

APPENDIXES

APPENDIX - 1

BILL OF QUANTITIES OF SUCCESSFUL TENDERERS

Prera Nirman Sewa (Pvt.) Ltd.

(CONSTRUCTION CONTRACTORS)

Narayangarh, Chitwan,
Nepal
Phone : 20-413

Ref. No.

Date :-

JICA Nationwide Hydro-Meteorological
Data Management Project
C/O Department of Hydrology and Meteorology
Babar Mahal, Kathmandu, Nepal.

Sub: Interim Payment.

Dear Sirs,

We request you to provide an interim payment of 60% of
Contract Amount during construction in order to execute
the job smoothly and in time.

Thanking you.

Sincerely yours,

21/11/1991
26.11.1991
Prem Malla
Managing Director
PRERA NIRMAN SEWA (PVT) LTD.

Prera Nirman Sewa (Pvt.) Ltd.
(CONSTRUCTION CONTRACTORS)

Narayangarh, Chitwan,
Nepal
Phone : 20-413

Ref. No.

Date :-

Tender : CIVIL CONSTRUCTION WORKS OF MODEL OBSERVATION SYSTEM
(LOT I) FOR STUDY ON NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT

From : Prera Nirman Sewa (Pvt.) Ltd.
(Name of Tenderer)

To : JICA Nationwide Hydro-Meteorological
Data Management Project
c/o Department of Hydrology and Meteorology
Babar Mahal, Kathmandu, Nepal.

Dear Sir,

1. Having carefully and thoroughly examined the Instruction to Tenderers, Specifications and Bill of Quantities for the execution of the above-named works, we, the undersigned, offer to execute, and complete the whole of the said works in conformity with the said Tender Documents for the sum of Nepal Rupees (in words) Twenty-three Lacs Sixty-three Thousand Eight Hundred Ten only, in figures Nrs. 23,63,810.00 or such other sum as may be ascertained in accordance with the said conditions.
2. In the event of our proposal is accepted, we agree to furnish a performance Security or Bank Guarantee, in the manner acceptable to the Engineer and for the sum equal to ten (10%) of Contract Price before the signing of the contract.
3. This Tender is valid for the period of thirty (30) calendar days from the date set for the opening of Tenders, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
4. Unless and until a formal Agreement is prepared and executed this Tender together with your written acceptance thereof shall constitute a binding contract between us.

contd..

Prera Nirman Sewa (Pvt.) Ltd.

(CONSTRUCTION CONTRACTORS)

Narayangarh, Chitwan,
Nepal
Phone : 20-413

Ref. No.

- 2 -

Date :-

5. We understand that you are not bound to accept the lowest or any tender you may receive, and that you will not defray any expenses incurred by us in tendering.

Signed this 26th day of Nov 1991.

Signature _____

State Title whether
Proprietor/Partnership _____

Managing Director

Name of the Firm Prera Nirman Sewa Pvt. Ltd.

Address of the Firm Post Box 18, Narayangarh, Chitawan, Nepal

Seal of the Firm _____

Witness P. Adhikari

Address Battisputali, Kathmandu

Signature _____

Date 26.11.91

Prera Nirman Sewa (Pvt.) Ltd.

(CONSTRUCTION CONTRACTORS)

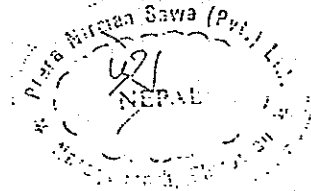
Narayangarh, Chitwan,
Nepal
Phone : 20-413

Ref. No.

Date :-

Summary of Bill of Quantities (Lot I)

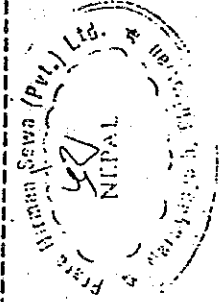
<u>Description of the Works</u>	<u>Tender Amount (Nrs)</u>
1. General items	9,21,000.00
2. Raingauge	42,920.00
3. Water level gauge	9,41,720.00
4. Cableway	<u>4,58,170.00</u>
Total (Tendered Amount)	<u>23,63,810.00</u> =====



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT I
 BILL OF QUANTITIES

Unit:NRS.

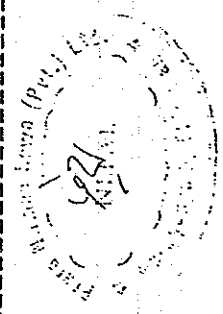
ITEM NO.	DESCRIPTION	UNIT	Q'TITY	UNIT PRICE	AMOUNT	REMARKS
1.	General Item					
1.1	Construction, operation, maintenance and subsequent removal or handling working house or office at site	L.S.	1	50,000.00	50,000.00	
1.2	Construction, operation, maintenance and subsequent removal or handling over of Contractor's staff quarters and labor camps, all with facilities	L.S.	1	62,000.00	62,000.00	
1.3	Rental of survey equipment and construction machinery	L.S.	1	55,000.00	55,000.00	
1.4	Preparation of required drawing, progress report and work program	L.S.	1	40,000.00	40,000.00	
1.5	Hiring of vehicles and other local transportation for moving a construction materials and so on	L.S.	1	88,000.00	88,000.00	
1.6	Transportation of construction material, equipment and Engineer by helicopter	hour	8	72,000.00	576,000.00	
1.7	Construction of helipad	nos	1	50,000.00	50,000.00	
Sub-Total (1)					9,21,000.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT I
 BILL OF QUANTITIES

Unit:NRS.

ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
2.	Raingauge (Chuntaha, Kolbhi)					
2.1	Producing, placing and curing concrete (type B)	m3	0.1	6,000.00	600.00	
2.2	Furnishing, placing and removing form work for concrete	m2	0.9	800.00	720.00	
2.3	Furnishing and placing reinforcement steel bar for fixing raingauge (1=15cm)	nos	12	300.00	3,600.00	
2.4	Manufacturing, transporting and installation of ordinary raingauge	place	2	7,500.00	15000.00	
2.5	Transporting and installation of recording raingauge	place	2	5,000.00	10000.00	
2.6	Manufacturing, transporting and installation of wooden ladder (1=5m)	nos	2	4,000.00	8,000.00	
2.7	Levelling survey	place	2	2,500.00	5,000.00	
Sub-Total (2)					42,920.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT I
 BILL OF QUANTITIES

Unit: NRs.

ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
3.	Water Level Gauge (Chyuntaha)					
3.1	Care of water and coffering around gauge including construction and demolishing	L.S.	1	18,000.00	18,000.00	
3.2	Excavation of common soil and sand by manpower including disposing	m3	466	120.00	55,920.00	
3.3	Placing and compacting sand backfill by manpower	m3	280	300.00	84,000.00	
3.4	Producing, placing and curing concrete (type B) for abutment and observation house	m3	18	6,000.00	108,000.00	
3.5	Furnishing, placing and removing form work for concrete	m2	97	700.00	67,900.00	
3.6	Furnishing, placing and reinforcing steel bar for observation house and abutment	ton	2.1	40,000.00	84,000.00	
3.7	Furnishing and placing wet masonry for revetment	m3	91.5	2,500.00	228,750.00	
3.8	Furnishing and placing wire net mattress and furnishing and filling stone in gabion mattress for slope protection (1.5m x 2 m x 0.5 m)	nos	24	6,000.00	144,000.00	
3.9	Transporting and installation of water level gauge	set	1	40,000.00	40,000.00	
3.10	Transporting and installation of	set	1	10,000.00	10,000.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT I
 BILL OF QUANTITIES

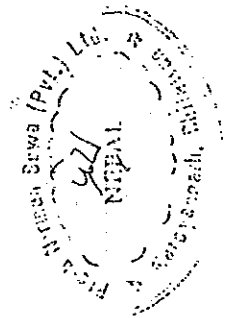
Unit: NRS.

ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
3.11	Staff gauge with support finishing, transporting and placing set of hand rail in water level gauge		1	20,000.00	20,000.00	
3.12	Manufacturing, transporting and installation of steel pipe (dia. 500 mm) for gauge well	set	1	65,000.00	65,000.00	
3.13	Furnishing and placing weep hole in masonry work with P.V.C. (dia. 50mm)	lin. m	41	150.00	6,150.00	
3.14	Furnishing, transporting and placing set of wooden window and door for observation house		1	10,000.00	10,000.00	
Sub-Total (3)					941,720.00	

NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT I
 BILL OF QUANTITIES

Unit: NRs.

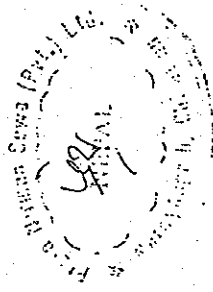
ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
4.	Cableway (Chuntaha)					
4.1	Excavation of common soil and sand by manpower for anchor block including disposing	m3	100	120.00	12,000.00	
4.2	Furnishing, placing backfill by manpower	m3	80	300.00	24,000.00	
4.3	Furnishing, placing and compacting cobble stone for foundation	m3	2.9	300.00	870.00	
4.4	Producing, placing and curing concrete (type A) for anchor block	m3	22.1	4,000.00	88,400.00	
4.5	Producing, placing and curing concrete (type B) for observation house	m3	4.9	6,000.00	29,400.00	
4.6	furnishing, placing and removing form work for concrete	m2	115	700.00	80,500.00	
4.7	Furnishing, placing and reinforcing steel bar for anchor block and observation house	ton	0.8	40,000.00	32,000.00	
4.8	Manufacturing, transporting and installation of cableway facility including shop assembly, painting and other necessary works	set	1	170,000.00	170,000.00	
4.9	Adjustment, transpoting and instllation of winch, carrier and accessories	set	1	15,000.00	15,000.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT I
 BILL OF QUANTITIES

Unit:NRs.

ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
4.10	furnishing and placing window and door for observation house	set	1	5,000.00	5,000.00	
4.11	River cross sectional survey	nos	1	1,000.00	1,000.00	
Sub-Total (4)					458,170.00	
Total (1. - 4.)					2,363,810.00	



इन्जिनियरिङ्ग कन्स्ट्रक्सन एण्ड सर्भिस
ENGINEERING CONSTRUCTION & SERVICES

Narayanghat, Chitawan.
(ENGINEER CONSTRUCTION & SUPERVISION)

Post Box No- 07

20472
21177

Date..Nov.27.,1991

JICA Nationwide Hydro Meteorological
Data Management Project
c/o Department of Hydrology and Meteorology
Babar Mahal, Kathmandu, Nepal

Sub : Interim Payment

Dear Sirs,

The Tender Documents mention only about the advance payment of 30% and final payment of 100% of contract sum. However, for timely execution of work we request you to provide an iterim payment not exceeding 70% of the Contract Sum.

Thanking You

Sincerely Yours

Lanka BKC
(L.Br. K.C.)
Proprietor



इन्जिनियरिङ्ग कन्स्ट्रक्सन एण्ड सर्भिस
ENGINEERING CONSTRUCTION & SERVICES
Nepal
Naryanghat, Chitawan.
(ENGINEER CONSTRUCTION & SUPERVISION)

Post Box No- 07

20472
21177

Date.....

Tender : CIVIL CONSTRUCTION WORKS OF MODEL OBSERVATION SYSTEM
(LOT II) FOR STUDY ON NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT

From : Engineerig Construction and Services
(Name of Tenderer)

To : JICA Nationwide Hydro-Meteorological
Data Management Project
c/o Department of Hydrology and Meterology
Babar Mahal, Kathmandu, Nepal

Dear Sir,

1. Having carefully and thoroughly examined the Instruction to Tenderers, Specifications and Bill of Quantities for the execution of the above-named works, we, the undersigned, offer to execute, and complete the whole of the said work in conformity with the said Tender Documents for the sum of Nepal Rupee (in words) NRs Three Million Eight Hundred Four Thousand Five Hundred Fifty Five only in figures NRs 3,804,555.00 such other sum as may be ascertained in accordance with the said conditions.
2. In the event of our proposal is accepted, we agree to furnish a Performance Security or Bank Guarantee, in the manner acceptable to the Engineer and for the sum equal to ten percent (10%) of Contract Price before the signing of the contract.
3. This Tender is valid for the period of thirty (30) calendar days from the date set for the opening of Tenders, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

4. Unless and until a formal Agreement is prepared and executed this Tender together with your written acceptance thereof shall constitute a binding contract between us.
5. We understand that you are not bound to accept the lowest or any tender you may receive, and that you will not defray any expenses incurred by us in tendering.

Signed this 27th day of November 1991

Singnature Kanta PNC

State Title whether
Proprietor/Partnership Proprietor

Name of the Firm Engineering Construction and Services

Address of the Firm Bharatpur NagerPalika Ward No.2
Chitawan, Nepal.

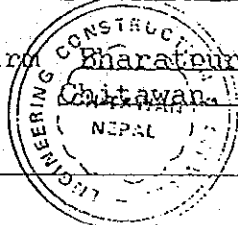
Seal of the Firm _____

Witness K. Piva

Address Kathmandu, Nepal

Signature [Signature]

Date 27-11-91



4.3 BILL OF QUANTITIES

Summary of Bill of Quantities (Lot II)

<u>Description of the Works</u>	<u>Tender Amount</u> (NRs.)
1. General items	2533750.00
2. Raingauge	550165.00
3. Water level gauge	102500.00
4. Cableway	618140.00
Total (Tendered Amount)	3,804,555.00

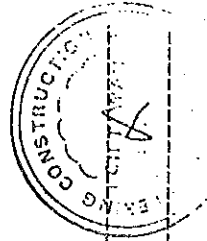
Rupees Three Million Eight Hundred Four Thousand Five hundred Fifty Five Only.



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT II
 BILL OF QUANTITIES

Unit: NRS.

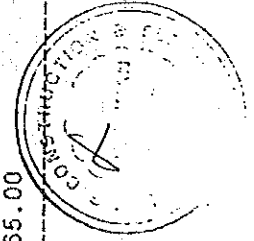
ITEM NO.	DESCRIPTION	UNIT	Q'TITY	UNIT PRICE	AMOUNT	REMARKS
1.	General Item					
1.1	Construction, operation, maintenance and subsequent removal or handling working house or office at site	L.S.	1	40,000.00	40,000.00	
1.2	Construction, operation, maintenance and subsequent removal or handling over of Contractor's staff quarters and labor camps, all with facilities	L.S.	1	45,000.00	45,000.00	
1.3	Rental of survey equipment and construction machinery	L.S.	1	50,000.00	50,000.00	
1.4	Preparation of required drawing, progres report and work program	L.S.	1	50,000.00	50,000.00	
1.5	Hiring of vehicles and other local transportation for moving a construction materials and so on.	L.S.	1	70,000.00	70,000.00	
1.6.	Transportation of construction material and equipment by porter	man-dy	510	125.00	63,750.00	
1.7	Transportation of construction material, equipment and Engineer by helicopter	hour	30	70,500.00	2,115,000.00	
1.8	Construction of helipad	nos	2	50,000.00	100,000.00	
	Sub-Total (1)				2,533,750.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT II
 BILL OF QUANTITIES

Unit: NRS.

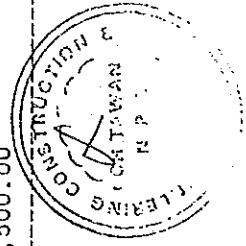
ITEM NO.	DESCRIPTION	UNIT	Q'TITY	UNIT PRICE	AMOUNT	REMARKS
2.	Raingauge (Yaragau, Samargau, Dhagarborg, Bega, Kuhun, Muna, Beghara)					
2.1	Excavation of common soil by manpower including disposing	m3	18.5	120.00	2220.00	
2.2	Placing and compacting filling soil by manpower	m3	24.5	150.00	3675.00	
2.3	Furnishing, placing and compacting cobble stone for foundation	m3	2.9	300.00	870.00	
2.4	Producing, placing and curing concrete (type B)	m3	1.6	15,000.00	24,000.00	
2.5	Furnishing and placing wet cobble masonry for gauge stage	m3	59.2	7,000.00	414,400.00	
2.6	Manufacturing, transporting and installation of ordinary raingauge	place	7	8,000.00	56,000.00	
2.7	Transporting and installation of recording raingauge	place	7	5,000.00	35,000.00	
2.8	Levelling survey	place	7	2,000.00	14,000.00	
	Sub-Total (2)				550,165.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT II
 BILL OF QUANTITIES

Unit: NRS.

ITEM NO.	DESCRIPTION	UNIT	Q'TITY	UNIT PRICE	AMOUNT	REMARKS
3.	Water Level Gauge (Tatopani)					
3.1	Care of water, coffering and dewatering around gauge including construction and demolishing	L.S.	1	8,000.00	8,000.00	
3.2	Excavation of weathered rock by manpower for approach walkway including disposing	m3	240	300.00	72,000.00	
3.3	Transporting and installation of water level gauge	set	1	10,000.00	10,000.00	
3.4	Manufacturing, transporting and installation of protective GPS pipe (dia. 100 mm) for gauge with accessory	set	1	5,000.00	5,000.00	
3.5	Transporting and installation of staff gauge with support	set	1	7,500.00	7,500.00	
Sub-Total (3)					102,500.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
CIVIL CONSTRUCTION WORKS OF LOT II
BILL OF QUANTITIES

Unit: NRs.

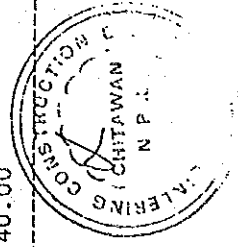
ITEM NO.	DESCRIPTION	UNIT	Q'TITY	UNIT PRICE	AMOUNT	REMARKS
4.	Cableway (Tatopani)					
4.1	Excavation of common soil and sand by manpower for anchor block including disposing	m3	44	120.00	5,280.00	
4.2	Excavation of weathered rock by manpower for anchor block including disposing	m3	33.5	300.00	10,050.00	
4.3	Furnishing, placing backfill by manpower	m3	28	350.00	9,800.00	
4.4	Furnishing, placing and compacting cobble stone for foundation	m3	0.7	300.00	210.00	
4.5	Producing, placing and curing concrete (type A) for anchor block	m3	16.7	11,000.00	183,700.00	
4.6	Producing, placing and curing concrete (type B) for observation house	m3	4.9	12,000.00	58,800.00	
4.7	Furnishing, placing and removing form work for concrete	m2	80.1	1,000.00	80,100.00	
4.8	Furnishing, placing and reinforcing steel bar for anchor block	ton	0.7	60,000.00	42,000.00	
4.9	Furnishing and placing wet cobble masonry for revetment	m3	4	3,500.00	14,000.00	
4.10	Manufacturing, transporting and installation of cable way facility including shop assembly, painting and other necessary works	set	1	186,700.00	186,700.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT II
 BILL OF QUANTITIES

Unit: NRs.

ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
4.11	Adjustment and installation of winch, carrier and accessories	set	1	18,000.00	18,000.00	
4.12	Furnishing and placing window and door for observation house	set	1	7,000.00	7,000.00	
4.13	River cross sectional survey	nos	1	2,500.00	2,500.00	
Sub-Total (4)					618,140.00	





RABINA CONSTRUCTION (P.) Ltd.

★ Narayangarh
★ Gorkha

1/61 Narayangarh
Chitwan, Nepal,
20251
21251

Ref. No.:-

Date _____

Nov. 18, 1991

JICA Nationwide Hydro-Meteorological
Data Management Project
C/O Department of Hydrology and Metereology
Babarmahal, Kathmandu.

Sub: Interim Payment

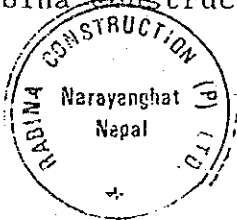
Dear Sir,

We request you to make one additional interim payment not exceeding 65% of the contract sum between advance payment and final payment.

Thanking you

Sincerely yours'

Ram Gopal Shrestha
M.D.
Rabina Construction Pvt. Ltd.





RABINA CONSTRUCTION (P.) Ltd.

★ Narayangarh
★ Gorkha

1/61 Narayangarh
Chitwan, Nepal,
20251
21251

Ref. No.:-

Date _____

Tender : CIVIL CONSTRUCTION WORKS OF MODEL OBSERVATION SYSTEM
(LOT III) FOR STUDY ON NATIONWIDE HYDRO-
METEOROLOGICAL DATA MANAGEMENT PROJECT

From : Rabina Construction Pvt. Ltd.
(Name of Tenderer)

To : JICA Nationwide Hydro-Meteorological
Data Management Project
c/o Department of Hydrology and Meteorology
Babar Mahal, Kathmandu, Nepal

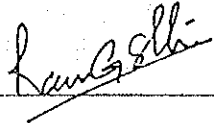
Dear Sir,

1. Having carefully and thoroughly examined the Instruction to Tenderers, Specifications and Bill of Quantities for the execution of the above-named works, we, the undersigned, offer to execute, and complete the whole of the said work in conformity with the said Tender Documents for the sum of Nepal Rupee (in words) NRs Two Million Seven Hundred Four Thousand Five Hundred Twenty four only in figures NRs 2,704,524.00 such other sum as may be ascertained in accordance with the said conditions.
2. In the event of our proposal is accepted, we agree to furnish a Performance Security or Bank Guarantee, in the manner acceptable to the Engineer and for the sum equal to ten percent (10%) of Contract Price before the signing of the contract.

3. This Tender is valid for the period of thirty (30) calendar days from the date set for the opening of Tenders, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
4. Unless and until a formal Agreement is prepared and executed this Tender together with your written acceptance thereof shall constitute a binding contract between us.
5. We understand that you are not bound to accept the lowest or any tender you may receive, and that you will not defray any expenses incurred by us in tendering.

Signed this 26th day of November 1991

Signature _____



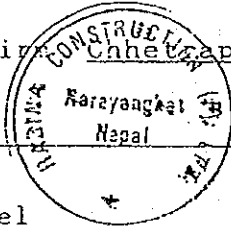
State Title whether

Proprietor/Partnership Managing Director

Name of the Firm Rabina Construction Pvt. Ltd

Address of the Firm Bharatpur, Chitawan, Nepal

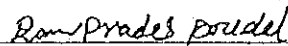
Seal of the Firm _____



Witness R. Poudel

Address Bharatpur, Chitawan

Signature _____



Date 26-11-1991

4.3 BILL OF QUANTITIES

Summary of Bill of Quantities (Lot III)

<u>Description of the Works</u>	<u>Tender Amount</u> (NRs.)
1. General items	1484250.00
2. Raingauge	384333.00
3. Water level gauge	64313.00
4. Existing Water Level Gauge	47500.00
5. Cableway	713570.00
Total (Tendered Amount)	2,704,524.00

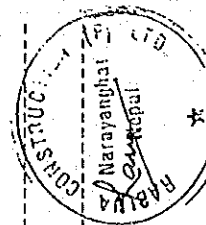
Rupees Two Million Seven Hundred Four Thousand Five Hundred Twenty Four Only.



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
CIVIL CONSTRUCTION WORKS OF LOT III
BILL OF QUANTITIES

Unit: NRS.

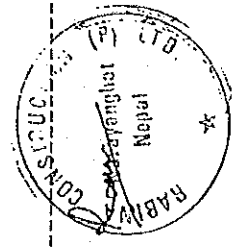
ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
1.	General Item					
1.1	Construction, operation, maintenance and subsequent removal or handling working house or office at site	L.S.	1	43,000.00	43,000.00	
1.2	Construction, operation, maintenance and subsequent removal or handling over of Contractor's staff quarters and labor camps, all with facilities	L.S.	1	40,000.00	40,000.00	
1.3	Rental of survey equipment and Construction machinery	L.S.	1	55,000.00	55,000.00	
1.4	Preparation of required drawing, progress report and work program	L.S.	1	50,000.00	50,000.00	
1.5	Hiring of vehicles and other local transportation for moving construction materials and so on.	L.S.	1	85,000.00	85,000.00	
1.6	Transportation of construction material and equipment by porter	man-dy	250	125.00	31,250.00	
1.7	Transportation of construction material, equipment and Engineer by helicopter	hour	15	72,000.00	1,080,000.00	
1.8	Construction of helipad	nos	2	50,000.00	100,000.00	
Sub-Total (1)					1,484,250.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT III
 BILL OF QUANTITIES

Unit: NRs.

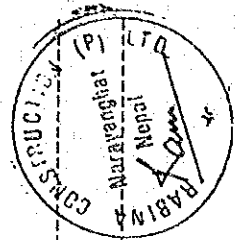
ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
2.	Raingauge (Doban , Pamdur, Sallyan, Sirkon , Tisedi)					
2.1	Excavation of common soil by manpower including disposing	m3	13.2	120.00	1,584.00	
2.2	Placing and compacting filling soil by manpower	m3	17.5	150.00	2,625.00	
2.3	Furnishing, placing and compacting cobble stone for foundation	m3	2.1	300.00	630.00	
2.4	Producing, placing and curing concrete (type B)	m3	1.1	14,500.00	15,950.00	
2.5	Furnishing and placing wet cobble masonry for gauge stage	m3	42.3	7,000.00	296,100.00	
2.6	Manufacturing, transporting and installation of ordinary raingauge	place	5	8,000.00	40,000.00	
2.7	Transporting and installation of recording raingauge	place	5	5,000.00	25,000.00	
2.8	Levelling survey	place	5	2,500.00	12,500.00	
Sub-Total (2)					394,389.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
CIVIL CONSTRUCTION WORKS OF LOT III
BILL OF QUANTITIES

Unit: NRs.

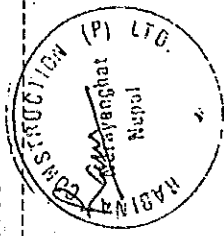
ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
3.	Water Level Gauge (Kalleri)					
3.1	Care of water, coffering and dewatering around gauge including construction and demolishing	L.S.	1	5,000.00	5,000.00	
3.2	Excavation of common soil by manpower for approach walkway including disposing	m3	122	300.00	36,600.00	
3.3	Furnishing, placing backfill by manpower	m3	1.7	150.00	255.00	
3.4	Producing, placing and curing concrete (type B) for recorder foundation	m3	0.08	14,500.00	1,160.00	
3.5	Furnishing, placing and removing form work for concrete	m2	0.8	1,000.00	800.00	
3.6	Transporting and installation of water level gauge	set	1	10,000.00	10,000.00	
3.7	Manufacturing, transporting and installation of protective GPS pipe (dia. 100 mm) for gauge with accessory	set	1	5,000.00	5,000.00	
3.8	Transporting and installation of staff gauge with support	set	1	6,000.00	6,000.00	
Sub-Total (3)					64,815.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT III
 BILL OF QUANTITIES

Unit: NRs.

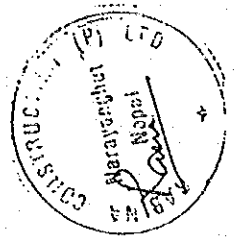
ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
4.	Existing Water Level Gauge (Setibeni)					
4.1	Transporting and installation of water level gauge	set	1	8,000.00	8,000.00	
4.2	Manufacturing, transporting and installation of protective GPS pipe (dia. 100 mm) for gauge with accessory	set	1	5,000.00	5,000.00	
4.3	Transporting and installation of staff gauge with support	set	3	7,500.00	22,500.00	
4.4	River cross sectional survey	nos	3	4,000.00	12,000.00	
Sub-Total (4)					47,500.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT III
 BILL OF QUANTITIES

Unit: NRs.

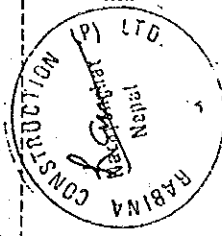
ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE	AMOUNT	REMARKS
5.	Cableway (Kalleri)					
5.1	Excavation of common soil and sand by manpower for anchor block including disposing	m3	208	120.00	24,960.00	
5.2	Excavation of weathered rock by manpower in river including disposing	m3	3	1,500.00	4,500.00	
5.3	Furnishing, placing backfill by manpower	m3	150	150.00	22,500.00	
5.4	Embankment around observation house	m3	4	100.00	400.00	
5.5	Furnishing, placing and compacting cobble stone for foundation	m3	2.2	300.00	660.00	
5.6	Producing, placing and curing concrete (type A) for anchor block	m3	16.7	11,000.00	183,700.00	
5.7	Producing, placing and curing concrete (type B) for observation house	m3	4.9	14,500.00	71,050.00	
5.8	Furnishing, placing and removing form work for concrete	m2	102.3	1,000.00	102,300.00	
5.9	Furnishing, placing and reinforcing steel bar for anchor block and observation house	ton	1.3	55,000.00	71,500.00	
5.10	Furnishing and placing wet cobble masonry for slope protection	m3	3	3,000.00	9,000.00	



NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 CIVIL CONSTRUCTION WORKS OF LOT III
 BILL OF QUANTITIES

Unit: NRs.

ITEM NO.	DESCRIPTION	UNIT	Q'TITY	UNIT PRICE	AMOUNT	REMARKS
5.11	Manufacturing, transporting and installation of cable way facility including shop assembly, painting and other necessary works	set	1	195,000.00	195,000.00	
5.12	Adjustment and installation of winch, carrier and accessories	set	1	18,000.00	18,000.00	
5.13	Furnishing and placing window and door for observation house	set	1	7,000.00	7,000.00	
5.14	River cross sectional survey	nos	1	3,000.00	3,000.00	
Sub-Total (5)					713,570.00	



APPENDIX - 2

AS BUILT DRAWINGS FOR MODEL SYSTEM

LIST OF DRAWINGS (MODEL SYSTEM)

DWG. NO.	LOCATION	MAP	TITLE
01.			<u>CHYUNTAHA STATION</u>
02.			PLAN AND PROFILE
03.			WATER LEVEL GAUGE (FLOAT TYPE)
04.			ABUTMENT AND SLOPE PROTECTION DETAILS
05.			REINFORCEMENT BAR ARRANGEMENT OF ABUTMENT
06.			OBSERVATION HOUSE DETAILS
07.			PIPE WELL DETAILS (1/2)
08.			PIPE WELL DETAILS (2/2)
09.			ANCHOR BLOCK AND BEARING POLE BASEMENT
10.			BEARING POLE DETAILS (1/2)
11.			BEARING POLE DETAILS (2/2)
12.			CARRIER AND CABLE DETAILS (1/2)
13.			CARRIER AND CABLE DETAILS (2/2)
			<u>TATOPANI AND KALLERI STATION</u>
14.			PLAN AND PROFILE AT TATOPANI STATION
15.			PLAN AND PROFILE AT KALLERI STATION
16.			WATER LEVEL GAUGE AT TATOPANI STATION
17.			WATER LEVEL GAUGE AT KALLERI STATION

DWG. NO. TITLE

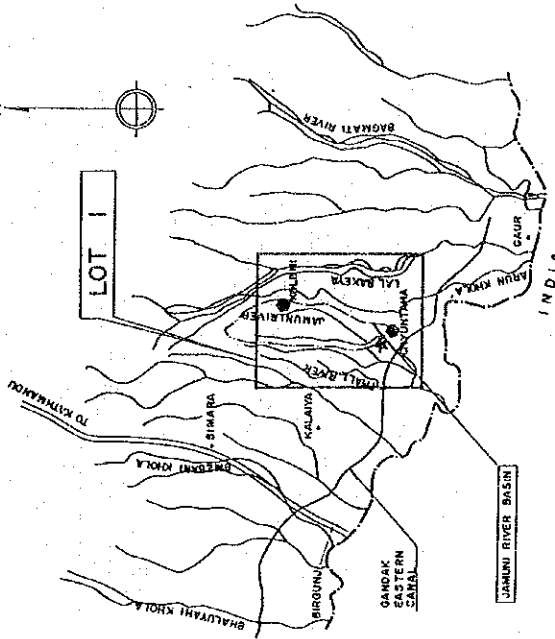
- 18. WATER LEVEL GAUGE STRUCTURE DETAILS (1/2)
- 19. WATER LEVEL GAUGE STRUCTURE DETAILS (2/2)
- 20. CABLE WAY DETAILS AT TATOPANI STATION
- 21. OBSERVATION HOUSE DETAILS AT TATOPANI STATION
- 22. CABLE WAY DETAILS AT KALLERI STATION
- 23. ANCHOR BLOCK DETAILS
- 24. CABLEWAY OBSERVATION HOUSE

SETIBENI STATION

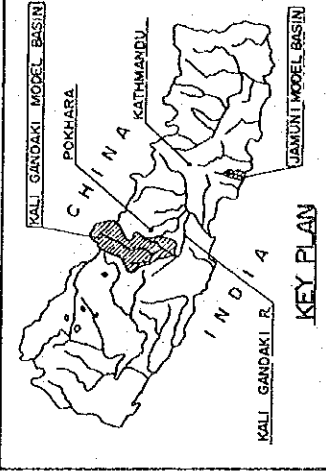
- 25. PLAN AND PROFILE
- 26. WATER LEVEL GAUGE DETAILS (1/2)
- 27. WATER LEVEL GAUGE DETAILS (2/2)

OTHERS

- 28. RAINGAUGE STRUCTURE DETAILS
- 29. ORDINARY RAINGAUGE DETAILS
- 30. STAFF GAUGE STRUCTURE DETAILS



JAMUNI RIVER BASIN

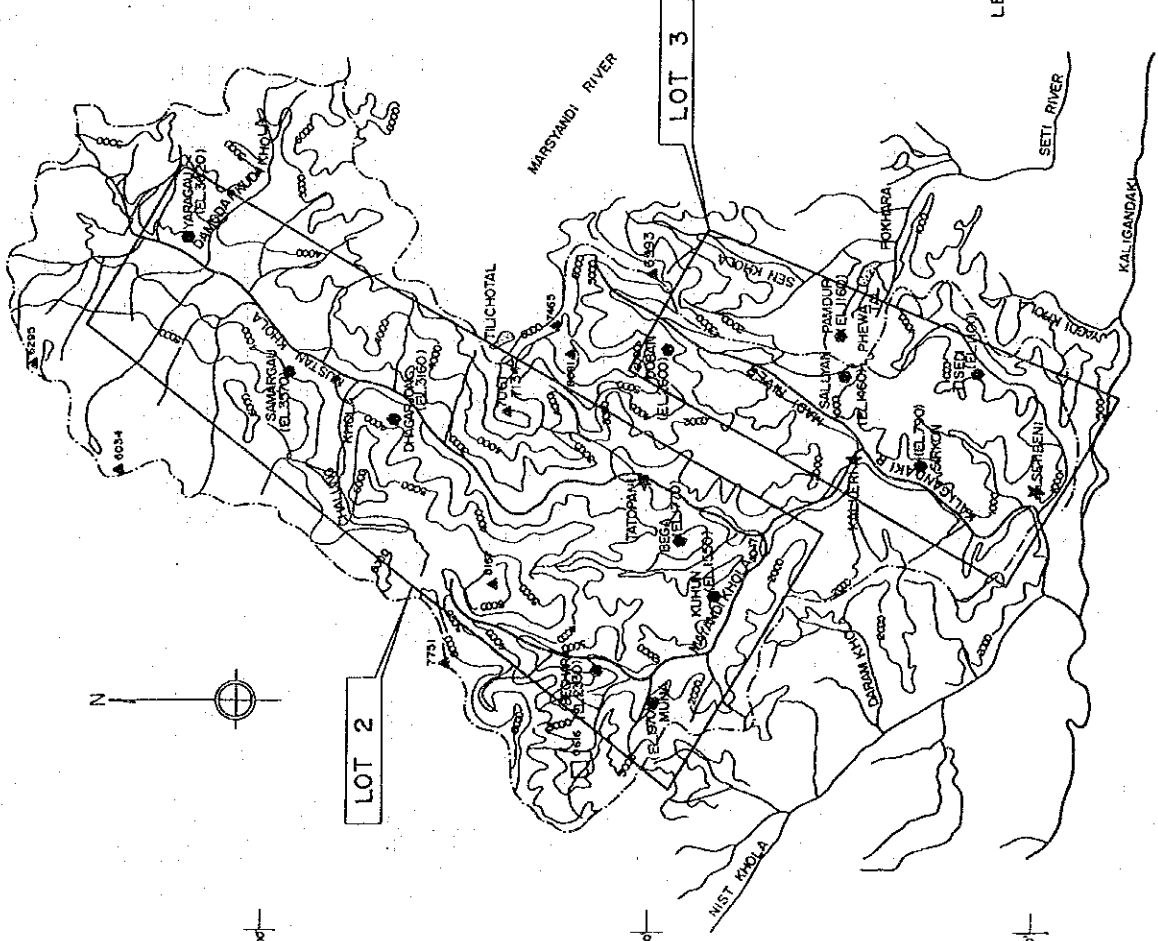


KEY PLAN

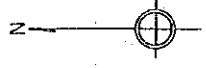
HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

LOCATION MAP

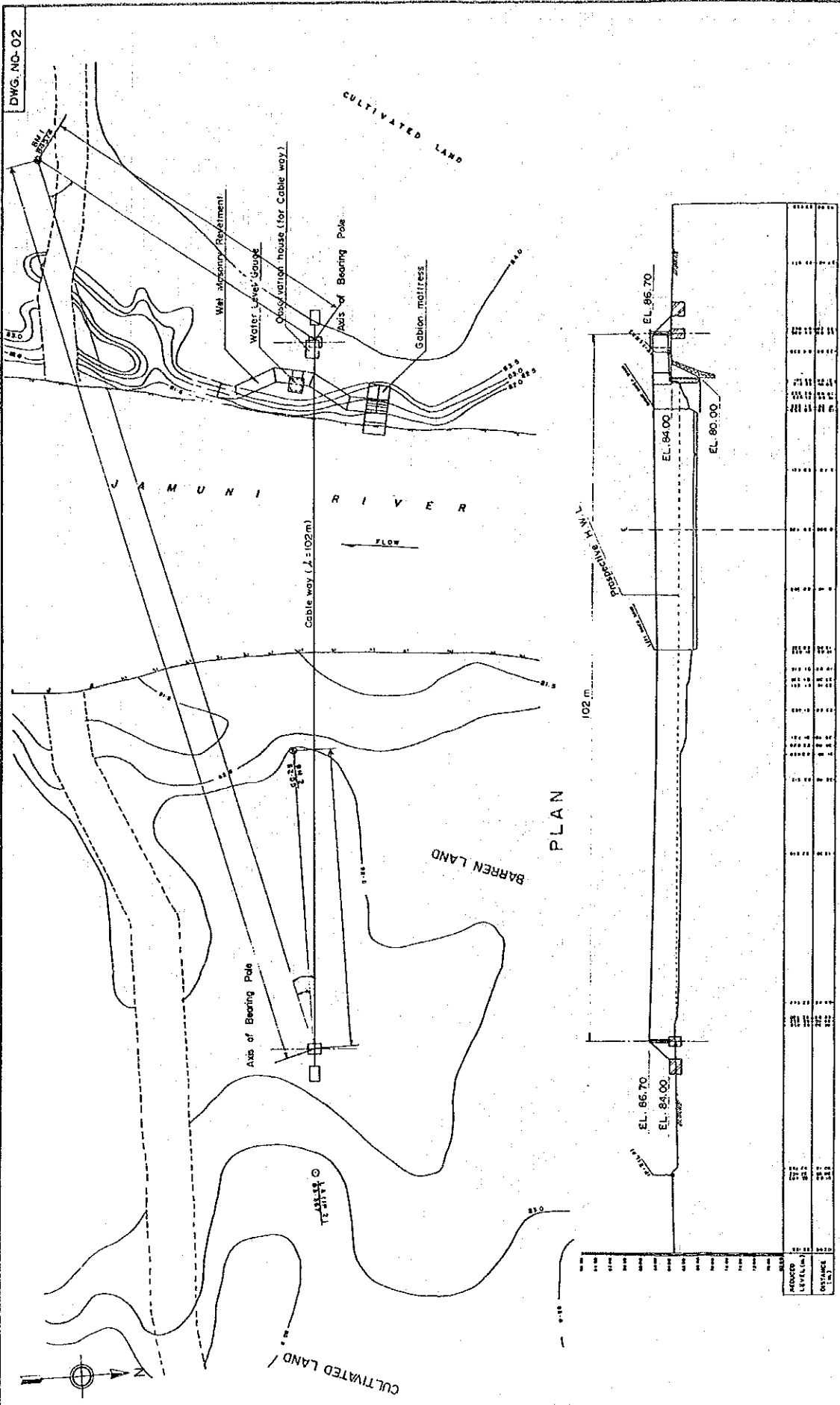
- LEGEND :
- AUTOMATIC RAINGAUGE
 - ★ WATER LEVEL RECORDER
 - BASIN BOUNDARY



KALI GANDAKI RIVER BASIN



DWG. NO-02



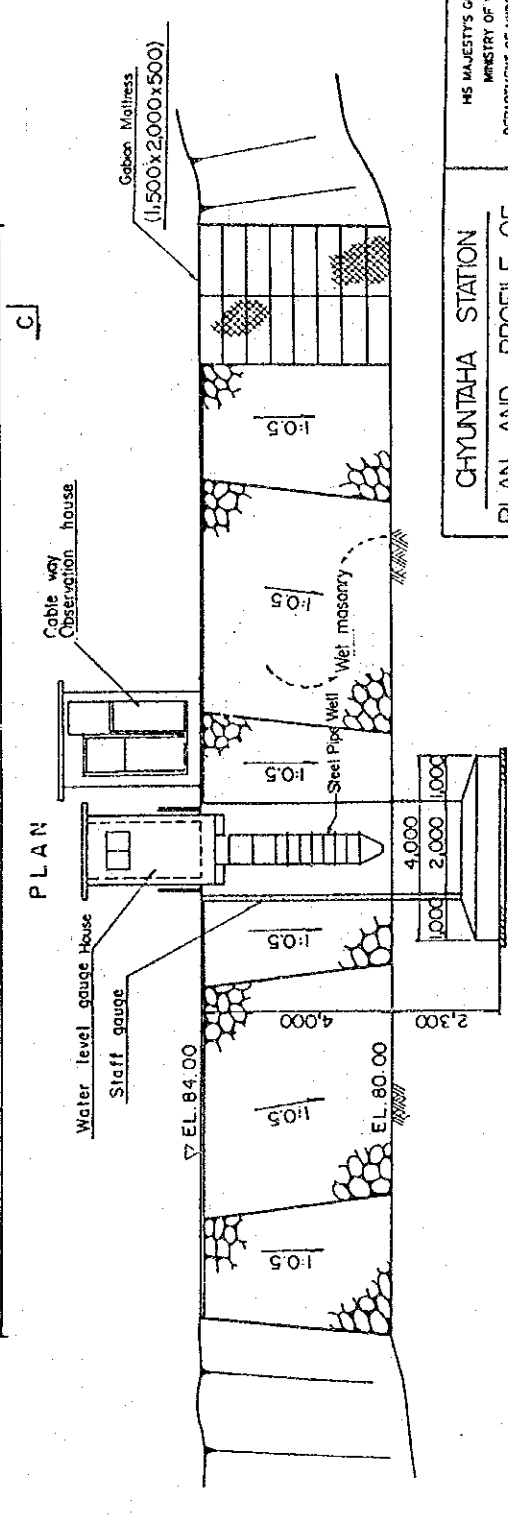
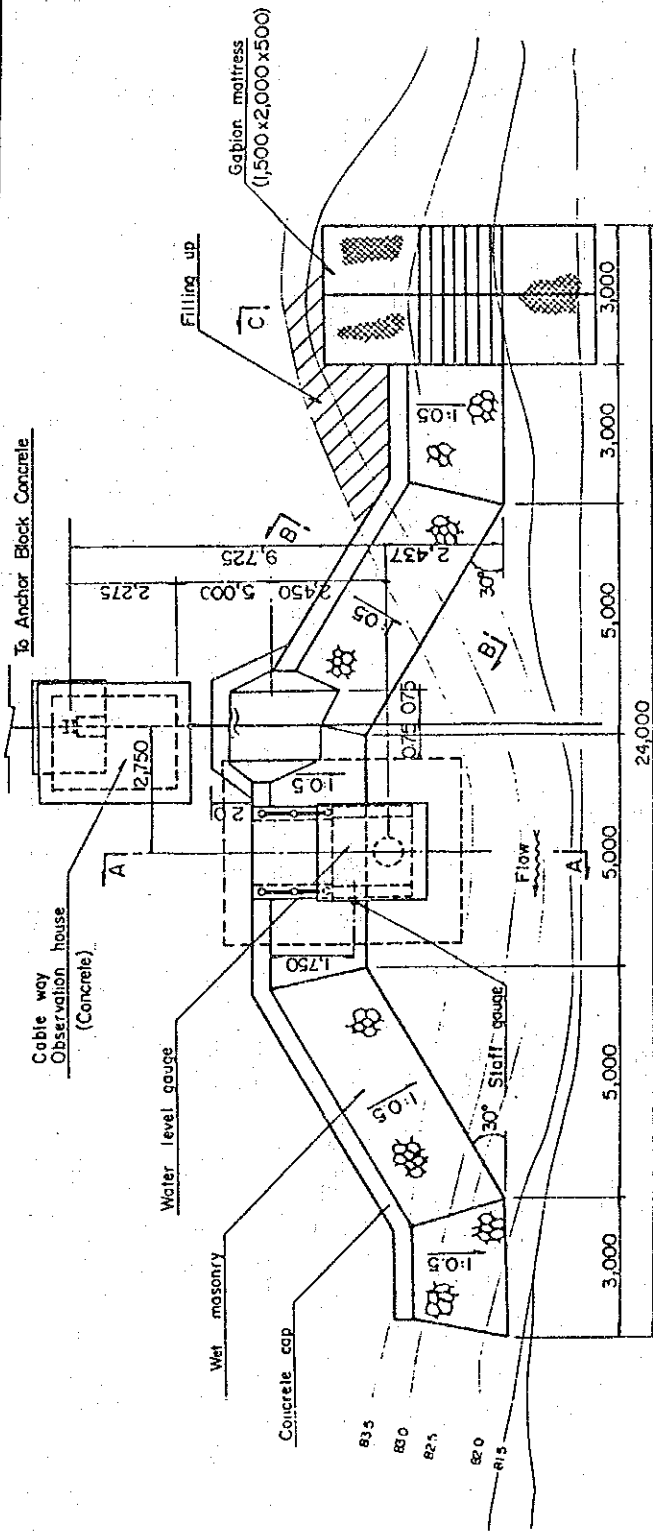
HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

CHYUNTAHA STATION
 PLAN AND PROFILE

PROFILE

SCALE 0 10 20 30 m

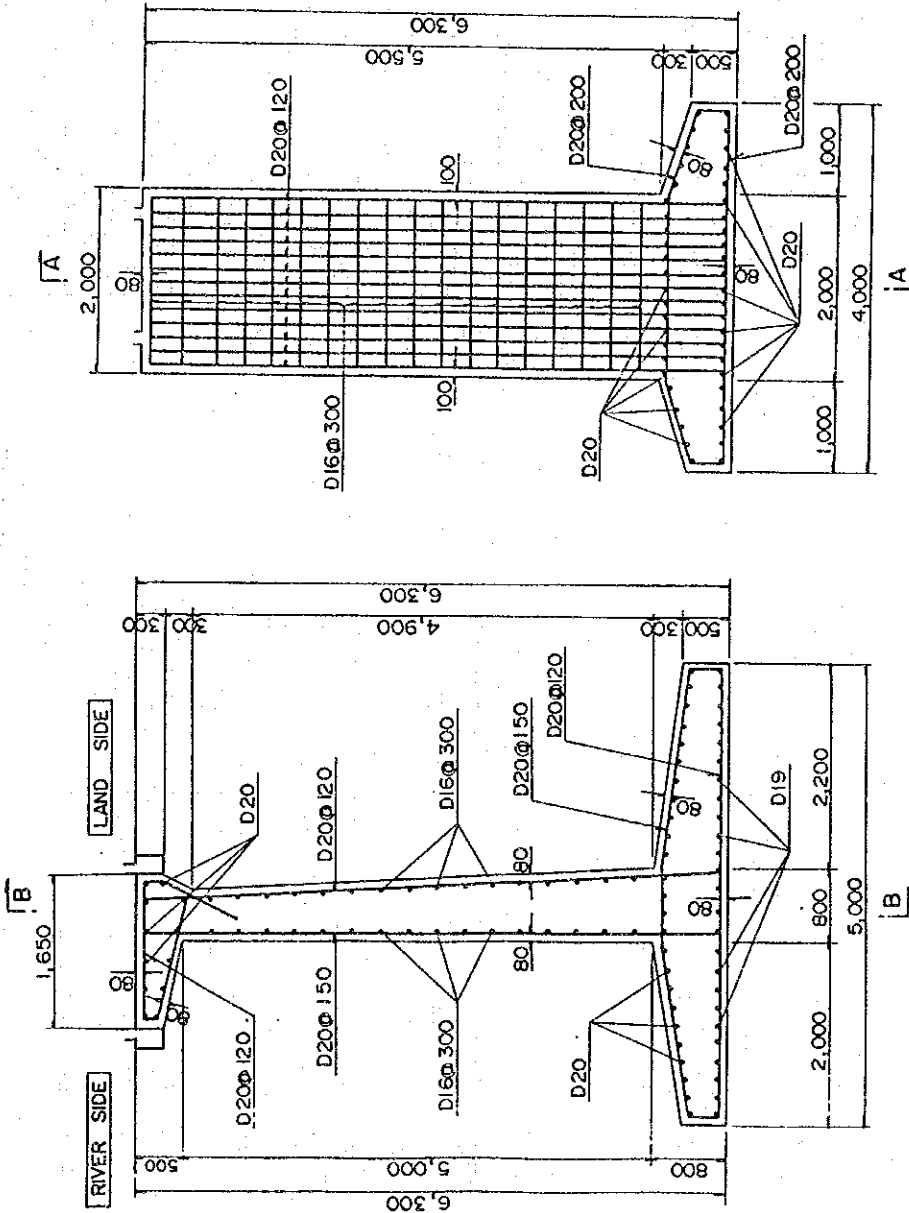
REDUCED LEVEL (m)	STATIONING (m)	STATIONING (ft)
86.70	0+00	0
86.50	0+10	30
86.30	0+20	60
86.10	0+30	90
85.90	0+40	120
85.70	0+50	150
85.50	0+60	180
85.30	0+70	210
85.10	0+80	240
84.90	0+90	270
84.70	0+100	300
84.50	0+110	330
84.30	0+120	360
84.10	0+130	390
83.90	0+140	420
83.70	0+150	450
83.50	0+160	480
83.30	0+170	510
83.10	0+180	540
82.90	0+190	570
82.70	0+200	600
82.50	0+210	630
82.30	0+220	660
82.10	0+230	690
81.90	0+240	720
81.70	0+250	750
81.50	0+260	780
81.30	0+270	810
81.10	0+280	840
80.90	0+290	870
80.70	0+300	900
80.50	0+310	930
80.30	0+320	960
80.10	0+330	990
79.90	0+340	1020
79.70	0+350	1050
79.50	0+360	1080
79.30	0+370	1110
79.10	0+380	1140
78.90	0+390	1170
78.70	0+400	1200
78.50	0+410	1230
78.30	0+420	1260
78.10	0+430	1290
77.90	0+440	1320
77.70	0+450	1350
77.50	0+460	1380
77.30	0+470	1410
77.10	0+480	1440
76.90	0+490	1470
76.70	0+500	1500
76.50	0+510	1530
76.30	0+520	1560
76.10	0+530	1590
75.90	0+540	1620
75.70	0+550	1650
75.50	0+560	1680
75.30	0+570	1710
75.10	0+580	1740
74.90	0+590	1770
74.70	0+600	1800
74.50	0+610	1830
74.30	0+620	1860
74.10	0+630	1890
73.90	0+640	1920
73.70	0+650	1950
73.50	0+660	1980
73.30	0+670	2010
73.10	0+680	2040
72.90	0+690	2070
72.70	0+700	2100
72.50	0+710	2130
72.30	0+720	2160
72.10	0+730	2190
71.90	0+740	2220
71.70	0+750	2250
71.50	0+760	2280
71.30	0+770	2310
71.10	0+780	2340
70.90	0+790	2370
70.70	0+800	2400
70.50	0+810	2430
70.30	0+820	2460
70.10	0+830	2490
69.90	0+840	2520
69.70	0+850	2550
69.50	0+860	2580
69.30	0+870	2610
69.10	0+880	2640
68.90	0+890	2670
68.70	0+900	2700
68.50	0+910	2730
68.30	0+920	2760
68.10	0+930	2790
67.90	0+940	2820
67.70	0+950	2850
67.50	0+960	2880
67.30	0+970	2910
67.10	0+980	2940
66.90	0+990	2970
66.70	0+1000	3000



CHYUNTAHA STATION
 PLAN AND PROFILE OF
 WATER LEVEL GAUGE (FLOAT TYPE)

HS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
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 JAPAN INTERNATIONAL COOPERATION AGENCY

Note:
 For initiation of STAFF GAUGE,
 see DWG No -



SECTION B - B

SECTION A - A

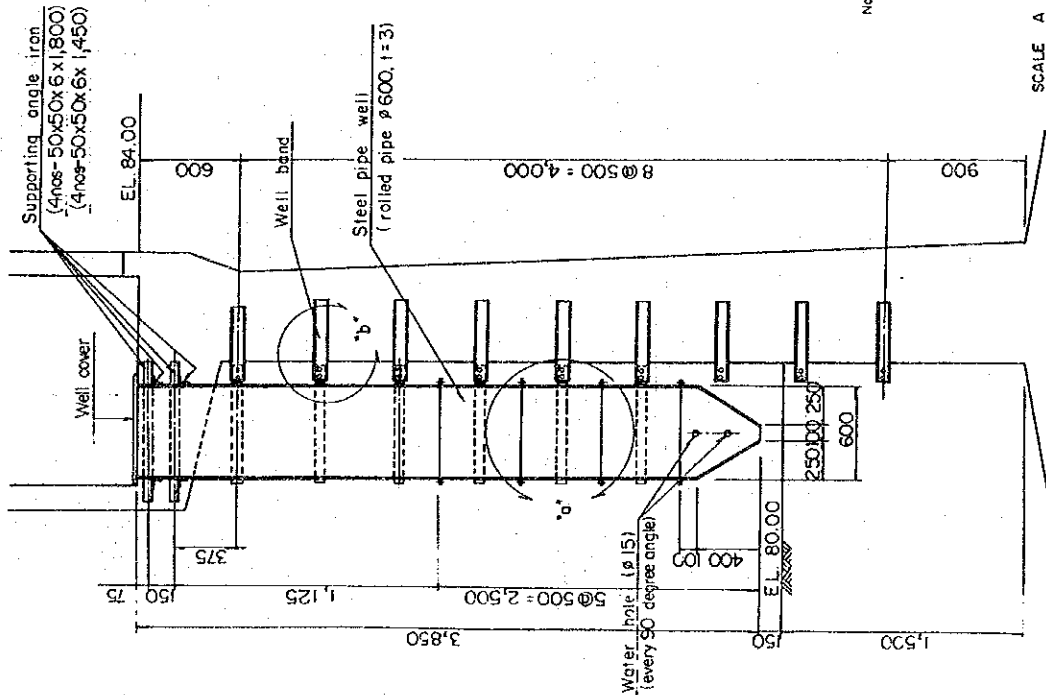
CHYUNTAHA STATION
REINFORCEMENT BAR
ARRANGEMENT OF ABUTMENT

REINFORCING BAR ARRANGEMENT OF
ABUTMENT
SCALE 1:200

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

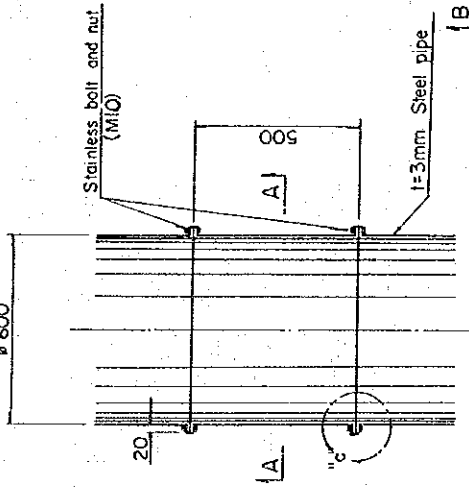
DETAIL OF ADJUSTABLE STEEL PIPE WELL

SCALE A

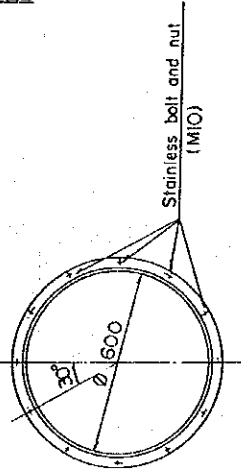


DETAIL OF STEEL PIPE

SCALE B



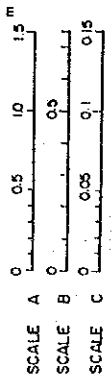
DETAIL 'a'



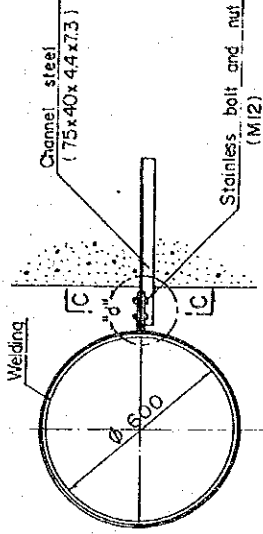
SECTION A-A

Notes:

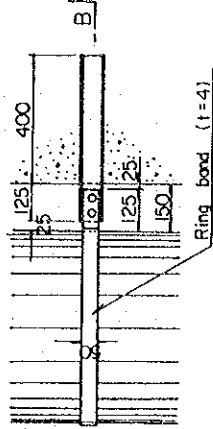
1. Well band shall be connected with reinforcement bars.
2. Three spores of steel pipe (φ: 500) and well band shall be manufactured and kept inside the observation house.



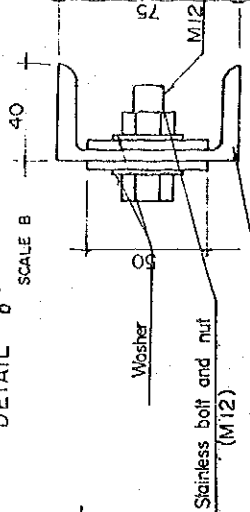
DETAIL OF WELL BAND



SECTION B-B



DETAIL 'b'



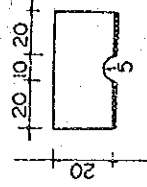
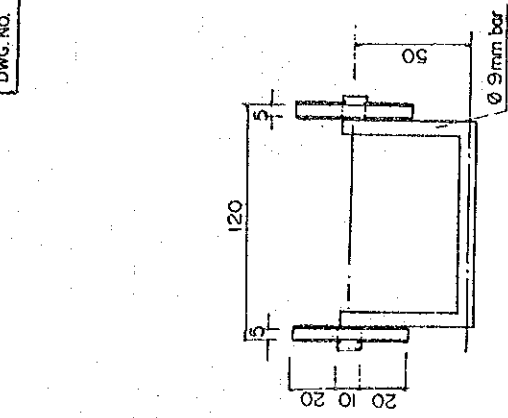
SECTION C-C

Not to Scale

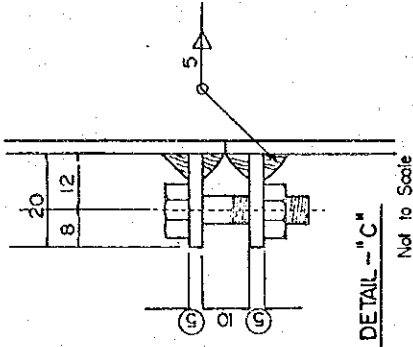
CHYUNTAHA STATION

PIPE WELL DETAILS (1/2)

HM MAJESTY'S GOVERNMENT OF NEPAL
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

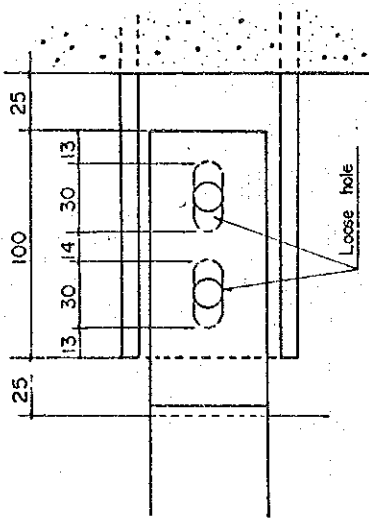


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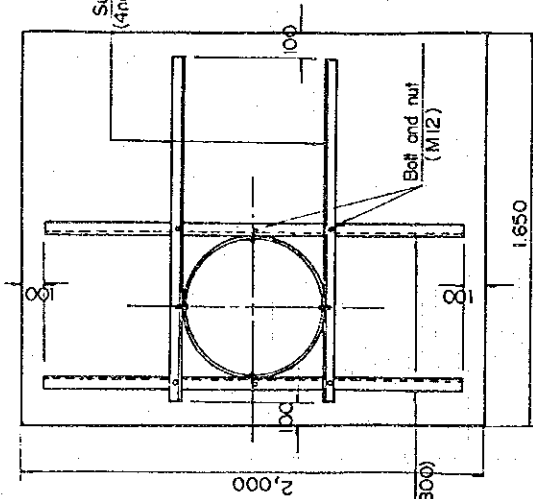
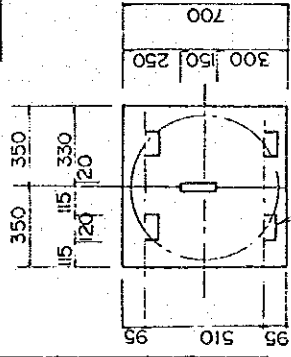


Not to Scale

Supporting angle iron
(4nos-50x50x60x1450)



No Scale



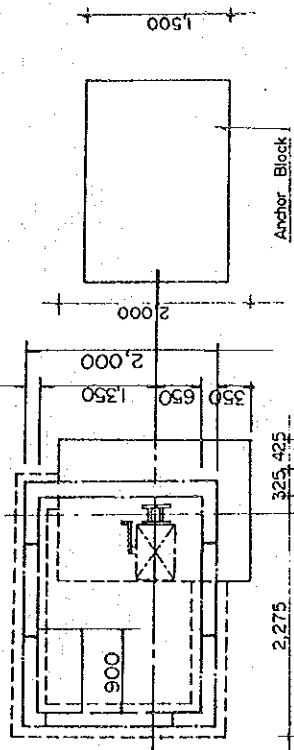
Supporting angle iron
(4nos-50x50x60x1500)

* Total number of
Bolt and nut; 16 Sets

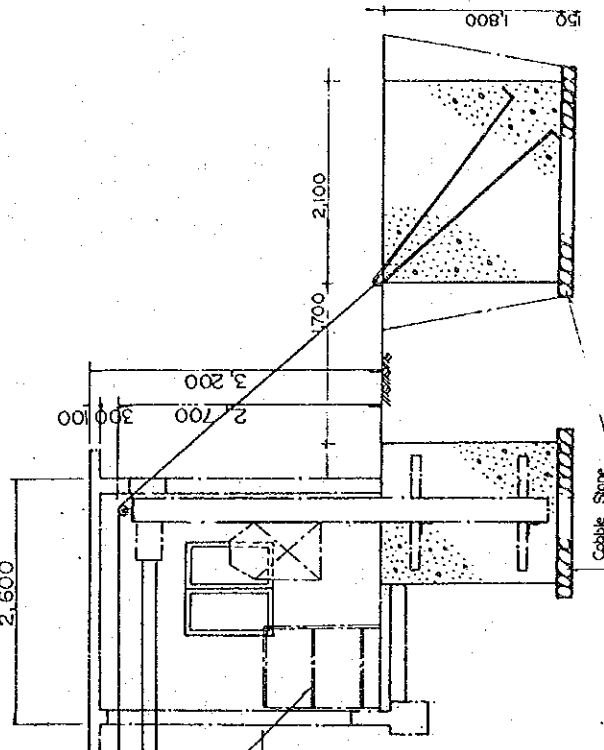
Steel pipe
Ø 600

CHYUNTAHA STATION
PIPE WELL DETAILS (2/2)

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

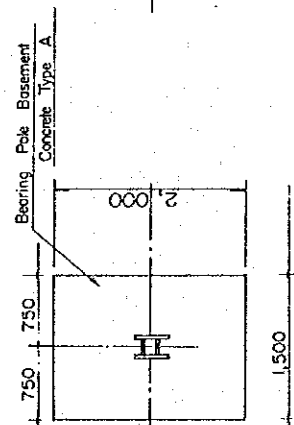


PLAN

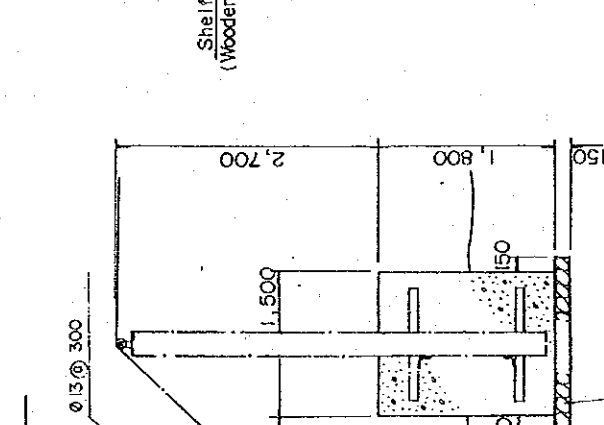


PROFILE

RIGHT BANK



PLAN



PROFILE

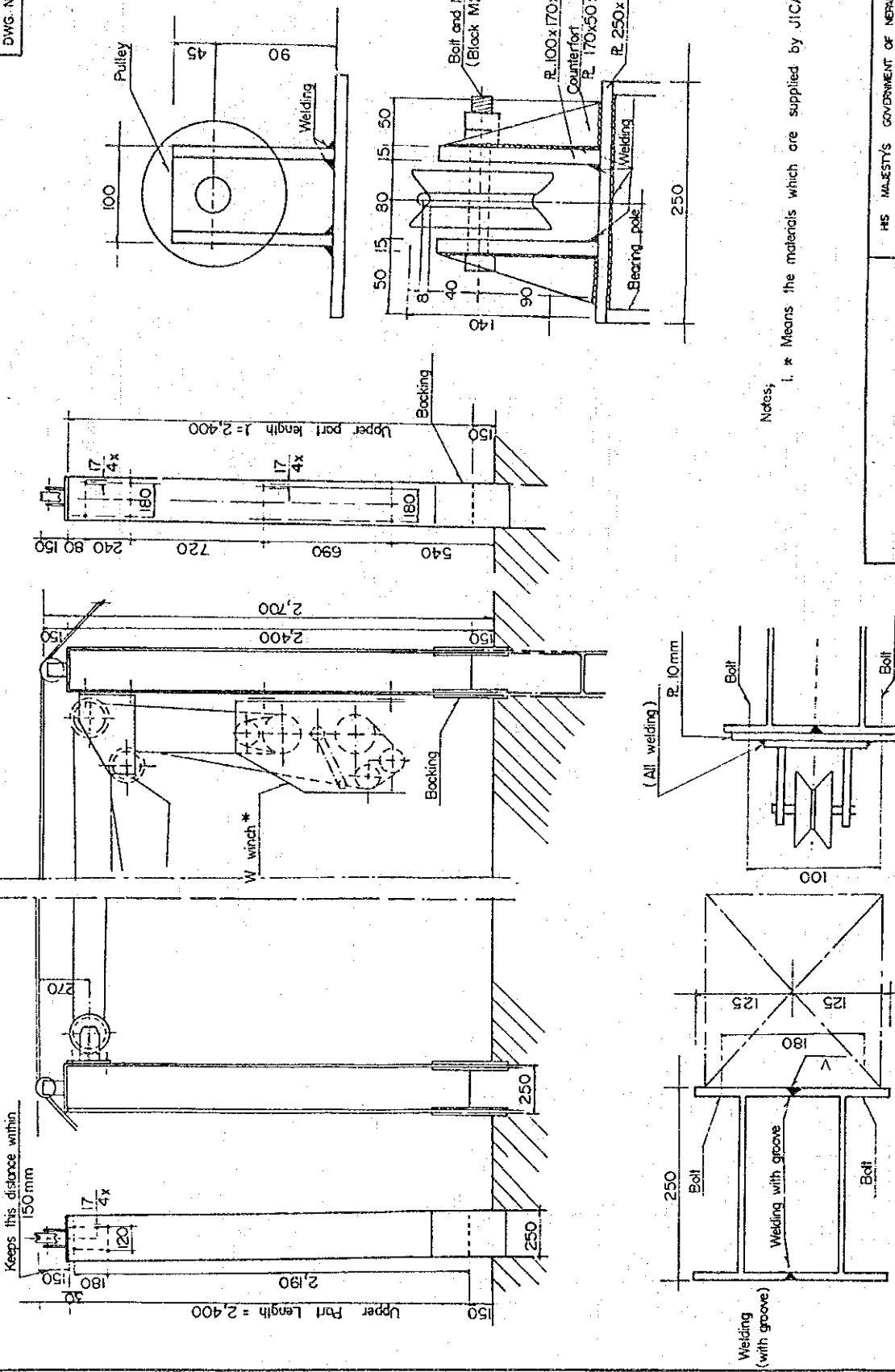
LEFT BANK

HM MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

CHYUNTAHA STATION
 ANCHOR BLOCK AND BEARING
 POLE BASEMENT

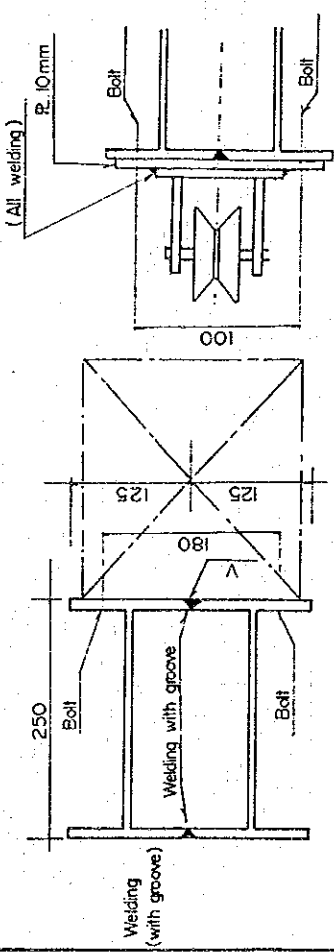


DWG. NO. 10

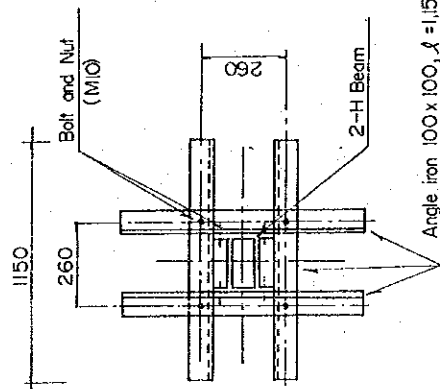
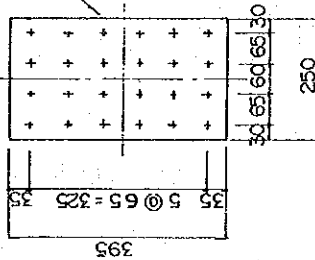
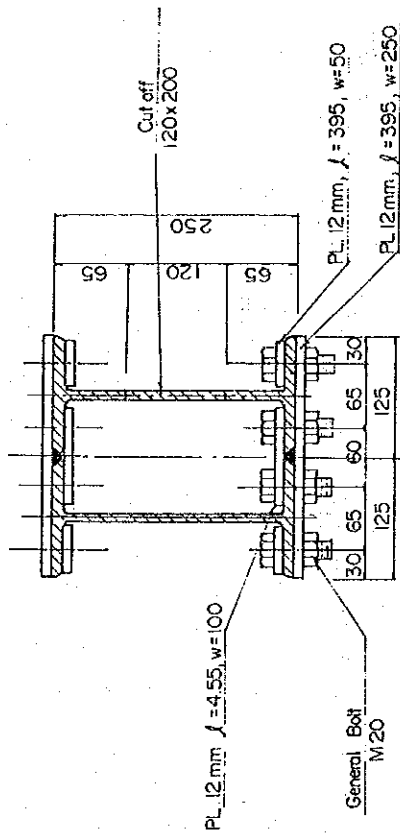
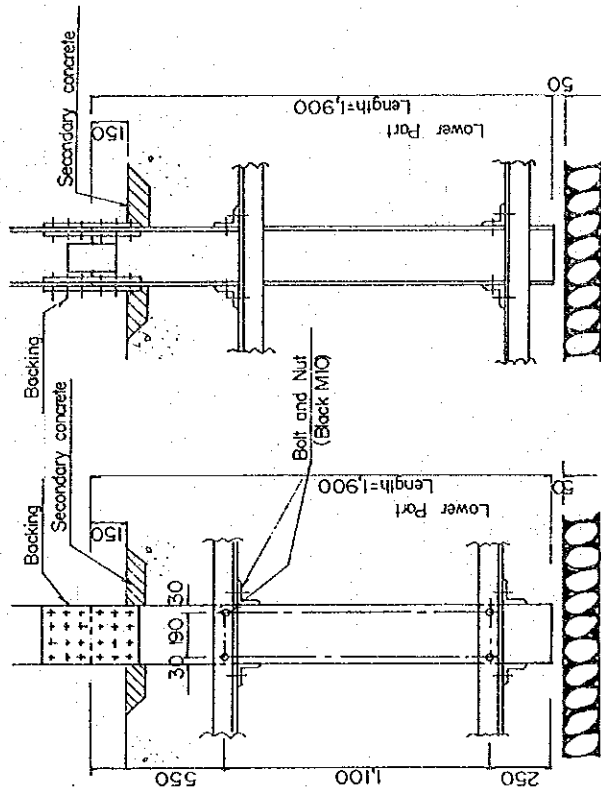


HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

CHYUNTAHA STATION
BEARING POLE DETAILS (1)



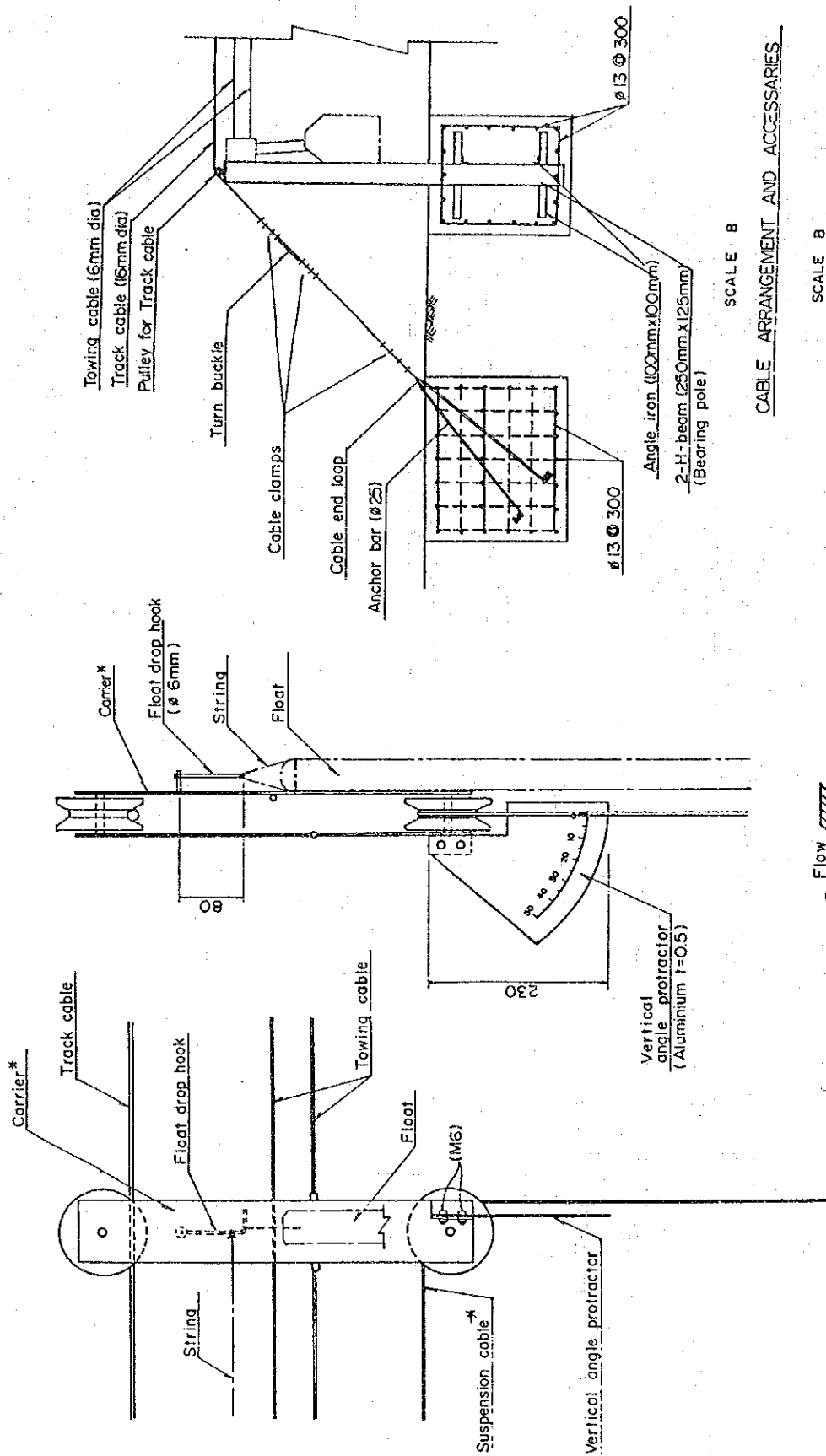
POLE DETAIL



BACKING PART DETAILS

CHYUNTAHA STATION
 BEARING POLE DETAILS(2/2)

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY



SECTION A-A

Flow

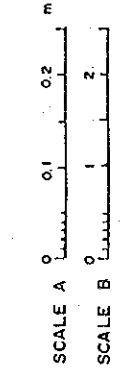
SCALE A

SCALE B

CABLE ARRANGEMENT AND ACCESSORIES

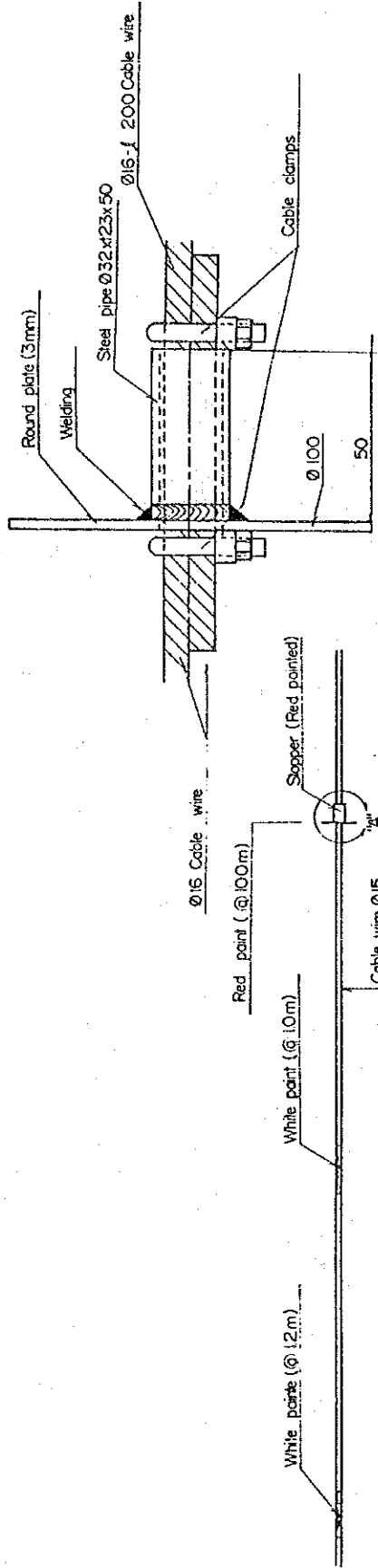
Note :

Carrier, Float and Suspension Cable shall be provided by J.I.C.A..



CHYUNTAHA STATION
CARRIER AND CABLE DETAILS
(1/2)

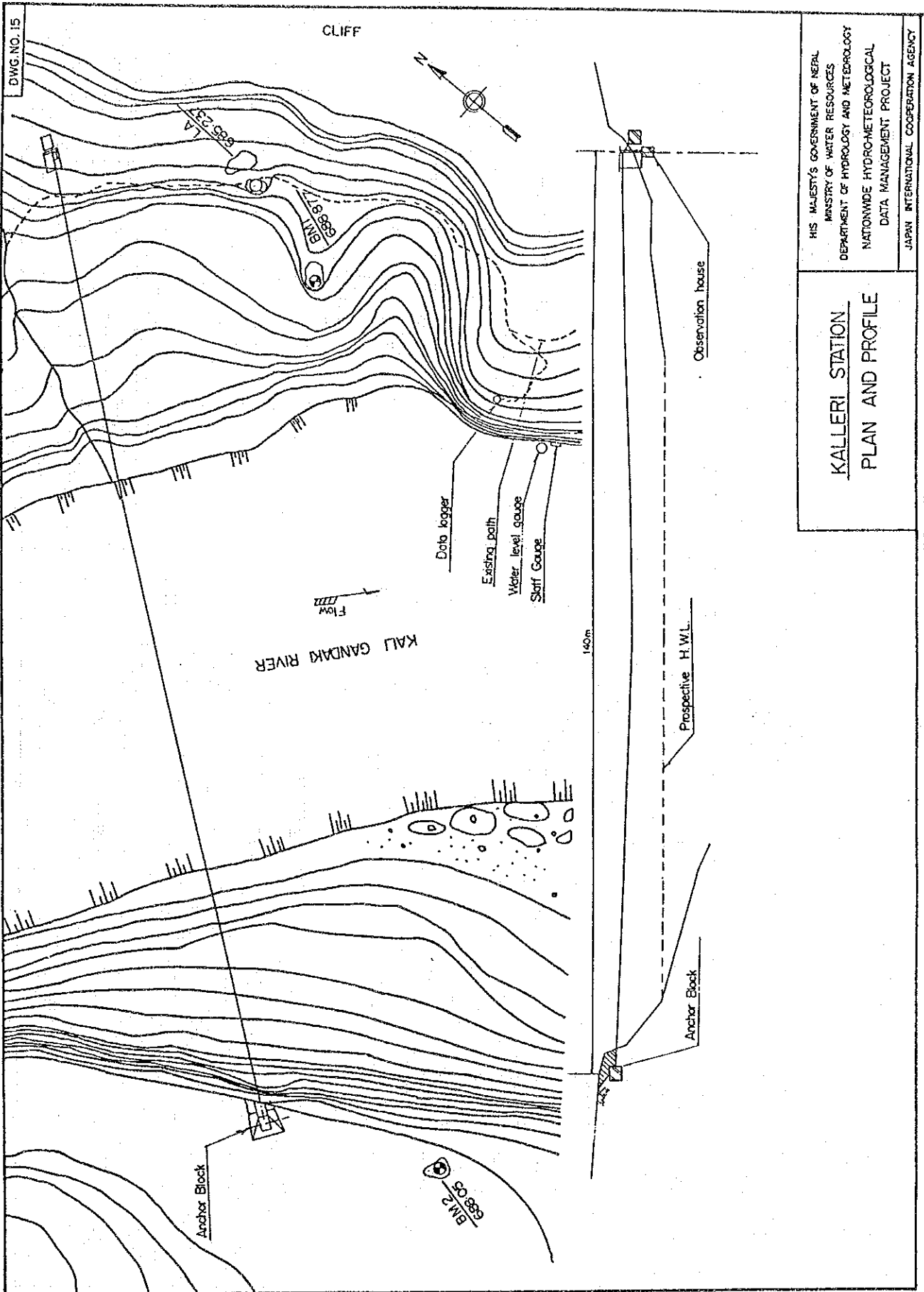
HM MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY



DETAIL OF STOPPER FOR CABLE WAY

CHYUNTAHA STATION
CARRIER AND CABLE DETAILS
(2/2)

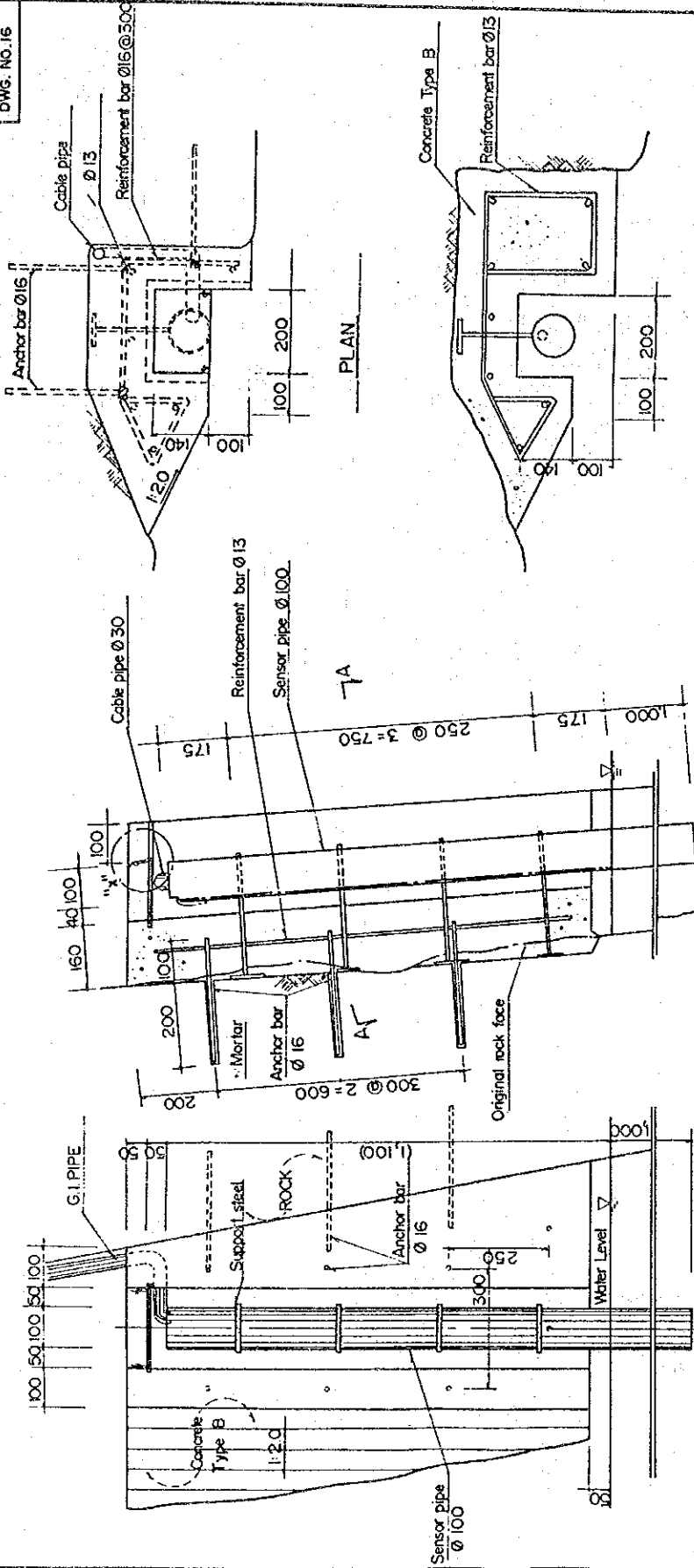
HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY



HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

KALLERI STATION
 PLAN AND PROFILE

DWG. NO.16



SECTION A-A

CROSS SECTION

FRONT VIEW

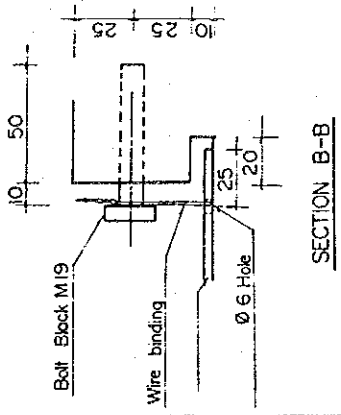
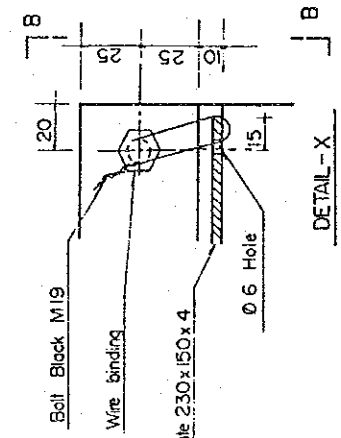
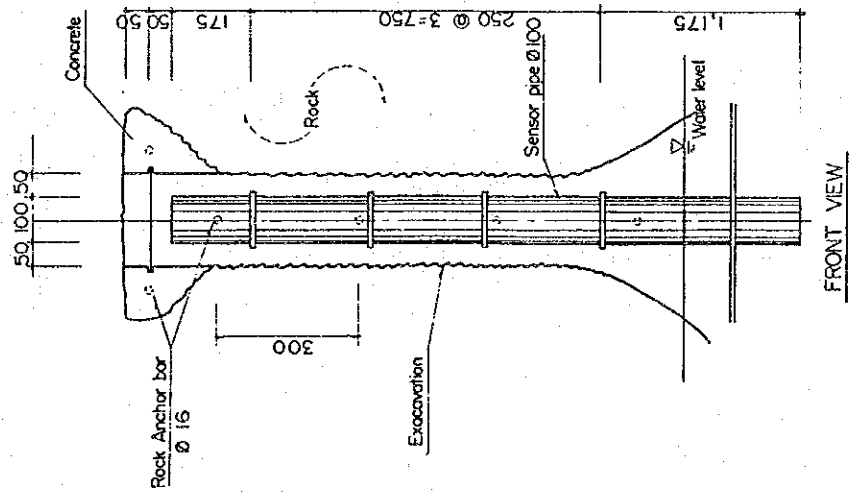
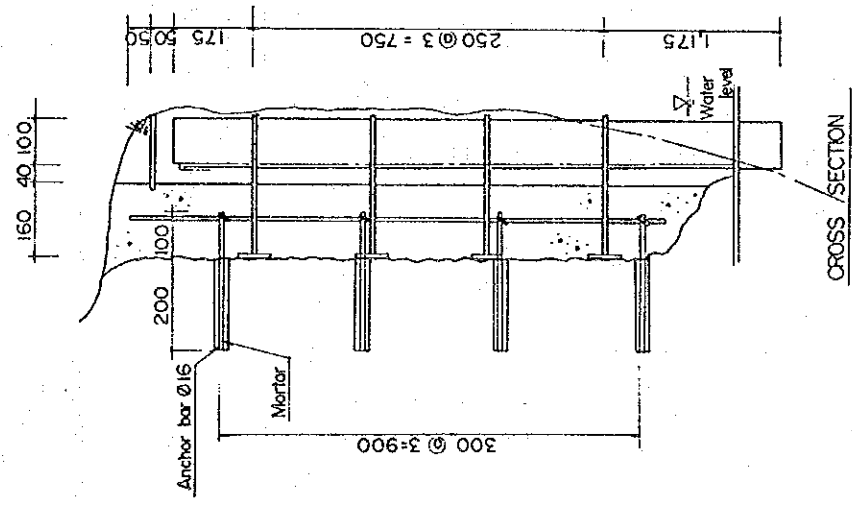
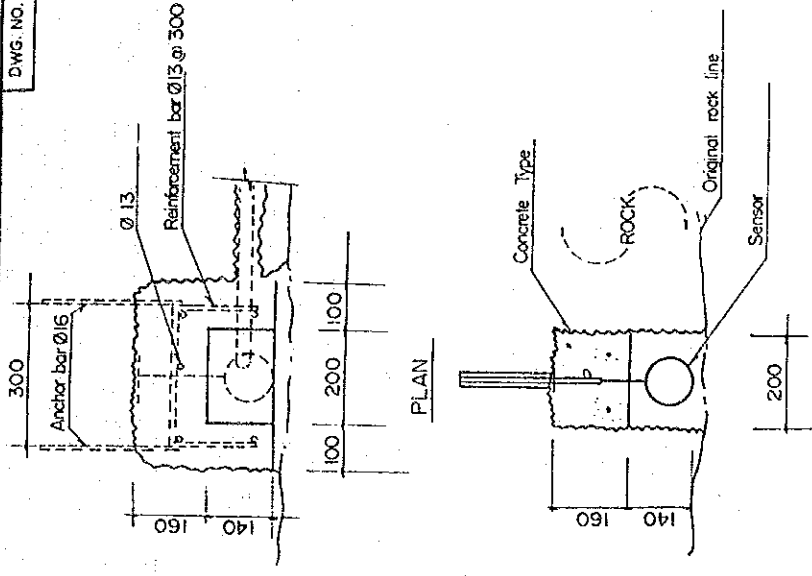
DETAIL - X

SECTION B-B

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

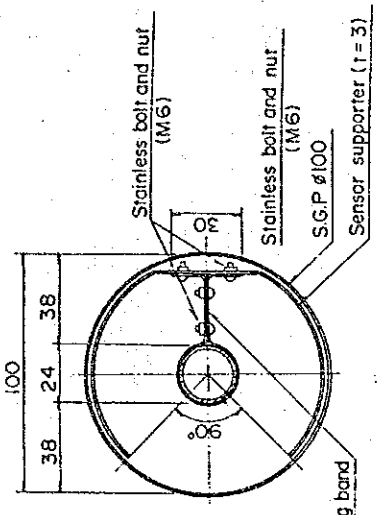
TATOPANI STATION
 WATER LEVEL GAUGE

DWG. NO. 17

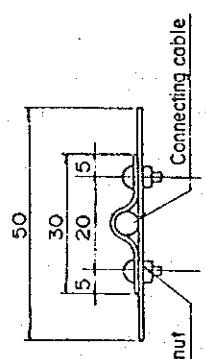


KALLERI STATION
WATER LEVEL GAUGE

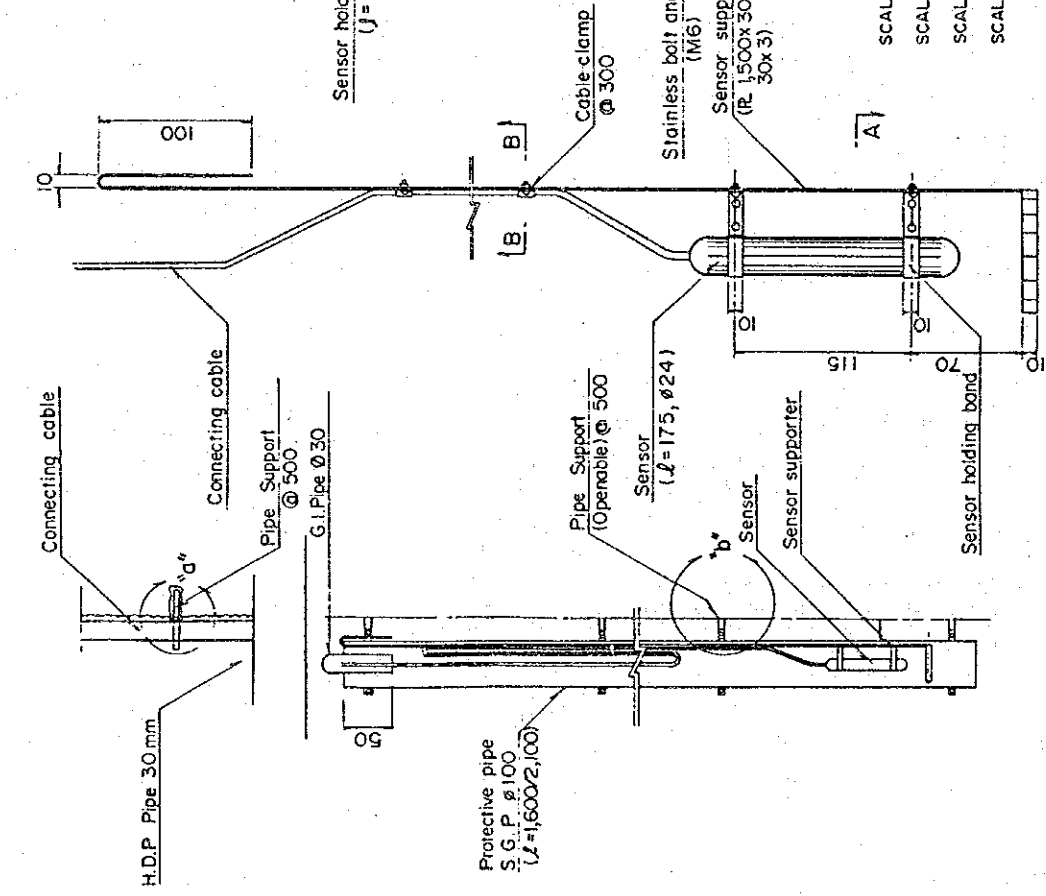
HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 NATIONWIDE HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY



SECTION A-A
SCALE C

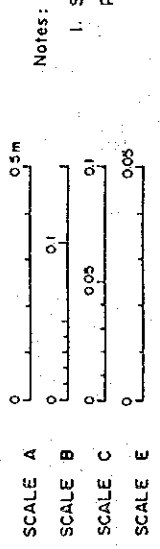


SECTION B-B
SCALE E



DETAIL OF SENSOR SUPPORTER
SCALE B

DETAIL OF PROTECTIVE PIPE
SCALE A

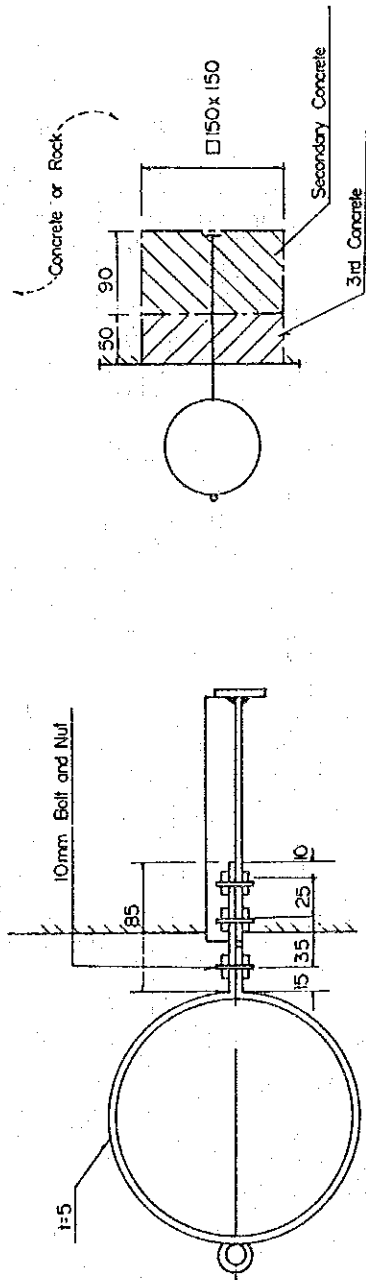


Notes:
1. Sensor and connecting cable shall be provided by J.I.C.A.

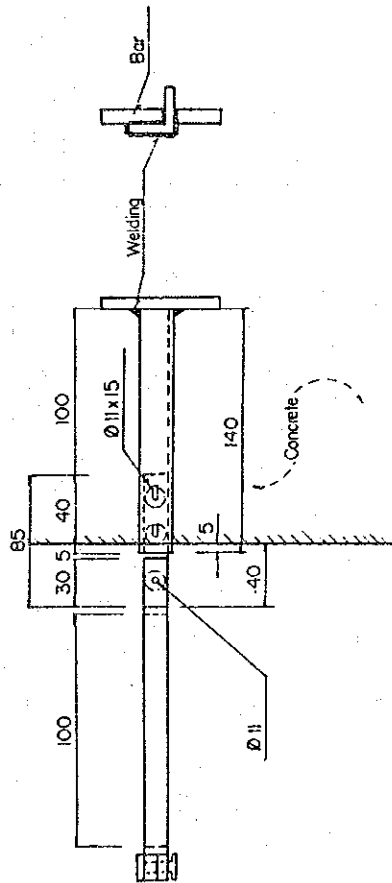
HM MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

WATER LEVEL GAUGE
STRUCTURE DETAILS (1/2)

DWG. NO. 19



DETAIL OF CONCRETE PLACING

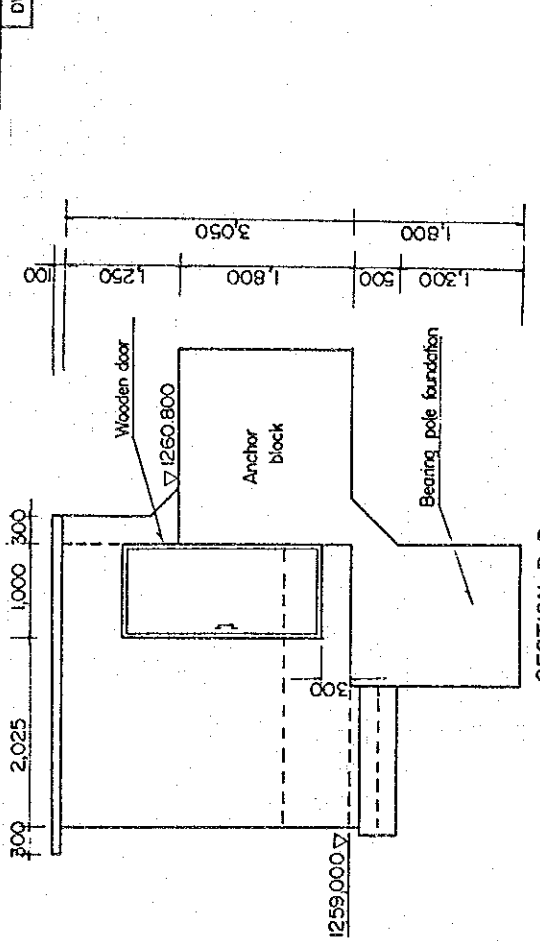


HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

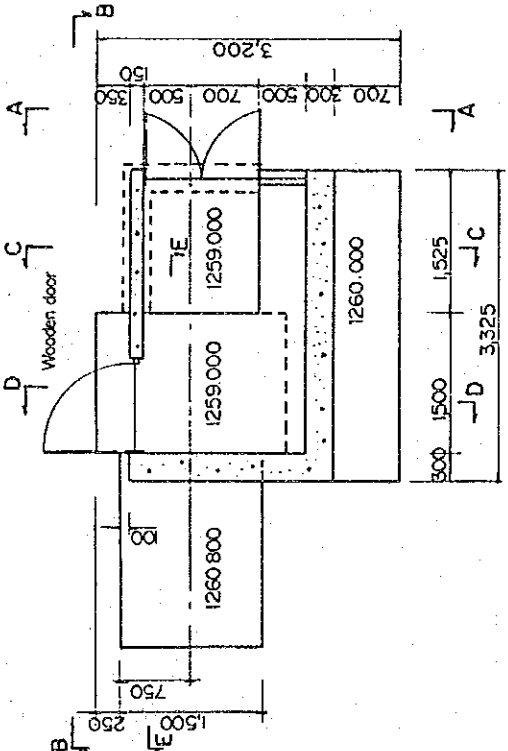
WATER LEVEL GAUGE
STRUCTURE DETAILS (2/2)

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

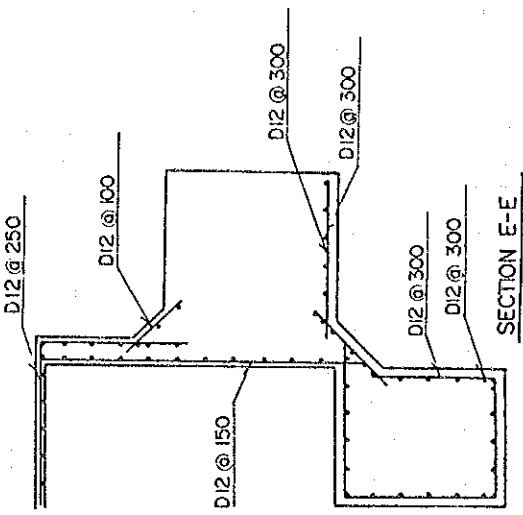
TATOPANI STATION
 OBSERVATION HOUSE DETAILS



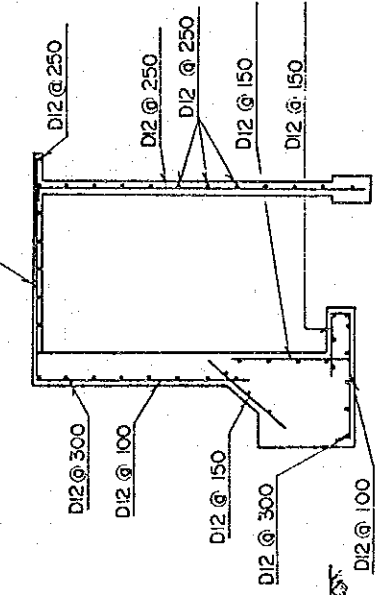
SECTION B-B



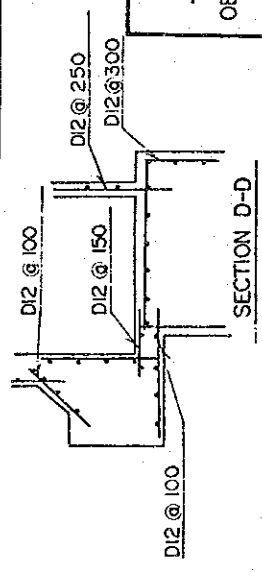
PLAN



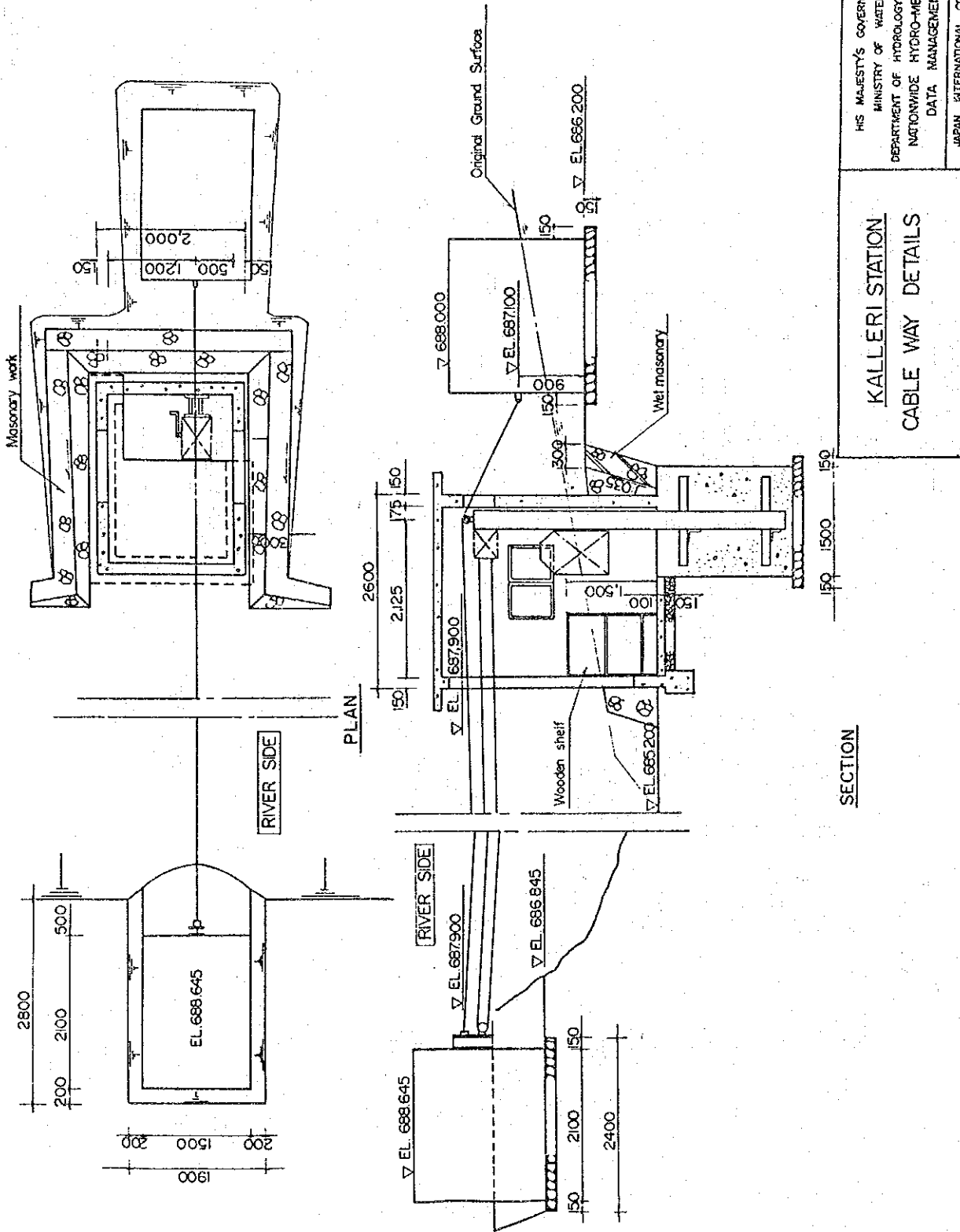
SECTION E-E



SECTION C-C



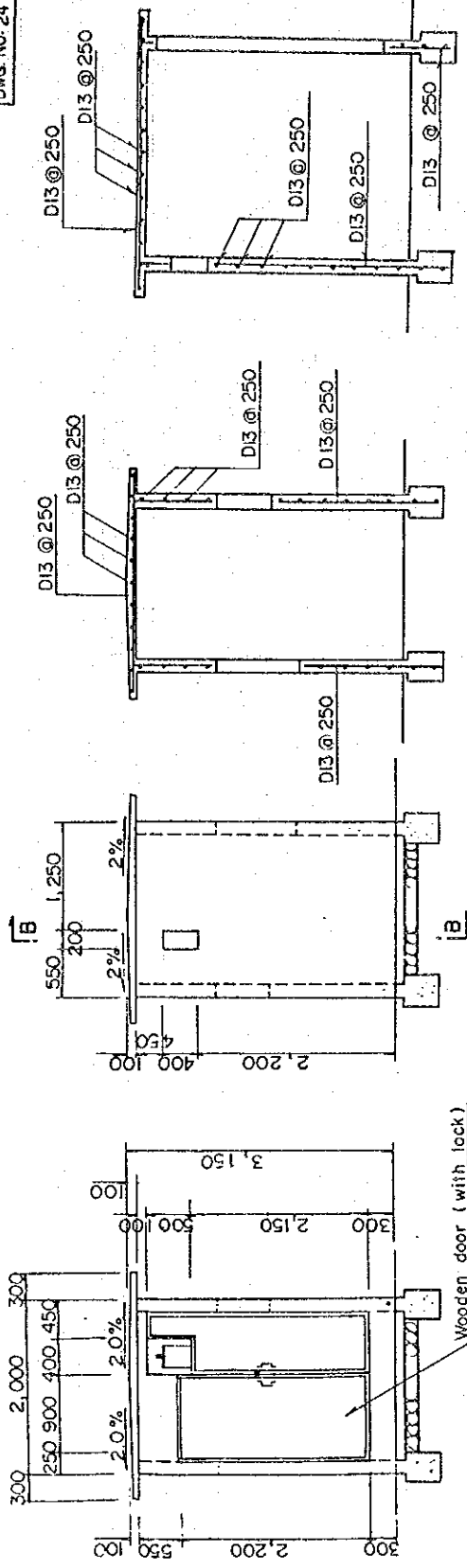
SECTION D-D



KALLERI STATION
CABLE WAY DETAILS

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
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DWG. NO. 24

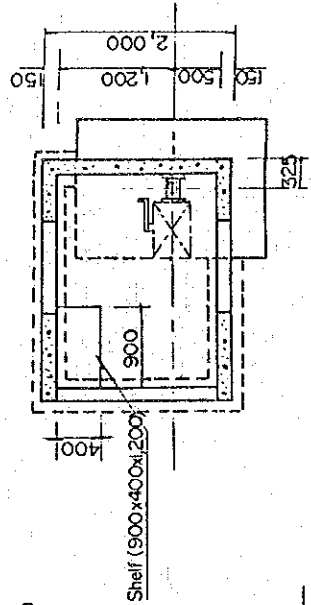


SECTION B-B

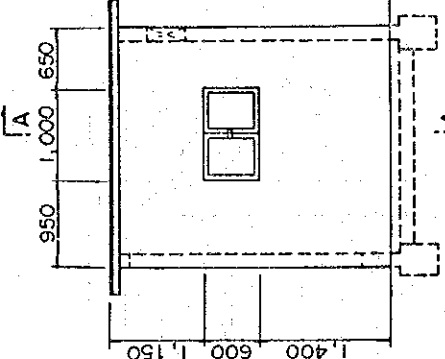
SECTION A-A

BACK VIEW

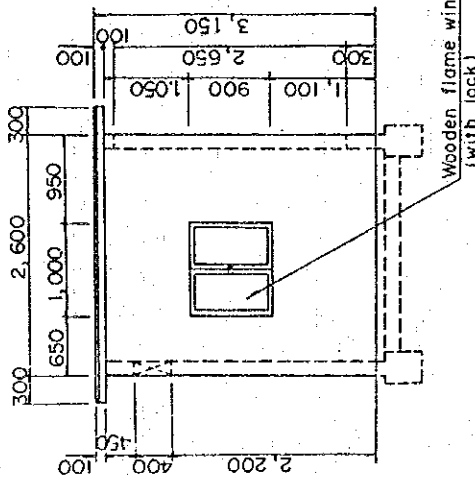
FRONT VIEW



PLAN



RIGHT SIDE VIEW



LEFT SIDE VIEW

SCALE 0 1 2 m

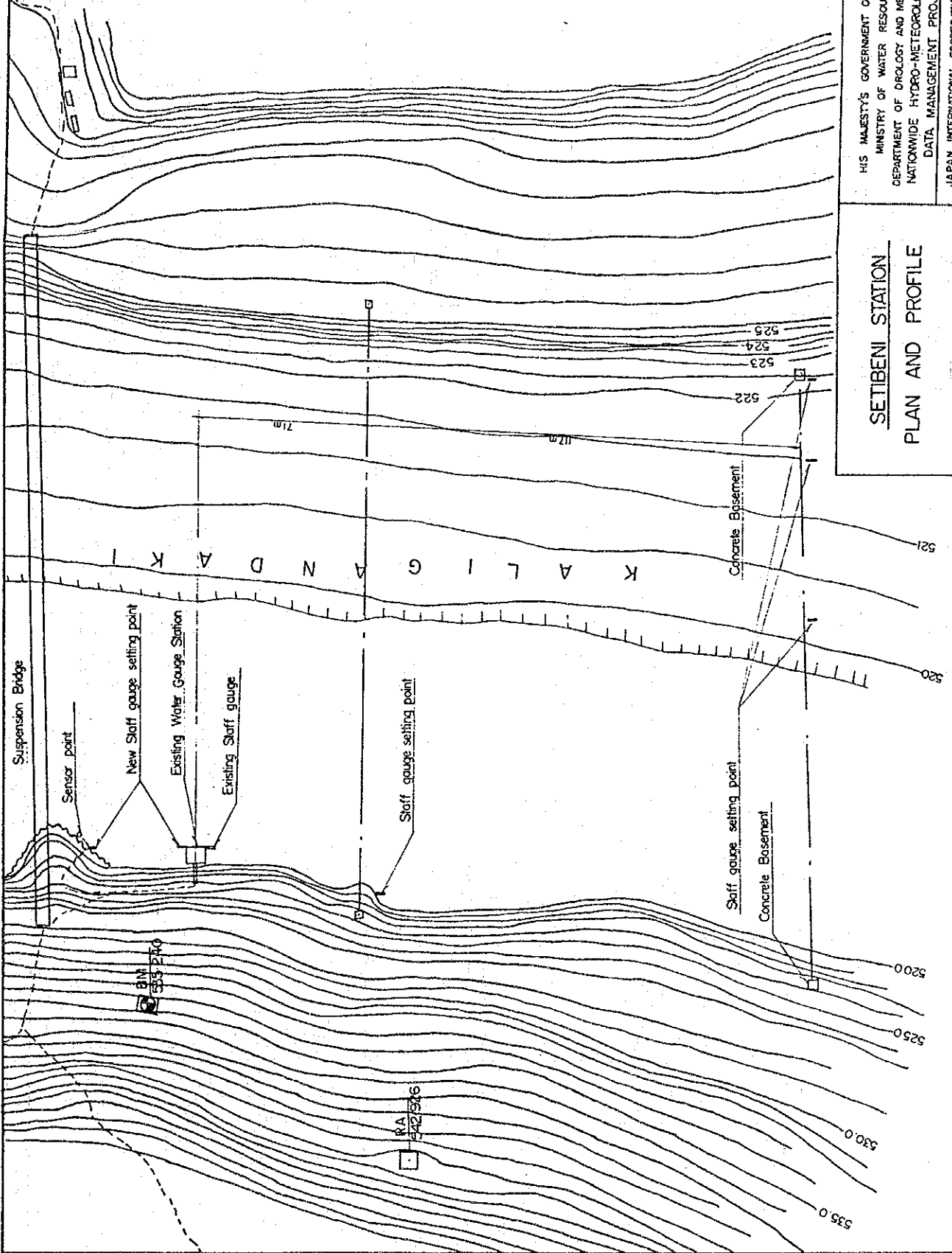
KALLERI STATION
OBSERVATION HOUSE DETAILS

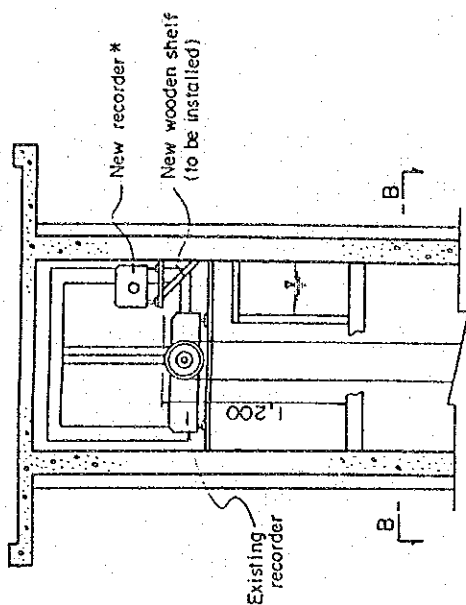
HR MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
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DWG. NO. 25

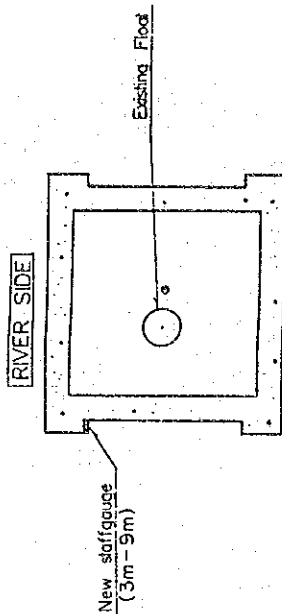
HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF DROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

SETIBENI STATION PLAN AND PROFILE

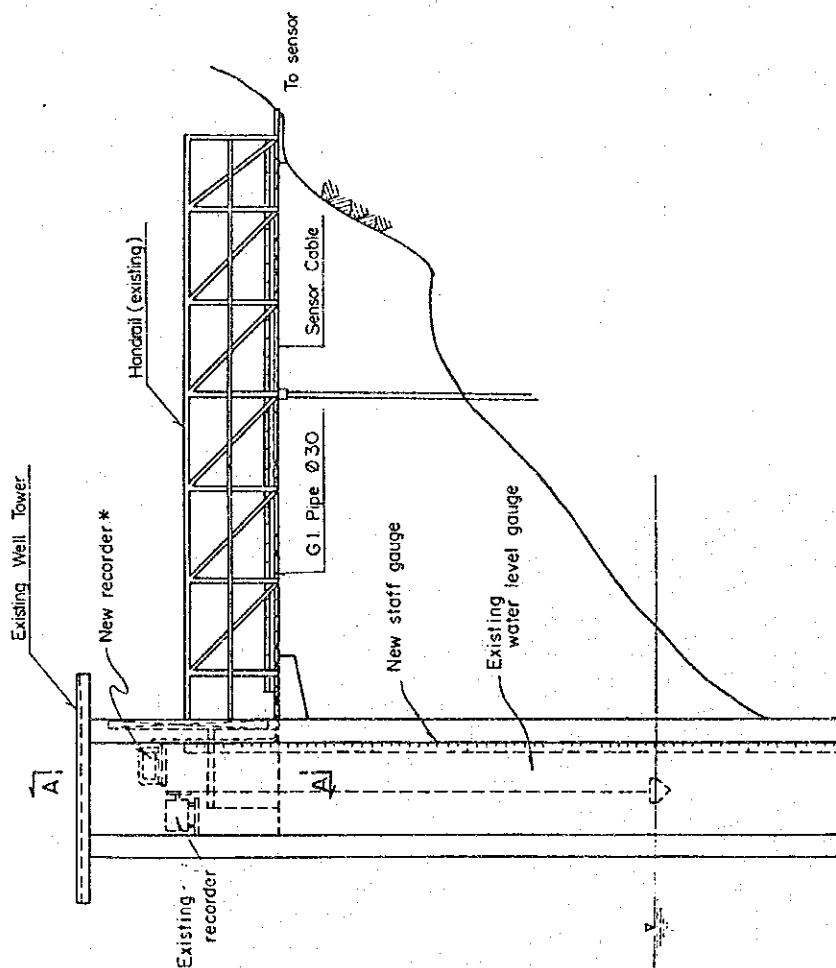




SECTION A - A
SCALE B

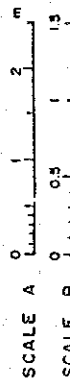


SECTION B - B
SCALE B



SIDE VIEW
SCALE A

Notes: Recorders, Float, Sensor, Connecting Cable and Staff Gauge Shall be provided by J.I.C.A.

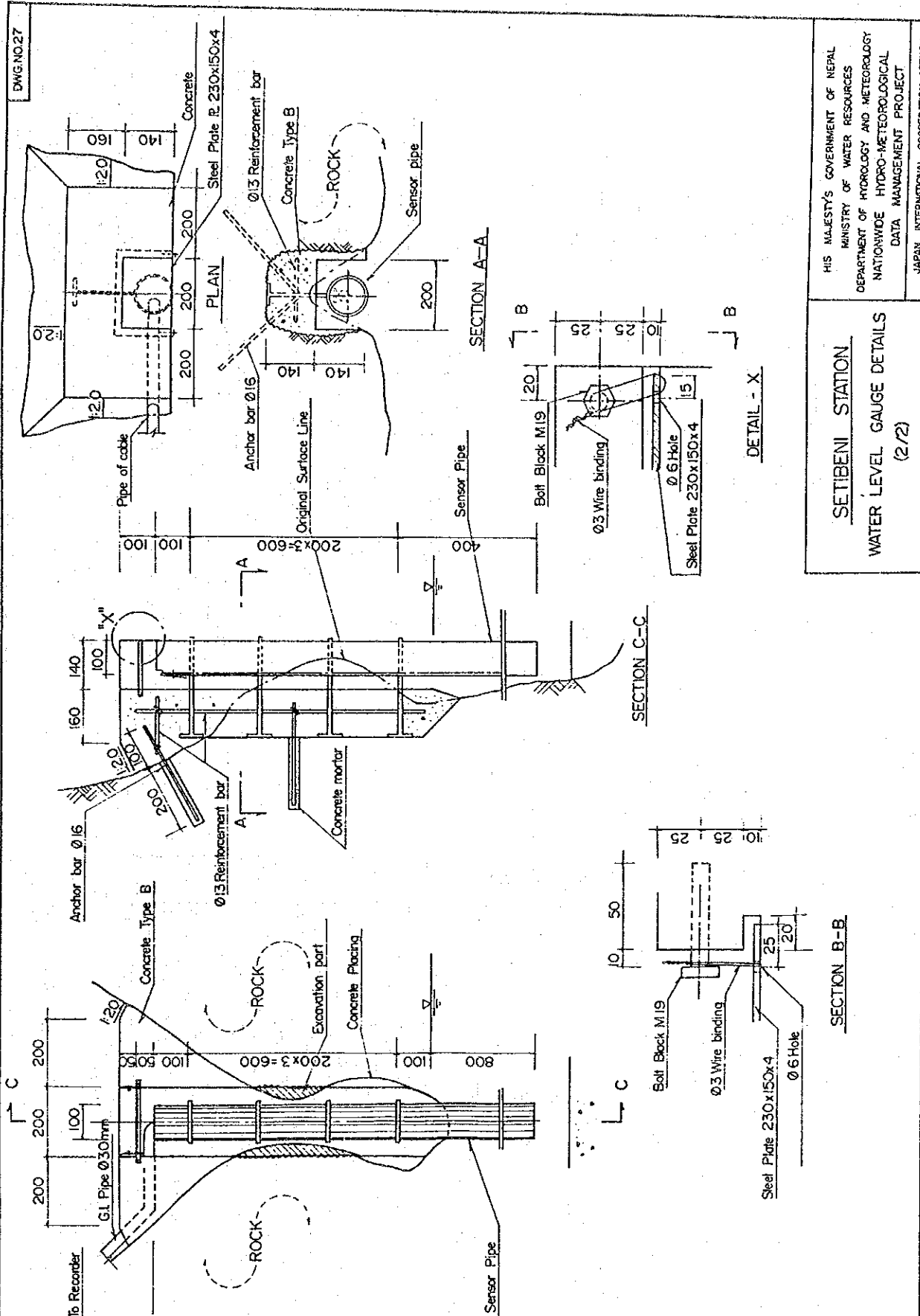


SETIBENI STATION

WATER LEVEL GAUGE DETAILS
(1/2)

HM MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

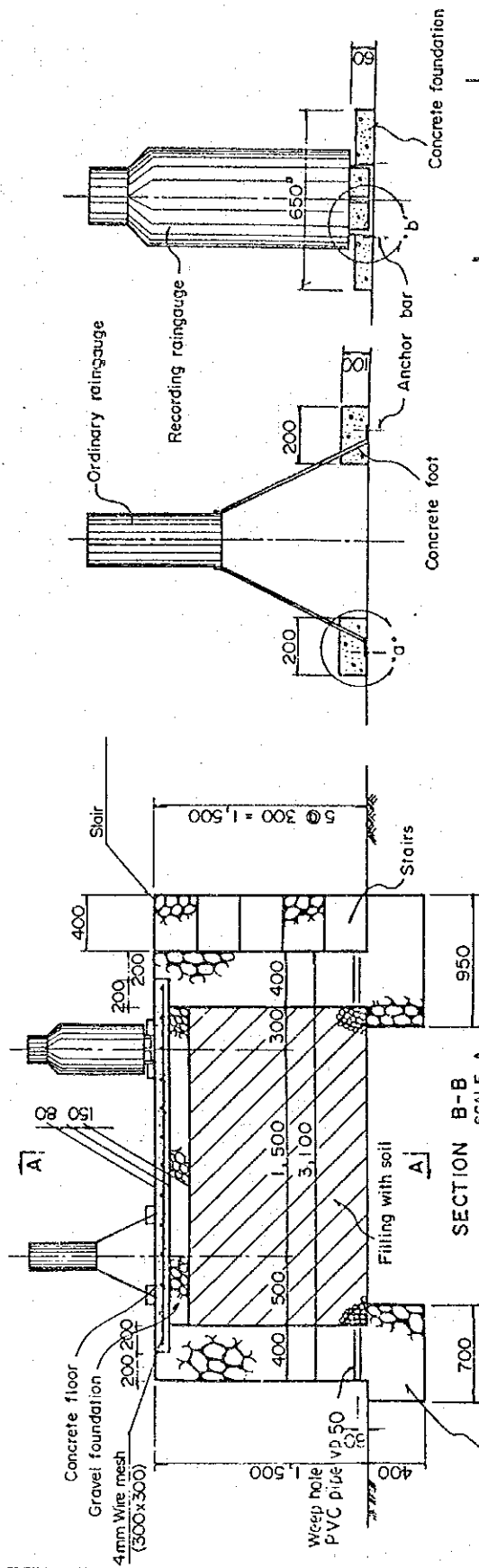
DWG. NO. 27



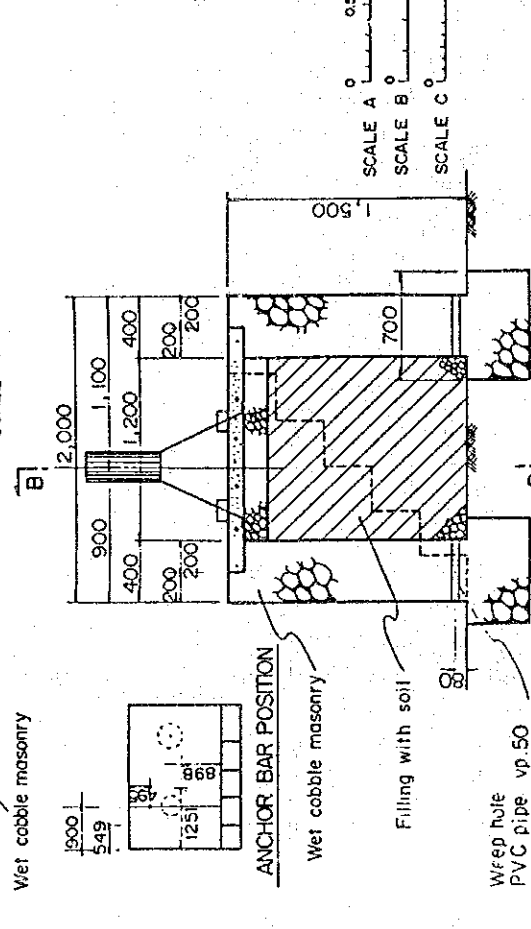
HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

SETIBENI STATION
WATER LEVEL GAUGE DETAILS
 (2/2)

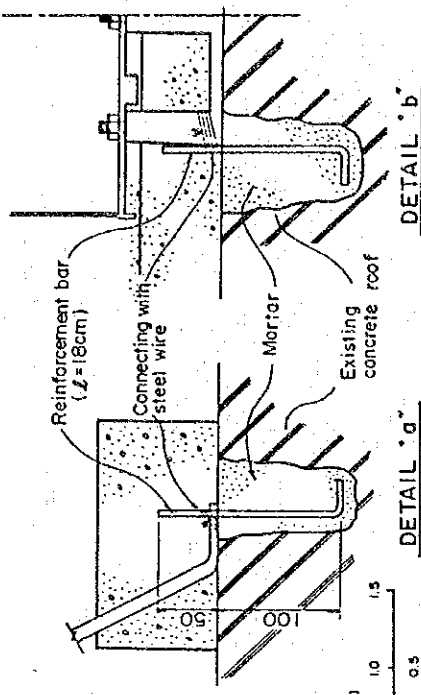
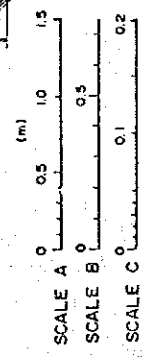
INSTALLATION IN FIELD



SECTION B-B SCALE A



SECTION A-A SCALE A

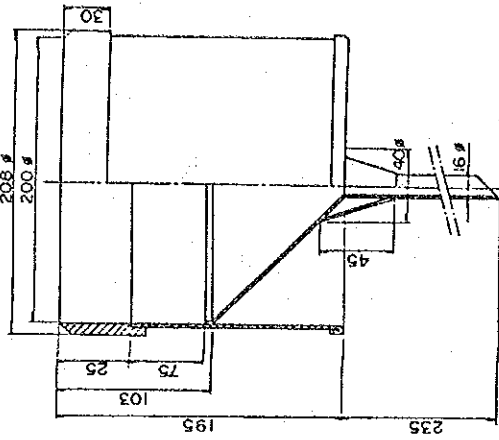
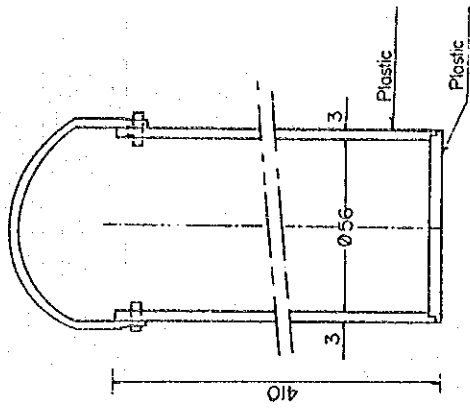


DETAIL 'b'

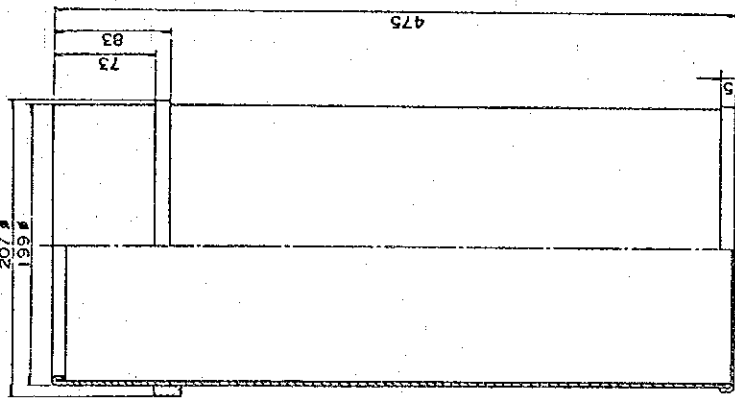
DETAIL 'a'

<p>RAIN GAUGE STRUCTURE DETAILS</p>	<p>HER MAJESTY'S GOVERNMENT OF NEPAL MINISTRY OF WATER RESOURCES DEPARTMENT OF HYDROLOGY AND METEOROLOGY NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT</p>
	<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>

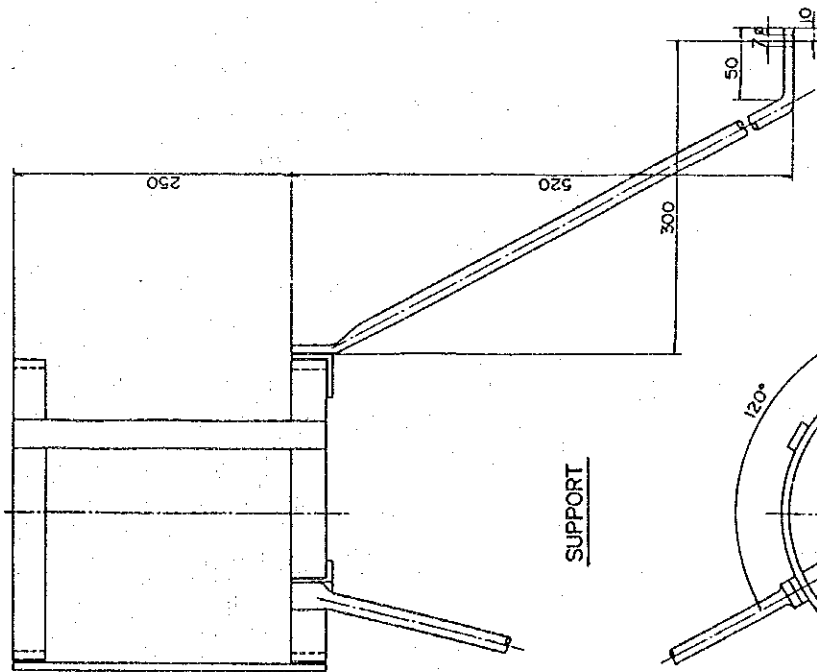
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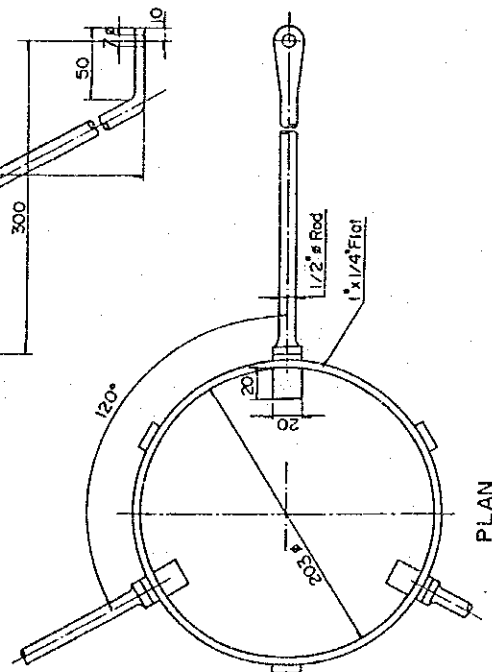
COLLECTOR



CYLINDER



SUPPORT



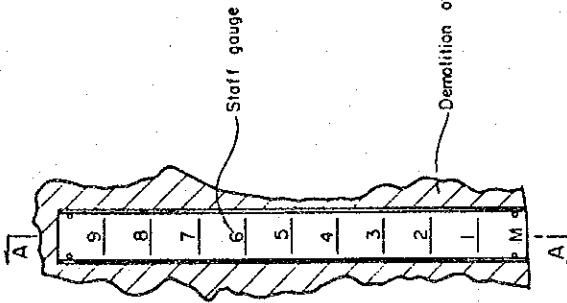
PLAN

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

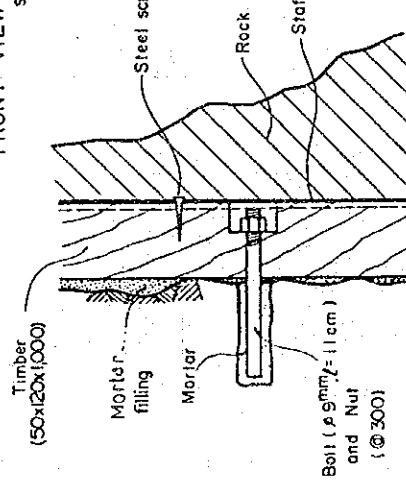
RAIN GAUGE

ORDINARY RAIN GAUGE DETAILS

INSTALLATION ON ROCK



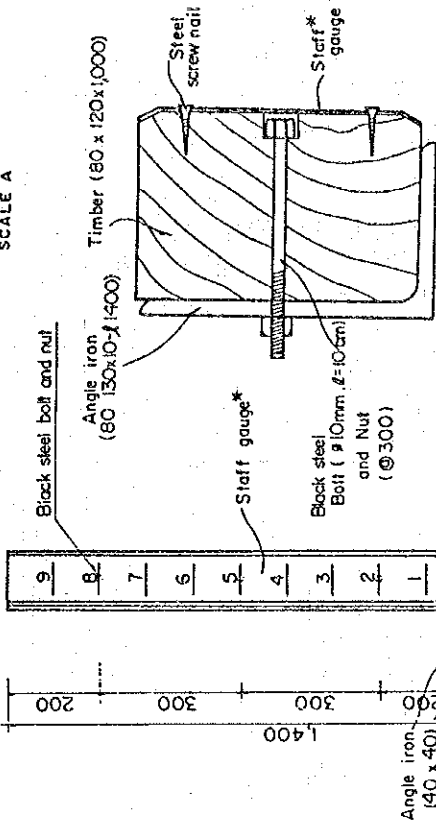
FRONT VIEW
SCALE A



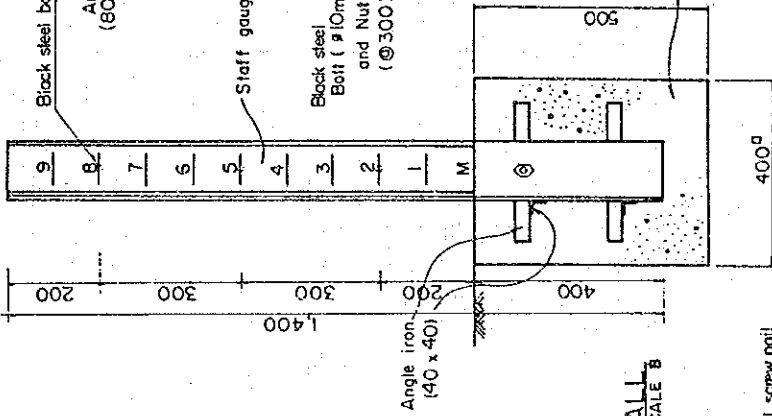
SECTION A - A
SCALE B

INSTALLATION IN GROUND

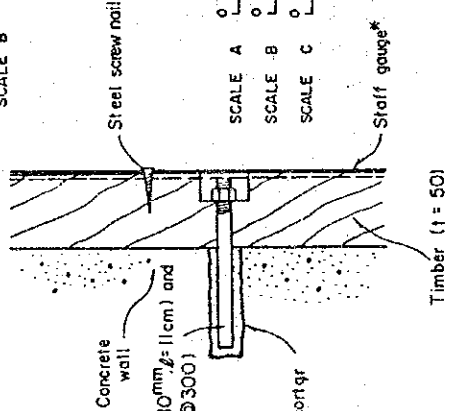
SCALE A



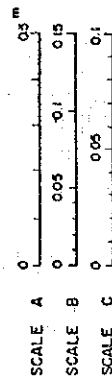
SECTION A - A
SCALE C



INSTALLATION ON CONCRETE WALL
SCALE B



Notes:
1. * Shows JICA Supplied material.



<p><u>STAFF GAUGE</u></p> <p>STRUCTURE DETAILS</p>	<p>HS MAJESTY'S GOVERNMENT OF NEPAL MINISTRY OF WATER RESOURCES DEPARTMENT OF HYDROLOGY AND METEOROLOGY NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT</p>
	<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>

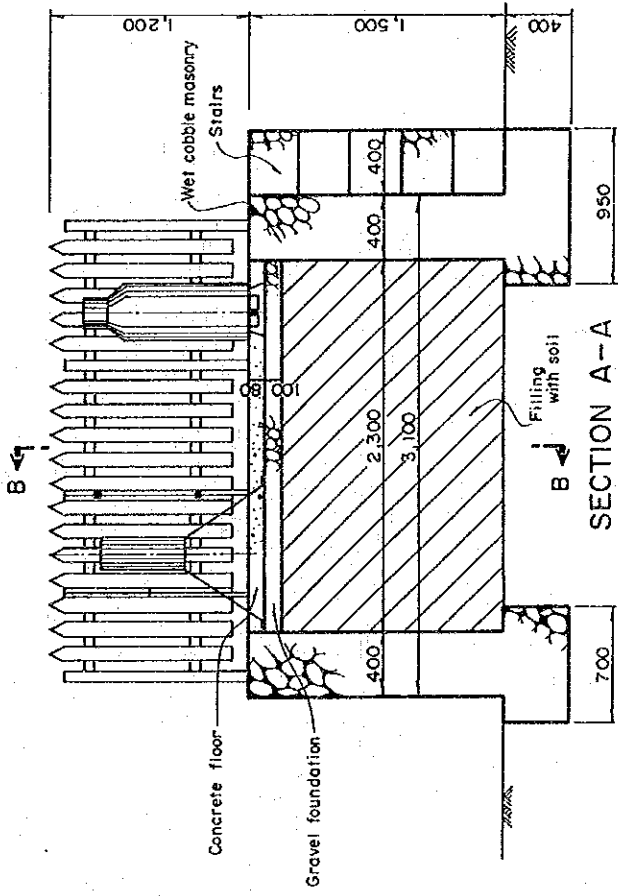
APPENDIX - 3

DRAWINGS FOR IMMEDIATE PROGRAMME

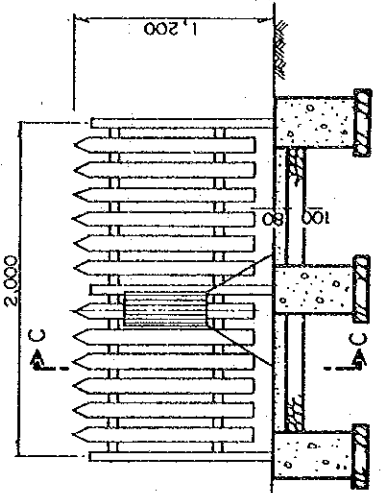
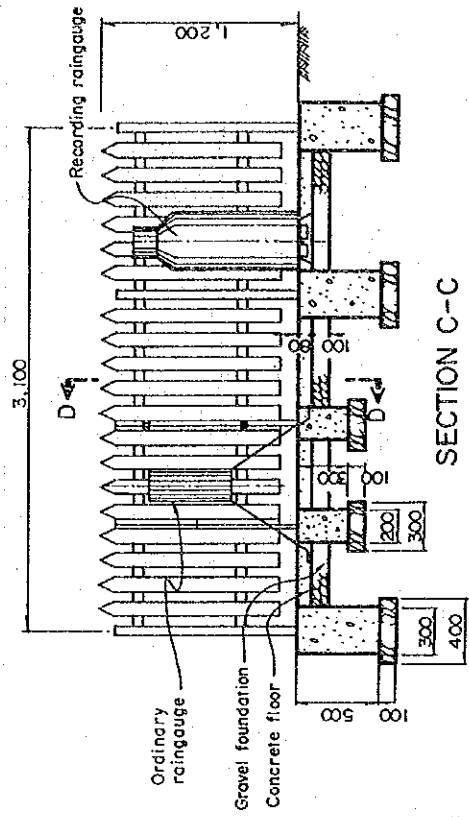
LIST OF DRAWINGS (IMMEDIATE PROGRAMME)

DWG. NO.	T I T L E
01	RAINGAUGE STATION (1/2)
02	RAINGAUGE STATION (2/2) ORDINARY RAINGAUGE
03	STAFF GAUGE (1/2)
04	STAFF GAUGE (2/2) INSTALLATION DETAILS
05	WATER LEVEL GAUGE (1/2) (PRESSURE TYPE)
06	WATER LEVEL GAUGE (2/2) (PRESSURE TYPE) PROTECTIVE PIPE AND ACCESSORIES
07	REPAIRING OF EXISTING WATER LEVEL GAUGE AT CHEPANG BASIC STATION (Code No. 289.95 Babai river)
08	CABLE WAY (1/4) (DOUBLE WINCH)
09	CABLE WAY (2/4) (DOUBLE WINCH)
10	CABLE WAY (3/4) (DOUBLE WINCH) OBSERVATION HOUSE
11	CABLE WAY (4/4) (DOUBLE WINCH) BEARING POLE, CABLE, ANCHOR BAR AND ACCESSARY
12	IMPROVEMENT OF EXISTING CABLE WAY TO DOUBLE WINCH SYSTEM (Chepang Basic Station, Code No. 289.95 Babai river)
13	IMPROVEMENT OF EXISTING CABLE WAY TO DOUBLE WINCH SYSTEM (Narayan ghat Basic Station, Code No. 450 Gandaki river)
14	BASIC STATION
15	CURRENT METER CALIBRATION FACILITY (1/2)
16	CURRENT METER CALIBRATION FACILITY (2/2) RATING CARRIAGE
17	TRAINING CENTER (1/2)
18	TRAINING CENTER (2/2)

(MOUNTAIN AREA)

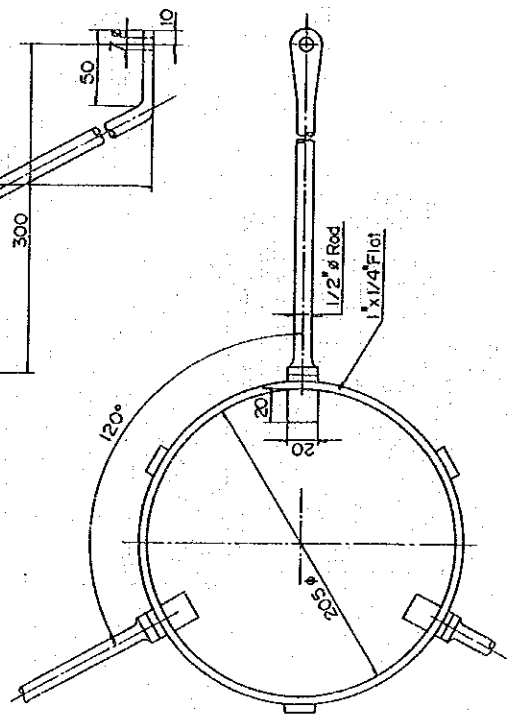
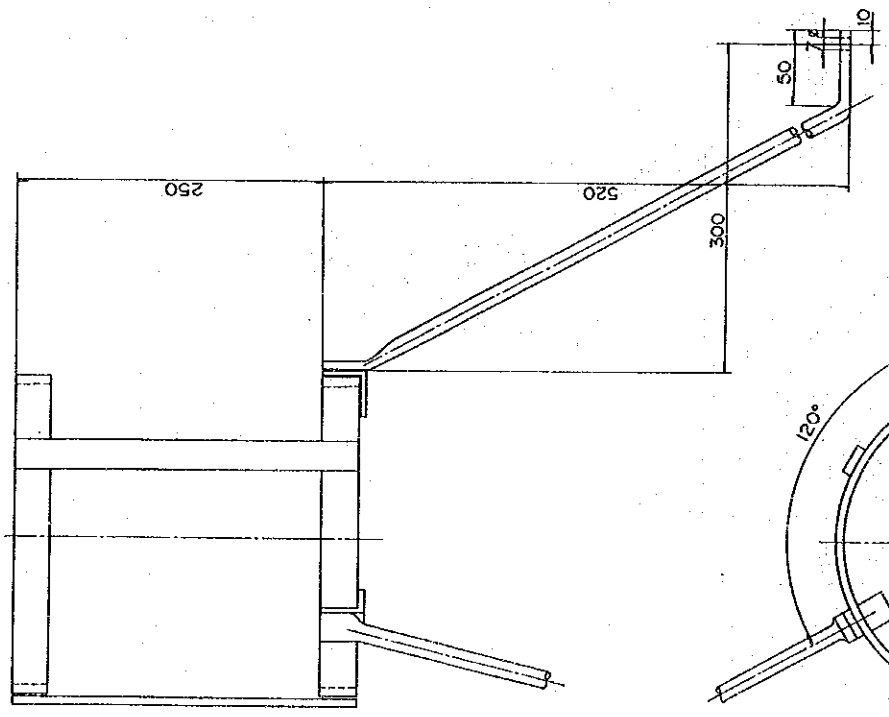
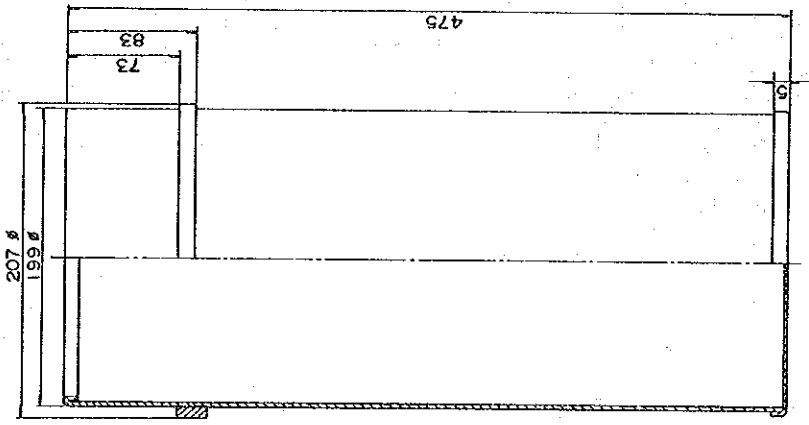
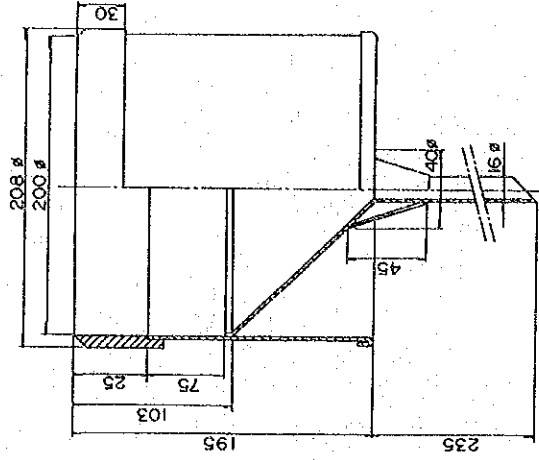
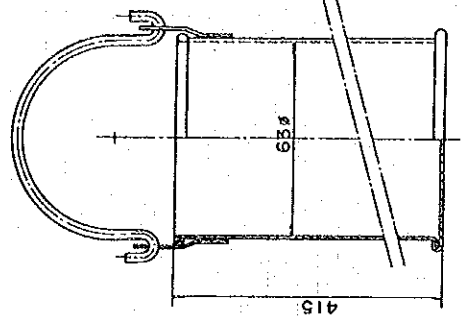


(PLAIN AREA)



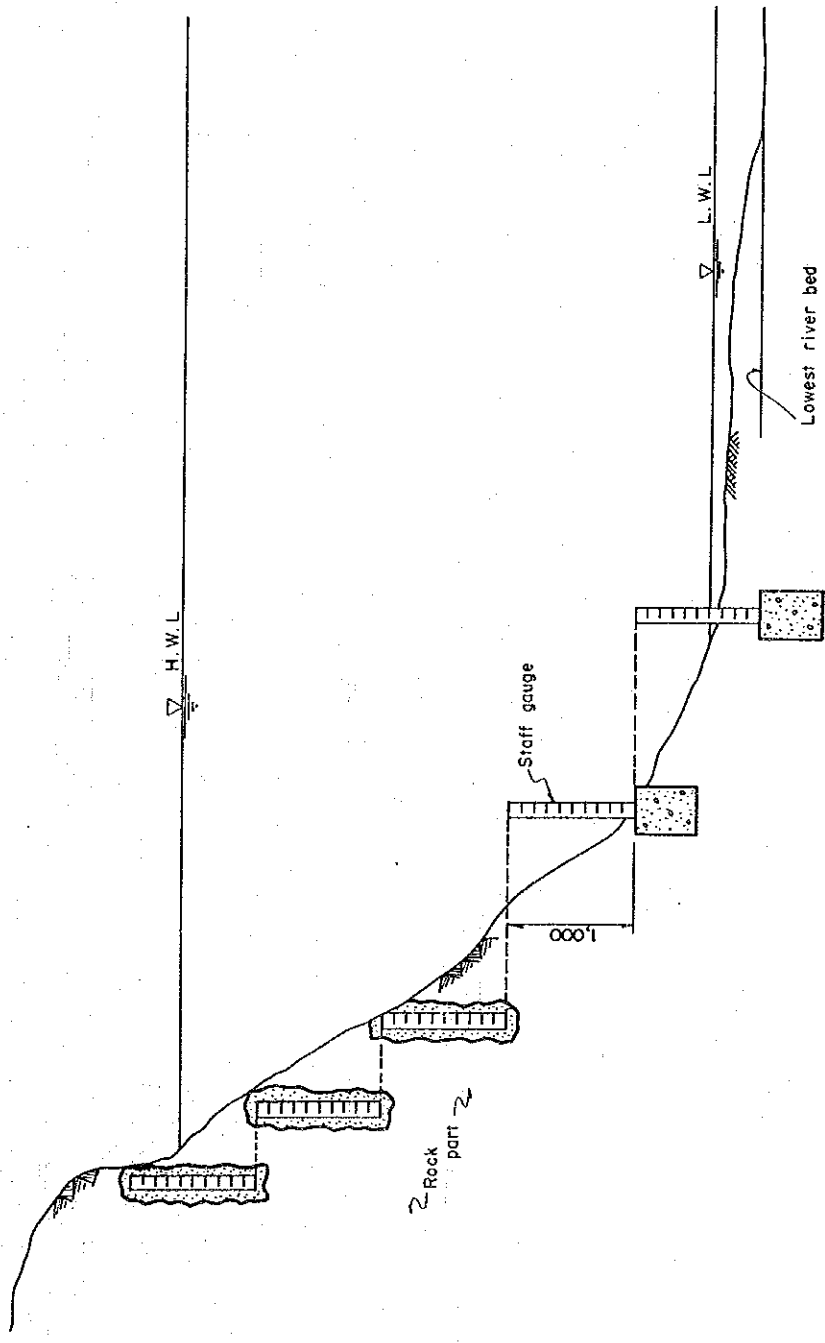
IMMEDIATE PROGRAMME RAIN GAUGE STATION (1/2)	HIS MAJESTY'S GOVERNMENT OF INDIA MINISTRY OF WATER RESOURCES DEPARTMENT OF HYDROLOGY AND METEOROLOGY NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT JAPAN INTERNATIONAL COOPERATION AGENCY
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DWG. NO-02



His Majesty's GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

IMMEDIATE PROGRAMME
RAIN GAUGE STATION (2/2)
ORDINARY RAIN GAUGE

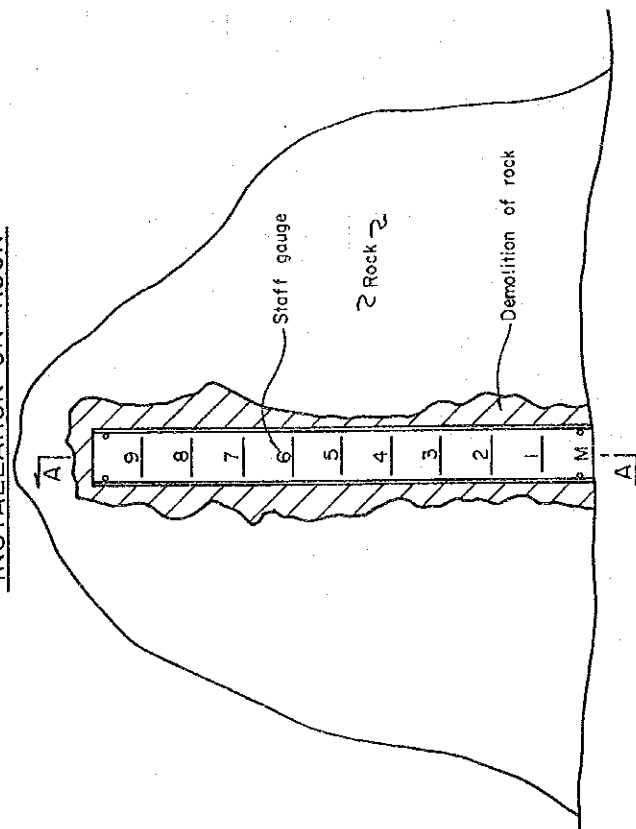


Note : New staff gauges shall be installed additionally at the basic station to observe the water level of 3 sections.

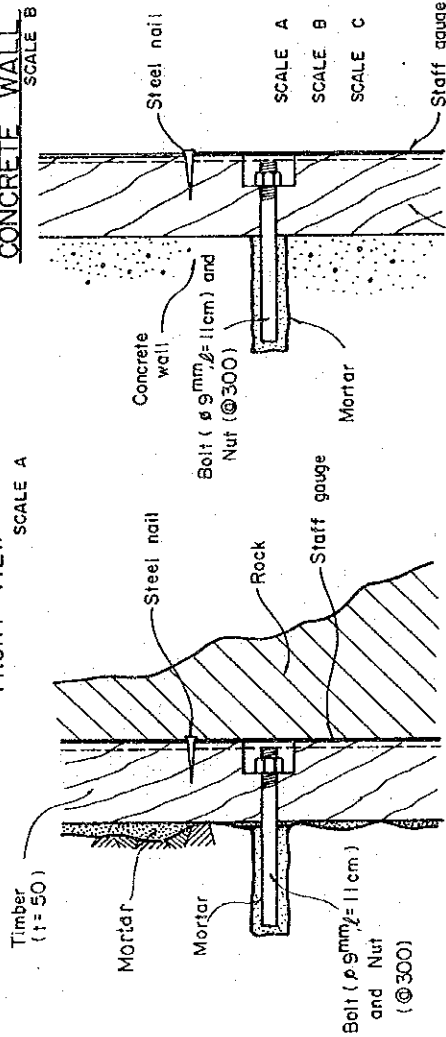
HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

IMMEDIATE PROGRAMME
STAFF GAUGE (1/2)

INSTALLATION ON ROCK

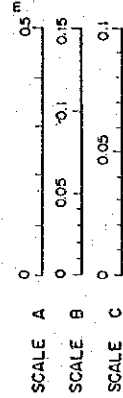
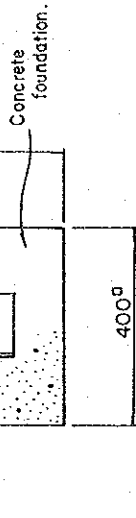


FRONT VIEW
SCALE A



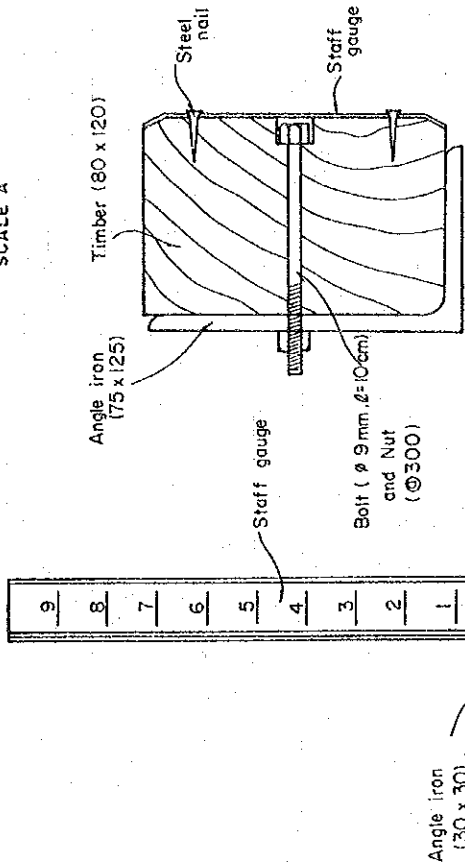
SECTION A-A
SCALE B

INSTALLATION ON CONCRETE WALL
SCALE B



Note : Specific locations of installation of STAFF GAUGES shall be instructed by the Engineer.

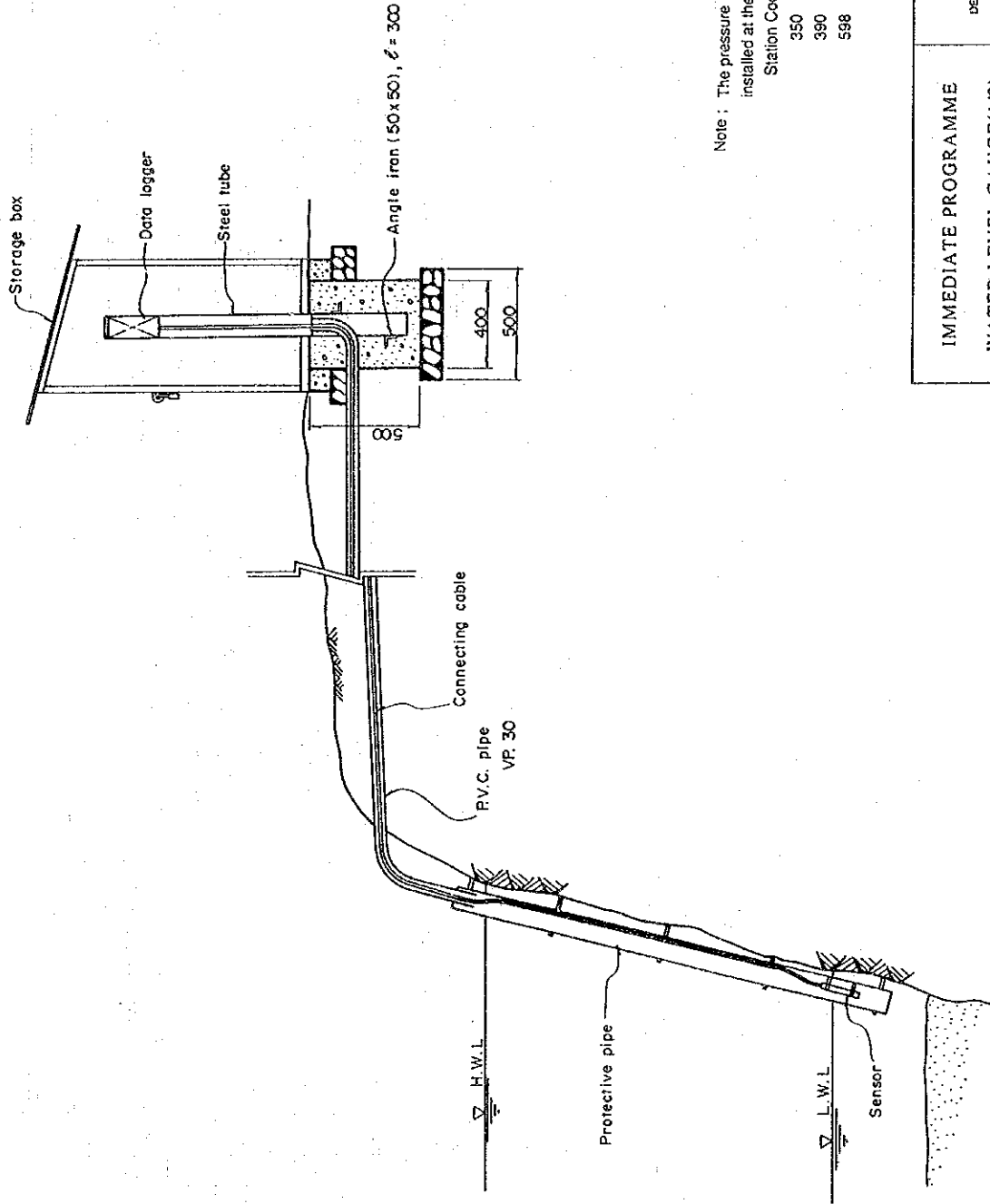
INSTALLATION IN GROUND
SCALE A



SECTION A-A
SCALE C

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

IMMEDIATE PROGRAMME
STAFF GAUGE(2/2)
INSTALLATION DETAILS



Note : The pressure type-water level gauge shall be installed at the following basic stations.

Station Code No.

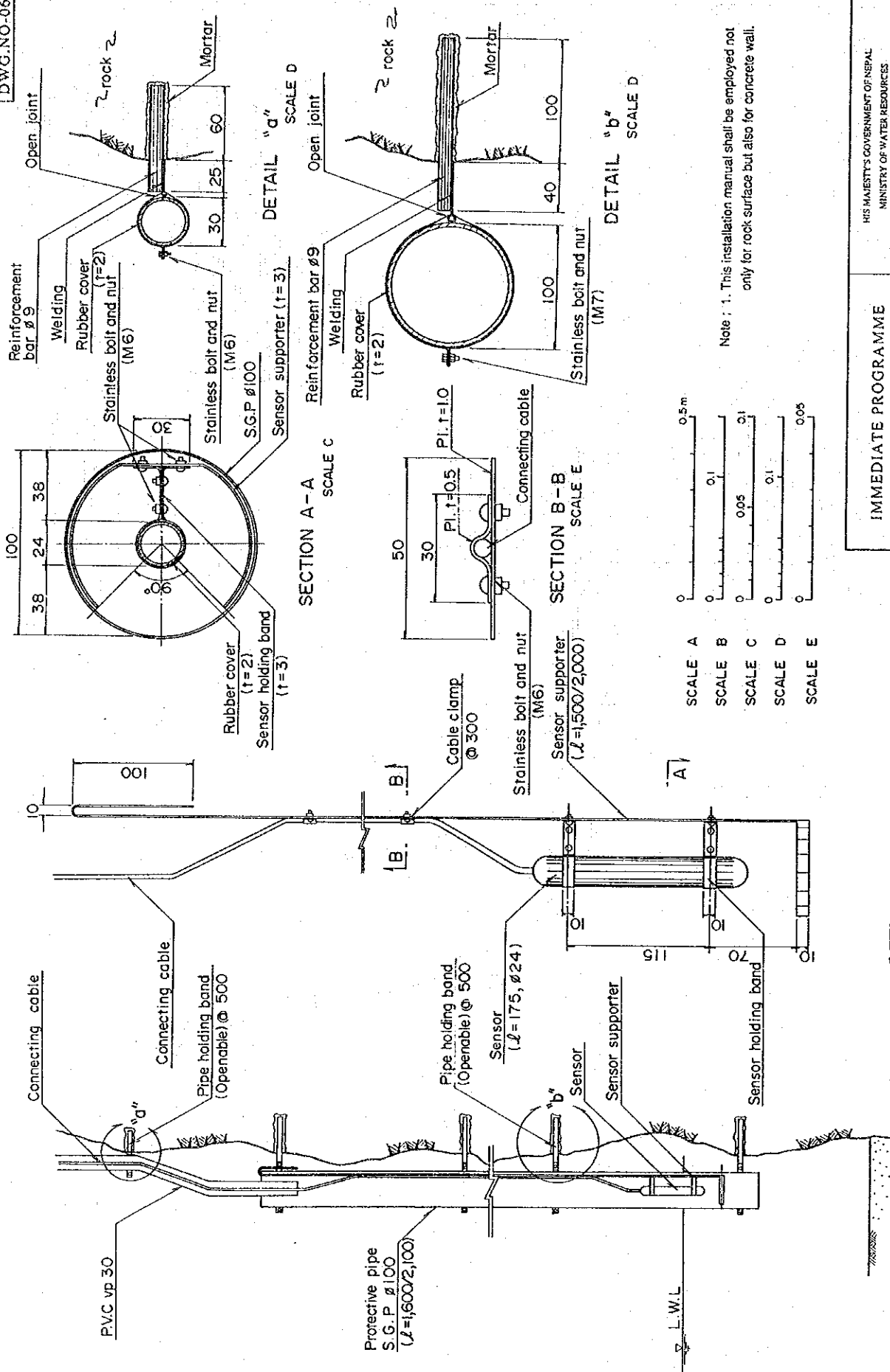
350 Jaikundi (West Rapti River)

390 Butwal (Tinau River)

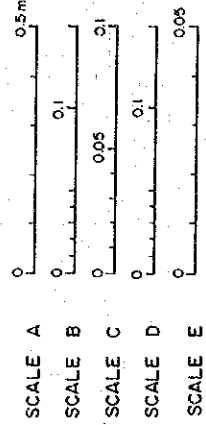
598 Kamala (Chisapani River)

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN-INTERNATIONAL COOPERATION AGENCY

IMMEDIATE PROGRAMME
 WATER LEVEL GAUGE (1/2)
 (PRESSURE-TYPE)



Note : 1. This installation manual shall be employed not only for rock surface but also for concrete wall.

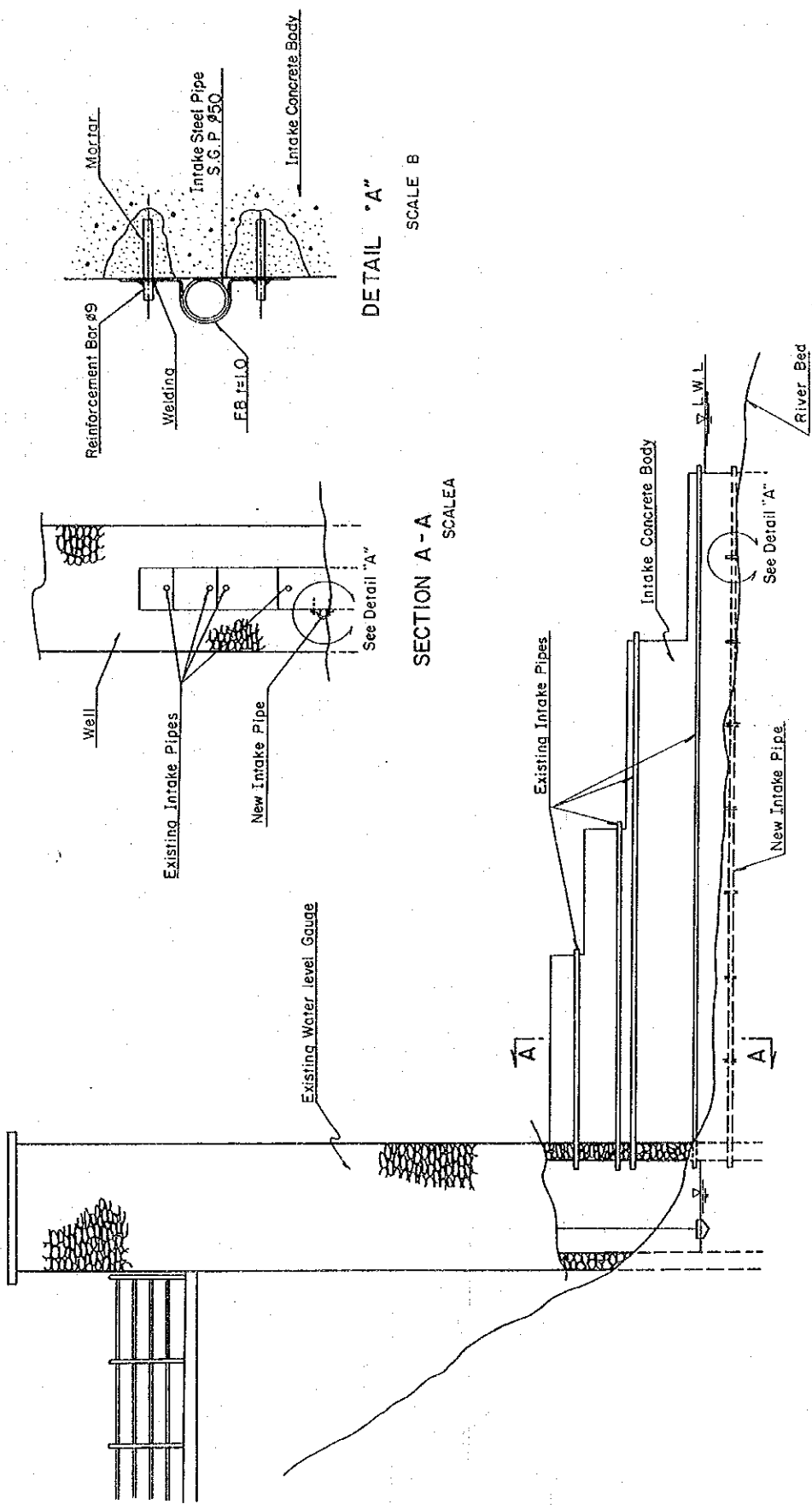


HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

IMMEDIATE PROGRAMME
 WATER LEVEL GAUGE(2/2)
 (PRESSURE TYPE)
 PROTECTIVE PIPE AND
 ACCESSORIES

DETAIL OF SENSOR SUPPORTER
 SCALE B

DETAIL OF PROTECTIVE PIPE
 SCALE A



DETAIL "A"

SCALE B

SECTION A - A

SCALE A

PROFILE

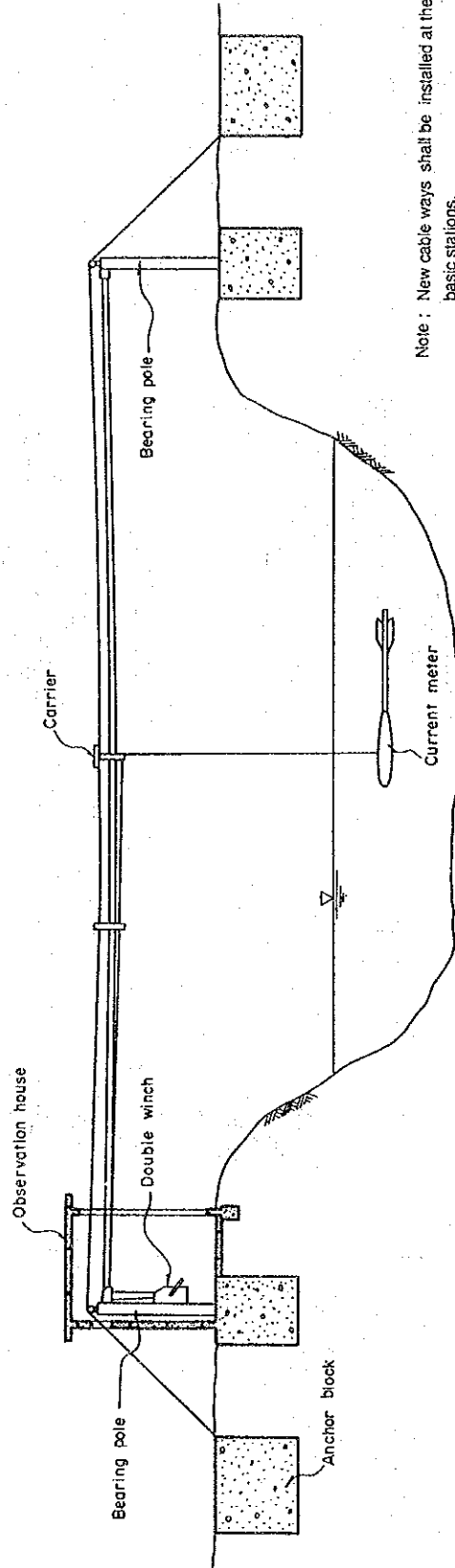
SCALE A

SCALE A 0 1.0 2.0 m

SCALE B 0 10 20 cm

IMMEDIATE PROGRAMME
 REPAIRING OF EXISTING
 WATER LEVEL GAUGE AT
 CHEPANG BASIC STATION
 (Code No.289/95,Babai river)

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY



Note : New cable ways shall be installed at the following basic stations.

Code No.

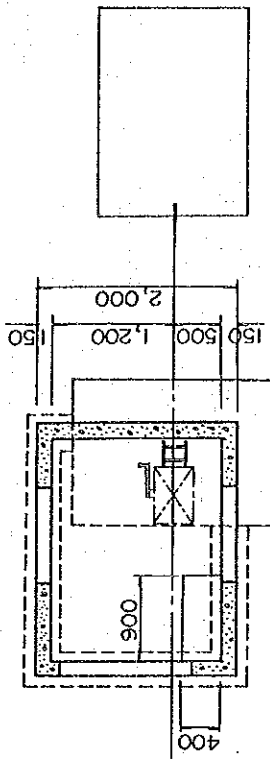
- ※ 350 Jalkundi (West Rapti River)
- 390 Buhwal (Tinau River)
- 589 Pandhera doyan (Bagmati River)
- ※ 695 Chatara kotsu (Sapti Koshi River)
- 795 Manrachuli (Kan Kai River)

At the station marked with [※], the existing tower on the opposite bank shall be used for the new cable way instead of the new bearing pole.

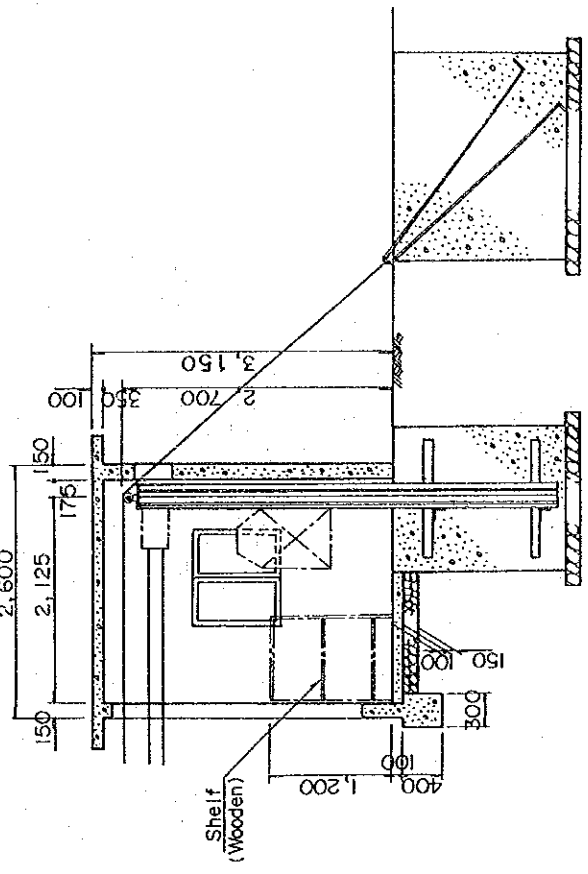
PROFILE

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

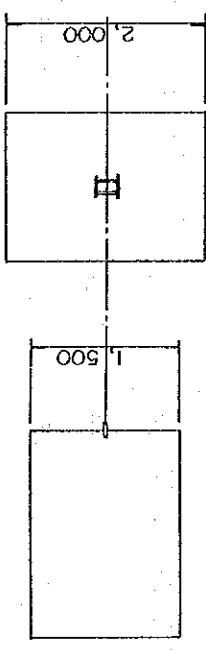
IMMEDIATE PROGRAMME
 CABLE WAY(1/4)
 (DOUBLE WINCH)



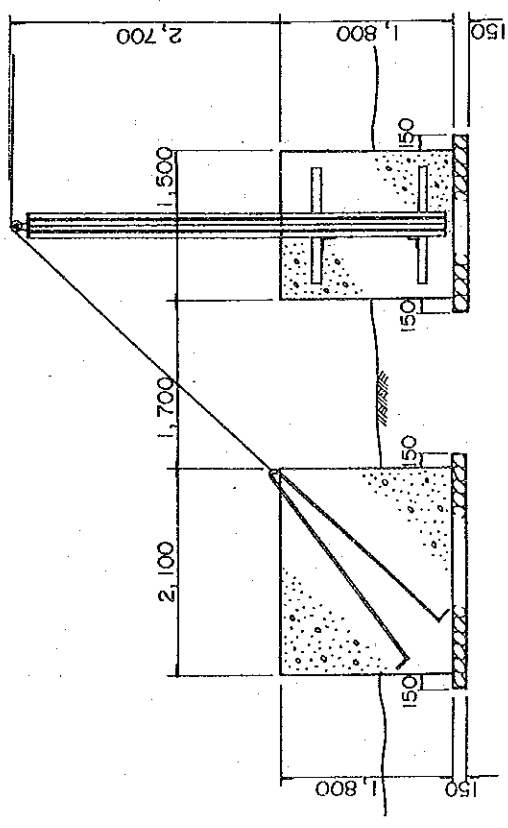
PLAN



PROFILE



PLAN



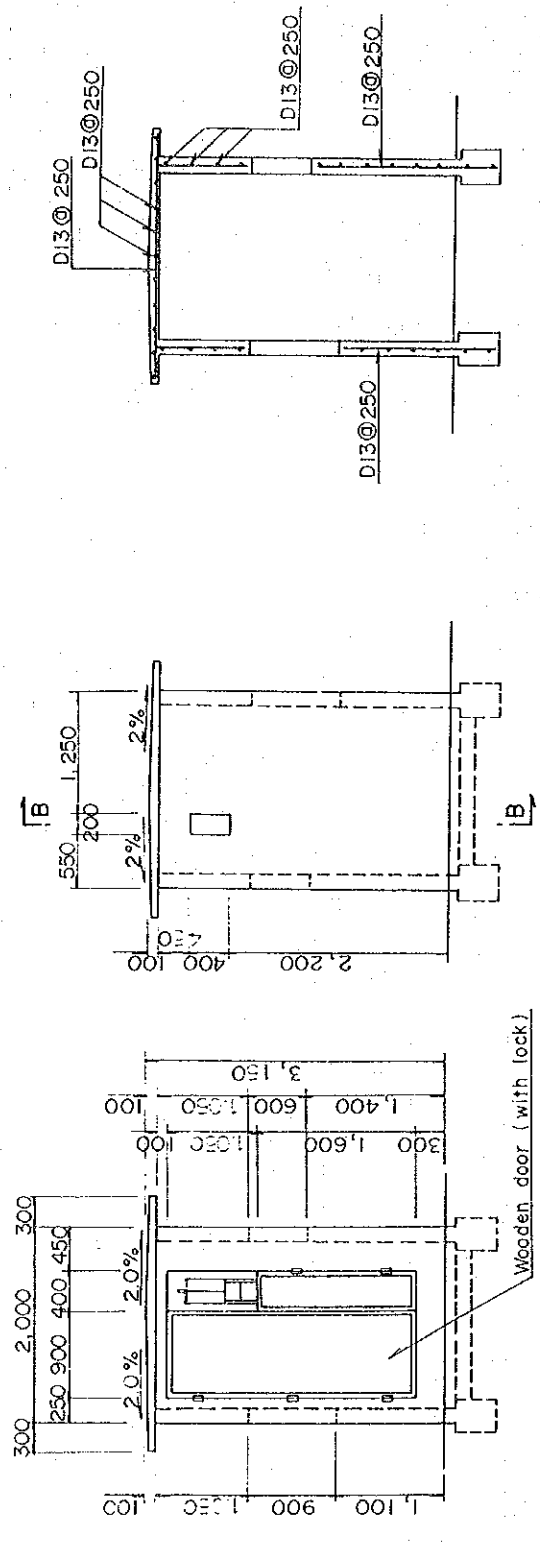
PROFILE

Shelf
(Wooden)



IMMEDIATE PROGRAMME
CABLE WAY(2/4)
(DOUBLE WINCH)

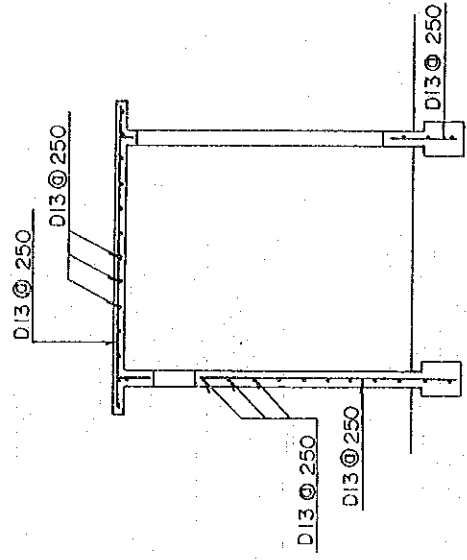
HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN-INTERNATIONAL COOPERATION AGENCY



SECTION A-A

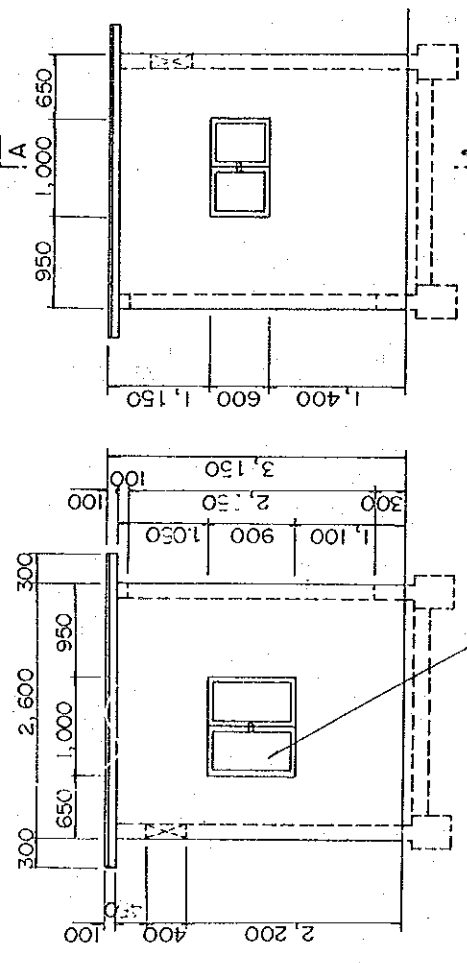
BACK VIEW

FRONT VIEW



SECTION B-B

RIGHT SIDE VIEW

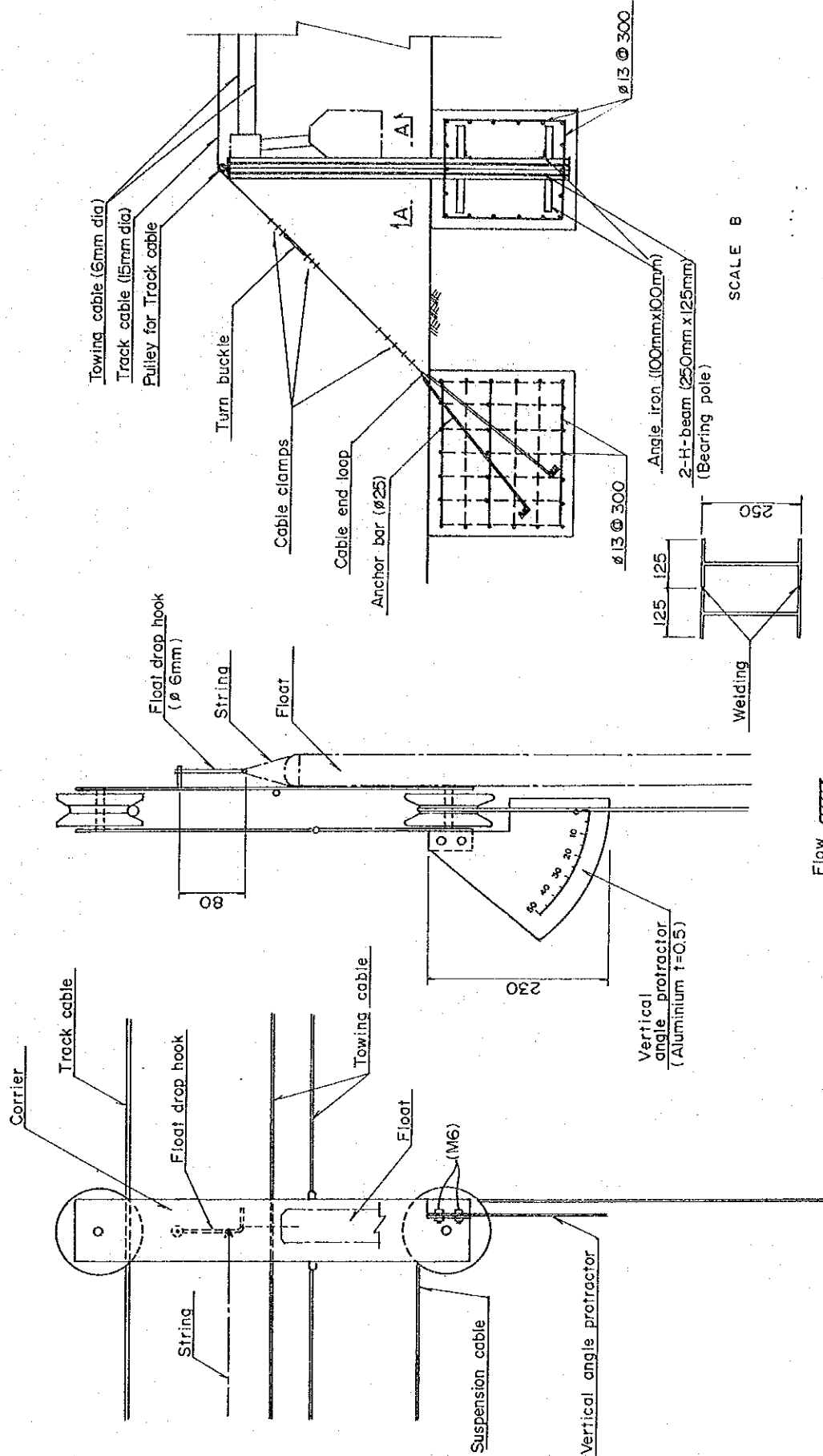


LEFT SIDE VIEW

SCALE 0 1 2 m

IMMEDIATE PROGRAMME
CABLE WAY (3/4)
(DOUBLE WINCH)
OBSERVATION HOUSE

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY



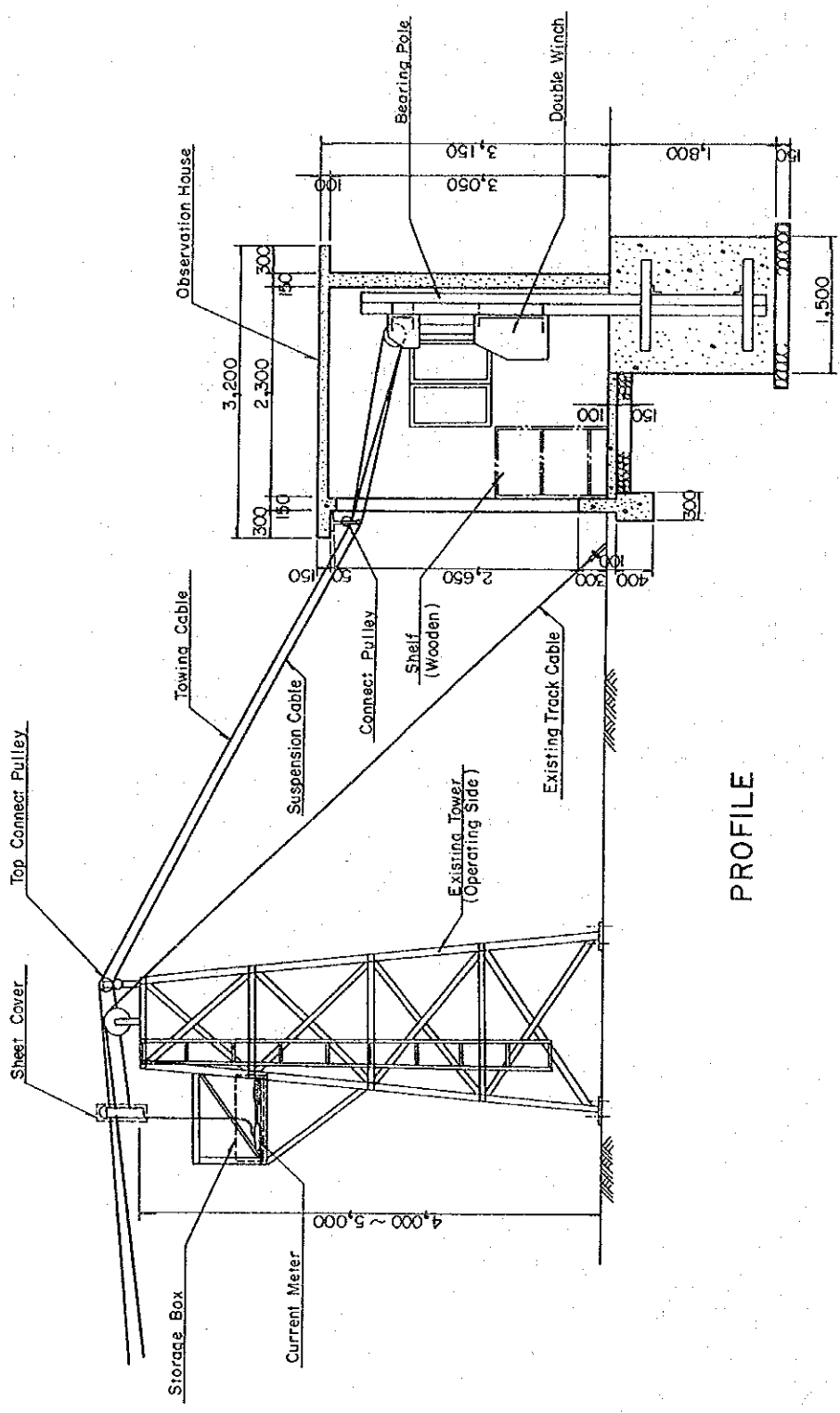
SECTION A-A

SCALE A



SCALE B

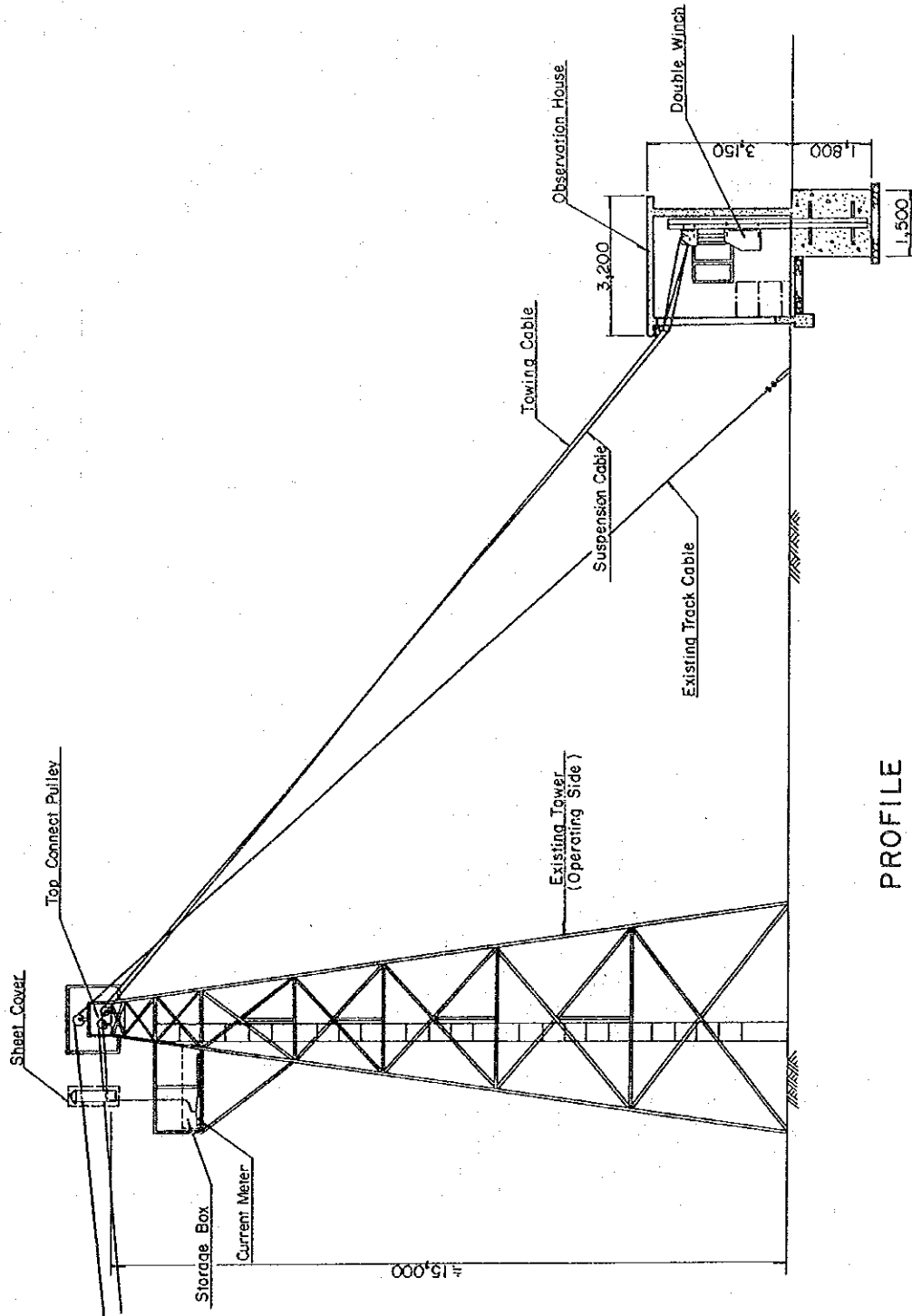
IMMEDIATE PROGRAMME CABLE WAY (4/4) (DOUBLE WINCH) BEARING POLE, CABLE, ANCHOR BAR AND ACCESSORY	HIS MAJESTY'S GOVERNMENT OF NEPAL MINISTRY OF WATER RESOURCES DEPARTMENT OF HYDROLOGY AND METEOROLOGY NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT JAPAN INTERNATIONAL COOPERATION AGENCY
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PROFILE

- Note :
- 1) See DWG.No -10 for more details of the observation house.
 - 2) The carrier shall be covered with the water proof sheet and the current meter shall be stored in the storage box on the top terrace in security during no use of the cable way.

<p>HIS MAJESTY'S GOVERNMENT OF NEPAL MINISTRY OF WATER RESOURCES DEPARTMENT OF HYDROLOGY AND METEOROLOGY</p>	<p>NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT</p>
<p>IMMEDIATE PROGRAMME IMPROVEMENT OF EXISTING CABLE WAY TO DOUBLE WINCH SYSTEM (Chitang Basic Station, Code No.289.95, Babai river)</p>	
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



PROFILE

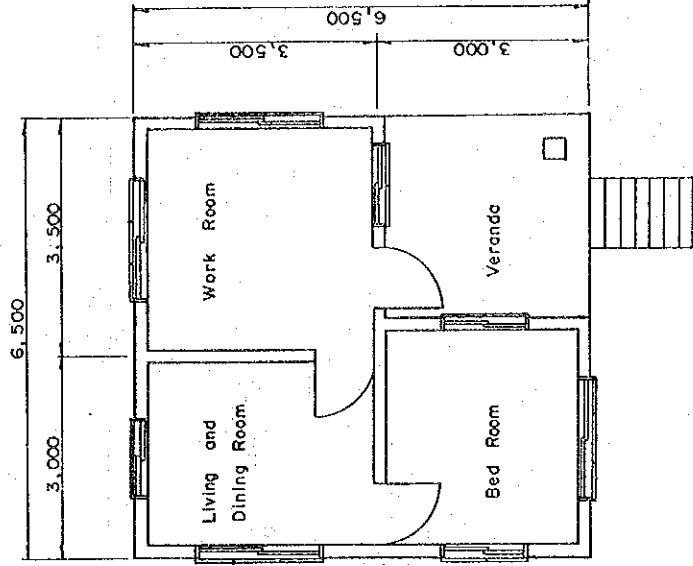
SCALE 0 1 2 3 4 5 m

- Note :
- 1) See DWG.No.-10 for more details of the observation house.
 - 2) The carrier shall be covered with the water proof sheet and the current meter shall be stored in the storage box on the top terrace in security during no use of the cable way.

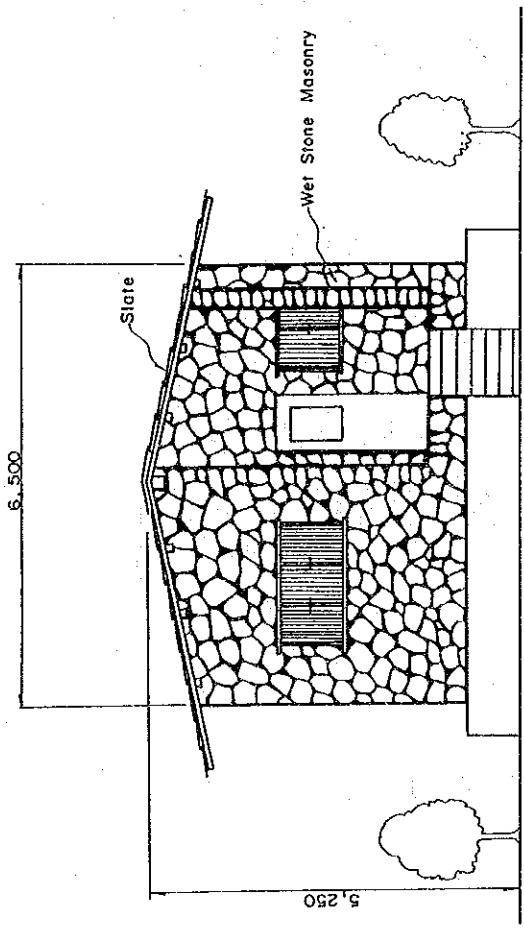
IMMEDIATE PROGRAMME
 IMPROVEMENT OF EXISTING
 CABLE WAY TO DOUBLE
 WINCH SYSTEM
 (Narayan ghat Basic Station, Code
 No. 450 Gandaki river)

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

DWG. NO- 14



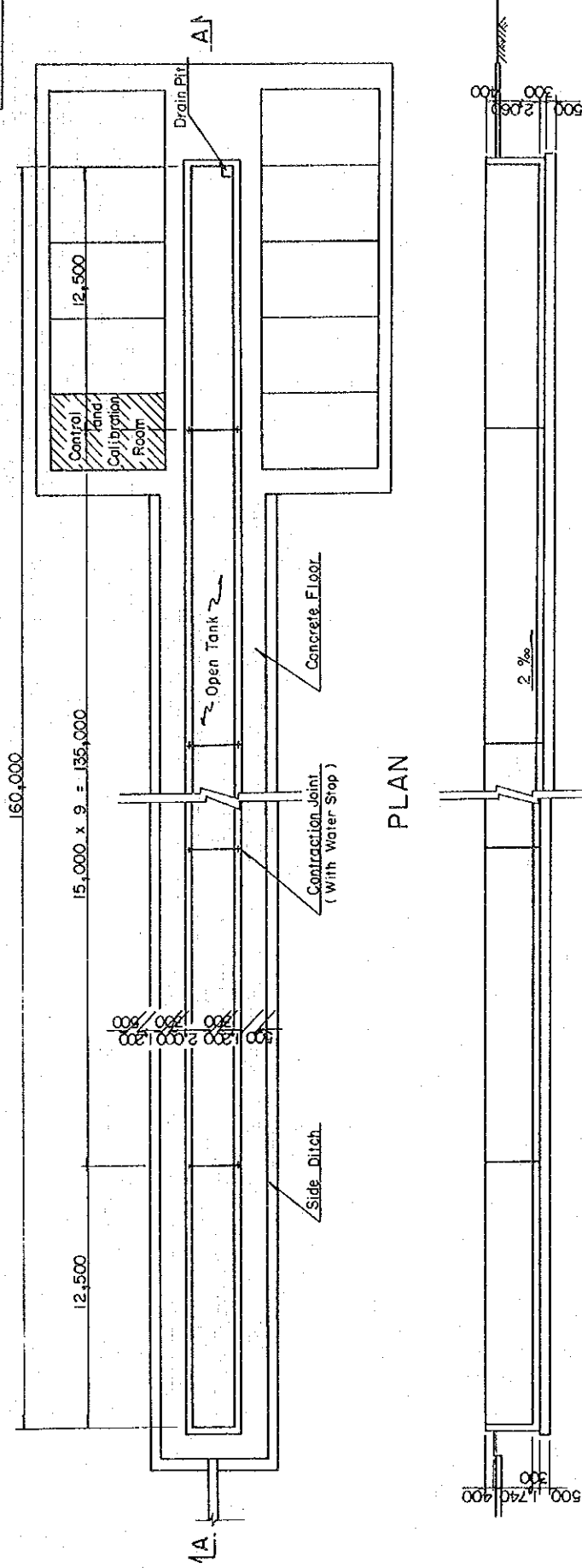
PLAN



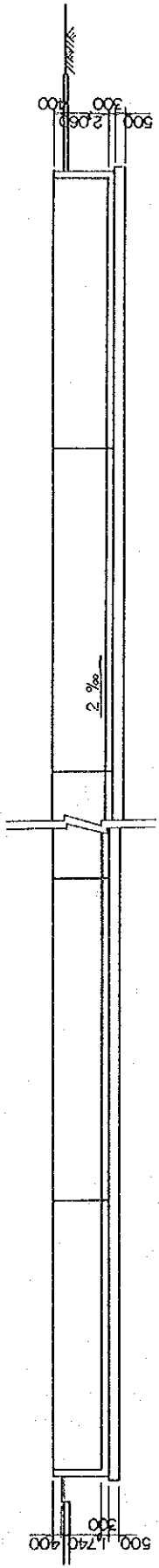
FRONT VIEW

HIS MAJESTY'S GOVERNMENT OF NEPAL MINISTRY OF WATER RESOURCES DEPARTMENT OF HYDROLOGY AND METEOROLOGY	IMMEDIATE PROGRAMME BASIC STATION
NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT	
JAPAN INTERNATIONAL COOPERATION AGENCY	

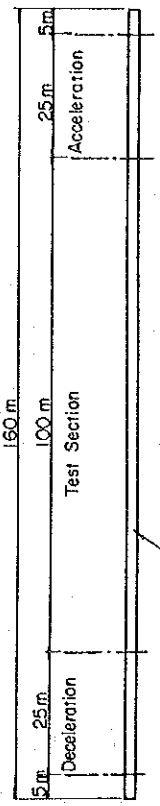
DWG. NO. - 15



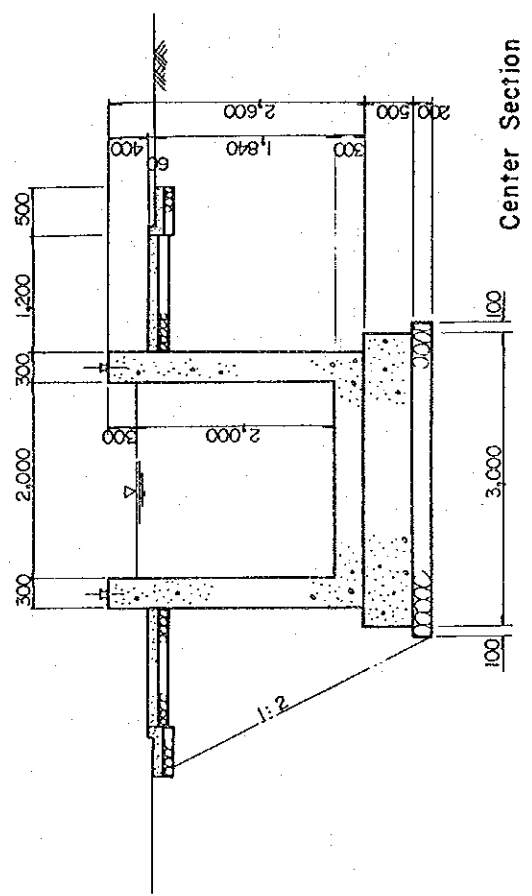
PLAN



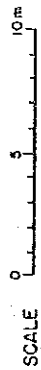
SECTION A - A



Calibration Lay Out

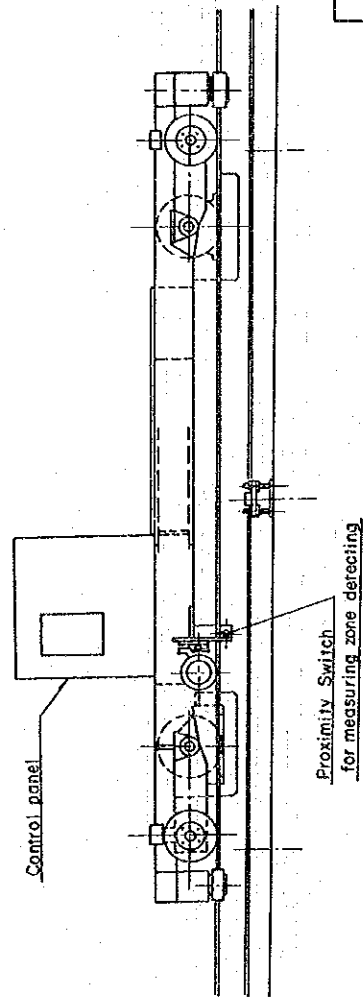
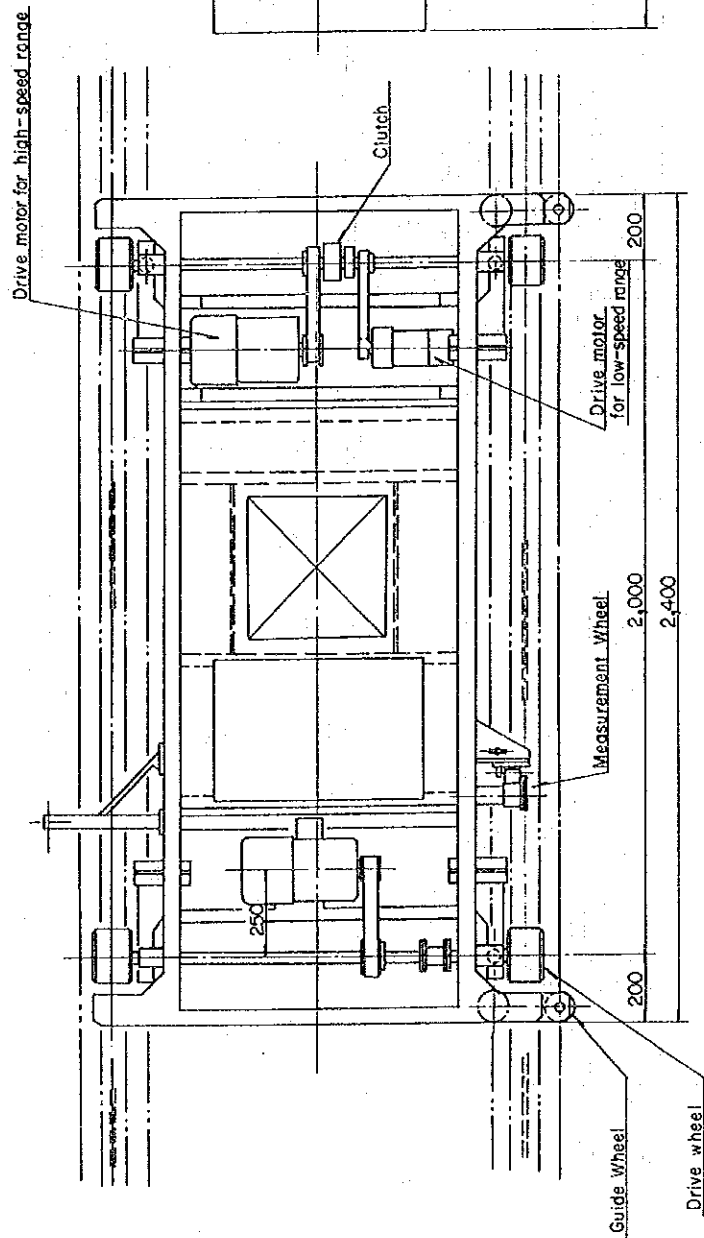
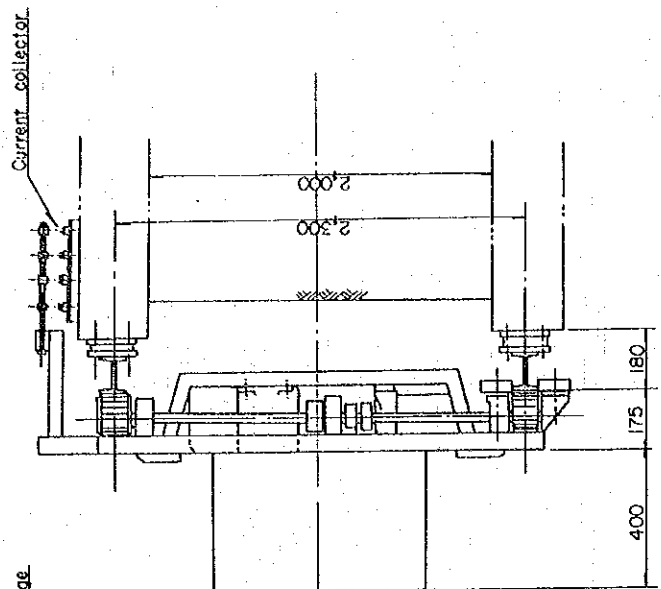


Center Section



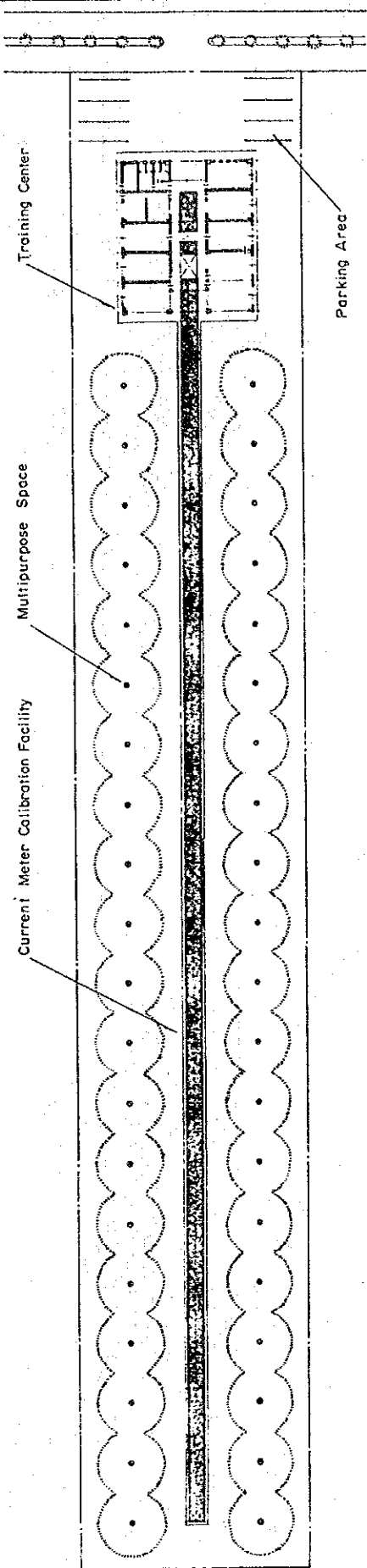
HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

IMMEDIATE PROGRAMME
CURRENT METER
CALIBRATION FACILITY (1/2)

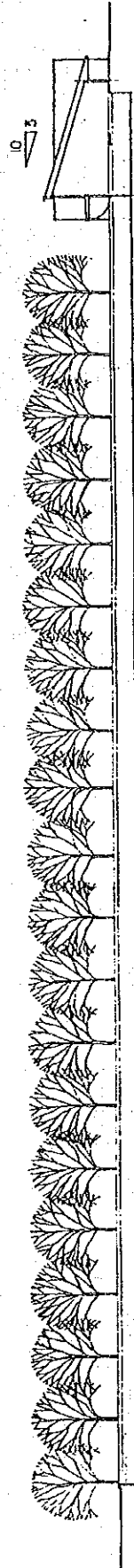


IMMEDIATE PROGRAMME
CURRENT METER
CALIBRATION FACILITY (2/2)
RATING CARRIAGE

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN-INTERNATIONAL COOPERATION AGENCY



PLAN

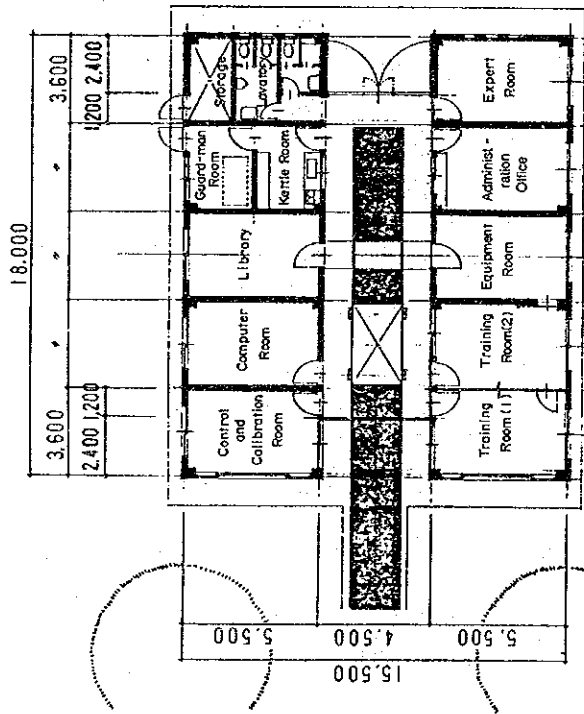


PROFILE

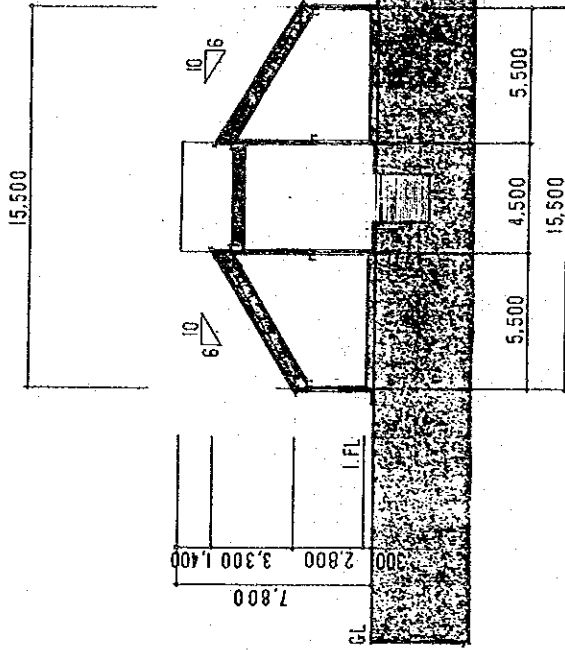
SCALE 0 10 20 m

IMMEDIATE PROGRAMME
TRAINING CENTER (1/2)

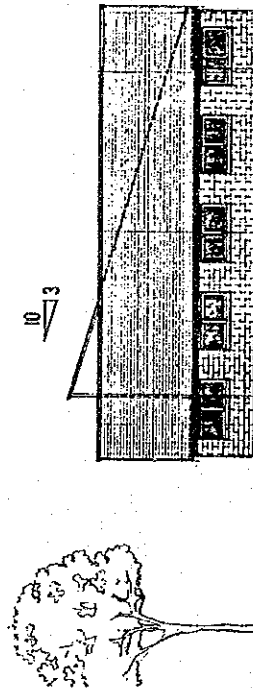
HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY



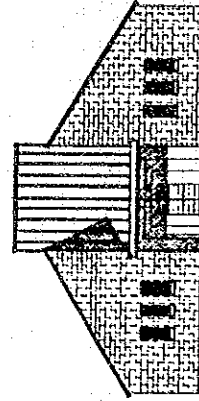
PLAN



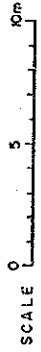
SECTION



ELEVATION



FRONT VIEW



IMMEDIATE PROGRAMME
TRAINING CENTER (2/2)

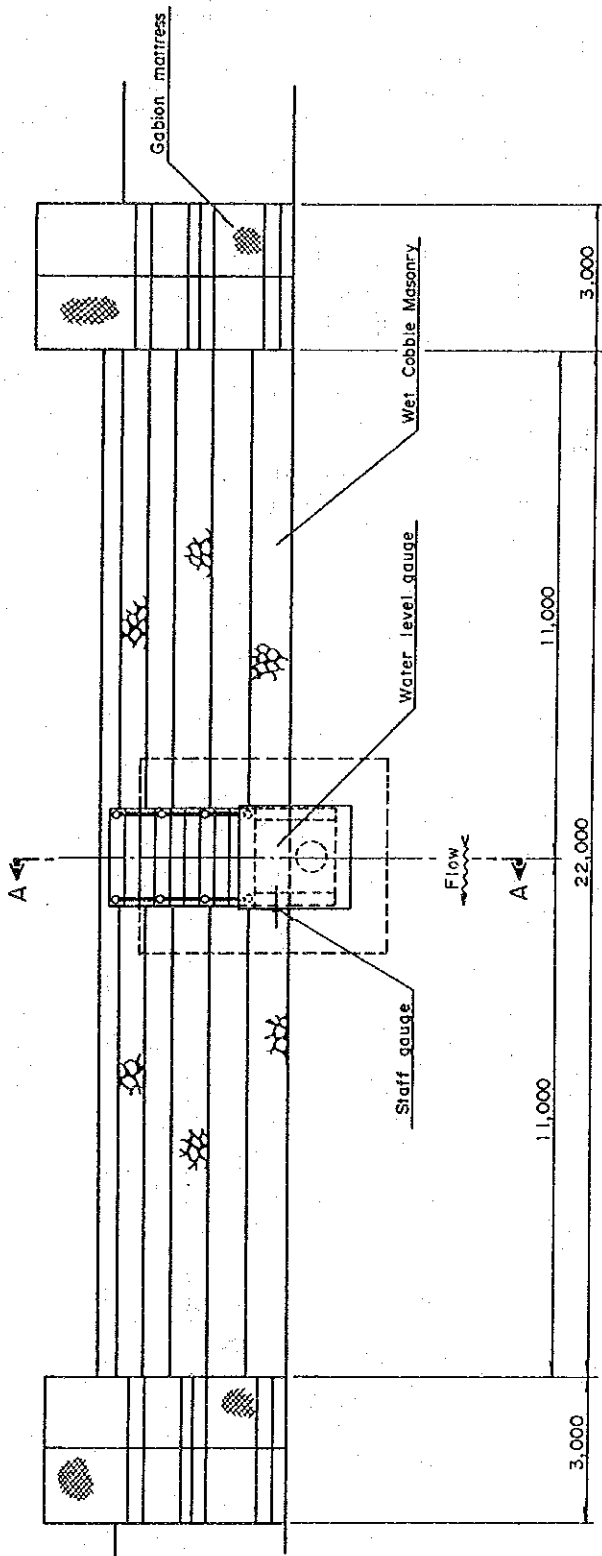
HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

APPENDIX - 4

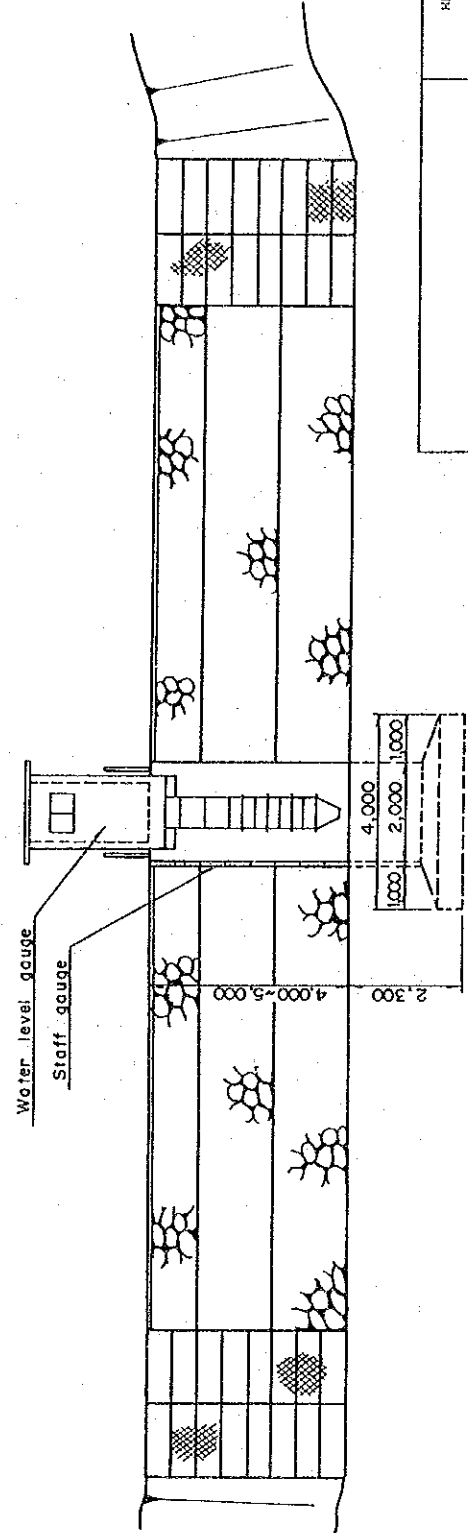
DRAWINGS FOR LONG TERM PROGRAMME

LIST OF DRAWINGS (LONG TERM PROGRAMME)

DWG NO.	TITLE
01	WATER LEVEL GAUGE (1/4) (FLOAT TYPE, H = 4.0 ~ 5.0 m)
02	WATER LEVEL GAUGE (2/4) (FLOAT TYPE, H = 4.0 ~ 5.0 m) ABUTMENT AND SLOPE PROTECTION DETAILS
03	WATER LEVEL GAUGE (3/4) (FLOAT TYPE, H = 4.0 ~ 5.0 m) ADJUSTABLE STEEL PIPE
04	WATER LEVEL GAUGE (4/4) (FLOAT TYPE, H = 4.0 ~ 5.0 m) OBSERVATION HOUSE
05	WATER LEVEL GAUGE (FLOAT TYPE, H = 10.0 m)
06	CABLE WAY (1/2) (SINGLE WINCH)
07	CABLE WAY (2/2) (SINGLE WINCH)
08	WATER LEVEL TELEMETERING SYSTEM



PLAN



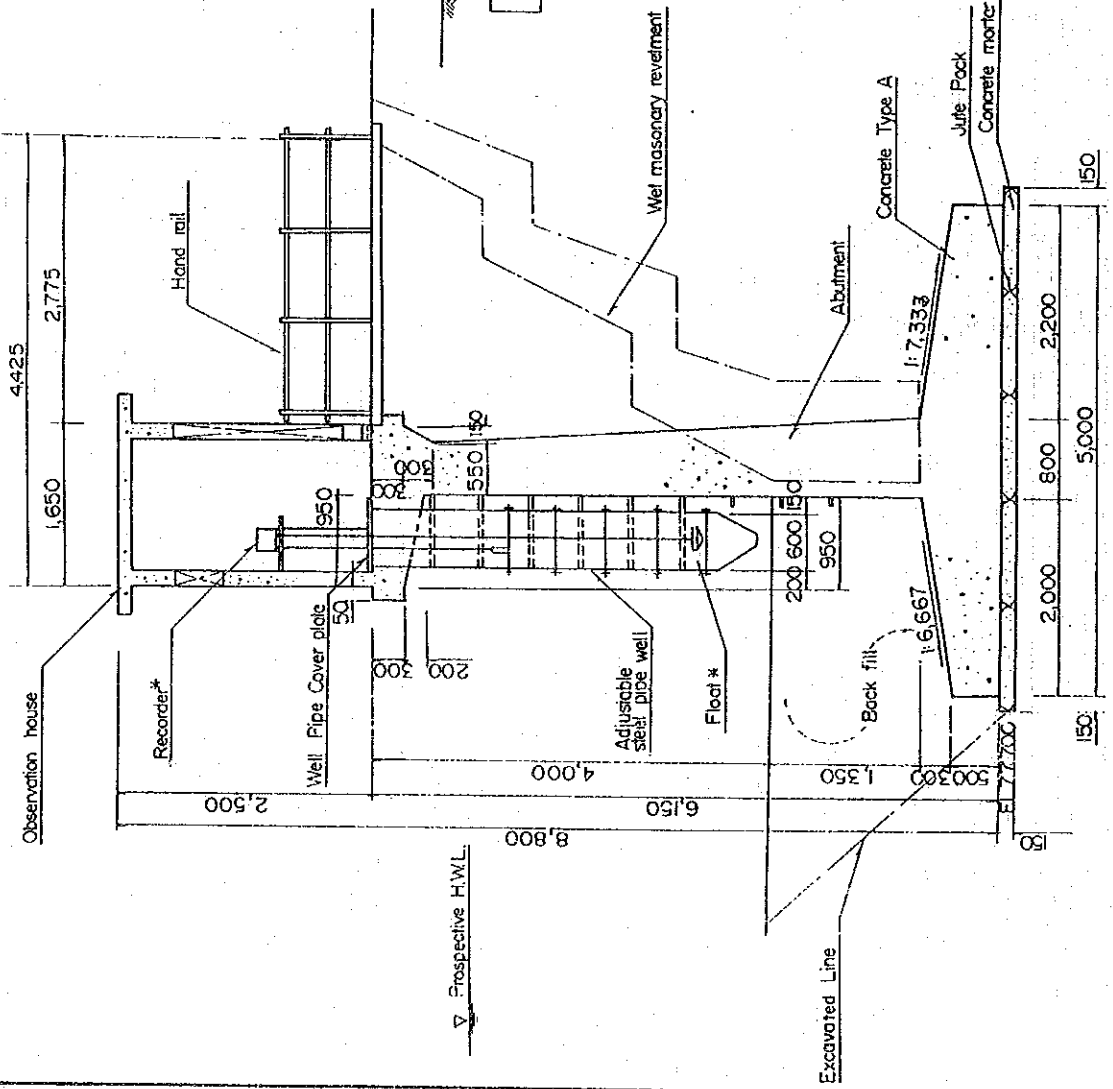
FRONT VIEW

SCALE 0 1 2 3 4 5 m

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY

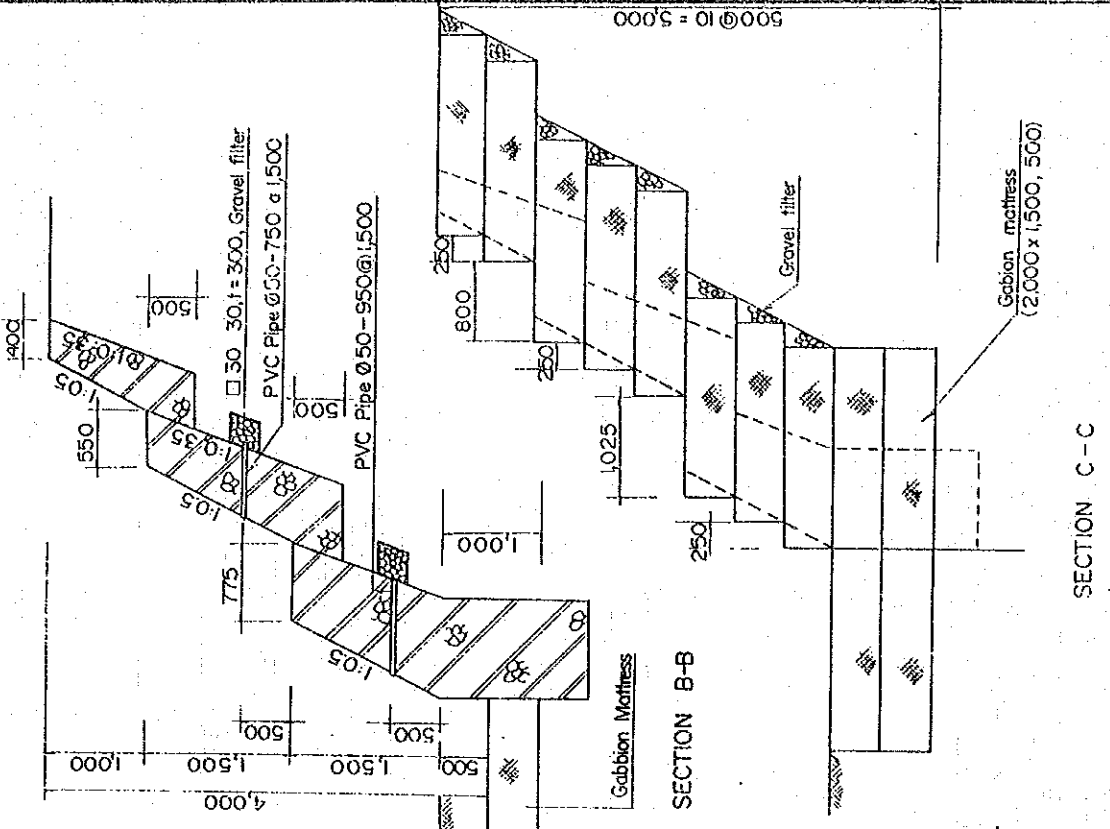
LONG TERM PROGRAMME
WATER LEVEL GAUGE (1/4)
(FLOAT TYPE, H=4.0~5.0m)

DWG. NO. 02



SECTION A-A

SCALE 0 1 2 m

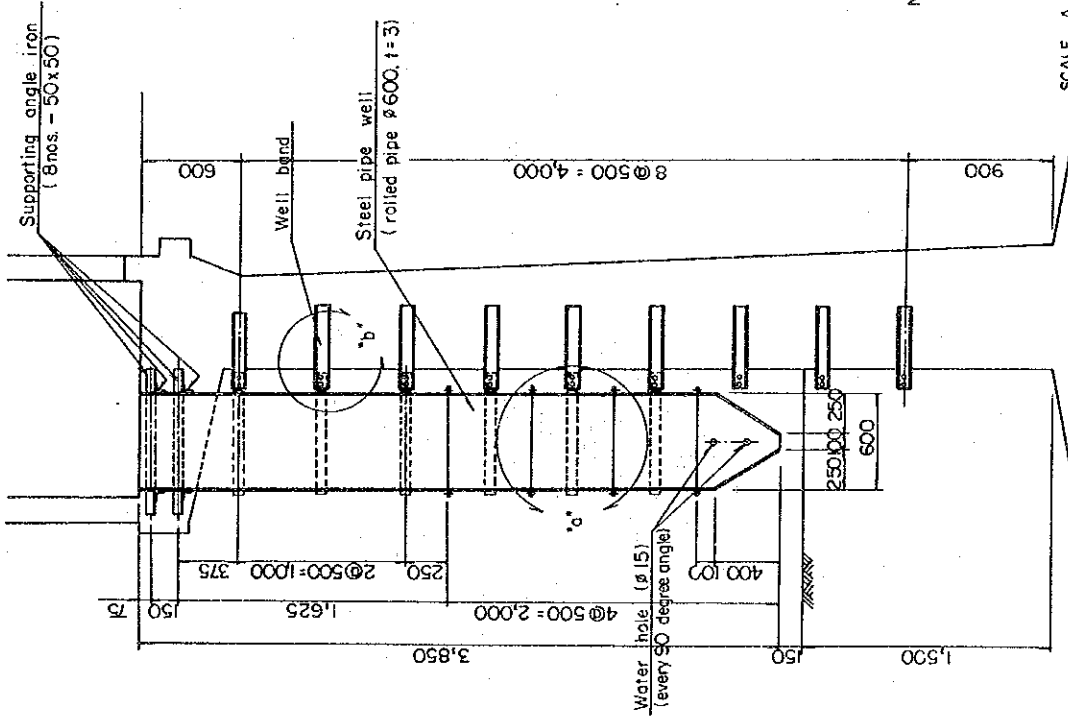


HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA-MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

LONG TERM PROGRAMME
 WATER LEVEL GAUGE (2/4)
 (FLOAT TYPE, H=4.0~5.0m)
 ABUTMENT AND SLOPE
 PROTECTION DETAILS

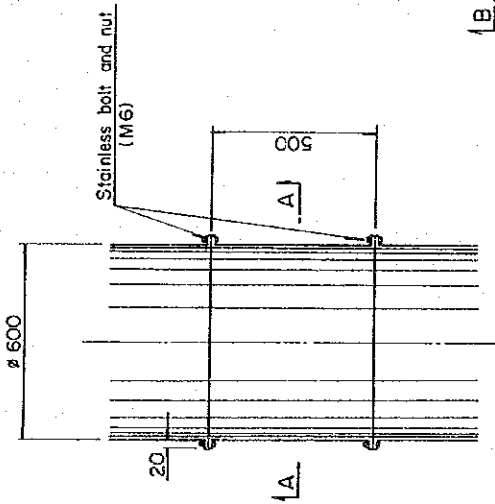
DETAIL OF ADJUSTABLE STEEL PIPE WELL

SCALE A

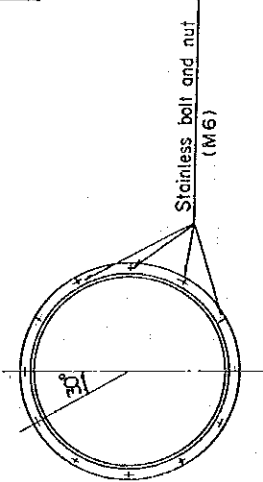


DETAIL OF STEEL PIPE

SCALE B

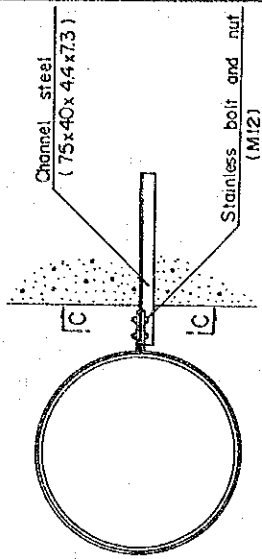


DETAIL "a-a"



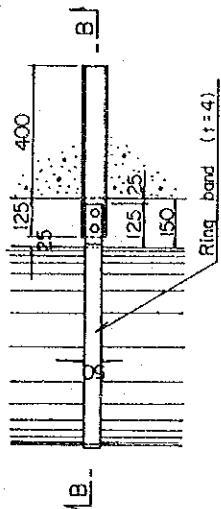
SECTION A-A

DETAIL OF WELL BAND



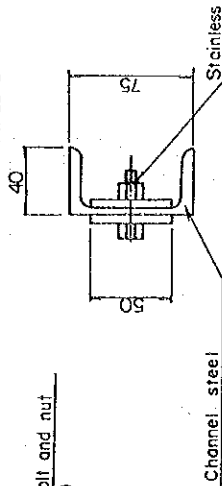
SECTION B-B

SCALE B



DETAIL "b-b"

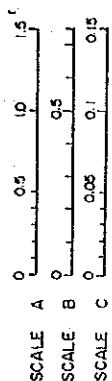
SCALE B



SECTION C-C

SCALE C

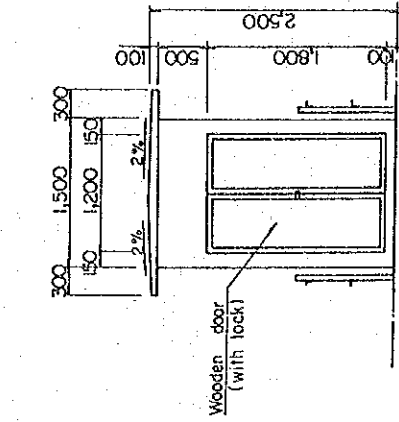
Note : 1. Well band shall be connected with reinforcement bars of the abutment.
 2. Three spares of steel pipe (t=500) and well band shall be manufactured and kept inside the observation house.



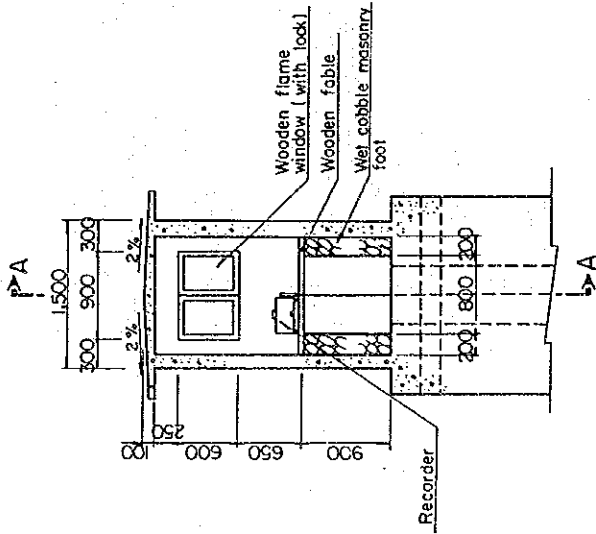
HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT

LONG TERM PROGRAMME
WATER LEVEL GAUGE (3/4)
(FLOAT TYPE, H=4.0~5.0m)
ADJUSTABLE STEEL PIPE

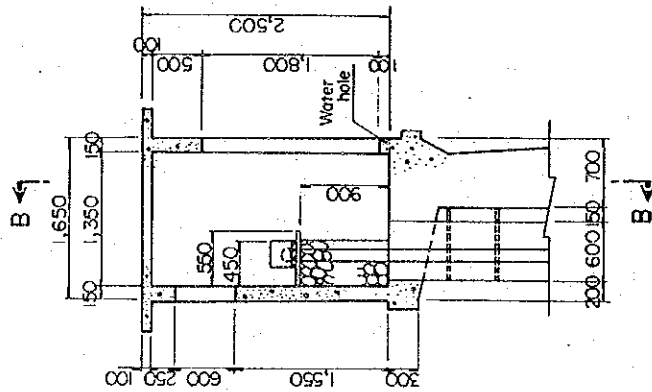
JAPAN INTERNATIONAL COOPERATION AGENCY



FRONT VIEW



SECTION B-B



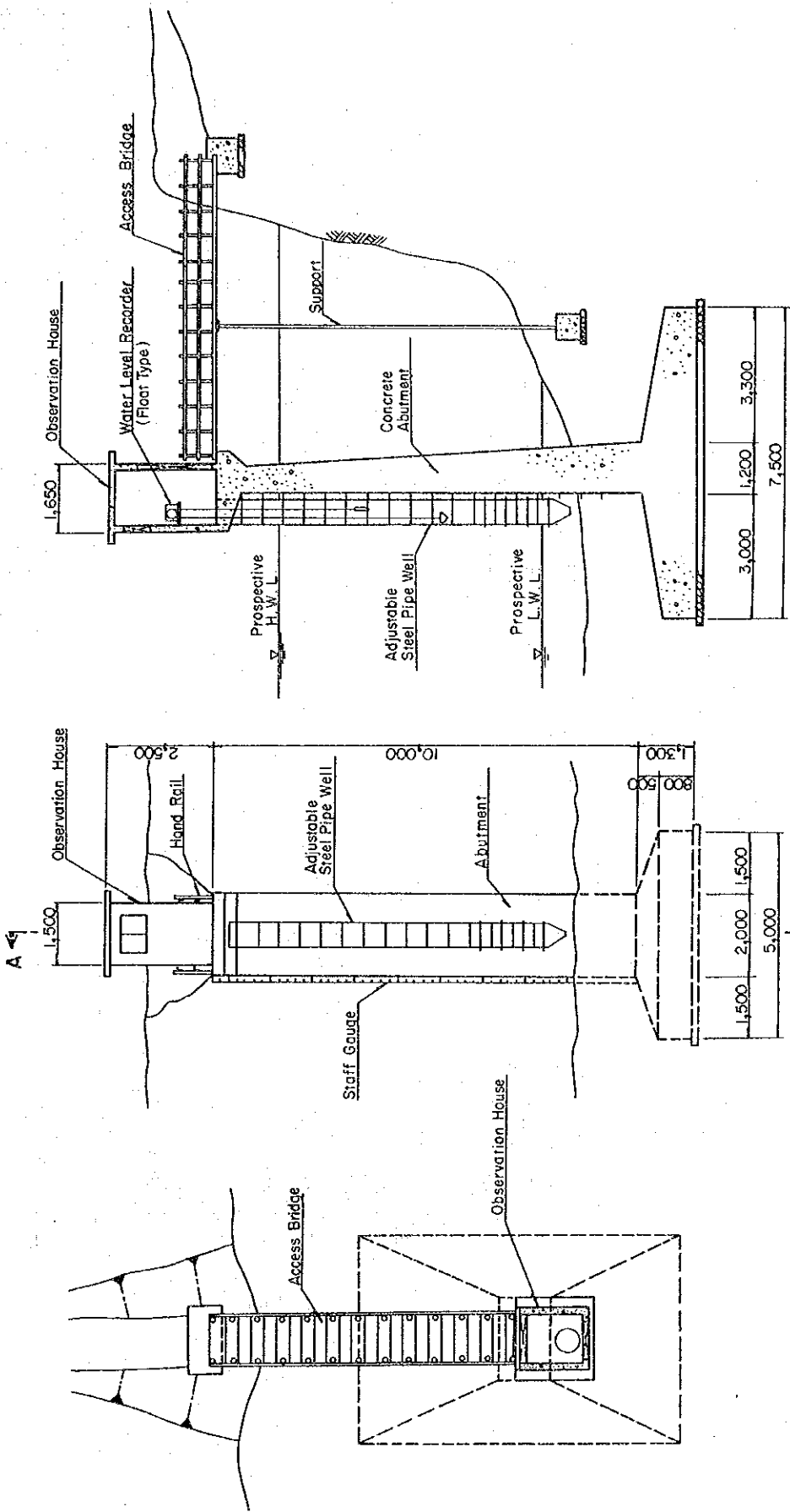
SECTION A-A

OBSERVATION HOUSE



LONG TERM PROGRAMME
 WATER LEVEL GAUGE (4/4)
 (FLOAT TYPE, H=4.0~5.0m)
 OBSERVATION HOUSE

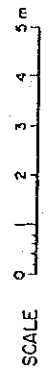
HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY



PLAN

FRONT VIEW

SECTION A - A

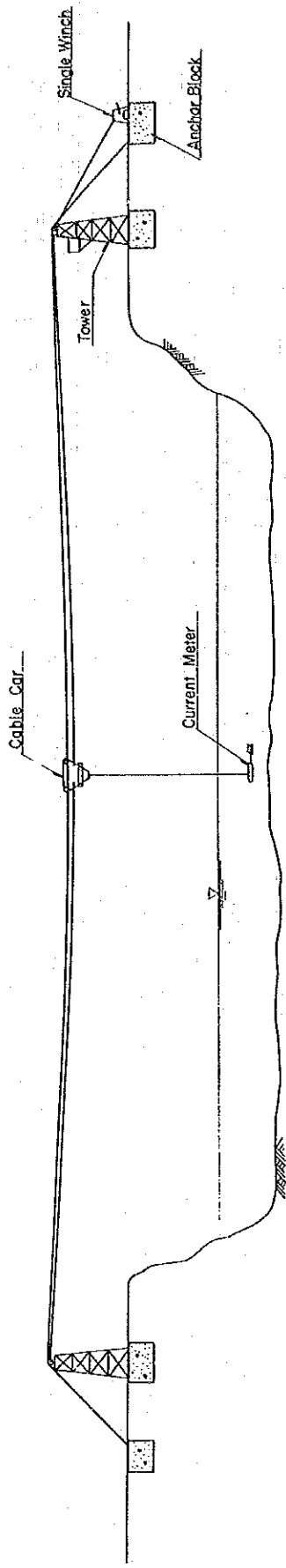


Note : See DWG.No - 03 ~ 04 for more details of the observation house and the adjustable steel pipe well.

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

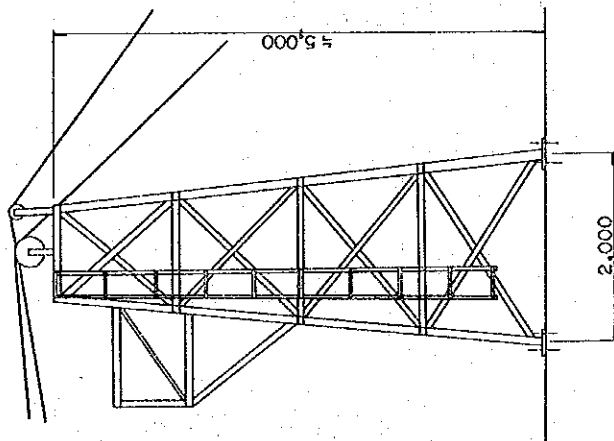
LONG TERM PROGRAMME
 WATER LEVEL GAUGE
 (FLOAT TYPE, H ± 10.0m)

DWG.NO-06

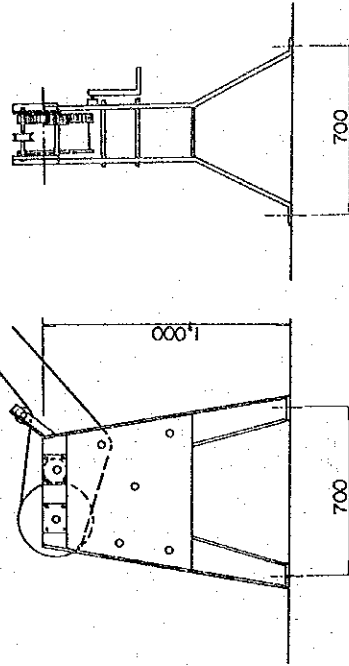


PROFILE

TOWER SCALE A



SINGLE WINCH SCALE B



SCALE A 0 1.0 2.0 m
 SCALE B 0 0.5 1.0 m

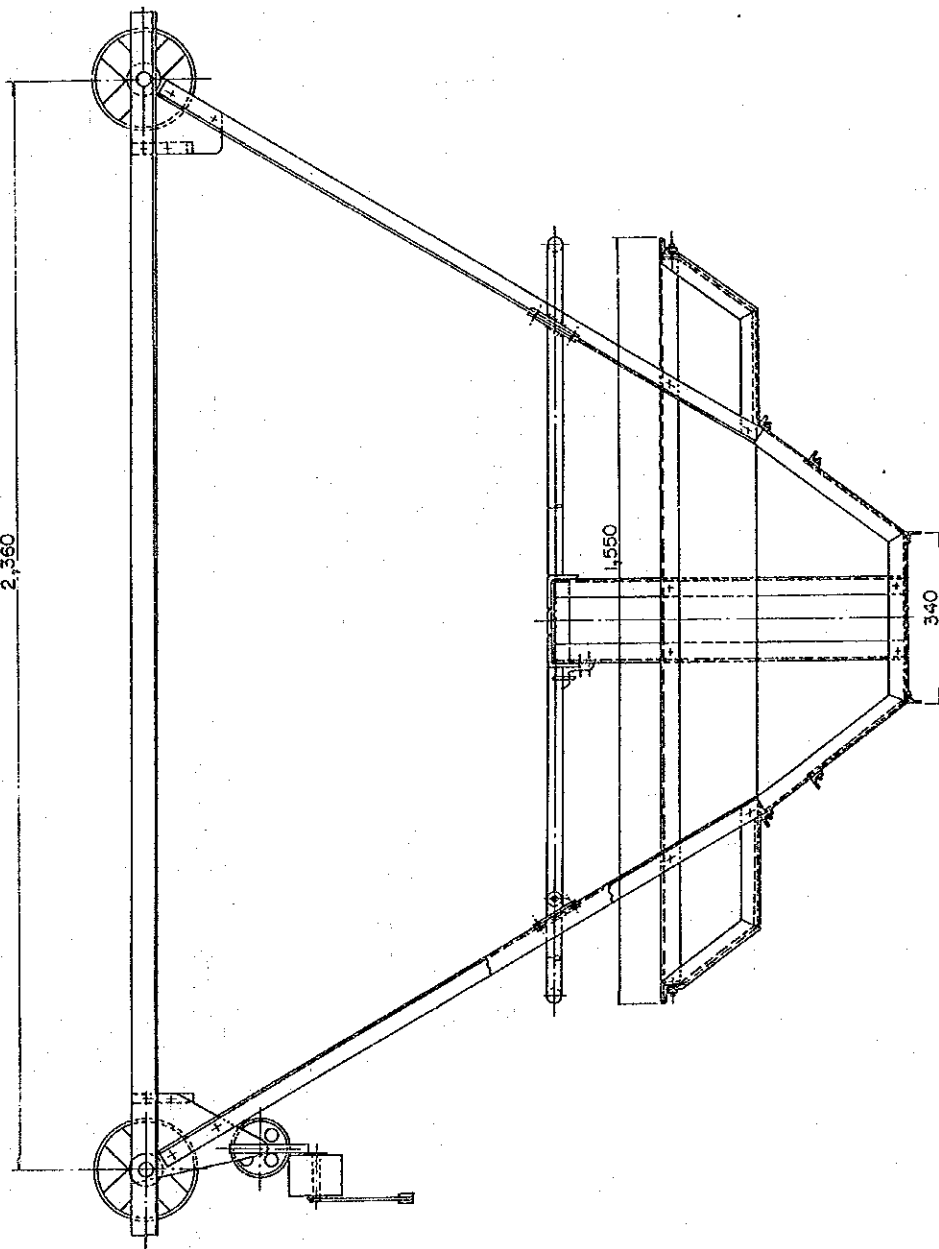
LONG TERM PROGRAMME
 CABLE WAY (1/2)
 (SINGLE WINCH)

HIS MAJESTY'S GOVERNMENT OF NEPAL
 MINISTRY OF WATER RESOURCES
 DEPARTMENT OF HYDROLOGY AND METEOROLOGY
 NATIONWIDE HYDRO-METEOROLOGICAL
 DATA MANAGEMENT PROJECT
 JAPAN INTERNATIONAL COOPERATION AGENCY

DWG.NO-07

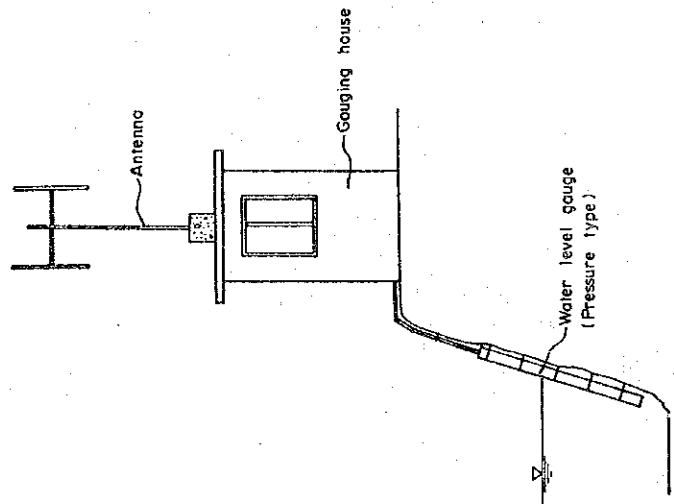
CABLE CAR

2,360

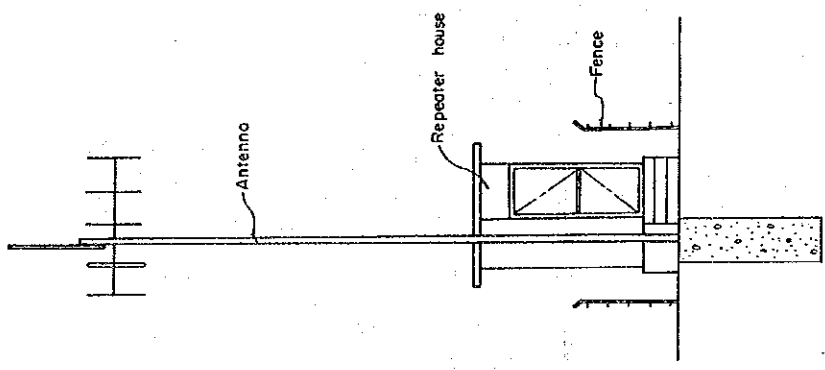


III'S MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
JAPAN/INTERNATIONAL COOPERATION AGENCY

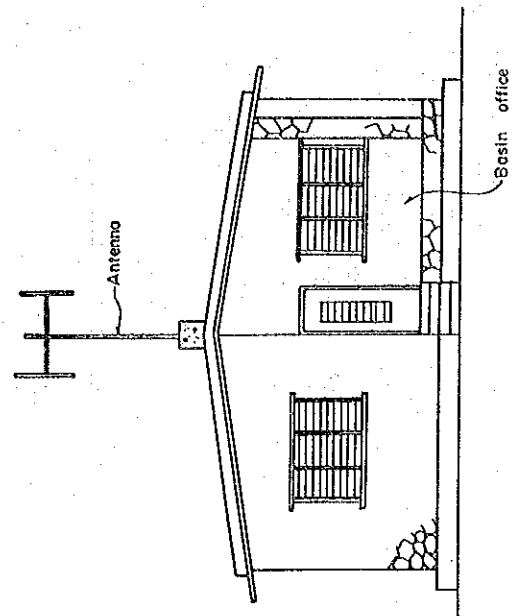
LONG TERM PROGRAMME
CABLE WAY (2/2)
(SINGLE WINCH)



GAUGING STATION



REPEATER STATION



MONITORING STATION

Note:
The building of the basin office shall be rented.

LONG TERM PROGRAMME
WATER LEVEL
TELEMETERING SYSTEM

HIS MAJESTY'S GOVERNMENT OF NEPAL
MINISTRY OF WATER RESOURCES
DEPARTMENT OF HYDROLOGY AND METEOROLOGY
NATIONWIDE HYDRO-METEOROLOGICAL
DATA MANAGEMENT PROJECT
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