

- LEGENDS:**
- Bench Mark
 - △ Station
 - Kilometer Post
 - ⊙ Boring Hole
 - ♣ Tree
 - Bottom of Bank
 - Top of Bank
 - Top of Cliff
 - Culvert
 - Retaining Wall
 - Contour
 - Gully/Drain
 - Existing Road
 - House / Building
 - Change of Grade
 - Foot Path
 - High Flood Level
 - Low Water Level
 - Proposed Bridge
 - Proposed Road Alignment
 - Existing Road CL
 - ▨ Paddy Field
 - ▨ Marshy Area
 - ▨ Exposed Rock Face
 - Boulder

Bench Mark & Boring Hole Location

Name	Easting	Northing	RL
BH1	200820.03	397528.53	306.882
BH2	199341.18	397428.33	496.424
NEV1 BH	199826.80	101449.6	306.476
BH	199334.26	3918.003	489.082
BH2	199804.47	3985.360	494.753

Notes: The RLs are calculated from Station No. 1 with assumed height of 50m. River Bresth at the center of the river at the proposed bridge line = 0385m

河川横断位置図 (Wachy 橋近傍)

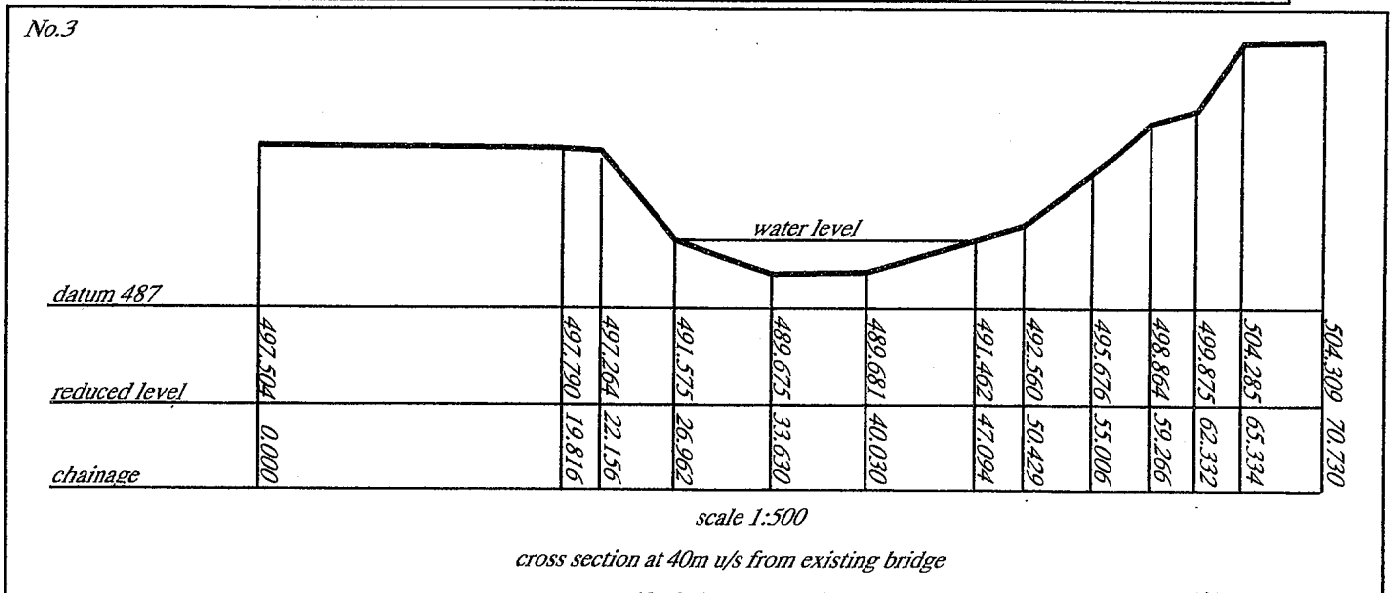
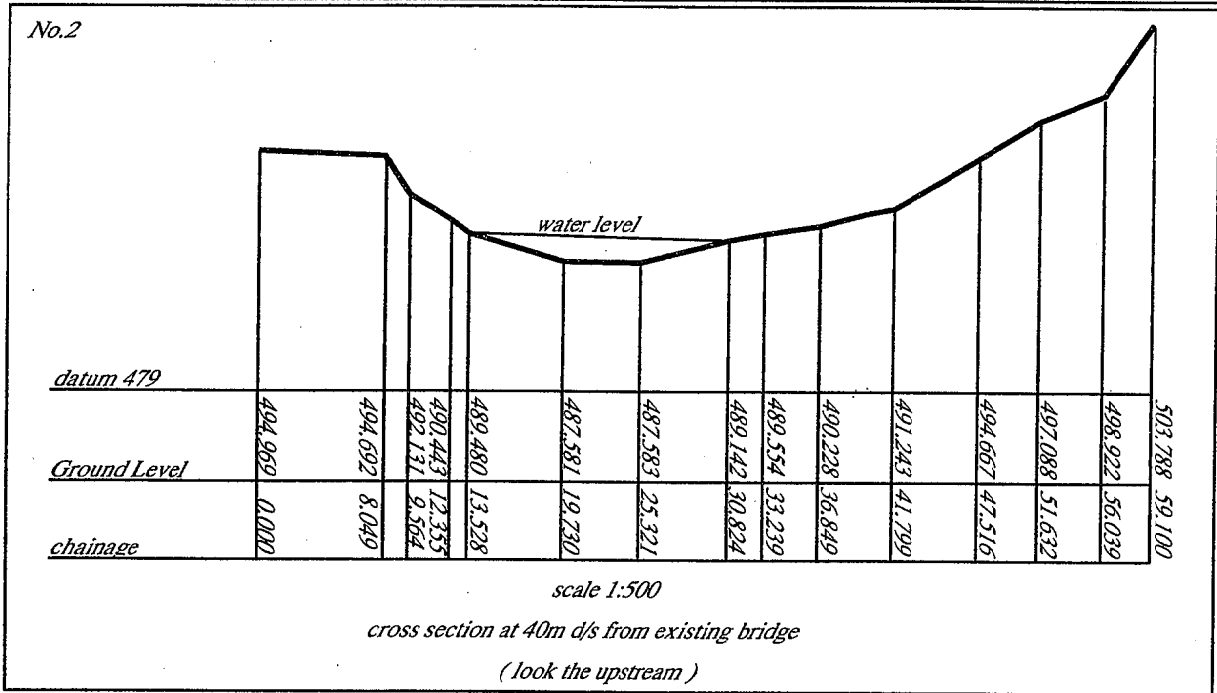
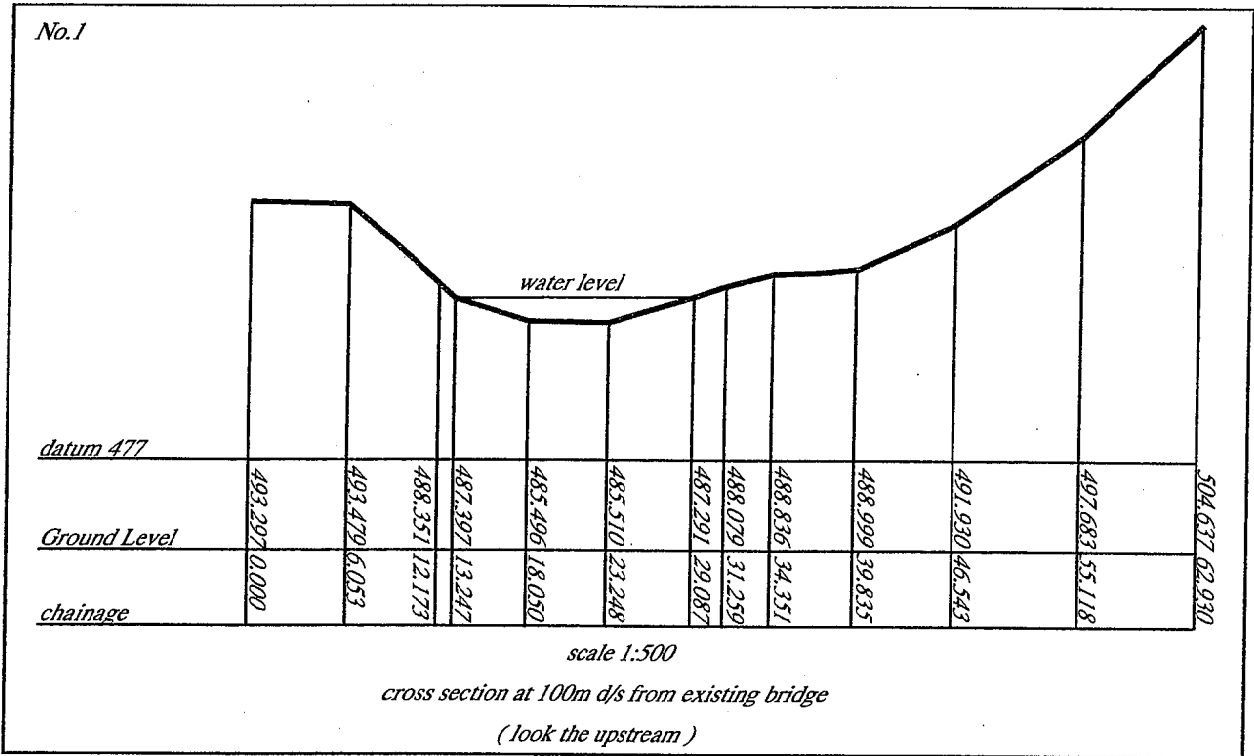
SURVEY AND DESIGN CELL
 DEPARTMENT OF ROAD, PUNJAB, INDIA
 WACHY BRIDGE SITE
 PLAN
 2020 55

BRITAIN
 THIRUPATHI
 1:500

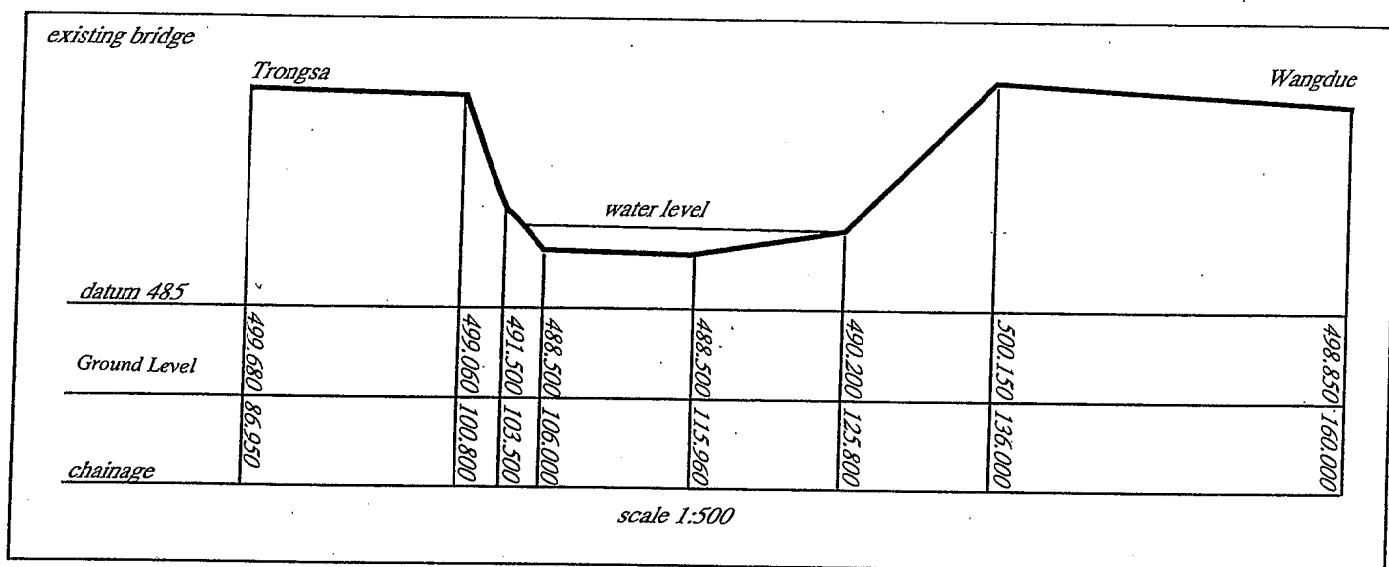
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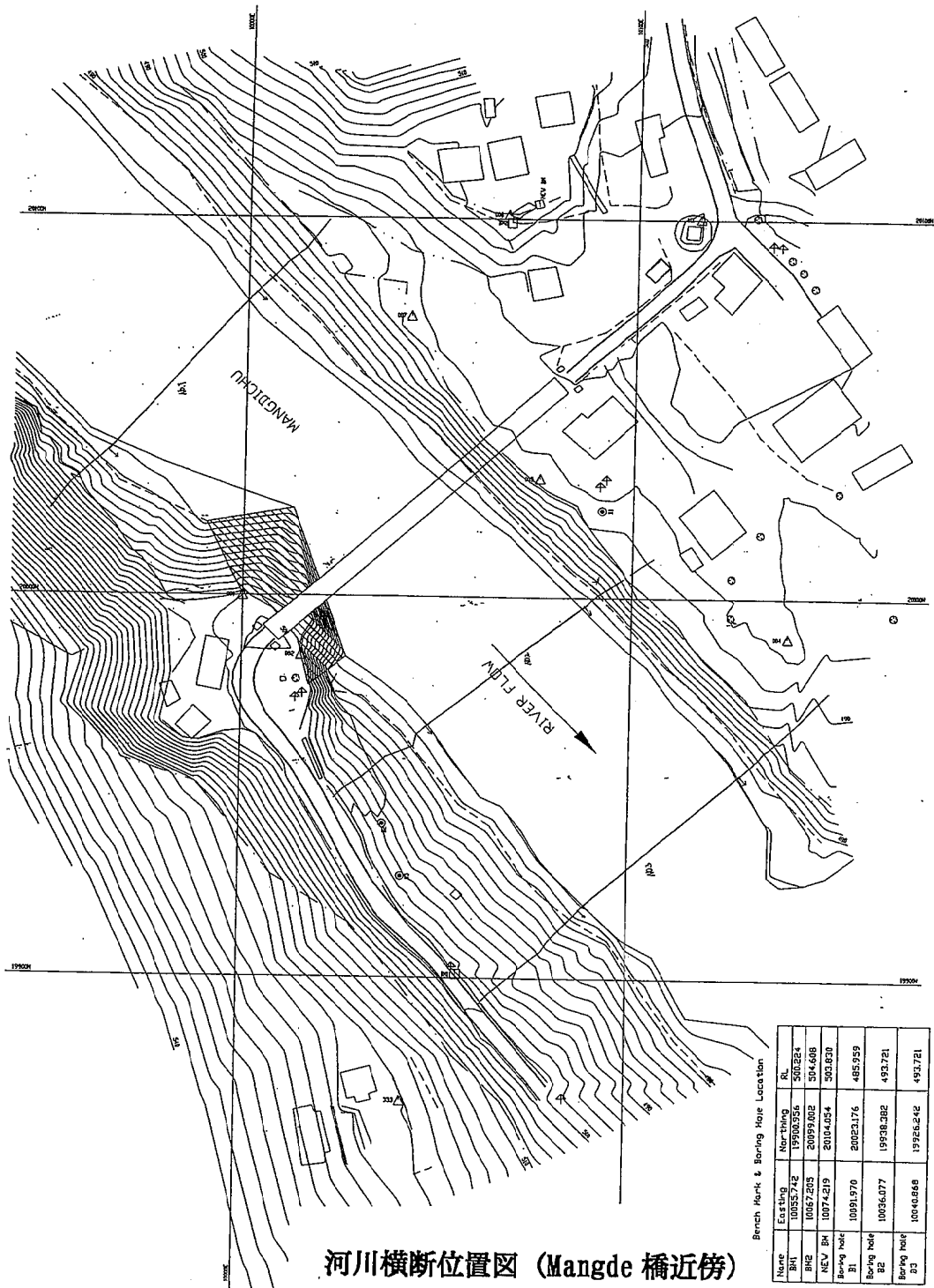
SCALE = 1 : 500

WACHY BRIDGE



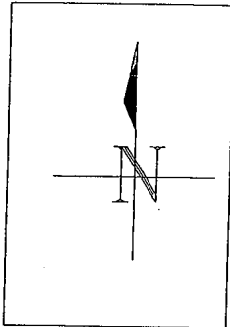
WACHY BRIDGE





LEGENDS:

□	Bench Mark
△	Station
⊥	Electricity Pole
⊕	Anchor Point
⊙	Boring Hole
	Sign Pole
⊖	Tree
---	Bottom of Bank
---	Top of Bank
▬	Retaining Wall
---	Contour
---	Gully
▬	Existing Road
▭	House / Building
▭	Charthen
---	Foot Path
---	High Flood Level
---	Low Water Level
---	Fence
---	Rough Road
---	Change of Grade
▨	Exposed Rock Face



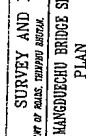


河川横断位置図 (Mangde 橋近傍)

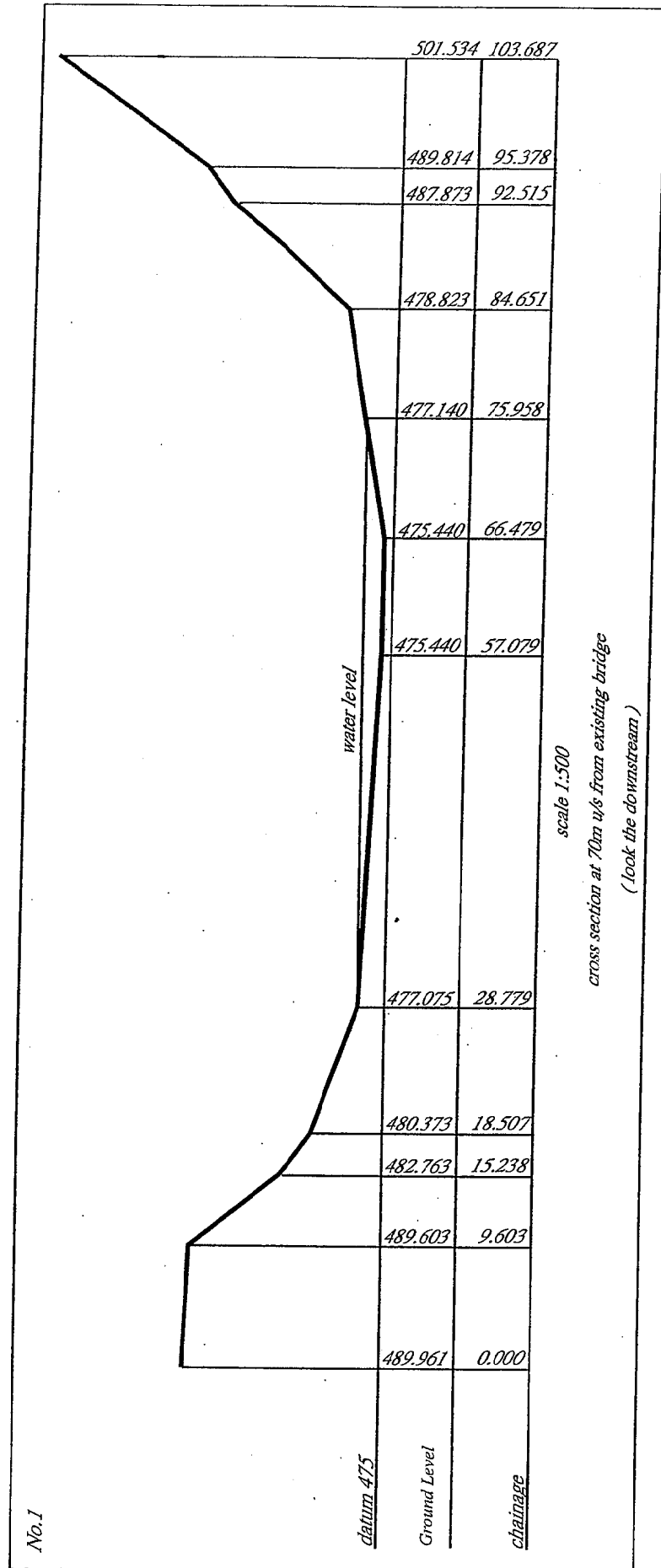
Bench Mark & Boring Hole Location

Name	Existing	Northing	RL
BH1	10055.742	19100.356	500.224
BH2	10057.205	20939.002	504.608
NEV BH	10074.219	21004.054	503.630
Boring Hole			
B1	10091.970	20023.176	485.559
B2	10036.077	19908.382	493.721
B3	10040.688	19926.242	493.721

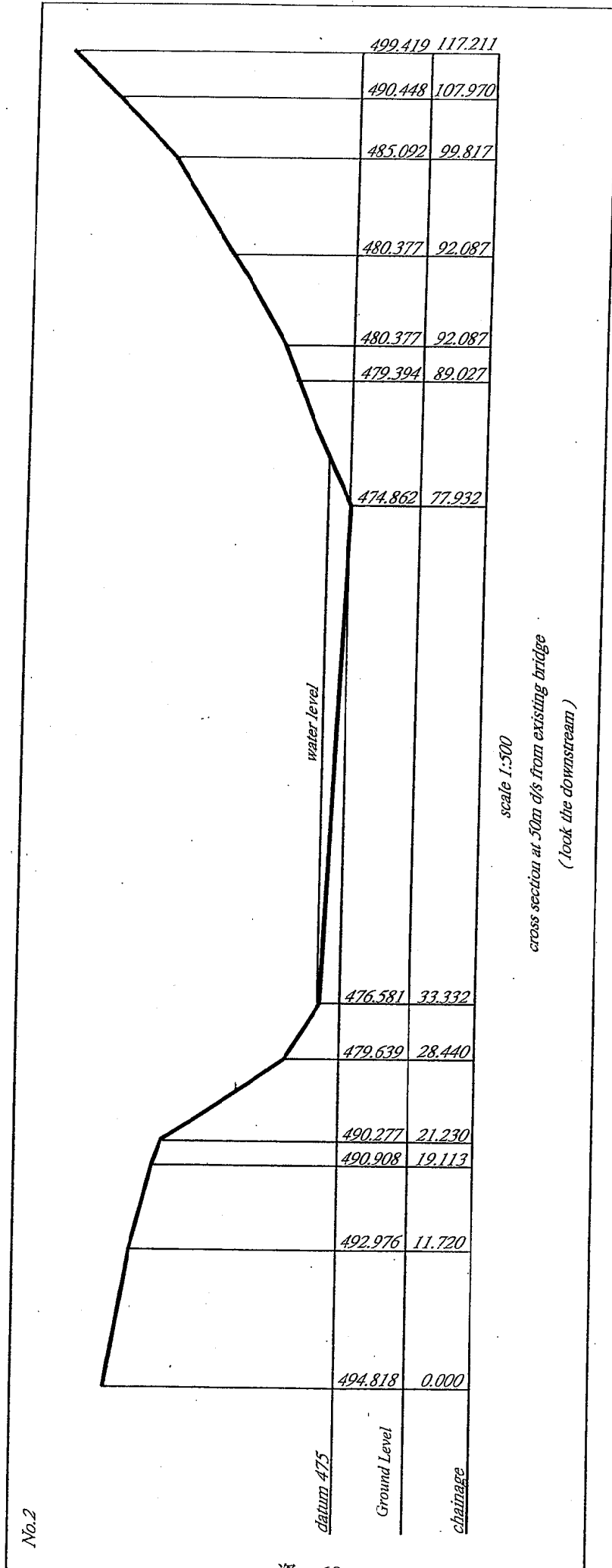
Note: The RLs are calculated from Station No.1 with assumed height as 500.000m.

			SURVEY AND DESIGN CELL DEPARTMENT OF GEOMATIC ENGINEERING ROYAL COLLEGE OF BHUTAN ENGINEERING	MANGDECHU BRIDGE SITE PLAN	PROJECT NO: 0601/50 DATE: 1/11
TITLE: _____ DRAWN BY: _____ CHECKED BY: _____ SCALE: 1:500	PROJECT NO: _____ SHEET NO: _____ DATE: _____	PROJECT NO: _____ SHEET NO: _____ DATE: _____	PROJECT NO: _____ SHEET NO: _____ DATE: _____	PROJECT NO: _____ SHEET NO: _____ DATE: _____	PROJECT NO: _____ SHEET NO: _____ DATE: _____

MANGDI BRIDGE(1/3)

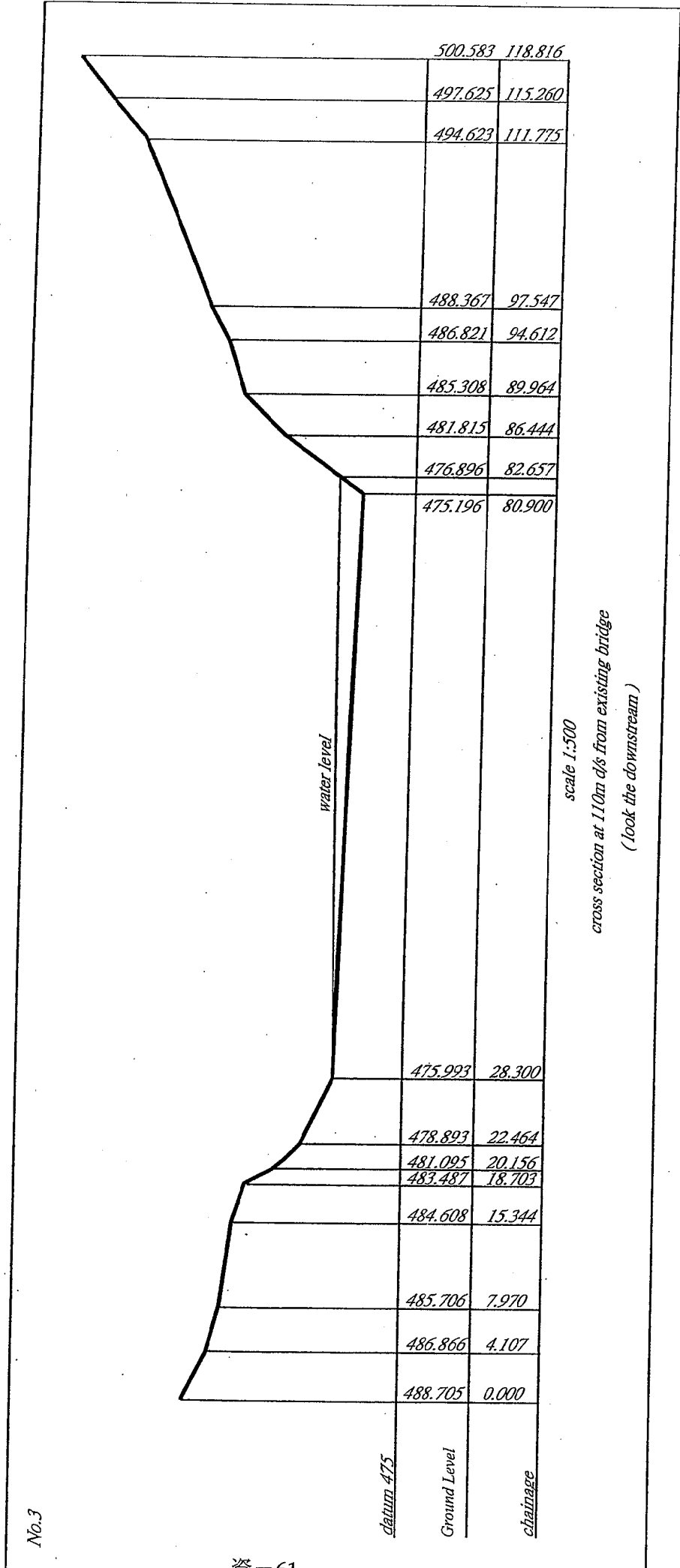


MANGDI BRIDGE(2/3)



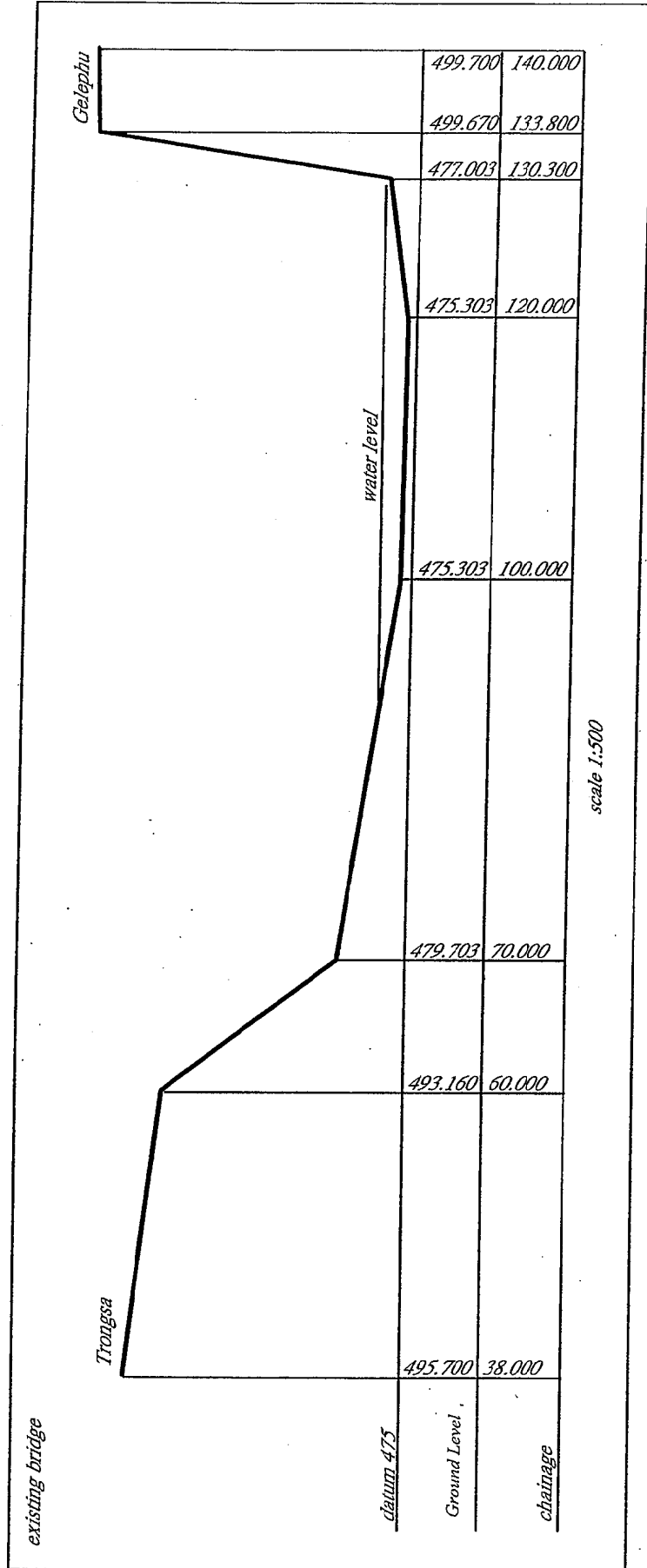
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MANGDI BRIDGE(3/3)

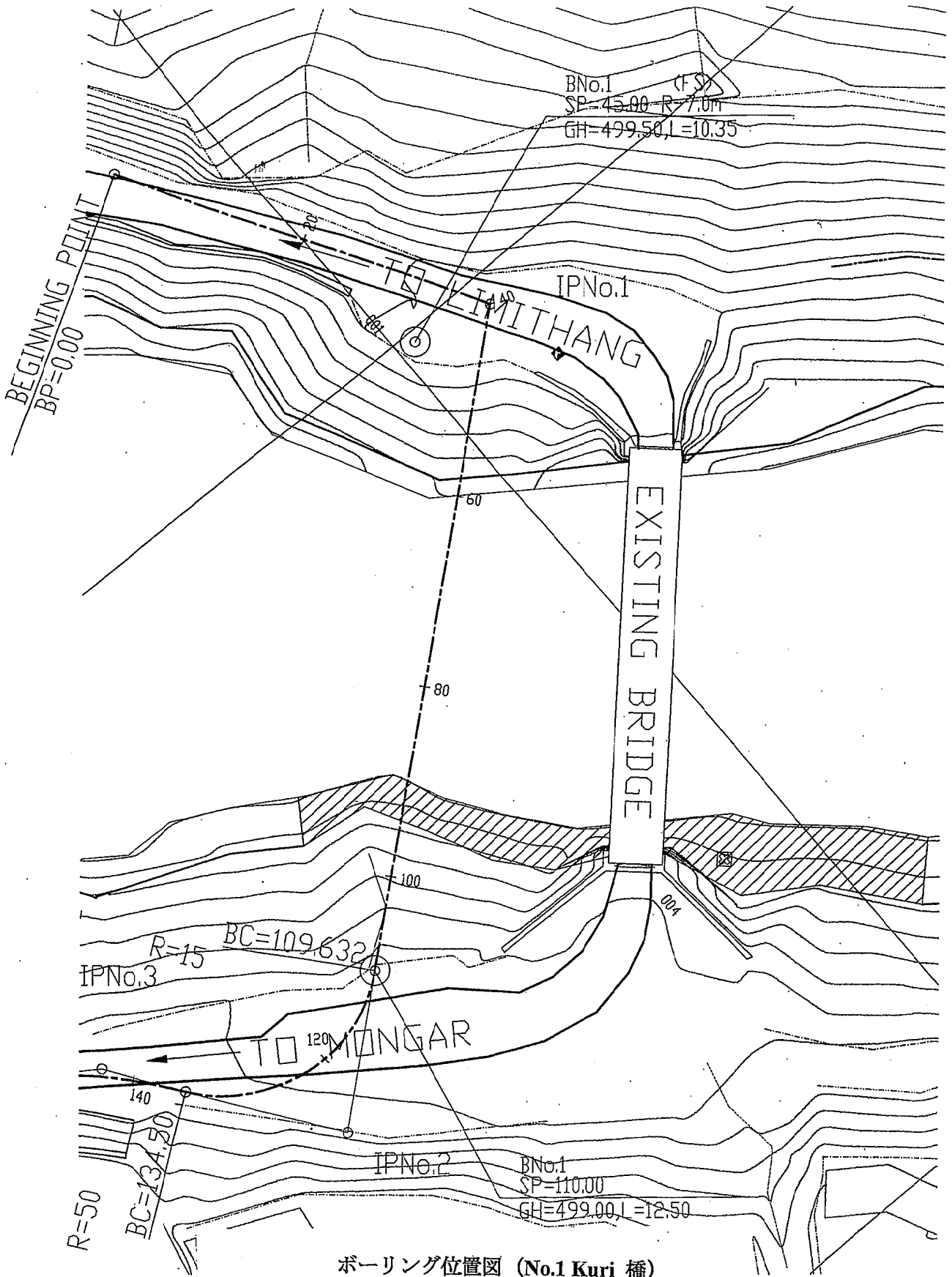


No.3

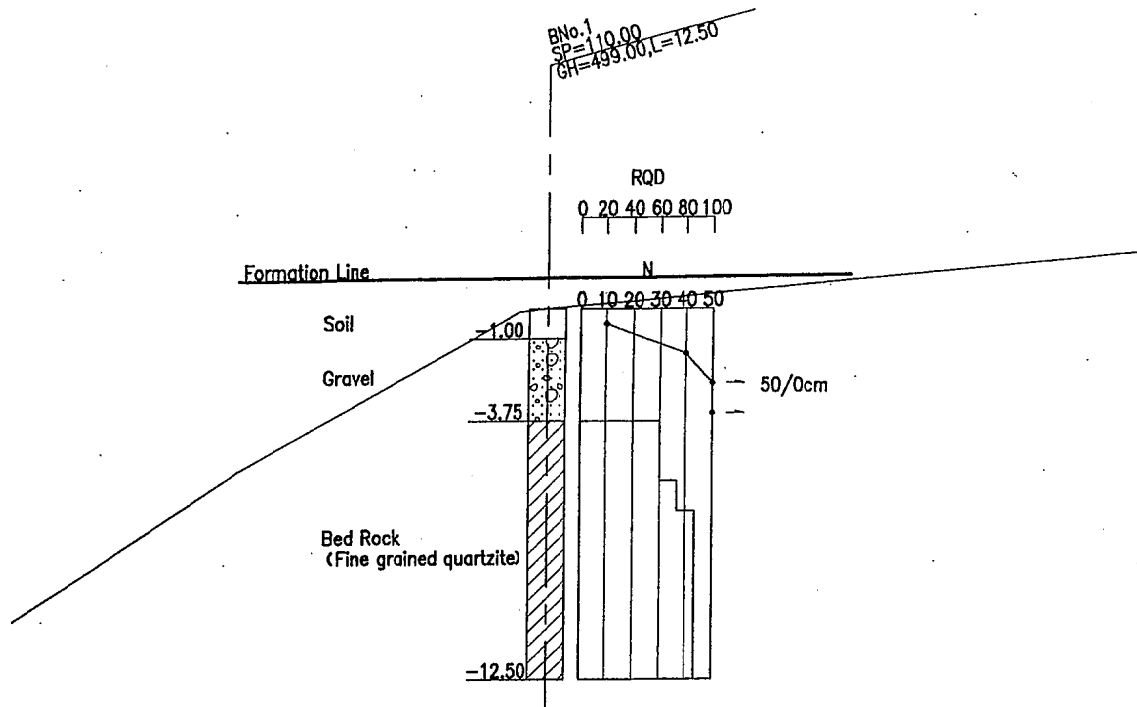
WANGDI BRIDGE



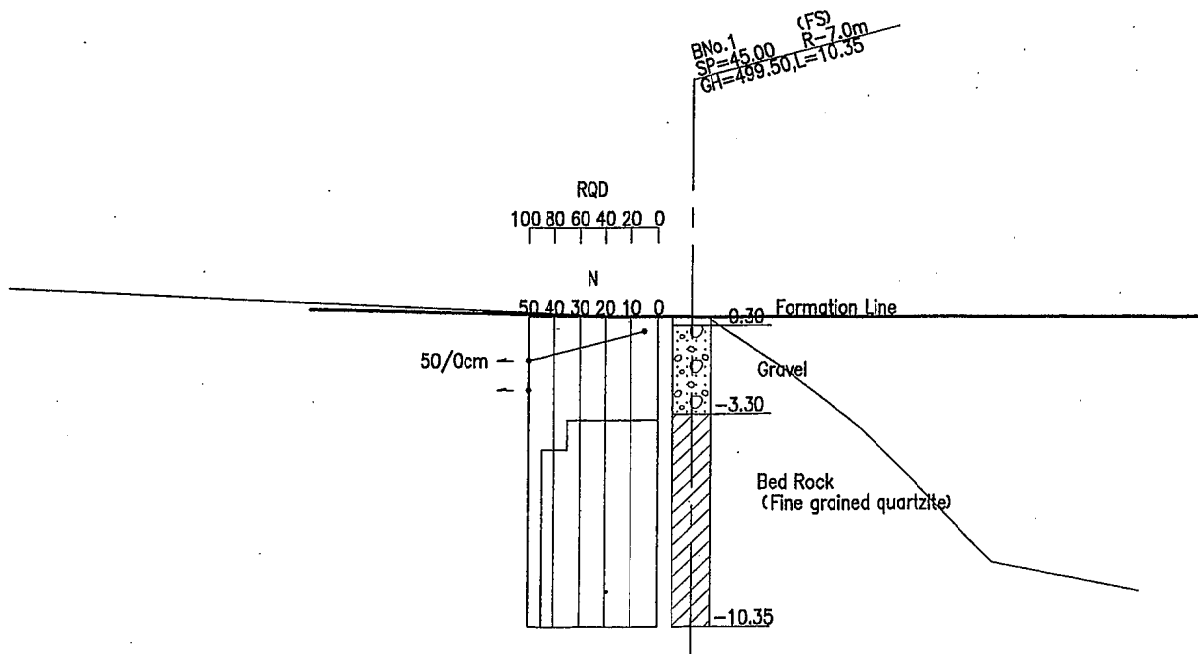
ボーリング調査結果



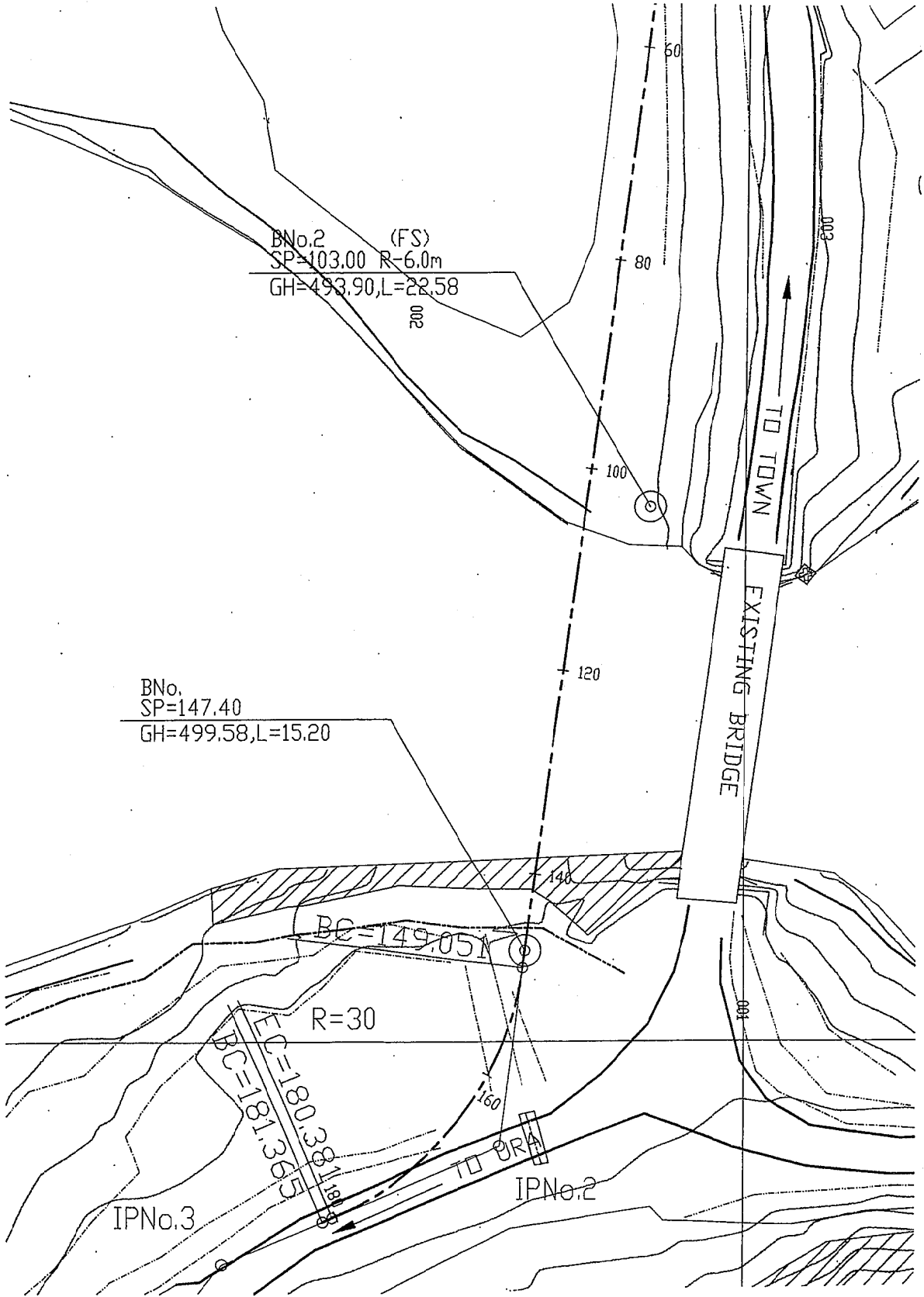
ボーリング位置図 (No.1 Kuri 橋)



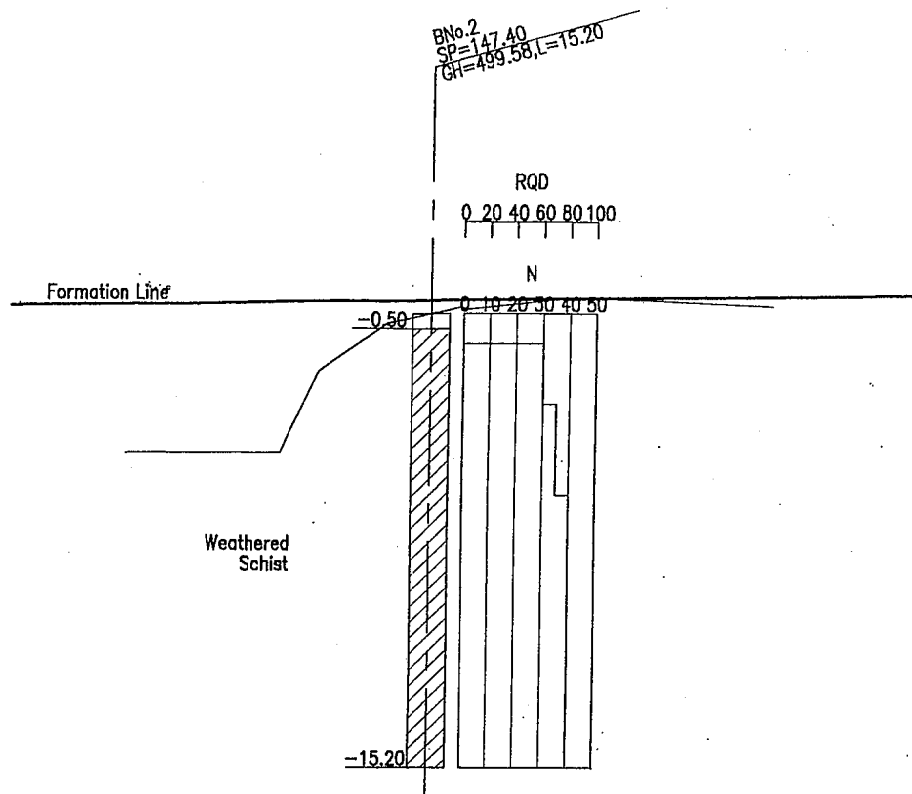
B/D 時 ボーリング柱状図 (No.1 Kuri 橋)



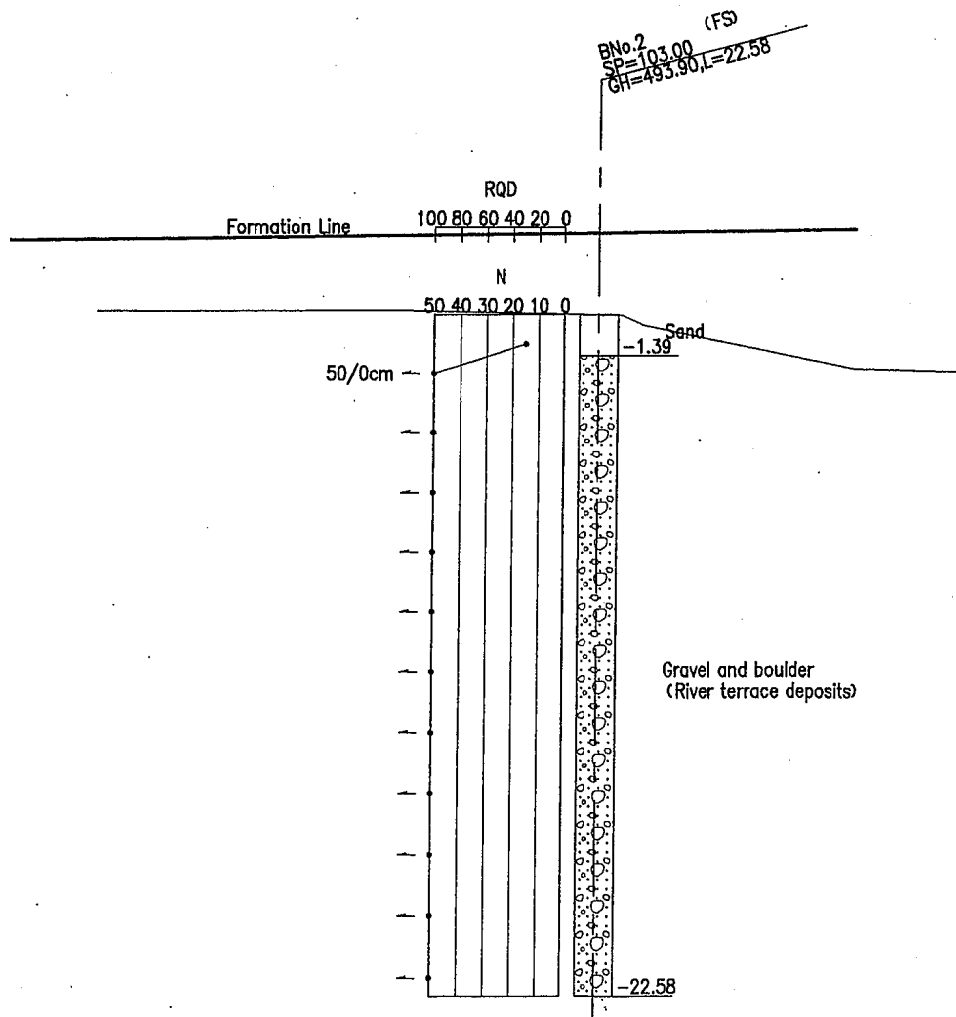
F/S 時 ボーリング柱状図 (No.1 Kuri 橋)



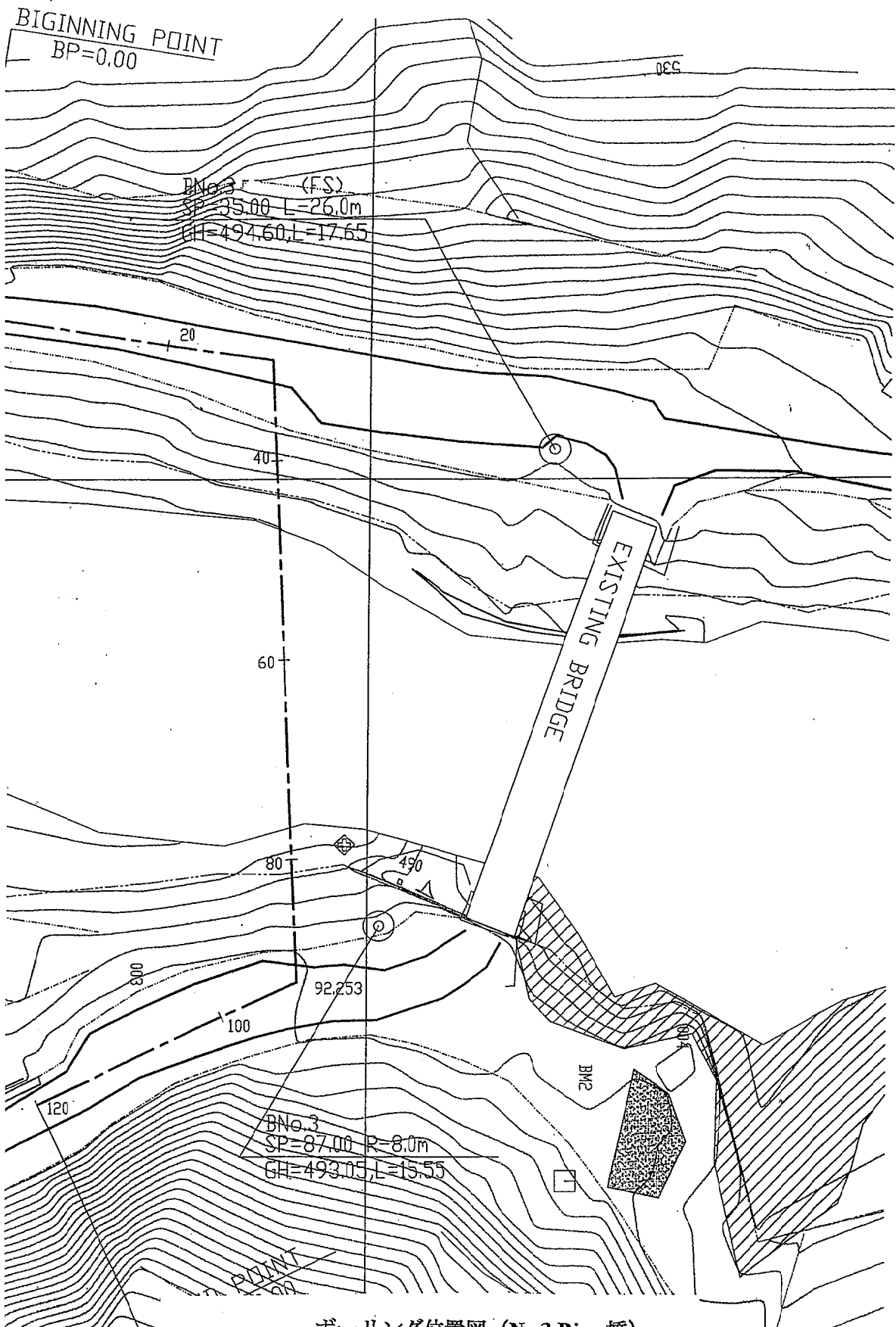
ボーリング位置図 (No.2 Chamkar 橋)



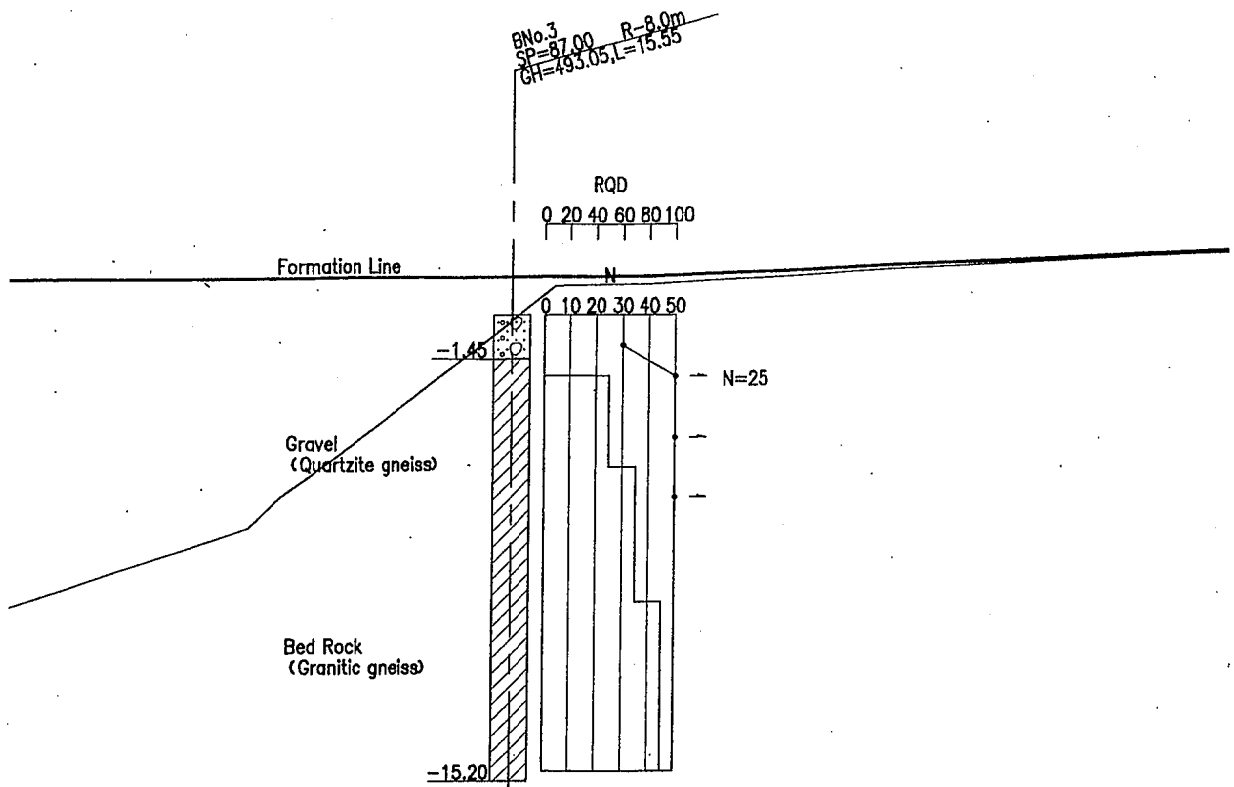
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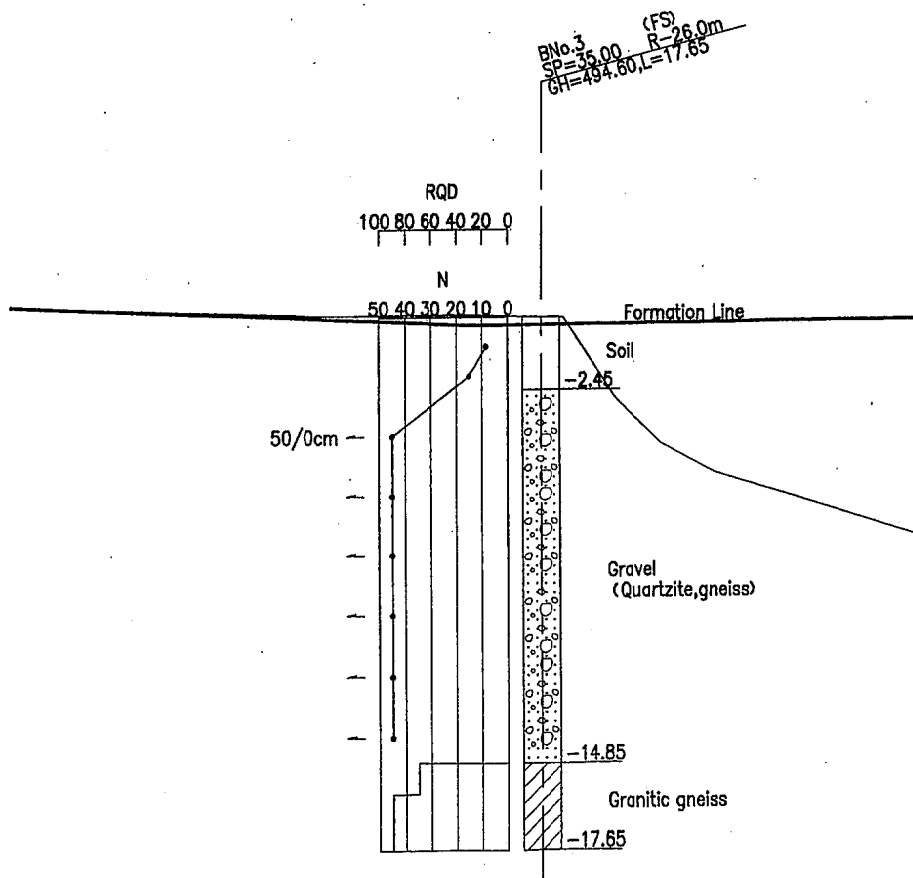
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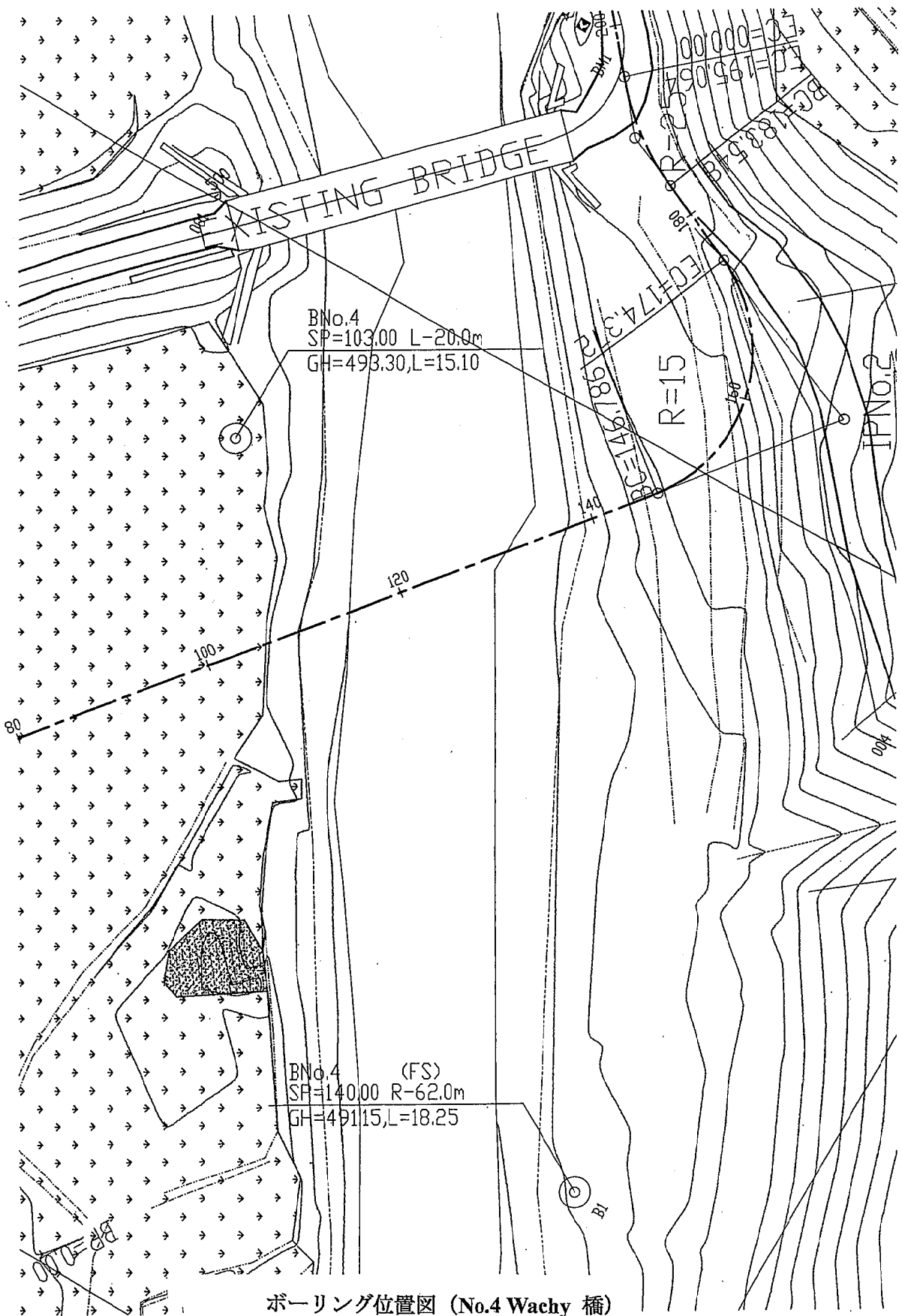
ボーリング位置図 (No.3 Bjee 橋)



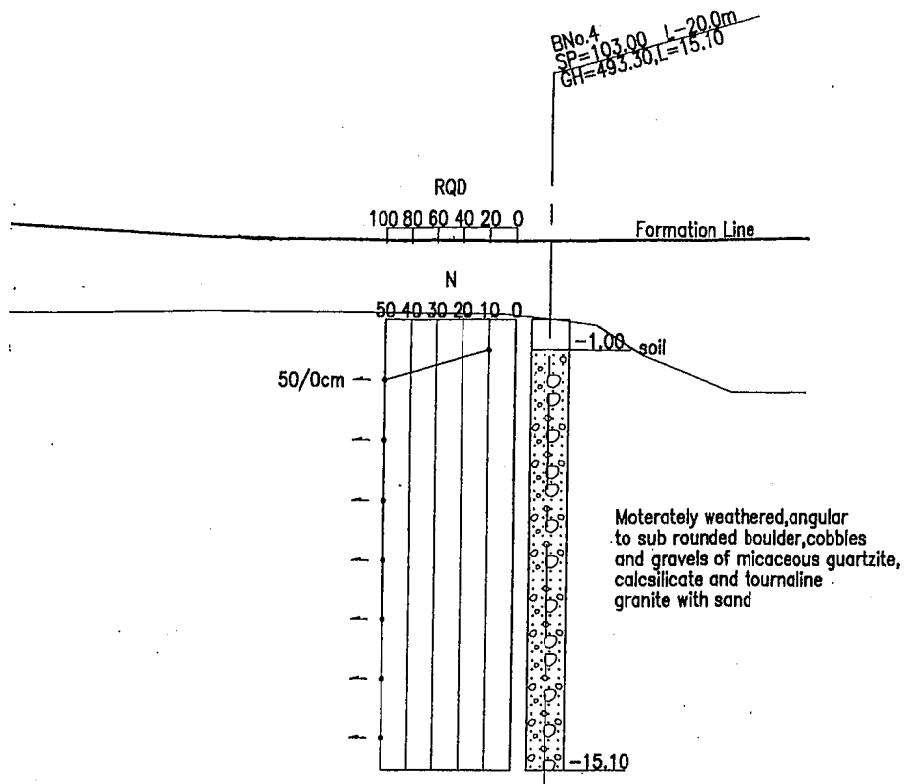
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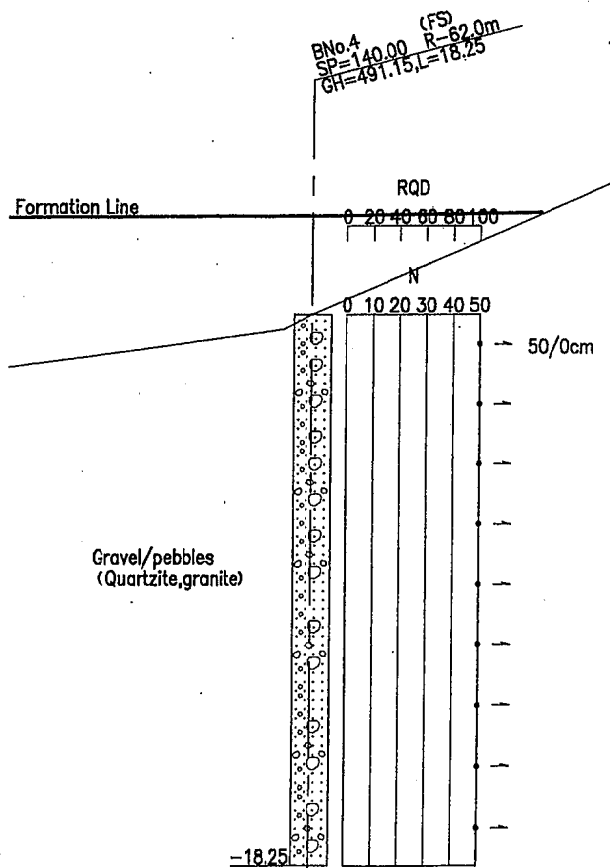
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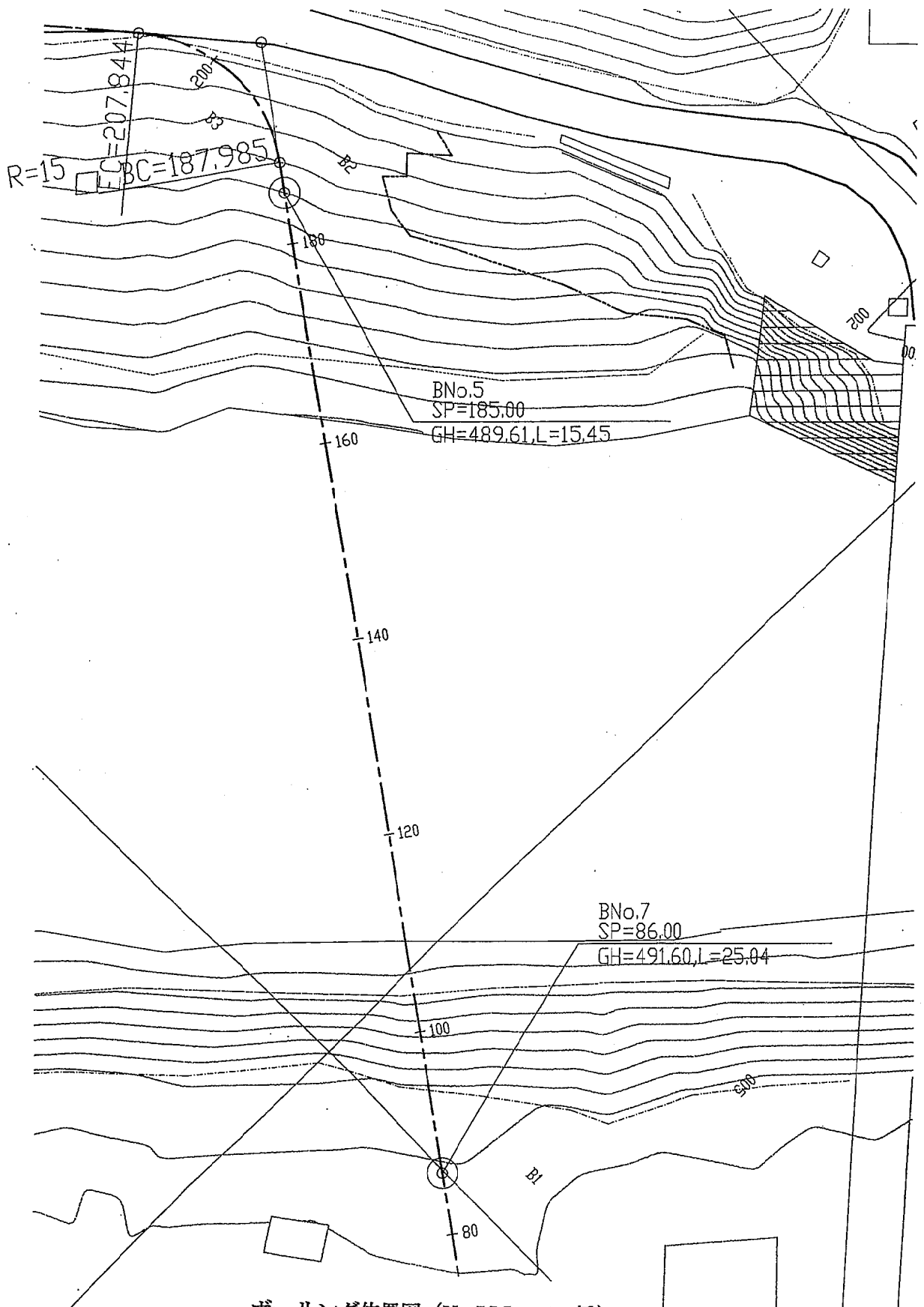
ボーリング位置図 (No.4 Wachy 橋)



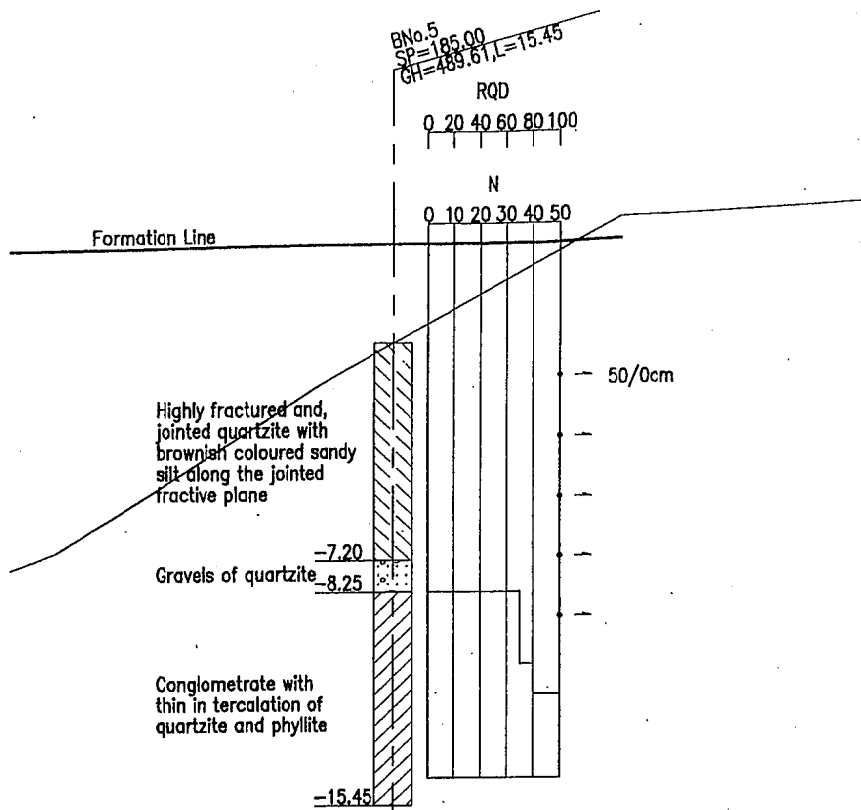
B/D 時 ボーリング柱状図 (No. 4 Wachy 橋)



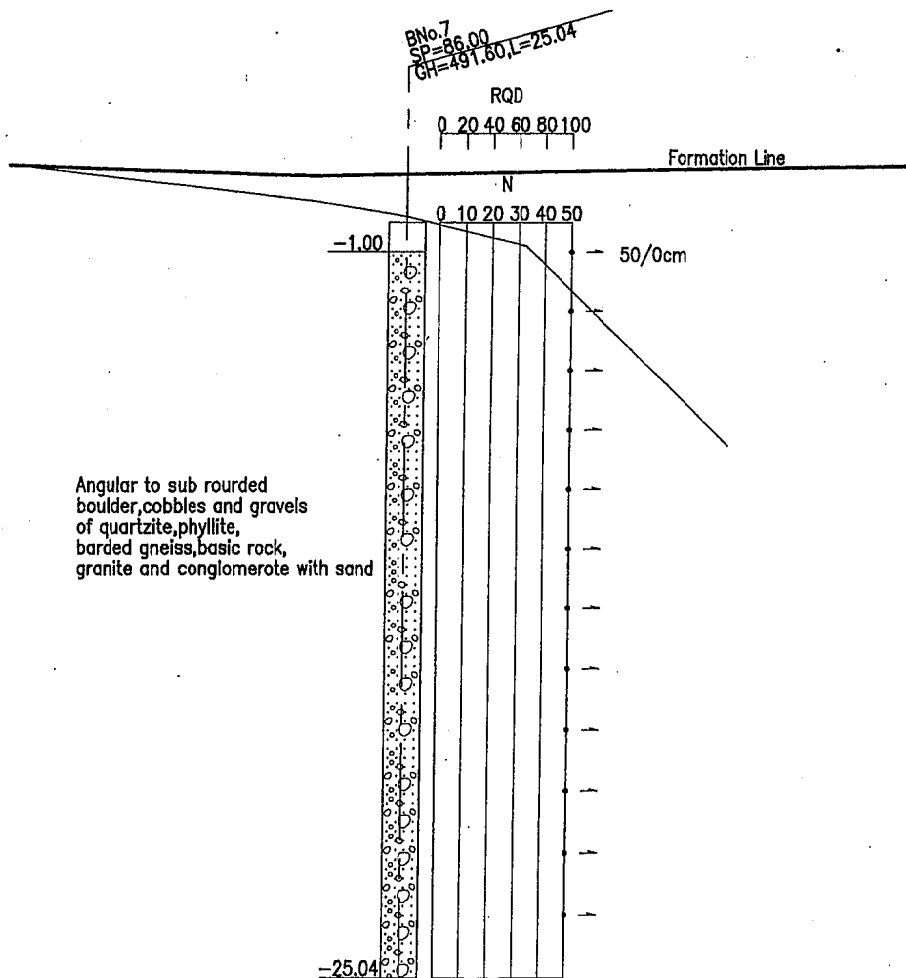
F/S 時 ボーリング柱状図 (No. 4 Wachy 橋)



ボーリング位置図 (No.5 Mangde 橋)



B/D時 ボーリング柱状図 (No.5 Mangde 橋)



F/S時 ボーリング柱状図 (No.5 Mangde 橋)

計画平面・縦断線形計算書

No.1 Kuri 橋平面線形

No.1 Kuri 橋					
主要点	測点	X-座標	Y-座標	曲率半径	接線方向角
IP No.1	-40.00	10010.333	5003.152		
IP No.2	-	9945.119	5059.214		
BP	0.00	9989.838	4968.802		57-10-40.742
BC1	109.632	9957.530	5048.544	15.00	139-18-57.699
EC1	134.500	9935.570	5045.921		139-18-57.699
BC2	134.500	9935.570	5045.921	-50.00	234-18-23.182
EC2	154.041	9923.071	5033.743		214-12-23.671
EP	160.000	9916.489	5029.269		

No.2 Chamkar 橋平面線形

No.2 Chamkar 橋					
主要点	測点	X-座標	Y-座標	曲率半径	接線方向角
IP No.1		19994.400	49872.800		
IP No.2		19976.800	50010.000		
IP.No.3		19950.700	50021.000		
BP	0.00	19983.300	49846.300		67-16-21.913
BC1	12.633	19988.181	49857.952	60.00	67-16-21.913
EC1	44.088	19992.352	49888.767		97-18-35.904
BC2	149.051	19978.997	49992.877	30.00	97-18-35.904
EC2	180.381	19960.892	50016.705		157-08-48.194
BC3	181.365	19959.985	50017.087	-40.00	157-08-48.194
EC3	201.106	19944.377	50028.845		128.52-12.043
EP	211.000	19938.168	50036.548		128-52-12.043

No.3 Bjee 橋平面線形

No.3 Bjee 橋					
主要点	測点	X-座標	Y-座標	曲率半径	接線方向角
IP No.1	30.00	9890.800	19988.200		87-36-23.015
IP No.2	92.253	9893.400	20050.400		154-24-21.495
BP	0.00	9861.300	19983.800		8-28-59.781
EP	120.00	9868.376	20062.386		154-24-21.495

No.4 Wachy 橋平面線形

No.4 Wachy 橋					
主要点	測点	X-座標	Y-座標	曲率半径	接線方向角
IP No.1		10016.400	19910.000		
IP No.2		9935.500	20011.300		
IP.No.3		9967.400	20025.000		
BP	0.00	9970.000	19882.000		31-06-31.712
BC1	19.984	9987.110	19892.325	30.00	31-06-31.712
EC1	71.036	9995.052	19936.732		128-36-41.372
BC2	146.786	9947.781	19995.923	-15.00	128-36-41.372
EC2	174.372	9953.582	20019.066		23-14-30.951
BC3	183.548	9962.014	20022.687	25.00	23-14-30.951
EC3	195.064	9971.197	20029.467		49-38-07.668
EP	210.000	9980.870	20040.847		49-38-07.668

No. 5 Mangde 橋平面線形

No. 5 Mangdi 橋					
主要点	測点	X-座標	Y-座標	曲率半径	接線方向角
IP No.1		20064.000	10133.800		
IP No.2		19923.800	10034.500		
BP	0.000	20093.300	10124.700		162-44-46.464
BC1	10.928	20082.864	10127.941	40.00	162-44-46.464
EC1	47.623	20047.881	10122.383		215-18-32.204
BC2	187.985	19933.338	10041.256	-15.00	215-18-32.204
EC2	207.844	19914.918	10042.098		139-27-17.329
EP	260.000	19875.285	10076.002		139-27-17.329

縦断線形

橋名	縦断勾配 (%)			橋梁の施工基面高 (m)	計画高水位 (m)
	取付道路 (起点)	橋梁	取付道路 (終点)		
No. 1 Kuri	-8.20, -2.00	-0.25	+6.50	499.34	496.1
No. 2 Chamkar	+4.00	+1.29	+0.82	499.26	496.2
No. 3 Bjee	-5.00	+0.50	+4.28	494.06	490.3
No. 4 Wachy	+4.00	+1.29	+0.82	497.45	493.3
No. 5 Mangde	-6.00, -6.58	+0.50	+5.63, +5.00	494.80	483.6

参考資料リスト

番号	資料の名称	形態	版型	ページ数	利ヅナル、 北°-の別	部数	収集先名称または発行機関
1	国家予算省庁別内訳(5カ年分)		A4	50	北°-	1	道路局提供
2	年/月別米ドル為替レート(5カ年分)		A4	1	北°-	1	道路局提供
3	道路局予算内訳(5カ年分)		A4	5	北°-	1	道路局提供
4	Statistical Yearbook of Bhutan 1997 (March 1999)		A4	185	北°-	1	計画省中央統計局発行
5	建設業者登録リスト(1999年10月6日現在)		A4	10	北°-	1	道路局提供
6	建設機械調達料金表		A4	10	北°-	1	道路局提供
7	Construction Development Board Manual (Draft - June '99)		A4	50	利ヅナル	1	道路局提供
8	Land Compensation Rate (1996)		A4	2	北°-	1	道路局提供
9	Chathrim for Wage Rate, Recruitment Agencies and Workmen's Compensation (1994)		A4	30	北°-	1	道路局提供
10	Revised Taxation Policy (1992)		A4	50	北°-	1	大蔵省発行
11	Enhance Good Governance		A4	30	利ヅナル	1	ブータン王国政府発行
12	観測所別気象データ		A4	50	北°-	1	通産省発電力気象部
13	観測所別水文データ		A4	100	北°-	1	通産省発電力気象部
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