

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

GENERAL DIRECTORATE OF RURAL SERVICES (GDRS)
REPUBLIC OF TURKEY

No. 02

STUDY
ON
NATIONAL SMALL-SCALE IRRIGATION
AND
RURAL DEVELOPMENT PROGRAM
IN
THE REPUBLIC OF TURKEY

FINAL REPORT
DRAWINGS

MARCH 1998

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JICA (GDRS) REPUBLIC OF TURKEY
STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM IN THE REPUBLIC OF TURKEY
FINAL REPORT DRAWINGS
MARCH 1998

B4
B3
AFA

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**GENERAL DIRECTORATE OF RURAL SERVICES (GDRS)
REPUBLIC OF TURKEY**

**STUDY
ON
NATIONAL SMALL-SCALE IRRIGATION
AND
RURAL DEVELOPMENT PROGRAM
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**FINAL REPORT
DRAWINGS**

MARCH 1998

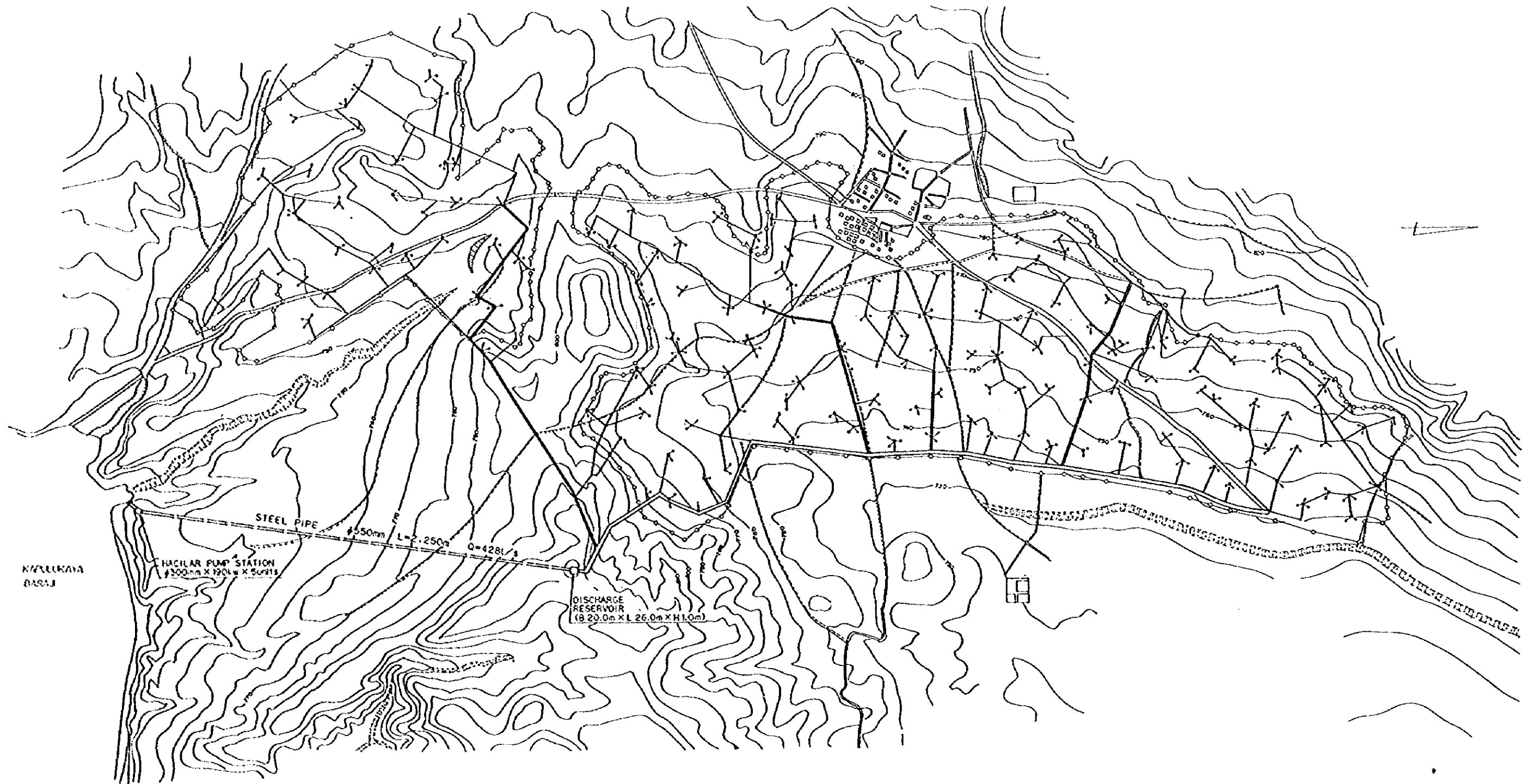
SANYU CONSULTANTS INC.



1142716(8)

LIST OF DRAWINGS

<u>DWG.NO</u>	<u>PROJECT NAME</u>	<u>DESCRIPTION</u>
1-1	HACILAR PROJECT (PUMP IRRIGATION)	GENERAL PLAN
1-2	HACILAR PROJECT (PUMP IRRIGATION)	PUMP STATION AND DISTRIBUTION POND
1-3	HACILAR PROJECT (PUMP IRRIGATION)	PLAN AND PROFILE OF FEEDER WATER PIPELINE
2	URUNLU PROJECT (GROUNDWATER IRRIGATION)	GENERAL PLAN
3	KALESEKISI PROJECT (PUMP IRRIGATION)	GENERAL PLAN
4	CAMLIBEL PROJECT (LAND CONSOLIDATION)	GENERAL PLAN
5-1	KOZLUK PROJECT (WEIR IRRIGATION)	GENERAL PLAN
5-2	KOZLUK PROJECT (WEIR IRRIGATION)	PLAN OF DIVERSION DAM
5-3	KOZLUK PROJECT (WEIR IRRIGATION)	ELEVATION AND TYPICAL SECTION OF DIVERSION DAM
6	KUSKARA PROJECT (SOIL CONSERVATION)	GENERAL PLAN
7-1	OZDENK PROJECT (DAM IRRIGATION)	GENERAL PLAN
7-2	OZDENK PROJECT (DAM IRRIGATION)	DAM PLAN
7-3	OZDENK PROJECT (DAM IRRIGATION)	DAM LONGITUDINAL SECTION
7-4	OZDENK PROJECT (DAM IRRIGATION)	DAM STANDARD SECTION
7-5	OZDENK PROJECT (DAM IRRIGATION)	TERRACE WORK
8	ASLANLAR PROJECT (GROUNDWATER IRRIGATION)	GENERAL PLAN
9-1	ILYASKOY PROJECT (DAM IRRIGATION)	GENERAL PLAN
9-2	ILYASKOY PROJECT (DAM IRRIGATION)	DAM PLAN
9-3	ILYASKOY PROJECT (DAM IRRIGATION)	DAM LONGITUDINAL SECTION
9-4	ILYASKOY PROJECT (DAM IRRIGATION)	DAM STANDARD SECTION
10	K.KARISTIRAN PROJECT (GROUNDWATER IRRIGATION)	GENERAL PLAN
11	KALESEKISI, ASLANLAR AND ILYASKOY PROJECTS	PUMP STATION AND FARM POND STANDARD DRAWINGS



KAZUKAYA
DASLI

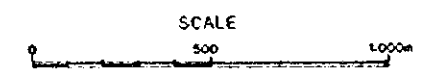
HACILAR PUMP STATION
#300m x 190m x 5units

STEEL PIPE
#550mm L=2.250m Q=428l/s

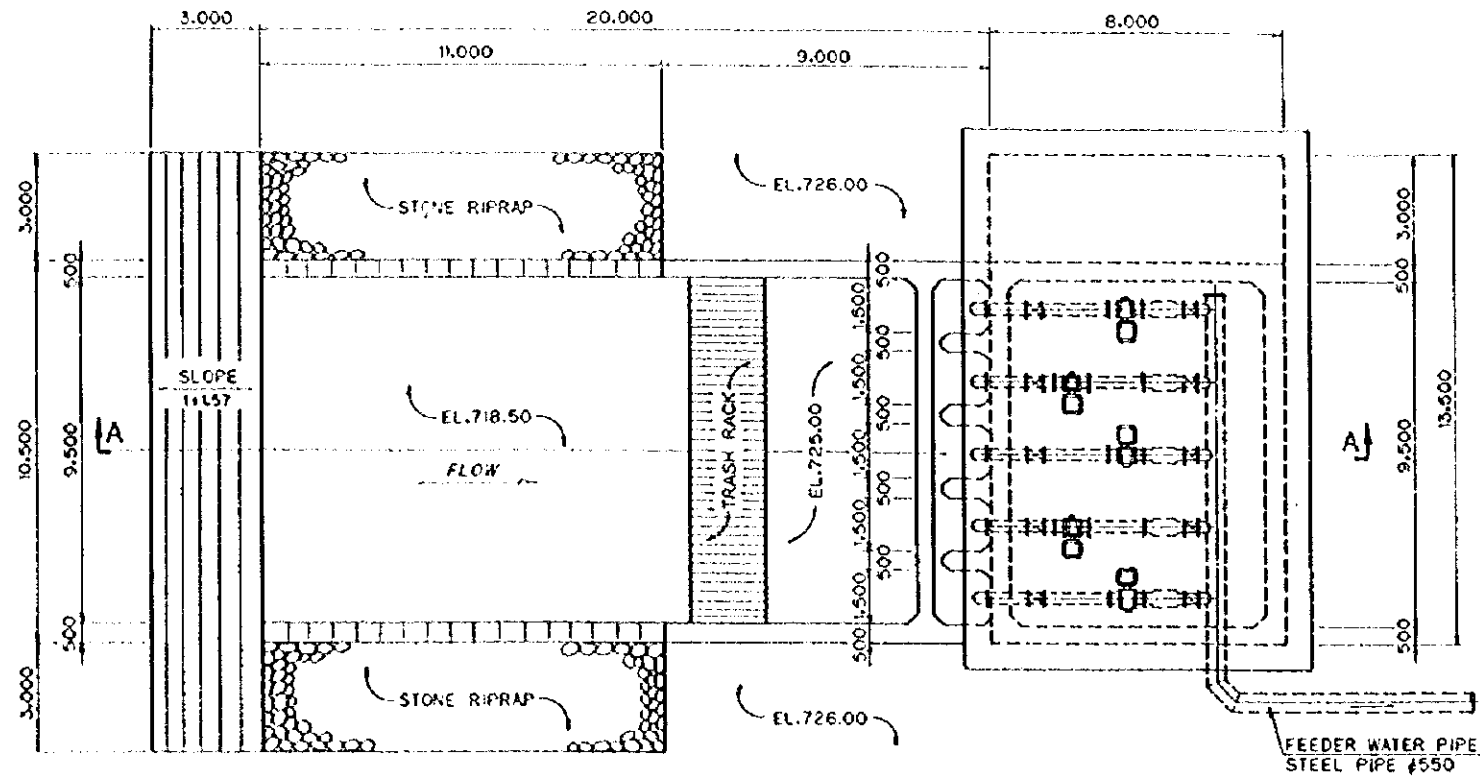
DISCHARGE
RESERVOIR
(#20.0m x L 26.0m x H 1.0m)

LEGEND

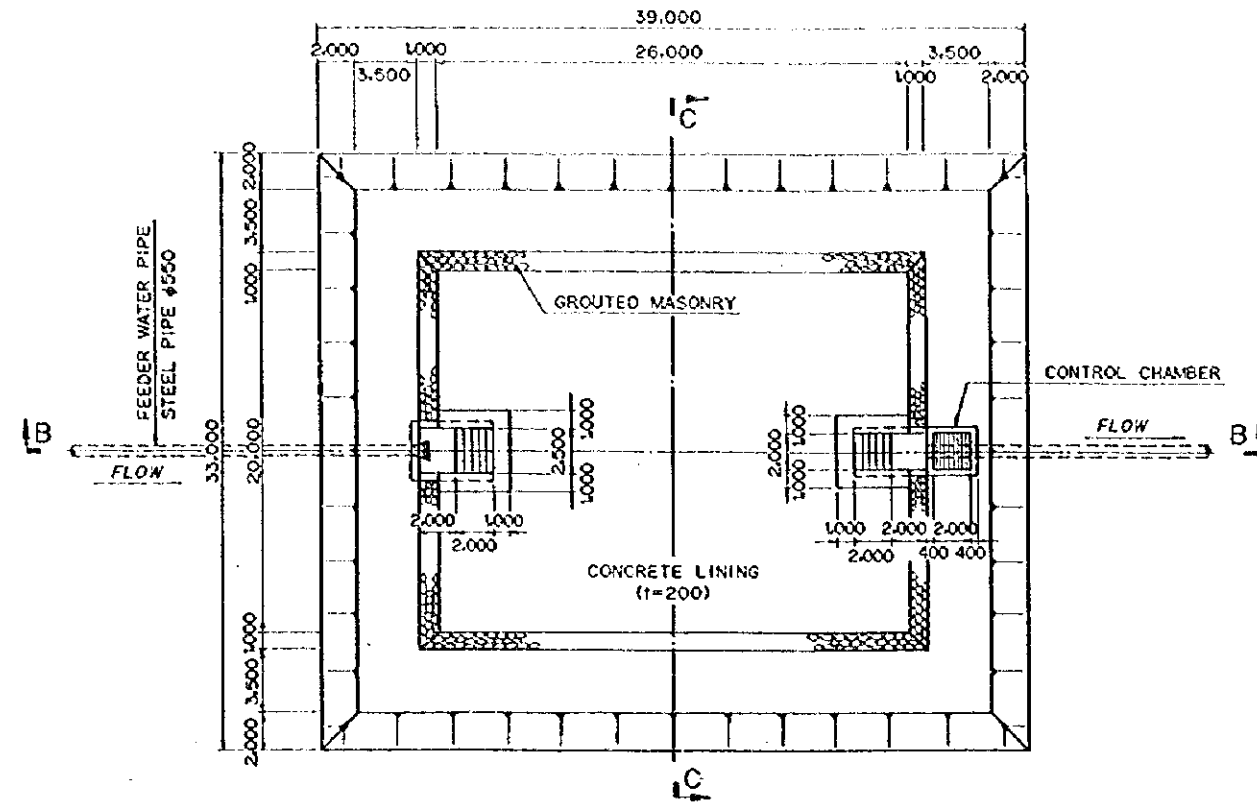
SYMBOL	DESCRIPTION
---	WATER SUPPLY PIPE LINE
---	MAIN CANAL (PIPE)
---	SECONDARY CANAL
---	TERTIARY CANAL
+	HYDRANT
- - -	PROJECT BOUNDARY



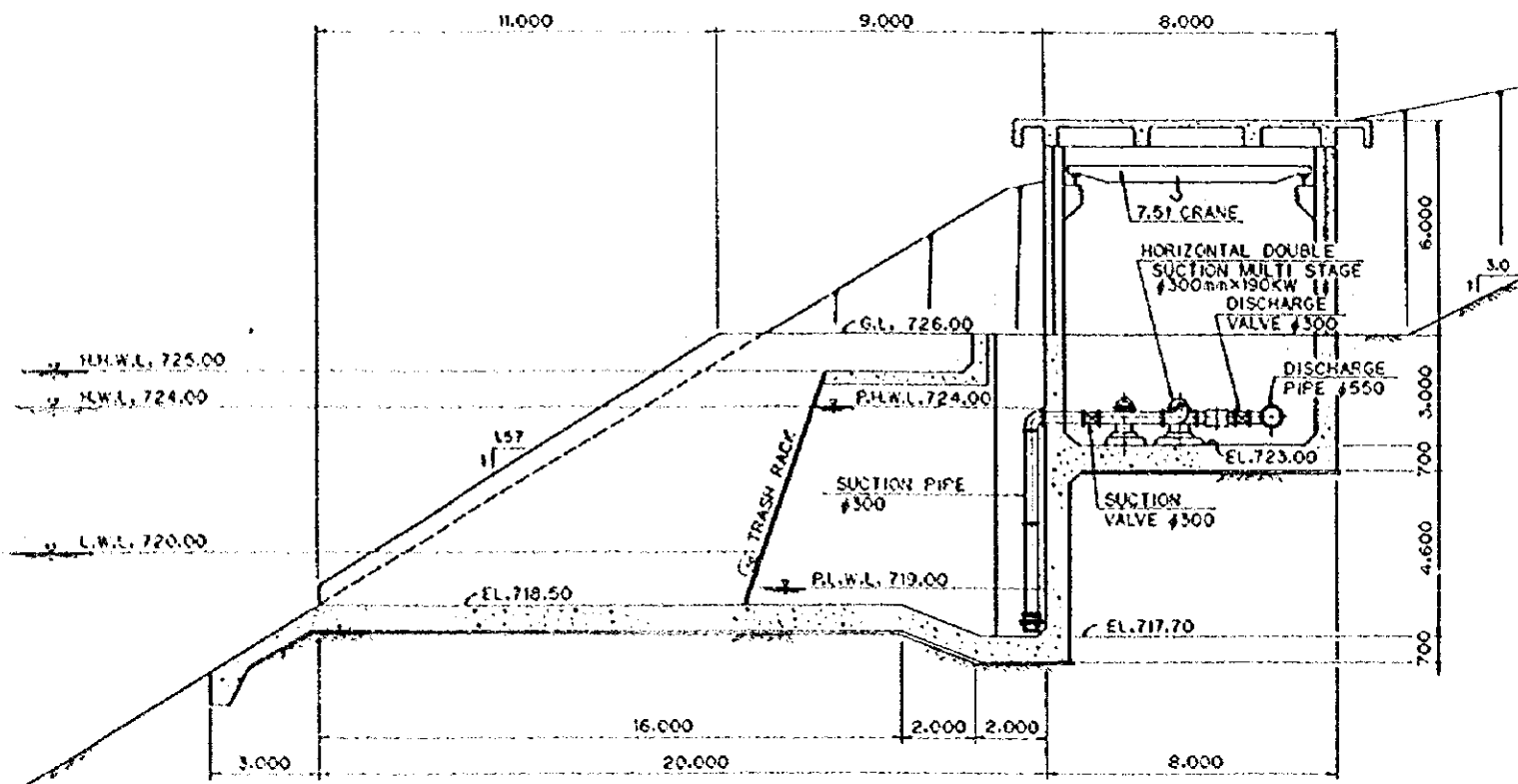
STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
HACILAR PROJECT (PUMP IRRIGATION)	
GENERAL PLAN	Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)	
SANYU CONSULTANTS INC.	1-1



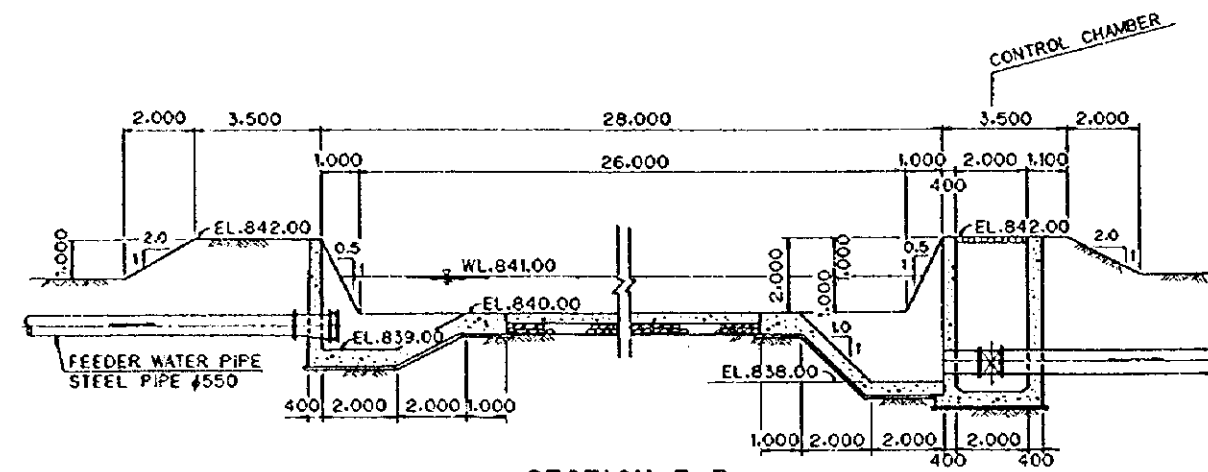
PLAN OF PUMPING STATION



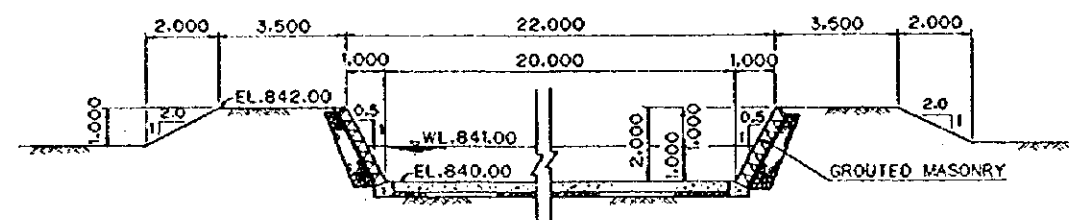
PLAN OF DISCHARGE RESERVOIR



SECTION A-A

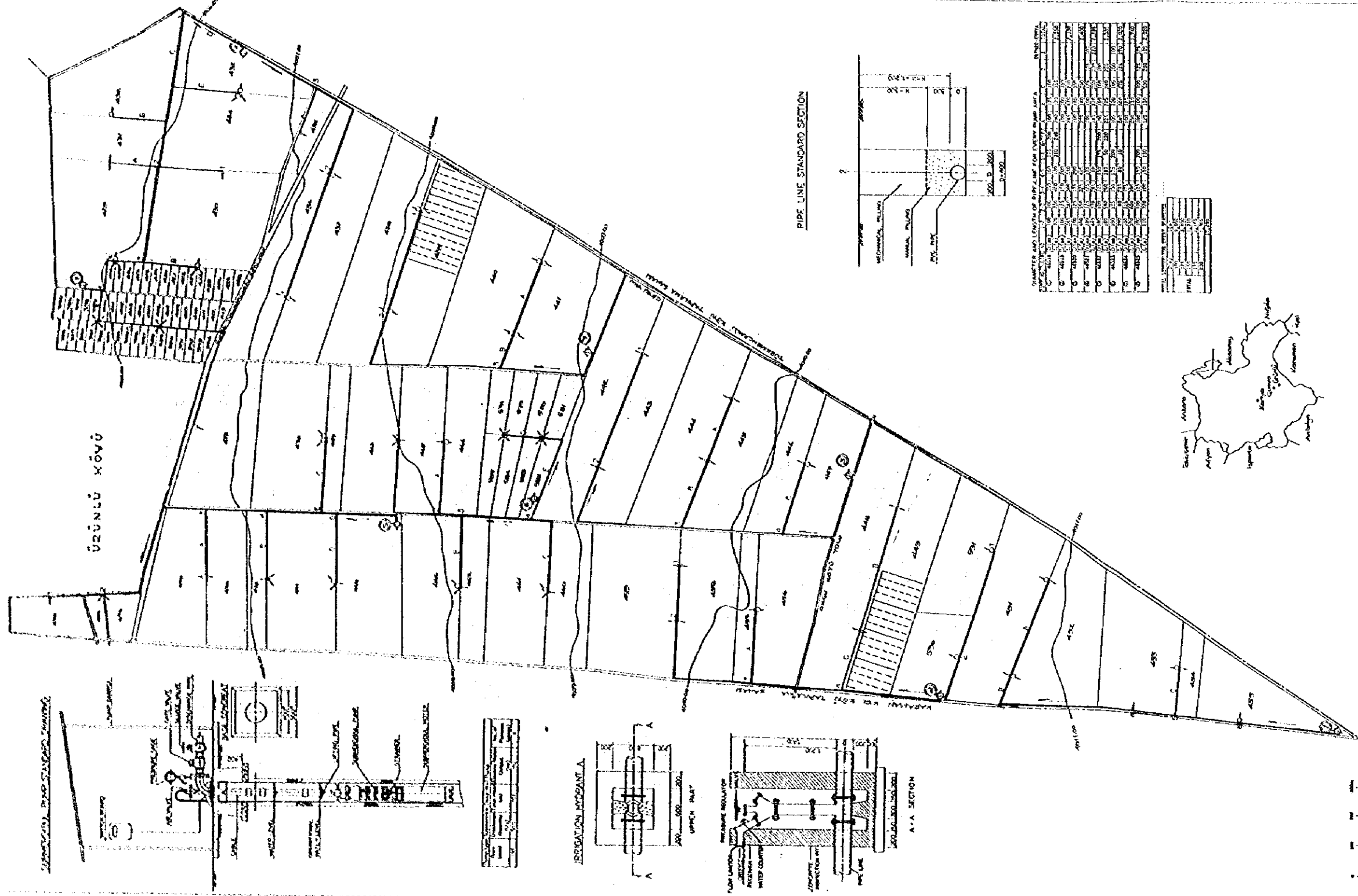


SECTION B-B

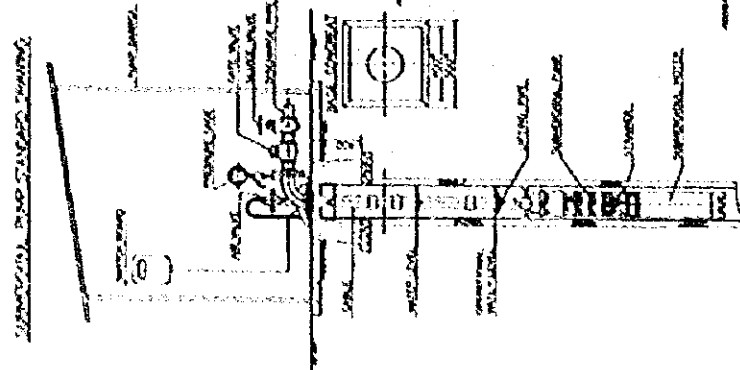


SECTION C-C

STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
HACILAR PROJECT (PUMP IRRIGATION)	
PUMP STATION AND DISTRIBUTION POND	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
SANYU CONSULTANTS INC.	
Drawing No.	1-2

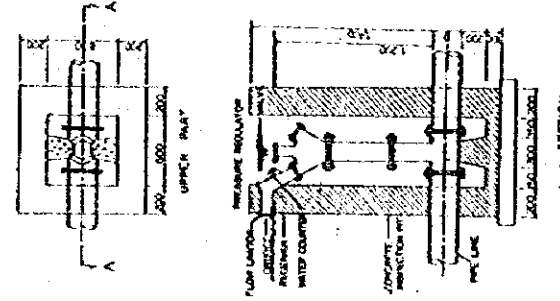


URUNLU KÖVÜ

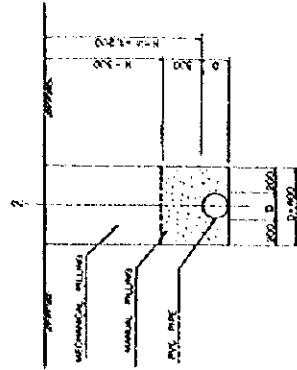


NO.	DESCRIPTION	QTY.	UNIT
1
2

IRRIGATION INCIDENT A



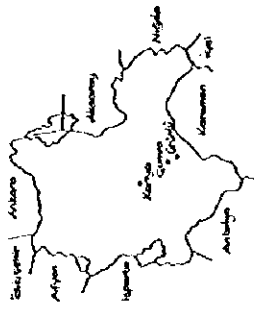
PIPE LINE STANDARD SECTION



QUANTITY AND LENGTH OF PIPE FOR EVERY BRANCH AND MAIN

NO.	BRANCH/MAIN	DIAMETER (mm)	LENGTH (m)	QUANTITY
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
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19
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86
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90
91
92
93
94
95
96
97
98
99
100

NO.	DESCRIPTION	QTY.	UNIT
1
2

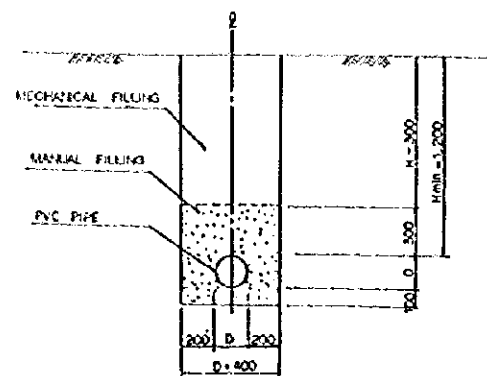


SYMBOLS

SYMBOL	DESCRIPTION
○	IRRIGATION AREA
□	PIPE (BORNEO) 100-150 mm DIA.
—	PVC PIPE-LINE 100-150 mm DIA.
○	ILLUSTRATION SYMBOL 100mm
○	ILLUSTRATION SYMBOL 150mm
○	ILLUSTRATION SYMBOL 200mm
○	ILLUSTRATION SYMBOL 250mm
○	ILLUSTRATION SYMBOL 300mm
○	ILLUSTRATION SYMBOL 350mm
○	ILLUSTRATION SYMBOL 400mm
○	ILLUSTRATION SYMBOL 450mm
○	ILLUSTRATION SYMBOL 500mm
○	ILLUSTRATION SYMBOL 550mm
○	ILLUSTRATION SYMBOL 600mm
○	ILLUSTRATION SYMBOL 650mm
○	ILLUSTRATION SYMBOL 700mm
○	ILLUSTRATION SYMBOL 750mm
○	ILLUSTRATION SYMBOL 800mm
○	ILLUSTRATION SYMBOL 850mm
○	ILLUSTRATION SYMBOL 900mm
○	ILLUSTRATION SYMBOL 950mm
○	ILLUSTRATION SYMBOL 1000mm
○	ILLUSTRATION SYMBOL 1050mm
○	ILLUSTRATION SYMBOL 1100mm
○	ILLUSTRATION SYMBOL 1150mm
○	ILLUSTRATION SYMBOL 1200mm
○	ILLUSTRATION SYMBOL 1250mm
○	ILLUSTRATION SYMBOL 1300mm
○	ILLUSTRATION SYMBOL 1350mm
○	ILLUSTRATION SYMBOL 1400mm
○	ILLUSTRATION SYMBOL 1450mm
○	ILLUSTRATION SYMBOL 1500mm
○	ILLUSTRATION SYMBOL 1550mm
○	ILLUSTRATION SYMBOL 1600mm
○	ILLUSTRATION SYMBOL 1650mm
○	ILLUSTRATION SYMBOL 1700mm
○	ILLUSTRATION SYMBOL 1750mm
○	ILLUSTRATION SYMBOL 1800mm
○	ILLUSTRATION SYMBOL 1850mm
○	ILLUSTRATION SYMBOL 1900mm
○	ILLUSTRATION SYMBOL 1950mm
○	ILLUSTRATION SYMBOL 2000mm

STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM
 URUNLU PROJECT (GROUND WATER IRRIGATION)
 GENERAL PLAN
 JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
 SANYU CONSULTANTS, INC.
 Drawing No. 2

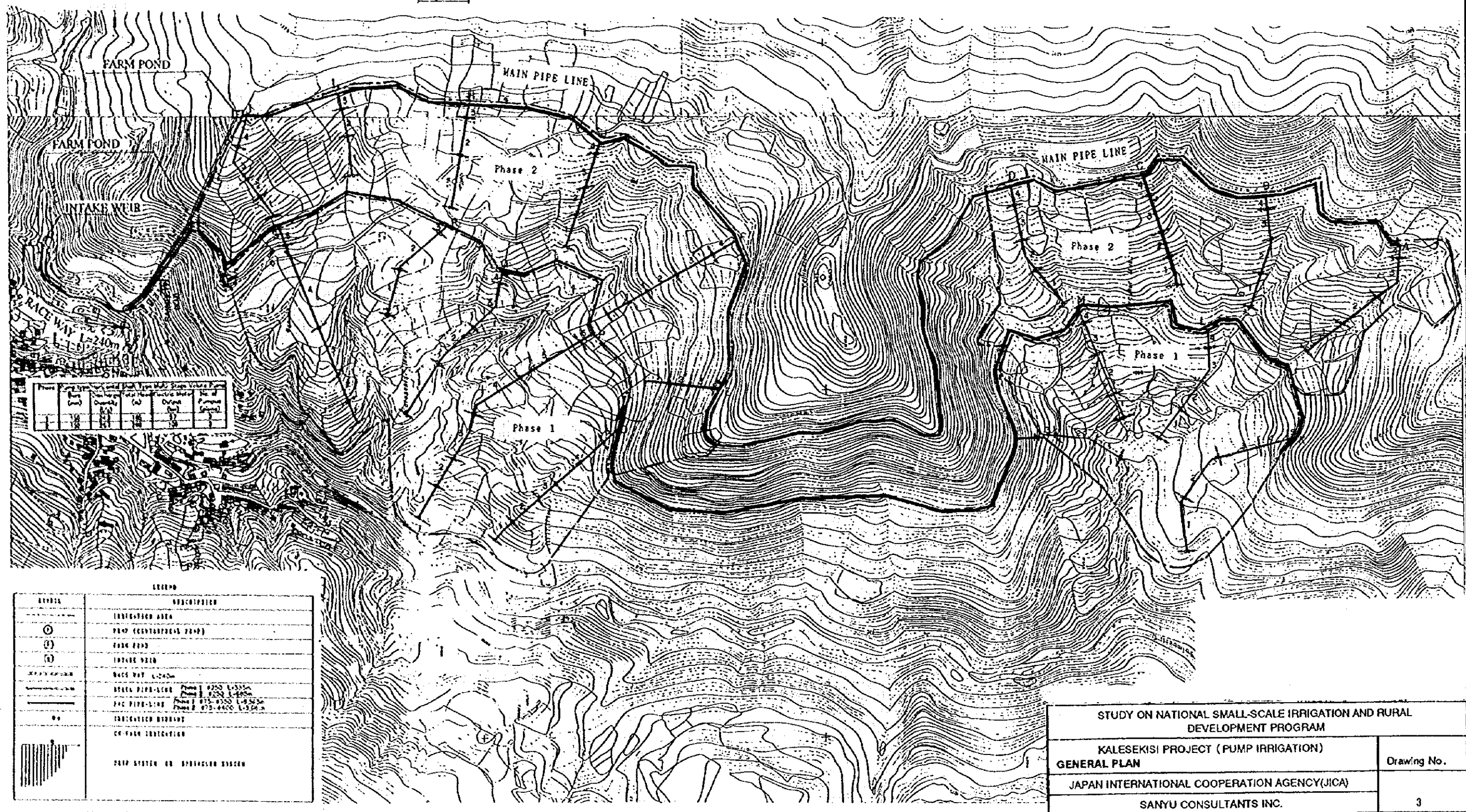
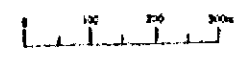
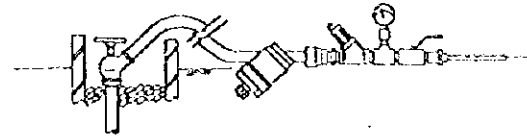
PIPE LINE STANDARD SECTION



DIAMETER AND LENGTH OF PIPE-LINE

Case	Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																																																																																																																																																																																																																						
Base-1	175	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200	1225	1250	1275	1300	1325	1350	1375	1400	1425	1450	1475	1500	1525	1550	1575	1600	1625	1650	1675	1700	1725	1750	1775	1800	1825	1850	1875	1900	1925	1950	1975	2000	2025	2050	2075	2100	2125	2150	2175	2200	2225	2250	2275	2300	2325	2350	2375	2400	2425	2450	2475	2500	2525	2550	2575	2600	2625	2650	2675	2700	2725	2750	2775	2800	2825	2850	2875	2900	2925	2950	2975	3000	3025	3050	3075	3100	3125	3150	3175	3200	3225	3250	3275	3300	3325	3350	3375	3400	3425	3450	3475	3500	3525	3550	3575	3600	3625	3650	3675	3700	3725	3750	3775	3800	3825	3850	3875	3900	3925	3950	3975	4000	4025	4050	4075	4100	4125	4150	4175	4200	4225	4250	4275	4300	4325	4350	4375	4400	4425	4450	4475	4500	4525	4550	4575	4600	4625	4650	4675	4700	4725	4750	4775	4800	4825	4850	4875	4900	4925	4950	4975	5000	5025	5050	5075	5100	5125	5150	5175	5200	5225	5250	5275	5300	5325	5350	5375	5400	5425	5450	5475	5500	5525	5550	5575	5600	5625	5650	5675	5700	5725	5750	5775	5800	5825	5850	5875	5900	5925	5950	5975	6000	6025	6050	6075	6100	6125	6150	6175	6200	6225	6250	6275	6300	6325	6350	6375	6400	6425	6450	6475	6500	6525	6550	6575	6600	6625	6650	6675	6700	6725	6750	6775	6800	6825	6850	6875	6900	6925	6950	6975	7000	7025	7050	7075	7100	7125	7150	7175	7200	7225	7250	7275	7300	7325	7350	7375	7400	7425	7450	7475	7500	7525	7550	7575	7600	7625	7650	7675	7700	7725	7750	7775	7800	7825	7850	7875	7900	7925	7950	7975	8000	8025	8050	8075	8100	8125	8150	8175	8200	8225	8250	8275	8300	8325	8350	8375	8400	8425	8450	8475	8500	8525	8550	8575	8600	8625	8650	8675	8700	8725	8750	8775	8800	8825	8850	8875	8900	8925	8950	8975	9000	9025	9050	9075	9100	9125	9150	9175	9200	9225	9250	9275	9300	9325	9350	9375	9400	9425	9450	9475	9500	9525	9550	9575	9600	9625	9650	9675	9700	9725	9750	9775	9800	9825	9850	9875	9900	9925	9950	9975	10000

IRRIGATION HYDRANT B



Symbol	Description
○	Farm Pond
□	Intake Weir
—	Main Pipe Line
—	Sub-Main Pipe Line
—	Branch Pipe Line
—	Field Pipe Line
—	Canal
—	Road
—	Boundary
—	Contour Line

Symbol	Description
○	IRRIGATION AREA
□	PUMP (CENTRIFUGAL PUMP)
□	FARM POND
□	INTAKE WEIR
—	MADE WAY 1:240m
—	STEEL PIPE-LINE Phase 1 4250 L=325m
—	PVC PIPE-LINE Phase 1 4250 L=325m
—	STEEL PIPE-LINE Phase 2 4250 L=325m
—	PVC PIPE-LINE Phase 2 4250 L=325m
—	IRRIGATION CHANNEL
—	CE-FRANK IRRIGATION
—	SOUP SYSTEM OR SPRINKLER SYSTEM

STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM

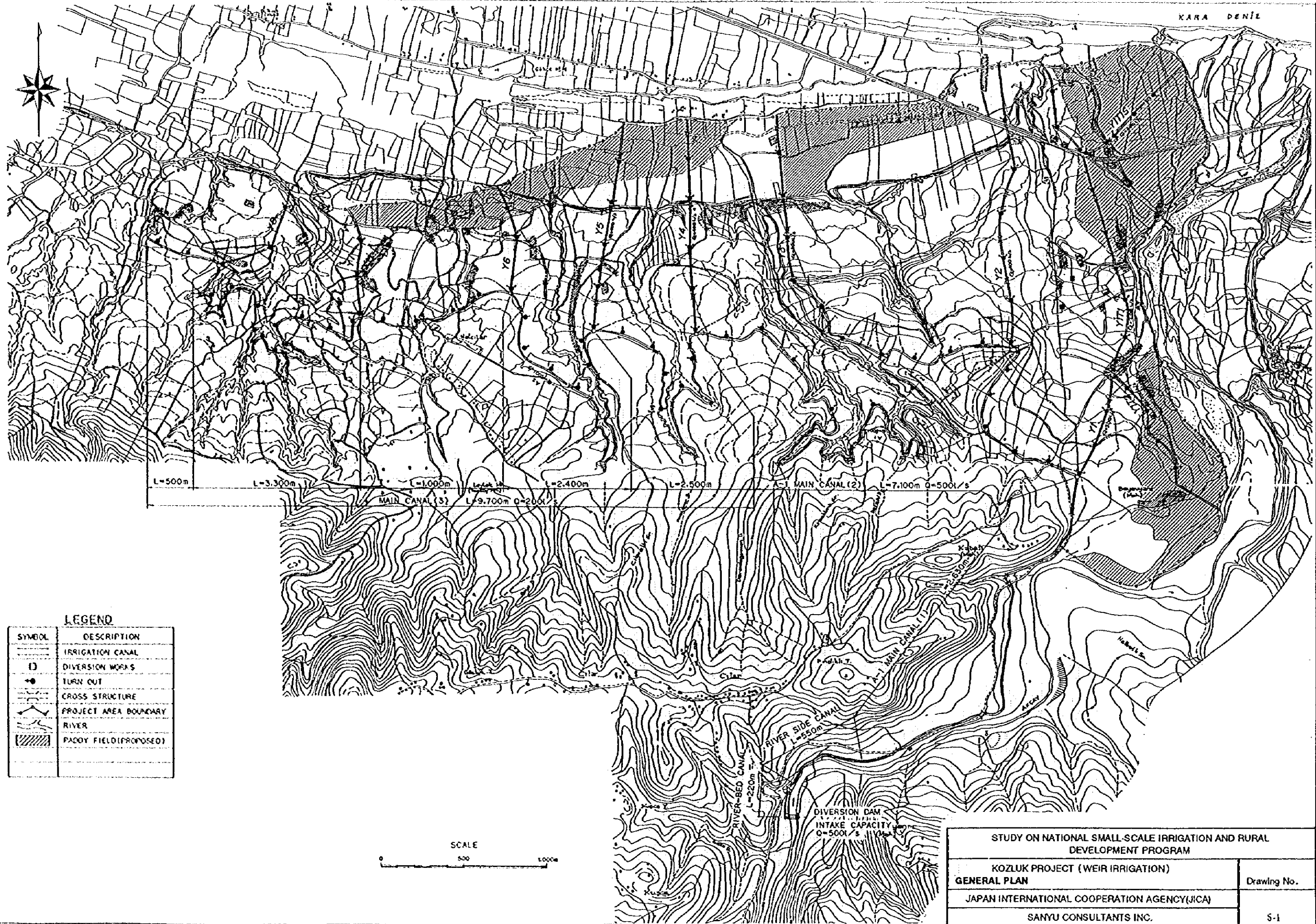
KALESEKISI PROJECT (PUMP IRRIGATION)

GENERAL PLAN

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

SANYU CONSULTANTS INC.

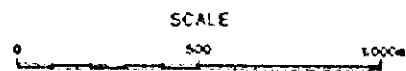
Drawing No. 3



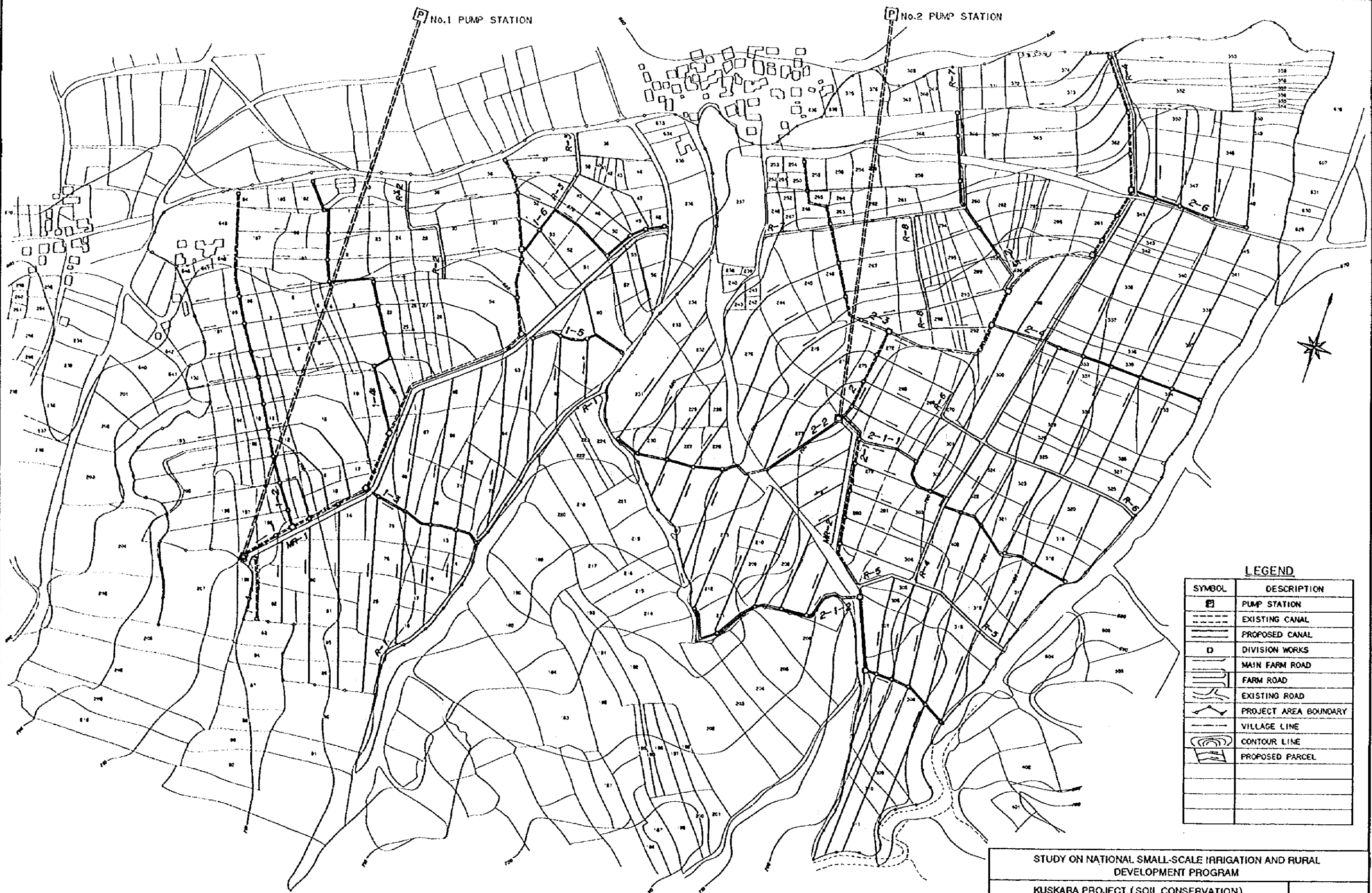
KARA DENIZ

LEGEND

SYMBOL	DESCRIPTION
—	IRRIGATION CANAL
D	DIVERSION WORKS
+	TURN OUT
—	CROSS STRUCTURE
—	PROJECT AREA BOUNDARY
—	RIVER
▨	PADDOY FIELD (PROPOSED)



STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
KOZLUK PROJECT (WEIR IRRIGATION)	
GENERAL PLAN	Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
SANYU CONSULTANTS INC.	
	S-1

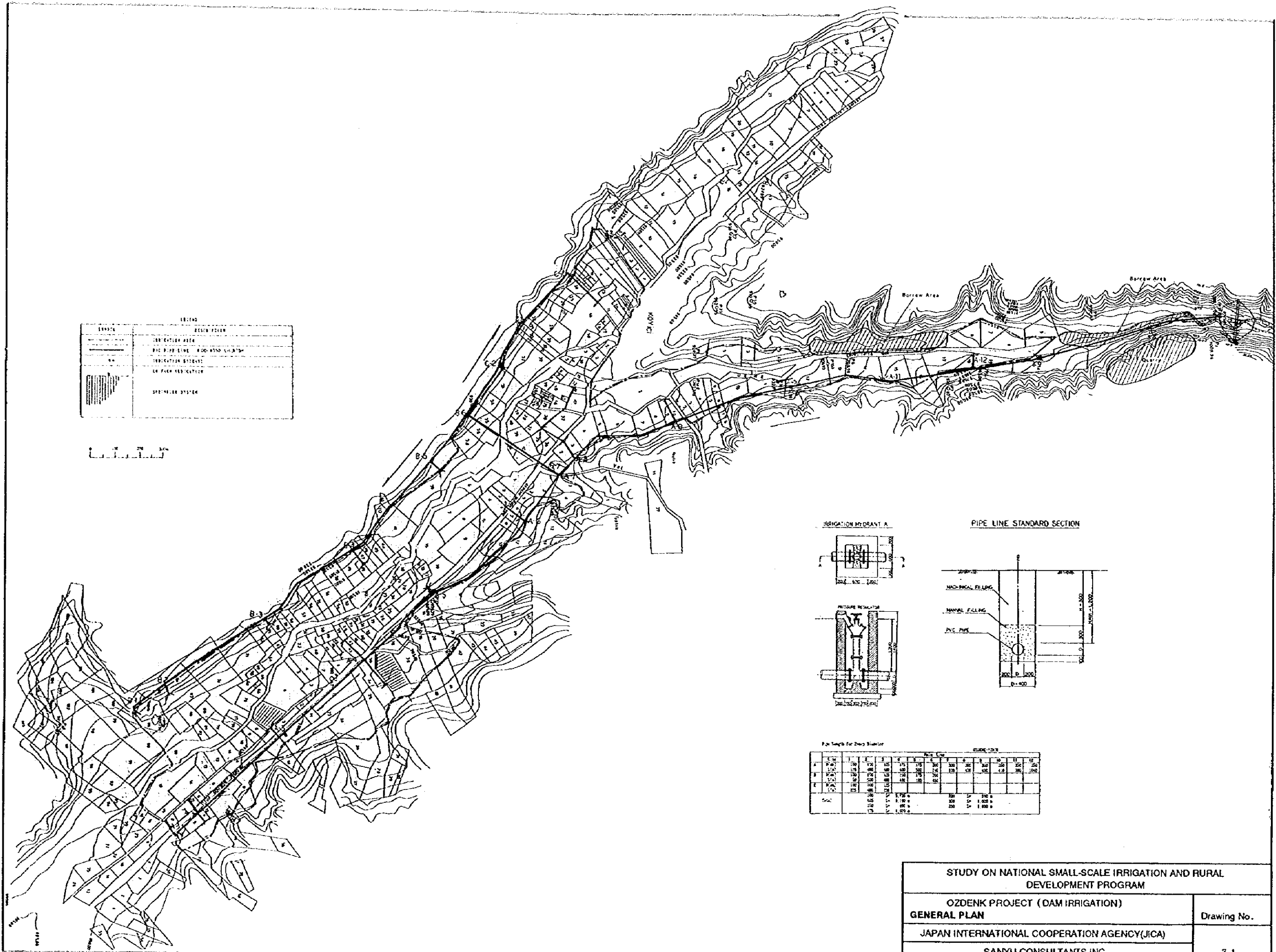


LEGEND

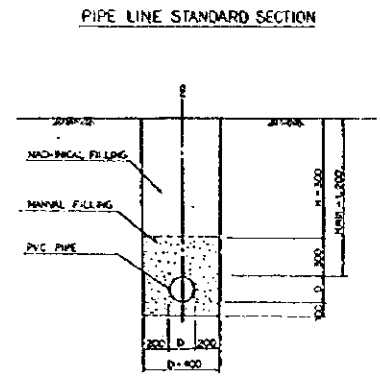
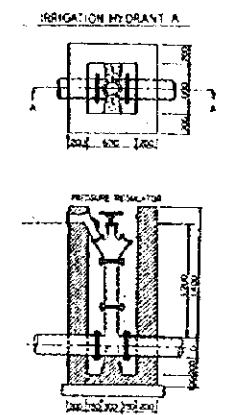
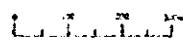
SYMBOL	DESCRIPTION
	PUMP STATION
	EXISTING CANAL
	PROPOSED CANAL
	DIVISION WORKS
	MAIN FARM ROAD
	FARM ROAD
	EXISTING ROAD
	PROJECT AREA BOUNDARY
	VILLAGE LINE
	CONTOUR LINE
	PROPOSED PARCEL

STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
KUSKARA PROJECT (SOIL CONSERVATION)	
GENERAL PLAN	Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)	
SANYU CONSULTANTS INC.	
	6

0 100 200 250m
SCALE 1:2,500



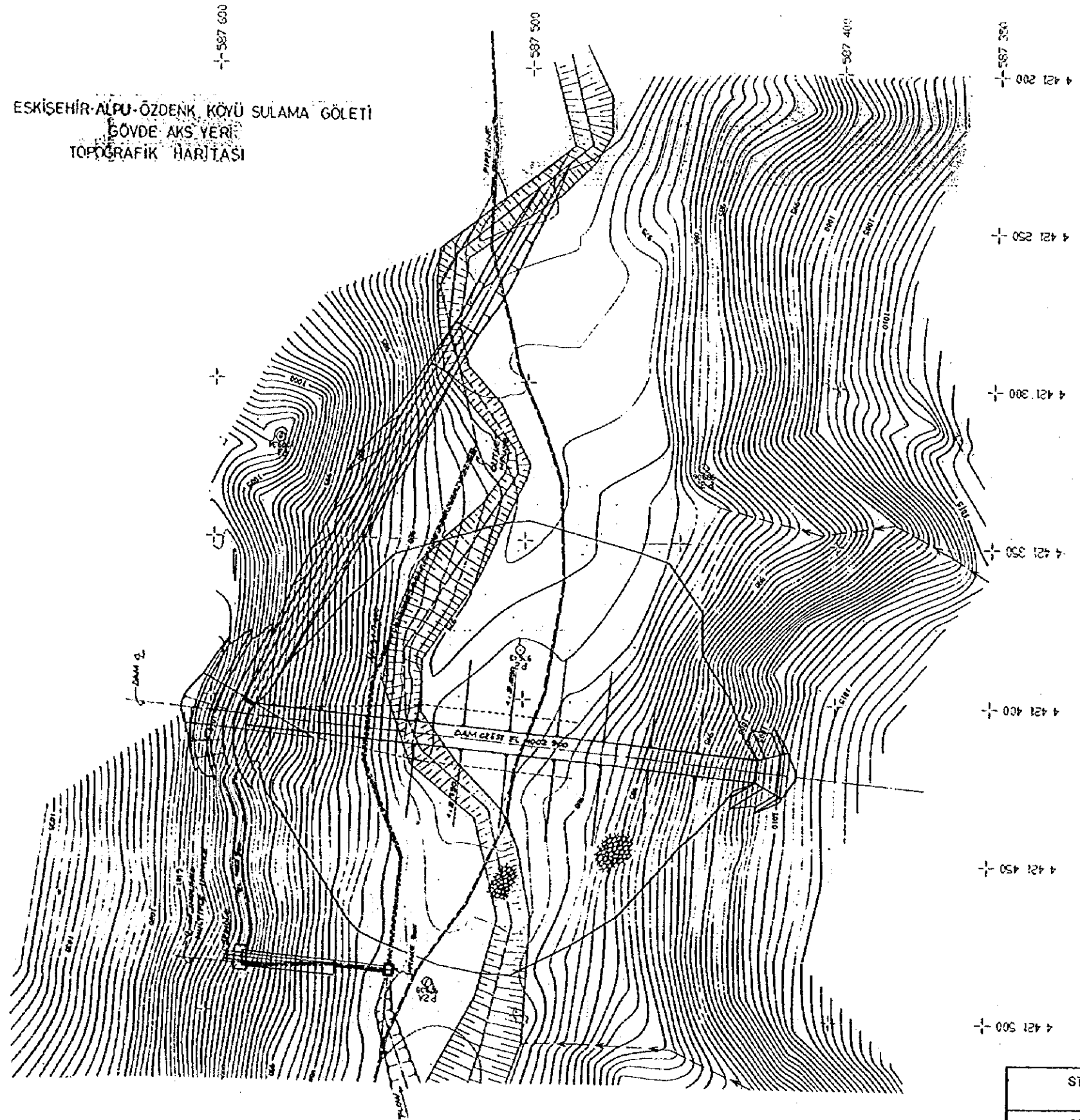
LEGEND	
SYMBOL	DESCRIPTION
[Symbol]	IRRIGATION AREA
[Symbol]	PIE PIPE LINE 400-500-600MM
[Symbol]	IRRIGATION SYSTEM
[Symbol]	ON-FARM IRRIGATION
[Symbol]	SPRINKLER SYSTEM



Pipe Length for Each Station

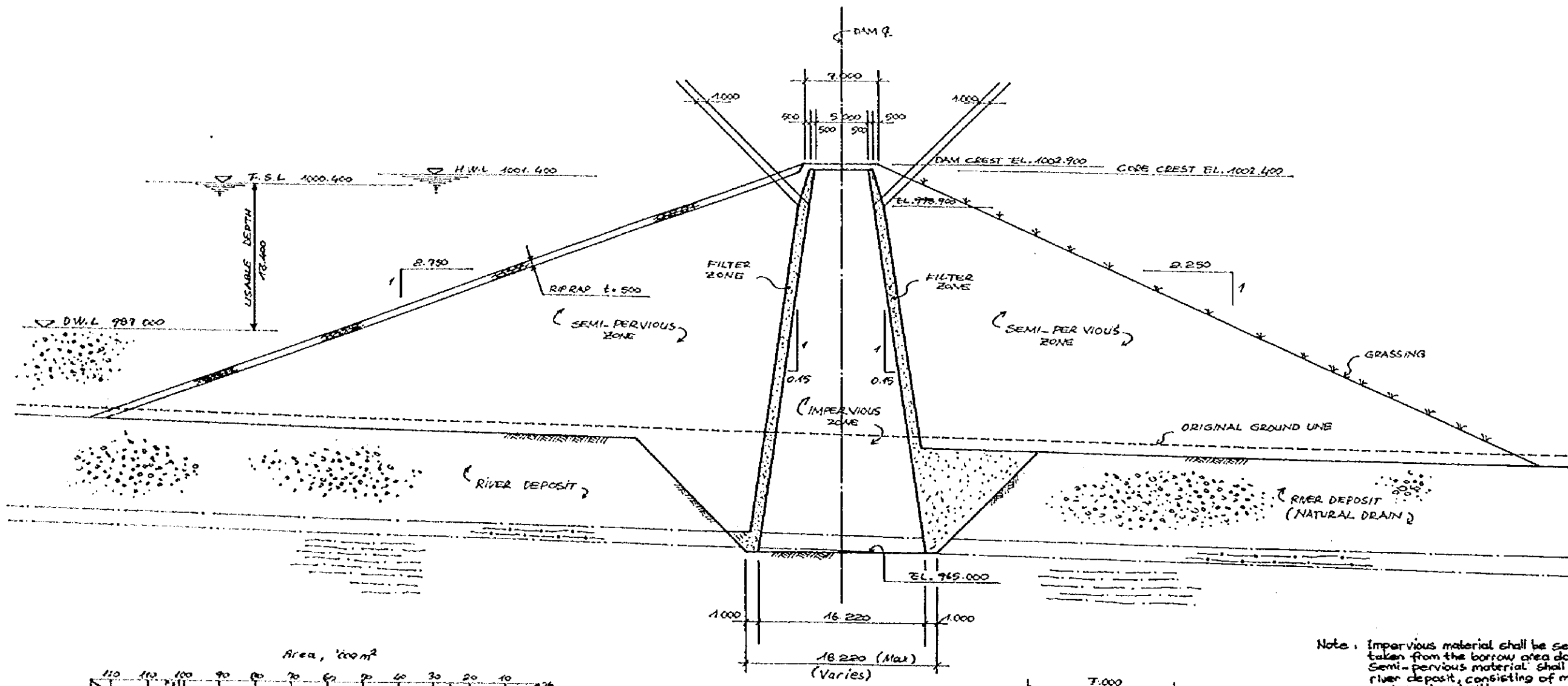
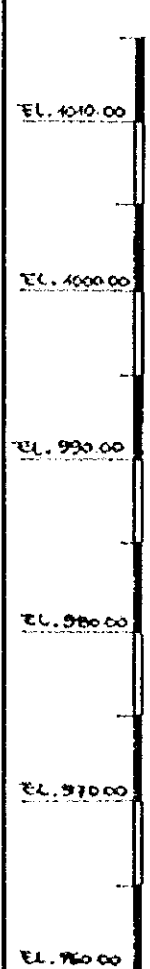
Station	PIPER LINE											
	1	2	3	4	5	6	7	8	9	10	11	12
A	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
B	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
C	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
D	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
E	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
F	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
G	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
H	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
I	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
J	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
K	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
L	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
M	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
N	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
O	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
P	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Q	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
R	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
S	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
T	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
U	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
V	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
W	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
X	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Y	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Z	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
TOTAL	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6

STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
OZDENK PROJECT (DAM IRRIGATION)	
GENERAL PLAN	Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)	
SANYU CONSULTANTS INC.	
	7-1

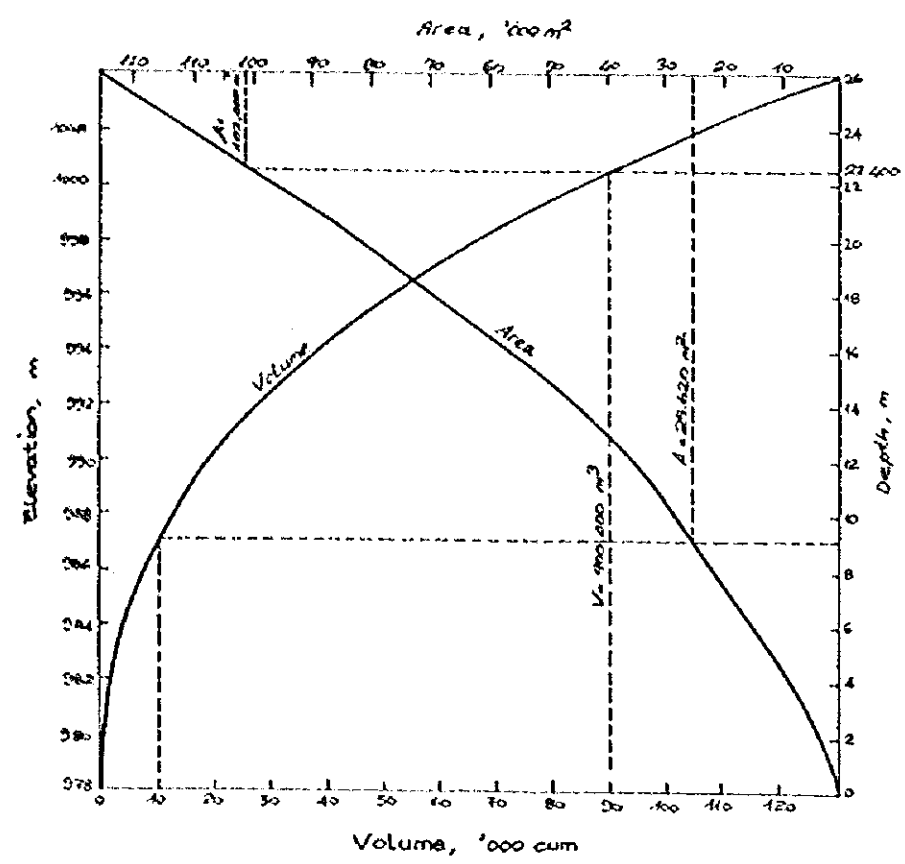


ESKİŞEHİR-ALPU-ÖZDENK KÖYÜ SULAMA GÖLETİ
BÖLGE AKS YERİ
TOPOĞRAFİK HARİTASI

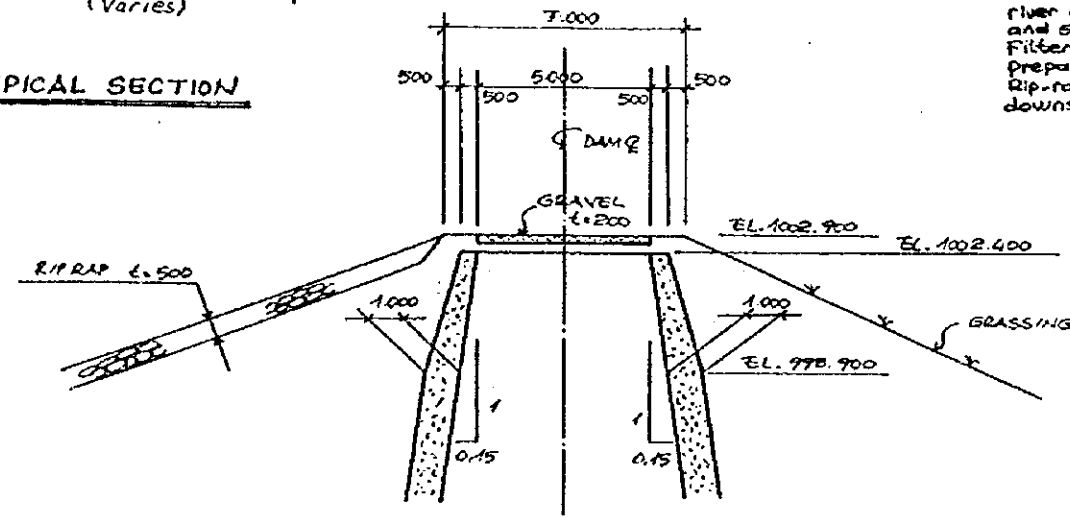
STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
ÖZDENK PROJESİ (DAM İRRİGASYONU) DAM PLANI	Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	7-2
SANYU CONSULTANTS INC.	



Note: Impervious material shall be selectively taken from the borrow area downstream. Semi-pervious material shall be from river deposit, consisting of mainly gravel, and sand and silt. Filter material is to be artificially prepared. Rip-rap material is to be from quarry downstream.



DAM TYPICAL SECTION

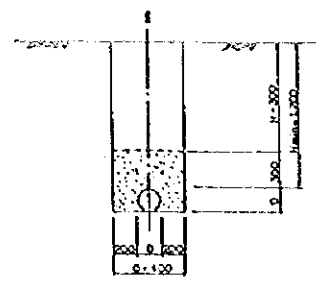


DETAIL OF DAM CREST

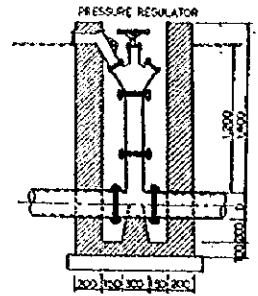
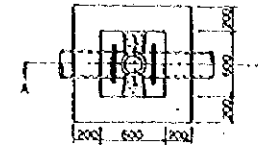
STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
OZDENK PROJECT (DAM IRRIGATION)	
DAM STANDARD SECTION	Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
SANYU CONSULTANTS INC.	
	7-4

Pump Type	Horizontal Shaft Type Multi Stage Volute Pump
Bore (mm)	200
Discharge Quantity (l/s)	130.2
Total Head (m)	51
Electric Motor Output (kw)	72
No. of Pumps (pieces)	2

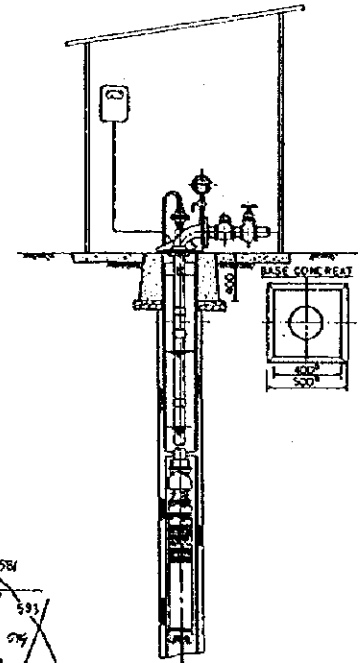
PIPE LINE STANDARD SECTION



IRRIGATION HYDRANT A



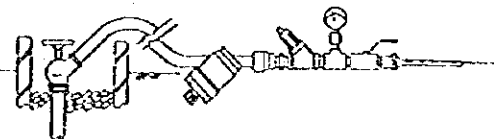
SUBMERGIBLE PUMP STANDARD DRAWING



Pump Type	Submersible Pump-Well Pump
Bore (mm)	150
Discharge Quantity (l/s)	50.0
Total Head (m)	38
Electric Motor Output (kw)	38
No. of Pumps (pieces)	1
Bore (mm)	150
Discharge Quantity (l/s)	40.0
Total Head (m)	38
Electric Motor Output (kw)	32
No. of Pumps (pieces)	1
Bore (mm)	150
Discharge Quantity (l/s)	30.0
Total Head (m)	35
Electric Motor Output (kw)	27
No. of Pumps (pieces)	2
Bore (mm)	125
Discharge Quantity (l/s)	20.0
Total Head (m)	24
Electric Motor Output (kw)	22
No. of Pumps (pieces)	2
Bore (mm)	80
Discharge Quantity (l/s)	30.0
Total Head (m)	48
Electric Motor Output (kw)	10
No. of Pumps (pieces)	1

SYMBOL	DESCRIPTION
(Symbol: Dashed line)	IRRIGATION AREA
(Symbol: Circle with dot)	PUMP (SUBMERGIBLE PUMP-WELL PUMP 150-40/38)
(Symbol: Circle with dot)	PUMP (SUBMERGIBLE PUMP 150-30/35)
(Symbol: Circle with dot)	WATER POND
(Symbol: Dashed line)	CONCRETE PIPE 300-300 1-2.000
(Symbol: Dashed line)	STEEL PIPE 150 1-1.000
(Symbol: Dashed line)	PVC PIPE 150 1-1.000
(Symbol: Circle with dot)	IRRIGATION HYDRANT OR FARM HYDRANT
(Symbol: Dashed line)	PIPE SYSTEM

IRRIGATION HYDRANT B



STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM

ASLANLAR PROJECT (GROUND WATER IRRIGATION)

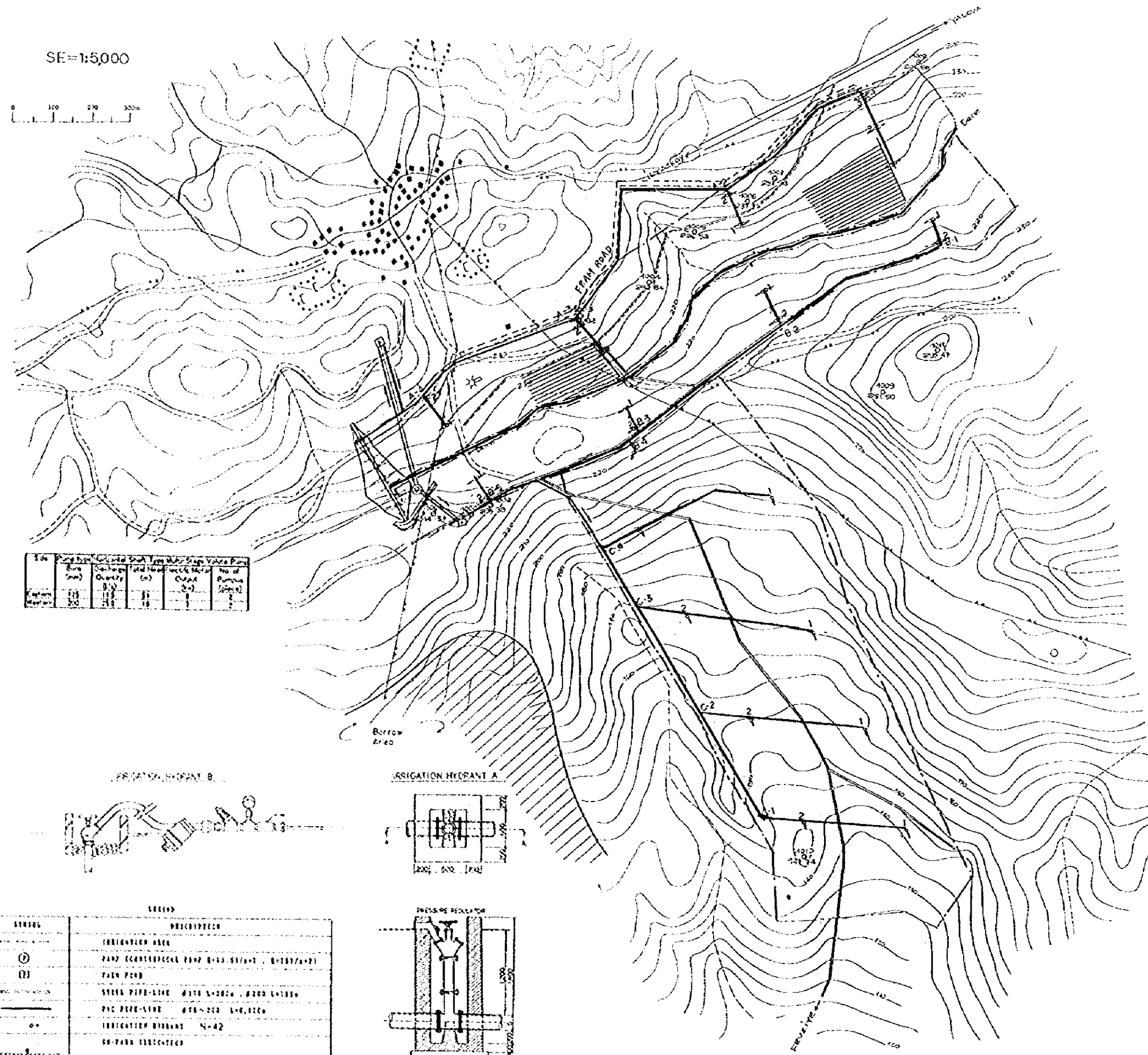
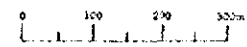
GENERAL PLAN

JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)

SANYU CONSULTANTS INC.

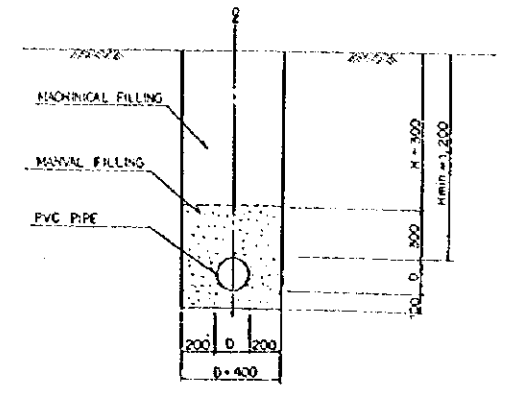
Drawing No.	8
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SE=1:5,000



Line	Flow Rate (lps)	Flow Rate (m ³ /hr)	Flow Rate (m ³ /day)	Flow Rate (m ³ /month)	Flow Rate (m ³ /year)
1	100	2400	72000	2160000	
2	100	2400	72000	2160000	
3	100	2400	72000	2160000	
4	100	2400	72000	2160000	
5	100	2400	72000	2160000	
6	100	2400	72000	2160000	
7	100	2400	72000	2160000	
8	100	2400	72000	2160000	
9	100	2400	72000	2160000	
10	100	2400	72000	2160000	

PIPE LINE STANDARD SECTION



DIAMETER AND LENGTH OF PIPE LINE

Case	Line	Main line							Σ
		1	2	3	4	5	6		
Western Side	A	D(φm)	100	100	125	125			
	L(m)	430	435	640	245			1,750	
Western Side	B	D(φm)	100	100	100	125	200	200	
		L(m)	450	450	85	250	125	100	1,430
	C	D(φm)	150	100	125	150			
		L(m)	310	310	180	225			1,025

Pipe Length for Every Diameter

Line	D(φm)	Secondary line						Total
		1	2	3	4	5	6	
A-1	D(φm)	75	75	75	75	75	75	228
	L(m)	105	100	18				100
A-2	D(φm)	75	75					75
	L(m)	90	85					200
A-3	D(φm)	75	75					75
	L(m)	90	15					105
A-4	D(φm)	75	75					75
	L(m)	90	15					105
B-1	D(φm)	75	75					75
	L(m)	60	5					100
B-2	D(φm)	75	75					75
	L(m)	60	5					75
B-3	D(φm)	75	75					75
	L(m)	60	5					100
B-4	D(φm)	75	75					75
	L(m)	60	5					100
B-5	D(φm)	75	75					75
	L(m)	5	80					100
C-1	D(φm)	75	75					75
	L(m)	220	100					100
C-2	D(φm)	75	75					75
	L(m)	890	215					100
C-3	D(φm)	75	75					75
	L(m)	320	125					100
C-4	D(φm)	75	100					75
	L(m)	360	105					100
Total								75
								100
								105

TOTAL LENGTH FOR EVERY DIAMETER

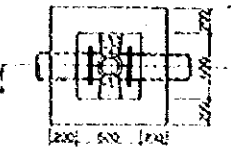
D(φm)	L(m)
75	2,340
100	2,815
125	1,115
150	225
200	225
	6,620

NOTE: Hatched Zone is the Borrow Area for the Dam.

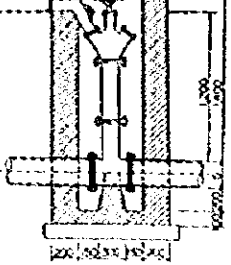
IRRIGATION SYSTEM B



IRRIGATION HYDRANT A



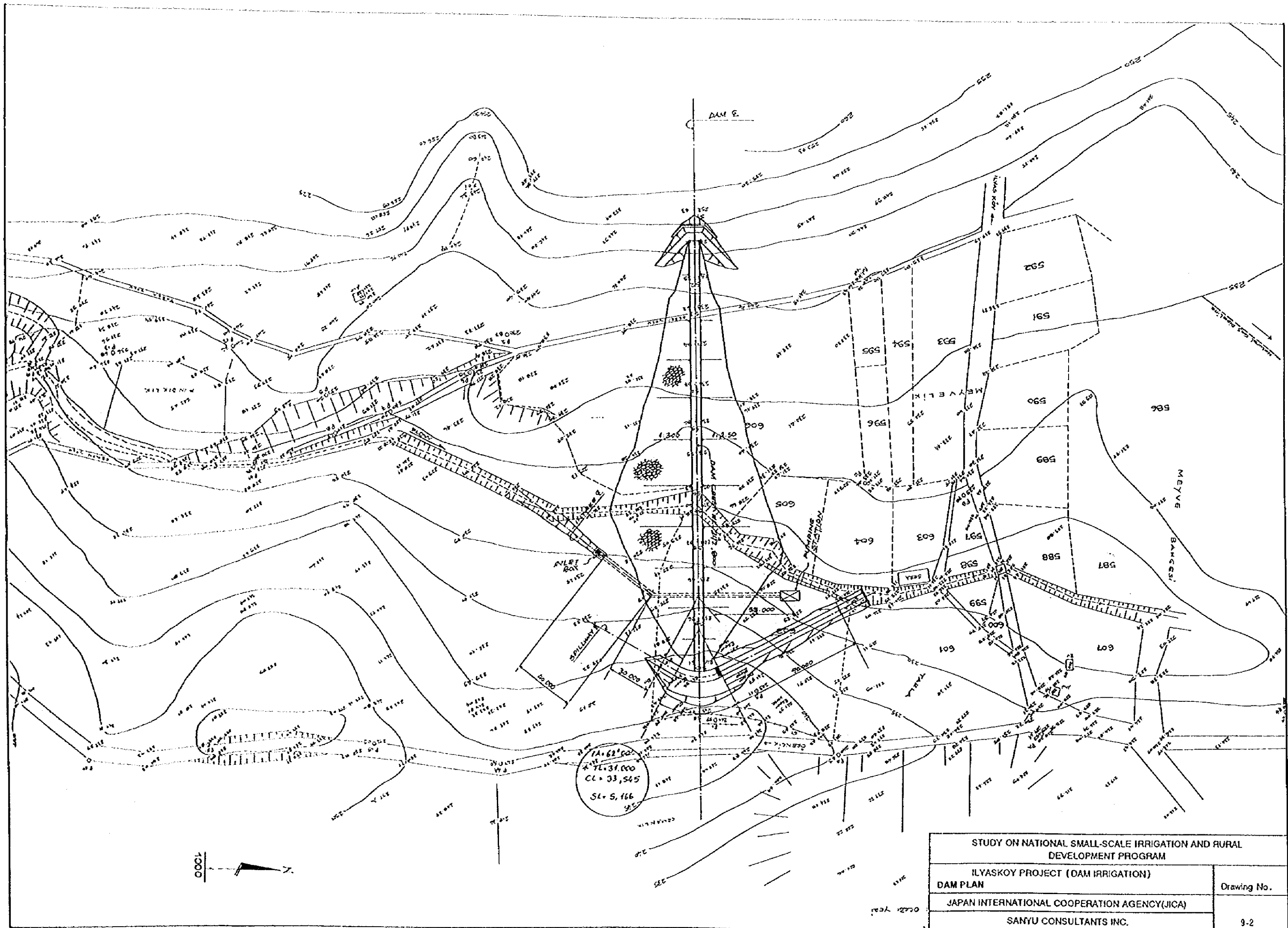
PRESSURE REGULATOR



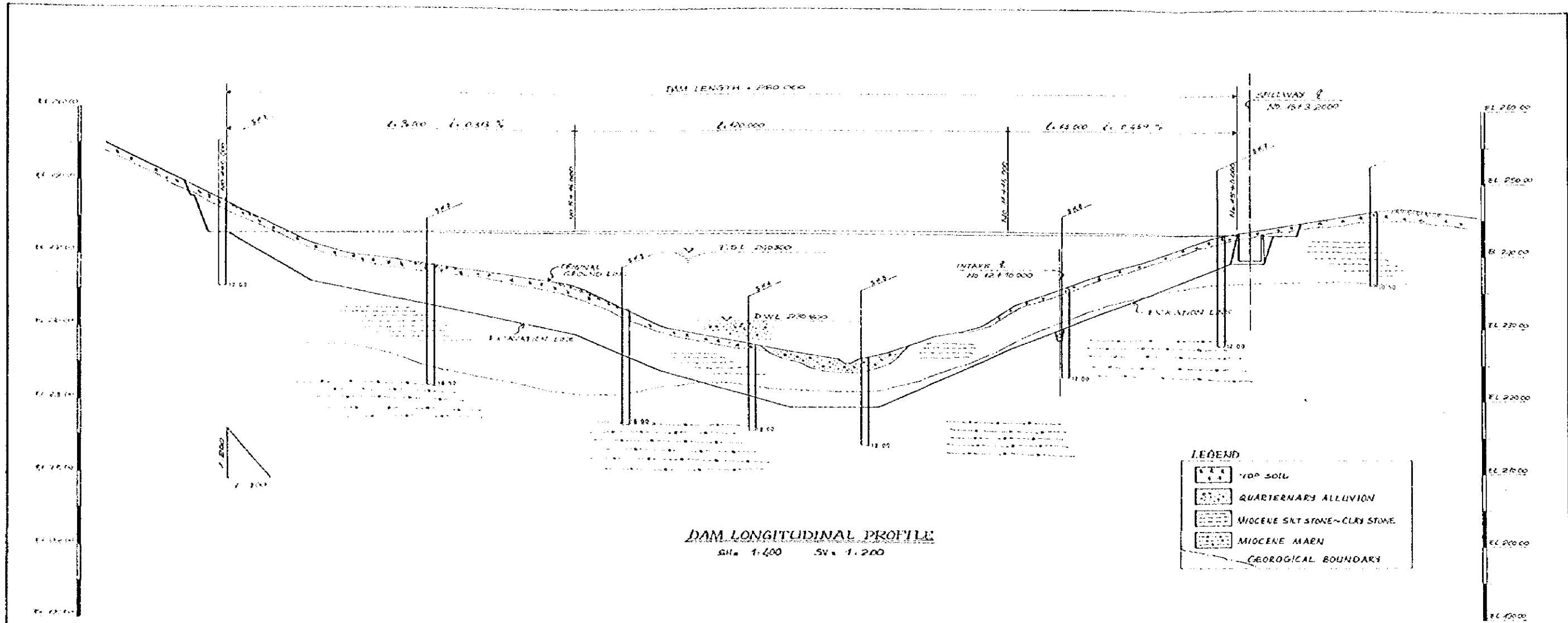
LEGEND

SYMBOL	DESCRIPTION
(1)	IRRIGATION MAIN
(2)	2" HD GALVANIZED PIPE (1.515 x 0.109) (R-101/102)
(3)	2" HD PIPE
(4)	STEEL PIPE (1.515 x 0.109) (R-101/102)
(5)	PVC PIPE (1.515 x 0.109) (R-101/102)
(6)	IRRIGATION HYDRANT N-42
(7)	SP-2000 IRRIGATION
(8)	PIPE SYSTEM OF SPRINKLER DESIGN

STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
ILYASKOY PROJECT (DAM IRRIGATION)	
GENERAL PLAN	Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)	
SANYU CONSULTANTS INC.	9-1



STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
ILYASKOY PROJECT (DAM IRRIGATION)	
DAM PLAN	Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)	
SANYU CONSULTANTS INC.	
	9-2



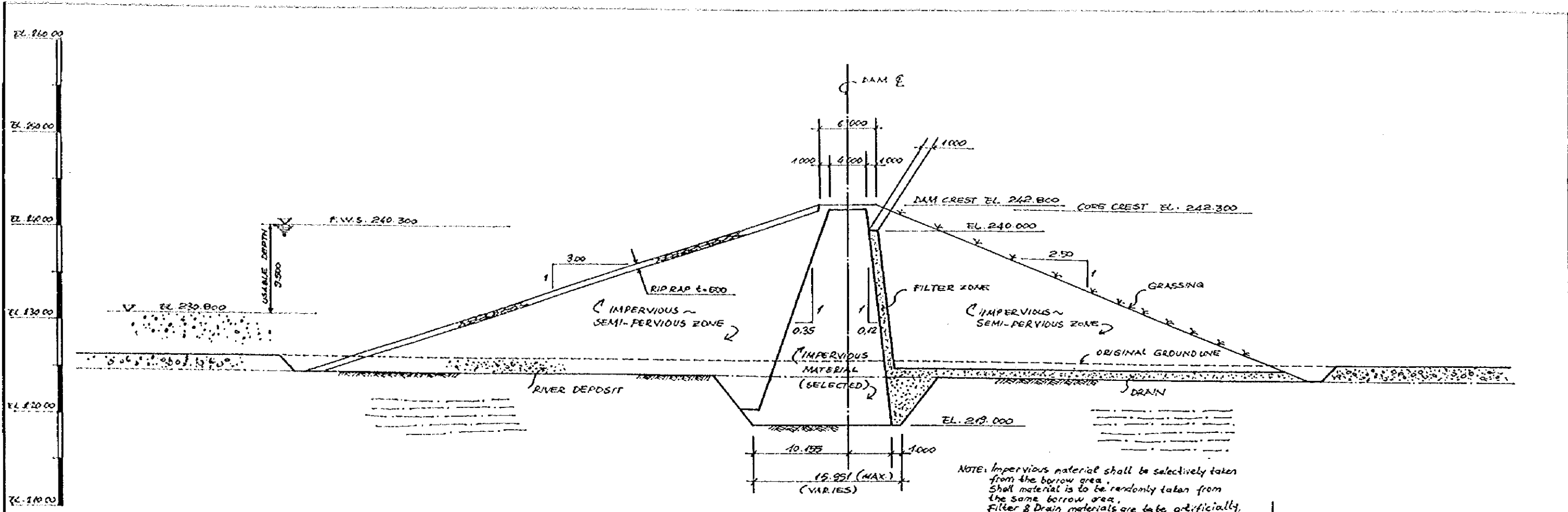
DAM LONGITUDINAL PROFILE
SH = 1:400 SV = 1:200

LEGEND

[Symbol]	TOP SOIL
[Symbol]	QUATERNARY ALLUVION
[Symbol]	MIOCENE SILT STONE-CLAY STONE
[Symbol]	MIOCENE MAEN
[Symbol]	GEOLOGICAL BOUNDARY

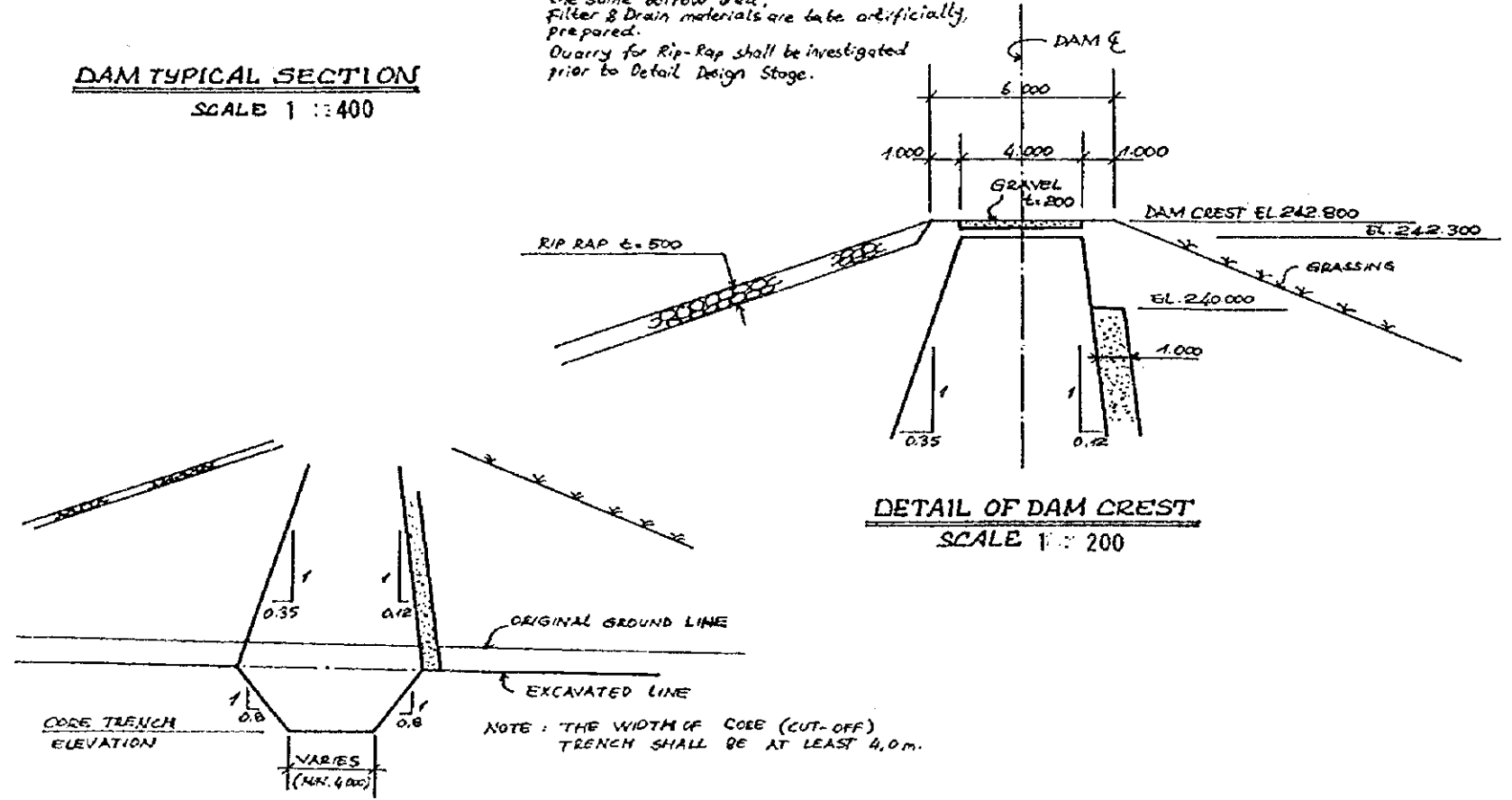
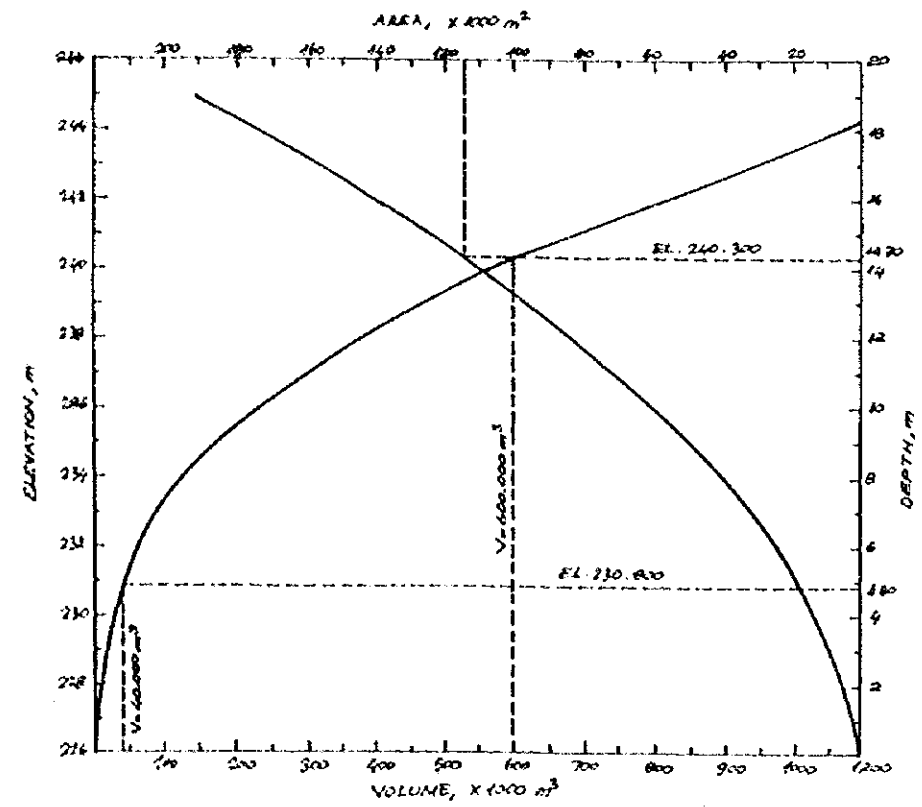
STATION NO.	ORIGINAL ELEVATION, M	EL. TO BE CALCULATED, M	CROSS-SECTION ELEVATION, M	DISTANCE, M	ACCUMULATED DISTANCE, M
1+000	215.00	215.00	215.00	0.00	0.00
1+050	212.00	212.00	212.00	50.00	50.00
1+100	210.00	210.00	210.00	100.00	100.00
1+150	208.00	208.00	208.00	150.00	150.00
1+200	206.00	206.00	206.00	200.00	200.00
1+250	204.00	204.00	204.00	250.00	250.00
1+300	202.00	202.00	202.00	300.00	300.00
1+350	200.00	200.00	200.00	350.00	350.00
1+400	198.00	198.00	198.00	400.00	400.00
1+450	196.00	196.00	196.00	450.00	450.00
1+500	194.00	194.00	194.00	500.00	500.00
1+550	192.00	192.00	192.00	550.00	550.00
1+600	190.00	190.00	190.00	600.00	600.00
1+650	188.00	188.00	188.00	650.00	650.00
1+700	186.00	186.00	186.00	700.00	700.00
1+750	184.00	184.00	184.00	750.00	750.00
1+800	182.00	182.00	182.00	800.00	800.00
1+850	180.00	180.00	180.00	850.00	850.00
1+900	178.00	178.00	178.00	900.00	900.00
1+950	176.00	176.00	176.00	950.00	950.00
2+000	174.00	174.00	174.00	1000.00	1000.00

DEVELOPMENT PROGRAM	
ILYASKOY PROJECT (DAM IRRIGATION)	
DAM LONGITUDINAL SECTION	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
SANYU CONSULTANTS INC.	
Drawing No.	9-3

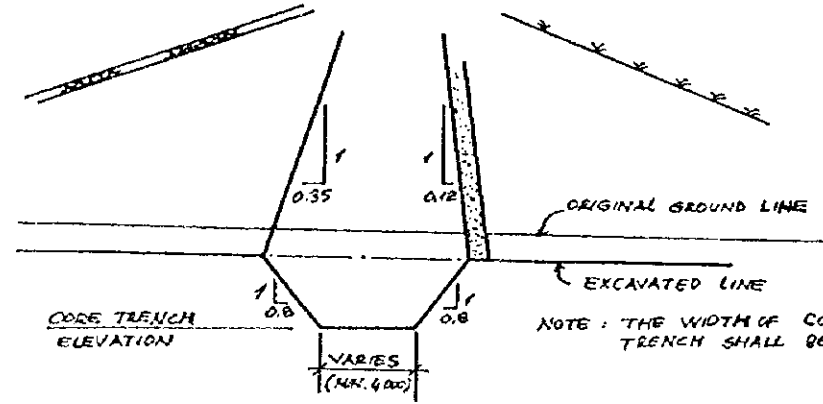


DAM TYPICAL SECTION
SCALE 1 : 400

NOTE: Impervious material shall be selectively taken from the borrow area. Shell material is to be randomly taken from the same borrow area. Filter & Drain materials are to be artificially prepared. Quarry for Rip-Rap shall be investigated prior to Detail Design Stage.



DETAIL OF DAM CREST
SCALE 1 : 200



ABUTMENT CORE TRENCH
NON SCALE

STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
ILYASKOY PROJECT (DAM IRRIGATION)	Drawing No.
DAM STANDARD SECTION	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
SANYU CONSULTANTS INC.	9-4

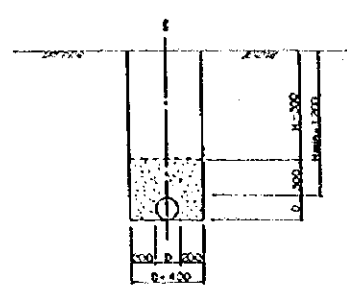
DIAMETER AND LENGTH OF PIPE-LINE FOR EVERY PUMP AREA

PUMP NO.	D (mm)	Main Line												Other Lines													
		1	2	3	4	5	6	7	8	9	10	11	12	A	B	C	D	E	F	G	H	I	J	K	L	M	N
12945	100	85	95	150	350	70	40	80	70	30	40	125	125	150	150	150	150	150	150	150	150	150	150	150	150	150	150
12946	100	105	215	90	150	70	200																				
12947	100	0.3	0.82	0.48																							
12948	100	210	90	135	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130

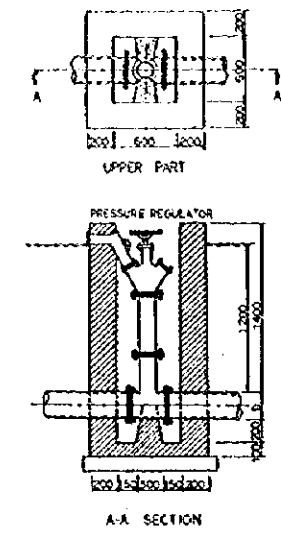
TOTAL LENGTH FOR EVERY DIAMETER

D (mm)	L (m)
100	8,445
125	420
150	385
225	1250

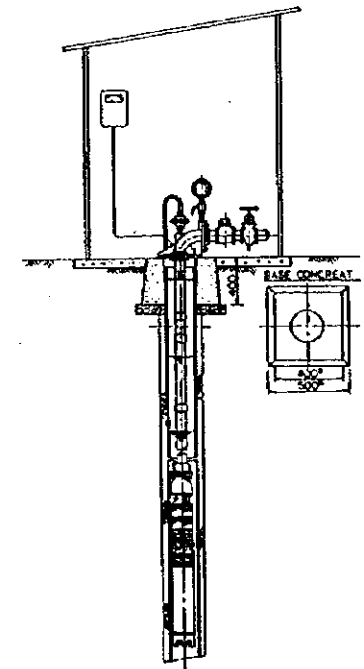
PIPE LINE STANDARD SECTION



IRRIGATION HYDRANT, A



SUBMERSIBLE PUMP STANDARD DRAWING

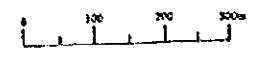


Bore (mm)	Discharge Quantity (l/s)	Total Head (m)	Electric Motor Output (hp)	No. of Pumps (sets)
150	50.0	128	78	4



LEGEND

SYMBOL	DESCRIPTION
	IRRIGATION AREA
	PUMP & SUBMERSIBLE DEEP-WELL PUMP 150/100/21
	100 PIPE-LINE 4-W. 100m
	IRRIGATION HYDRANT 100
	SPRINKLER SYSTEM



STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM	
K. KARISTIRAN PROJECT (GROUND WATER IRRIGATION)	
GENERAL PLAN	Drawing No.
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
SANYU CONSULTANTS INC.	
	10

JICA