

Table 3.4.14 Training Dikes Ph-3D on the Dhungakate Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost					14,067,649	583,757	14,651,406
1. Preparatory Works (10% of Item 2)					1,278,877	53,069	1,331,946
2. Civil Works					12,788,772	530,688	13,319,460
2.1 Training Dikes					12,788,772	530,688	13,319,460
a. Excavation					532,010	27,790	559,800
- Gravel / Soil	1,830	cu m	247	13	452,010	23,790	475,800
- Weathered Rock	200	cu m	400	20	80,000	4,000	84,000
b. Concrete					9,969,300	405,450	10,374,750
- Wet Masonry	775	cu m	4,180	170	3,239,500	131,750	3,371,250
- Dry Masonry	1,610	cu m	4,180	170	6,729,800	273,700	7,003,500
d. Boulder Riprap	300	cu m	520	30	156,000	9,000	165,000
e. Miscellaneous (20% of a to d)	1	l.s.			2,131,462	88,448	2,219,910
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	732,570	732,570
III. Engineering Cost (20% of Item I)					2,813,530	116,751	2,930,281
IV. Physical Contingency (30% of I+II+III)					5,064,354	429,924	5,494,277
V. Total (I+II+III+IV) Rounded Total					21,945,533 21,945,500	1,863,002 1,863,000	23,808,535 23,808,500

Note: *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.15 Channel works Ph-4D on the Dhungakate Khola (I.CB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost						3,108,365	3,108,365
1. Civil Works						3,108,365	3,108,365
(1) Channel Work						1,811,340	1,811,340
a. Excavation						714,300	714,300
- Gravel, soil	4,100	cu m		130		533,000	533,000
- Weathered Rock	490	cu m		370		181,300	181,300
b. Concrete						485,640	485,640
- Wet Masonry	180	cu m		2,698		485,640	485,640
c. Free Draining Backfill	40	cu m		360		14,400	14,400
d. Embankment	1,080	cu m		300		324,000	324,000
e. Stone Pitching	3,900	sq m		70		273,000	273,000
(2) Consolidation Dam						1,297,025	1,297,025
a. Excavation						112,250	112,250
- Gravel, soil	650	cu m		130		84,500	84,500
- Weathered Rock	75	cu m		370		27,750	27,750
b. Concrete						1,156,750	1,156,750
- Plain Concrete	70	cu m		5,921		414,470	414,470
- Rubble Concrete	130	cu m		2,493		324,090	324,090
- Wet Masonry	155	cu m		2,698		418,190	418,190
c. Boulder Riprap	50	cu m		430		21,500	21,500
d. Backfill	145	cu m		45		6,525	6,525
II. Administration Cost						155,418	155,418
(5% of Total of Item I, exclusive to L.C.)							
III. Engineering Cost						310,837	310,837
(10% of Item I)							
IV. Physical Contingency						714,924	714,924
(20% of Item I+II+III)							
V. Total (I+II+III+IV)						4,289,544	4,289,544
Rounded Total						4,289,500	4,289,500

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.16

Channel works Ph-5D on the Ghatte Khola (LCB)

Work Item	Quantity	Unit	Unit Cost		Amount		Total (Rp.)
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
I. Construction Base Cost						3,577,675	3,577,675
I. Civil Works						3,577,675	3,577,675
(1) Channel Work						1,797,870	1,797,870
a. Excavation						818,950	818,950
- Gravel, soil	6,200	cu m	130		806,000	806,000	
- Weathered Rock	35	cu m	370		12,950	12,950	
- Rock	0	cu m	600		0	0	
b. Concrete						377,720	377,720
- Plain Concrete	0	cu m	5,921		0	0	
- Rubble Concrete	0	cu m	2,493		0	0	
- Wet Masonry	140	cu m	2,698		377,720	377,720	
c. Free Draining Backfill	70	cu m	360		25,200	25,200	
d. Boulder Riprap	0	cu m	430		0	0	
e. Gabion	0	cu m	994		0	0	
f. Embankment	800	cu m	300		240,000	240,000	
g. Stone Pitching	4,800	sq m	70		336,000	336,000	
(2) Consolidation Dam						1,779,805	1,779,805
a. Excavation						150,400	150,400
- Gravel, soil	1,100	cu m	130		143,000	143,000	
- Weathered Rock	20	cu m	370		7,400	7,400	
- Rock	0	cu m	600		0	0	
b. Concrete						1,599,255	1,599,255
- Plain Concrete	50	cu m	5,921		296,050	296,050	
- Rubble Concrete	355	cu m	2,493		885,015	885,015	
- Wet Masonry	155	cu m	2,698		418,190	418,190	
c. Free Draining Backfill	0	cu m	360		0	0	
d. Boulder Riprap	45	cu m	430		19,350	19,350	
e. Gabion	0	cu m	994		0	0	
f. Embankment	0	cu m	300		0	0	
g. Backfill	240	cu m	45		10,800	10,800	
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)						178,884	178,884
III. Engineering Cost (10% of Item I)						357,768	357,768
IV. Physical Contingency (20% of Item I+II+III)						822,865	822,865
IV. Total (I+II+III+IV) Rounded Total						4,937,192	4,937,192
						4,937,100	4,937,100

Note: *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.17 Revetment Works Ph-7D on the Dhungakate Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost					3,199,680	799,920	3,999,600
1. Preparatory Works (10% of Item 2)					290,880	72,720	363,600
2. Civil Works					2,908,800	727,200	3,636,000
2.1 Revetment					2,908,800	727,200	3,636,000
a. Gabion	2,020	cu m	1,200	300	2,424,000	606,000	3,030,000
b. Miscellaneous (20% of a)	1	l.s.			484,800	121,200	606,000
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	199,980	199,980
III. Engineering Cost (20% of Item I)					639,936	159,984	799,920
IV. Physical Contingency (30% of I+II+III)					1,151,885	347,965	1,499,850
V. Total (I+II+III+IV)					4,991,501	1,507,849	6,499,350
Rounded Total					4,991,500	1,507,800	6,499,300

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.18 Check dam Na-1D on the Manhari Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost					27,798,804	1,211,100	29,009,904
1. Preparatory Works (10% of Item 2)					2,527,164	110,100	2,637,264
2. Civil Works					25,271,640	1,101,000	26,372,640
a. Excavation					1,700,400	91,600	1,792,000
- Gravel, soil	3,200	cu m	247	13	790,400	41,600	832,000
- Weathered Rock	2,100	cu m	400	20	840,000	42,000	882,000
- Rock	100	cu m	700	80	70,000	8,000	78,000
b. Concrete					19,359,300	825,900	20,185,200
- Plain Concrete	70	cu m	7,800	360	546,000	25,200	571,200
- Rubble Concrete	3,975	cu m	3,960	170	15,741,000	675,750	16,416,750
- Wet Masonry	735	cu m	4,180	170	3,072,300	124,950	3,197,250
c. Free Draining Backfill	0	cu m	380	20	0	0	0
d. Boulder Riprap	0	cu m	520	30	0	0	0
e. Gabion	0	cu m	1,200	300	0	0	0
h. Miscellaneous (20% of a to e)	1	l.s.	-	-	4,211,940	183,500	4,395,440
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	1,450,495	1,450,495
III. Engineering Cost (20% of Item I)					5,559,761	242,220	5,801,981
IV. Physical Contingency (30% of I+II+III)					10,007,569	871,145	10,878,714
V. Total (I+II+III+IV) Rounded Total					43,366,134 43,366,100	3,774,960 3,774,900	47,141,094 47,141,000

Note: *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.19 Check dam Na-2D on the Manhari Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost					32,408,244	1,487,112	33,895,356
1. Preparatory Works (10% of Item 2)					2,946,204	135,192	3,081,396
2. Civil Works					29,462,040	1,351,920	30,813,960
a. Excavation					2,870,700	153,300	3,024,000
- Gravel, soil	8,100	cu m	247	13	2,000,700	105,300	2,106,000
- Weathered Rock	2,000	cu m	400	20	800,000	40,000	840,000
- Rock	100	cu m	700	80	70,000	8,000	78,000
b. Concrete					14,481,600	639,600	15,121,200
- Plain Concrete	870	cu m	7,800	360	6,786,000	313,200	7,099,200
- Rubble Concrete	1,500	cu m	3,960	170	5,940,000	255,000	6,195,000
- Wet Masonry	420	cu m	4,180	170	1,755,600	71,400	1,827,000
c. Free Draining Backfill	0	cu m	380	20	0	0	0
d. Boulder Riprap	0	cu m	520	30	0	0	0
e. Gabion	0	cu m	1,200	300	0	0	0
f. Concrete Block	710	cu m	10,140	470	7,199,400	333,700	7,533,100
g. Miscellaneous (20% of a to f)	1	l.s.			4,910,340	225,320	5,135,660
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	1,694,768	1,694,768
III. Engineering Cost (20% of Item I)					6,481,649	297,422	6,779,071
IV. Physical Contingency (30% of Item I+II+III)					11,666,968	1,043,791	12,710,759
V. Total (I+II+III+IV)					50,556,861	4,523,093	55,079,954
Rounded Total					50,556,800	4,523,000	55,079,800

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.20 Check dam Na-3D on the Syparse Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount						
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)				
I. Construction Base Cost					45,730,872	2,031,546	47,762,418				
1. Preparatory Works (10% of Item 2)					4,157,352	184,686	4,342,038				
2. Civil Works					41,573,520	1,846,860	43,420,380				
a. Excavation					1,964,200	105,000	2,069,200				
	- Gravel, soil	5,600	cu m	247	13	1,383,200	72,800	1,456,000			
	- Weathered Rock	1,330	cu m	400	20	532,000	26,600	558,600			
	- Rock	70	cu m	700	80	49,000	5,600	54,600			
b. Concrete					28,183,800	1,219,050	29,402,850				
	- Plain Concrete	645	cu m	7,800	360	5,031,000	232,200	5,263,200			
	- Rubble Concrete	5,055	cu m	3,960	170	20,017,800	859,350	20,877,150			
	- Wet Masonry	750	cu m	4,180	170	3,135,000	127,500	3,262,500			
c. Free Draining Backfill					75	cu m	380	20	28,500	1,500	30,000
d. Boulder Riprap					1,085	cu m	520	30	564,200	32,550	596,750
e. Gabion					0	cu m	1,200	300	0	0	0
f. Concrete Block					385	cu m	10,140	470	3,903,900	180,950	4,084,850
g. Miscellaneous (20% of a to f)					1	l.s.	-	-	6,928,920	307,810	7,236,730
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	2,388,121	2,388,121				
III. Engineering Cost (20% of Item I)					9,146,174	406,309	9,552,484				
IV. Physical Contingency (30% of Item I+II+III)					16,463,114	1,447,793	17,910,907				
V. Total (I+II+III+IV) Rounded Total					71,340,160	6,273,769	77,613,929				
					71,340,100	6,273,700	77,613,800				

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ =109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.21 Groundsill Na-4D on the Manhari Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost					23,389,463	1,046,575	24,436,038
1. Preparatory Works (10% of Item 2)					2,126,315	95,143	2,221,458
2. Civil Works					21,263,148	951,432	22,214,580
a. Excavation					2,579,990	133,010	2,713,000
-Gravel, soil	6,170	cu m	247	13	1,523,990	80,210	1,604,200
-Weathered Rock	2,640	cu m	400	20	1,056,000	52,800	1,108,800
-Rock	0	cu m	700	80	0	0	0
b. Concrete					11,912,300	507,650	12,419,950
- Plain Concrete	180	cu m	7,800	360	1,404,000	64,800	1,468,800
-Rubble Concrete	1,730	cu m	3,960	170	6,850,800	294,100	7,144,900
-Wet Masonry	875	cu m	4,180	170	3,657,500	148,750	3,806,250
c. Free Draining Backfill	25	cu m	380	20	9,500	500	10,000
d. Boulder Riprap	435	cu m	520	30	226,200	13,050	239,250
e. Concrete Block	295	cu m	10,140	470	2,991,300	138,650	3,129,950
f. miscellaneous (20% of a to e)	1	l.s.			3,543,858	158,572	3,702,430
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	1,221,802	1,221,802
III. Engineering Cost (20% of Item I)					4,677,893	209,315	4,887,208
IV. Physical Contingency (30% of Item I+II+III)					8,420,207	743,308	9,163,514
V. Total (I+II+III+IV) Rounded Total					36,487,562 36,487,500	3,221,000 3,220,900	39,708,562 39,708,400

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.22 Channel work Na-SD on the Manhari Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		Total (Rp.)
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
I. Construction Base Cost					29,970,072	2,216,148	32,186,220
1. Preparatory Works (10% of Item 2)					2,724,552	201,468	2,926,020
2. Civil Works					27,245,520	2,014,680	29,260,200
a. Excavation					19,364,800	1,019,200	20,384,000
- Gravel, soil	78,400	cu m	247	13	19,364,800	1,019,200	20,384,000
- Weathered Rock	0	cu m	400	20	0	0	0
- Rock	0	cu m	700	80	0	0	0
b. Concrete					0	0	0
- Plain Concrete	0	cu m	7,800	360	0	0	0
- Rubble Concrete	0	cu m	3,960	170	0	0	0
- Wet Masonry	0	cu m	4,180	170	0	0	0
c. Free Draining Backfill	0	cu m	380	20	0	0	0
d. Boulder Riprap	1,490	cu m	520	30	774,800	44,700	819,500
e. Gabion	1,700	cu m	1,200	300	2,040,000	510,000	2,550,000
f. Stone Pitching	0	sq m	60	20	0	0	0
g. Backfill	10,500	cu m	50	10	525,000	105,000	630,000
h. Miscellaneous (20% of a to g)	1	ls.			4,540,920	335,780	4,876,700
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	1,609,311	1,609,311
III. Engineering Cost (20% of Item I)					5,994,014	443,230	6,437,244
IV. Physical Contingency (30% of I+II+III)					10,789,226	1,280,607	12,069,833
IV. Total (I+II+III+IV)					46,753,312	5,549,295	52,302,608
Rounded Total					46,753,300	5,549,200	52,302,500

Note: *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.23 Check dam Ch-1 on the Chisapani Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost					9,144,947	407,233	9,552,180
1. Preparatory Works (10% of Item 2)					831,359	37,021	868,380
2. Civil Works					8,313,588	370,212	8,683,800
a. Excavation					799,800	41,600	841,400
- Gravel, soil	400	cu m	247	13	98,800	5,200	104,000
- Weathered Rock	1,700	cu m	400	20	680,000	34,000	714,000
- Rock	30	cu m	700	80	21,000	2,400	23,400
b. Concrete					5,088,190	218,410	5,306,600
- Plain Concrete	70	cu m	9,984	461	698,880	32,270	731,150
- Rubble Concrete	545	cu m	6,098	262	3,323,410	142,790	3,466,200
- Wet Masonry	170	cu m	6,270	255	1,065,900	43,350	1,109,250
c. Free Draining Backfill	0	cu m	380	20	0	0	0
d. Boulder Riprap	50	cu m	520	30	26,000	1,500	27,500
e. Concrete Block	100	cu m	10,140	470	1,014,000	47,000	1,061,000
f. Miscellaneous (20% of a to e)	1	l.s.			1,385,598	61,702	1,447,300
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	477,609	477,609
III. Engineering Cost (20% of Item I)					1,828,989	81,447	1,910,436
IV. Physical Contingency (30% of Item I+II+III)					3,292,181	289,887	3,582,068
V. Total (I+II+III+IV)					14,266,117	1,256,175	15,522,293
Rounded Total					14,266,100	1,256,100	15,522,200

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.24

Check dams Dr-1D, Dr-2D on the Dharapani Khola Mainstream (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost					16,189,153	711,467	16,900,620
1. Preparatory Works (10% of Item 2)					1,471,741	64,679	1,536,420
2. Civil Works					14,717,412	646,788	15,364,200
a. Excavation					71,170	3,630	74,800
- Gravel, soil	110	cu m	247	13	27,170	1,430	28,600
- Weathered Rock	110	cu m	400	20	44,000	2,200	46,200
- Rock	0	cu m	700	80	0	0	0
b. Concrete					12,141,340	532,360	12,673,700
- Plain Concrete	460	cu m	9,984	461	4,592,640	212,060	4,804,700
- Rubble Concrete	950	cu m	6,098	262	5,793,100	248,900	6,042,000
- Wet Masonry	280	cu m	6,270	255	1,755,600	71,400	1,827,000
c. Free Draining Backfill	0	cu m	380	20	0	0	0
d. Boulder Riprap	100	cu m	520	30	52,000	3,000	55,000
e. Gabion	0	cu m	1,218	305	0	0	0
f. Miscellaneous (20% of a to e)	1	ls.			2,452,902	107,798	2,560,700
H. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	845,031	845,031
III. Engineering Cost (20% of Item I)					3,237,831	142,293	3,380,124
IV. Physical Contingency (30% of Item I+II+III)					5,828,095	509,637	6,337,733
V. Total (I+II+III+IV) Rounded Total					25,255,079	2,208,429	27,463,508
					25,255,000	2,208,400	27,463,400

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.25 Series of Groundsills on the Dharapani Mainstream (LCB)

H=4.5m, L=20m, n=16

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost -----						5,788,480	5,788,480
1. Civil Works -----						5,788,480	5,788,480
a. Excavation-----						240,000	240,000
	- Gravel,soil	480	cu m	130	62,400	62,400	
	-Weathered Rock	480	cu m	370	177,600	177,600	
	-Rock	0	cu m	600	0	0	
b. Concrete -----						1,213,440	1,213,440
	- Plain Concrete	160	cu m	7,584	1,213,440	1,213,440	
	-Rubble Concrete		cu m	3,841	0	0	
	-Wet Masonry		cu m	4,046	0	0	
c. Free Draining Backfill -----						0	0
	d. Boulder Riprap	320	cu m	430	137,600	137,600	
	e. Gabion	4,160	cu m	1,009	4,197,440	4,197,440	
2. Hillside Work -----						0	0
	a. Simple terracing w. stones		m	200	0	0	
	b. Wicker-work		m	390	0	0	
II. Administration Cost -----						289,424	289,424
(5% of Total of Item I, exclusive to L.C.)							
III. Engineering Cost -----						578,848	578,848
(10% of Item I)							
IV. Physical Contingency -----						1,331,350	1,331,350
(20% of I+II+III)							
V. Total (I+II+III+IV)						7,988,102	7,988,102
Rounded Total						7,988,100	7,988,100

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ =109.1Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.26

Series of Groundsills on the Dharapani Tributaries (LCB)

H=4.5m, L=20m, n=11

Work Item	Quantity	Unit	Unit Cost		Amount		Total (Rp.)
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
I. Construction Base Cost -----						3,979,580	3,979,580
1. Civil Works -----						3,979,580	3,979,580
a. Excavation-----						165,000	165,000
- Gravel,soil	330	cu m		130	42,900	42,900	
-Weathered Rock	330	cu m		370	122,100	122,100	
-Rock	0	cu m		600	0	0	
b. Concrete -----						834,240	834,240
- Plain Concrete	110	cu m		7,584	834,240	834,240	
-Rubble Concrete		cu m		3,841	0	0	
-Wet Masonry		cu m		4,046	0	0	
c.Free Draining Backfill		cu m		360	0	0	
d.Boulder Riprap	220	cu m		430	94,600	94,600	
e.Gabion	2,860	cu m		1,009	2,885,740	2,885,740	
2. Hillside Work -----						0	0
a.Simple terracing w. stones		m		200	0	0	
b.Wicker-work		m		390	0	0	
II. Administration Cost -----						198,979	198,979
(5% of Total of Item I, exclusive to L.C.)							
III. Engineering Cost -----						397,958	397,958
(10% of Item I)							
IV. Physical Contingency -----						915,303	915,303
(20% of I+II+III)							
V. Total (I+II+III+IV)						5,491,820	5,491,820
Rounded Total						5,491,800	5,491,800

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ =109.1Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.28 Groundsill No.1 on the Agra Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost					28,114,416	1,273,800	29,388,216
1. Preparatory Works (10% of Item 2)					2,555,856	115,800	2,671,656
2. Civil Works					25,558,560	1,158,000	26,716,560
a. Excavation					2,908,500	153,500	3,062,000
-Gravel,soil	5,500	cu m	247	13	1,358,500	71,500	1,430,000
-Weathered Rock	3,700	cu m	400	20	1,480,000	74,000	1,554,000
-Rock	100	cu m	700	80	70,000	8,000	78,000
b. Concrete					13,591,300	587,650	14,178,950
- Plain Concrete	525	cu m	7,800	360	4,095,000	189,000	4,284,000
-Rubble Concrete	1,390	cu m	3,960	170	5,504,400	236,300	5,740,700
-Wet Masonry	955	cu m	4,180	170	3,991,900	162,350	4,154,250
c. Free Draining Backfill	60	cu m	380	20	22,800	1,200	24,000
d. Boulder Riprap	215	cu m	520	30	111,800	6,450	118,250
e. Concrete Block	460	cu m	10,140	470	4,661,400	216,200	4,880,600
f. Miscellaneous (20% of a to e)	1	l.s.	-	-	4,259,760	193,000	4,452,760
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	1,469,411	1,469,411
III. Engineering Cost (20% of Item I)					5,622,883	254,760	5,877,643
IV. Physical Contingency (30% of Item I+II+III)					10,121,190	899,391	11,020,581
V. Total (I+II+III+IV) Rounded Total					43,858,489	3,897,362	47,755,851
					43,858,400	3,897,300	47,755,700

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.29 Groundsill No.2 on the Agra Khola (ICB)

Work Item	Quantity	Unit	Unit Cost		Amount		
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	Total (Rp.)
I. Construction Base Cost					24,750,792	1,145,958	25,896,750
1. Preparatory Works (10% of Item 2)					2,250,072	104,178	2,354,250
2. Civil Works					22,500,720	1,041,780	23,542,500
a. Excavation					2,653,400	139,200	2,792,600
-Gravel,soil	5,200	cu m	247	13	1,284,400	67,600	1,352,000
-Weathered Rock	3,300	cu m	400	20	1,320,000	66,000	1,386,000
-Rock	70	cu m	700	80	49,000	5,600	54,600
b. Concrete					8,569,300	372,350	8,941,650
- Plain Concrete	300	cu m	7,800	360	2,340,000	108,000	2,448,000
-Rubble Concrete	1,230	cu m	3,960	170	4,870,800	209,100	5,079,900
-Wet Masonry	325	cu m	4,180	170	1,358,500	55,250	1,413,750
c. Free Draining Backfill	40	cu m	380	20	15,200	800	16,000
d. Boulder Riprap	1,285	cu m	520	30	668,200	38,550	706,750
e. Concrete Block	675	cu m	10,140	470	6,844,500	317,250	7,161,750
f. Miscellaneous (20% of a to e)	1	Is.			3,750,120	173,630	3,923,750
II. Administration Cost (5% of Total of Item I, exclusive to L.C.)					0	1,294,838	1,294,838
III. Engineering Cost (20% of Item I)					4,950,158	229,192	5,179,350
IV. Physical Contingency (30% of I+II+III)					8,910,285	800,996	9,711,281
V. Total (I+II+III+IV) Rounded Total					38,611,236 38,611,200	3,470,983 3,470,900	42,082,219 42,082,100

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

Table 3.4.30 Spur dikes and Reservoir parks on the Agra Khola (I.C.B)

Work Item	Quantity	Unit	Unit Cost		Amount		Total (Rp.)
			F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
I. Construction Base Cost -----						1,515,040	1,515,040
1. Civil Works -----						1,390,200	1,390,200
a. Excavation -----						131,300	131,300
- Gravel, soil	1,010	cu m		130	131,300	131,300	
- Weathered Rock	0	cu m		370	0	0	
- Rock	0	cu m		600	0	0	
b. Concrete -----						941,700	941,700
- Plain Concrete	0	cu m		6,000	0	0	
- Rubble Concrete	355	cu m		2,240	795,200	795,200	
- Wet Masonry	0	cu m		2,450	0	0	
- Dry Masonry	250	cu m		586	146,500	146,500	
c. Free Draining Backfill	0	cu m		360	0	0	
d. Boulder Riprap	640	cu m		430	275,200	275,200	
e. Fascine Mat	280	sq m		150	42,000	42,000	
2. Riverside Park -----						124,840	124,840
a. Shrub	2,200	nos.		2	4,400	4,400	
b. Tall Tree	220	nos.		2	440	440	
c. Simple Terracing w. Stones	600	m		200	120,000	120,000	
II. Administration Cost -----						75,752	75,752
(5% of Total of Item I, exclusive to L.C.)							
III. Engineering Cost -----						417,060	417,060
(10% of Item I)							
IV. Physical Contingency -----						401,570	401,570
(20% of I+II+III)							
V. Total (I+II+III+IV)						2,409,422	2,409,422
Rounded Total						2,409,400	2,409,400

Note : *1 Price Level in June 1996

*2 Conversion Rate - 1.00 US\$ = 109.1 Yen = 55.75 Rp.

*3 Costs do not include Price Contingency

*4 Shrub is included, plant distribution, digging, planting, backfill and curing

*5 Backfilling is included to add fertilizer.

Table 3.4.31 Tentative Project Cost for the IDPP for Kulekhani Reservoir

Item No.	Work Item	Unit	Quantities	Unit price		Amount		Estimation Base
				(F/C: NRs.)	(L/C: NRs.)	(F/C: NRs.)	(L/C: NRs.)	
1	Procurement of Excavation Equipment							
1.1	Bulldozer (26 ton)		1	18,089,000	460,000	18,089,000	460,000	ICB
1.2	Wheel Loader (2.3 m3)		2	10,884,200	420,000	21,768,400	840,000	ICB
1.3	Back Hoe (1.2 m3)		2	22,688,300	1,380,000	45,376,600	2,760,000	ICB
	Sub-total(1)					85,234,000	4,060,000	
2	Construction of Kulekhani Daksinkali Road							
2.1	Road construction under PPP basis by PLAN International	Km	21	0	1,860,400	0	39,068,400	PPP
2.2	Improvement of bridge on Chakhel Khola	L.S.	1	30,000,000	1,000,000	30,000,000	1,000,000	
2.3	Improvement of surface Treatment (Black topping)	Km	21	1,329,400	96,400	27,917,400	2,024,400	ICB
2.4	Improvement of Drainage network	Km	21	423,300	221,100	8,889,300	4,643,100	ICB
	Sub-total (2)					66,806,700	46,735,900	ICB
3	Total of Direct Cost					152,040,700	50,795,900	
4	Engineering Services (20% of (3))					30,408,140	10,159,180	
5	Physical Contingency (30% of 3+4)					54,734,652	18,286,524	
6	Tentative Project Cost					237,183,492	79,241,604	

Note : Cost estimation for Road improvement of Kulekhani - Daksinkali route is tentatively estimated without topographic map, topo-survey. This is estimated per Km basis of the on-going Kulekhani - Bhimpedi Road under the NEA.

LEGEND-2

	Priority Plan
	Overall Plan

For whole area

	Evacuation System
--	-------------------

LEGEND-1

	Motorable road with bridge		Forest area
	Track with foot bridge		Land slide
	House		Contour
	Isolated tree, Bamboo		Spot height
	River with steep banks		Bench mark
	Kholo, Kholosi		Cliff
	Gabion wall		Water-mill
	Rosks, Boulders		Trigonometrical control point

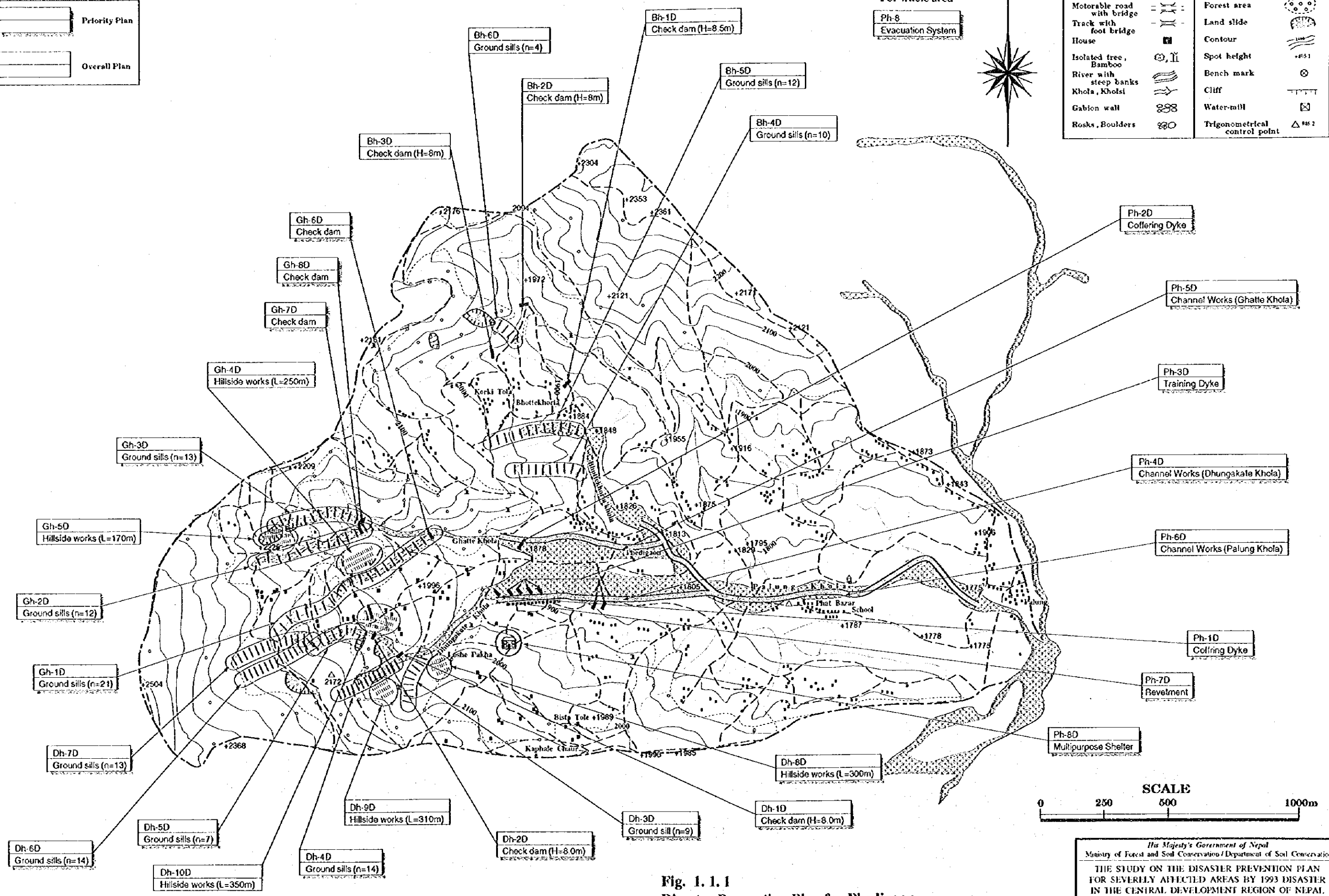
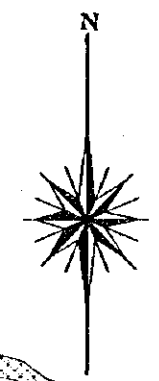
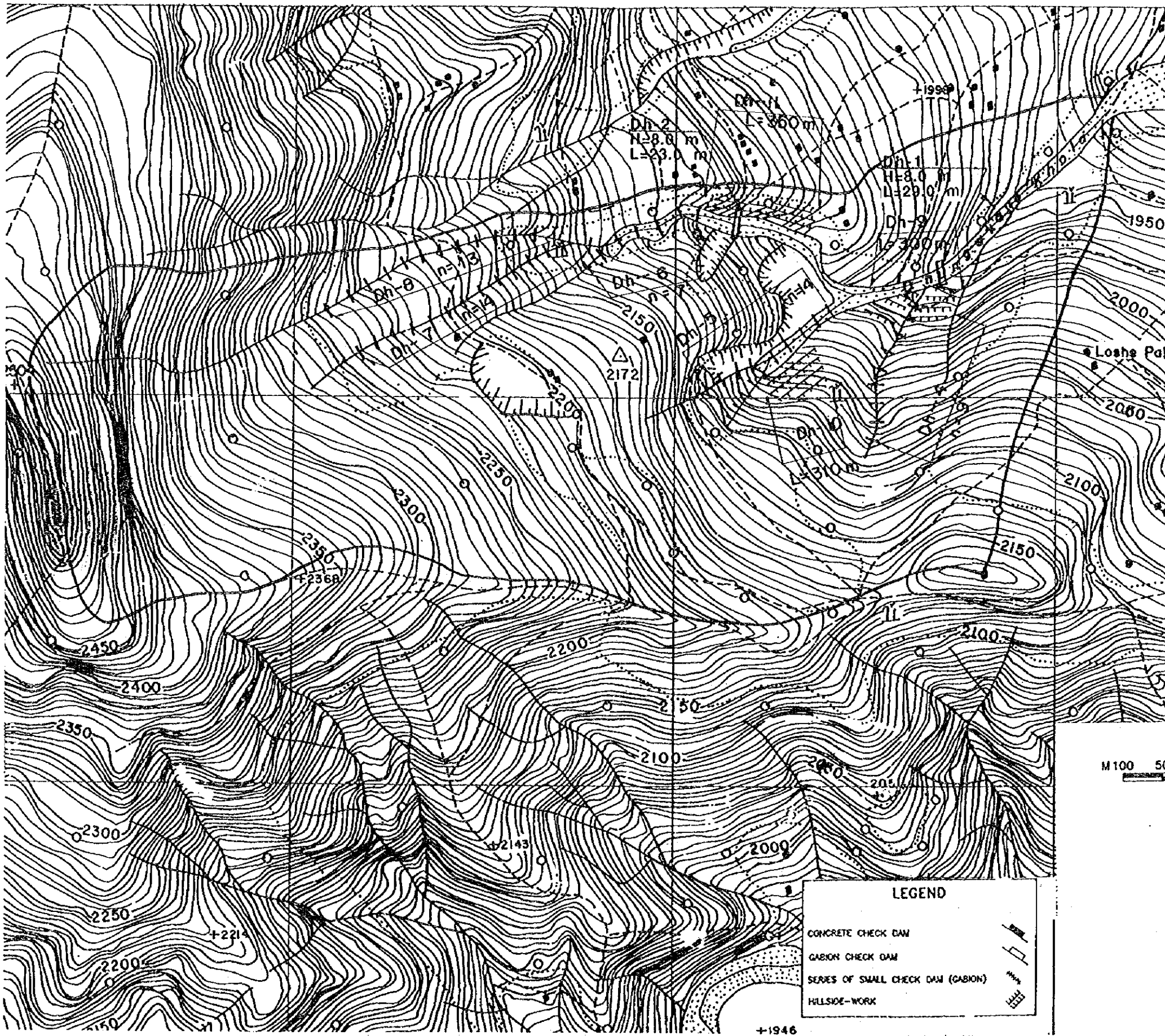


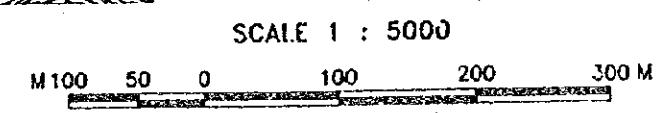
Fig. 1.1.1
Disaster Prevention Plan for Phedigaon

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LEGEND

Motorable road with bridge	
Track with foot bridge	
House	
Isolated tree, Bamboo	
River with steep banks	
Khola, Kholsi	
Gabion wall	
Rocks, Boulders	
Forest area	
Land slide	
Contour	
Spot height	+ 405.1
Bench Mark	
Cliff	
Water-mill	
Trigonometrical Control Point	



CONTOUR INTERVAL : 5.00 METRES



LEGEND

CONCRETE CHECK DAM	
GABION CHECK DAM	
SERIES OF SMALL CHECK DAM (GABION)	
HILLSIDE-WORK	

Fig. 1.1.2
General Plan for Gully Erosion
Control Works for Dhungakate
Khola in Phedigaon/Phatbazar CDPP

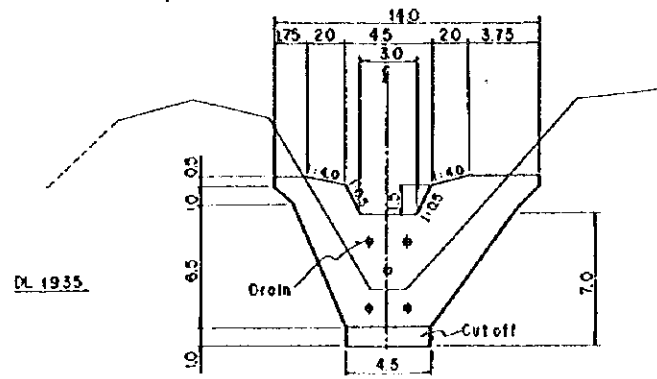
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CHECK DAM / GHATTE KHOLA

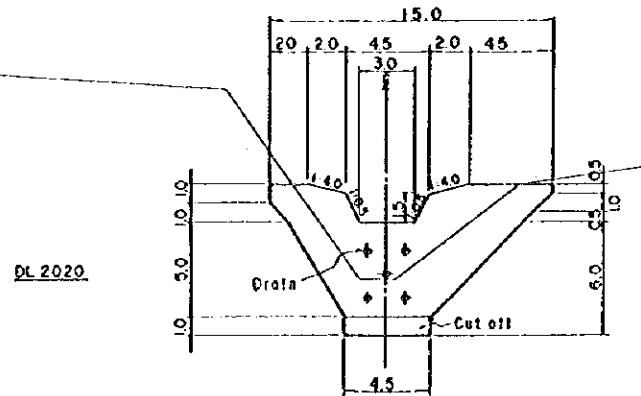
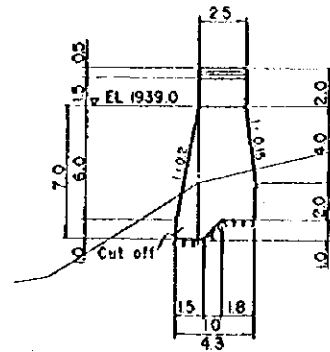
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FRONT VIEW FROM UPSTREAM

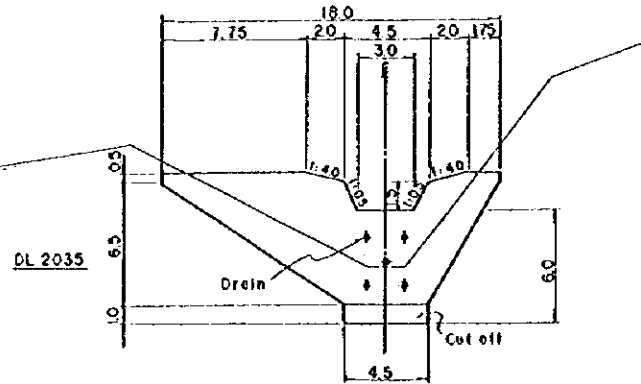
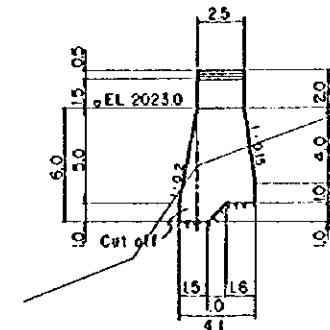
TYPICAL CROSS SECTION



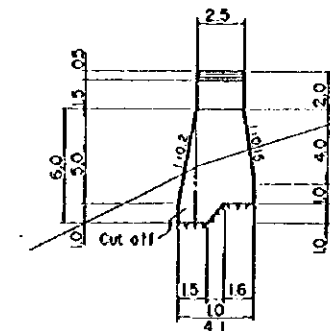
Gh-6



Gh-7

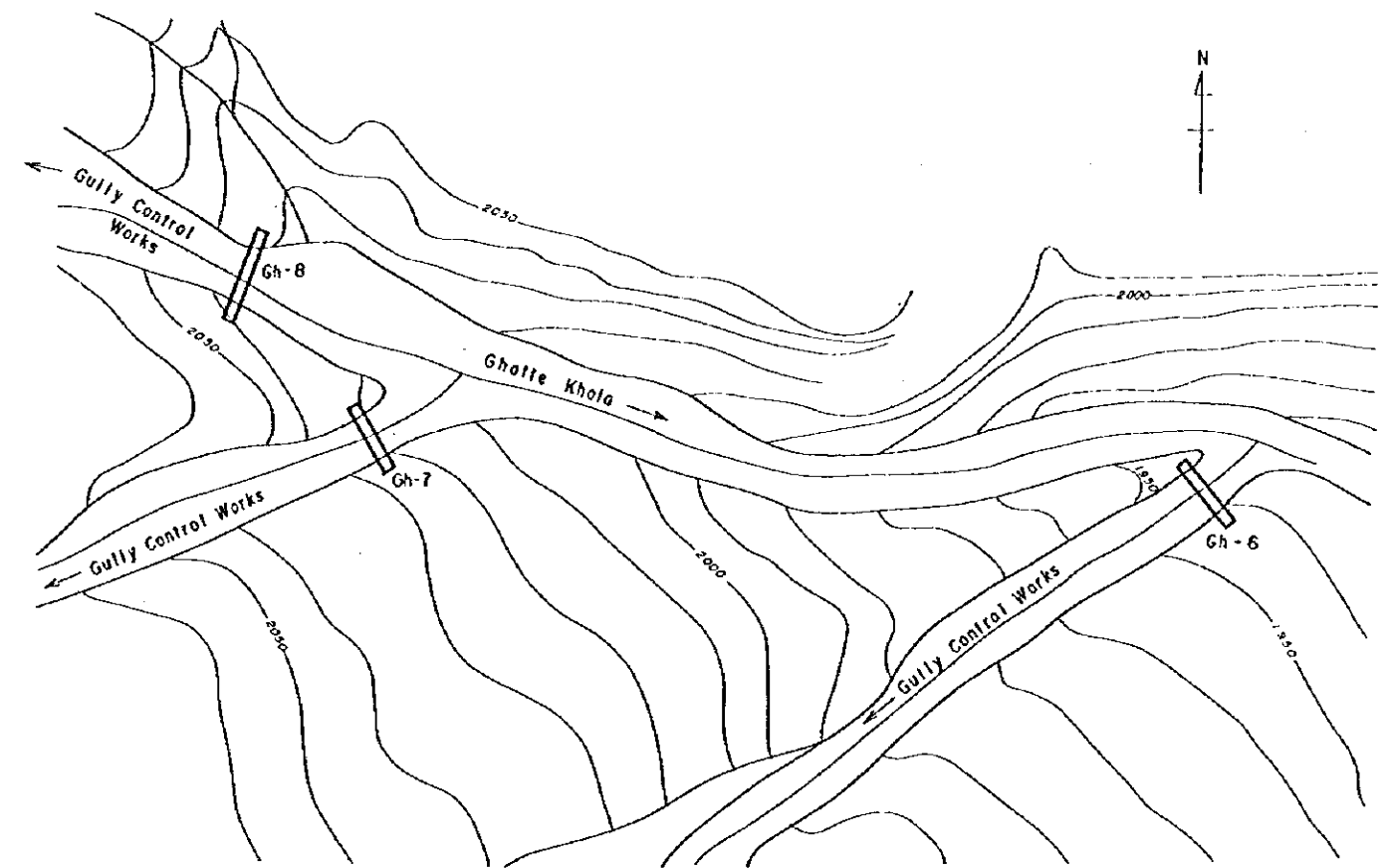


Gh-8



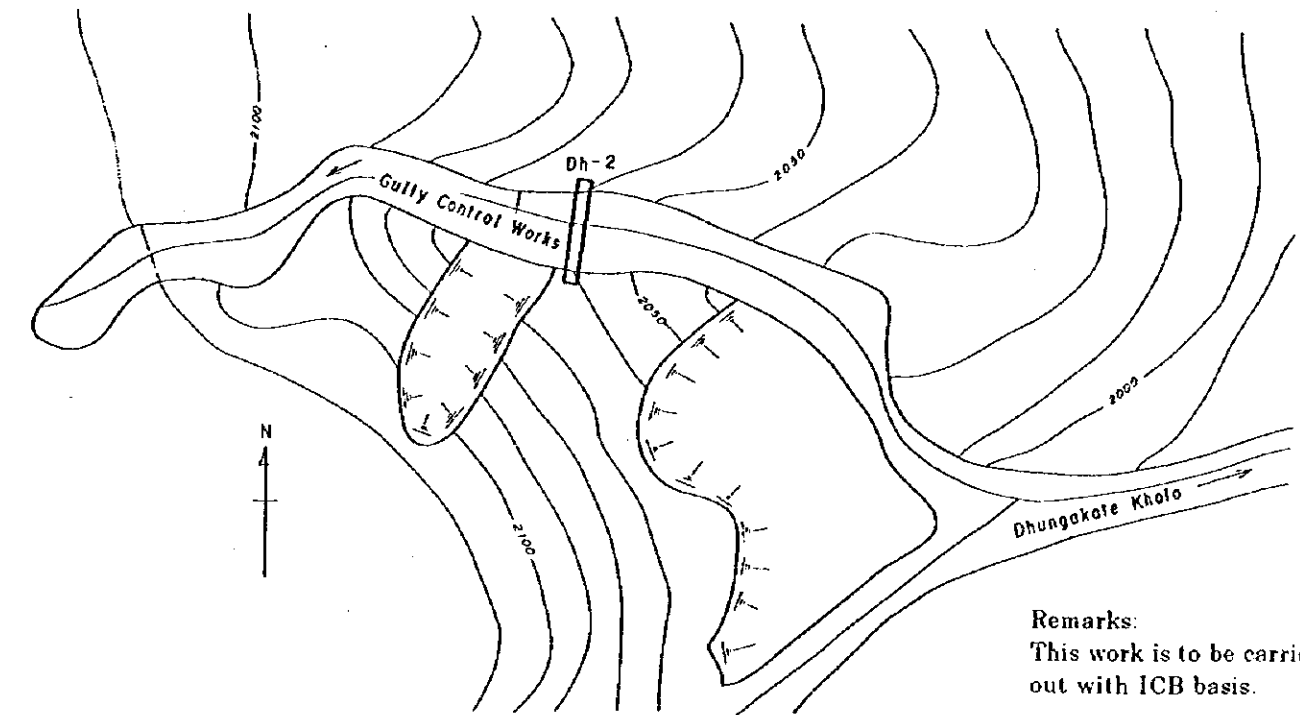
LOCATION MAP OF CHECK DAMS / GHATTE KHOLA

Scale = 1:2500



LOCATION MAP OF CHECK DAM (Dh-2) / DHUNGAKATE KHOLA

Scale = 1:2500

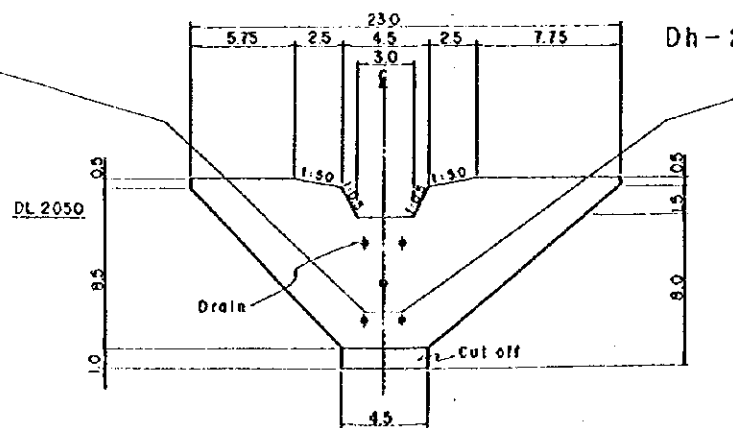


CHECK DAM / DHUNGAKATE KNOLA

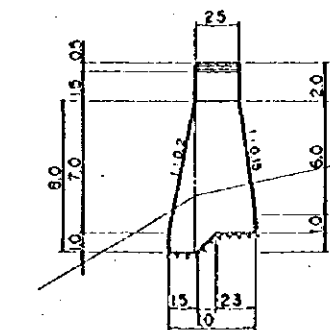
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FRONT VIEW FROM UPSTREAM

TYPICAL CROSS SECTION



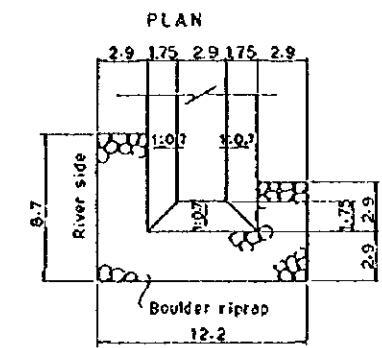
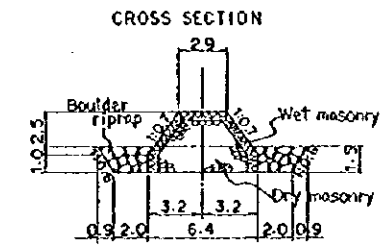
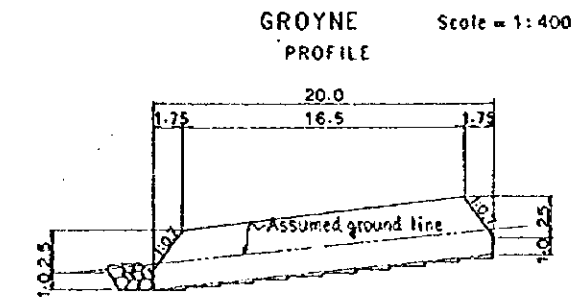
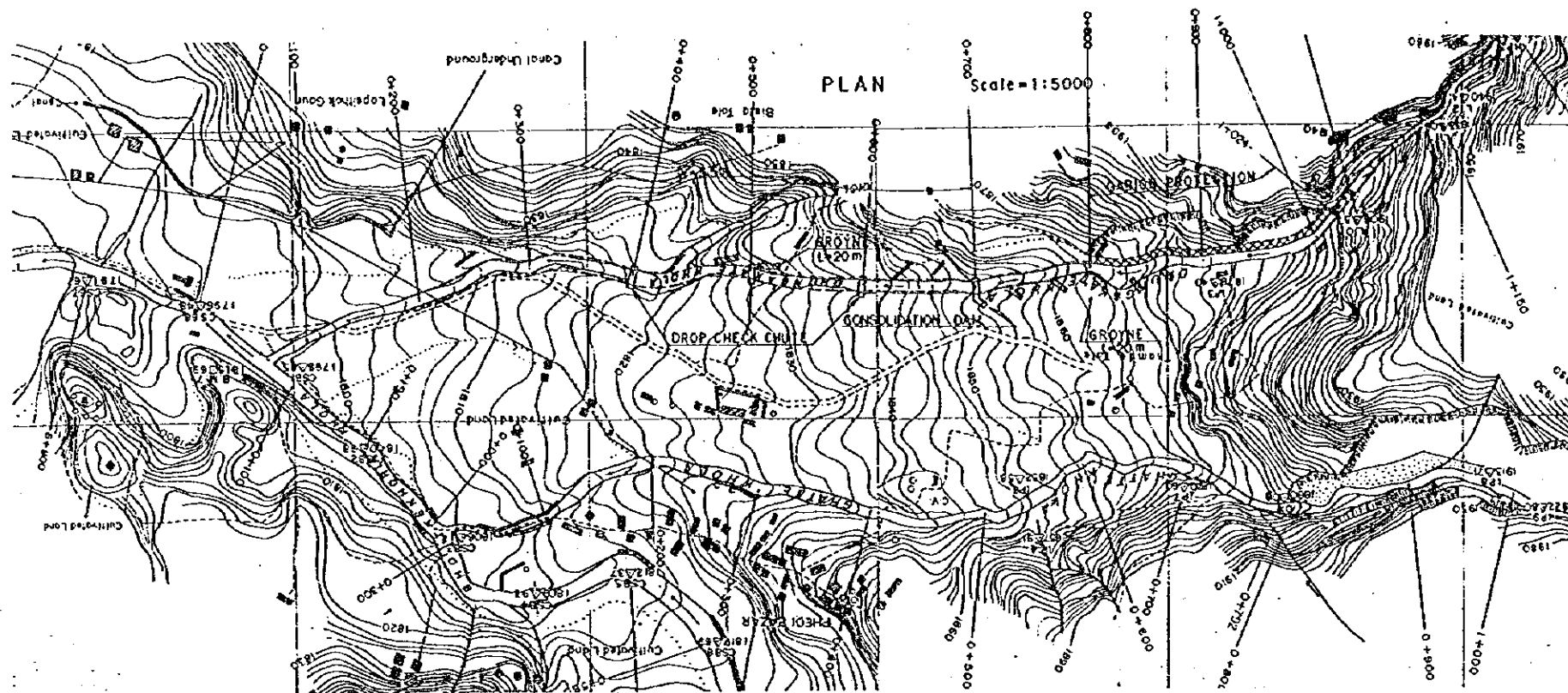
Dh-2



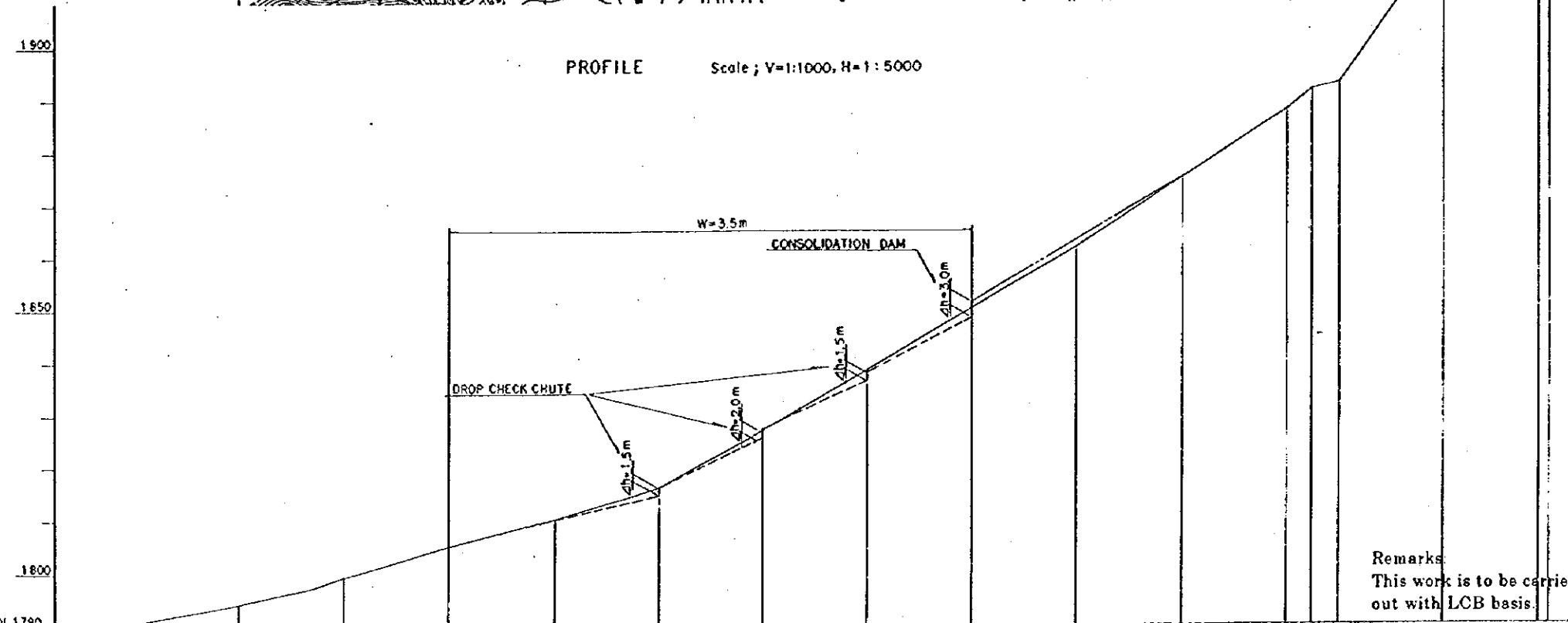
Remarks:
This work is to be carried out with ICB basis.

Fig. 1.1.3 (2/2)
Check Dam Dh-2, Gh-6, Gh-7 & Gh-8
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Remarks:
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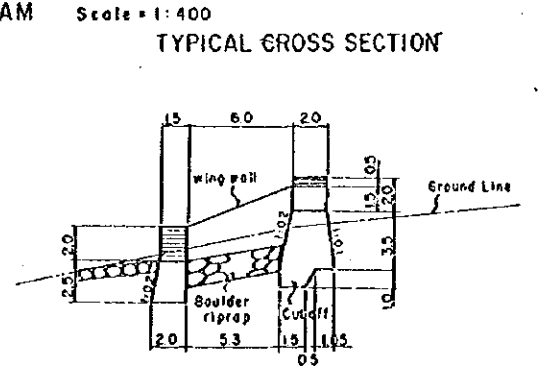
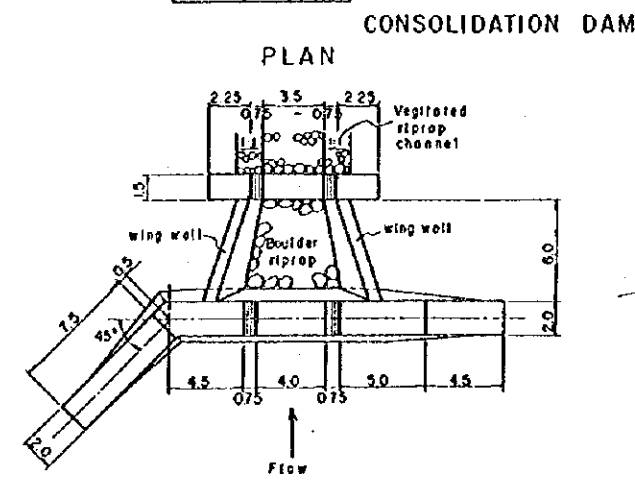
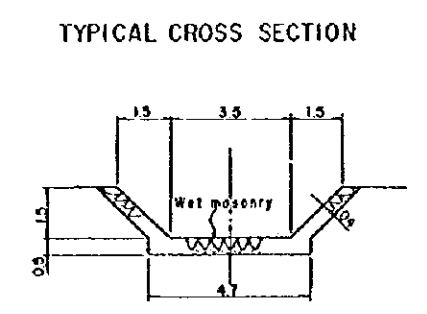
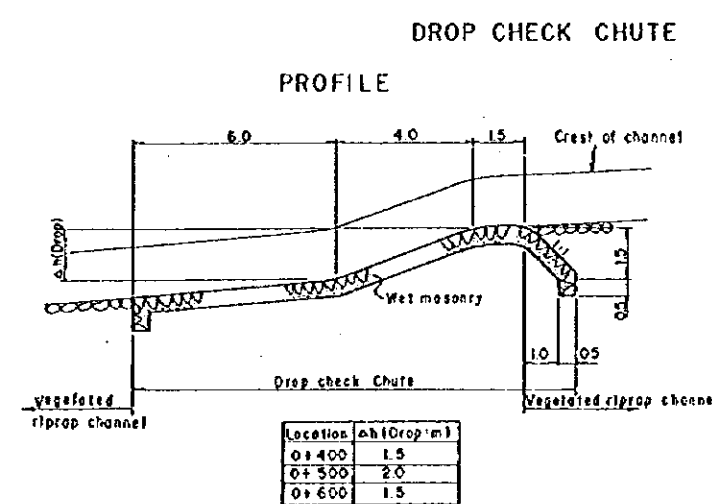
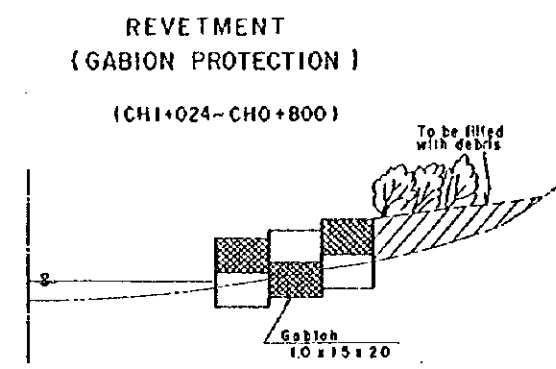
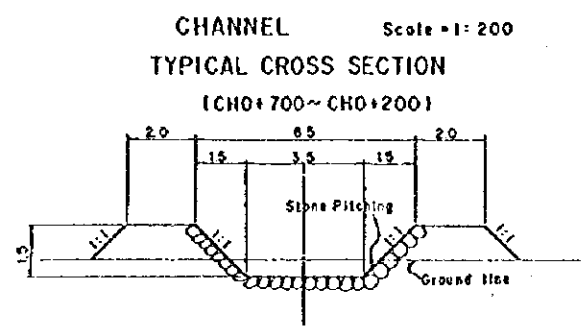
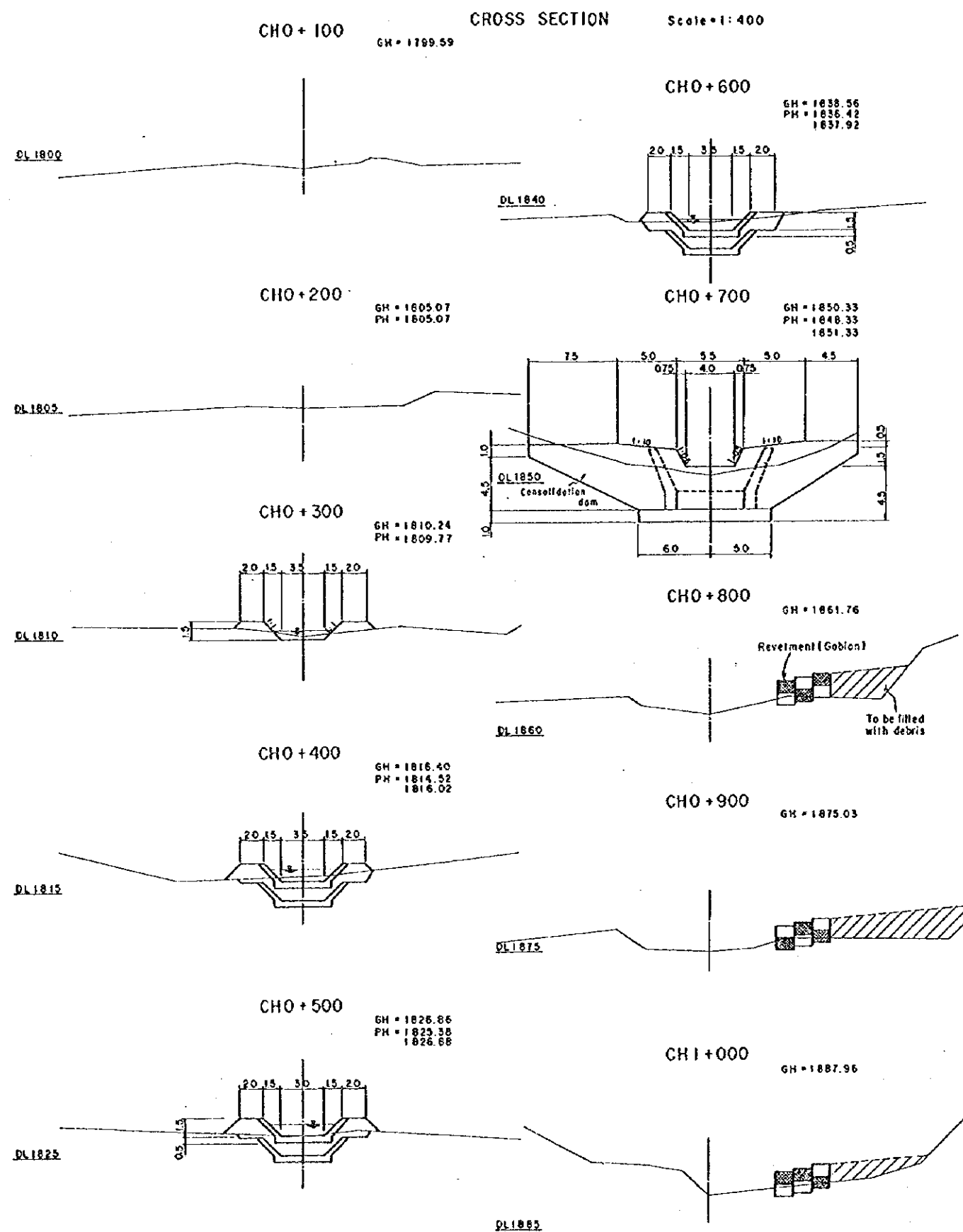


Remarks:
This work is to be carried out with LCB basis.

DL 1790																				
EXISTING RIVER BED	GRADIENT				4.7%	9.36%	9.54%	10.41%	11.85%	11.85%	Estimated deposition gradient									
EXISTING RIVER BED	ELEVATION																			
EXISTING RIVER BED	ELEVATION	1790.68	1790.14	1790.09	1790.12	1805.07	1810.34	1816.07	1822.35	1829.02	1836.14	1843.71	1851.73	1860.21	1869.15	1878.55	1888.41	1898.73	1909.51	1920.75
EXISTING RIVER BED	GRADIENT	3.51%	4.29%	6.43%	5.95%	5.17%	5.78%	10.84%	11.70%	11.77%	11.43%	13.27%	12.93%	16.33%	15.23%	27.87%	16.06%	14.16%		
CHAINAGE		6+500	7+000	8+070	8+100	8+200	8+300	8+400	8+500	8+600	8+700	8+800	8+900	9+000	1+000	1+025	1+050	1+150	1+200	1+250

Fig. 1.1.4 Channel Works for Dhungakate Khola in Phedigaon/Phatbazar CDPP

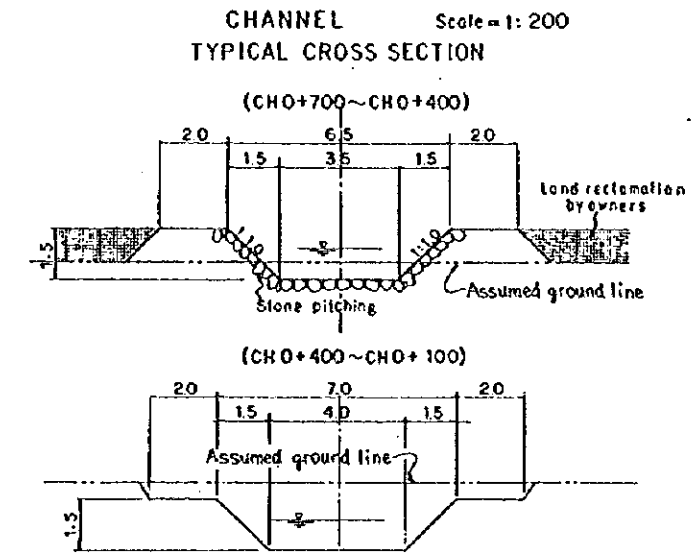
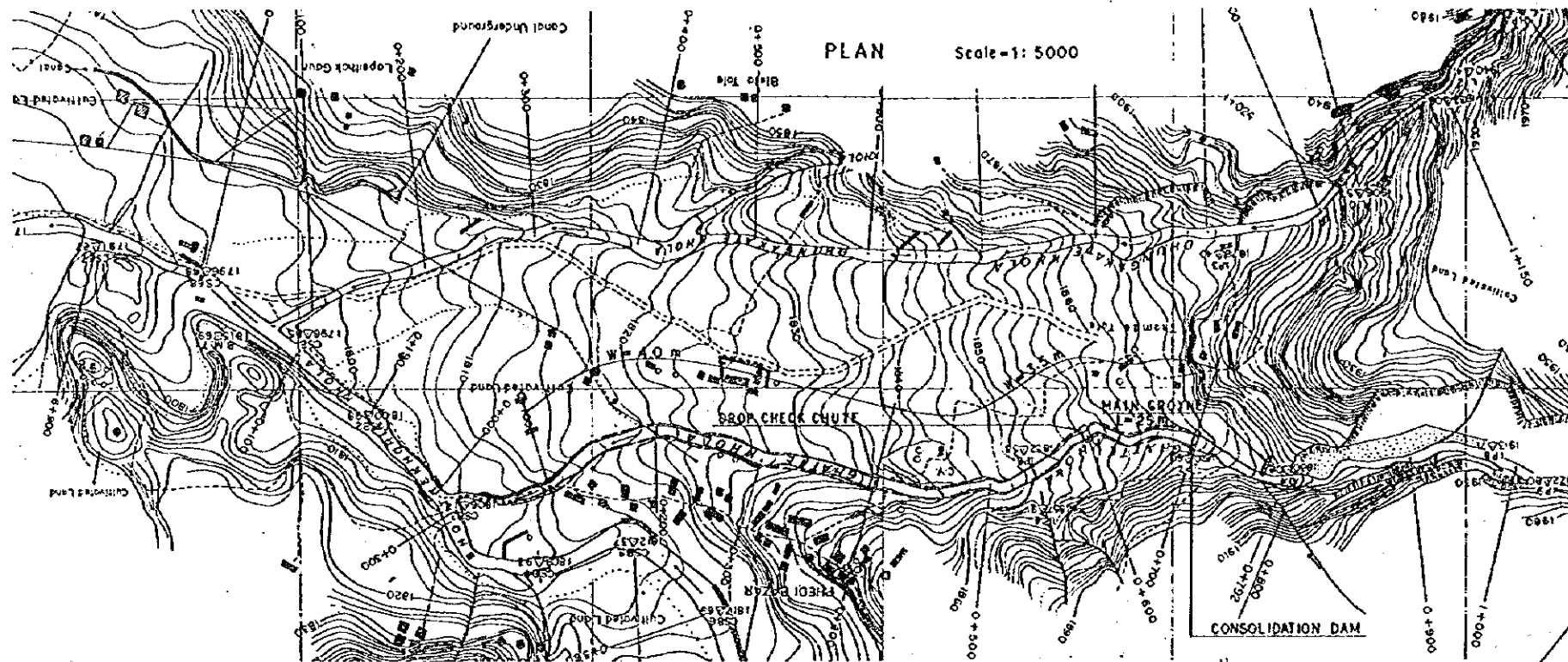
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Remarks:
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Fig. 1.1.5
The River Structures Related to
Channel Works for Dhungakate Khola

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Remarks:
This work is to be carried out with LCB basis.

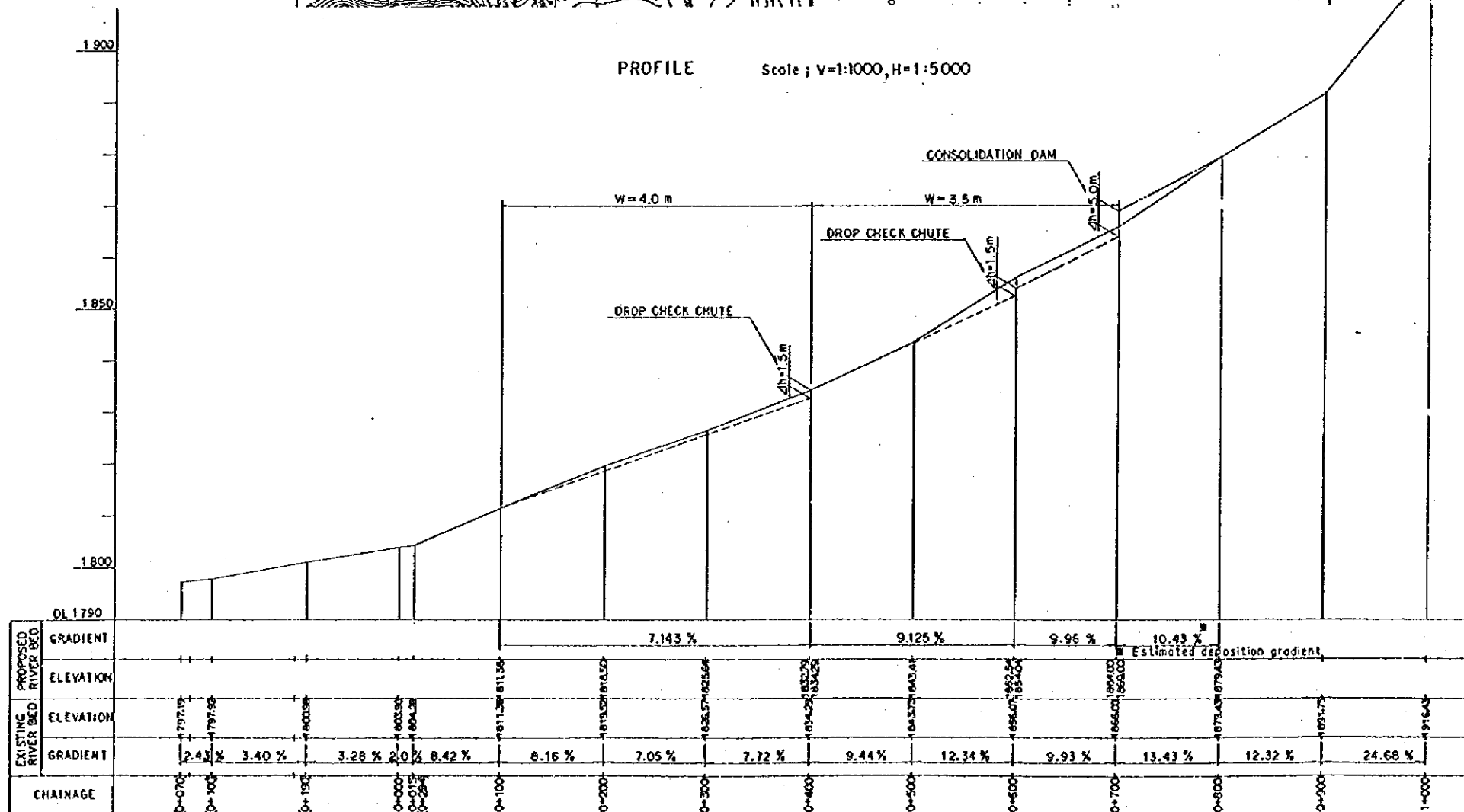
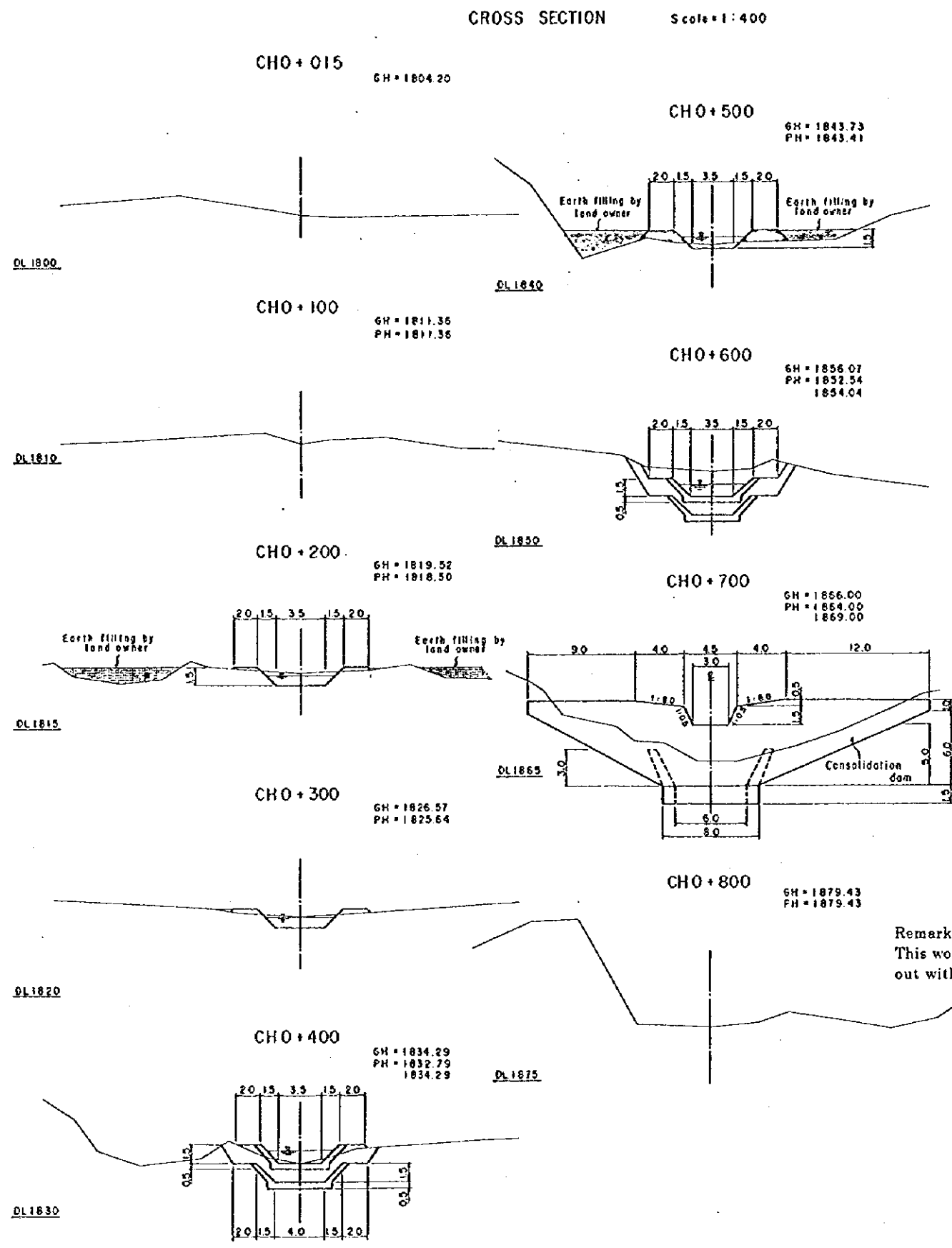
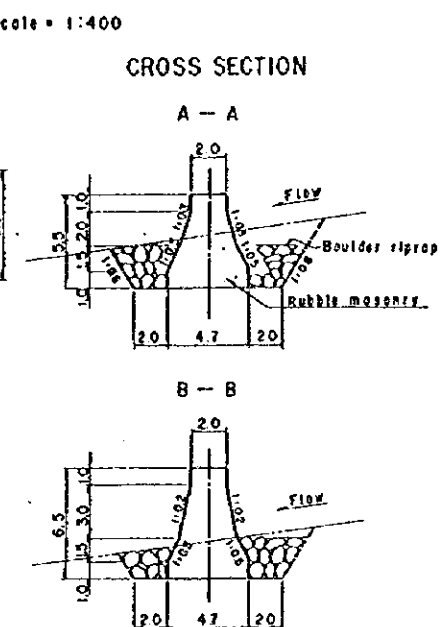
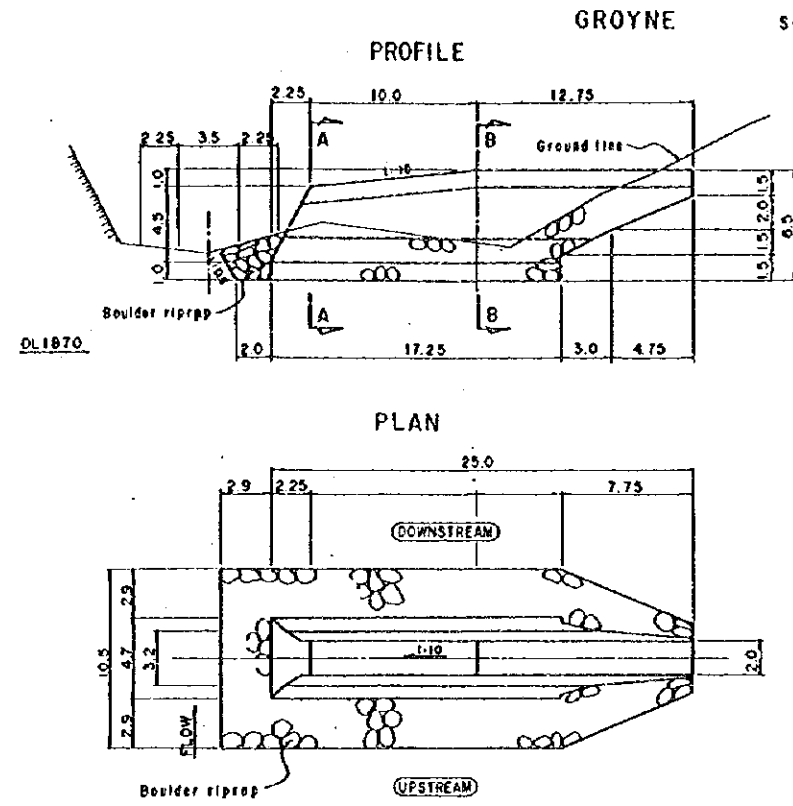


Fig. 1.1.6
Channel Works for Ghatte Khola in Phedigaon/Phatbazar CDDP

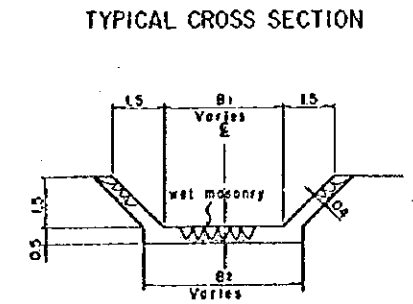
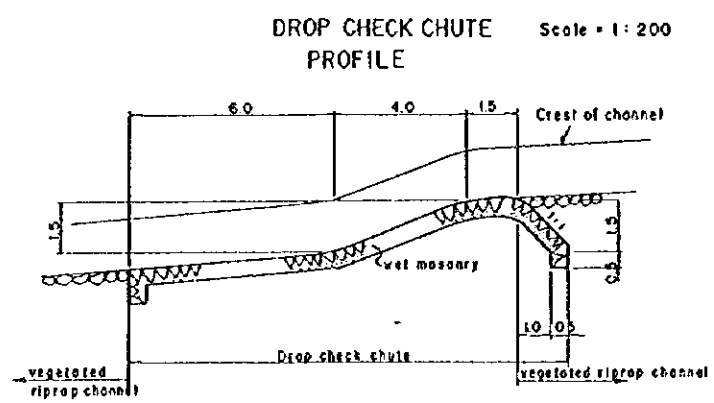
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Remarks:
This work is to be carried out with LCB basis.



Remarks:
This work is to be carried out with ICB basis.



Location	Bt (m)	Bt (m)
0+400	4.0	5.2
0+600	3.5	4.7

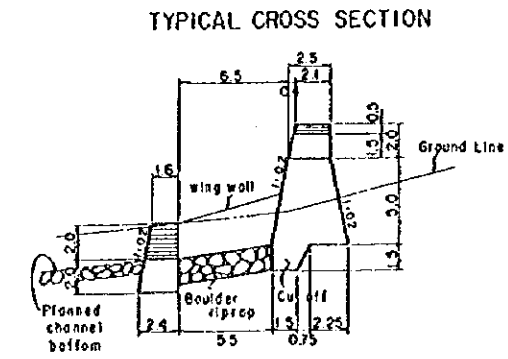
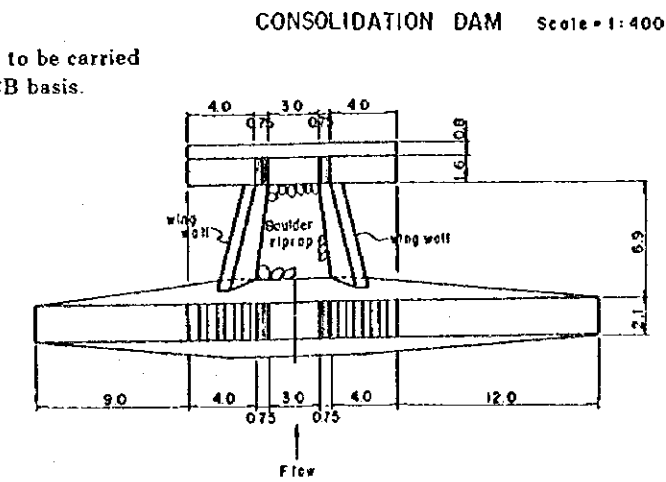
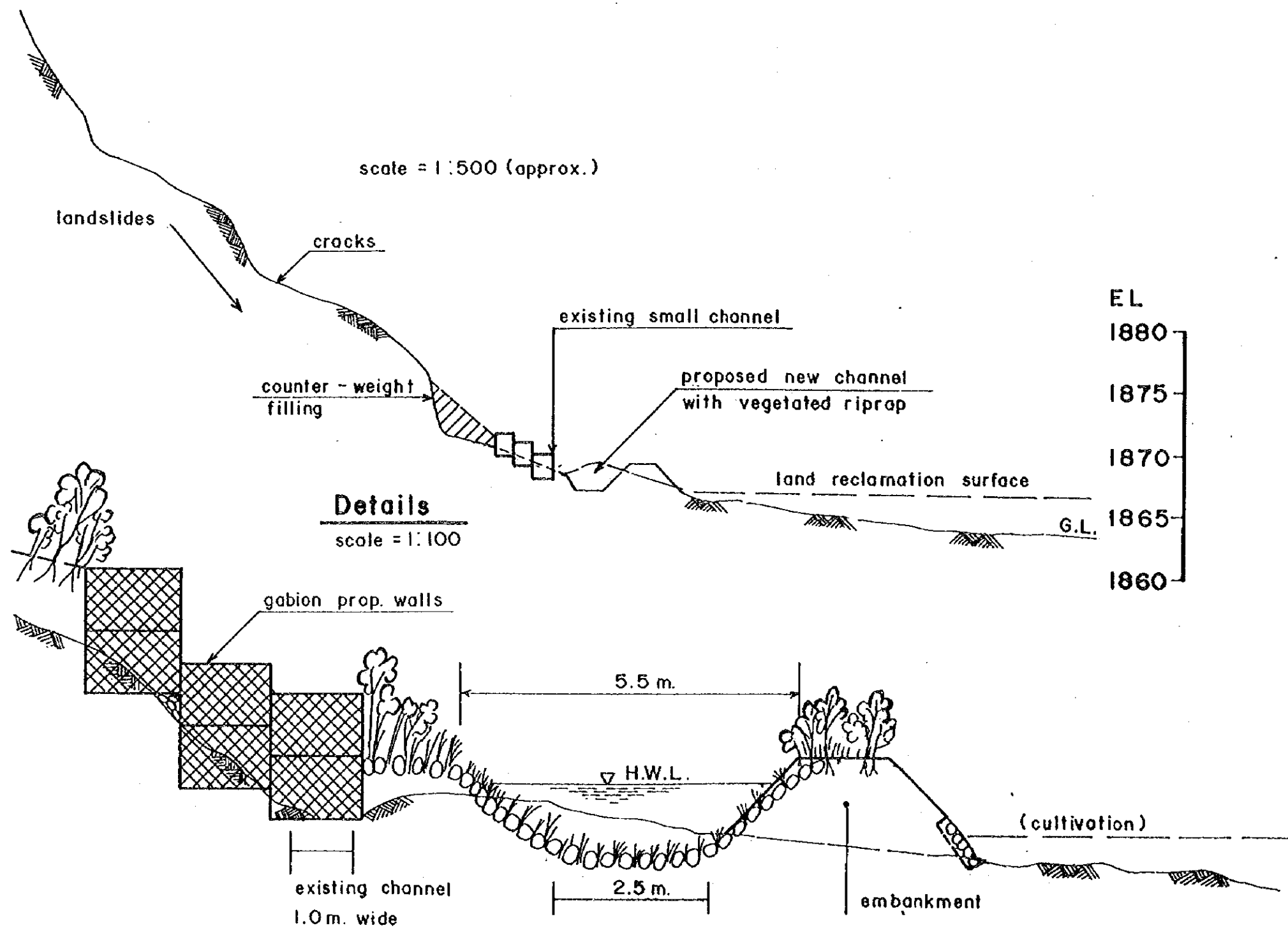


Fig. 1.1.7
The River Structures Related to
Channel Works for Ghatte Khola

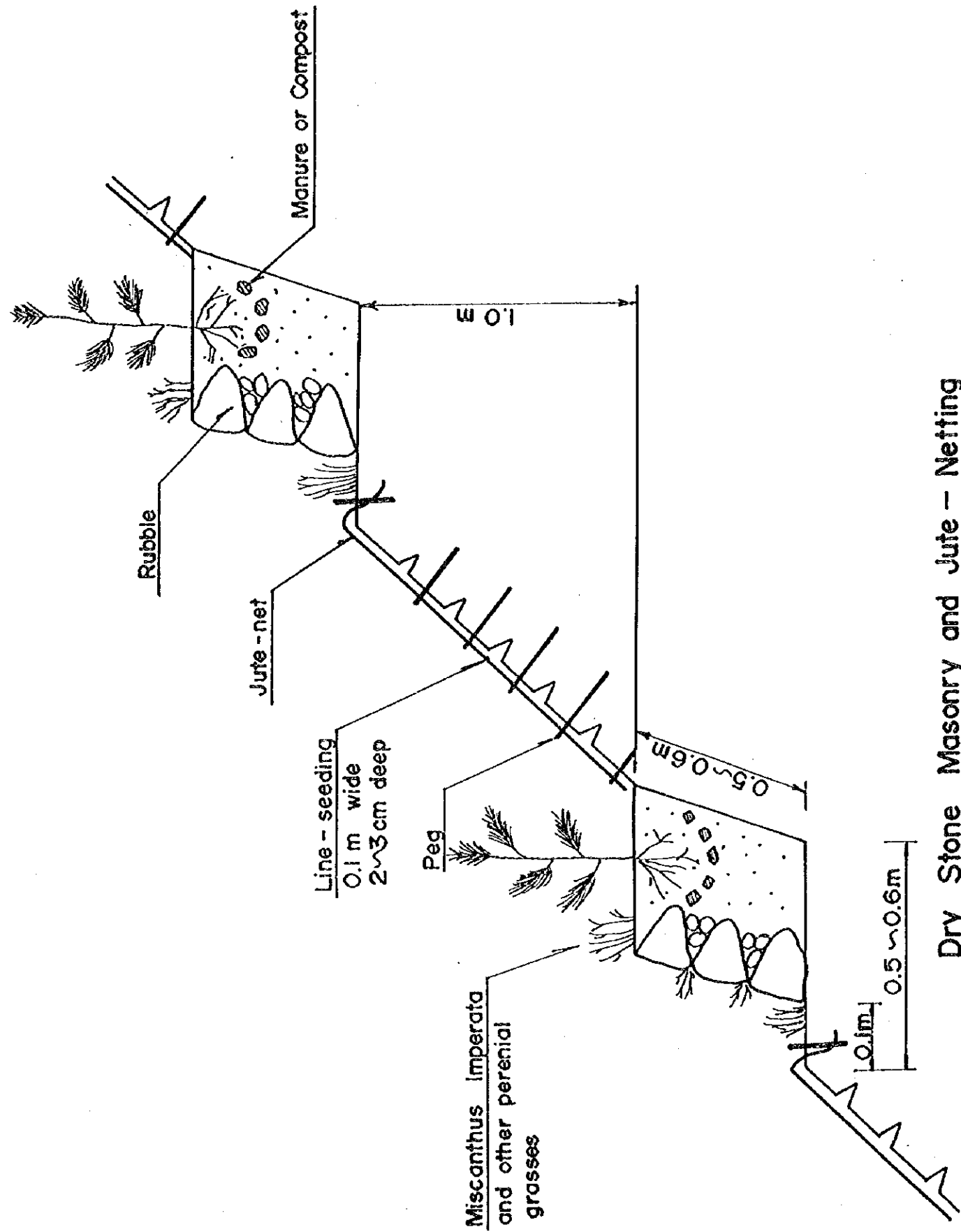
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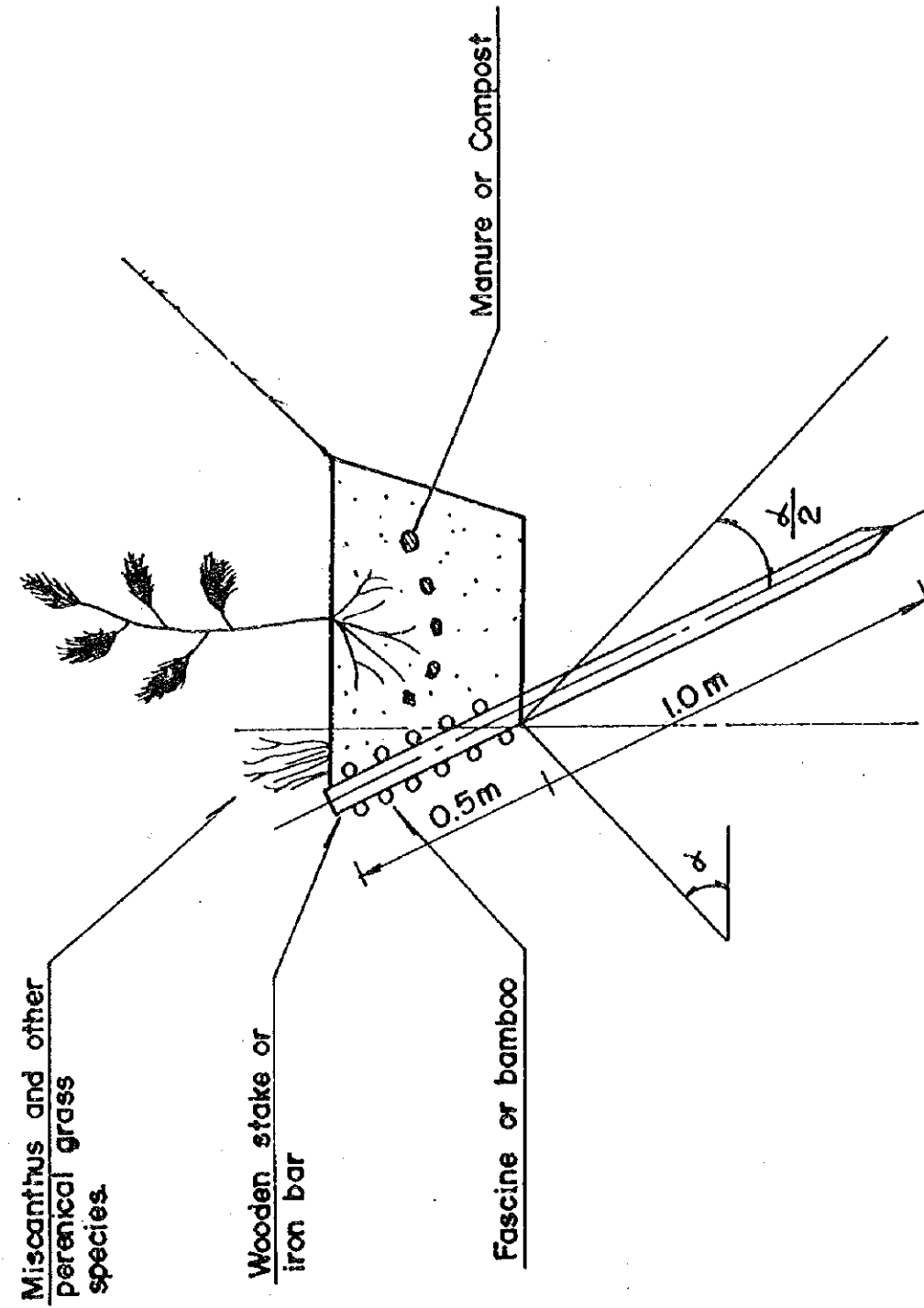
Notes : The embankment shown above should be strengthened in a proper manner because the debris flows tend to divert and disperse towards the north-east (toward the primary school). This is necessary between torrent bed E.L. 1860 and E.L. 1870

Fig. 1.1.8
Typical Section of Revetment on Dhungakate Khola

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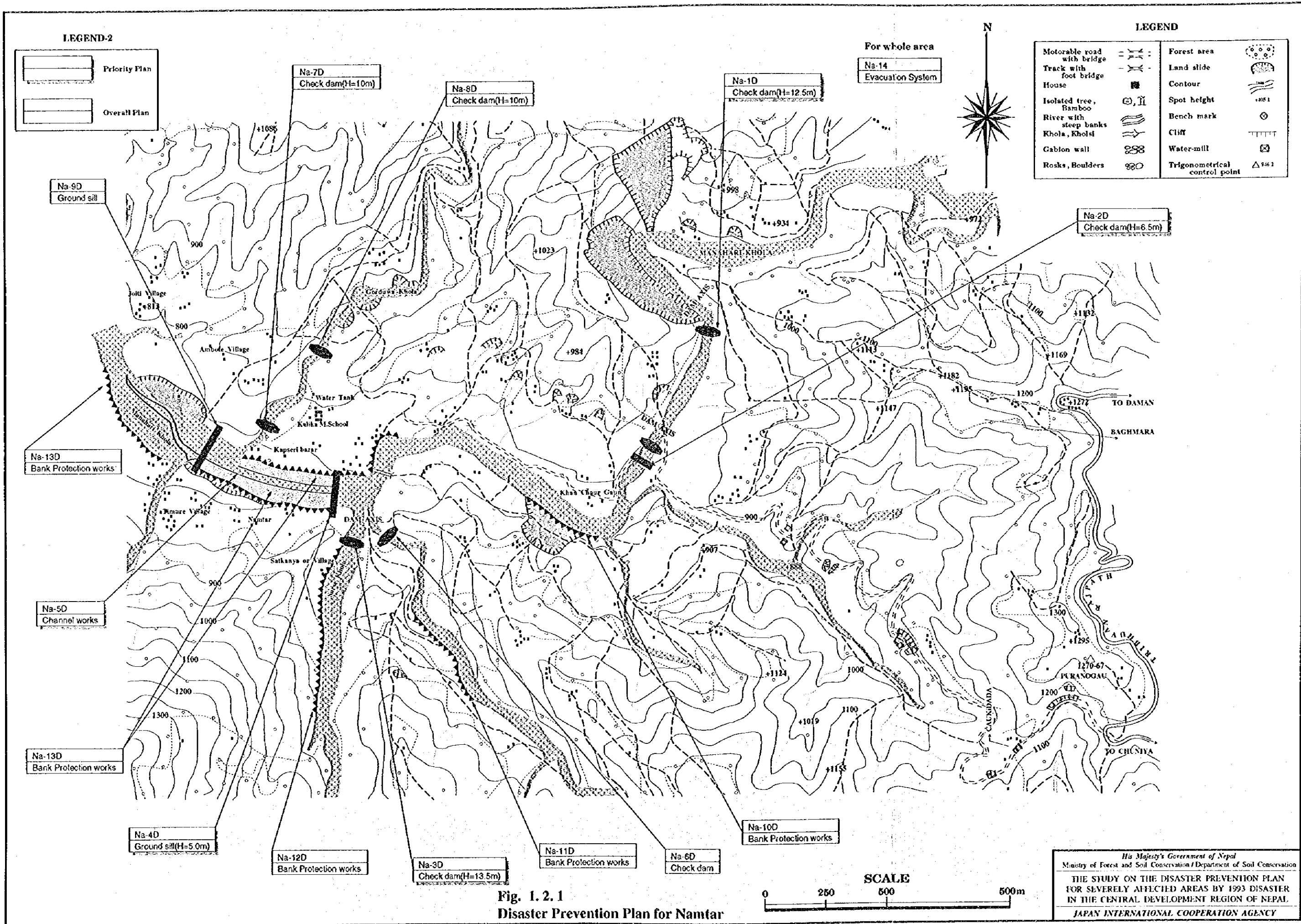
Dry Stone Masonry and Jute - Netting



Wadding

Fig. 1.1.9
Typical Design for Hillside Works

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LEGEND-2

Priority Plan

Overall Plan

For whole area

Na-14

Evacuation System

LEGEND

Motorable road with bridge

Track with foot bridge

House

Isolated tree, Bamboo

River with steep banks

Khola, Kholst

Gabion wall

Rocks, Boulders

Forest area

Land slide

Contour

Spot height

Bench mark

Cliff

Water-mill

Trigonometrical control point

Na-9D

Ground sill

Na-7D

Check dam(H=10m)

Na-8D

Check dam(H=10m)

Na-10D

Check dam(H=12.5m)

Na-2D

Check dam(H=6.5m)

Na-13D

Bank Protection works

Na-5D

Channel works

Na-13D

Bank Protection works

Na-4D

Ground sill(H=5.0m)

Na-12D

Bank Protection works

Na-3D

Check dam(H=13.5m)

Na-11D

Bank Protection works

Na-6D

Check dam

Na-10D

Bank Protection works

Fig. 1. 2. 1
Disaster Prevention Plan for Namtar

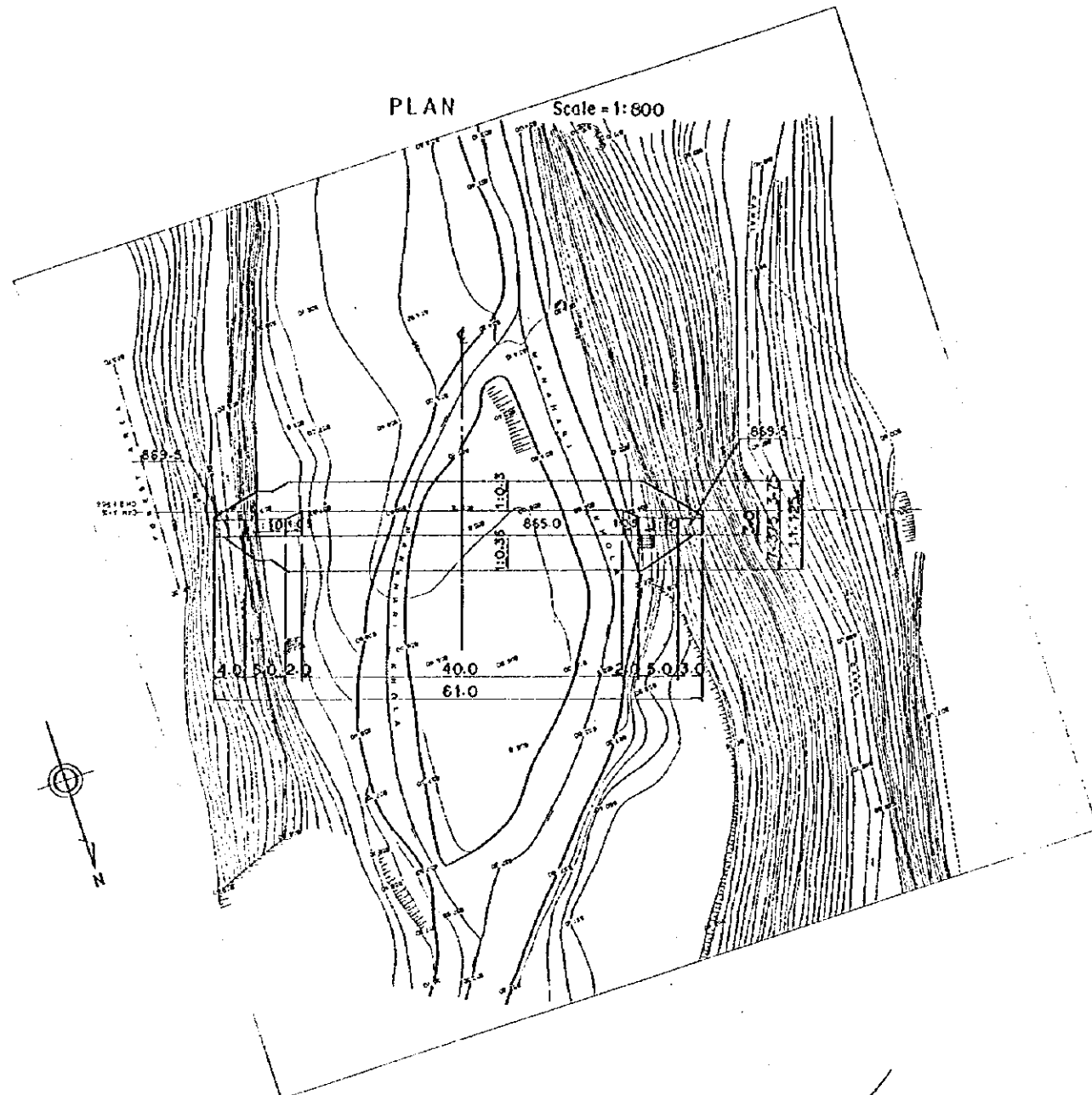
SCALE

0 250 500 500m

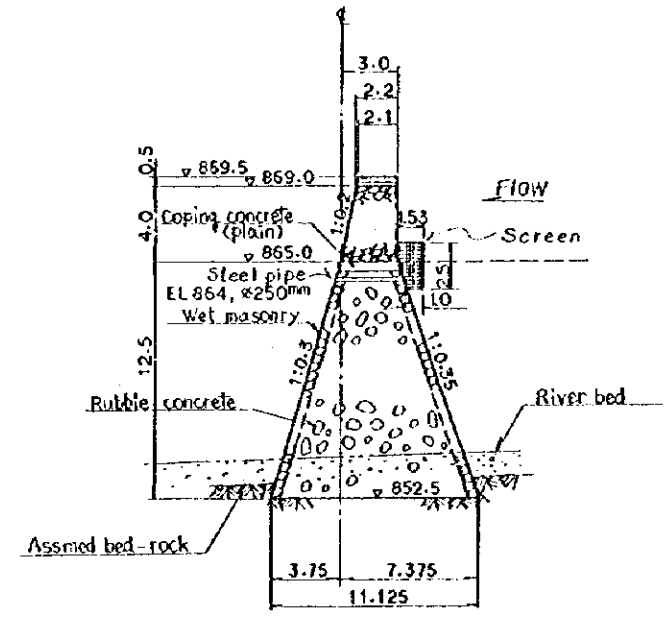
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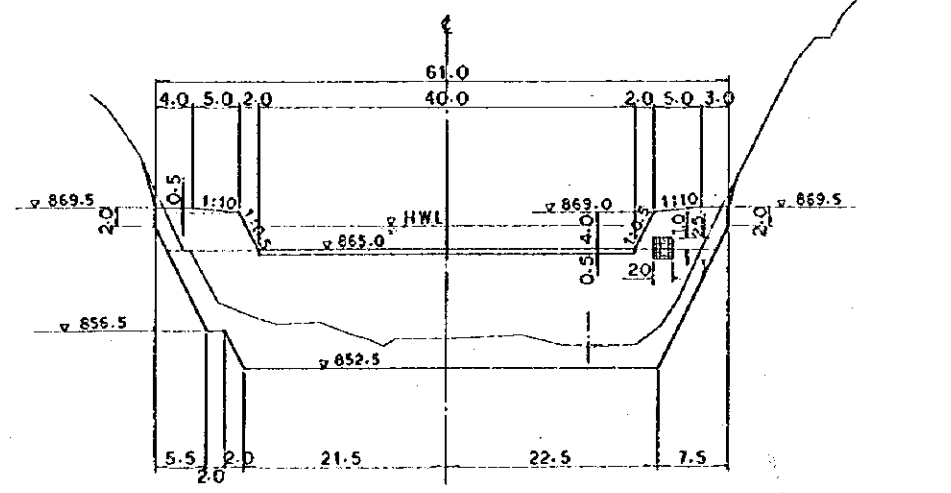


TYPICAL CROSS SECTION Scale = 1:400



EL (m)
900
890
880
870
860
850

FRONT VIEW FROM THE UPSTREAM Scale = 1:800

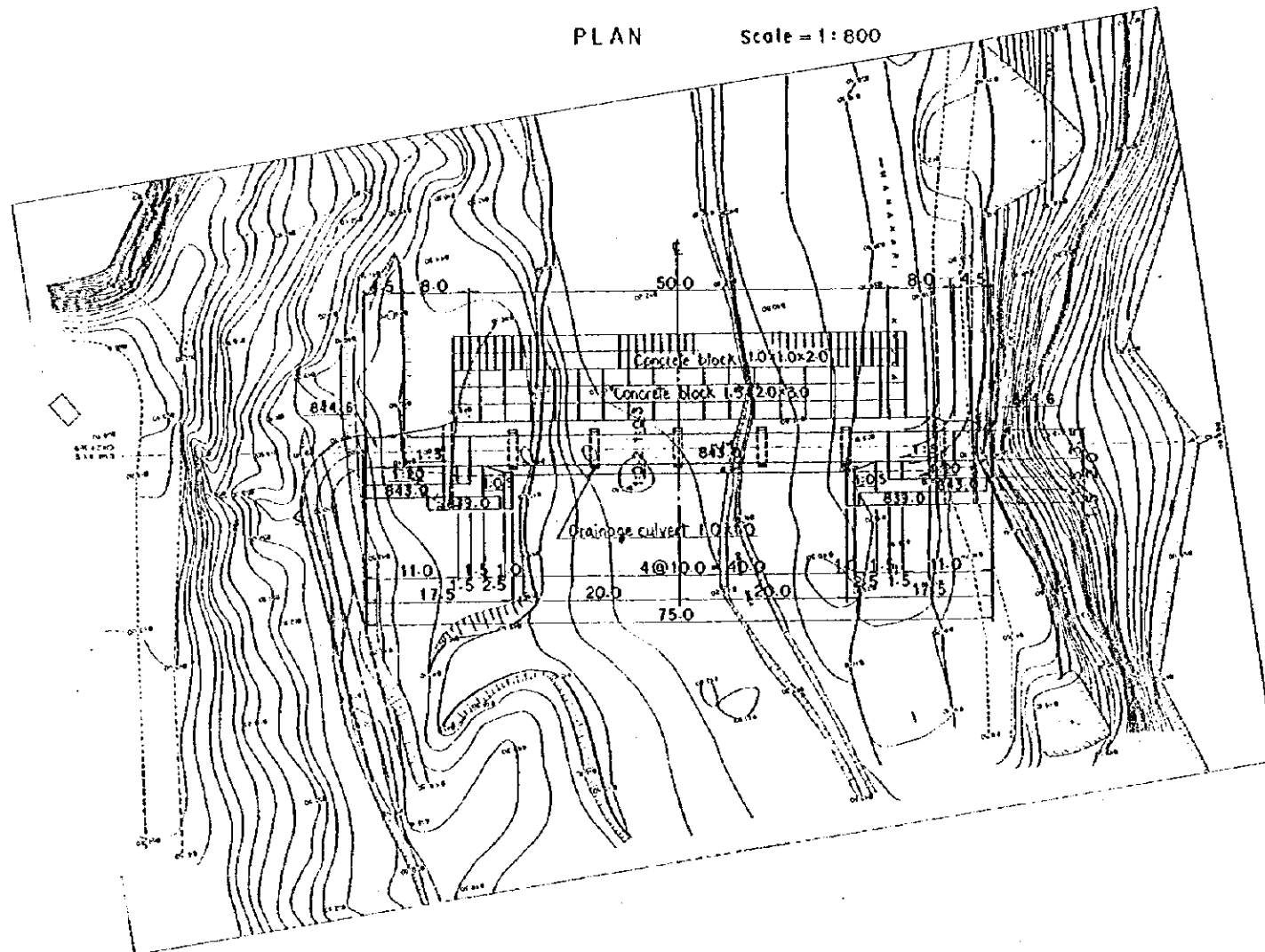


DL 850

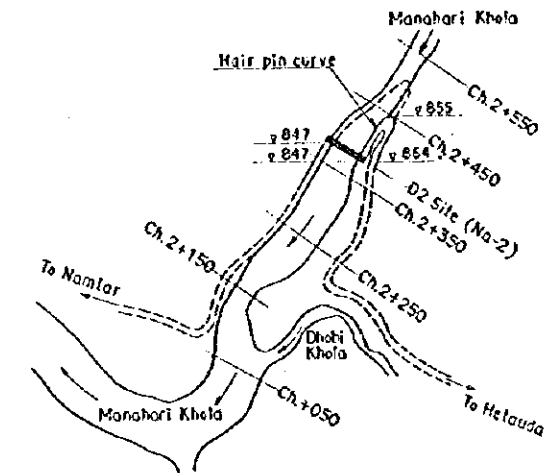
Remarks:
This work is to be carried out with ICB basis.

Fig. 1.2.2
Check Dam Na-1 in Namtar/Tilar CDDP

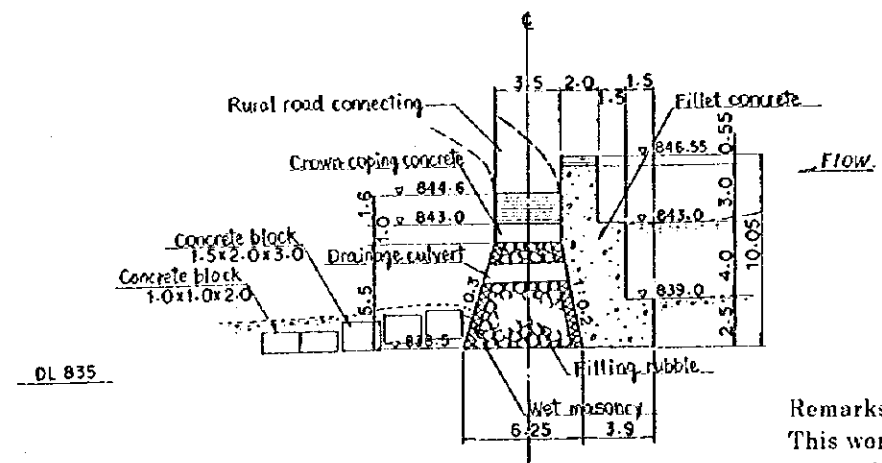
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SITE & ACCESS Scale=1:10,000 (Approx)



TYPICAL CROSS SECTION Scale = 1:400



Remarks:
This work is to be carried out with ICB basis.

FRONT VIEW FROM THE UPSTREAM Scale = 1:800

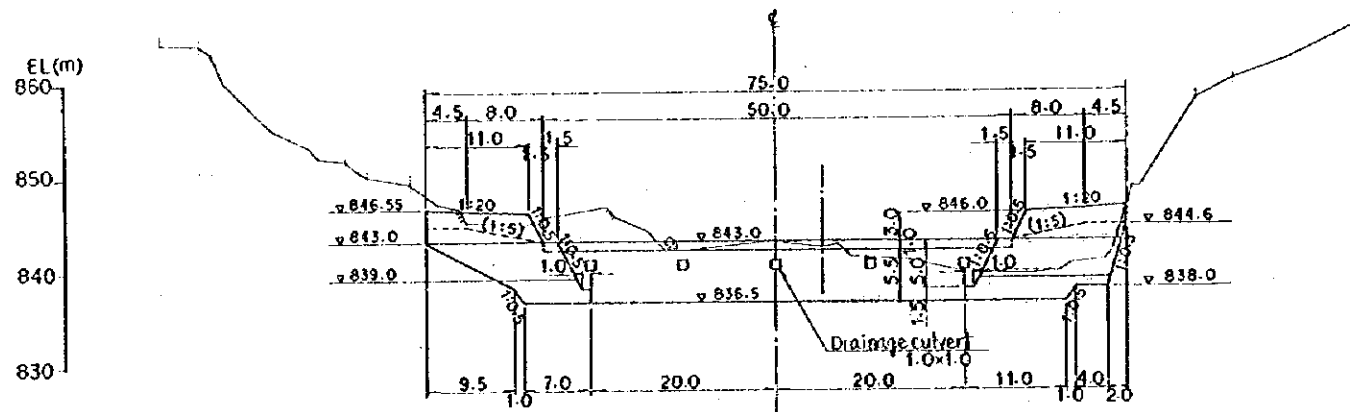
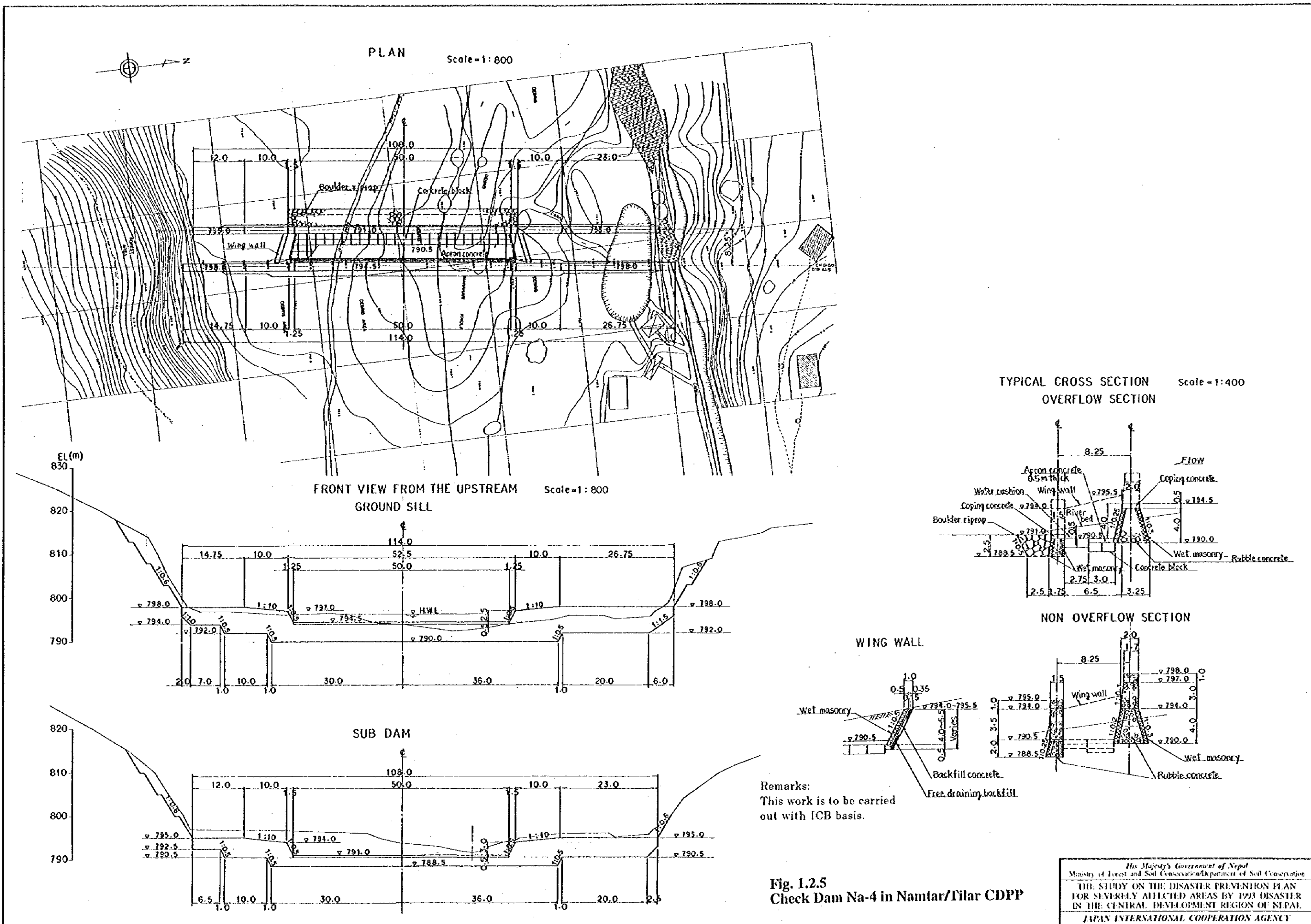
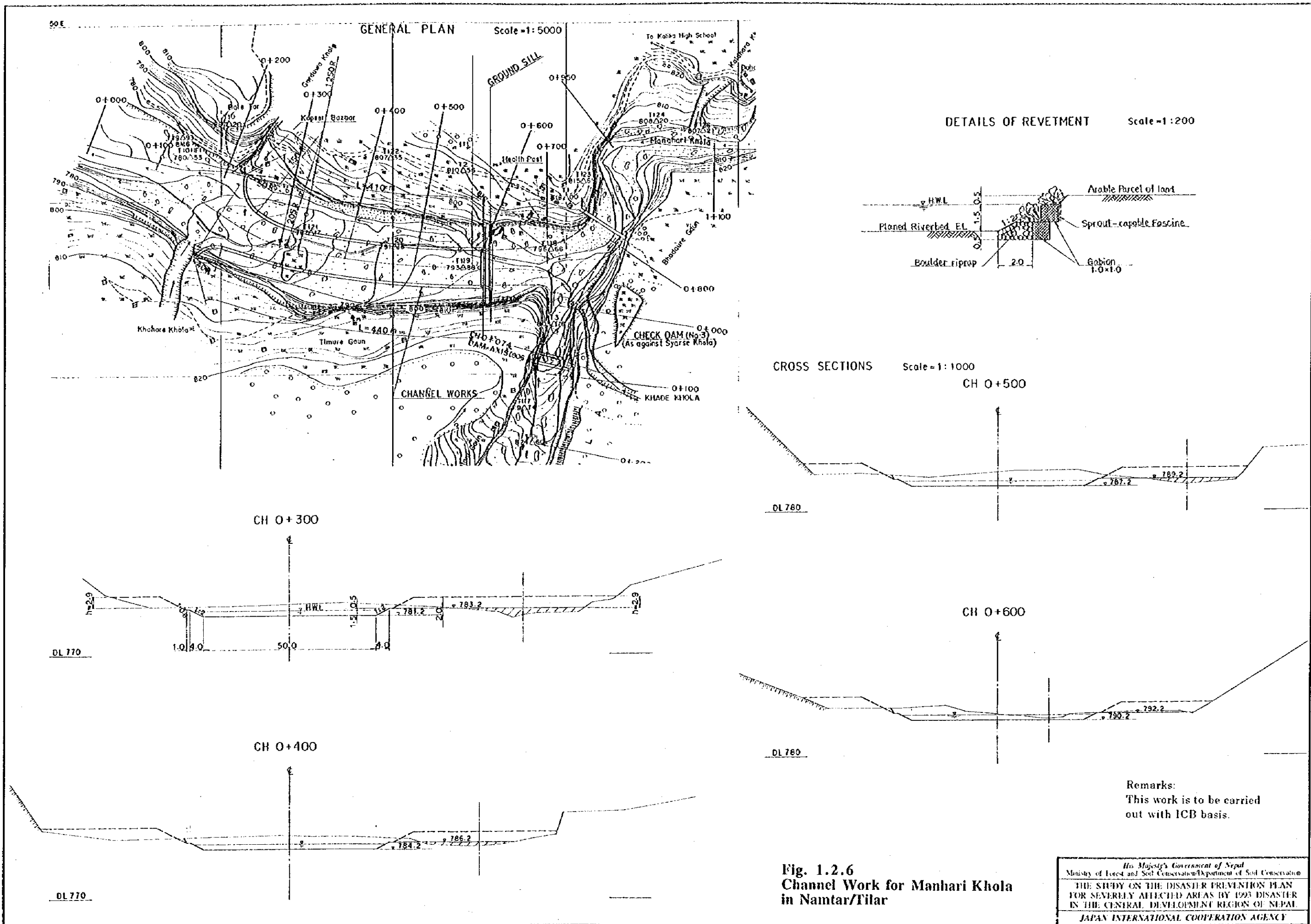


Fig. 1.2.3
Check Dam Na-2 in Namtar/Tilar CDDP

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LEGEND-2

	Priority Plan
	Overall Plan

For whole area

	Ch-12
	Evacuation System

LEGEND

Motorable road with bridge	Forest area
Track with foot bridge	Land slide
House	Contour
Isolated tree, Bamboo	Spot height
River with steep banks	Bench mark
Khola, Kholsi	Cliff
Gabion wall	Water-mill
Rocks, Boulders	Trigonometrical control point

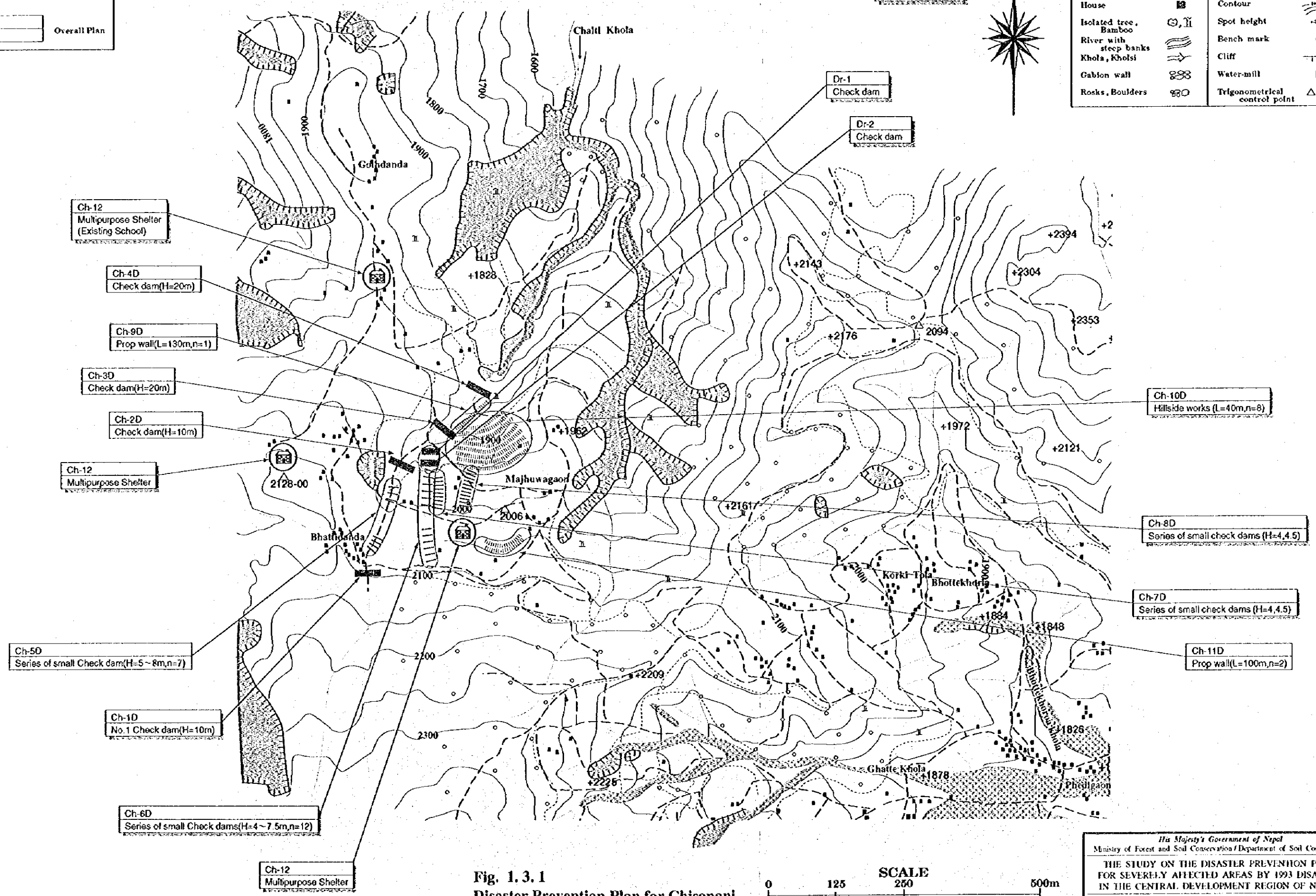
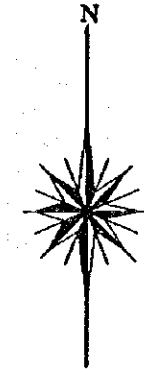


Fig. 1.3.1
Disaster Prevention Plan for Chisapani

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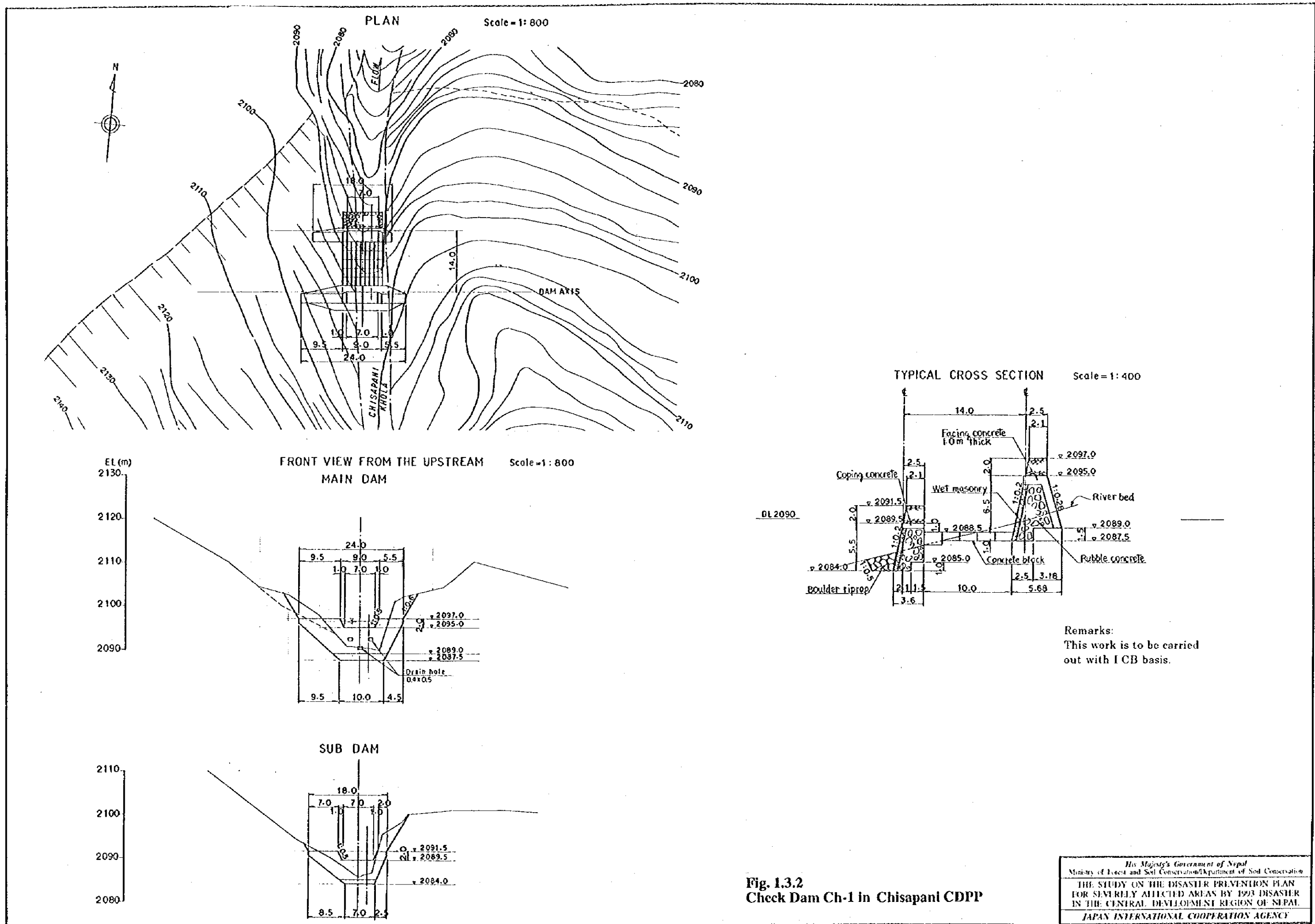


Fig. 1.3.2
Check Dam Ch-1 in Chisapani CDDP

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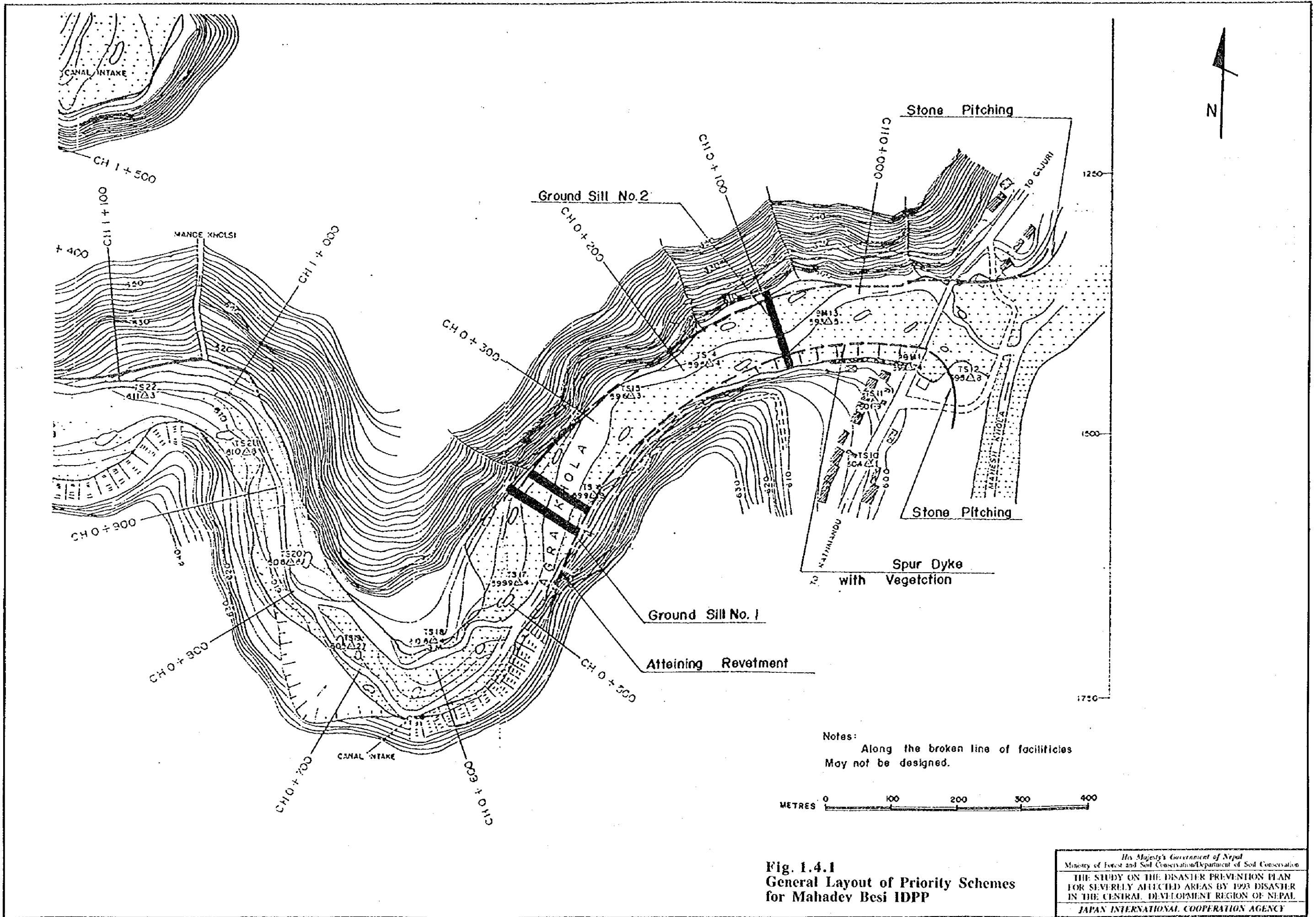
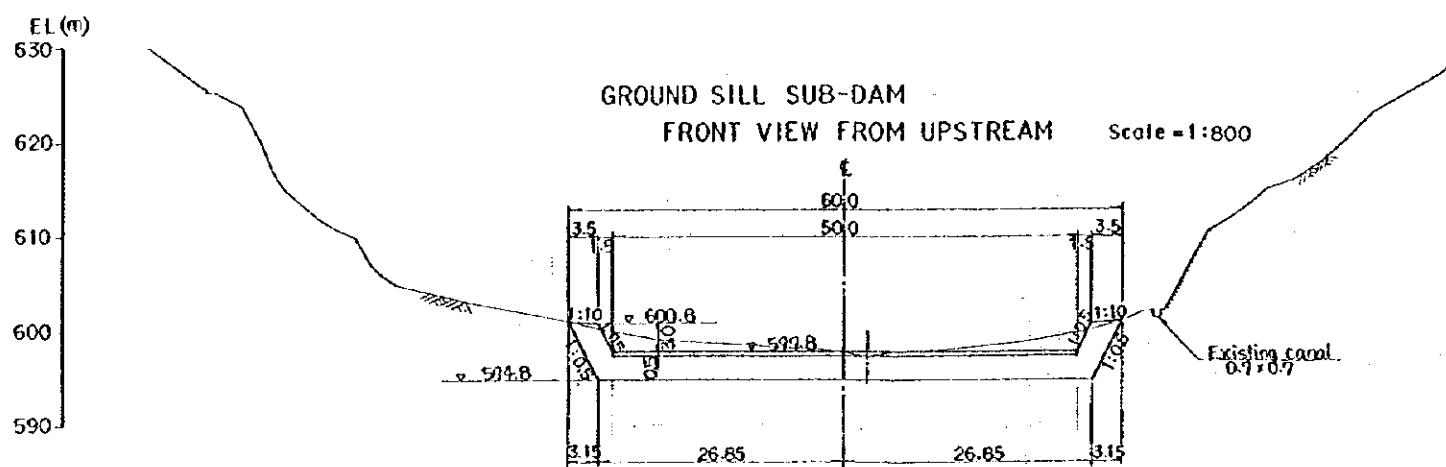
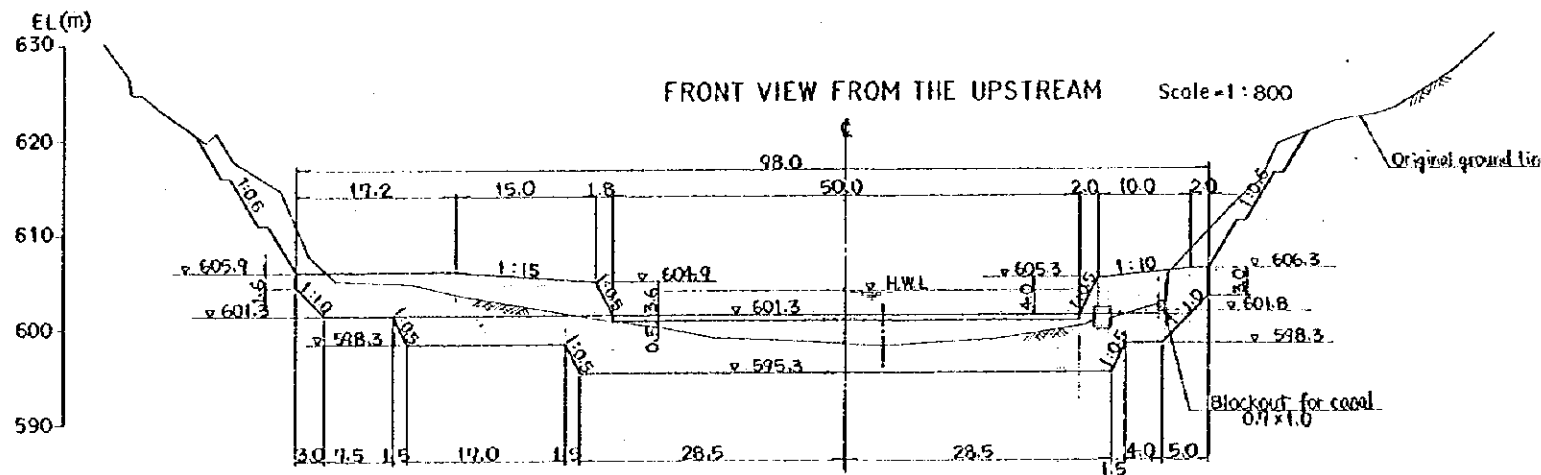
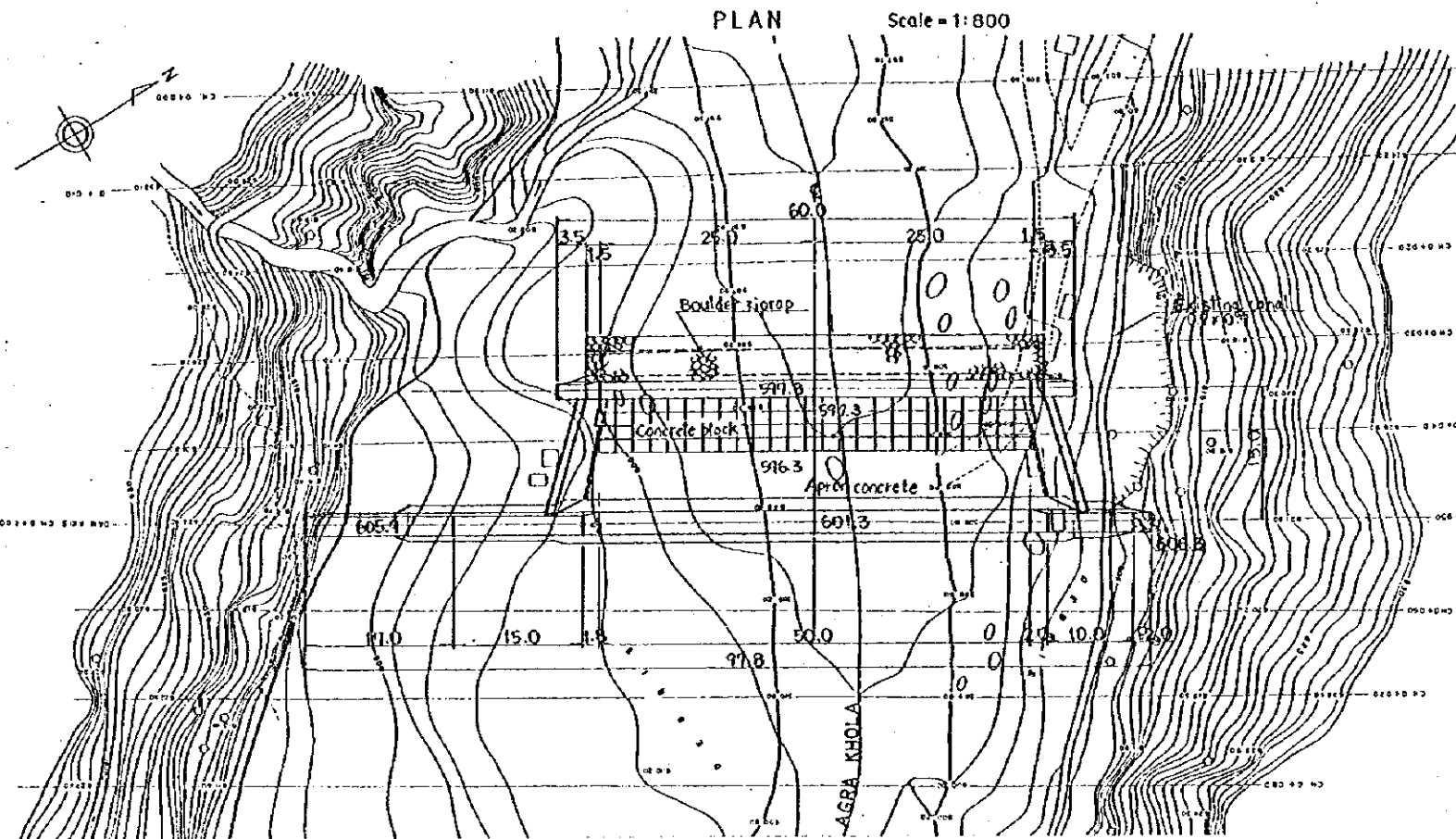
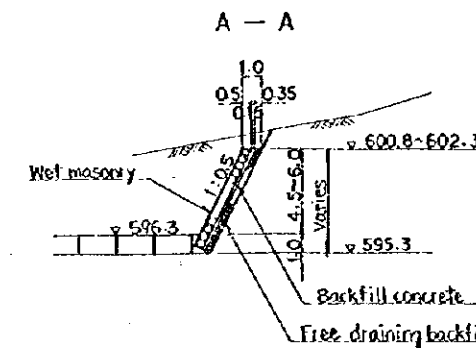
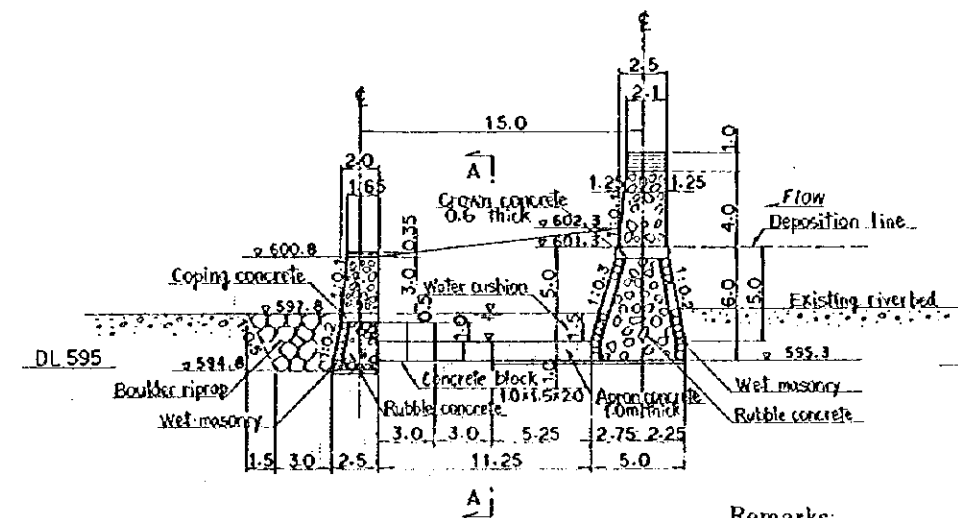


Fig. 1.4.1
General Layout of Priority Schemes
for Mahadev Besi IDPP



TYPICAL CROSS SECTION Scale = 1:400

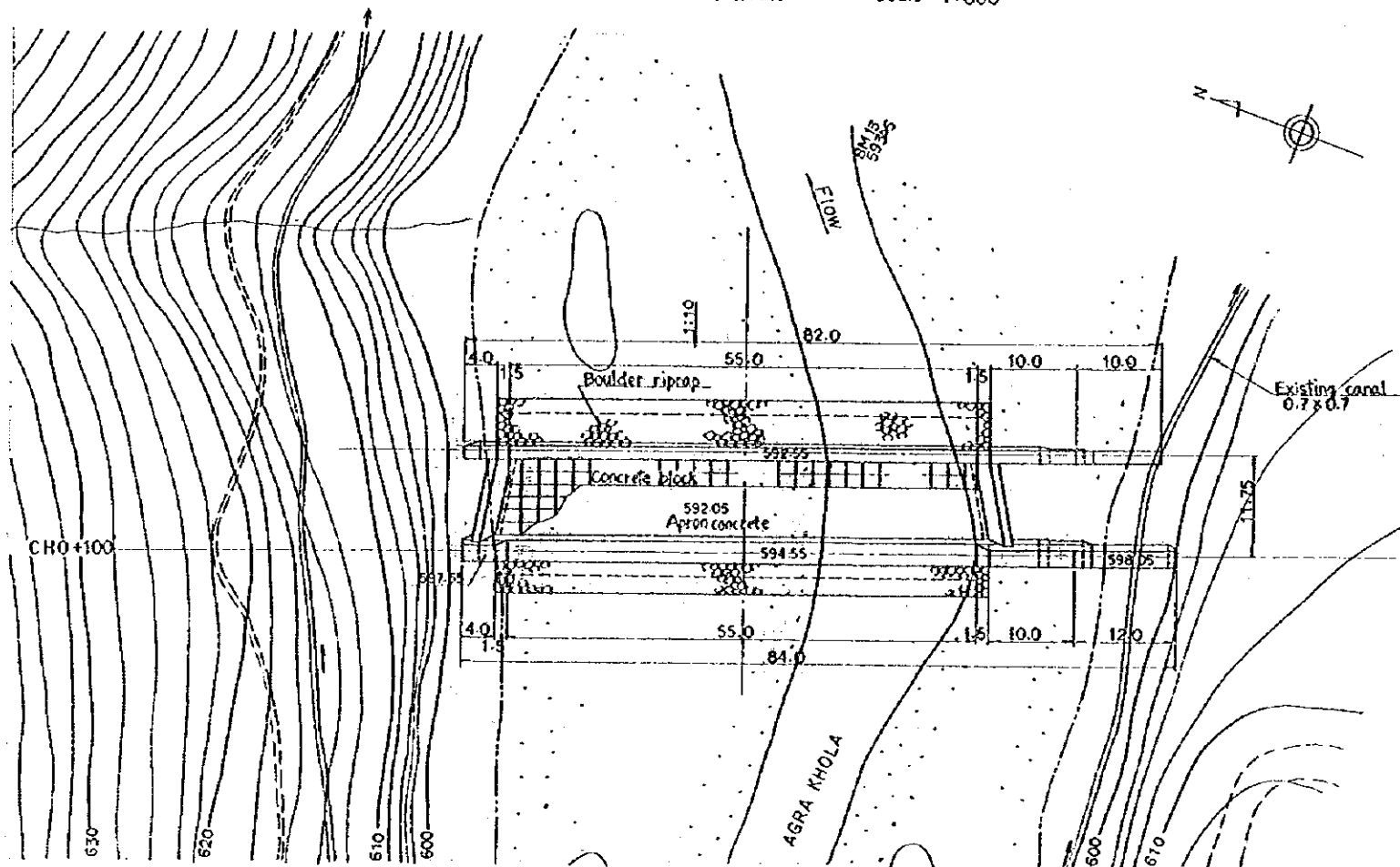


Remarks:
This work is to be carried out with ICB basis.

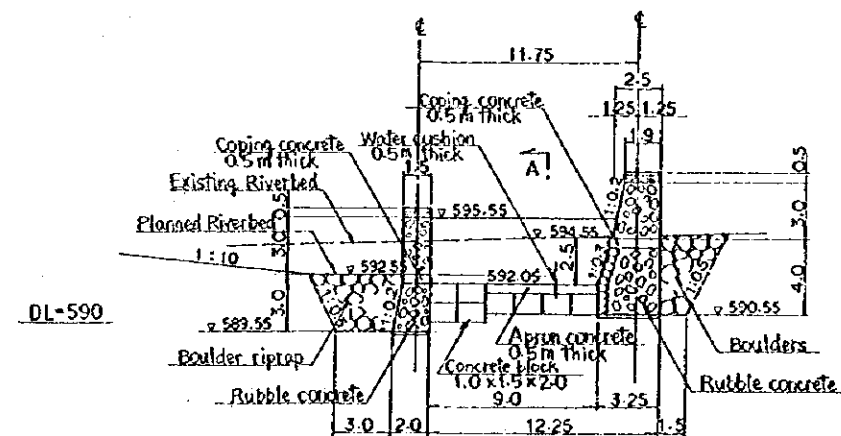
Fig. 1.4.2
Groundsill No.1 in Mahadevbesi IDPP

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PLAN Scale = 1:800



TYPICAL CROSS SECTION Scale = 1:400



Remarks:
This work is to be carried out with ICB basis.

FRONT VIEW FROM THE UPSTREAM Scale = 1:800

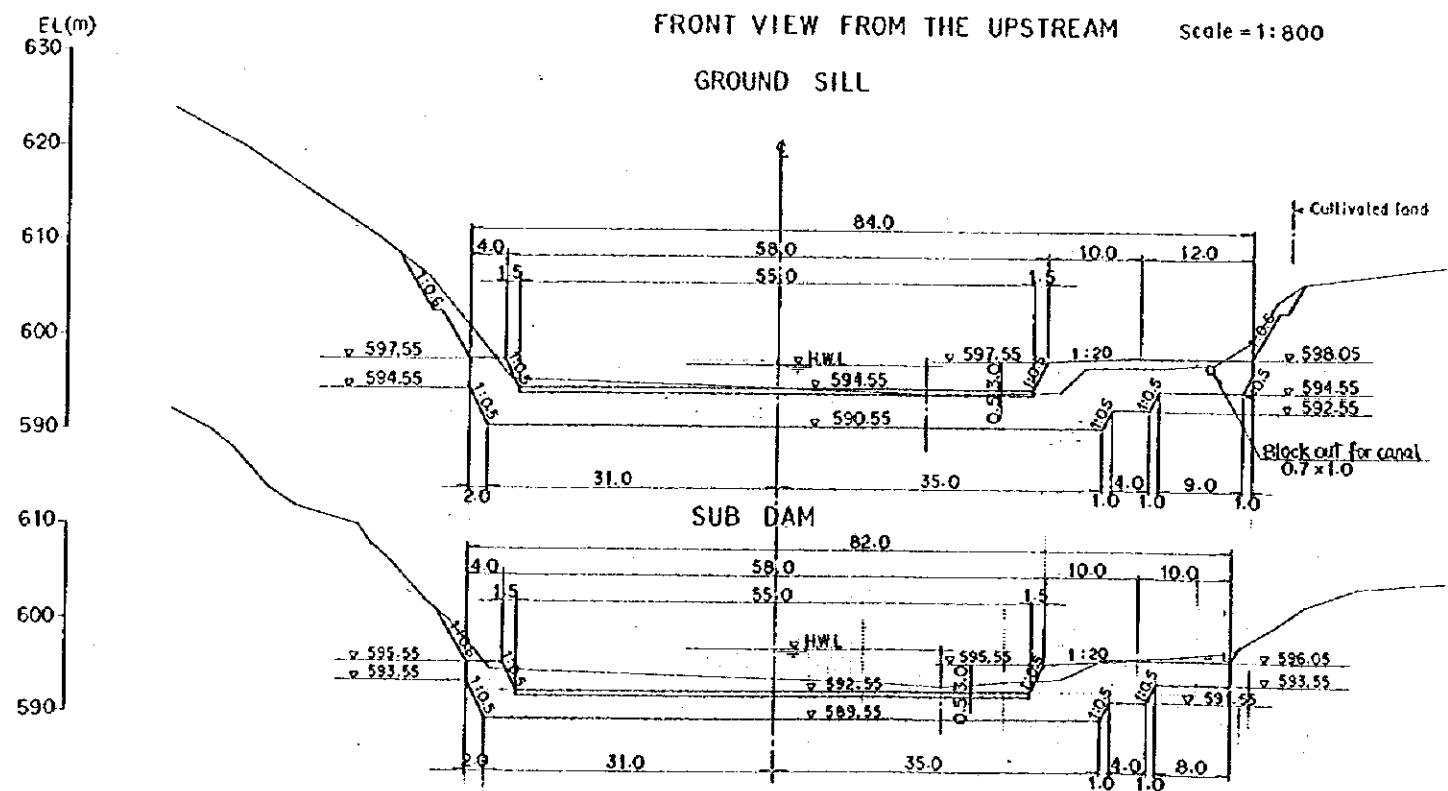
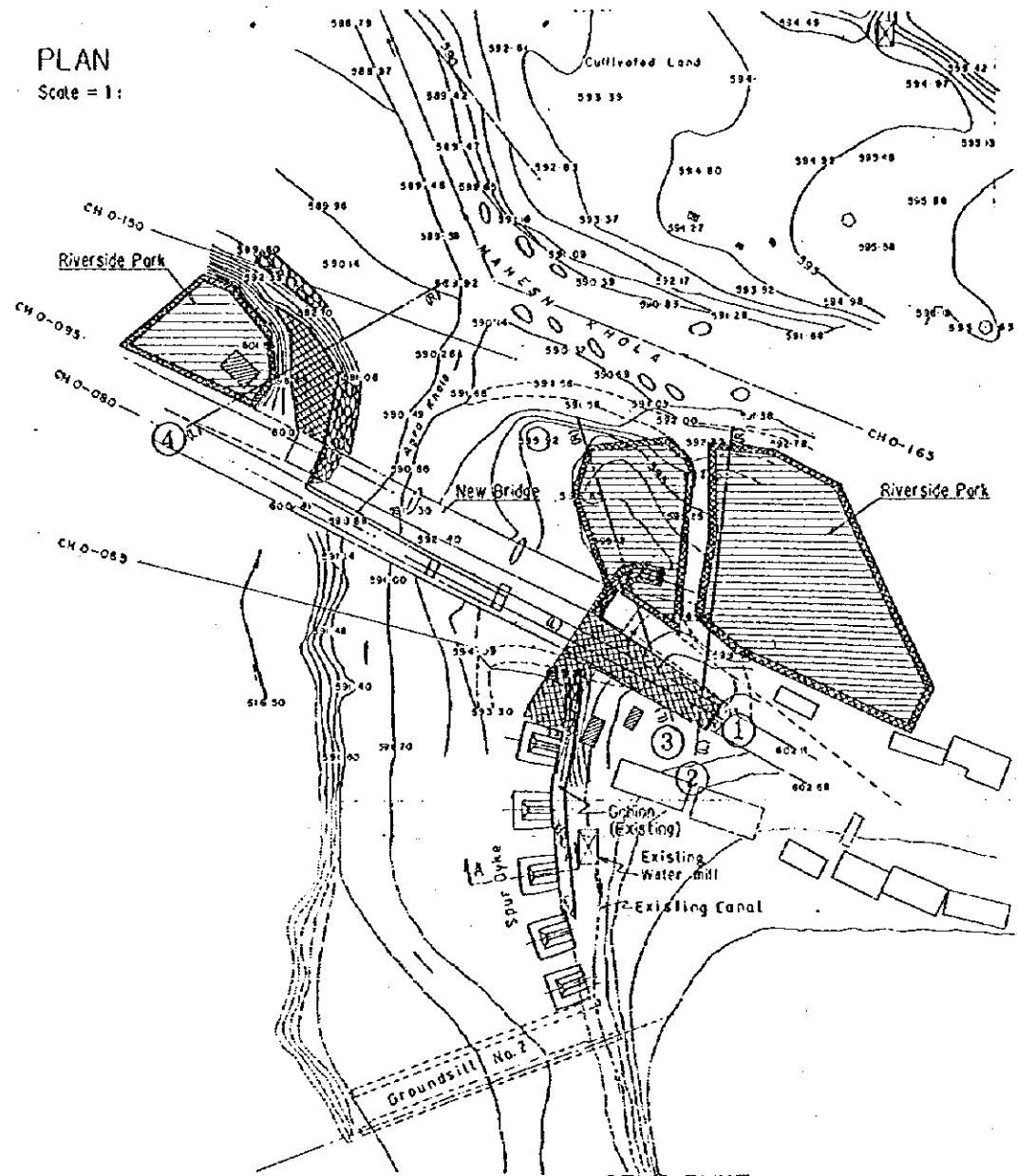


Fig. 1.4.3
Groundsill No.2 in Mahadevbesi IDPP

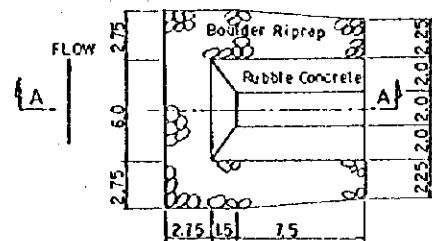
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PLAN
Scale = 1 :

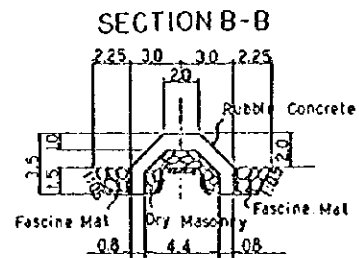
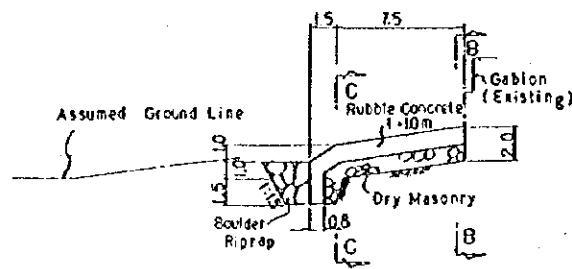


PLAN

SPUR DYKE Scale = 1:400

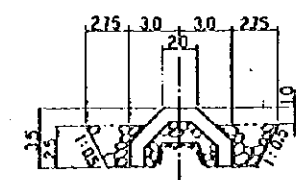


SECTION A-A



SECTION B-B

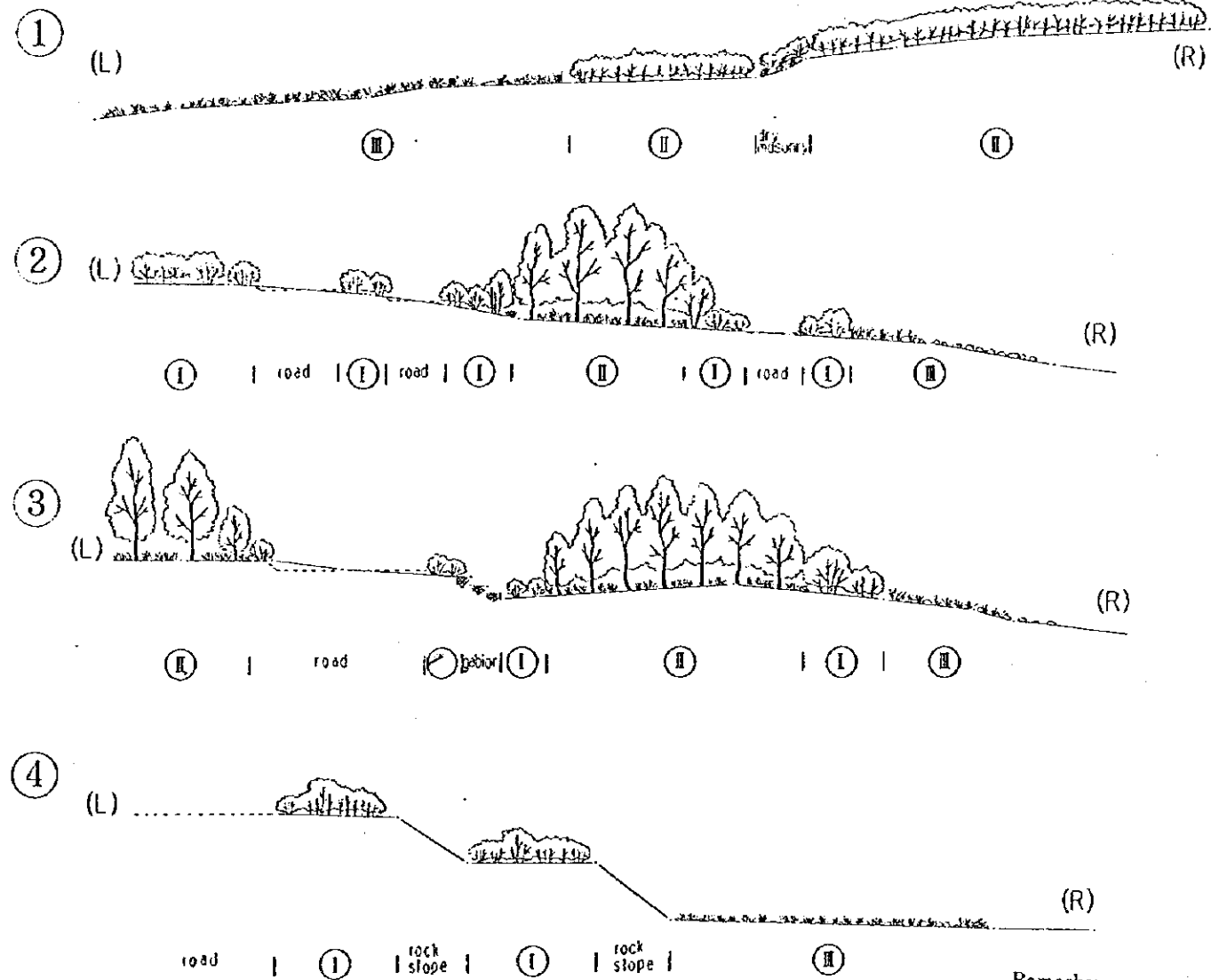
SECTION C-C



CROSS SECTION OF RIVERSIDE PARK

Scale = 1 : 600

Section No.



LEGEND

- ① Shrub Area ([diagonal lines])
- ② Tall tree Area ([horizontal lines])
- ③ Rocks, Boulders or Grass Area ([dots])

AVAILABLE PLANTS

- ① *Vitex negundo*, *Lantana camara*, *Rubus spp.*, *Pyracantha spp.*
- ② *Acacia spp.*, *Albizia spp.*, *Salix spp.*, *Alnus nepalensis*,
- ③ *Miscanthus spp.*, *Pragnites spp.*, *Asteriasia spp.*

Remarks:
This work is to be carried out with LCB basis.

Fig. 1.4.4
Spur Dike and Riverside Park in Mahadev Besi IDPP

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