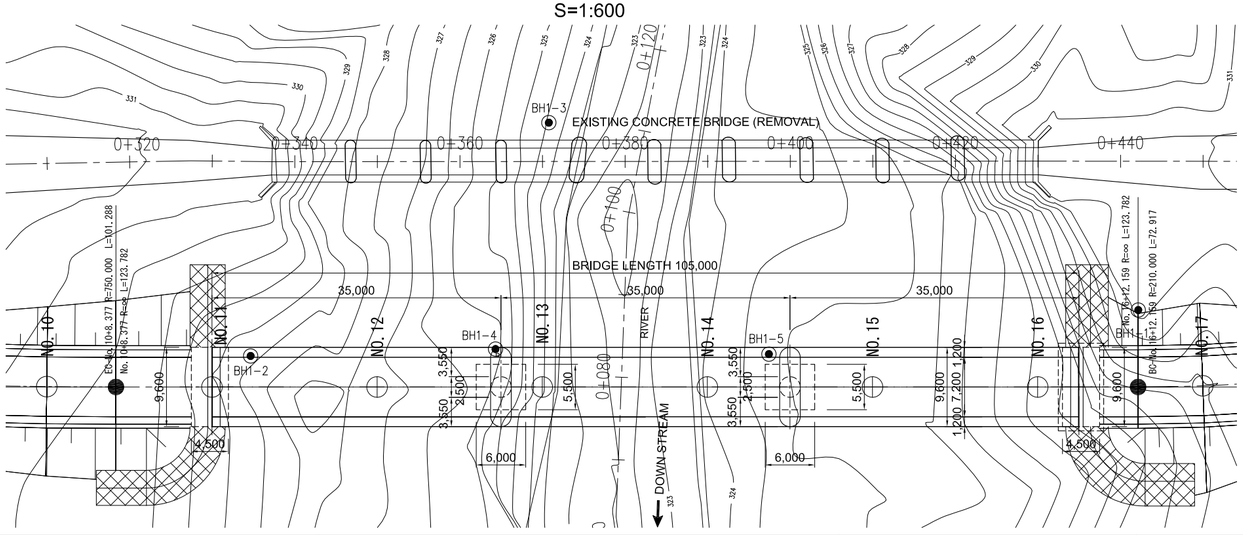
GENERAL VIEW OF MUTABASSE

ELEVATION
S=1:600

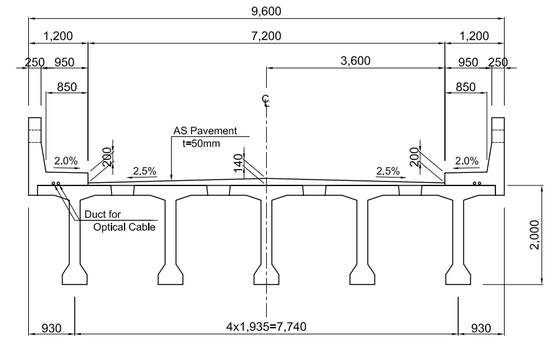


GRANDIENT	332.887 No.9+10.0	VCL=91m K=18	i=-0.300% L=280.004m												VCL=121m K=19	332.248 No.17+10.0	
PROPOSED HEIGHT	333.476	333.451	333.417	333.356	333.312	333.296	333.236	333.207	333.177	333.117	333.102	333.080	333.057				
GRAND LEVEL	330.737	330.337	329.092	327.178	325.679	324.098	324.047	324.977	325.240	327.158	327.786	329.057	329.488				
DISTANCE	20.000	8.377	11.623	20.000	15.000	5.000	20.000	10.000	10.000	20.000	5.000	7.159	7.841				
CHAINAGE	No.10	No.10+8.377	A1 No.11	No.12	P1 No.12+15.0	No.13	No.14	P2 No.14+10.0	No.15	No.16	A2 No.16+5.0	No.16+12.159	No.17				

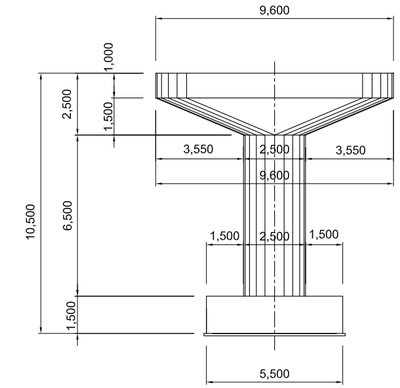
PLAN
S=1:600



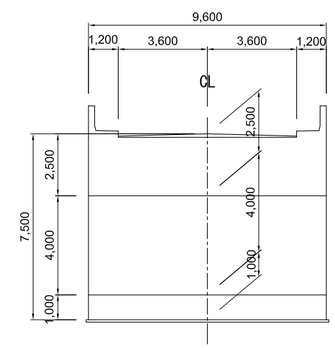
GIRDER SECTION
S=1:100



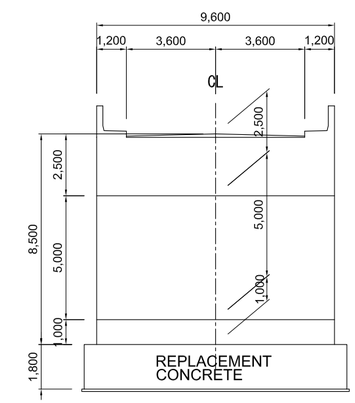
P1,P2 PIER
S=1:200



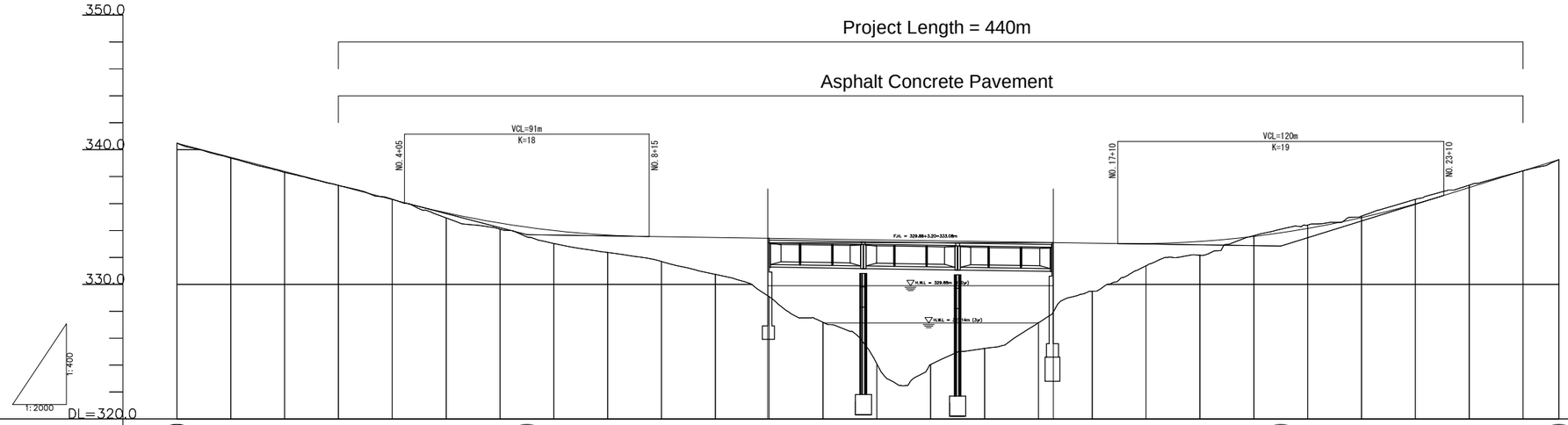
A1 ABUTMENT
S=1:200



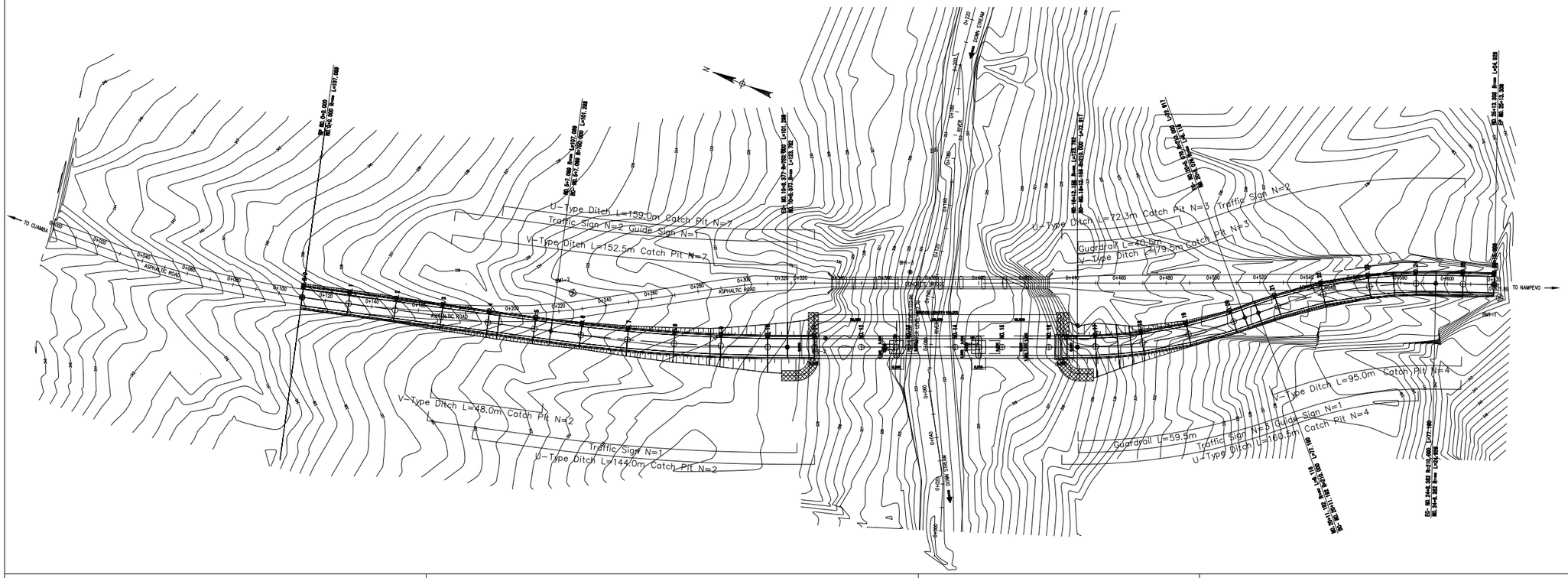
A2 ABUTMENT
S=1:200



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF MUTABASSE	AS SHOWN		



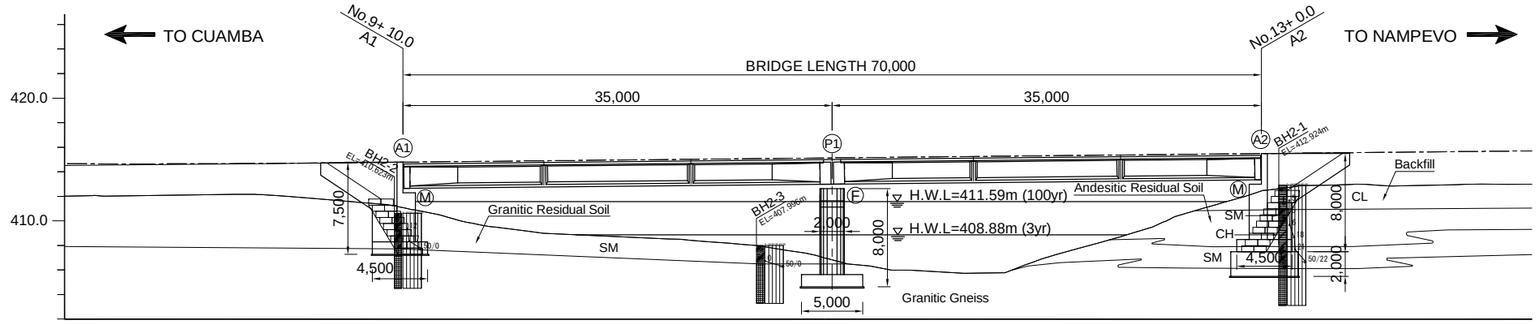
Gradient	340.478	i=-5.225% L=179.971m						333.687	i=-0.300% L=280.004m												332.847	i=6.207% L=103.308m				339.259
Proposed Height		339.434	338.389	337.344	336.299	335.318	334.549	333.997	333.661	333.536	333.476	333.416	333.356	333.296	333.236	333.177	333.117	333.057	333.026	333.187	333.563	334.154	334.959	335.980	337.192	338.433	339.259
Ground Height	340.479	339.373	338.320	337.356	336.319	334.937	334.097	333.031	332.362	331.692	330.737	329.092	327.178	324.098	324.047	325.240	327.158	329.488	331.388	332.163	333.618	334.405	335.066	336.304	337.367	338.433	339.259
Cut				0.012	0.020																0.055	0.252	0.106	0.324	0.176	0.000	0.000
Embankment		0.061	0.069			0.381	0.452	0.966	1.299	1.844	2.739	4.324	6.178	9.198	9.189	7.937	5.959	3.569	1.639	1.025						0.000	0.000
Chainage	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20	NO.21	NO.22	NO.23	NO.24	NO.25	NO.25+13.308



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.1 (Mutabasse)			

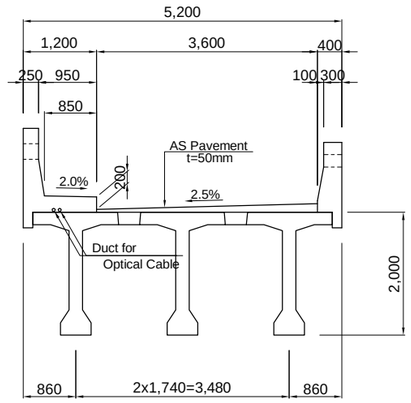
GENERAL VIEW OF MULIQUELA

ELEVATION
S=1:500

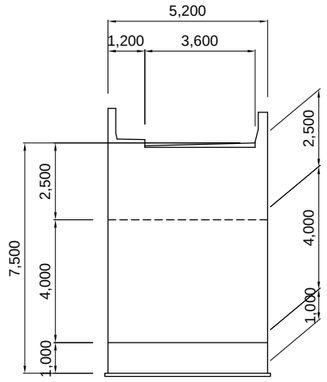


GRANDIENT	414.096 No.6+0.0	VCL=130m K=18						i=1.000% L=225.000m					VCL=110m K=18	416.345 No.17+5.0
PROPOSED HEIGHT		414.702	414.795	414.895	415.095	415.145	415.295		415.495				415.695	
GRAND LEVEL		412.049	411.077	409.186	407.825	406.837	406.135		412.456				412.993	
DISTANCE		20.000	10.000	10.000	20.000	5.000	15.000		20.000				20.000	
CHAINAGE		No.9	A1 No.9+10.0	No.10	No.11	P1 No.11+5.0	No.12		A2 No.13				No.14	

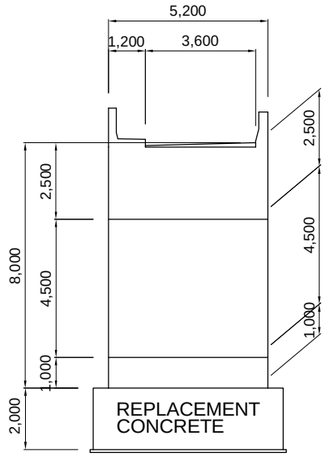
GIRDER SECTION
S=1:100



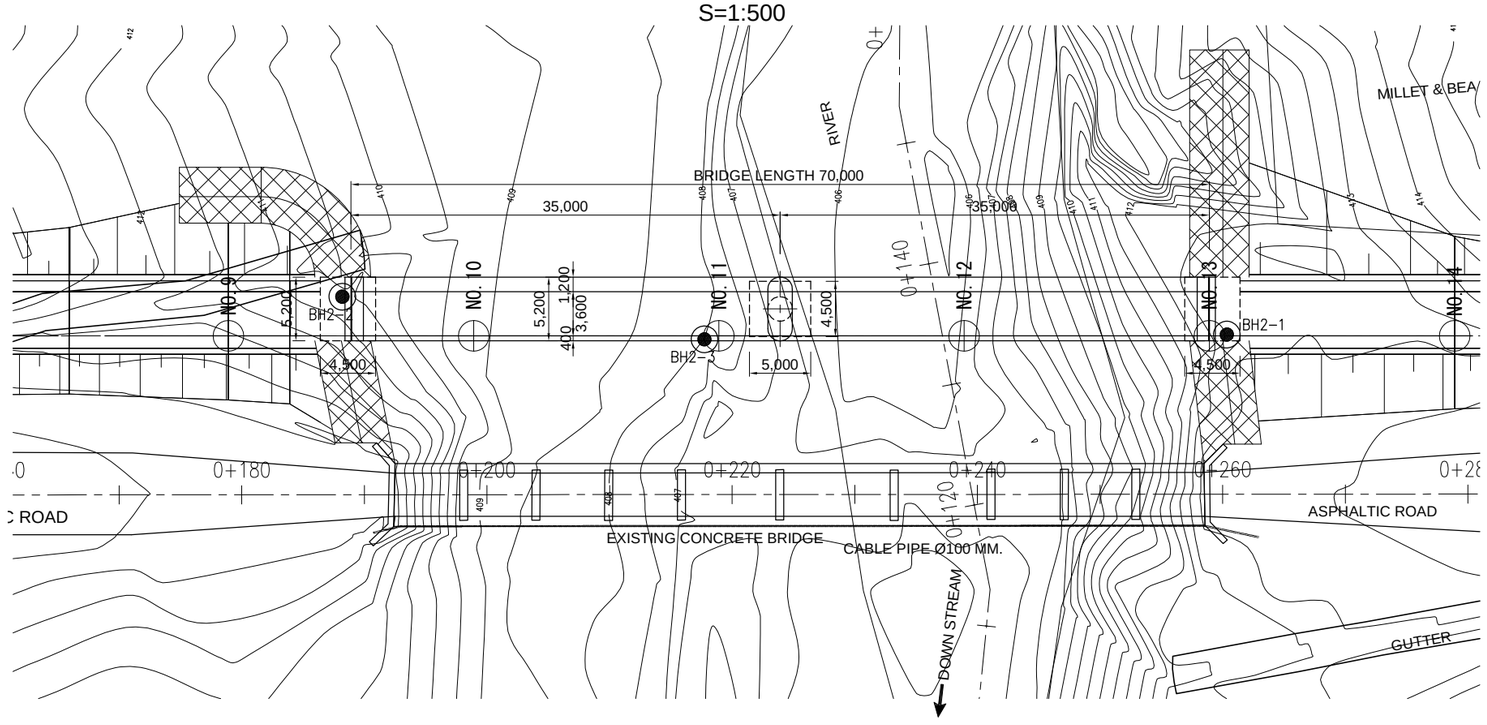
A1 ABUTMENT
S=1:200



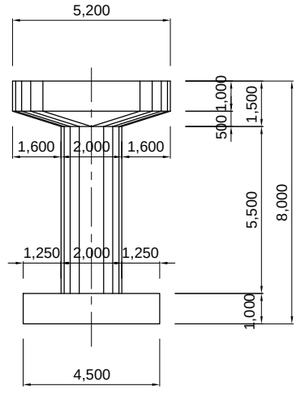
A2 ABUTMENT
S=1:200



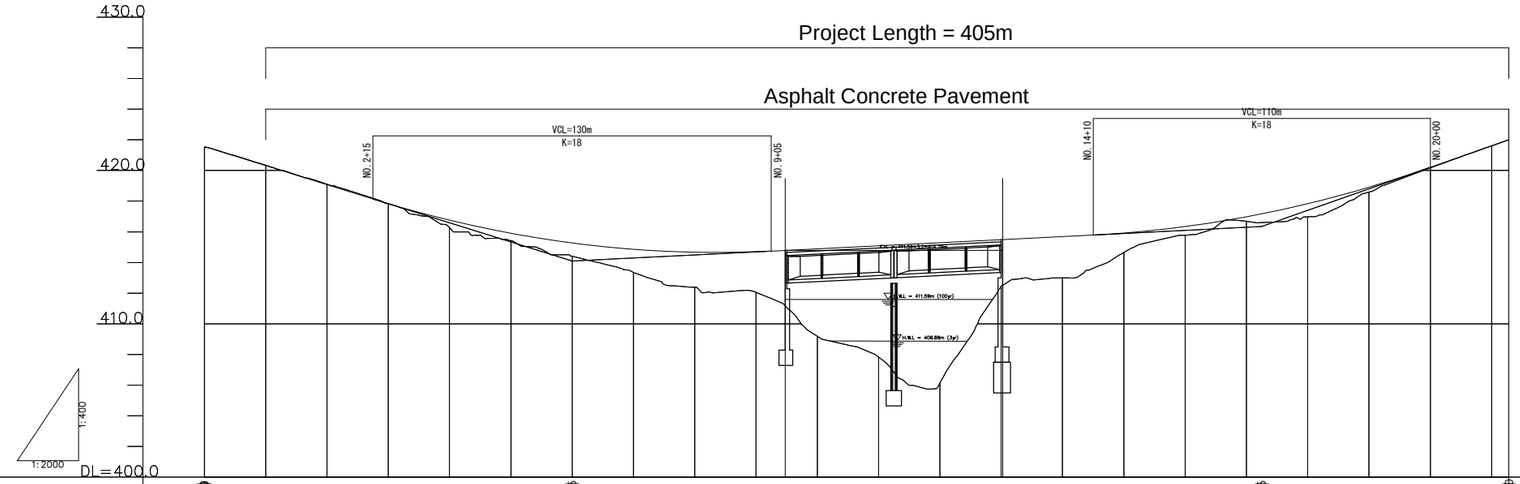
PLAN
S=1:500



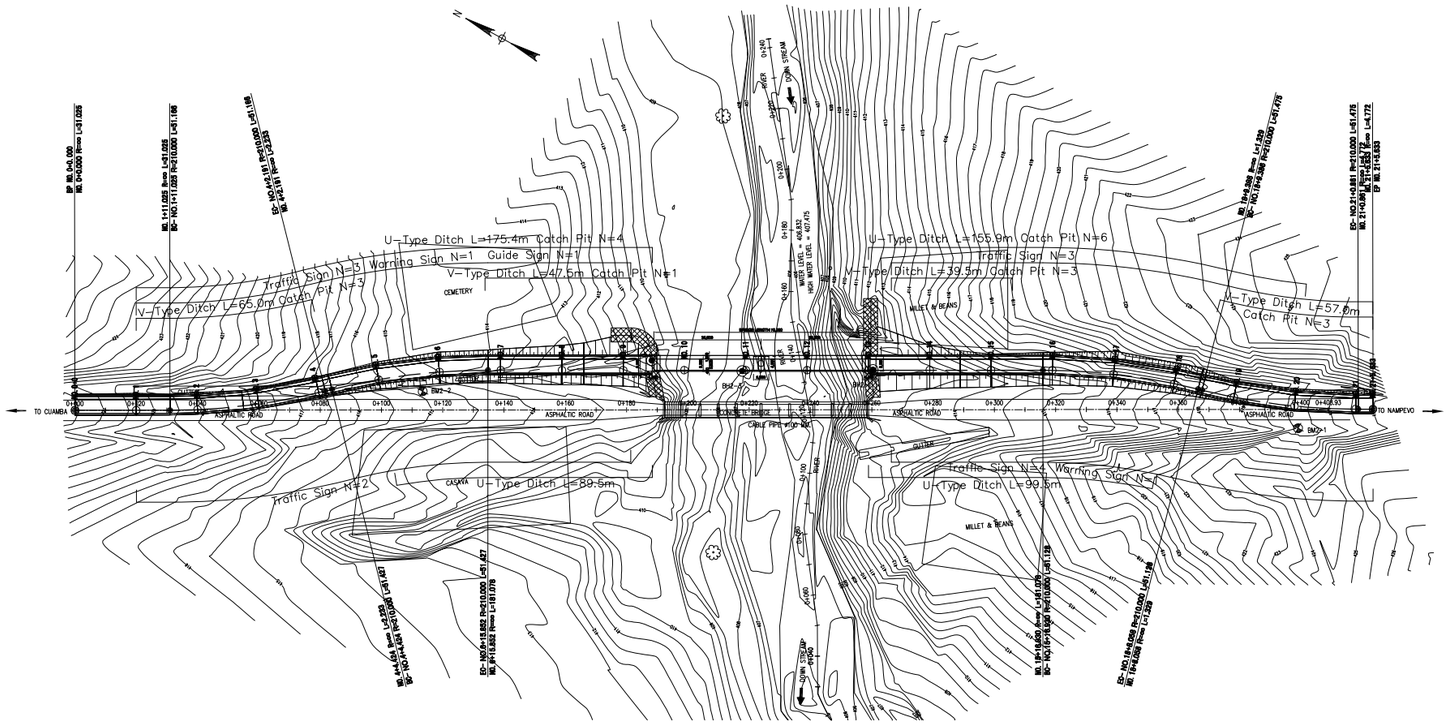
P1 PIER
S=1:200



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF MULIQUELA	AS SHOWN		



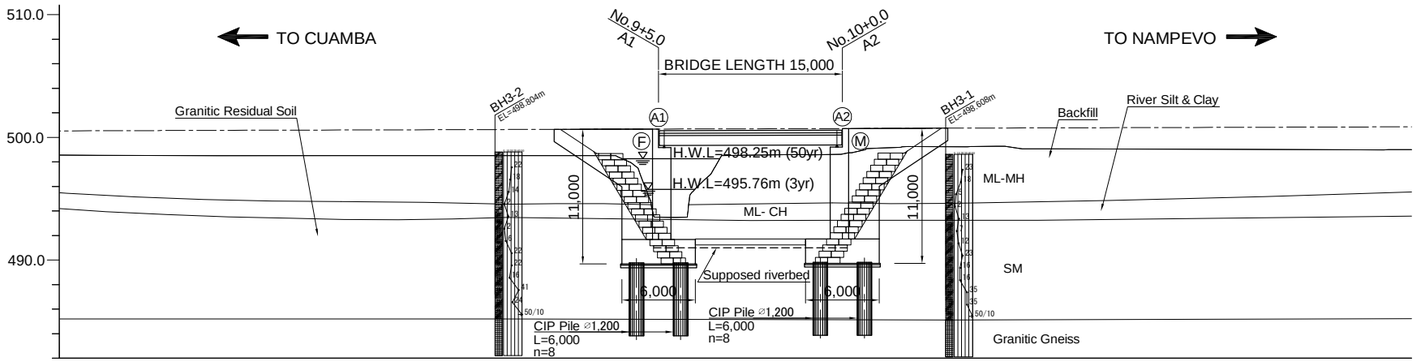
Gradient	421.569	i=-6.229% L=120.000m					414.095	i=1.000% L=225.080m									416.345	i=7.013% L=80.633m				422.000	
Proposed Height	421.569	420.324	419.078	417.839	416.760	415.904	415.270	414.858	414.669	414.702	414.895	415.095	415.295	415.495	415.695	415.922	416.341	416.978	417.834	418.909	420.202	421.605	422.000
Ground Height	421.500	420.341	419.108	417.833	416.272	415.438	414.408	413.346	412.378	412.049	409.186	407.825	406.135	412.456	412.993	414.656	415.774	416.684	416.981	418.595	420.168	421.610	422.000
Cut		0.018	0.031																			0.006	0.000
Embankment	0.069			0.006	0.488	0.466	0.862	1.512	2.290	2.653	5.709	7.270	9.160	3.039	2.702	1.266	0.567	0.294	0.854	0.314	0.034		
Chainage	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20	NO.21	NO.21+5.330.000



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.2 (Muliquela)			

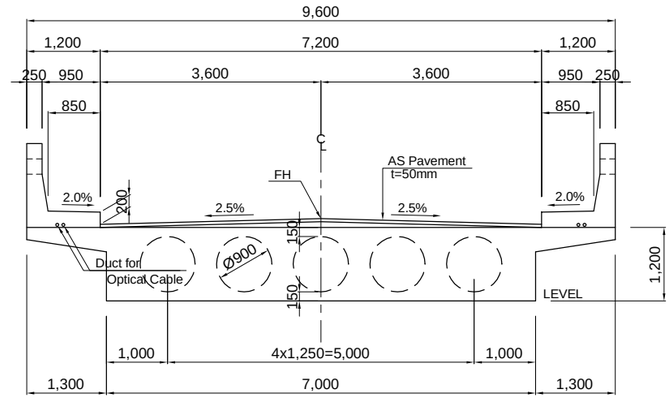
GENERAL VIEW OF MATACASSE

ELEVATION
S=1:500

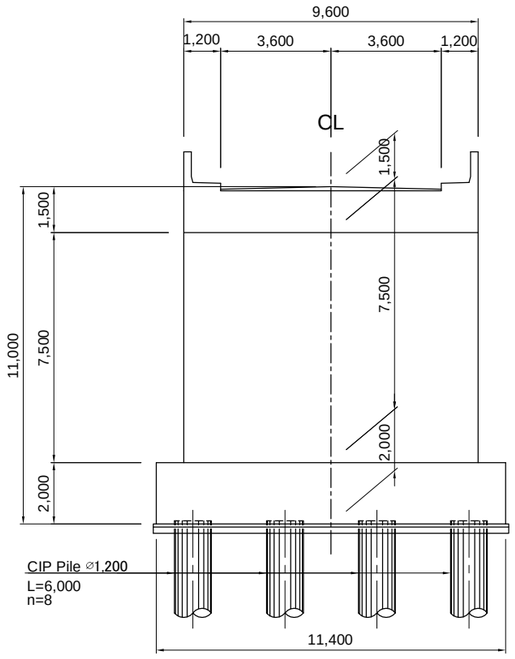


GRANDIENT	VCL=100m K=19		i=0.300% L=245.000m			VCL=100m K=18	
PROPOSED HEIGHT	500.538	500.598	500.658	500.673	500.718	500.778	500.838
GRAND LEVEL	498.528	498.504	498.500	493.493	498.641	499.049	499.002
DISTANCE	20.000	20.000	20.000	5.000	15.000	20.000	20.000
CHAINAGE	No.7	No.8	No.9	A1 No.9+5.0	A2 No.10	No.11	No.12

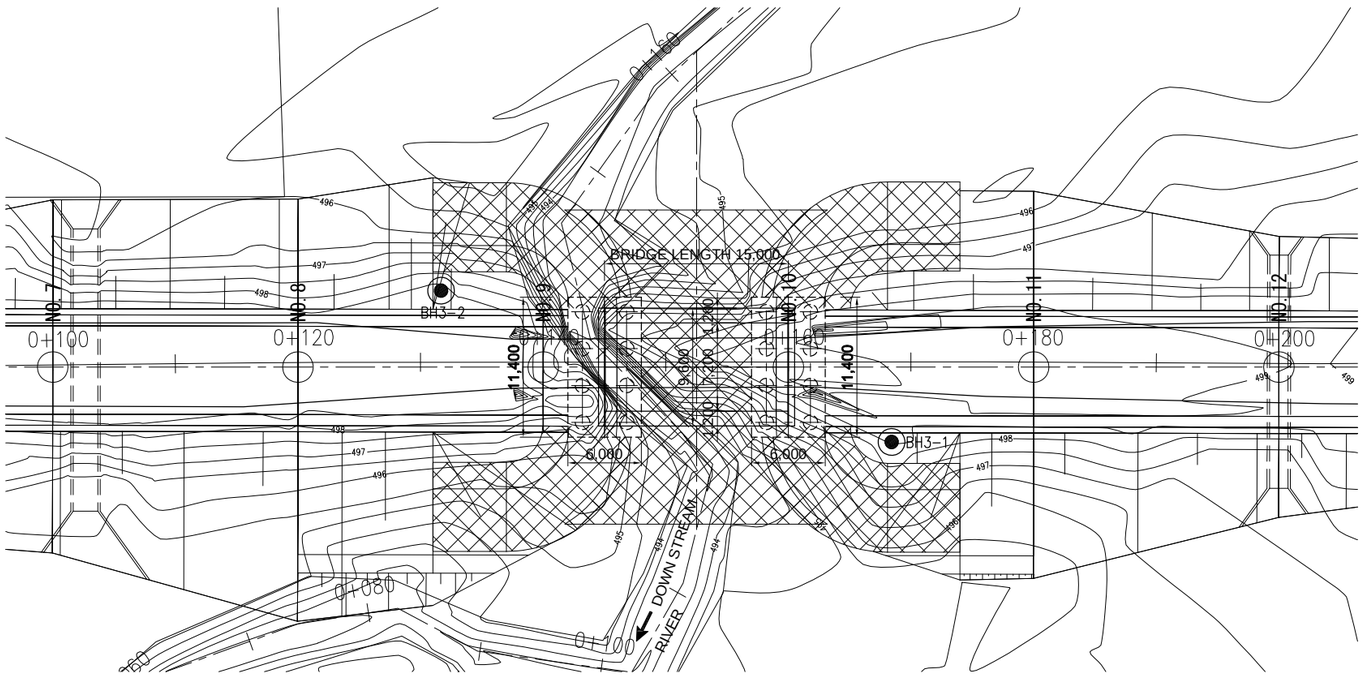
GIRDER SECTION
S=1:100



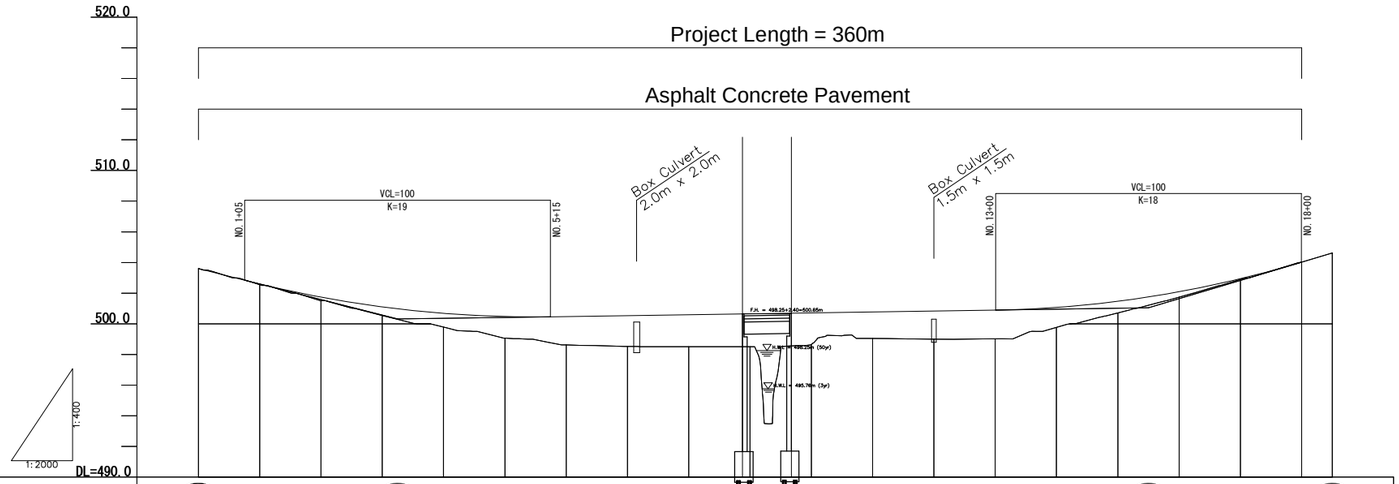
A1,A2 ABUTMENT
S=1:200



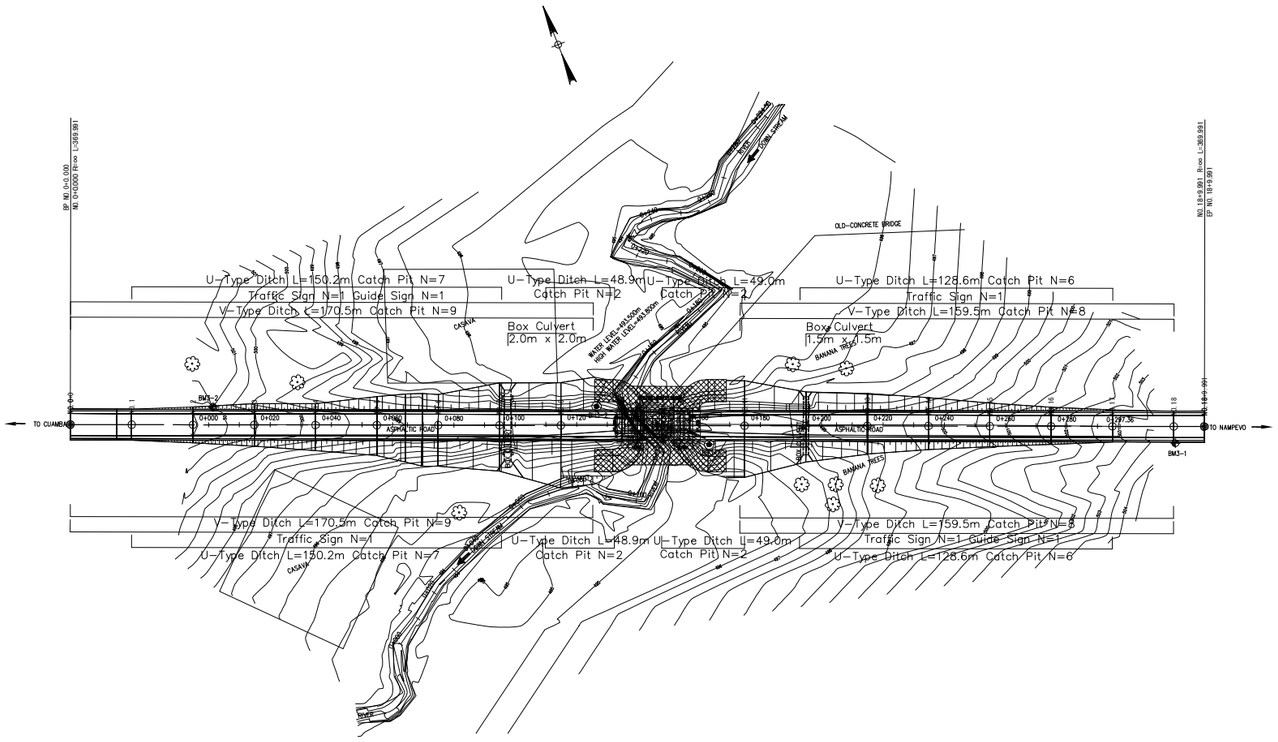
PLAN
S=1:500



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF MATACASSE	AS SHOWN		



Gradient	503.605	i=-5.065% L=65.000m	500.313							i=0.300% L=245.000m						501.048	i=5.950% L=59.991m	504.617
Proposed Height	503.605	502.598	501.745	501.107	500.684	500.477	500.478	500.538	500.598	500.658	500.718	500.778	500.838	500.898	501.069	501.468	502.093	502.944	504.023	504.617
Ground Height	503.605	502.548	501.500	500.537	499.784	499.062	498.627	498.528	498.504	498.500	498.641	499.049	499.002	499.014	499.768	500.712	501.741	502.891	504.026	504.617
Cut	0.000																		0.003	0.000
Embankment	0.000	0.050	0.245	0.570	0.901	1.415	1.851	2.010	2.094	2.157	2.076	1.728	1.835	1.884	1.301	0.756	0.351	0.053		0.000
Chainage	NO.0+0.000	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.18+9.991

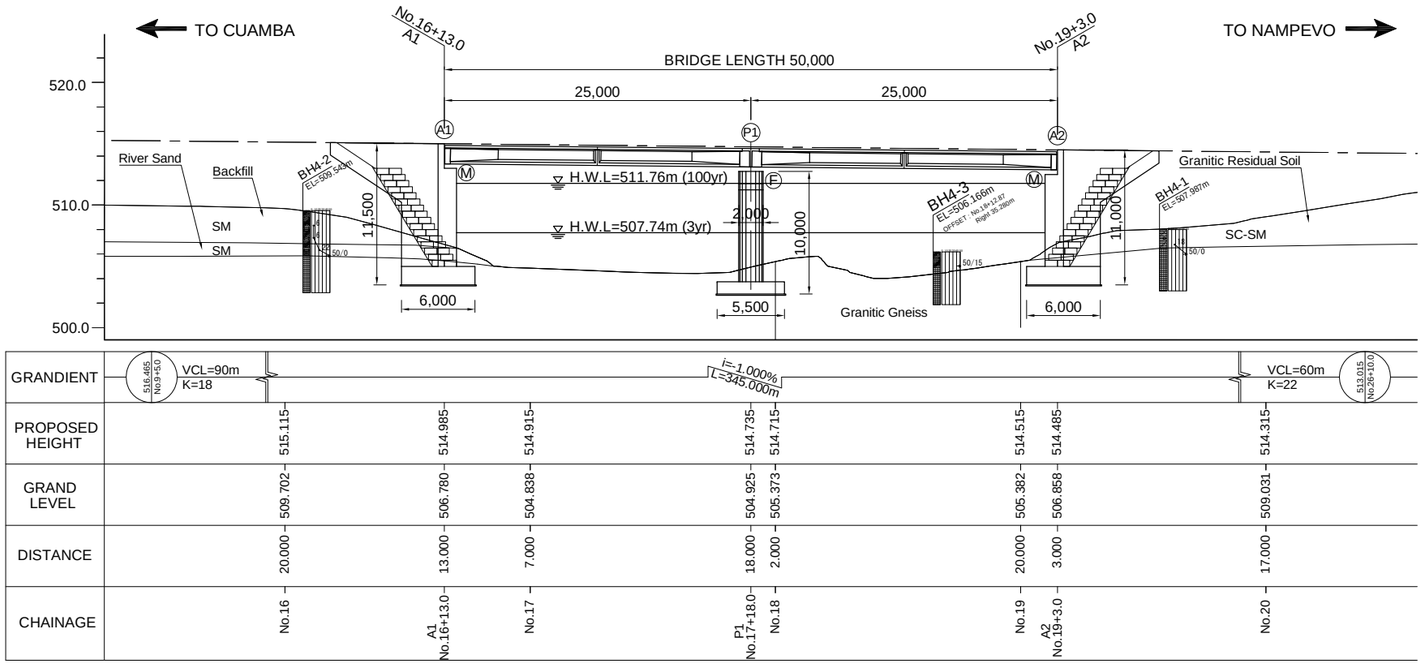


Note:
Topographic data before No.2 and after No.17 is assumed because of luck of topographic survey.
Actual topographic data of these assumed sections will be obtained at detail design stage.

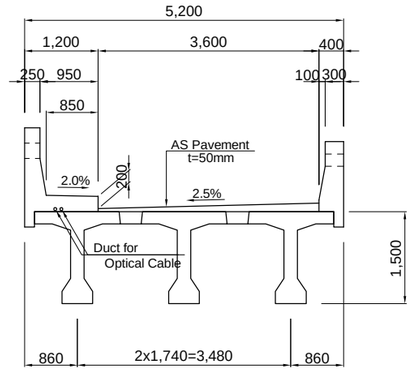
NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.3 (Matacasse)			

GENERAL VIEW OF LUA

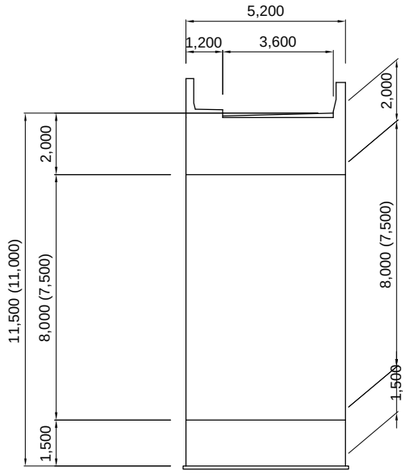
ELEVATION
S=1:500



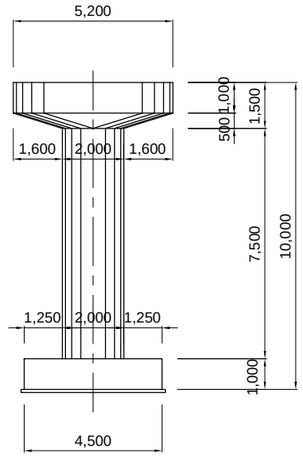
GIRDER SECTION
S=1:100



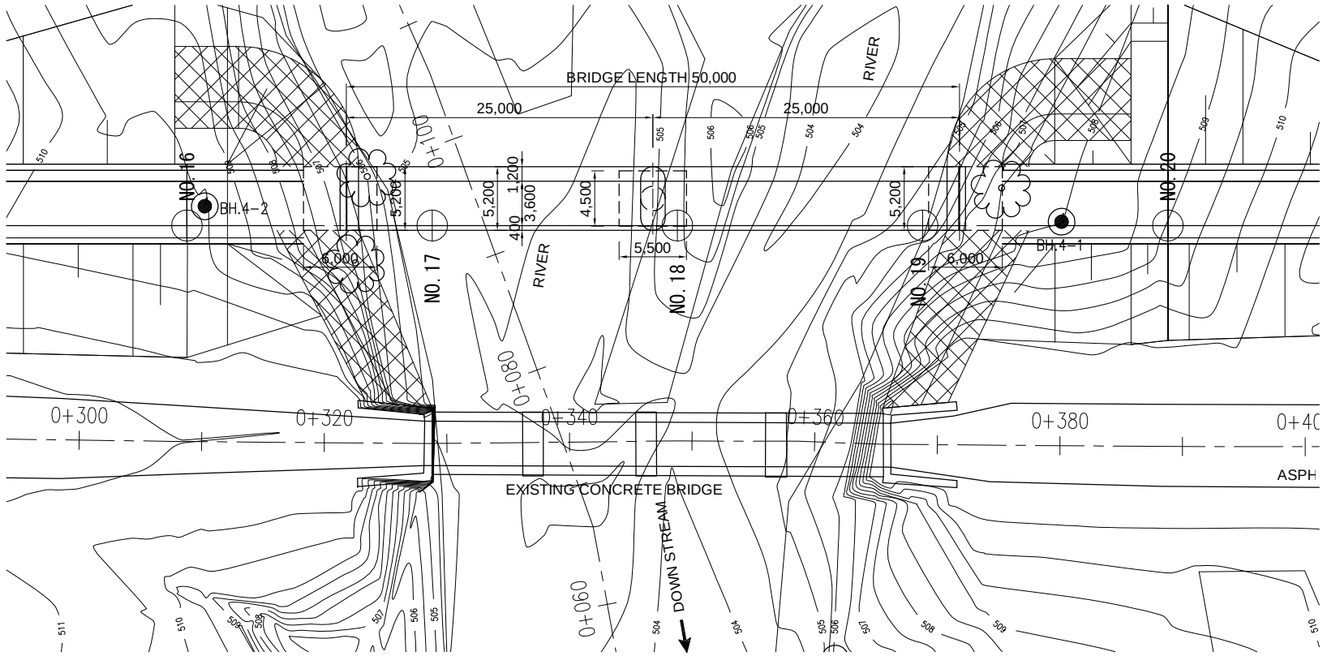
A1(A2) ABUTMENT
S=1:200



P1 PIER
S=1:200

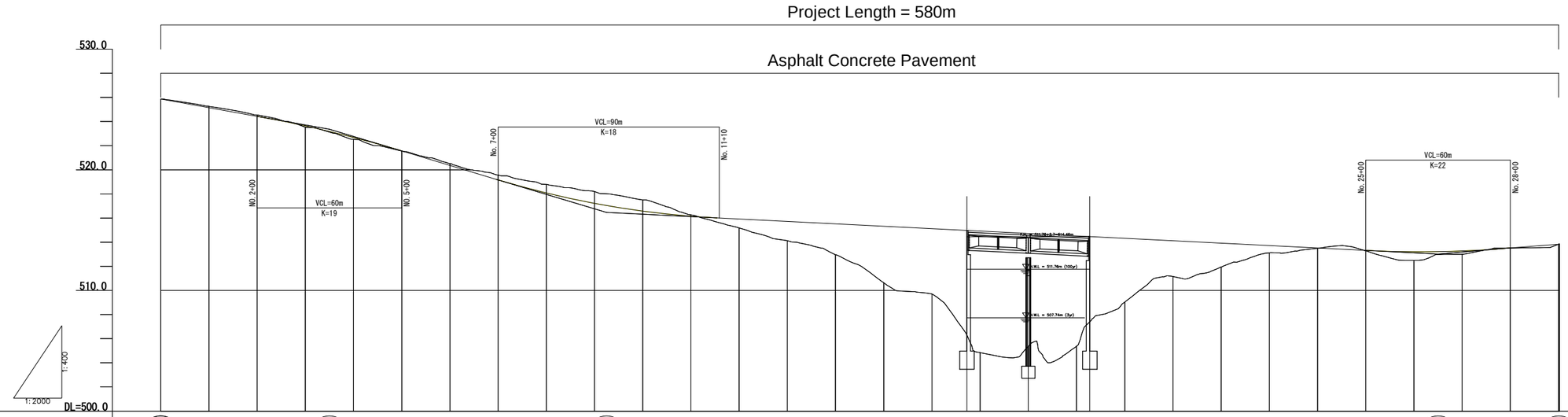


PLAN
S=1:500

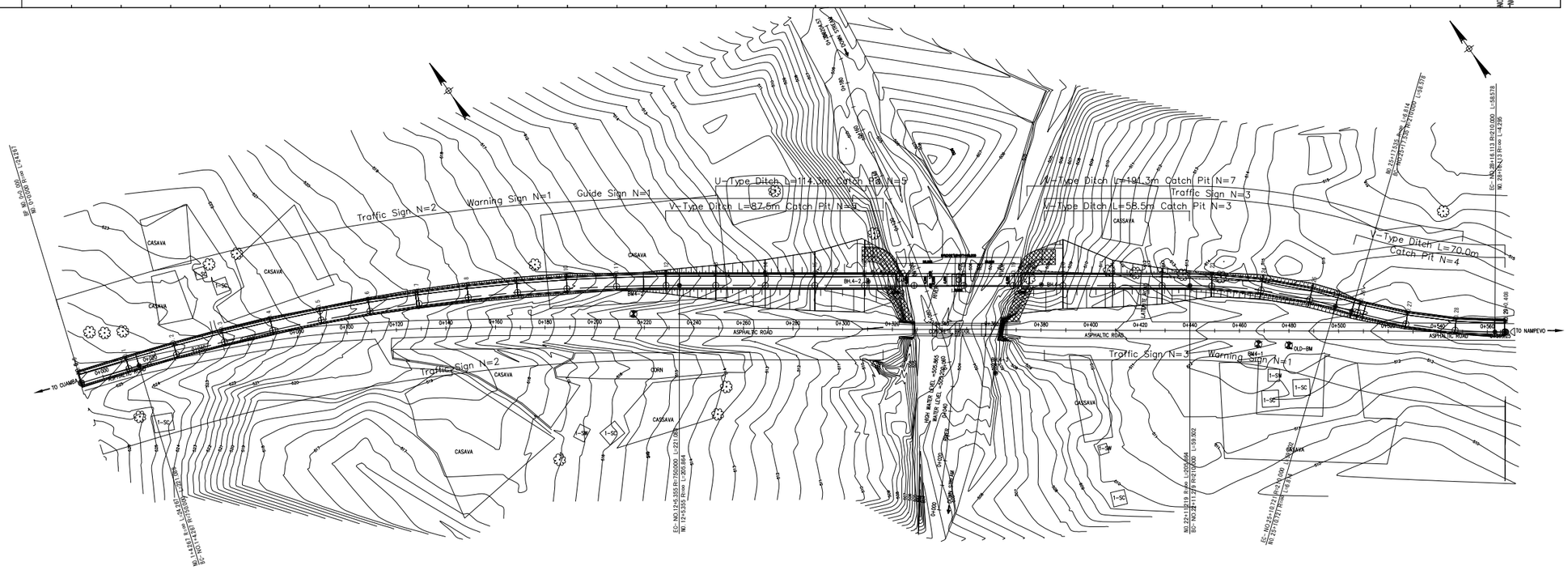


NOTE : The location of Boring hole No. BH4-3 is at 35 m downstream from bridge center line .

NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF LUA	AS SHOWN		



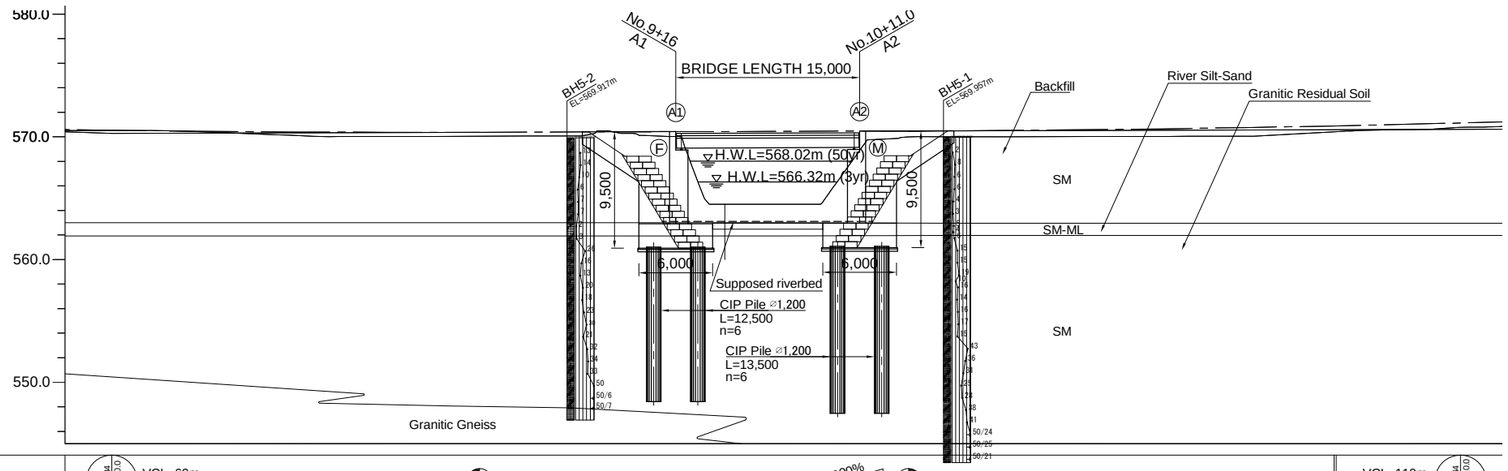
Gradient	525.867	i=-3.574% L=70.000m	523.365	i=-6.000% L=115.000m	516.465	i=-1.000% L=345.000m	513.015	i=1.681% L=50.045m	513.856																							
Proposed Height	525.867	525.152	524.437	523.641	522.684	521.565	520.365	519.165	518.084	517.221	516.575	516.147	515.915	515.715	515.515	515.315	515.115	514.915	514.715	514.515	514.315	514.115	513.915	513.715	513.515	513.315	513.204	513.273	513.519	513.790	513.856	
Ground Height	525.867	525.266	524.541	523.533	522.530	521.550	520.505	519.561	518.787	518.201	517.507	516.264	515.177	514.125	512.968	510.624	509.702	504.838	505.373	505.382	509.031	511.161	511.941	513.111	513.484	513.276	512.489	513.001	513.514	513.560	513.856	
Cut	0.000	0.114	0.104				0.140	0.396	0.703	0.980	0.932	0.117																				
Embankment	0.000			0.108	0.155	0.015							0.738	1.590	2.547	4.681	5.413	10.077	9.342	9.133	5.284	2.954	1.974	0.604	0.031	0.039	0.716	0.271	0.005	0.230	0.030	
Chainage	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20	NO.21	NO.22	NO.23	NO.24	NO.25	NO.26	NO.27	NO.28	NO.28+16.113	NO.29+0.408	



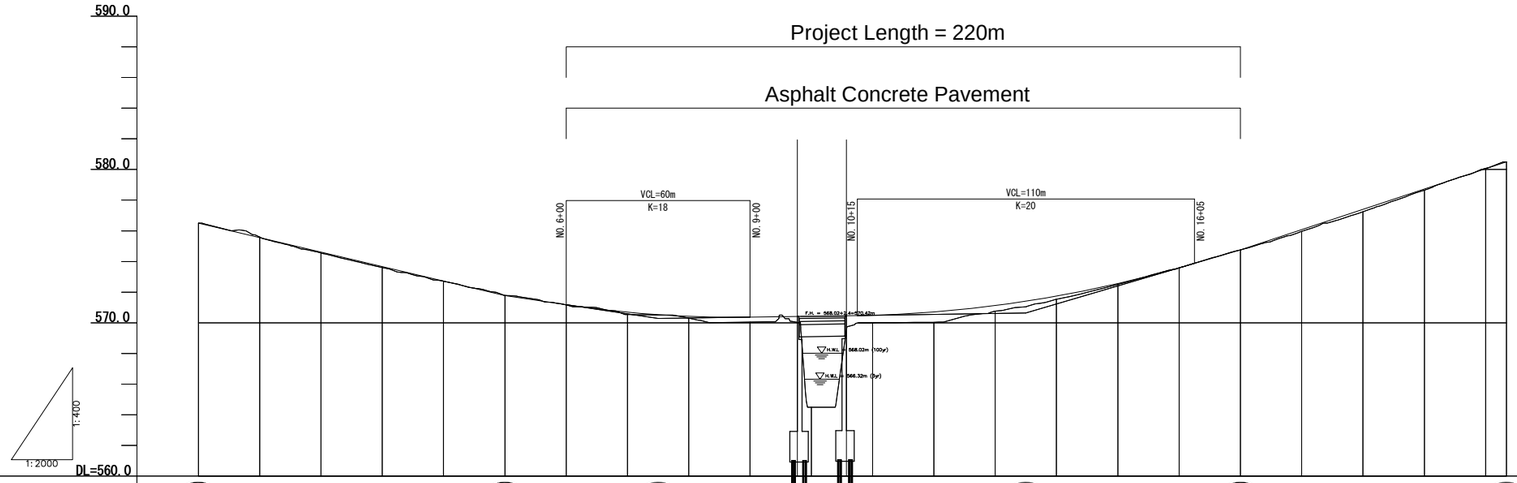
NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.4 (Lua)			

GENERAL VIEW OF UALASSE

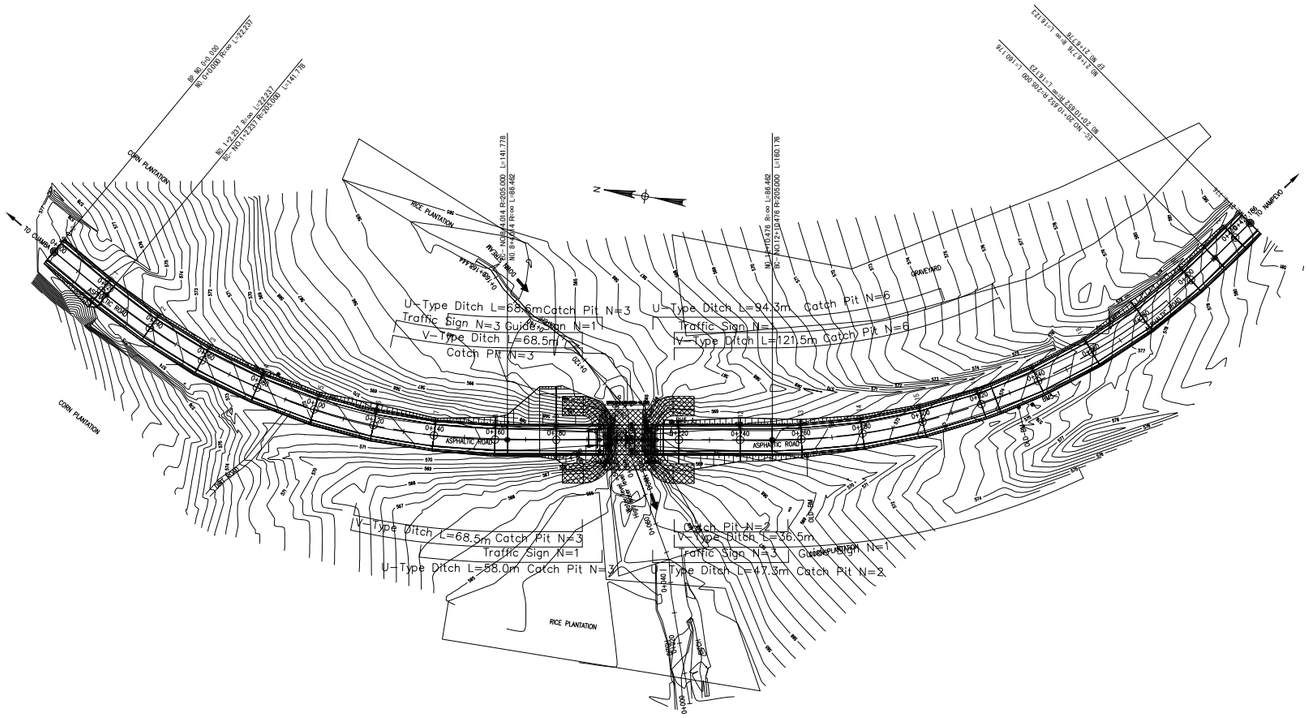
ELEVATION
S=1:500



| | | |



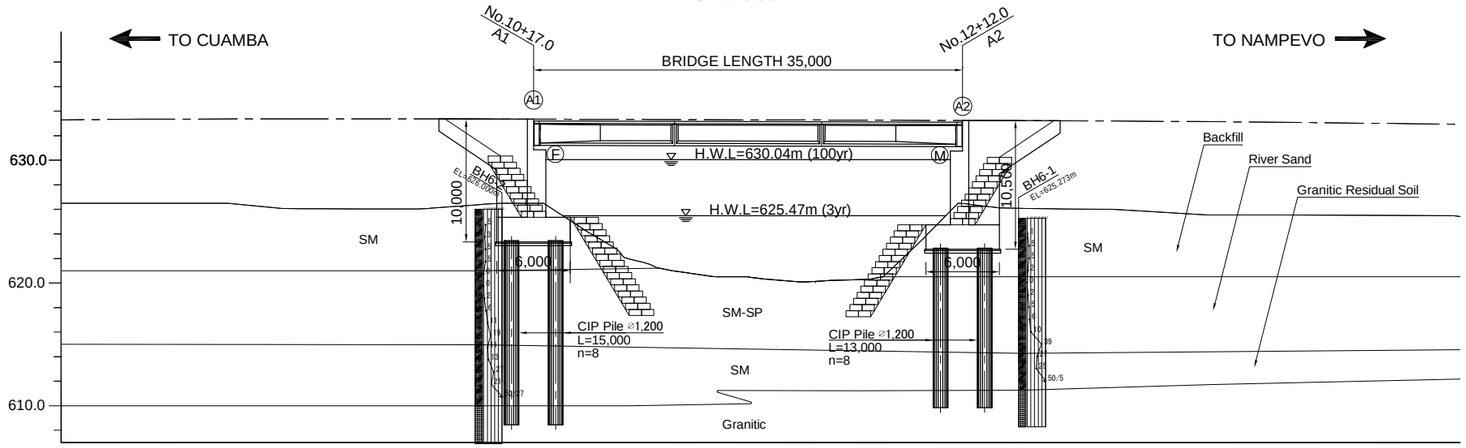
Gradient	576.500	i=-4.716% L=100.000m	571.784	i=-3.001% L=50.000m	570.284	i=0.[illegible]% L=[illegible]00m	570.644	i=5.875% L=70.000m	574.756	i=6.619% L=86.776m	580.500										
Proposed Height	576.500	575.557	574.614	573.670	572.727	571.784	571.184	570.694	570.424	570.374	570.434	570.500	570.712	571.127	571.744	572.564	573.587	574.756	576.080	577.404	578.728	579.433	580.052
Ground Height	576.502	575.595	574.557	573.608	572.712	571.784	571.159	570.534	570.308	570.052	564.498	570.005	570.038	570.767	571.531	572.509	573.581	574.756	575.965	577.248	578.658	579.435	580.072
Cut	0.002	0.038				0.000												0.000				0.002	0.020
Embankment			0.057	0.062	0.015	0.000	0.025	0.160	0.116	0.322	5.936	0.495	0.673	0.359	0.213	0.056	0.007	0.000	0.115	0.156	0.069		
Chainage	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20		NO.21



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.5 (Ualasse)			

GENERAL VIEW OF LICUNGO

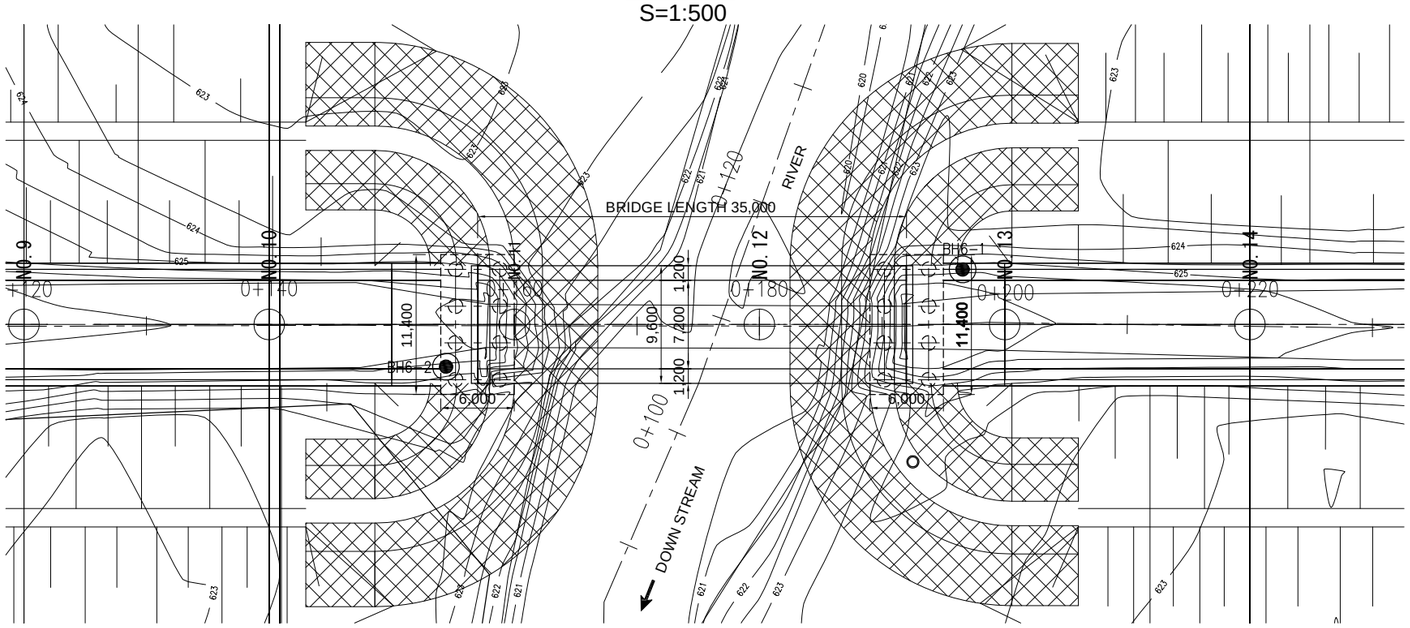
ELEVATION
S=1:500



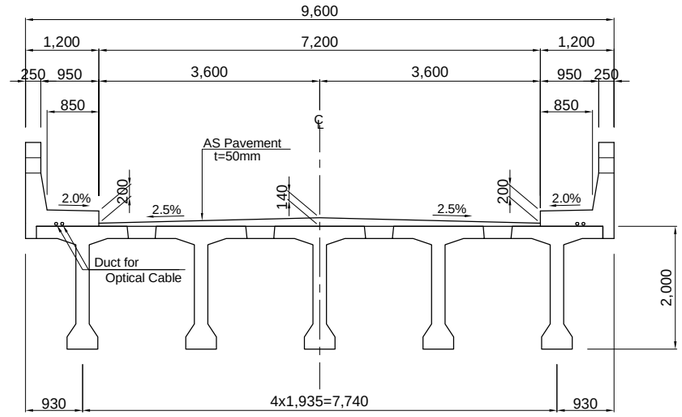
GRANDIENT	633.518 No.9+0.0	VCL=100m K=30																					VCL=90m K=37	633.097 No.15+0.0
PROPOSED HEIGHT	633.310			633.381				633.347	633.338				633.278			633.242		633.214					633.074	
GRAND LEVEL	626.500			626.052				626.500	625.077				620.133			626.472		626.034					625.531	
DISTANCE	20.000			20.000				17.000	3.000				20.000			A2 12.000		8.000					20.000	
CHAINAGE	No.9			No.10				A1 No.10+17.0	No.11				No.12			No.12+12.0		No.13					No.14	

i=-0.300%
L=140.000m

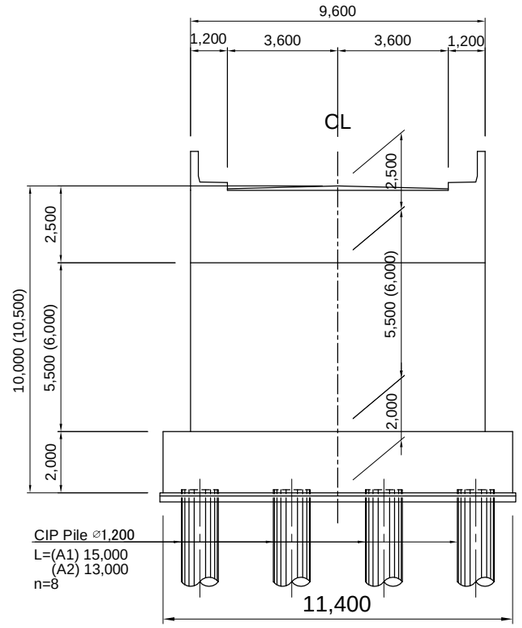
PLAN
S=1:500



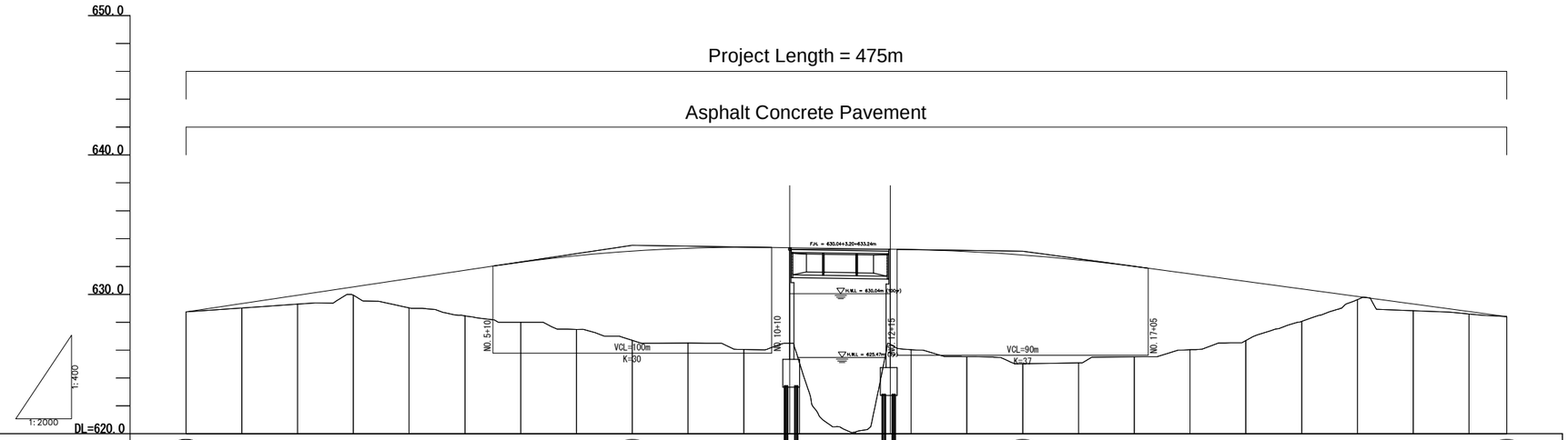
GIRDER SECTION
S=1:100



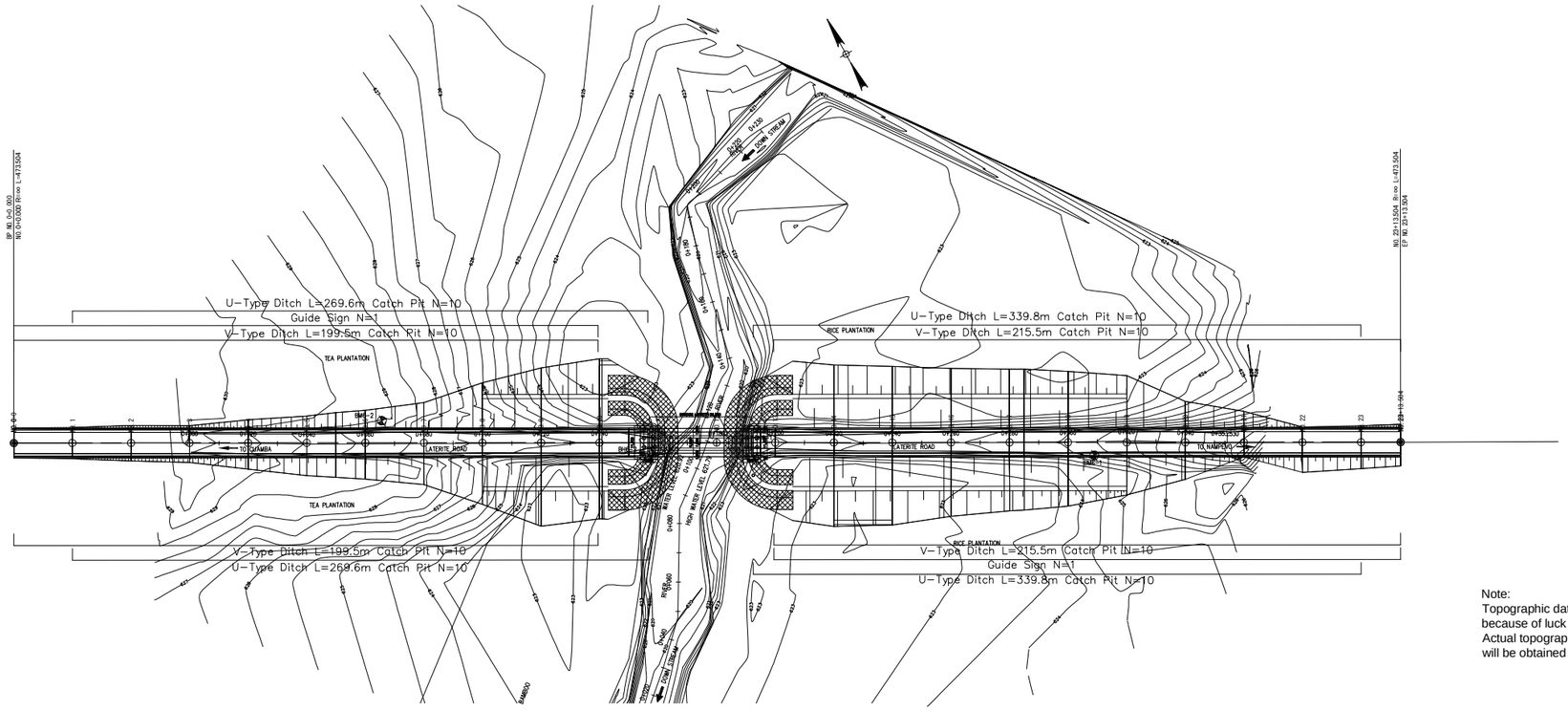
A1(A2) ABUTMENT
S=1:200



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF LICUNGO	AS SHOWN		



Gradient	628.743	i=2.984% L=160.000m							633.518				i=-0.000% L=140.000m				633.097				i=-2.709% L=173.504m			628.398
Proposed Height	628.743	629.339	629.936	630.533	631.130	631.727	632.307	632.773	633.107	633.310	633.381	633.338	633.278	633.214	633.074	632.827	632.472	632.011	631.472	630.930	630.389	629.847	629.305	628.763	628.398
Ground Height	628.743	629.023	629.304	629.940	629.033	628.466	627.997	627.499	626.710	626.500	626.052	625.077	620.133	626.034	625.531	625.022	625.084	625.519	626.022	626.693	628.056	629.621	628.832	628.590	628.398
Cut	0.000																								0.000
Embankment	0.000	0.316	0.633	0.593	2.097	3.261	4.310	5.274	6.397	6.809	7.329	8.260	13.144	7.180	7.543	7.805	7.388	6.492	5.450	4.237	2.333	0.226	0.473	0.173	0.000
Chainage	NO.0+0.000	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20	NO.21	NO.22	NO.23	NO.23+13.504

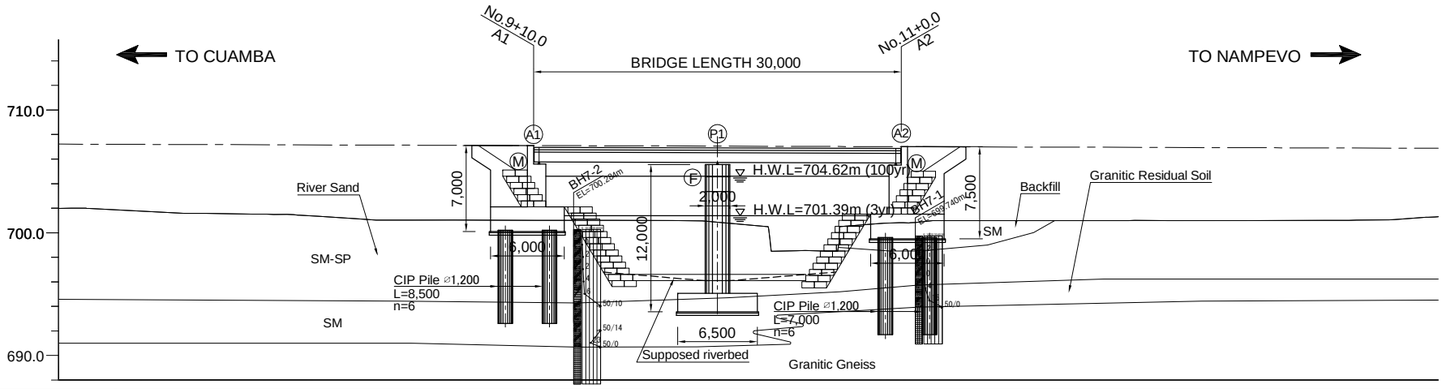


Note:
Topographic data before No.3 and after No.21 is assumed because of luck of topographic survey.
Actual topographic data of these assumed sections will be obtained at detail design stage.

NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.6 (Licungo)			

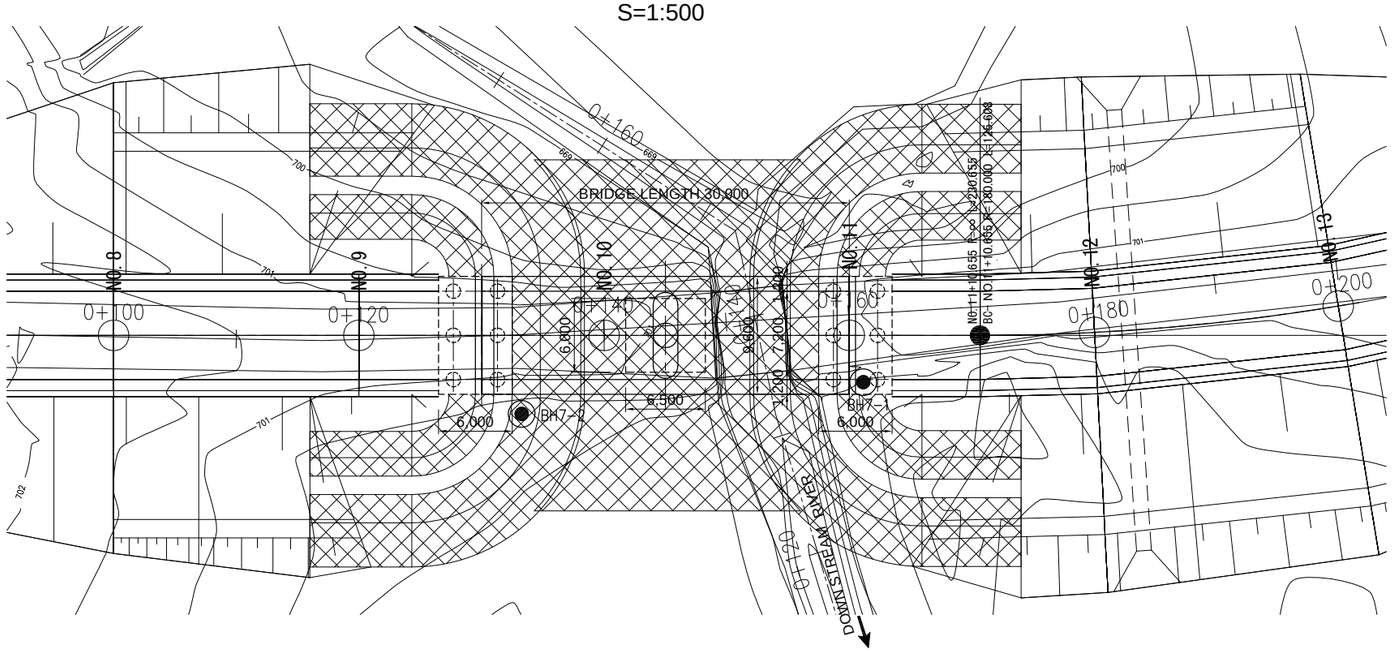
GENERAL VIEW OF NIVAGO

ELEVATION
S=1:500

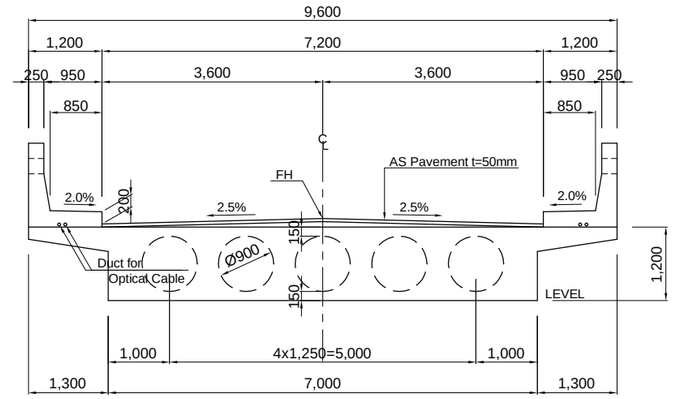


GRANDIENT	707.441 No.4+0.0	VCL=50m K=21				i=-0.300% L=250.000m					VCL=50m K=24	706.692 No.16+10.0
PROPOSED HEIGHT	707.201	707.141	707.112	707.081	707.067	707.022	706.990	706.961	706.901			
GRAND LEVEL	701.670	701.038	701.023	701.006	700.871	700.823	701.004	701.004	701.065			
DISTANCE	20.000	20.000	10.000	10.000	5.000	15.000	10.655	9.345	20.000			
CHAINAGE	No.8	No.9	A1 No.9+10.0	No.10	P1 No.10+5.0	A2 No.11	No.11+10.655	NO.12	NO.13			

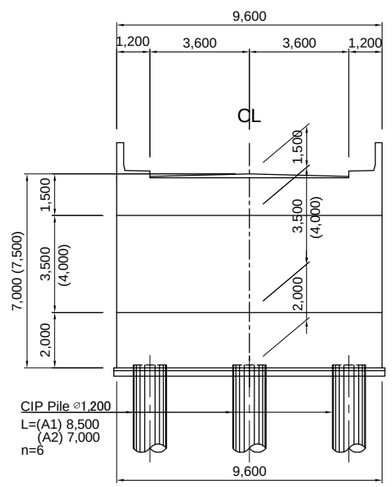
PLAN
S=1:500



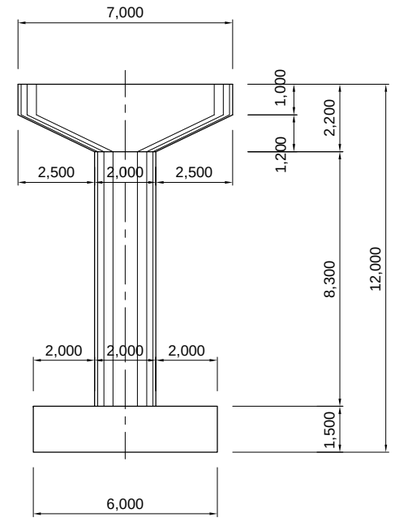
GIRDER SECTION
S=1:100



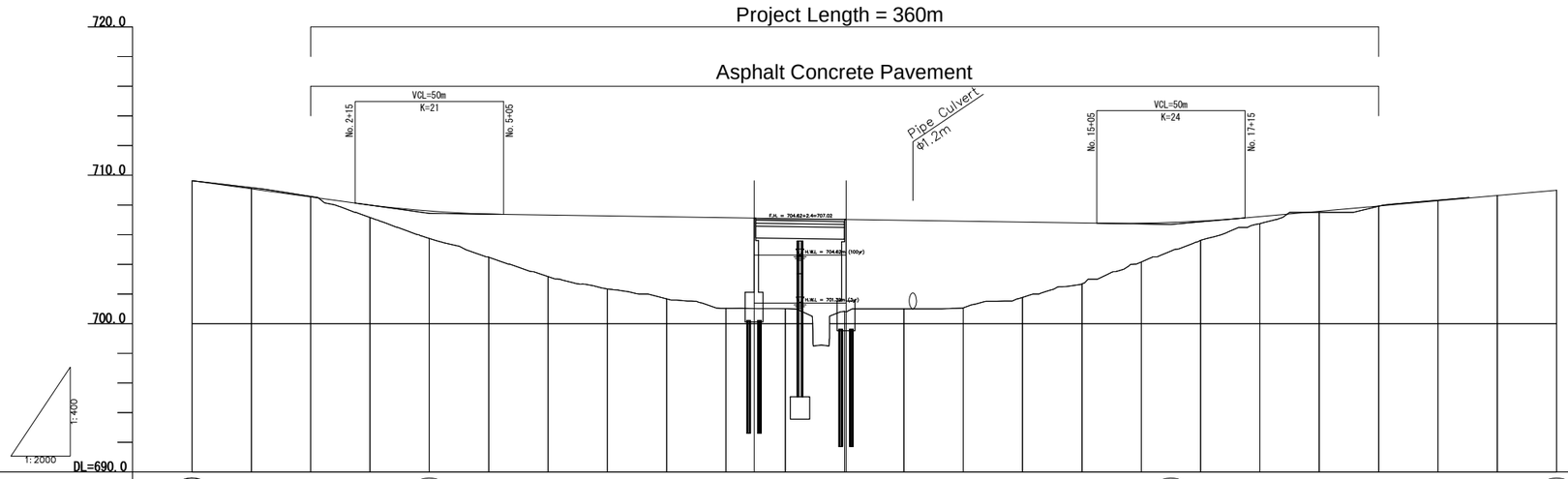
A1(A2) ABUTMENT
S=1:200



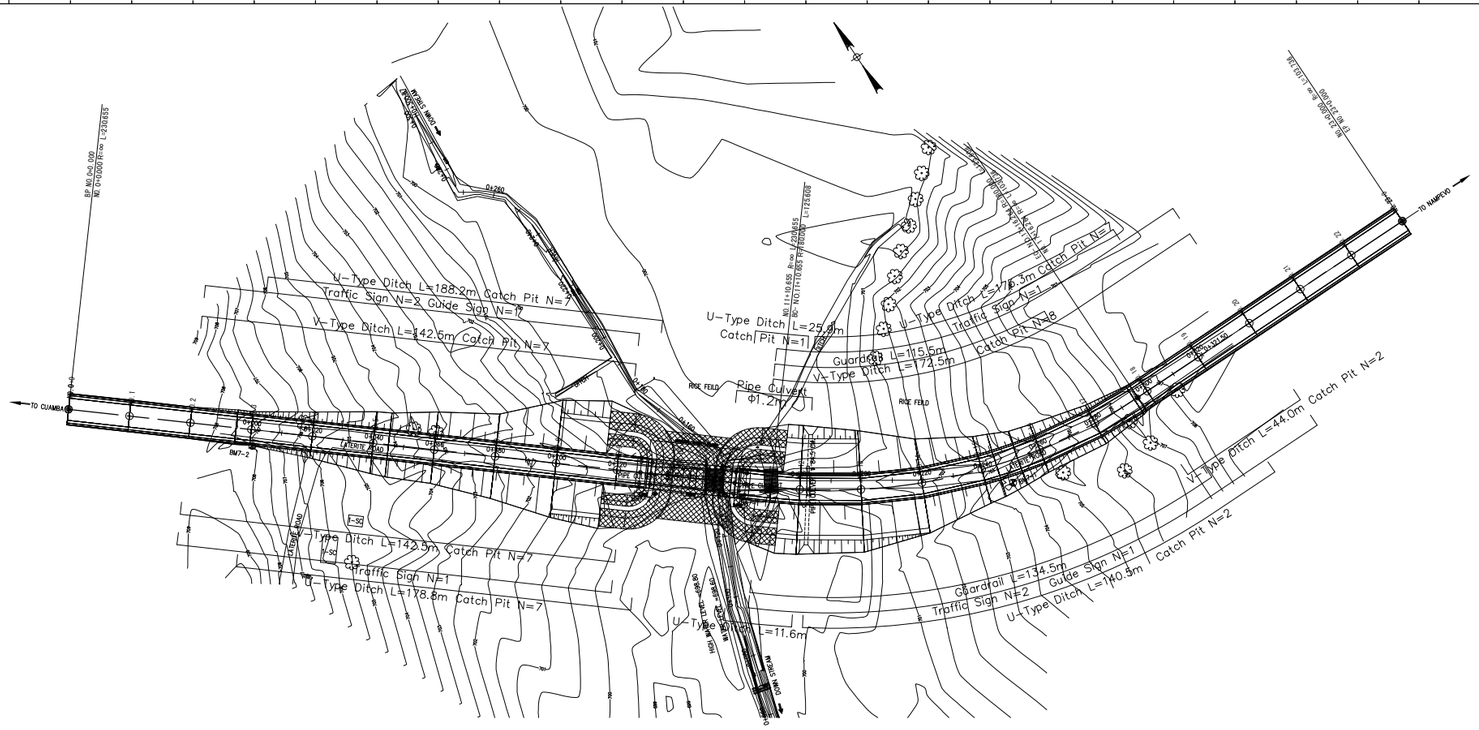
P1 PIER
S=1:200



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF NIVAGO	AS SHOWN		



Gradient	709.630	i=-2.736% L=80.000m	707.441	i=-0.300% L=250.000m	706.692	i=1.763% L=130.000m	708.983																
Proposed Height	709.630	709.083	708.536	707.995	707.594	707.388	707.321	707.261	707.201	707.141	707.081	707.021	706.961	706.901	706.842	706.782	706.768	706.914	707.220	707.573	707.926	708.278	708.631	708.983
Ground Height	709.630	709.167	708.576	707.161	705.744	704.483	703.174	702.345	701.670	701.038	701.006	700.823	701.004	701.065	701.773	702.681	704.156	705.621	706.744	707.498	707.919	708.319	708.655	708.983
Cut	0.000	0.083	0.040																			0.040	0.025	0.000
Embankment	0.000			0.833	1.850	2.905	4.148	4.916	5.532	6.104	6.075	6.198	5.957	5.836	5.069	4.100	2.612	1.293	0.476	0.075	0.006			0.000
Chainage	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20	NO.21	NO.22	NO.23



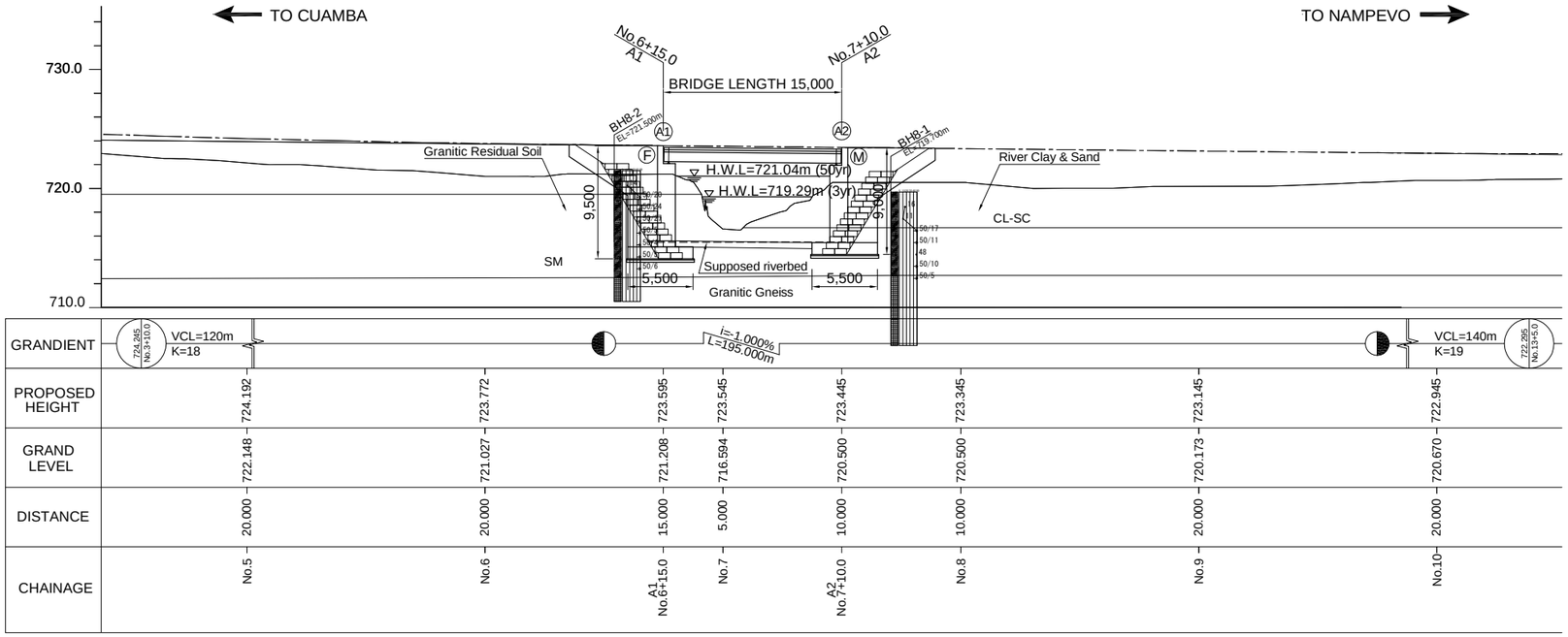
Note:
Topographic data before No.3 and after No.19 is assumed because of luck of topographic survey.
Actual topographic data of these assumed sections will be obtained at detail design stage.

NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.7 (Nivaco)			

GENERAL VIEW OF MATSITSE

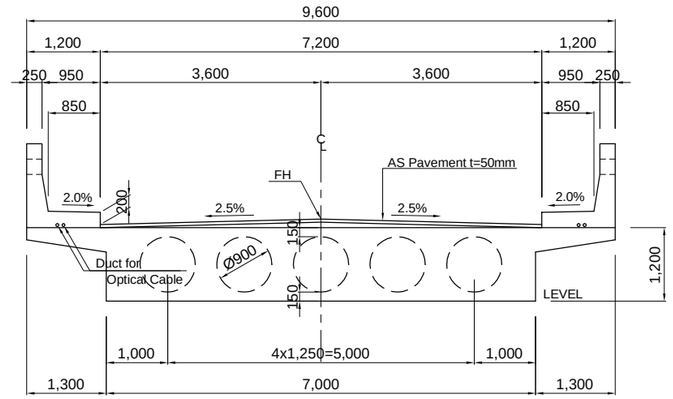
ELEVATION

S=1:500



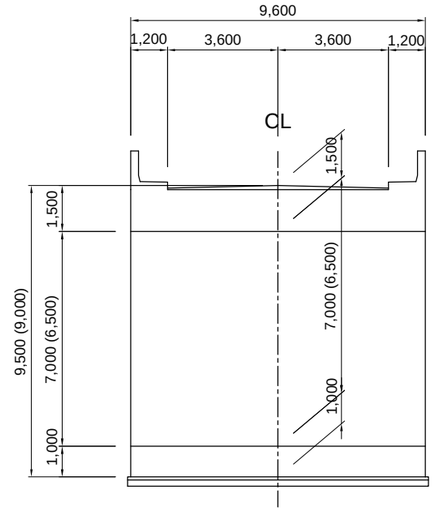
GIRDER SECTION

S=1:100



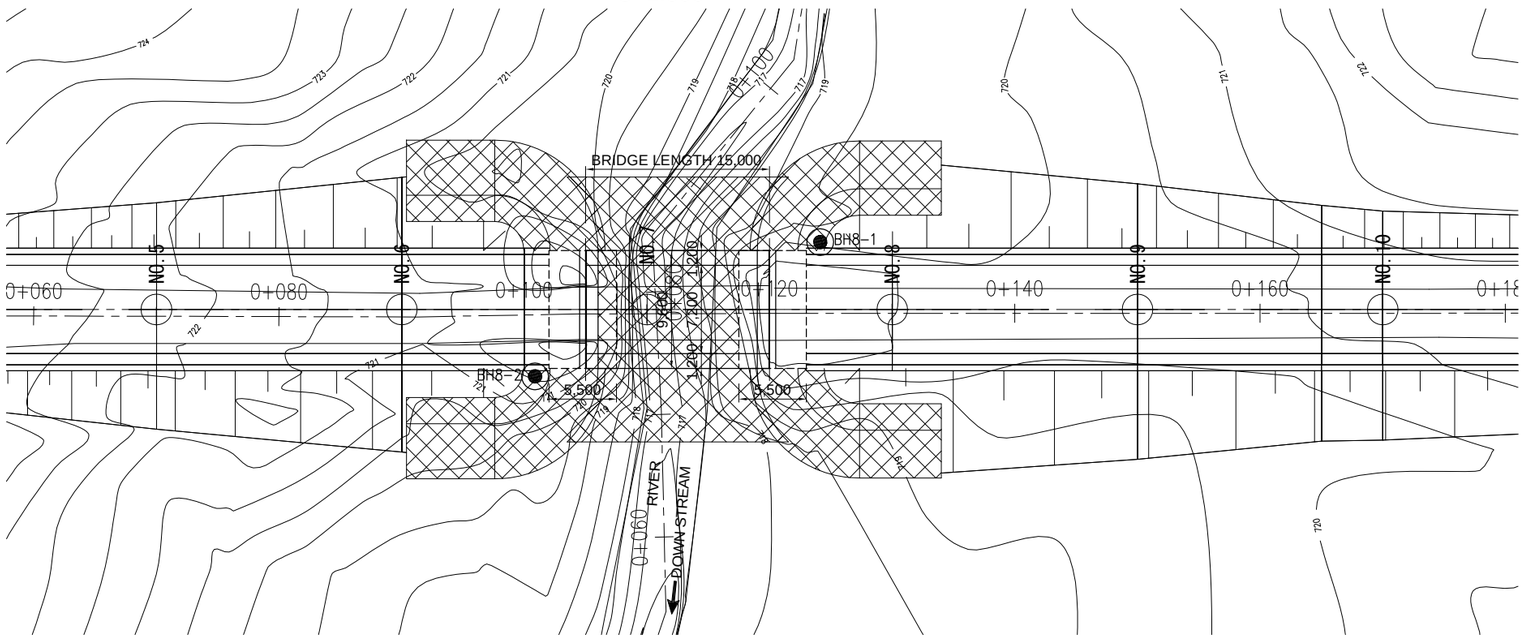
A1(A2) ABUTMENT

S=1:200

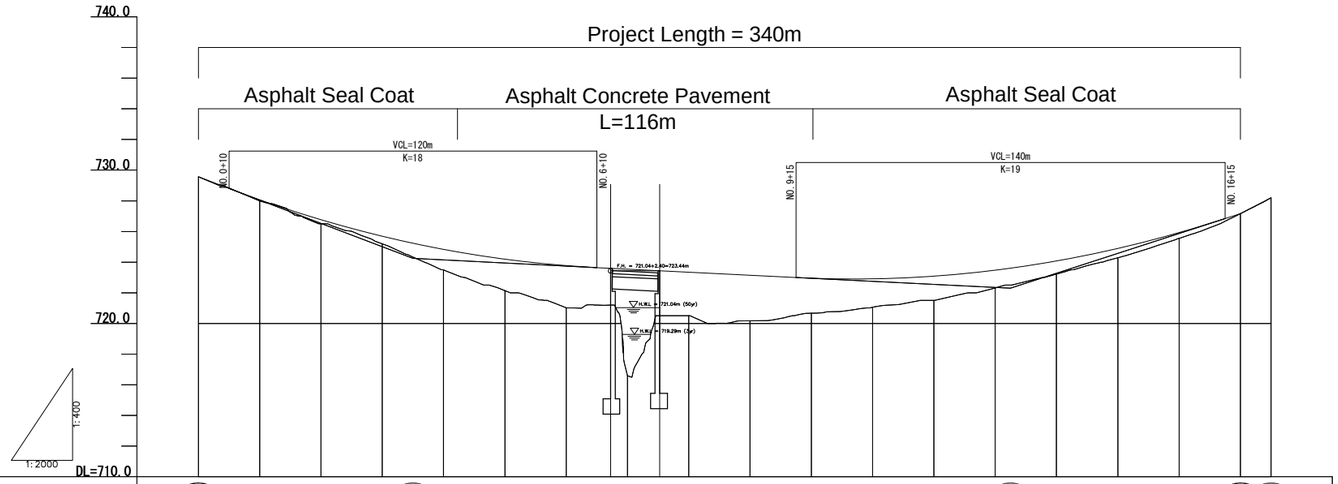


PLAN

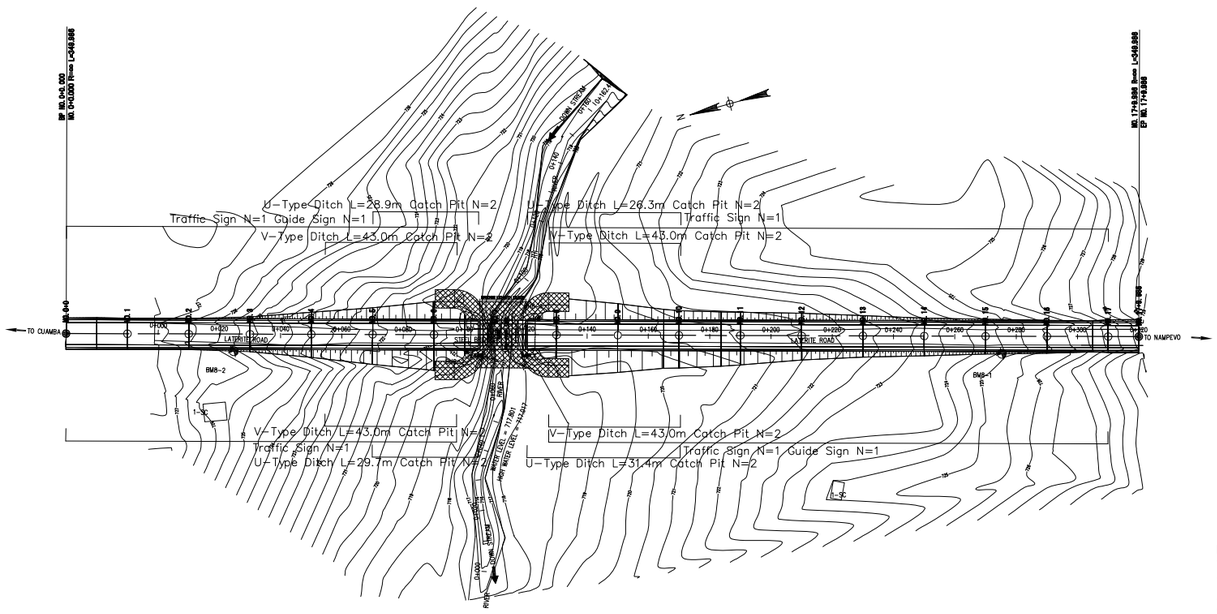
S=1:500



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF MATSITSE	AS SHOWN		



Gradient	729.560	i=-7.593% L=70.000m	724.245	i=-1.000% L=195.000m	722.295	i=6.499% L=75.000m	727.169	i=9.296% L=20.000m	728.196									
Proposed Height	729.560	728.069	726.770	725.691	724.832	724.192	723.772	723.545	723.345	723.145	722.952	722.912	723.087	723.477	724.080	724.898	725.930	727.169	728.196
Ground Height	729.560	728.001	726.506	725.198	723.493	722.148	721.027	716.594	720.500	720.173	720.670	721.052	721.502	722.321	723.228	724.285	725.553	727.169	728.196
Cut	0.000																	0.000	0.000
Embankment	0.000	0.068	0.265	0.493	1.339	2.044	2.746	6.951	2.845	2.972	2.282	1.860	1.585	1.155	0.852	0.613	0.376	0.000	0.000
Chainage	NO.0+0.000	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.17+0.986

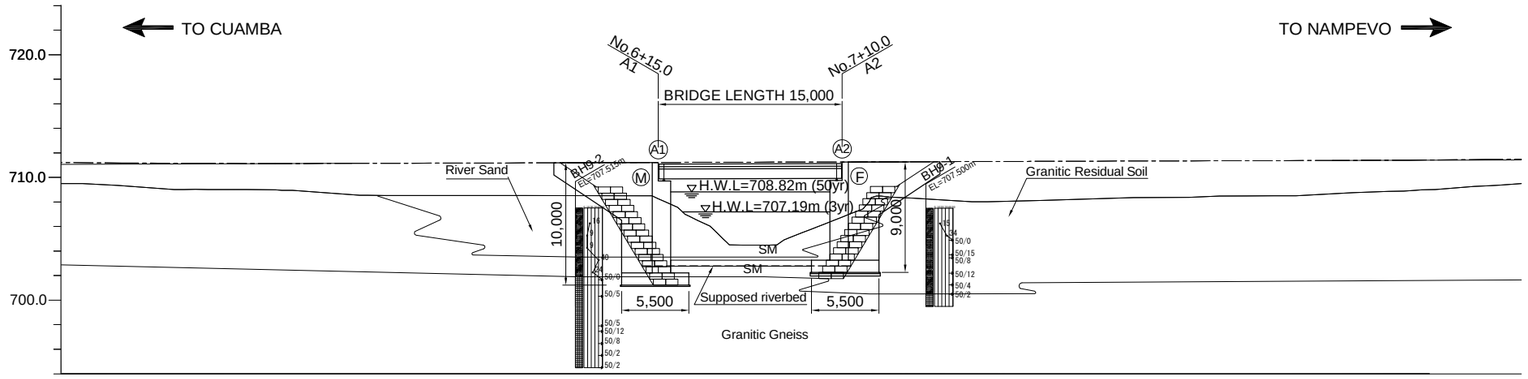


Note:
Topographic data before No.2 is assumed because of luck of topographic survey.
Actual topographic data of these assumed sections will be obtained at detail design stage.

NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.8 (Matsitse)			

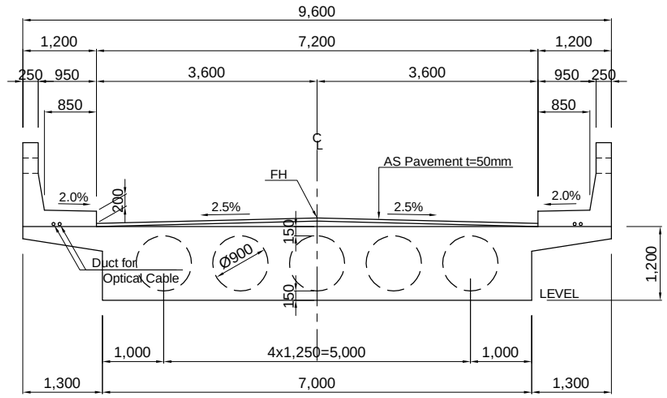
GENERAL VIEW OF NAMISAGUA

ELEVATION
S=1:500

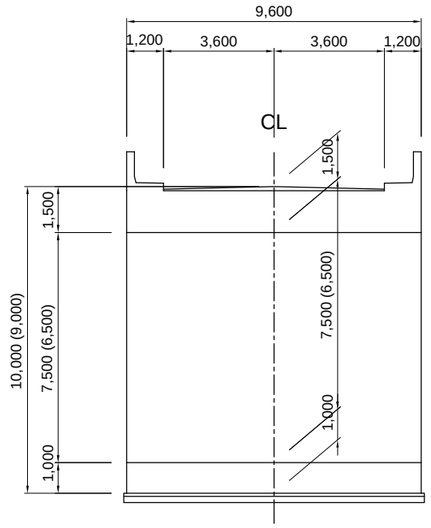


GRANDIENT	710.996 No.3+0.0	VCL=100m K=19					i=0.300% L=180.000m				VCL=100m K=20	711.587 No.12+0.0
PROPOSED HEIGHT		711.143		711.176		711.222	711.236	711.267	711.296		711.356	711.441
GRAND LEVEL		709.017		708.534		708.272	705.278	706.777	708.060		708.457	709.142
DISTANCE		20.000		20.000		15.000	5.000	10.000	10.000		20.000	20.000
CHAINAGE		No.5		No.6		A1 No.6+15.0	No.7	A2 No.7+10.0	No.8		No.9	NO.10

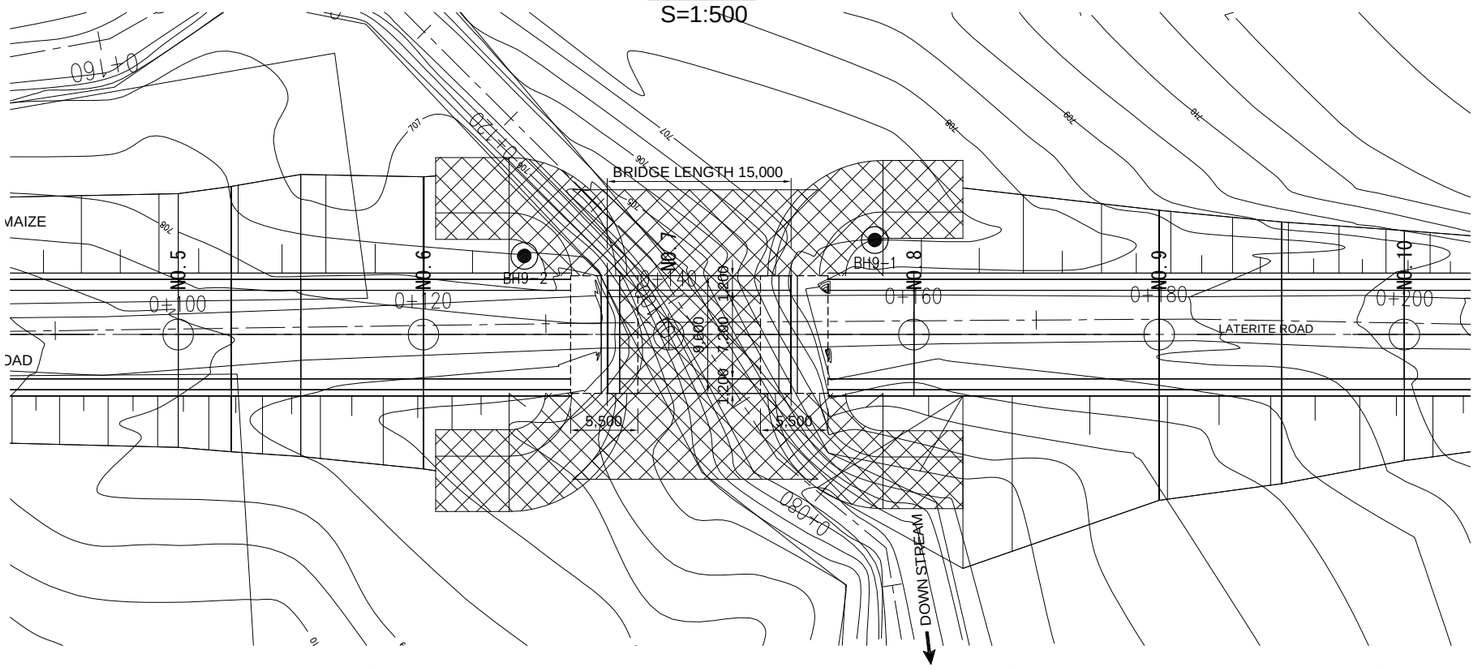
GIRDER SECTION
S=1:100



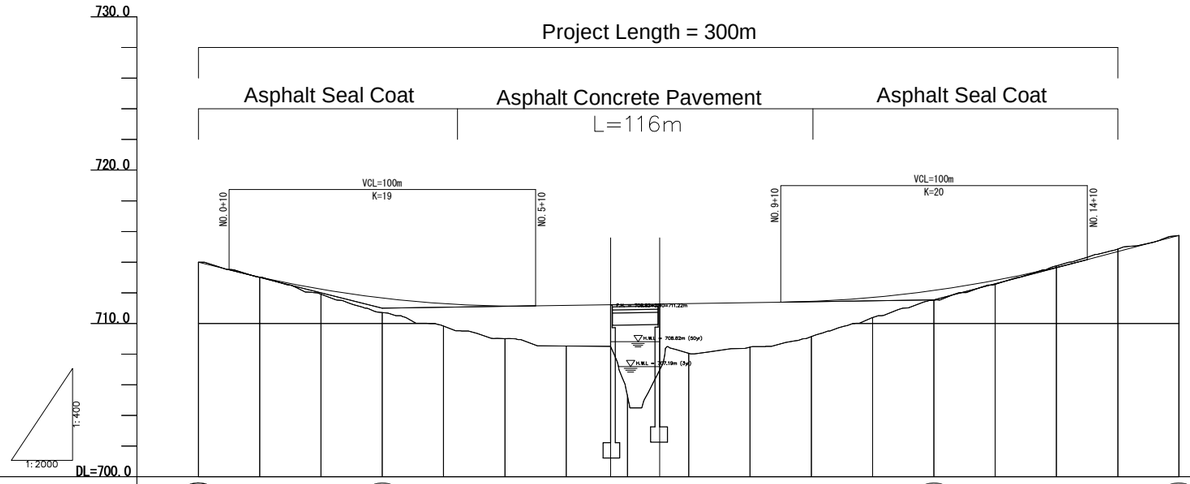
A1(A2) ABUTMENT
S=1:200



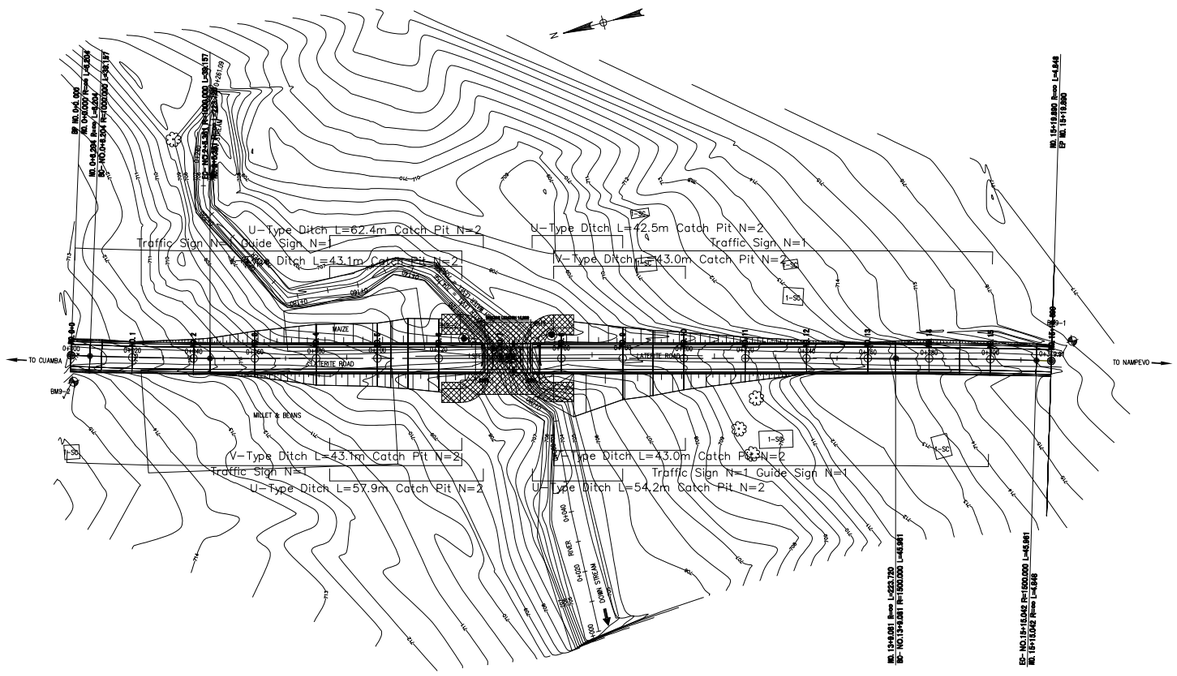
PLAN
S=1:500



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF NAMISAGUA	AS SHOWN		



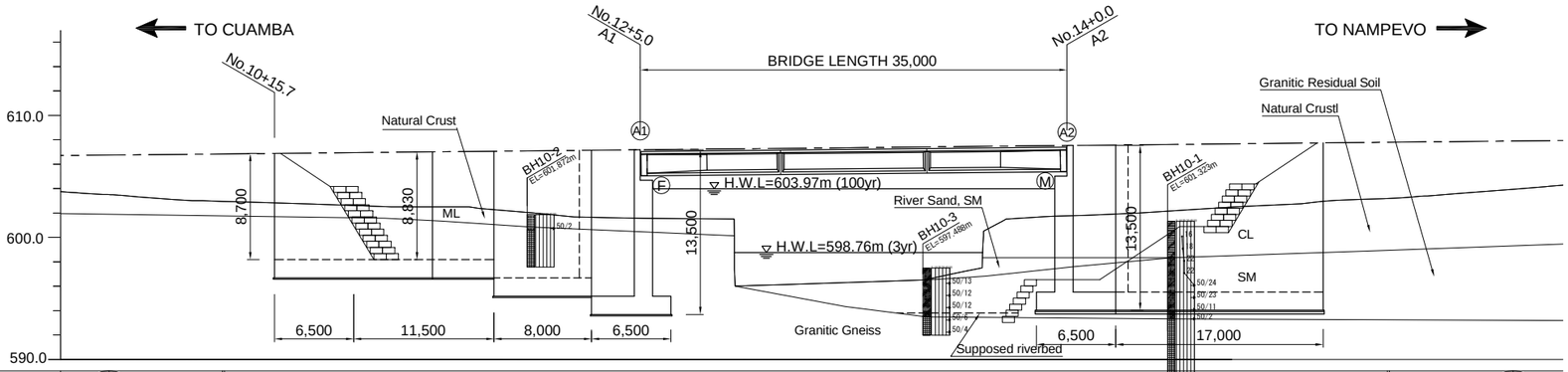
Gradient	714.000	i=-5.006% L=60.000m	710.996	i=0.200% L=180.000m	711.537	i=5.264% L=79.846m	715.740									
Proposed Height	714.000	713.025	712.236	711.660	711.295	711.143	711.176	711.236	711.296	711.356	711.441	711.700	712.157	712.813	713.667	714.695
Ground Height	714.000	713.014	711.907	710.710	709.827	709.017	708.534	705.278	708.060	708.457	709.142	710.384	711.519	712.559	713.762	714.857	715.740
Cut	0.000														0.095	0.162
Embankment	0.000	0.011	0.330	0.950	1.468	2.126	2.643	5.959	3.236	2.900	2.299	1.316	0.638	0.254		
Chainage	NO.0+0.000	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.15+19.890



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.9 (Namisagua)			

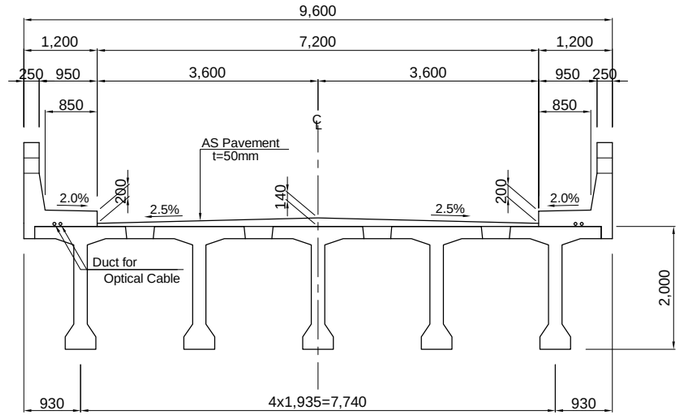
GENERAL VIEW OF NUHUSSE

ELEVATION
S=1:500

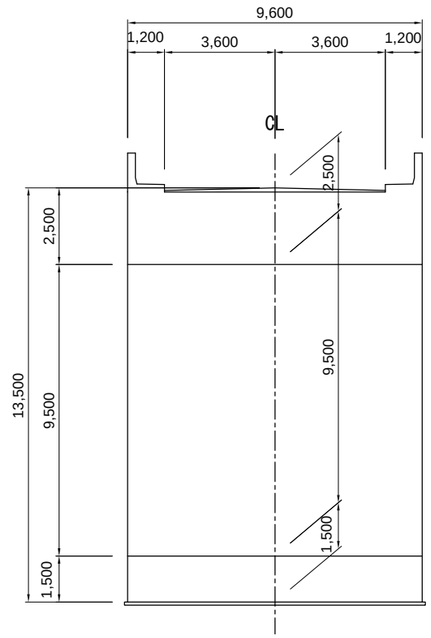


GRANDIENT	606.125 No.7+0.0	VCL=50m K=61						i=1.000% L=290.000m						VCL=50m K=34	609.025 No.21+10.0	
PROPOSED HEIGHT	606.725		606.925		607.012		607.125		607.175		607.325		607.525		607.725	607.925
GRAND LEVEL	603.573		602.662		602.501		601.666		601.569		596.234		601.762		602.838	604.221
DISTANCE	20.000		20.000		8.666		11.334		5.000		15.000		20.000		20.000	20.000
CHAINAGE	NO.10		NO.11		No.11+8.666		No.12		A1 No.12+5.0		No.13		A2 No.14		No.15	No.16

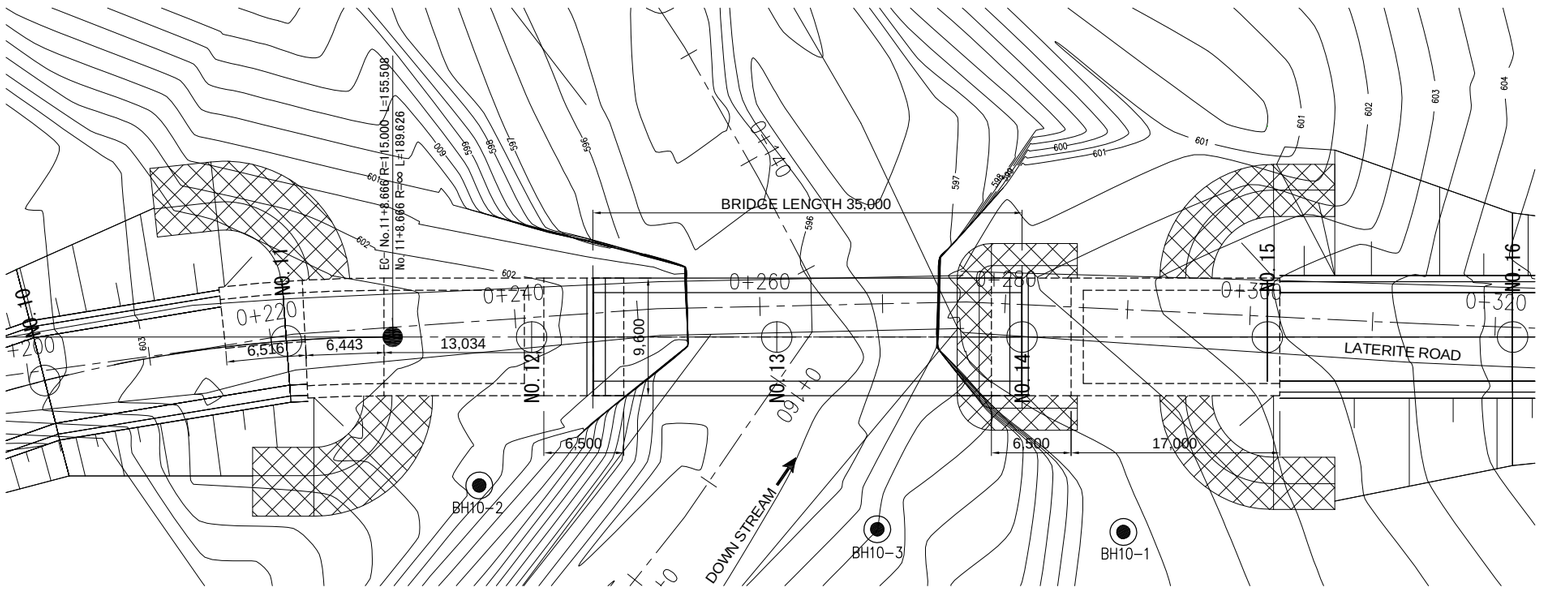
GIRDER SECTION
S=1:100



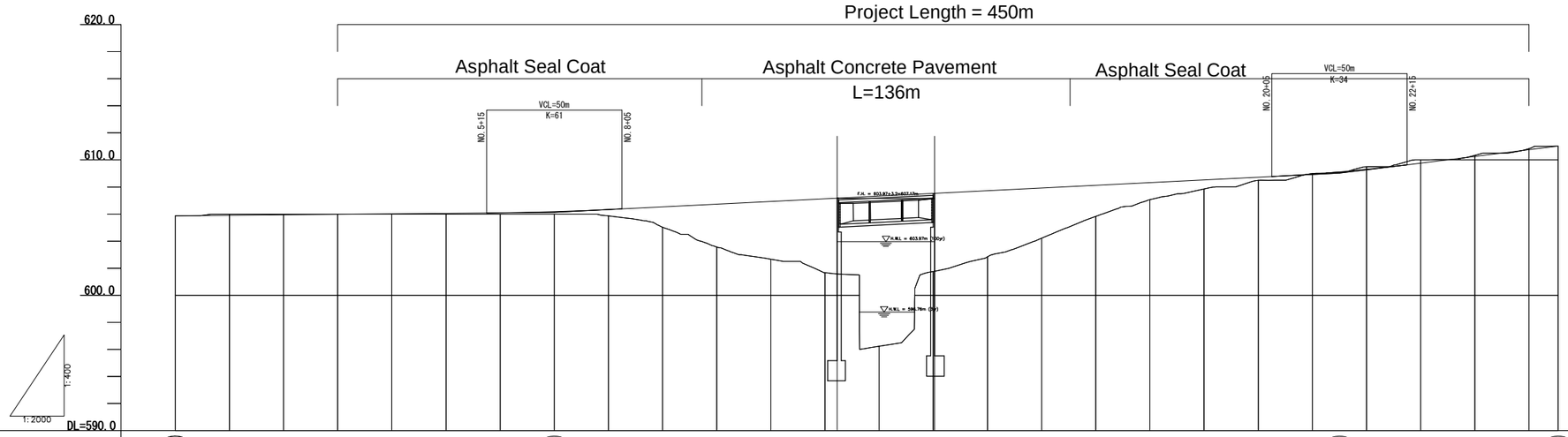
A1,A2 ABUTMENT
S=1:200



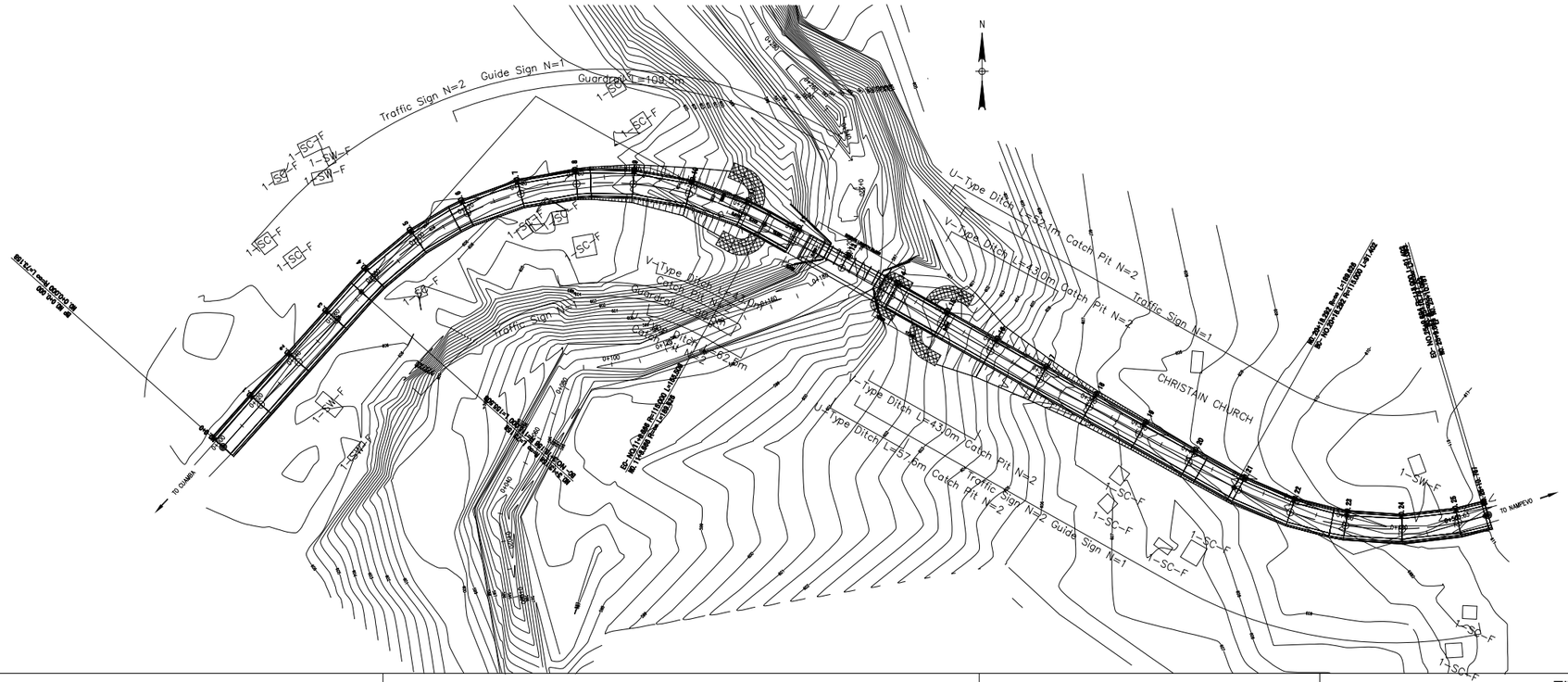
PLAN
S=1:500



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF NUHUSSE	AS SHOWN		



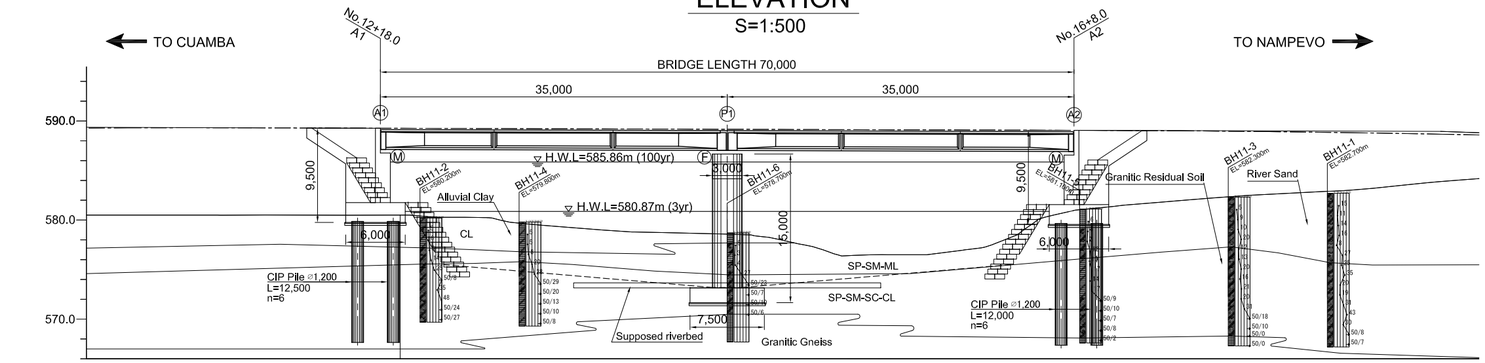
Gradient	605.880	i=0.175% L=140.000m	606.125	i=1.000% L=290.000m	609.025	i=2.466% L=80.787m	611.017																				
Proposed Height	605.880	605.915	605.950	605.985	606.020	606.055	606.092	606.177	606.327	606.525	606.725	606.925	607.125	607.325	607.525	607.725	607.925	608.125	608.325	608.525	608.725	608.958	609.305	609.765	610.258	610.751	611.017
Ground Height	605.880	605.997	605.999	605.999	605.999	606.000	606.000	606.000	605.868	605.024	603.573	602.662	601.666	596.234	601.762	602.838	604.221	605.829	607.066	607.851	608.494	608.996	609.494	610.000	610.341	610.823	611.017
Cut	0.000	0.082	0.049	0.014																		0.038	0.189	0.235	0.083	0.072	0.000
Embankment	0.000				0.021	0.055	0.092	0.177	0.459	1.501	3.152	4.263	5.459	11.091	5.763	4.887	3.704	2.296	1.259	0.674	0.231						0.000
Chainage	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20	NO.21	NO.22	NO.23	NO.24	NO.25	NO.25+10.787



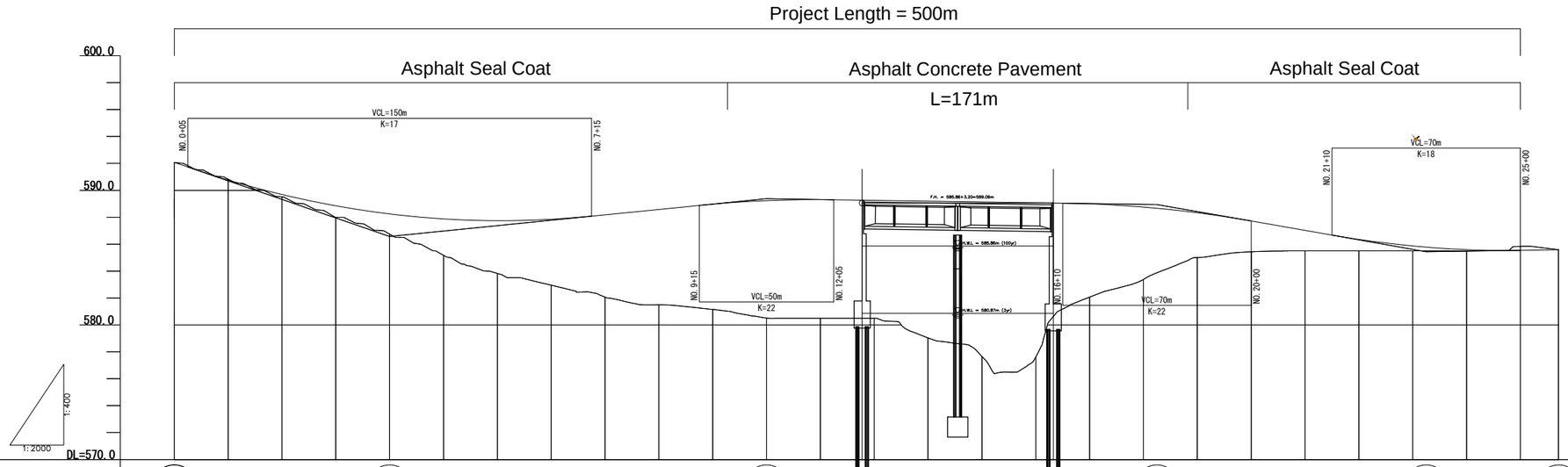
NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.10 (Nuhusse)			

GENERAL VIEW OF LURIO

ELEVATION
S=1:500

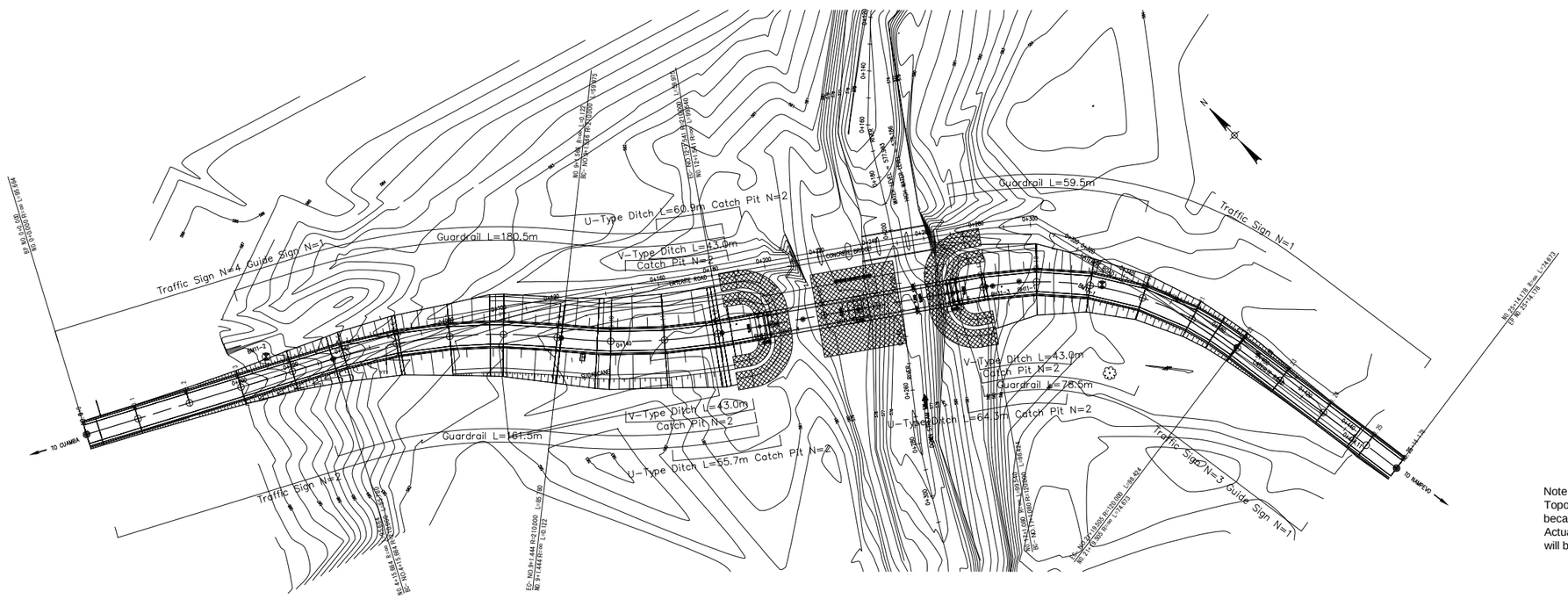


| | | |



Gradient	592.075	i=-6.870% L=80.000m	586.579	i=2.000% L=140.000m	589.379	i=-0.300% L=145.000m	588.945	i=-3.500% L=100.000m	585.445	i=0.289% L=49.178m	585.587

Chainage	Proposed Height	Ground Height	Cut	Embankment
NO.0	592.075	592.075	0.000	0.000
NO.1	590.768	590.826	0.059	
NO.2	589.689	589.516		0.173
NO.3	588.847	588.000		0.847
NO.4	588.242	586.742		1.500
NO.5	587.873	585.173		2.700
NO.6	587.741	583.826		3.915
NO.7	587.846	582.955		4.890
NO.8	588.179	582.063		6.117
NO.9	588.579	581.497		7.082
NO.10	588.973	581.152		7.821
NO.11	589.235	580.508		8.727
NO.12	589.313	580.496		8.817
NO.13	589.259	580.497		8.762
NO.14	589.199	579.029		10.170
NO.15	589.139	577.644		11.495
NO.16	589.079	577.614		11.465
NO.17	588.997	582.065		6.931
NO.18	588.754	583.381		5.373
NO.19	588.328	585.012		3.316
NO.20	587.720	585.424		2.295
NO.21	587.020	585.500		1.520
NO.22	586.347	585.500		0.847
NO.23	585.863	585.500		0.363
NO.24	585.596	585.500		0.096
NO.25	585.546	585.835	0.289	
NO.25+14.178	585.587	585.587	0.000	0.000

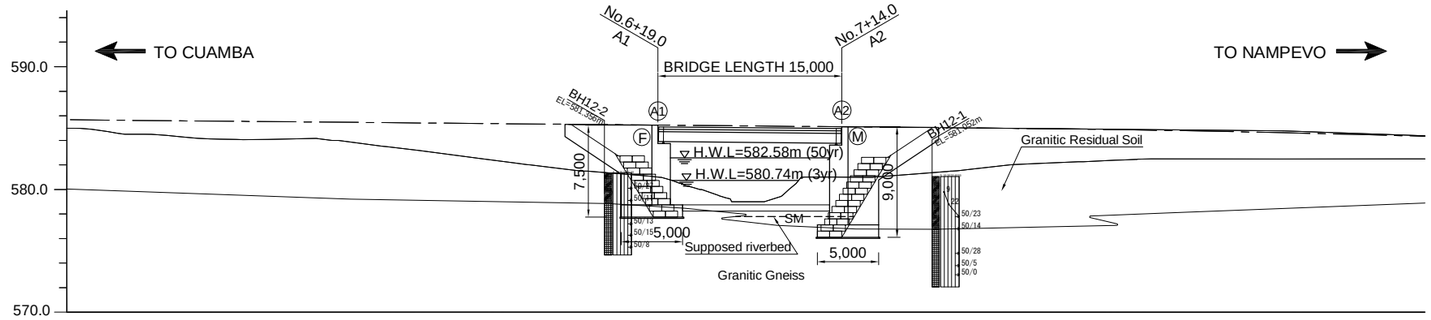


Note:
Topographic data before No.3 and after No.24 is assumed because of luck of topographic survey.
Actual topographic data of these assumed sections will be obtained at detail design stage.

NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.11 (Lurio)			

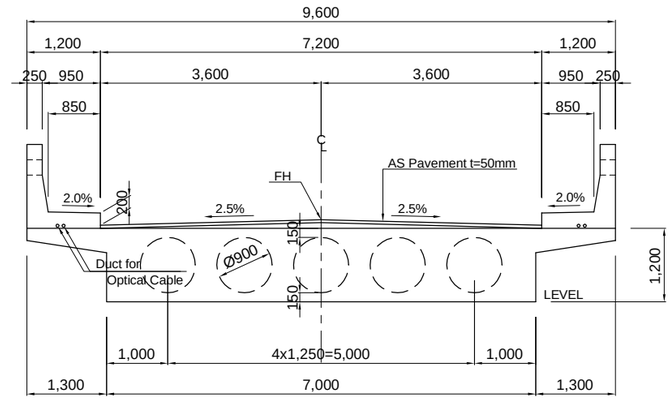
GENERAL VIEW OF MUASSI

ELEVATION
S=1:500

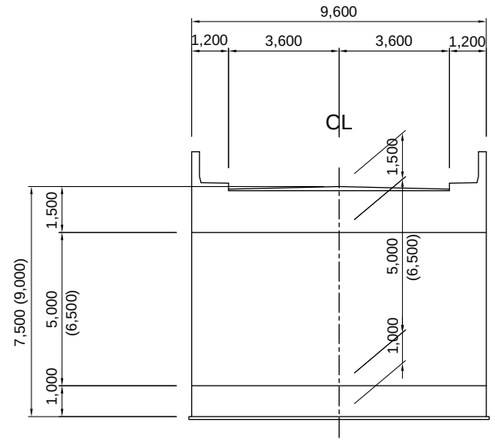


GRANDIENT	i=-0.900% L=190.000m																VCL=50m K=19	584.790 No.9+10.0
PROPOSED HEIGHT	585.600		585.535		585.420			585.249 585.240		585.114		585.060	585.021		584.821			584.381
GRAND LEVEL	584.307		584.082		583.105			581.018 580.788		581.011		581.268	581.625		582.499			582.497
DISTANCE	20.000		7.217		12.783			19.000 1.000		14.000		6.000	4.310		15.690			20.000
CHAINAGE	No.5		No.5+7.217		No.6			A1 No.6+19.0 No.7		A2 No.7+14.0		No.8	No.8+4.310		No.9			NO.10

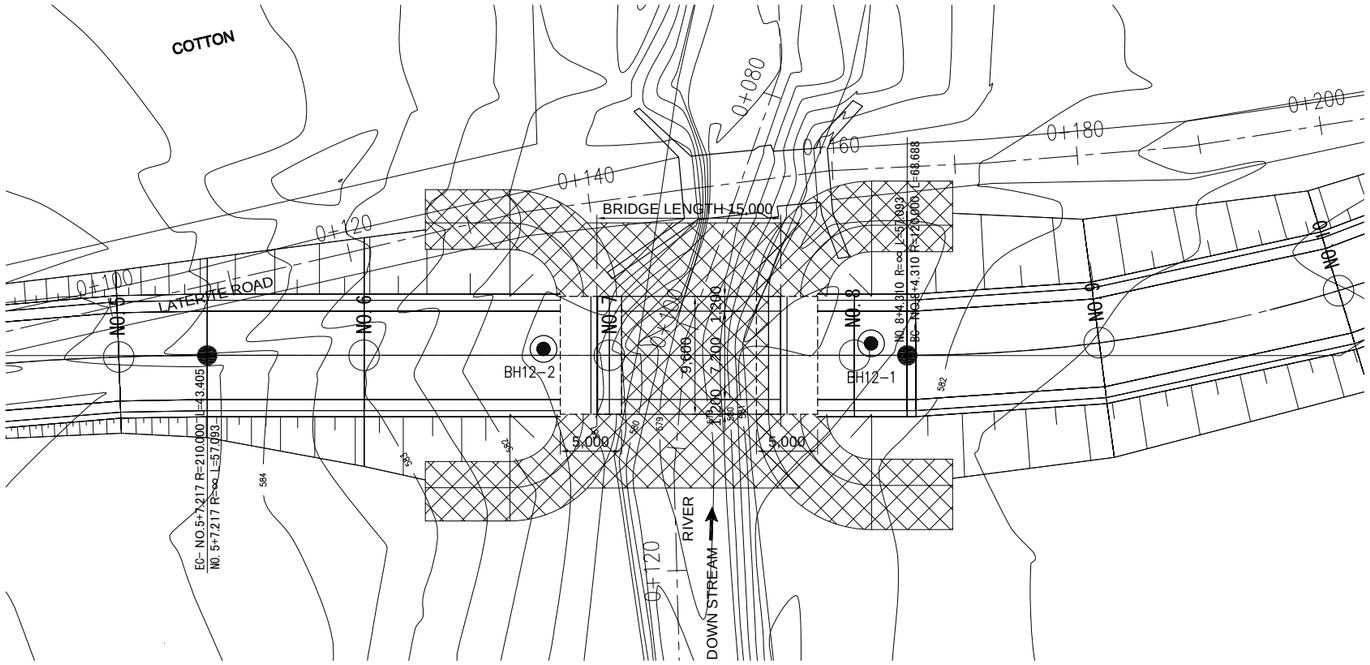
GIRDER SECTION
S=1:100



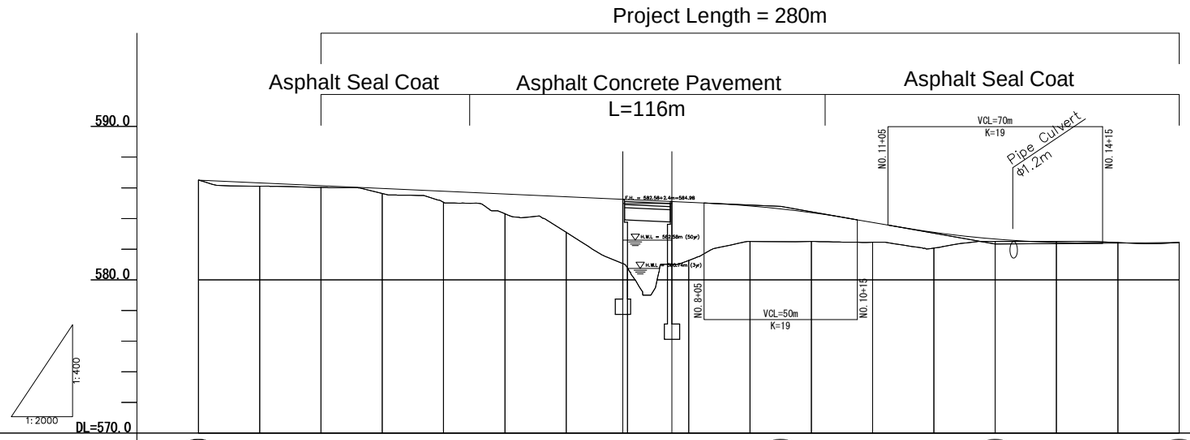
A1(A2) ABUTMENT
S=1:200



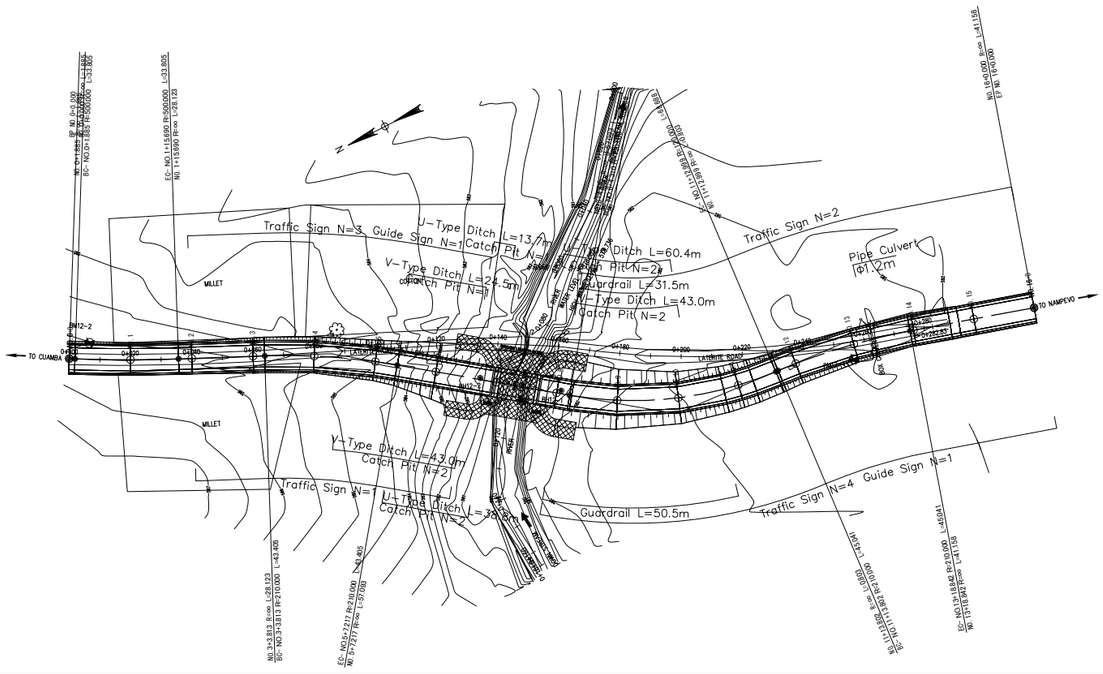
PLAN
S=1:500



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF MUASSI	AS SHOWN		



Gradient	586.500	i=-0.900% L=190.000m							584.790	i=-3.500% L=70.000m		582.340	i=0.153% L=60.000m			582.432
Proposed Height	586.500	586.320	586.140	585.960	585.780	585.600	585.420	585.240	585.060	584.821	584.381	583.740	583.098	582.659	582.429	582.401	582.432
Ground Height	586.500	586.106	586.021	585.632	585.055	584.307	583.105	580.788	581.288	582.499	582.497	582.445	582.068	582.500	582.500	582.429	582.432
Cut	0.000														0.071	0.028	0.000
Embankment	0.000	0.214	0.118	0.327	0.724	1.292	2.315	4.452	3.792	2.322	1.884	1.295	1.030	0.160			0.000
Chainage	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16

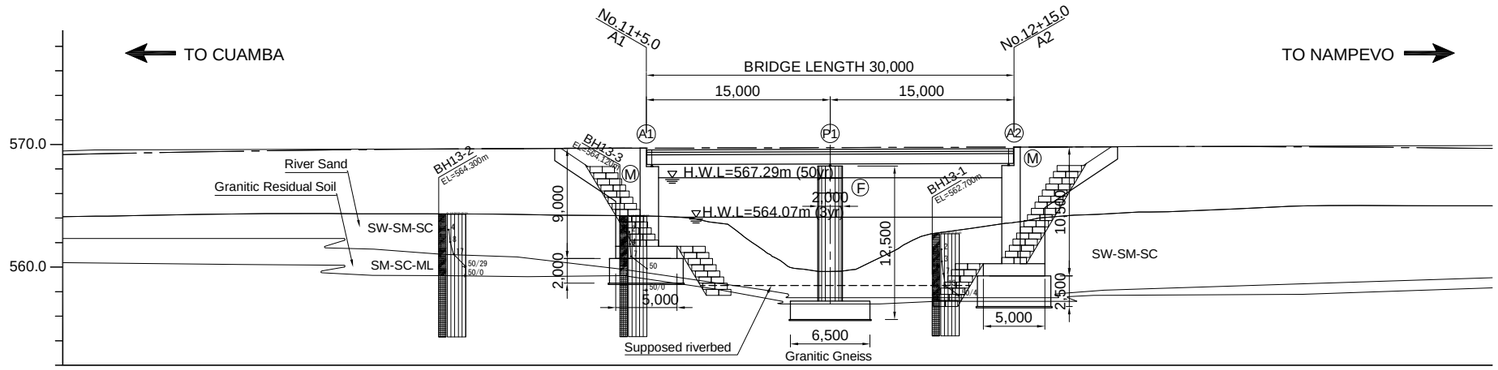


Note:
Topographic data after No.14 is assumed because of luck of topographic survey.
Actual topographic data of these assumed sections will be obtained at detail design stage.

NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.12 (Muassi)			

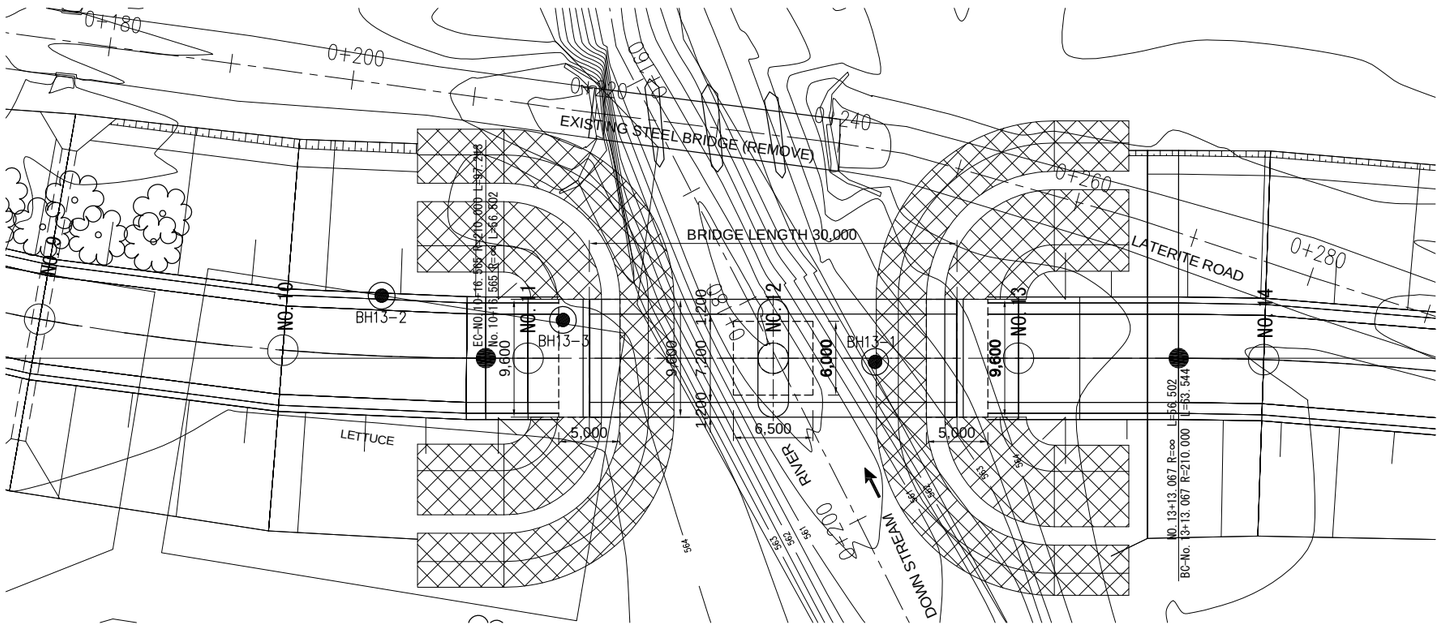
GENERAL VIEW OF NAMUTIMBUA

ELEVATION
S=1:500

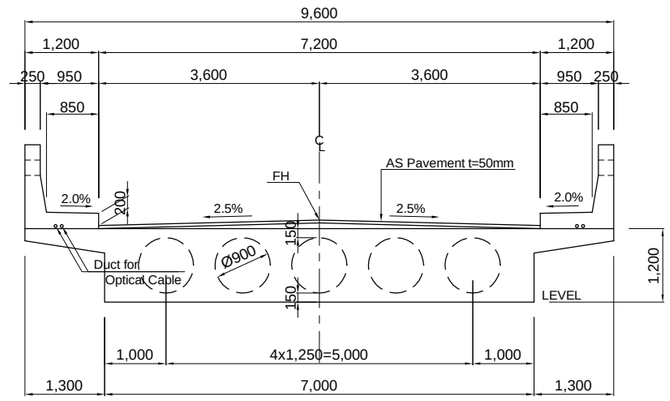


GRANDIENT	569.556 No.9+0.0	VCL=70m K=19					i=0.300% L=120.000m						VCL=70m K=18	569.917 No.15+0.0
PROPOSED HEIGHT	569.233	569.557	569.666	569.676	569.692	569.736	569.782	569.797	569.818	569.795				
GRAND LEVEL	564.145	564.355	564.245	564.215	564.156	559.635	563.632	564.231	564.751	565.005				
DISTANCE	20.000	20.000	16.565	3.435	5.000	15.000	15.000	5.000	13.067	6.933				
CHAINAGE	NO.9	No.10	No.10+16.565	No.11	A1 No.11+5.0	P1 No.12	A2 No.12+15.0	No.13	No.13+13.067	No.14				

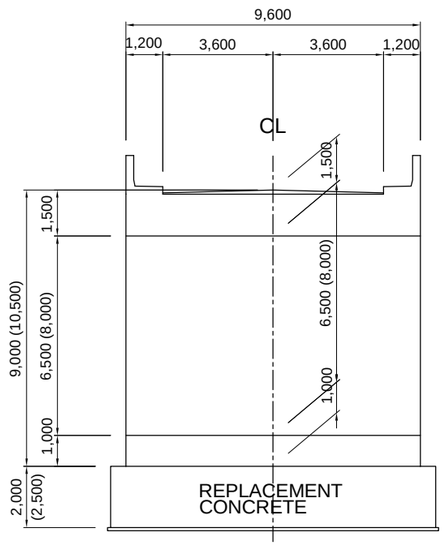
PLAN
S=1:500



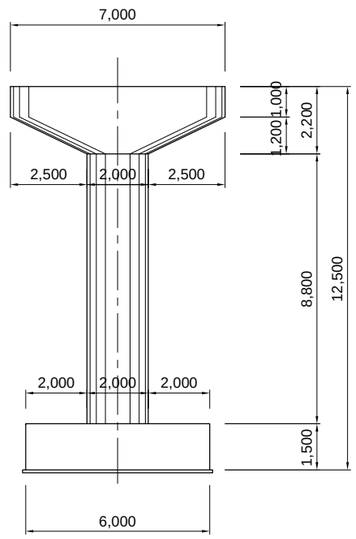
GIRDER SECTION
S=1:100



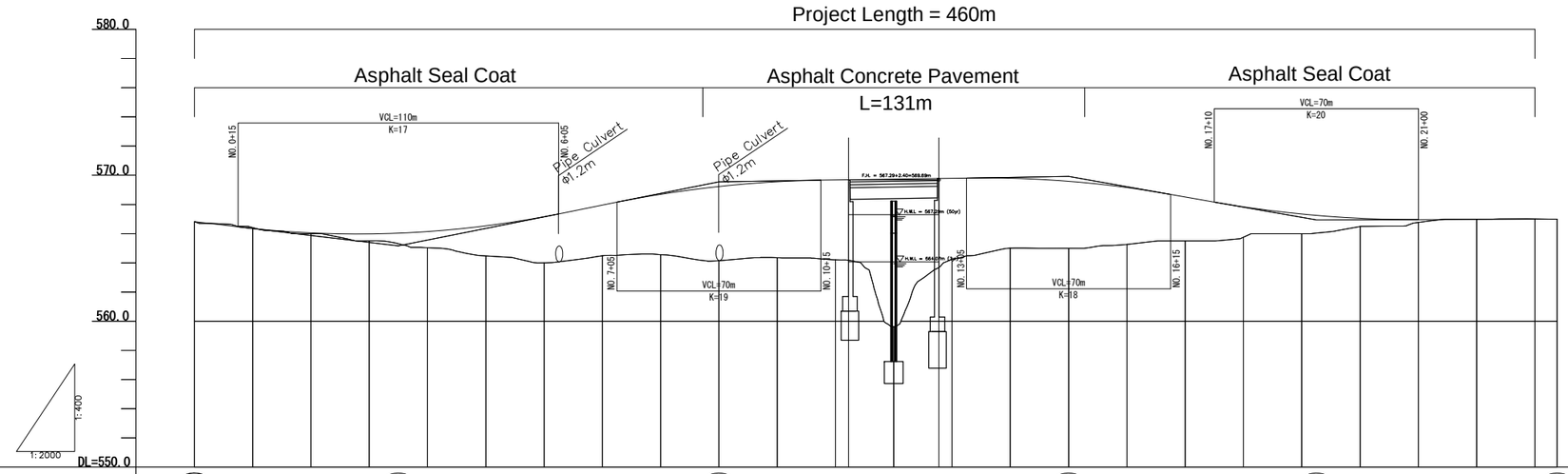
A1(A2) ABUTMENT
S=1:200



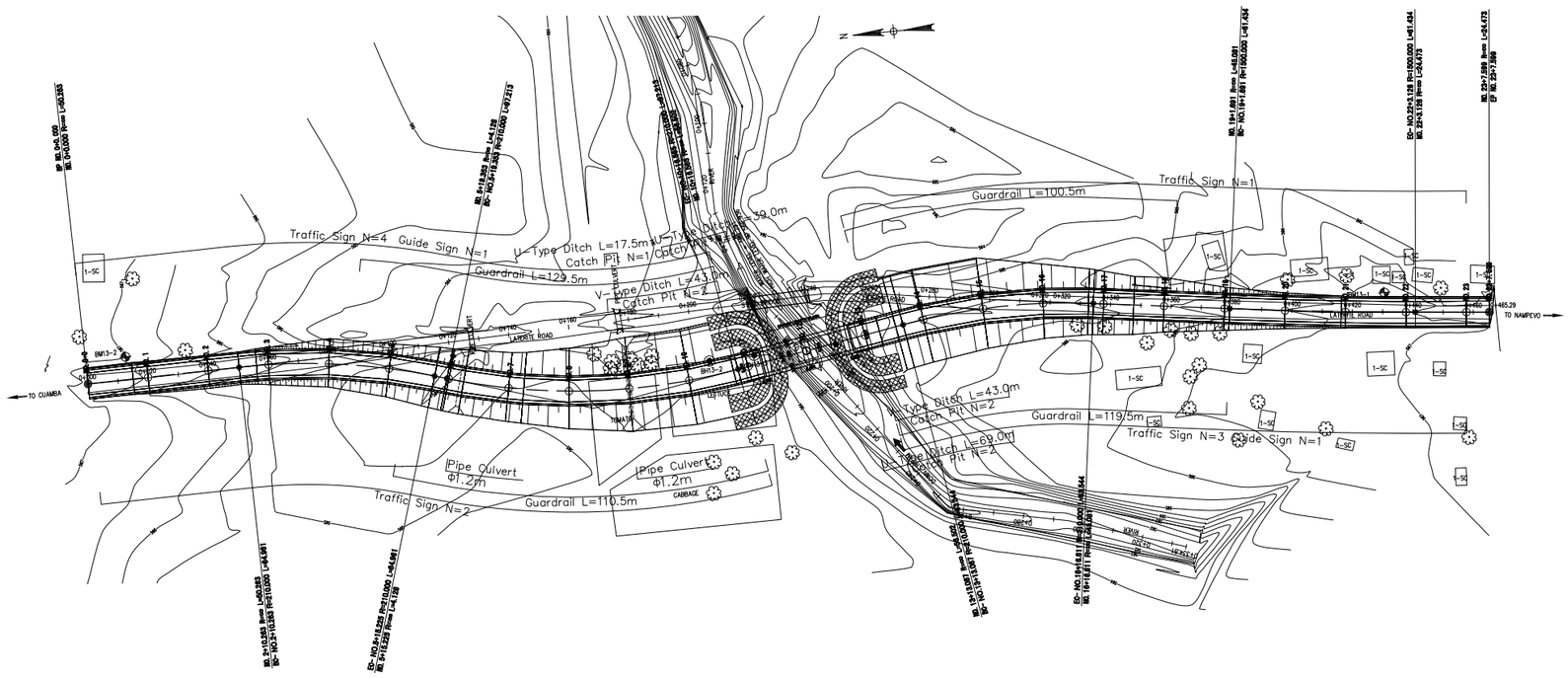
P1 PIER
S=1:200



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			GENERAL VIEW OF NAMUTIMBUA	AS SHOWN		



Gradient	566.824	i=-2.381% L=70.000m	565.157	i=4.000% L=110.000m	569.556	i=0.300% L=120.000m	569.917	i=-3.500% L=85.000m	566.942	i=0.072% L=82.599m	567.001													
Proposed Height	566.824	566.354	566.052	565.982	566.144	566.538	567.164	567.957	568.697	569.233	569.557	569.676	569.736	569.797	569.795	569.584	569.155	568.517	567.842	567.346	567.054	566.967	566.981	566.995	567.001
Ground Height	566.824	566.412	566.001	565.503	565.039	564.474	564.000	564.489	564.561	564.145	564.355	564.215	559.635	564.231	565.005	565.000	565.265	565.500	565.756	566.002	566.487	566.766	566.999	567.002	567.001
Cut	0.000	0.057																					0.019	0.007	0.000
Embankment	0.000		0.052	0.479	1.104	2.064	3.164	3.467	4.137	5.088	5.202	5.462	10.102	5.565	4.791	4.584	3.890	3.016	2.086	1.345	0.567	0.201			0.000
Chainage	NO.0	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20	NO.21	NO.22	NO.23	NO.23+7.599



NATIONAL ROADS ADMINISTRATION(ANE)	THE PROJECT FOR CONSTRUCTION OF BRIDGES OF THE ROAD BETWEEN ILE AND CUAMBA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	TITLE	SCALE	DATE	DRAWING NO.
			Plan and Profile for Br.No.13 (Namutimbua)			

6.7 Environmental Check List

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) N (b) N (c) - (d) N	(a) Based on the categorization decided by DPCA, Environmental Study is conducted at the moment. ANE applied DPCA for the categorization of the project for EIA process and DPCA made categorization of impacts based on the field survey. In Zambezia province, all 11 bridges were categorized as category C. In Niassa province, 2 bridges were categorized as category C and 1 bridge; Br.Lurio was categorized category B. The project of category B requires EAS for obtaining Environmental license. For the other 12 bridges, further studies are not required. (b) The study for EAS is in progress. Simplified Environmental Report(EAS) for the Lurio bridge will be submitted to the MICOA for the approval. (c) After submitting the report, it will be clarified whether some conditions are imposed on the approval or not. (d) As mentioned above, further studies on the other 11 bridges are not required for obtaining the environmental license issued by the MICOA.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) N	(a) The local residents are generally explained about the project, because the road implementation project has been already started in the area. After finalizing the project affected area, the baseline survey for the land(for peoples, if necessary) will be conducted. Before the commencement of the land survey, the project activity (including cut-off date) was informed to the local residents. Resettlement was avoided at the basic design. (b)As to the compensation, the discussion with ANE has been done. ANE will establish the system for compensation. In case the local residents have any grievance, the issue will be solved, based on the regulations stipulated by the MICOA.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) To minimize the environmental impact, each bridge location was considered at preparatory survey(phase-1).
2 Pollution Control	(1) Air Quality	(a) Is there a possibility that air pollutants emitted from the project related sources, such as vehicles traffic will affect ambient air quality? Does ambient air quality comply with the country's air quality standards? Are any mitigating measures taken? (b) If air quality already exceed country's standards near the route, is there a possibility that the project will make air pollution worse?	(a) N (b) N	(a) No particular impact is anticipated. (b) No particular impact is anticipated.
	(2) Water Quality	(a) Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas? (b) Is there a possibility that the project will contaminate water sources, such as well water?	(a) N (b) N	(a) The project mainly contains the replacement of existing old bridges and no particular impact is anticipated. (b) No particular impact is anticipated.
	(3) Noise and Vibration	(a) Do noise and vibrations from the vehicle and train traffic comply with the country's standards? (b) Do low frequency sound from the vehicle and train traffic comply with the country's standards?	(a) - (b) -	(a) There is no particular standard for noise and vibration for vehicle and train traffic. (b) There is no particular standard for low frequency sound from the vehicle and train traffic.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
3 Natural Environment	(1) Protected Areas	(a) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) There is no protected area at the surrounding area of bridges.
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? (e) Is there a possibility that installation of bridges and access roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered?	(a) N (b) N (c) - (d) - (e) -	(a) There is no particular important ecosystem which is categorized as an ecologically valuable habitats near the bridges. (b) There is no particular important ecosystem which is categorized as an endangered species. (c) No serious impact to the ecosystem is anticipated. (d) No serious impact to the ecosystem is anticipated. (e) Basic concept of the project is to replace old small and middle scale bridges and there is no serious impact anticipated. There is no significant forest area near the bridges.
	(3) Hydrology	(a) Is there a possibility that hydrologic changes due to the installation of structures will adversely affect surface water and groundwater flows?	(a) N	(a) No serious impact to hydrology is anticipated.
	(4) Topography and Geology	(a) Is there any soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? (b) Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides? (c) Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?	(a) N (b) N (c) N	(a) No serious impact is anticipated because the project mainly contains the replacement of the old bridges only. (b) No serious impact is anticipated. (c) No serious impact to the soil erosion is anticipated. However, embankment and cutting slope will be protected adequately such as vegetation.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlment assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) N (b) Y (c) Y (d) Y (e) Y (f) Y (g) Y (h) Y (i) Y (j) Y	(a) No resettlement is associated to the project. The resettlement was avoided at the basic design. (b) The resettlement was avoided at the basic design. (c) No resettlement is associated to the project. For the land acquisition, the baseline survey will be conducted by ANE based on the result of basic design study. (d) Compensation is expected to be made before implementation. (e) There is no document prepared for this project. Draft framework for the compensation by ANE. The document is expected to be made based on the result of basic design study. (f) No resettlement is associated to the project. (g) No resettlement is associated to the project. (h) No resettlement is associated to the project. (i) No resettlement is associated to the project. (j) No resettlement is associated to the project.
	(2) Living and Livelihood	(a) Where bridges and access roads are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts? (b) Is there any possibility that the project will adversely affect the living conditions of the inhabitants other than the target population? Are adequate measures considered to reduce the impacts, if necessary? (c) Is there any possibility that diseases, including infectious diseases, such as HIV will be brought due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary? (d) Is there any possibility that the project will adversely affect road traffic in the surrounding areas (e.g., increase of traffic congestion and traffic accidents)? (e) Is there any possibility that project will impede the movement of inhabitants? (f) Is there any possibility that bridges will cause a sun shading and radio interference?	(a) N (b) N (c) Y (d) N (e) N (f) N	(a) During the construction stage, temporary detours will be provided to avoid traffic problems. Improvement of road condition is expected to contribute economical development in the area. (b) No particular negative impact is anticipated. (c) Associated with the increase number labours/traffics for construction activities/transportation may increase risk of the disease including HIV/AIDS infection in the rural areas. Adequate education to the labours will be provided by ANE. (d) No serious negative impact is anticipated. Collaboration with the local government(Police station), adequate signboard will be installed. (e) No serious negative impact is anticipated. (f) No serious negative impact is anticipated.
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) The project of Bridge No.2 will not affect the grave yard near the bridge.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) -	(a) No serious negative impact is anticipated.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) N (b) -	(a) No particular ethnic group/indigenous people are affected by the project. (b)

	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) N (b) Y (c) Y (d) Y	(a) The project will be conducted following the legislation in the country related working environment. (b) Industrial accidents will be prevented and hazardous materials will be managed properly following the relevant legislation in the country. (c) Following the relevant legislation, adequate safety training will be provided for the project implementation. (d) Adequate education to the labours will be provided such as no dumping waiste to the rivers.
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) Y (b) - (c) -	(a) No serious negative impact is anticipated. Minimization of the impact will always be considered such as watering for dust prevention and maintenance of machinery for preventing noise, education for preventing waste dumping by the labours. (b) No serious negative impact is anticipated. (c) No serious negative impact is anticipated.
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y (b) - (c) - (d) -	(a) Monitoring will be conducted based on the result of the currently conducted Simplified Environmental Report(ESA) if required. (b) Instruction by the Environmental supervising body, the MICOA will be given after reviewing the Simplified Environmental Report(ESA) and contents are still not fixed yet. Also, the land acquisition process will be conducted based on the result of basic design study. Those details will be finalised before the project implementation. (c) Same as above. (d) Same as above.
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Roads, Railways and Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation). (b) Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).	(a) - (b) -	(a) No particular matter related to others. (b) No particular matter related to others.
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) -	(a) No particular matter related to others.

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made. In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

6.8 Environmental Monitoring Plan

Environmental item	Contents for monitoring	Method	Implemented by	Supervised by	Frequency and expected time
Planning phase					
Environmental License	1. Situation of obtaining the license 2. Conditions for obtaining the license	Handing in relevant documents (copy of license, application documents)	ANE	JICA	Once after completion of process (by the end of Nov, 2011)
Results of the basic design	Involuntary resettlement	Joint survey with land owner/ user, community representative. Handing in relevant documents to JICA	ANE	JICA	Once after Basic Design
Adequate compensation	Local residents for land acquisition	Joint survey with land owner/ user, community representative. Handing in relevant documents to JICA	ANE	JICA	Once after Basic Design and completion of process
Information to the local residents	Information about the results of basic design.	Results of activities	ANE	ANE	Once after Basic Design
Construction phase					
Adequate project implementation following legislation / instruction of MICOA	Conditions in the environmental license or others instruction from MICOA	Relevant documents	Consultant/ Contractor	ANE	During construction as it be requested by MICOA
Compensation or replacement of public facilities such as washing place	Alternative facilities whether those are compensated adequately.	Alternative facilities	Consultant / Contractor	ANE	Once during construction
Grievance from the local residents	Grievance process whether it meet to ANE's framework	Record of grievance	Villages/ Districts/ ANE/ Consultant	ANE	Monthly Meeting
Operation phase					
Grievance from the local residents	Grievance process whether it meet to ANE's framework	Record of grievance	Villages/ Districts/ ANE/ Consultant	ANE	Once after completion of bridge