

No. 02

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

IRRIGATION AND POWER DEPARTMENT
GOVERNMENT OF PUNJAB
THE ISLAMIC REPUBLIC OF PAKISTAN

THE STUDY
ON
THE LINING OF DISTRIBUTARIES AND MINORS
IN
PUNJAB
IN
THE ISLAMIC REPUBLIC OF PAKISTAN

Volume IV

DRAWINGS

JULY 1997

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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**IRRIGATION AND POWER DEPARTMENT
GOVERNMENT OF PUNJAB
THE ISLAMIC REPUBLIC OF PAKISTAN**

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ON
THE LINING OF DISTRIBUTARIES AND MINORS
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IN
THE ISLAMIC REPUBLIC OF PAKISTAN**

Volume IV

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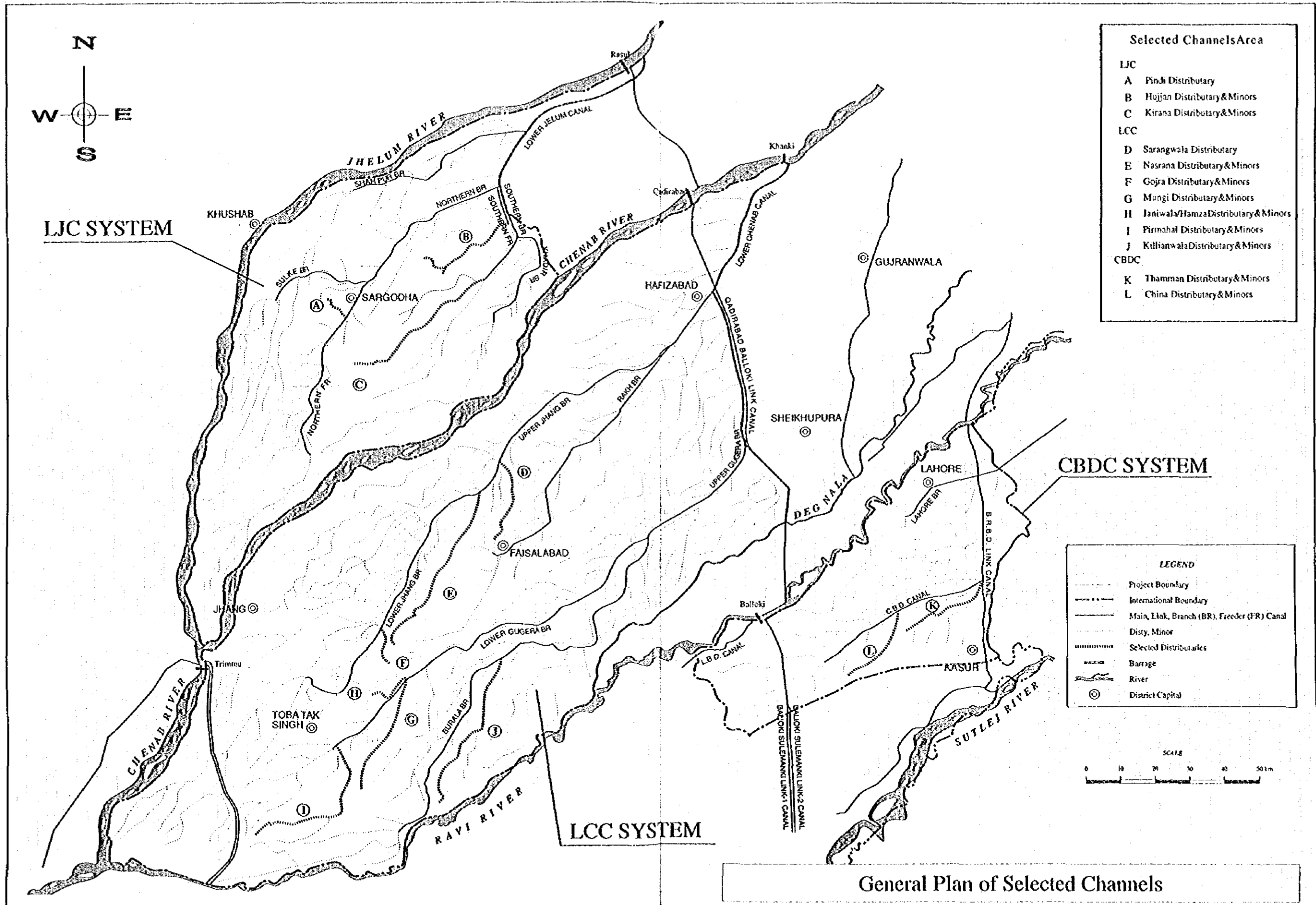
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LIST OF DRAWINGS

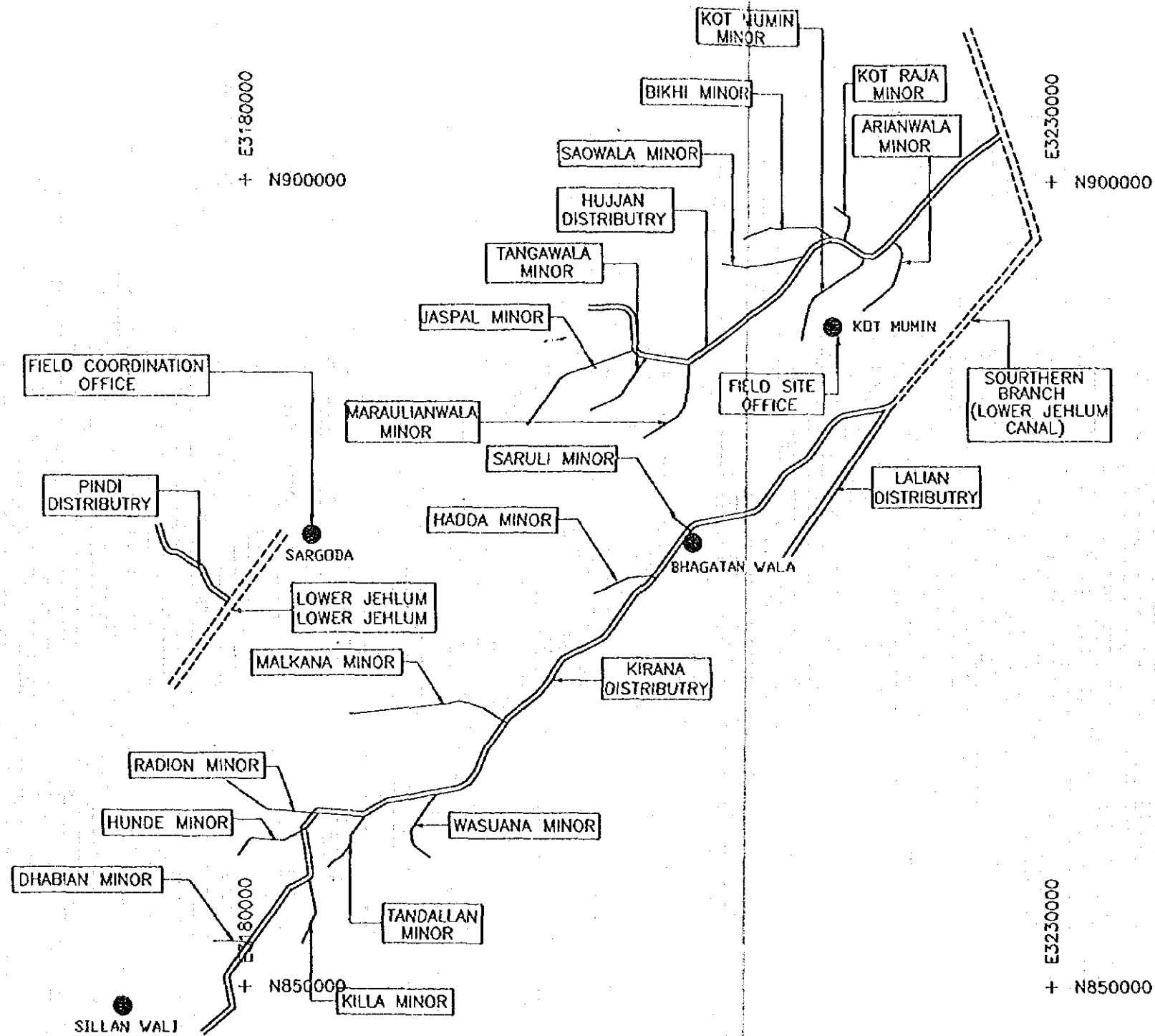
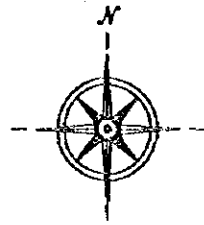
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1137396(6)



THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB CANAL SYSTEM LOWER JHELUM (LJC)



LEGEND

MAIN CANAL	-----
DISTRIBUTRY	=====
MINOR	-----
CITY / TOWN	●

LIST OF DISTRIBUTARIES AND MINORS

S. No	Distributry	Minor
1	Pindi	
2	Hujjon	
3		Arianwala
4		Bhikhi
5		Jospal
6		Kot Mumin
7		Kot Rojo
8		M. Wala
9		Sohawoi
10		Tangu
11	Kirana	
12		Dhabian
13		Hadda
14		Hunde
15		Killa
16		Malkana
17		Rodion
18		Sarubi
19		Tandallon
19		Wasuana

KEY MAP
SCALE 1:35000

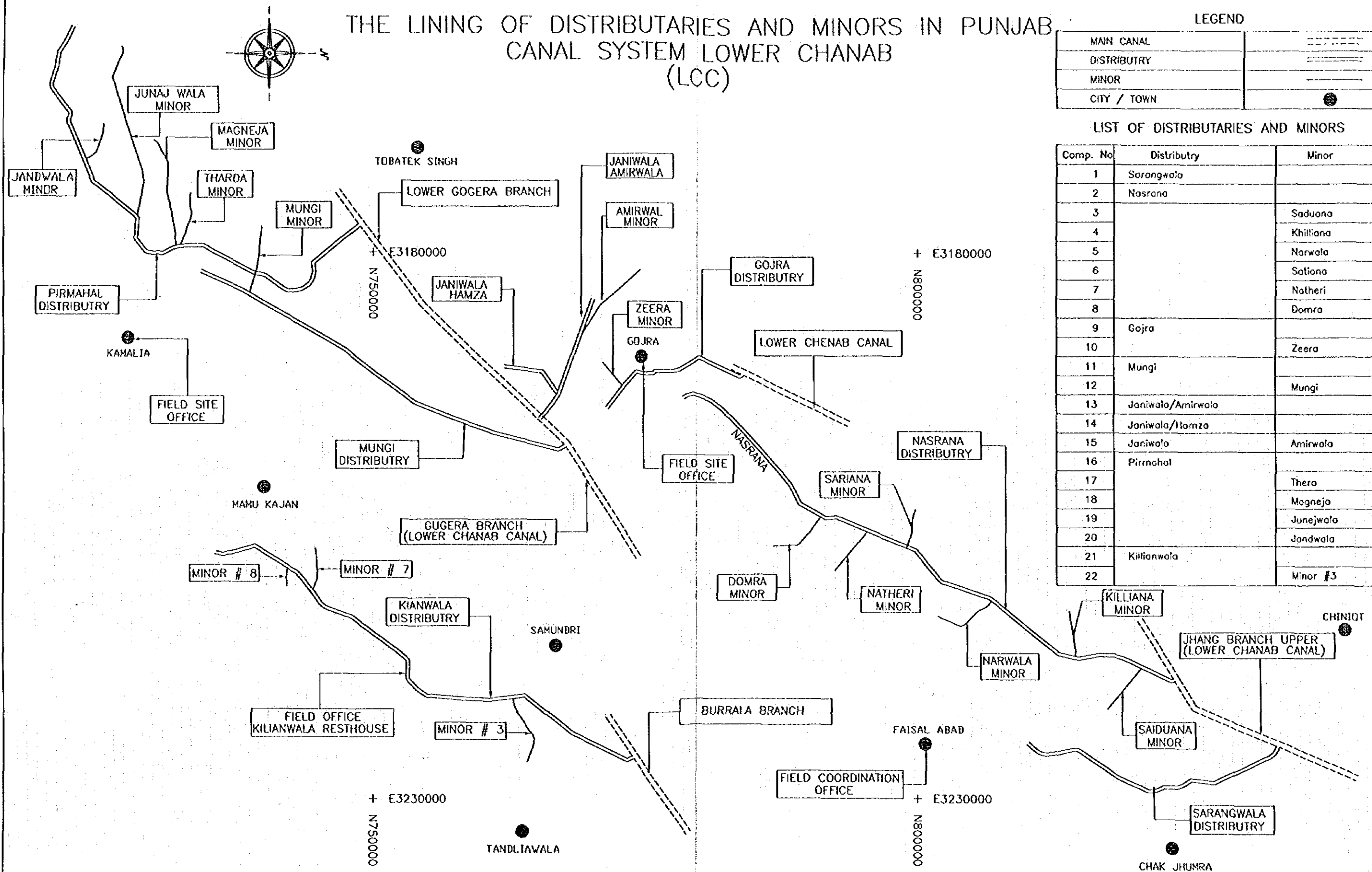
THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB CANAL SYSTEM LOWER CHANAB (LCC)

LEGEND

MAIN CANAL	-----
DISTRIBUTARY	-----
MINOR	-----
CITY / TOWN	●

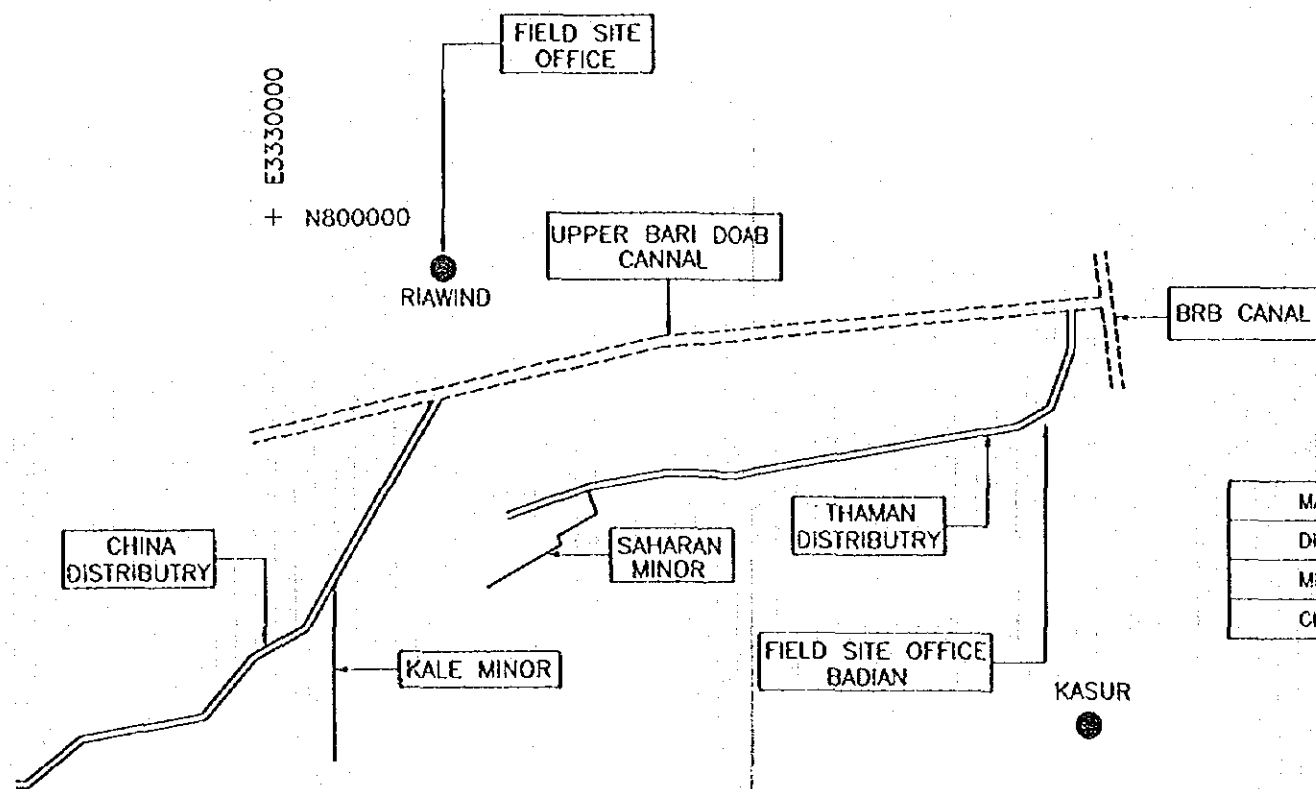
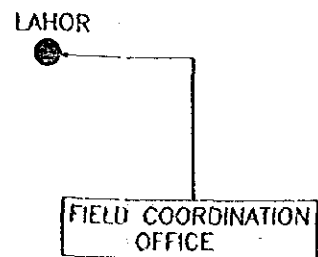
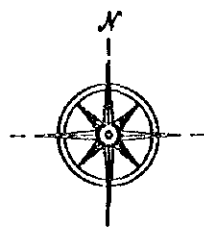
LIST OF DISTRIBUTARIES AND MINORS

Comp. No.	Distributry	Minor
1	Sarangwala	
2	Nasrana	
3		Saduona
4		Khiltiana
5		Narwala
6		Satiaona
7		Natheri
8		Domra
9	Gojra	
10		Zeera
11	Mungi	
12		Mungi
13	Janiwala/Amirwala	
14	Janiwala/Hamza	
15	Janiwala	Amirwala
16	Pirmahal	
17		Thera
18		Magnejo
19		Junejwala
20		Jandwala
21	Kiltianwala	
22		Minor #3



KEY MAP
SCALE 1:35000

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB CANAL SYSTEM CENTRAL BARI DOAB (CBDC)



E3380000
+ N800000

E3330000
+ N800000

LEGEND

MAIN CANAL	
DISTRIBUTARY	
MINOR	
CITY / TOWN	

LIST OF DISTRIBUTARIES AND MINORS

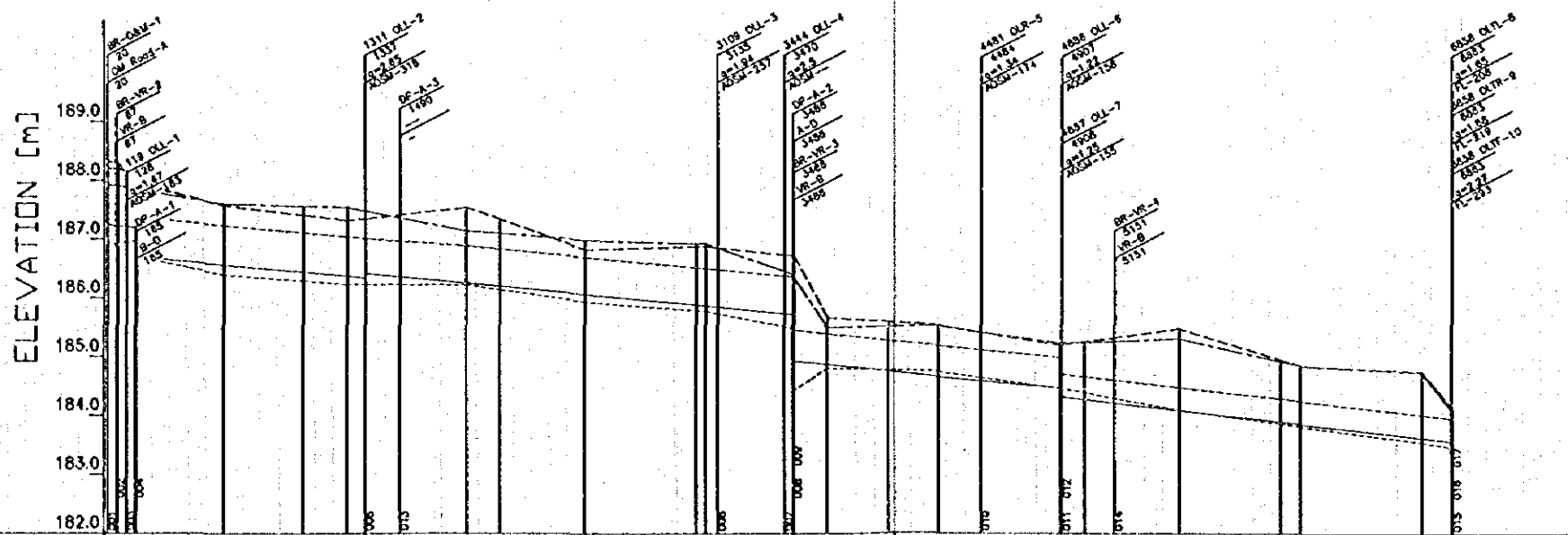
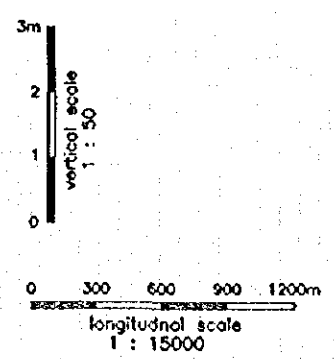
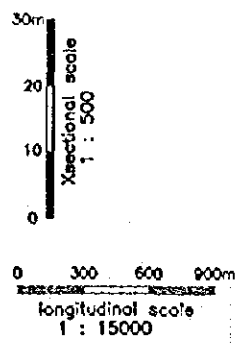
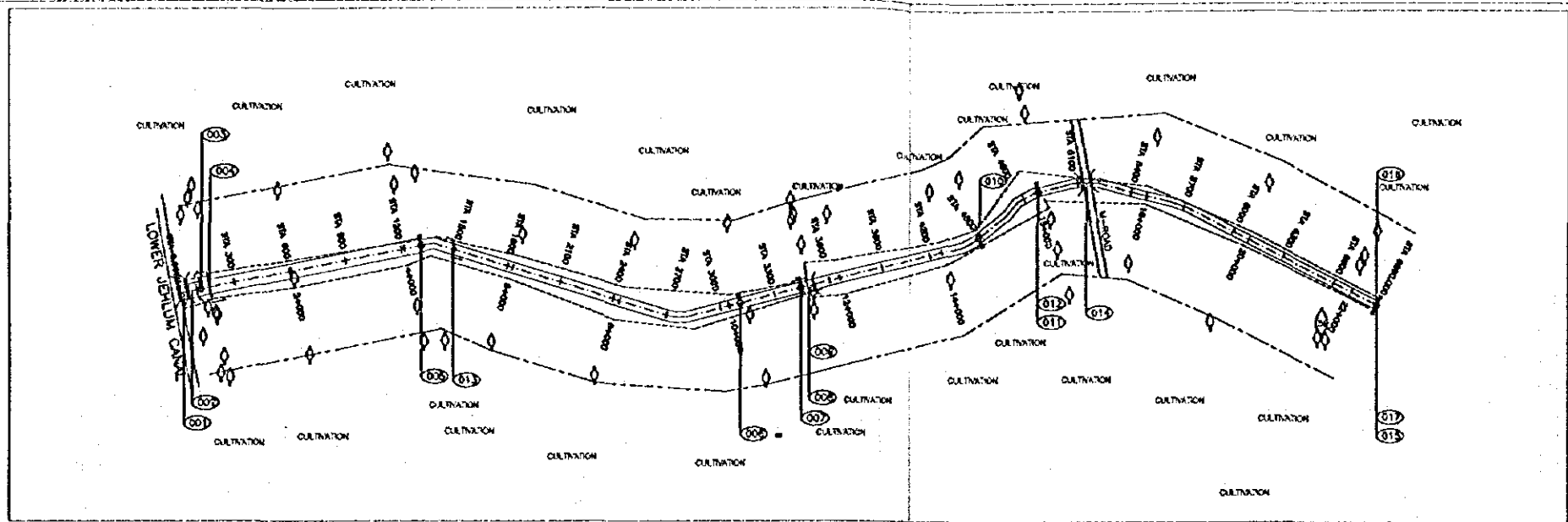
S. No	Distributry	Minor
1	Thamman	
2		Saharan
3	China	
4		Kale

KEY MAP
SCALE 1:35000

E3330000
+ N750000

E3380000
+ N750000

DESCRIPTION	SYMBOLS
WATER COURSE (with RD mark)	
REGULATOR	
AQUEDUCT	
BRIDGE	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M)	
ROAD BRIDGE	
TUNNEL / CHAUVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIPHON	
OUTLET LEFT (OL)	
OUTLET RIGHT (OR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL)	
STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F.S.L.	
DESIGN BED LEVEL	
M.S.L. RIGHT	
M.S.L. LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled; unmetalled; cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree Jungle	
Graves, Grass	
DISCHARGE (cumec)	Q
OUTLET DISCHARGE (cumec)	q
BED WIDTH	B
ROUGHNESS COEFFICIENT	n
VELOCITY	V
CANAL COMMAND AREA	CCA
BED SLOPE	S
SIDE SLOPE	s
WATER DEPTH	Y
FREE BOARD	Frb
TAIL LEFT	TL
TAIL RIGHT	TR
TAIL FRONT	TF



EXISTING DATA	DESIGN DATA			
	Section 1	Section 2	Section 3	Section 4
DESIGNED FULL SUPPLY LEVEL	188.7	187.5	186.5	185.5
DESIGNED BED LEVEL	186.5	185.5	184.5	183.5
DISTANCE (m)	0-1000	1000-2000	2000-3000	3000-4000
STATION (m)	0+000	1+000	2+000	3+000
LATEST FULL SUPPLY LEVEL	188.7	187.5	186.5	185.5
N S L RIGHT	188.7	187.5	186.5	185.5
N S L LEFT	188.7	187.5	186.5	185.5
BED LEVEL	186.5	185.5	184.5	183.5
RIGHT OF WAY LEFT (ft)	188.7	187.5	186.5	185.5
RIGHT OF WAY RIGHT (ft)	188.7	187.5	186.5	185.5
R.D. (ft)	188.7	187.5	186.5	185.5

REVISION	NO.	DATE	BY	APPROVED
A				
B				
C				
D				

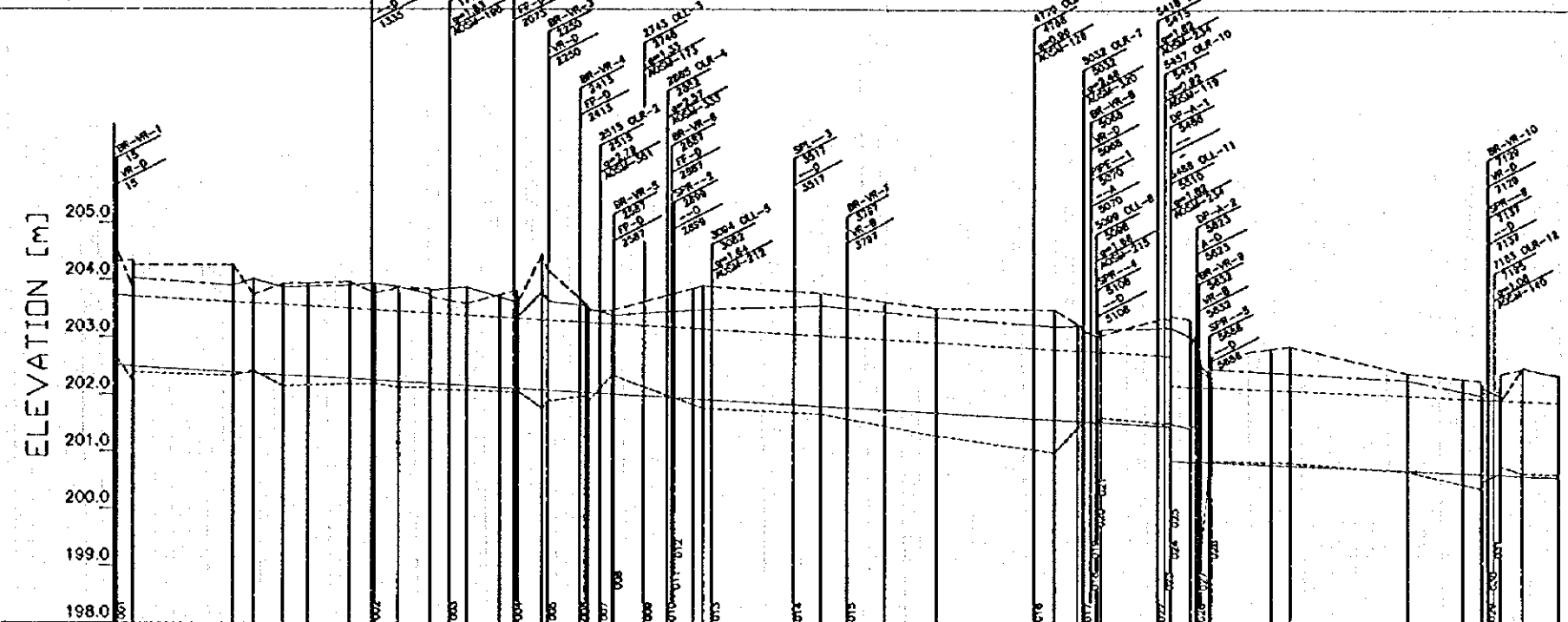
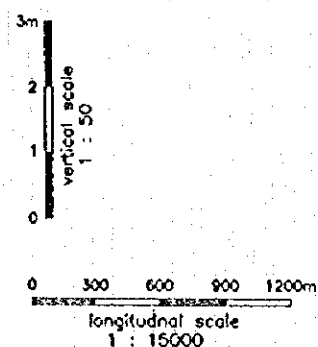
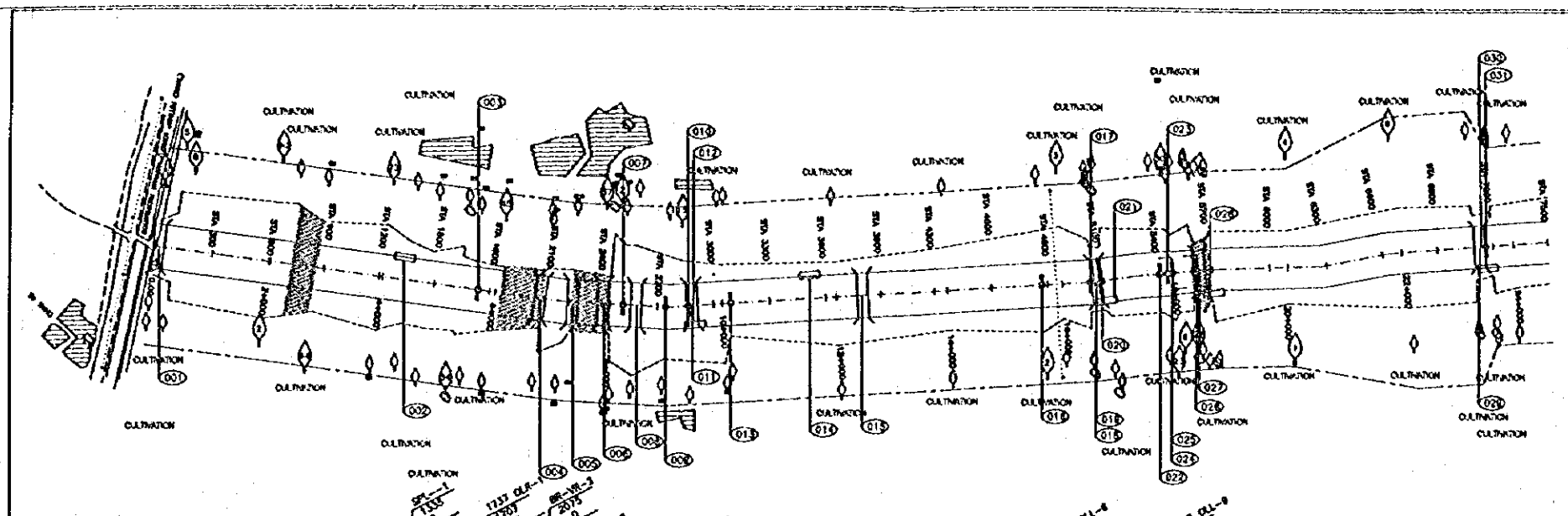
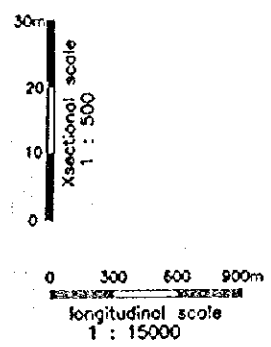
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY : PINDI
MINOR : -

FROM STA 000 (0+000) TO : 6862 (22+507)

JAPAN INTERNATIONAL COOPERATION AGENCY LJC-1



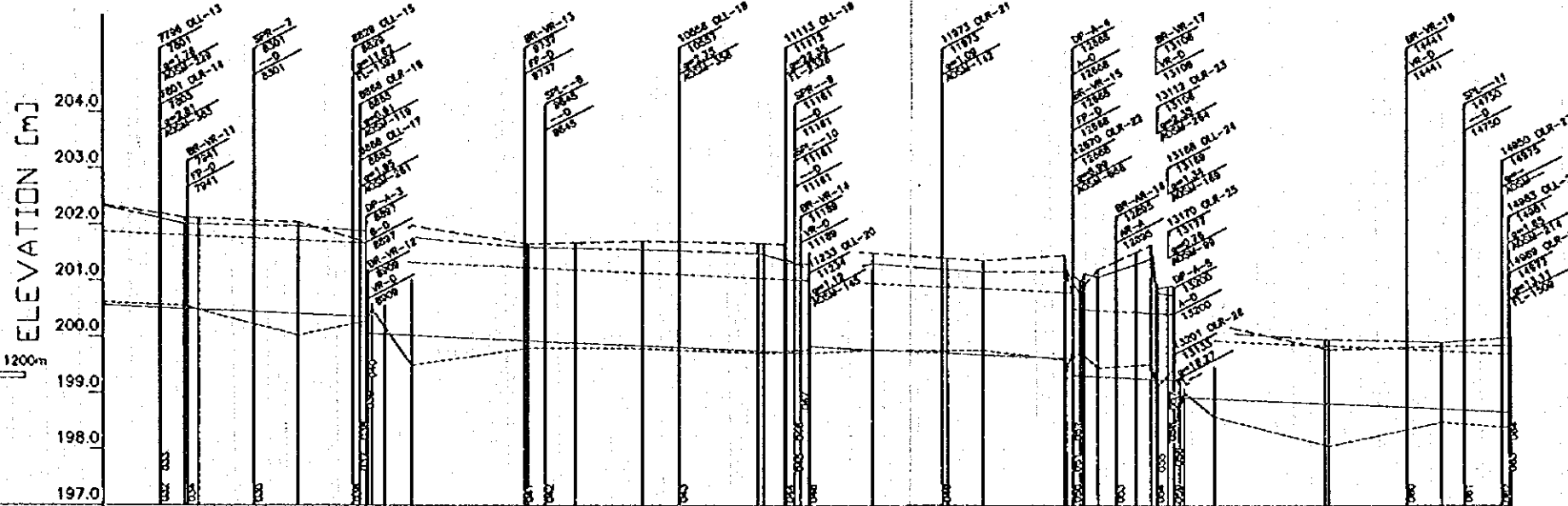
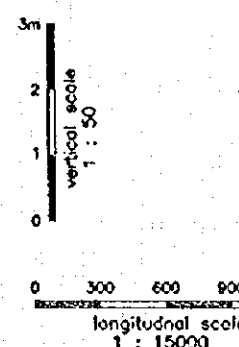
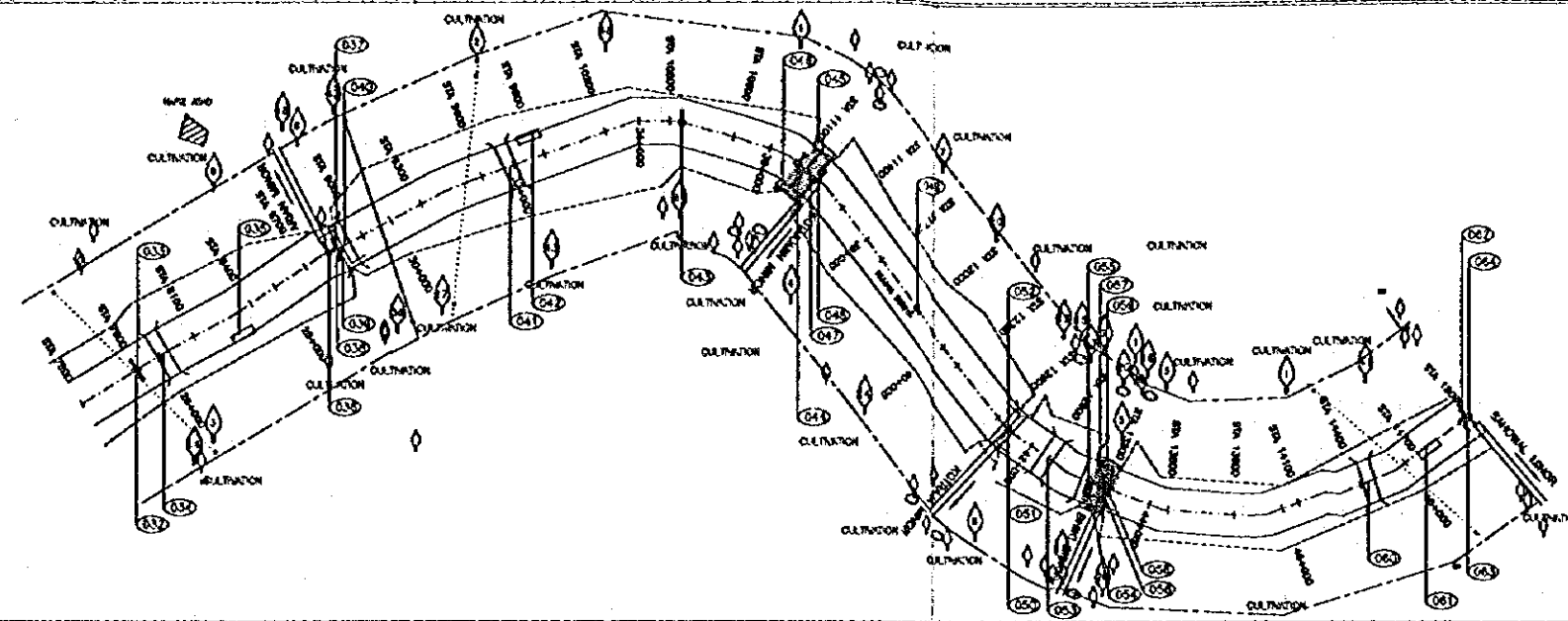
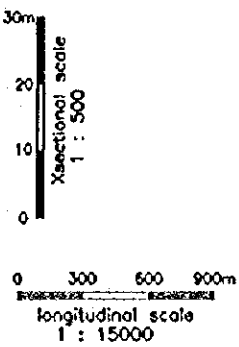
DESCRIPTION	SYMBOLS
WATER COURSE (with RD mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (OR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M) ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIFON	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OUR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL)	
STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Mosque, Mosque, Tomb	
Road: metalled; unmetalled; cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Grass, Grass	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
SED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SIDE SLOPE z	
WATER DEPTH y	
FREE BOARD Frb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

EXISTING DATA DESIGN PROPERTIES

	Section 1										Section 2									
DESIGNED FULL SUPPLY LEVEL	[Data]										[Data]									
DESIGNED BED LEVEL	[Data]										[Data]									
DISTANCE (m)	[Data]										[Data]									
STATION (m)	[Data]										[Data]									
LATEST FULL SUPPLY LEVEL	[Data]										[Data]									
N S L RIGHT	[Data]										[Data]									
N S L LEFT	[Data]										[Data]									
BED LEVEL	[Data]										[Data]									
RIGHT OF WAY LEFT (ft)	[Data]										[Data]									
RIGHT OF WAY RIGHT (ft)	[Data]										[Data]									
R.D. (ft)	[Data]										[Data]									

REVISION NO.	REVISION DATE	DESIGNED NAME/NO.	APPROVED NAME/NO.
A			
B			
C			
D			

ISLAMIC REPUBLIC OF PAKISTAN
 GOVERNMENT OF PUNJAB
 THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB
 PLAN AND PROFILE OF
 CANAL SYSTEM: L J C
 DISTRIBUTARY : HUJAN
 MINOR : -
 FROM STA 0000 (0+000) TO : 7500 (24+603)
 JAPAN INTERNATIONAL COOPERATION AGENCY LJC-2



EXISTING DATA	DESIGN DATA			
	Section 2	Section 3	Section 4	Section 5
DESIGNED FULL SUPPLY LEVEL	202.25	202.25	202.25	202.25
DESIGNED BED LEVEL	200.00	200.00	200.00	200.00
DISTANCE (m)	7750	7800	7850	7900
STATION (m)	7750	7800	7850	7900
LATEST FULL SUPPLY LEVEL	202.25	202.25	202.25	202.25
N S L RIGHT	202.25	202.25	202.25	202.25
N S L LEFT	202.25	202.25	202.25	202.25
BED LEVEL	200.00	200.00	200.00	200.00
RIGHT OF WAY LEFT (ft)	7750	7800	7850	7900
RIGHT OF WAY RIGHT (ft)	7750	7800	7850	7900
R.D. (ft)	7750	7800	7850	7900

DESCRIPTION	SYMBOLS
WATER COURSE (w/ R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M) ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIPHON	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OLR)	
FALL/DROP (DP)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SFR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled; unmetalled; cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Grass, Grass	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SIDE SLOPE z	
WATER DEPTH y	
FREE BOARD F/b	
TAL LEFT TL	
TAL RIGHT TR	
TAL FRONT TF	

RECORD NO.	RECORD NAME/DATE	CHECKED NAME/DATE	APPROVED SIGNATURE
A			
B			
C			
D			

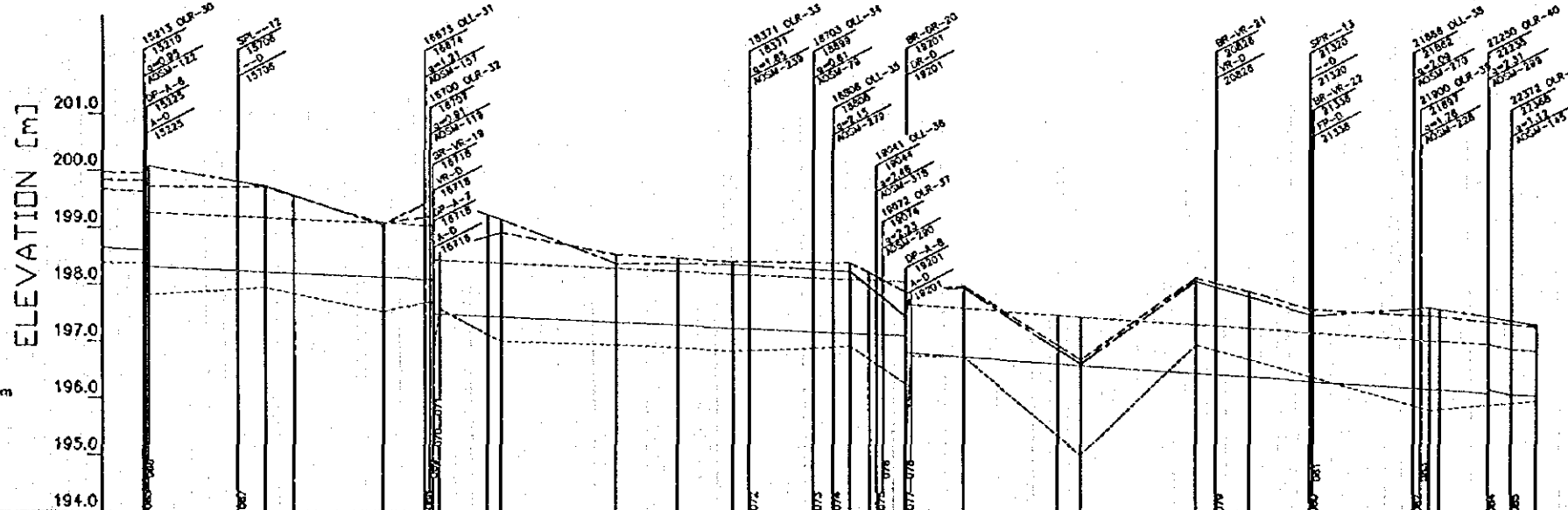
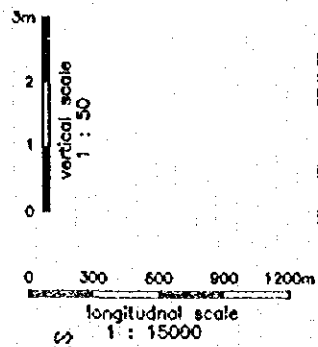
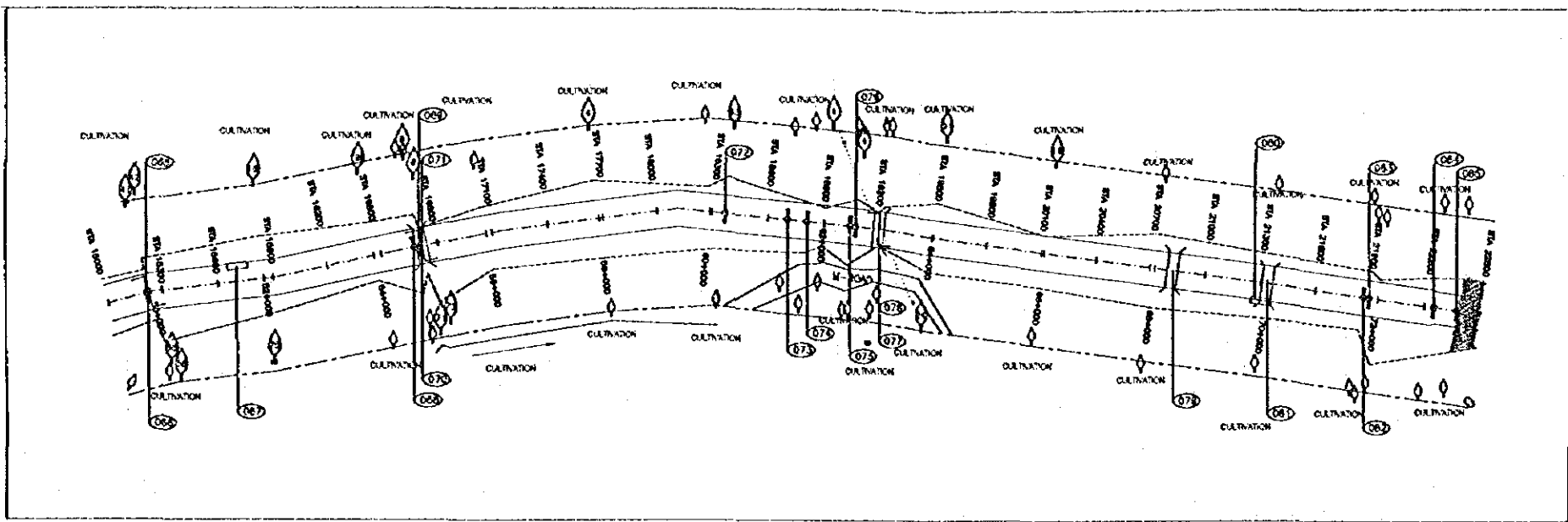
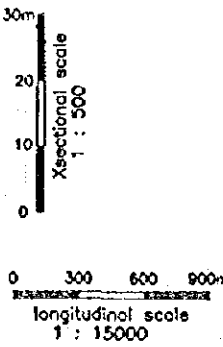
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY : HUJAN
MINOR : -

FROM STA 7500 (24+603) TO : 15000 (49+506)

JAPAN INTERNATIONAL COOPERATION AGENCY LJC-3



EXISTING DATA	DESIGN DATA			DESIGN DATA			DESIGN DATA		
	Section 5	Section 6	Section 7	Section 5	Section 6	Section 7	Section 5	Section 6	Section 7
DESIGNED FULL SUPPLY LEVEL	198.44	198.89	198.35	198.44	198.89	198.35	198.44	198.89	198.35
DESIGNED BED LEVEL	196.60	197.67	196.50	196.60	197.67	196.50	196.60	197.67	196.50
DISTANCE (m)	15000	15000	15000	15000	15000	15000	15000	15000	15000
STATION (m)	15000	15000	15000	15000	15000	15000	15000	15000	15000
LATEST FULL SUPPLY LEVEL	198.44	198.89	198.35	198.44	198.89	198.35	198.44	198.89	198.35
N S L RIGHT	198.44	198.89	198.35	198.44	198.89	198.35	198.44	198.89	198.35
N S L LEFT	198.44	198.89	198.35	198.44	198.89	198.35	198.44	198.89	198.35
BED LEVEL	196.60	197.67	196.50	196.60	197.67	196.50	196.60	197.67	196.50
RIGHT OF WAY LEFT (ft)	198.44	198.89	198.35	198.44	198.89	198.35	198.44	198.89	198.35
RIGHT OF WAY RIGHT (ft)	198.44	198.89	198.35	198.44	198.89	198.35	198.44	198.89	198.35
R.D. (ft)	198.44	198.89	198.35	198.44	198.89	198.35	198.44	198.89	198.35

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RS)	
OPERATION & MAINTENANCE (O&M)	
ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIPHON	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OOR)	
FALL/DROP (OF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL)	
STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F.S.L.	
DESIGN BED LEVEL	
N.S.L. RIGHT	
N.S.L. LEFT	
BED LEVEL	
Building, Mosque, Tomb	
Road metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Drone, Cross	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE S	
SIDE SLOPE z	
WATER DEPTH y	
FREE BOARD Ffb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

REVISION	REASON	DATE	APPROVED
A			
B			
C			
D			

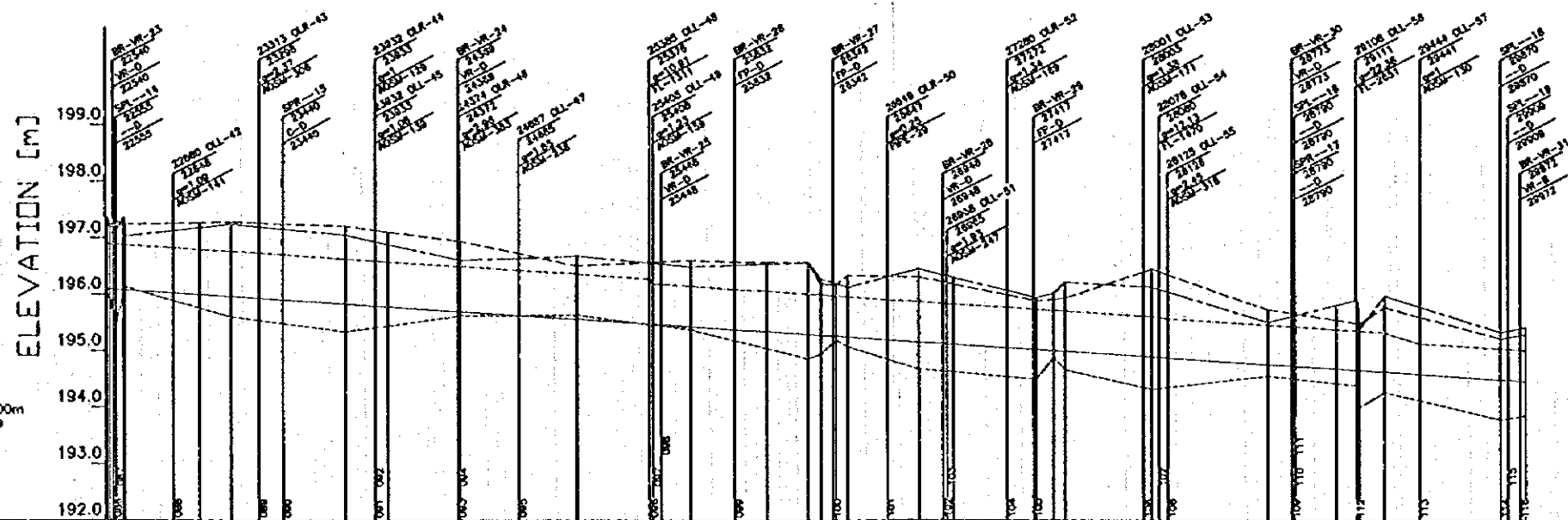
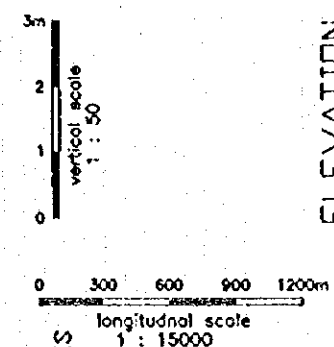
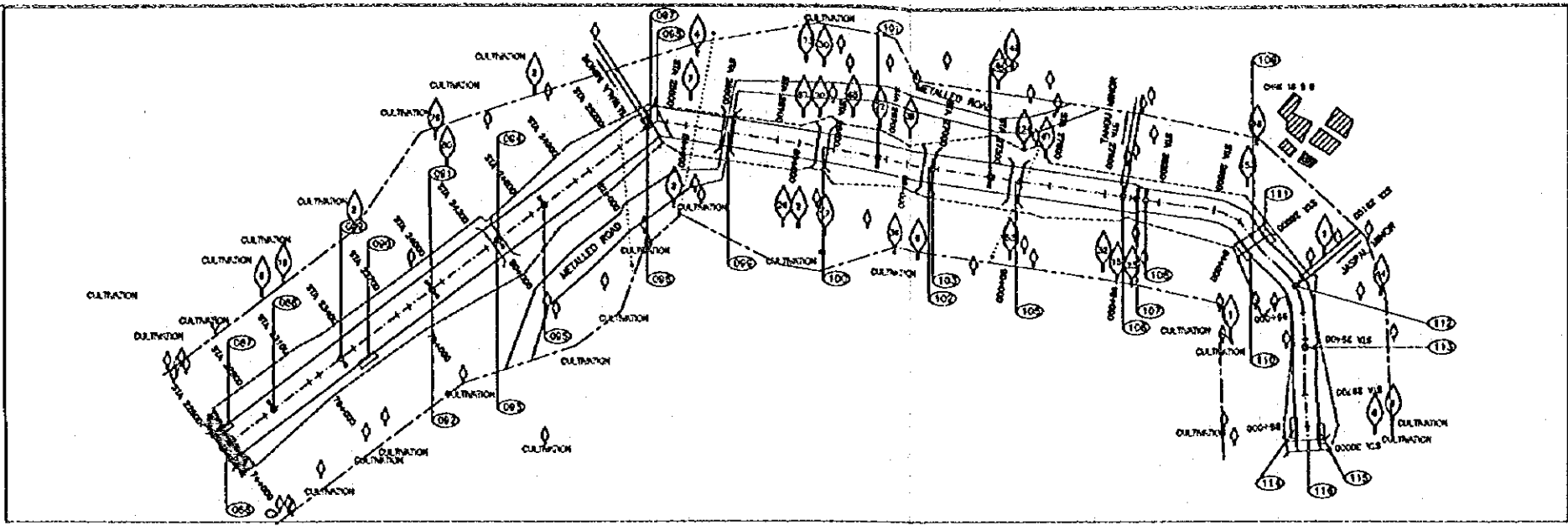
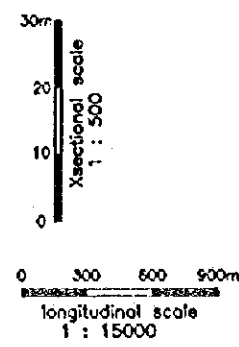
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY : HUJAN
MINOR : -

FROM STA 15000 (49+200) TO : 22500 (73+600)

JAPAN INTERNATIONAL COOPERATION AGENCY LJC-4



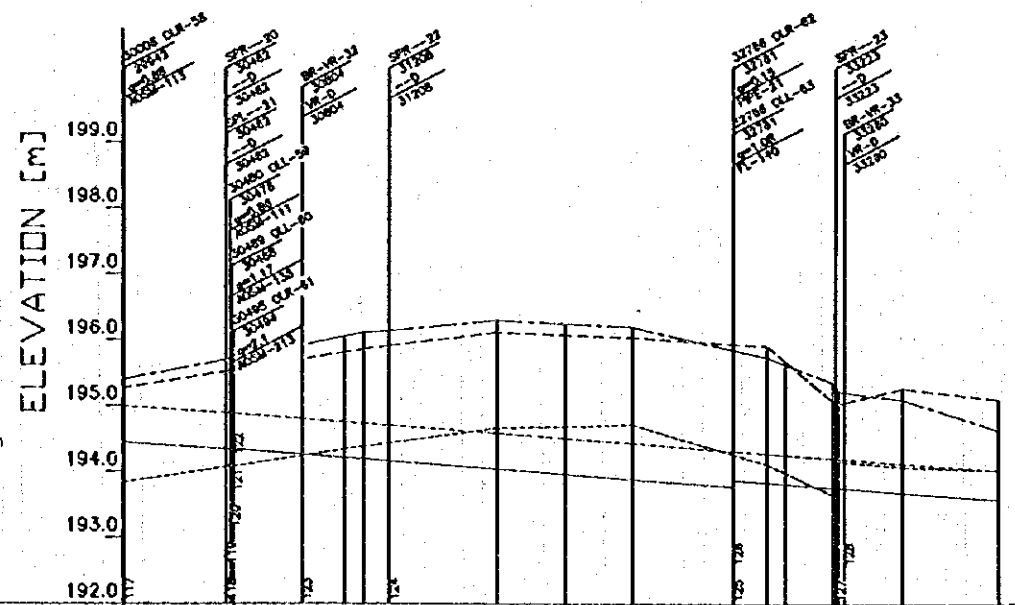
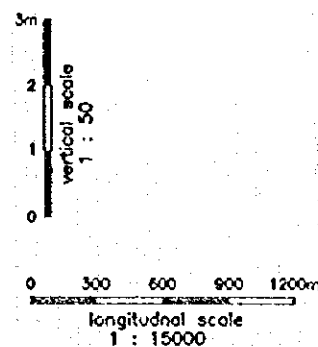
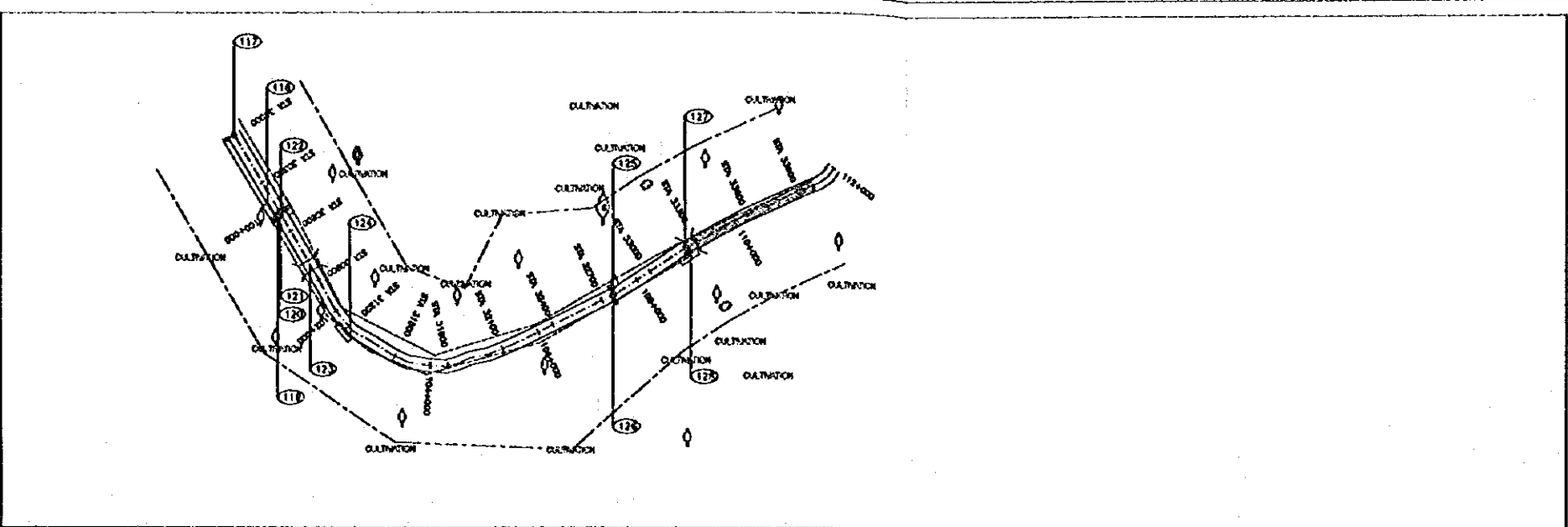
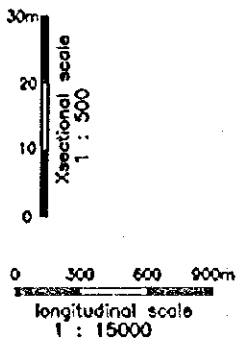
EXISTING DATA DESIGN SECTION PROPERTIES

	Section 8	Section 9	Section 10	Section 11
DESIGNED FULL SUPPLY LEVEL	198.35	198.87	198.12	198.41
DESIGNED BED LEVEL	196.55	196.50	196.50	196.50
DISTANCE (m)	22500	22500	22500	22500
STATION (m)	22500	22500	22500	22500
LATEST FULL SUPPLY LEVEL	198.35	198.87	198.12	198.41
N S L RIGHT	198.35	198.87	198.12	198.41
N S L LEFT	198.35	198.87	198.12	198.41
BED LEVEL	196.55	196.50	196.50	196.50
RIGHT OF WAY LEFT (ft)	198.35	198.87	198.12	198.41
RIGHT OF WAY RIGHT (ft)	198.35	198.87	198.12	198.41
R.D. (ft)	198.35	198.87	198.12	198.41

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RS)	
OPERATION & MAINTENANCE (O&M) ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SECTION	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OLR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F & L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled; unmetalled; cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree Jungle	
Groves, Grass	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY v	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SIDE SLOPE s	
WATER DEPTH y	
FREE BOARD Frb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

RECORD BOOK	RECORD NAME/DATE	CHECKER NAME/DATE	APPROVED NAME/DATE
A			
B			
C			
D			

ISLAMIC REPUBLIC OF PAKISTAN
 GOVERNMENT OF PUNJAB
 THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB
 PLAN AND PROFILE OF
 CANAL SYSTEM: L J C
 DISTRIBUTARY : Hujan
 MINOR : --
 FROM STA 22500 (73+600) TO : 30000 (98+400)
 JAPAN INTERNATIONAL COOPERATION AGENCY LJC-5

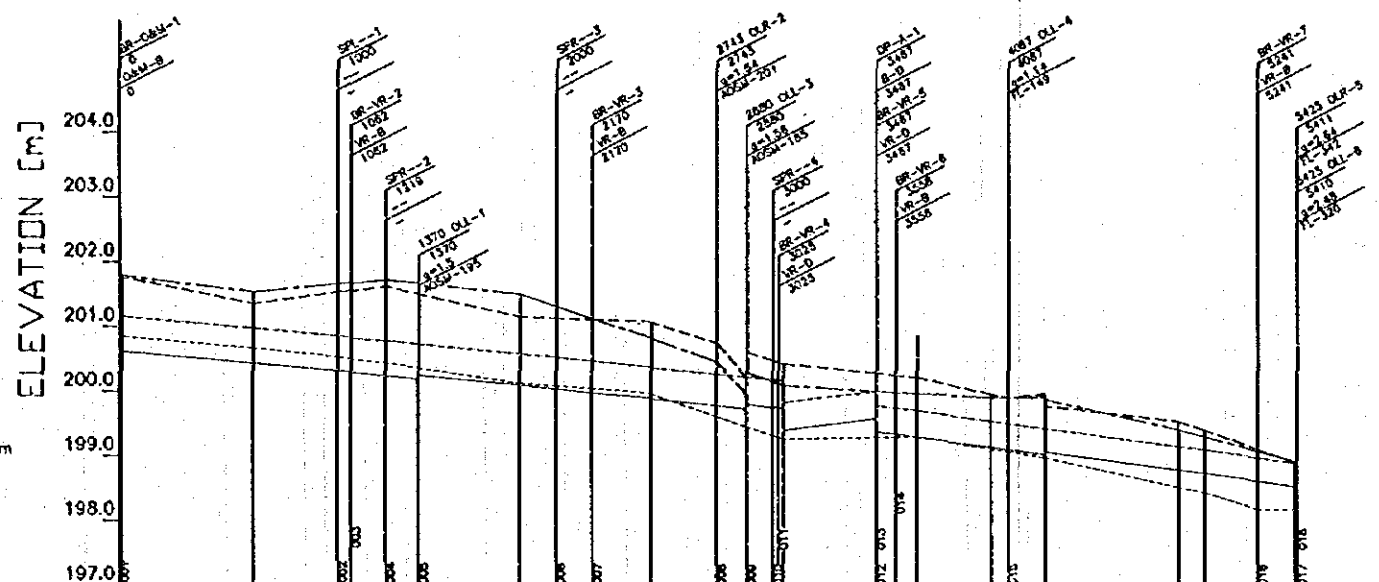
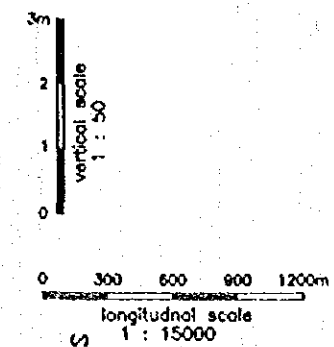
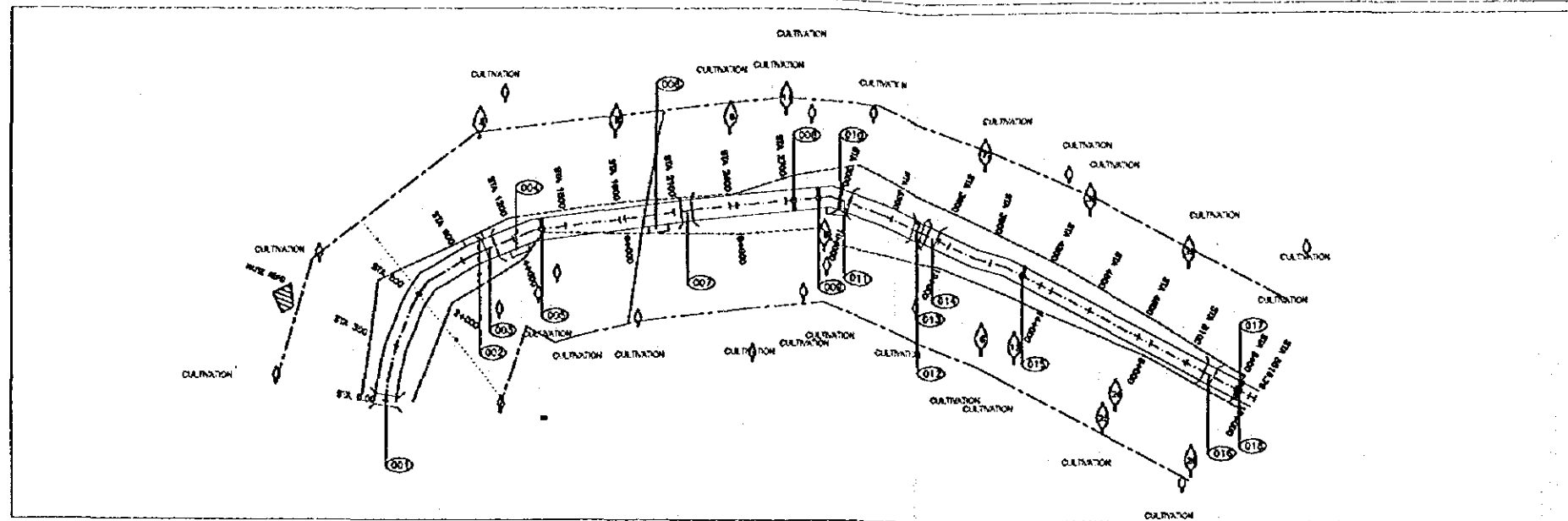
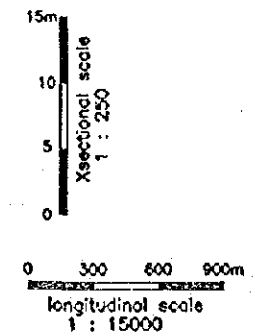


EXISTING DATA DESIGN DATA	DESIGN DATA		
	Section 11	Section 12	Section 13
DESIGNED FULL SUPPLY LEVEL	195.0	195.0	195.0
DESIGNED BED LEVEL	193.5	193.5	193.5
DISTANCE (m)	0-100	100-200	200-300
STATION (m)	30000-30100	30100-30200	30200-30300
LATEST FULL SUPPLY LEVEL	195.0	195.0	195.0
N S L RIGHT	194.5	194.5	194.5
N S L LEFT	194.0	194.0	194.0
BED LEVEL	193.5	193.5	193.5
RIGHT OF WAY LEFT (ft)	194.5	194.5	194.5
RIGHT OF WAY RIGHT (ft)	194.5	194.5	194.5
R.D. (ft)	194.5	194.5	194.5

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M)	
ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIPHON	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OLR)	
FALL/DROP (DP)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Graves, Grass	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SHOULDER SLOPE s	
WATER DEPTH y	
FREE BOARD Ffb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

REVISION	REASON	DATE	BY
A			
B			
C			
D			

ISLAMIC REPUBLIC OF PAKISTAN
 GOVERNMENT OF PUNJAB
 THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB
 PLAN AND PROFILE OF
 CANAL SYSTEM: L J C
 DISTRIBUTARY : HUJAN
 MINOR : --
 FROM STA 30000 (98+400) TO : 33977 (111+445)
 JAPAN INTERNATIONAL COOPERATION AGENCY LJC-6



EXISTING DATA DESIGN DATA SECTION PROPERTIES

	Section 1	Section 2	Section 3	Section 4	Section 5
DESIGNED FULL SUPPLY LEVEL	203.14	203.14	203.14	203.14	203.14
DESIGNED BED LEVEL	200.00	200.00	200.00	200.00	200.00
DISTANCE (m)	0	100	200	300	400
STATION (m)	0	100	200	300	400
LATEST FULL SUPPLY LEVEL	203.14	203.14	203.14	203.14	203.14
N S L RIGHT	203.14	203.14	203.14	203.14	203.14
N S L LEFT	203.14	203.14	203.14	203.14	203.14
BED LEVEL	200.00	200.00	200.00	200.00	200.00
RIGHT OF WAY LEFT (ft)	203.14	203.14	203.14	203.14	203.14
RIGHT OF WAY RIGHT (ft)	203.14	203.14	203.14	203.14	203.14
R.D. (ft)	203.14	203.14	203.14	203.14	203.14

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RS)	
OPERATION & MAINTENANCE (OM)	
ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SYPHON	
OUTLET LEFT (OL)	
OUTLET RIGHT (OR)	
FALL/DROP (DP)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SL)	
STEP RIGHT (SR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled, unmetalled, cart-track	
Electric Line, Telephone Line	
River with flow, Water Course, Pond	
Tree, Jungle	
Grove, Grass	
DISCHARGE (cumec)	Q
OUTLET DISCHARGE (cumec)	q
BED WIDTH	b
ROUGHNESS COEFFICIENT	n
VELOCITY	V
CANAL COMMAND AREA	CCA
BED SLOPE	s
SOE SLOPE	z
WATER DEPTH	y
FREE BOARD	Fb
TAIL LEFT	TL
TAIL RIGHT	TR
TAIL FRONT	TF

APPROVED	REVISION	CHECKED	APPROVED
DATE	NO./DATE	DATE	DATE
A			
B			
C			
D			

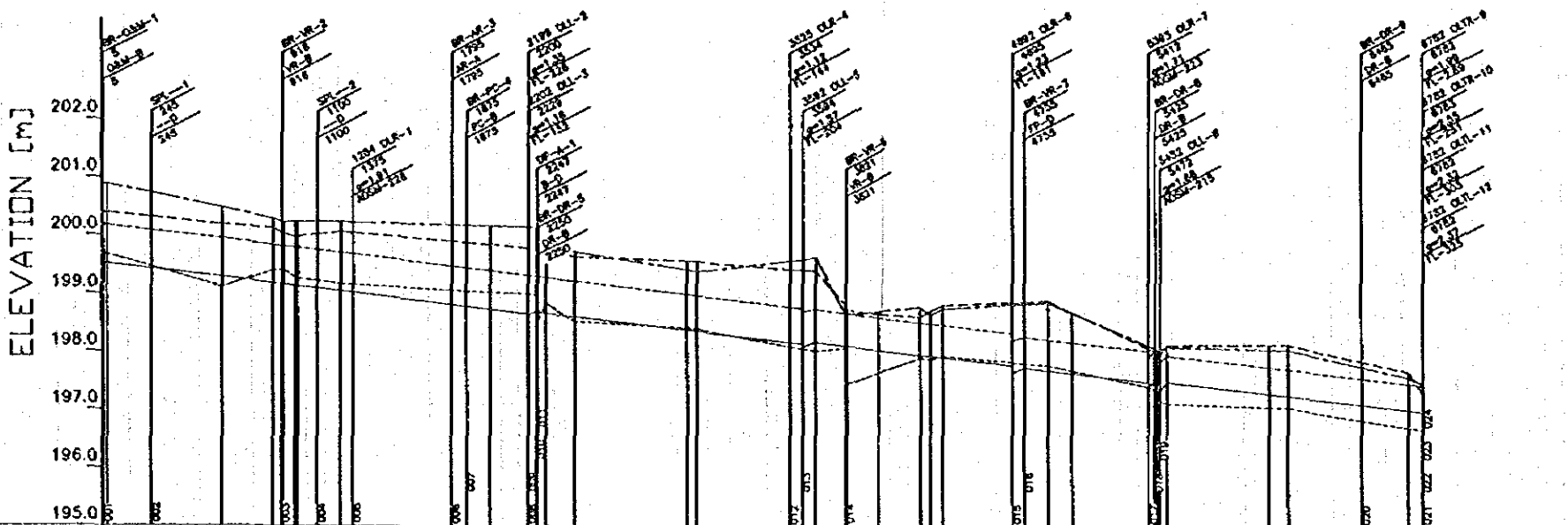
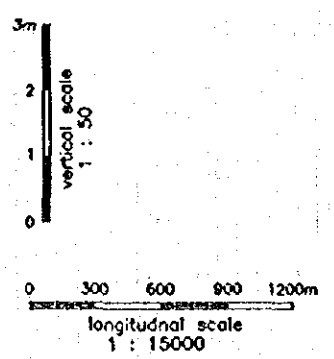
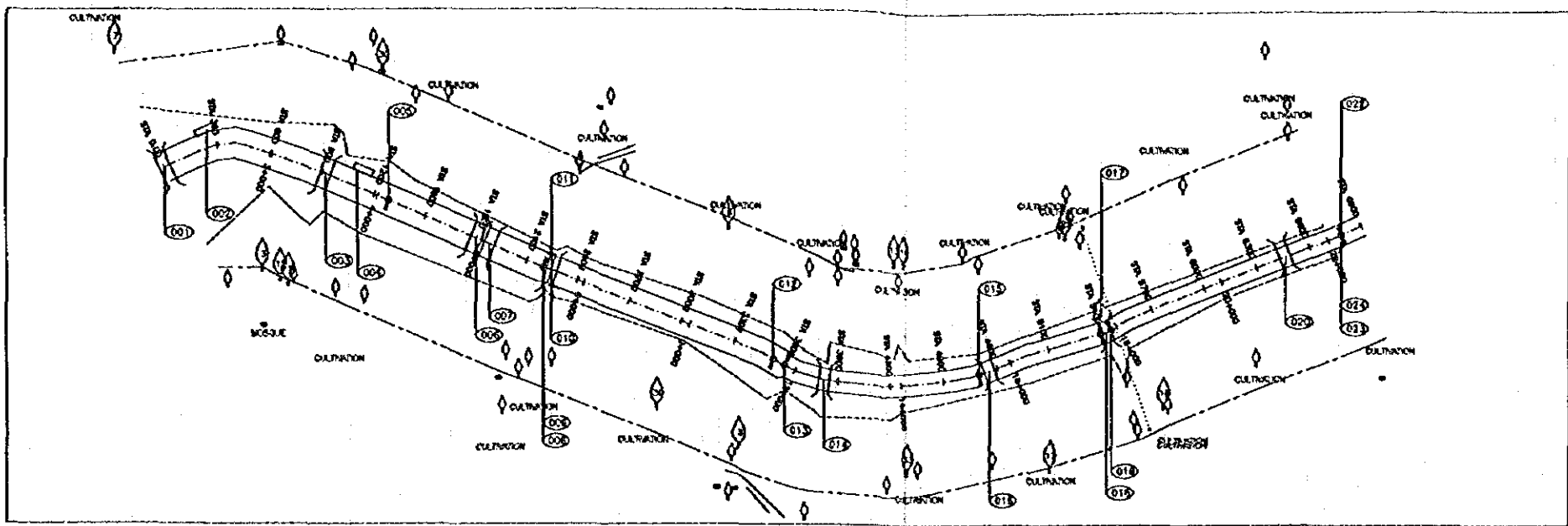
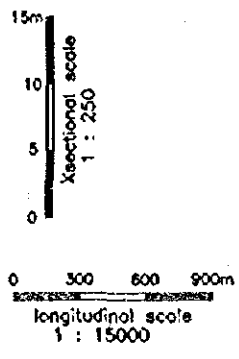
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY : HUJAN
MINOR : ARIAN

FROM STA 000 (0000) TO : 5425 (17+794)

JAPAN INTERNATIONAL COOPERATION AGENCY LJC-7



EXISTING DATA DESIGN SECTION PROPERTIES

	Section 1	Section 2	Section 3	Section 4	Section 5
DESIGNED FULL SUPPLY LEVEL	200.00	199.50	199.00	198.50	198.00
DESIGNED BED LEVEL	197.50	197.00	196.50	196.00	195.50
DISTANCE (m)	0-100	100-200	200-300	300-400	400-500
STATION (m)	0000	1000	2000	3000	4000
LATEST FULL SUPPLY LEVEL	199.80	199.30	198.80	198.30	197.80
N S L RIGHT	199.50	199.00	198.50	198.00	197.50
N S L LEFT	199.20	198.70	198.20	197.70	197.20
BED LEVEL	197.50	197.00	196.50	196.00	195.50
RIGHT OF WAY LEFT (ft)	199.00	198.50	198.00	197.50	197.00
RIGHT OF WAY RIGHT (ft)	199.50	199.00	198.50	198.00	197.50
R.D. (ft)	199.80	199.30	198.80	198.30	197.80

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M) ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SYPHON	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OUR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PFE	
DESIGN STRUCTURE MAJER	
RAILWAY LINE	
RIGHT OF WAY LINE	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Mosque, Mosque, Tomb	
Road: metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Grass, Grass	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY v	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SIDE SLOPE z	
WATER DEPTH y	
FREE BOARD Frb	
TAL LEFT TL	
TAL RIGHT TR	
TAL FRONT TF	

RECORD BOOK	RECORD NAME/DATE	DESIGN NAME/DATE	APPROVED NAME/DATE
A			
B			
C			
D			

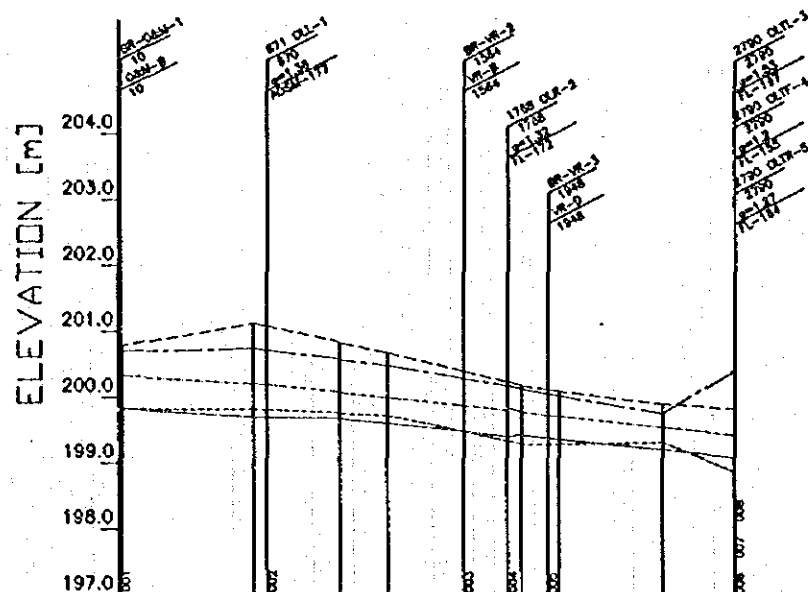
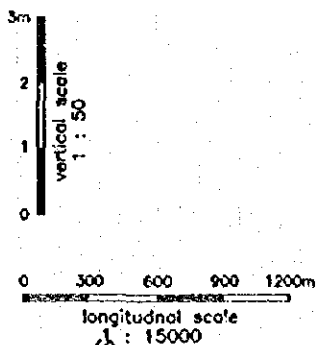
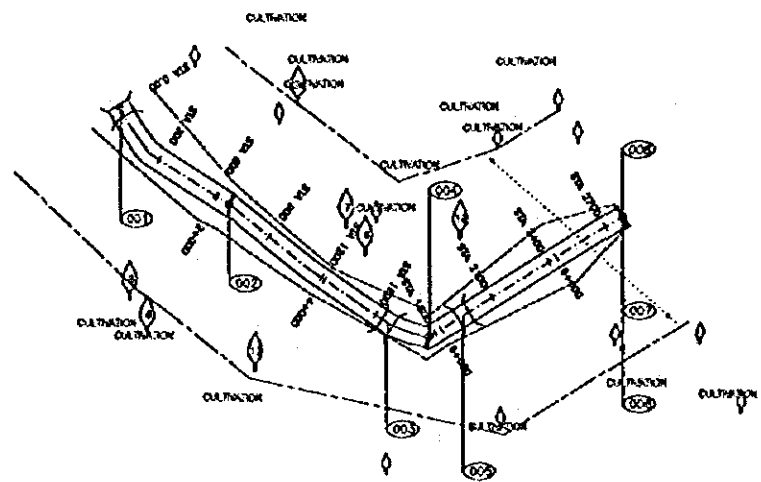
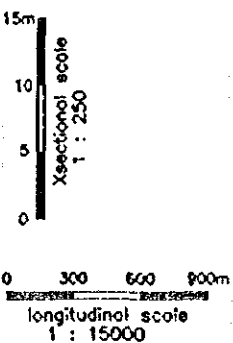
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY : HUAN
MINOR : KOT MOMIN

FROM STA 0000 (0000) TO : 6783 (22+248)

JAPAN INTERNATIONAL COOPERATION AGENCY LJC-8



EXISTING DATA	DESIGN DATA		
	Section 1	Section 2	Section 3
DESIGNED FULL SUPPLY LEVEL	201.00	200.50	200.00
DESIGNED BED LEVEL	199.50	199.00	198.50
DISTANCE (m)	0-1000	1000-2000	2000-3000
STATION (m)	0-1000	1000-2000	2000-3000
LATEST FULL SUPPLY LEVEL	200.50	199.50	199.00
N S L RIGHT	200.00	199.00	198.50
N S L LEFT	199.50	198.50	198.00
BED LEVEL	199.50	199.00	198.50
RIGHT OF WAY LEFT (ft)	100	100	100
RIGHT OF WAY RIGHT (ft)	100	100	100
R.D. (ft)	100	100	100

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE	
ARTISIAN BRIDGE (AB)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M) ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIPHON	
OUTLET LEFT (OLA)	
OUTLET RIGHT (ORA)	
FALL/DROP (OP)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F.S.L.	
DESIGN BED LEVEL	
N.S.L. RIGHT	
N.S.L. LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled; unmetalled; cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Grass, Grass	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SIDE SLOPE z	
WATER DEPTH y	
FREE BOARD Frb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

REVISION NO.	REVISION	DATE	BY	CHKD
A				
B				
C				
D				

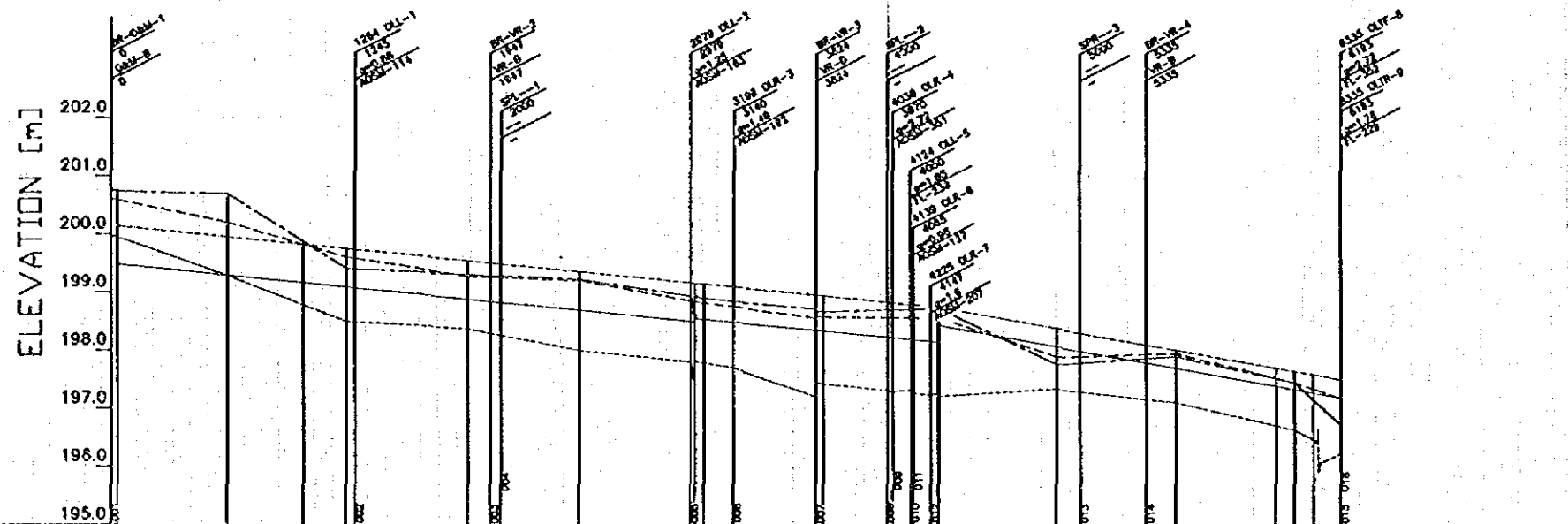
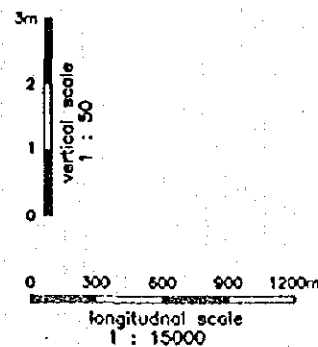
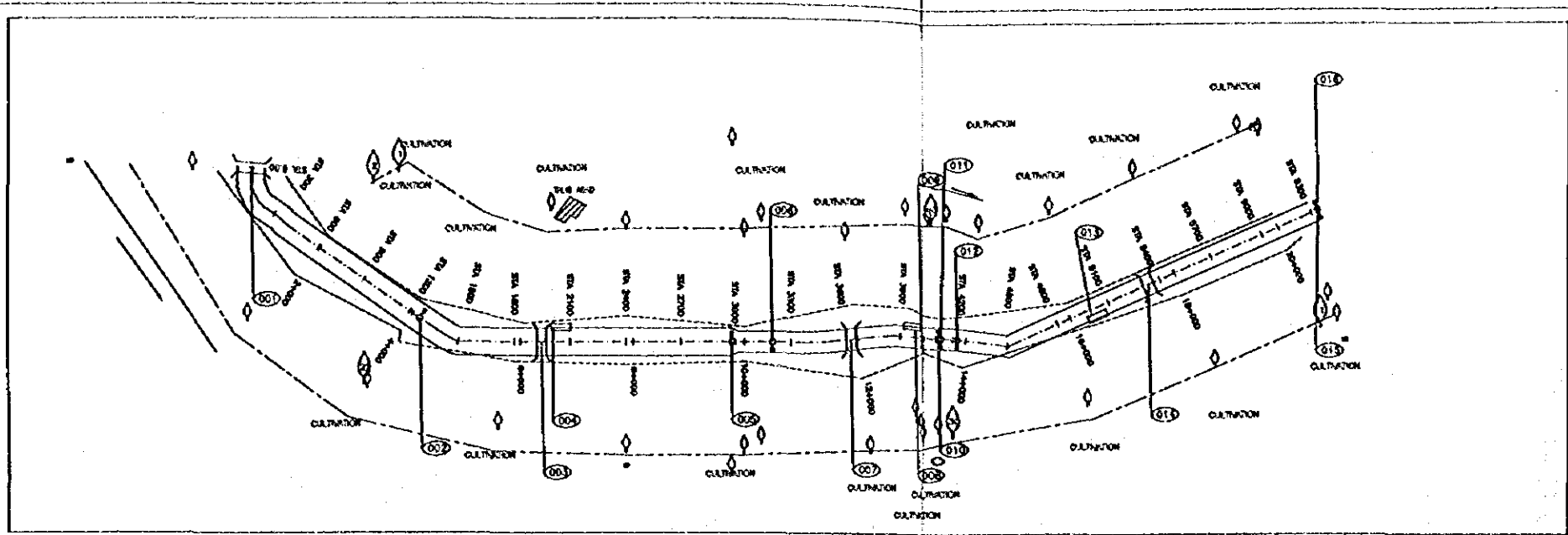
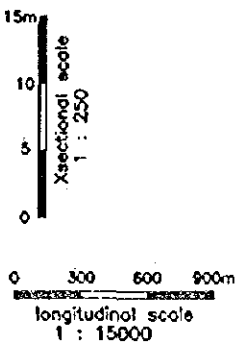
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY : HUJAN
MINOR : KOT RAJA

FROM STA 000 (000) TO : 2791 (9+154)

JAPAN INTERNATIONAL COOPERATION AGENCY LJC-9



EXISTING DATA DESIGN DATA	Section 1			Section 2			Section 3		
	Q	n	V	Q	n	V	Q	n	V
DESIGNED FULL SUPPLY LEVEL	200.48	0.018	1.25	200.30	0.018	1.25	200.13	0.018	1.25
DESIGNED BED LEVEL	199.34	0.018	1.25	199.32	0.018	1.25	199.40	0.018	1.25
DISTANCE (m)	0			0			0		
STATION (m)	0			0			0		
LATEST FULL SUPPLY LEVEL	199.34			199.32			199.40		
N S L RIGHT	199.34			199.32			199.40		
N S L LEFT	199.34			199.32			199.40		
BED LEVEL	199.34			199.32			199.40		
RIGHT OF WAY LEFT (ft)	199.34			199.32			199.40		
RIGHT OF WAY RIGHT (ft)	199.34			199.32			199.40		
R.D. (ft)	199.34			199.32			199.40		

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M)	
ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS GRAINAGE CULVERT	
INVERTED SYPHON	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OLR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled; unmetalled; cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Grass, Grass	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SIDE SLOPE s	
WATER DEPTH y	
FREE BOARD Fb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

DESIGN NO.	DESIGN DATE	DESIGNER	APPROVED
A			
B			
C			
D			

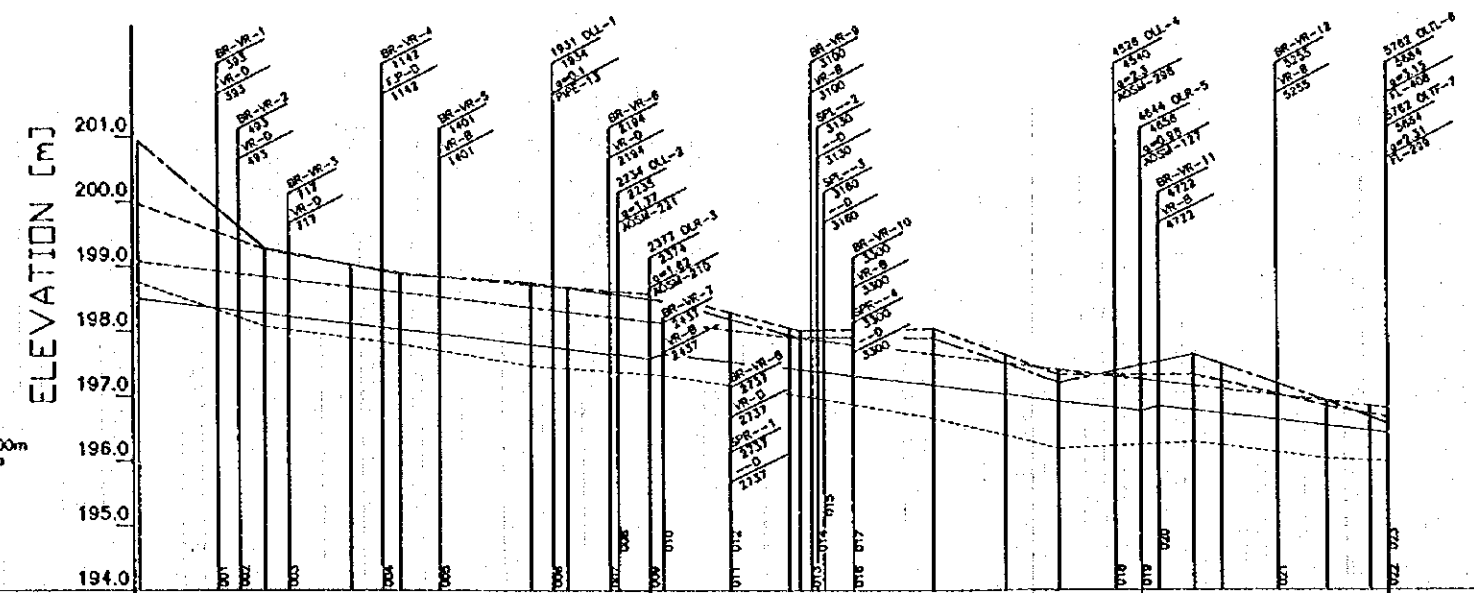
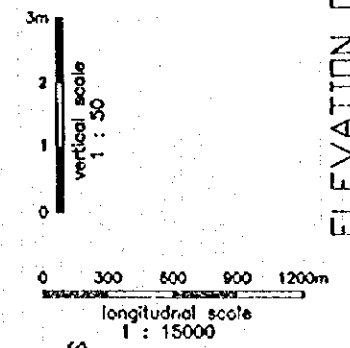
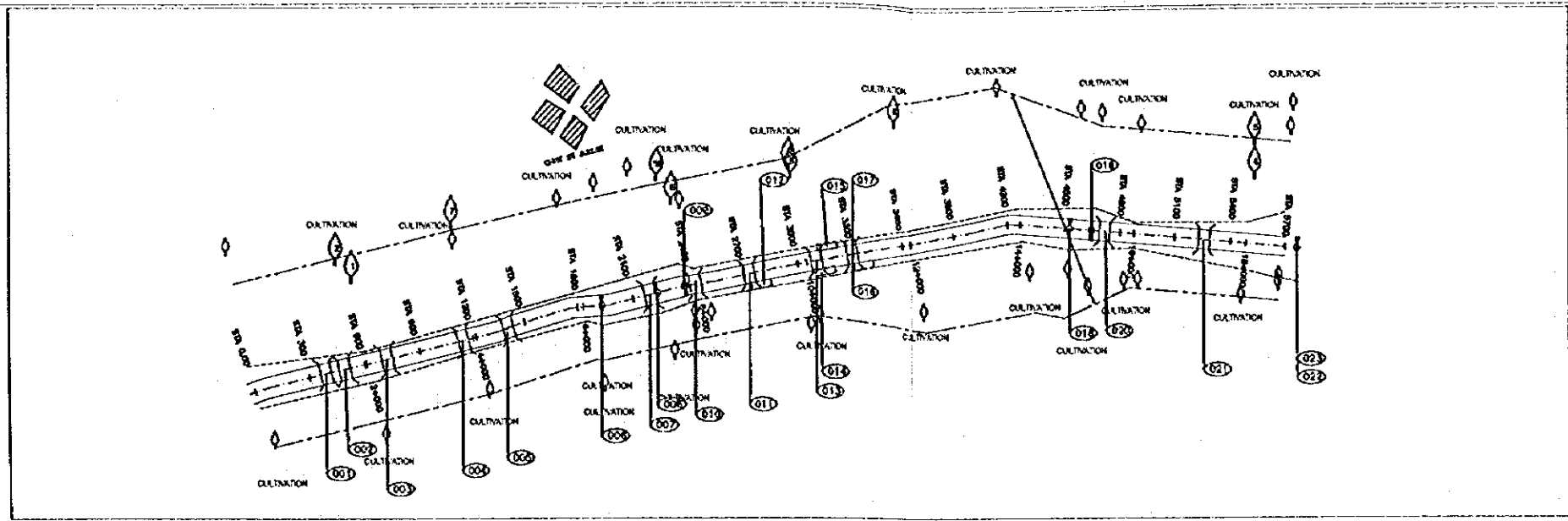
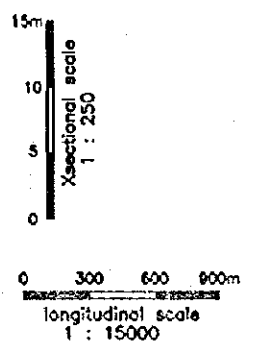
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY: HUJAN
MINOR: BHIKI

FROM STA 000 (0000) TO: 6335 (20+779)

JAPAN INTERNATIONAL COOPERATION AGENCY LJC-10



EXISTING DATA DESIGN DATA

DESIGN DATA	Section 1			Section 2			Section 3		
	0	100	200	0	100	200	0	100	200
DESIGNED FULL SUPPLY LEVEL	199.80	199.70	199.60	199.70	199.60	199.50	199.60	199.50	199.40
DESIGNED BED LEVEL	198.50	198.40	198.30	198.40	198.30	198.20	198.30	198.20	198.10
DISTANCE (m)	0	100	200	0	100	200	0	100	200
STATION (m)	0+00	0+100	0+200	0+00	0+100	0+200	0+00	0+100	0+200
LATEST FULL SUPPLY LEVEL	199.80	199.70	199.60	199.70	199.60	199.50	199.60	199.50	199.40
N S L RIGHT	199.80	199.70	199.60	199.70	199.60	199.50	199.60	199.50	199.40
N S L LEFT	199.80	199.70	199.60	199.70	199.60	199.50	199.60	199.50	199.40
BED LEVEL	198.50	198.40	198.30	198.40	198.30	198.20	198.30	198.20	198.10
RIGHT OF WAY LEFT (ft)	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00
RIGHT OF WAY RIGHT (ft)	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00
R.D. (ft)	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D mark)	
REGULATOR	
AQUEDUCT	
BRIDGE, ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M) ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIPHON	
OUTLET LEFT (OL)	
OUTLET RIGHT (OR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SPR)	
ESCAPE	
UNED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled; unmetalled; cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree Jungle	
Graves, Cross	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SIDE SLOPE z	
WATER DEPTH y	
FREE BOARD Fb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

ROUGH	RE-ED	DEEED	APPROED
ADD	W/S/D/E	W/S/D/E	W/S/D/E
A			
B			
C			
D			

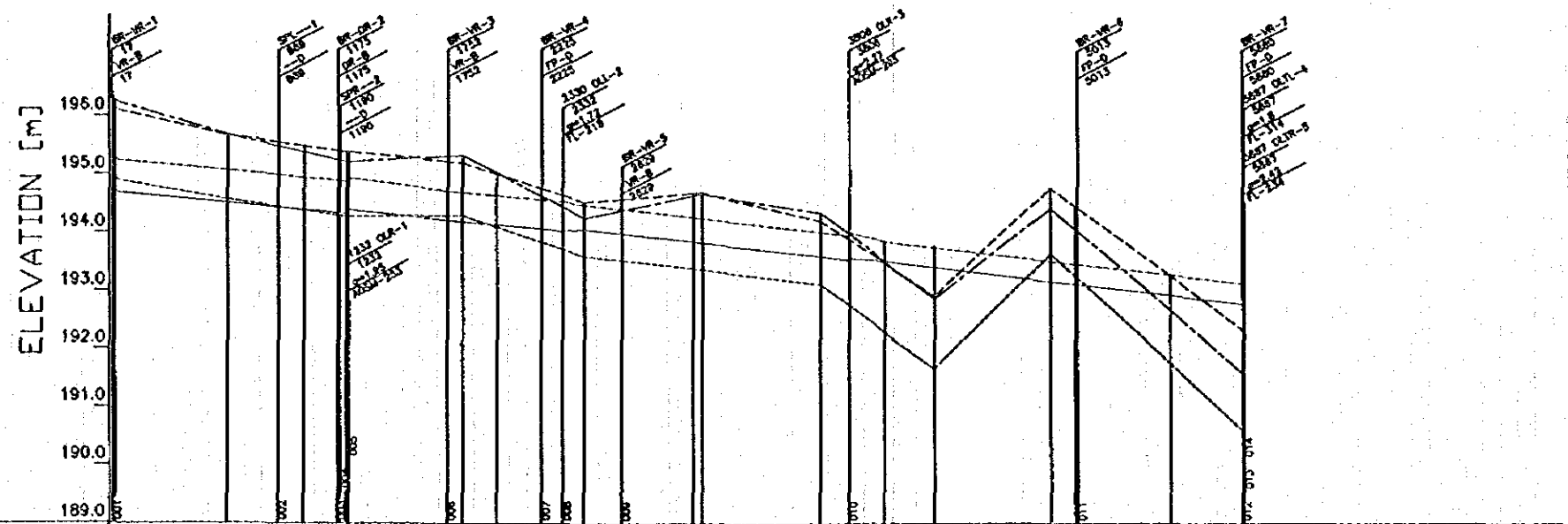
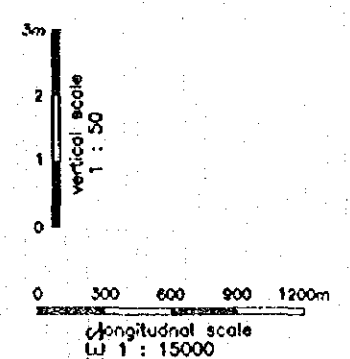
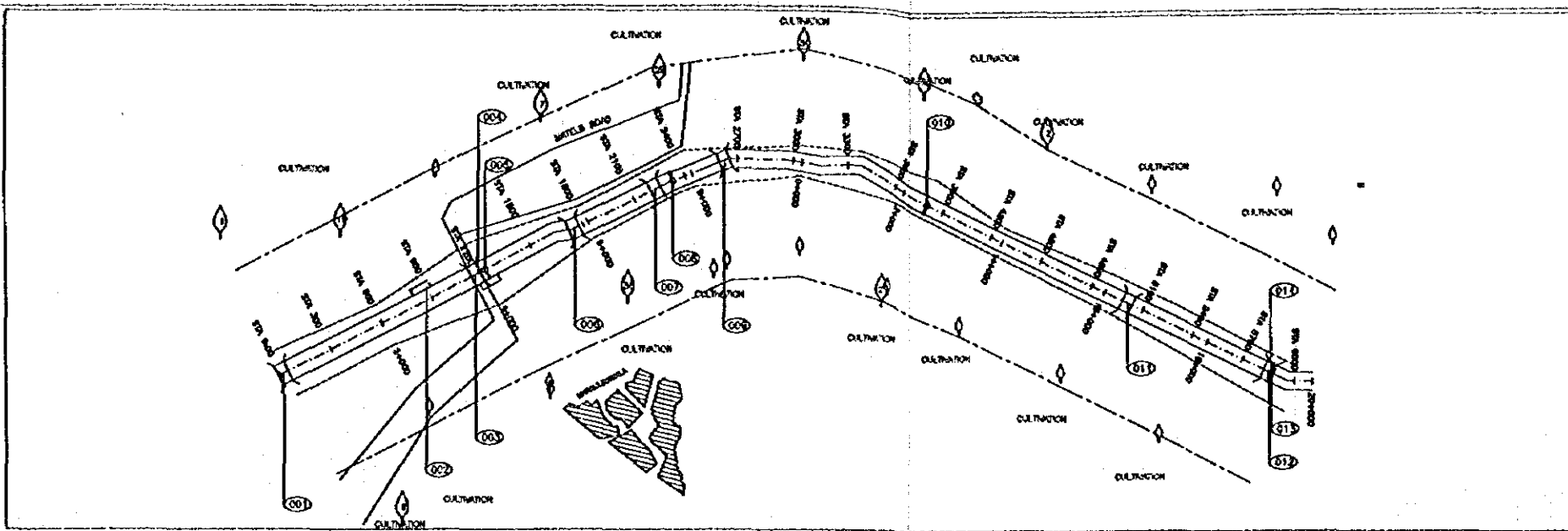
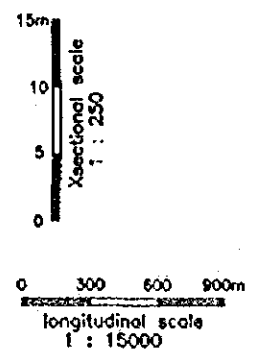
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY : HUJAN
MINOR : SAHOWAL

FROM STA 000 (0+000) TO : 5762 (18+899)

JAPAN INTERNATIONAL COOPERATION AGENCY LJC-11



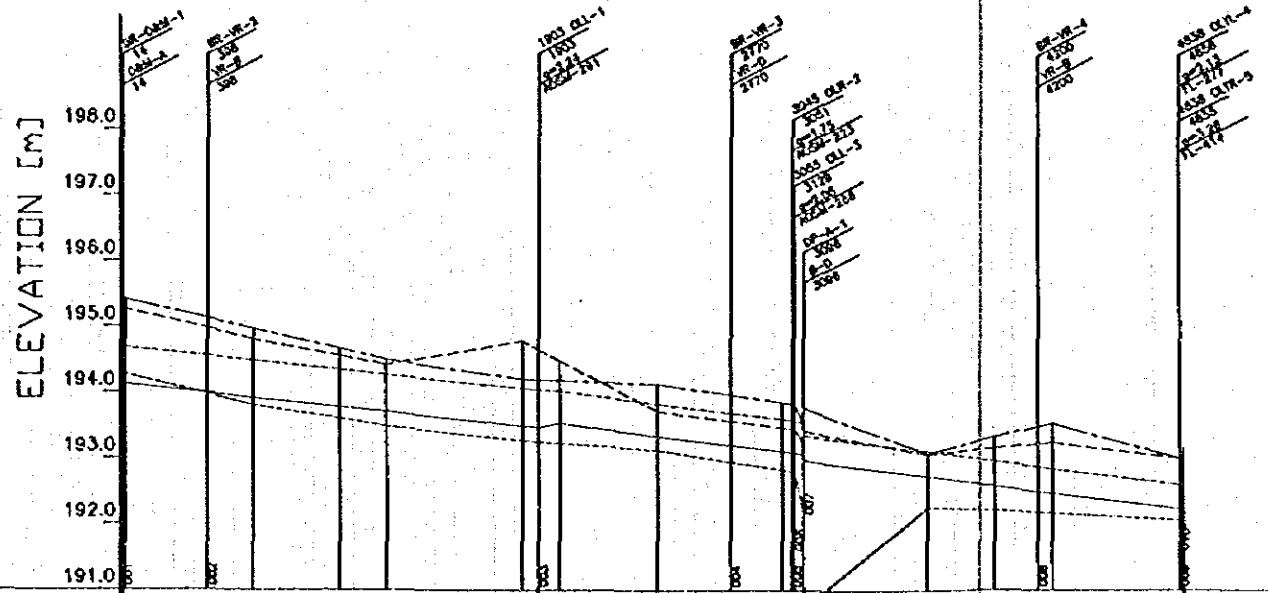
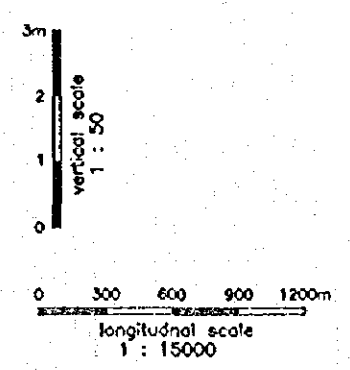
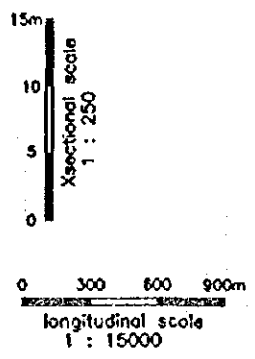
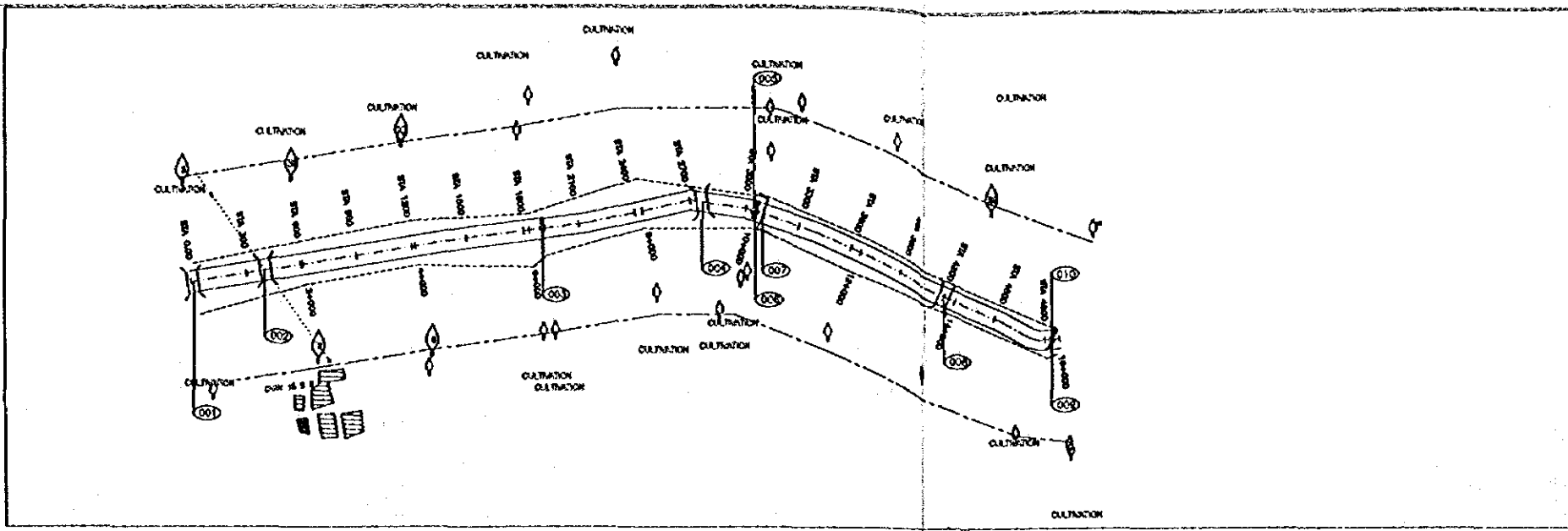
EXISTING DATA DESIGN PROPERTIES	Section 1		Section 2		Section 3		Section 4	
	Q	CCA	Q	CCA	Q	CCA	Q	CCA
DESIGNED FULL SUPPLY LEVEL	195.80	195.80	195.80	195.80	195.80	195.80	195.80	195.80
DESIGNED BED LEVEL	195.50	195.50	195.50	195.50	195.50	195.50	195.50	195.50
DISTANCE (m)	0-100	100-200	200-300	300-400	400-500	500-600	600-700	700-800
STATION (m)	0+000	100+000	200+000	300+000	400+000	500+000	600+000	700+000
LATEST FULL SUPPLY LEVEL	195.70	195.70	195.70	195.70	195.70	195.70	195.70	195.70
N S L RIGHT	195.60	195.60	195.60	195.60	195.60	195.60	195.60	195.60
N S L LEFT	195.40	195.40	195.40	195.40	195.40	195.40	195.40	195.40
BED LEVEL	195.30	195.30	195.30	195.30	195.30	195.30	195.30	195.30
RIGHT OF WAY LEFT (ft)	195.20	195.20	195.20	195.20	195.20	195.20	195.20	195.20
RIGHT OF WAY RIGHT (ft)	195.10	195.10	195.10	195.10	195.10	195.10	195.10	195.10
R.D. (ft)	195.00	195.00	195.00	195.00	195.00	195.00	195.00	195.00

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE	
ARTISIAN BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RS)	
OPERATION & MAINTENANCE (OM)	
ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE DELIVERY	
INVERTED Siphon	
OUTLET LEFT (OL)	
OUTLET RIGHT (OR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SL) STEP RIGHT (SR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F.S.L.	
DESIGN BED LEVEL	
N.S.L. RIGHT	
N.S.L. LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Graves, Groves	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SIDE SLOPE z	
WATER DEPTH y	
FREE BOARD Fb	
TAL LEFT TL	
TAL RIGHT TR	
TAL FRONT TF	

REVISION NO.	REVISED BY/DATE	DESIGNED BY/DATE	APPROVED BY/DATE
A			
B			
C			
D			

ISLAMIC REPUBLIC OF PAKISTAN
 GOVERNMENT OF PUNJAB
 THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB
 PLAN AND PROFILE OF
 CANAL SYSTEM: L J C
 DISTRIBUTARY : Hujan
 MINOR : MARULIANWALA
 FROM STA 000 (0+000) TO : 5667 (19+244)
 JAPAN INTERNATIONAL COOPERATION AGENCY LIC-12

DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M)	
ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SYPHON	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OLR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SPR)	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Mosque, Mosque, Tomb	
Road: metalled; unmetalled; cart-track	
Electric line, Telephone line	
River with flow, Water Course	
Tree Jungle	
Grass, Grass	
DISCHARGE (cumec)	Q
OUTLET DISCHARGE (cumec)	q
BED WIDTH	b
ROUGHNESS COEFFICIENT	n
VELOCITY	V
CANAL COMMAND AREA	CCA
BED SLOPE	s
SIDE SLOPE	z
WATER DEPTH	y
FREE BOARD	Frb
TAL LEFT	TL
TAL RIGHT	TR
TAL FRONT	TF



EXISTING DATA	DESIGN PROPERTIES			
	Section 1	Section 2	Section 3	Section 4
DESIGNED FULL SUPPLY LEVEL	197.25	197.25	197.25	197.25
DESIGNED BED LEVEL	194.50	194.50	194.50	194.50
DISTANCE (m)	1150	1150	1150	1150
STATION (m)	0+000	1+000	2+000	3+000
LATEST FULL SUPPLY LEVEL	197.25	197.25	197.25	197.25
N S L RIGHT	197.25	197.25	197.25	197.25
N S L LEFT	197.25	197.25	197.25	197.25
BED LEVEL	194.50	194.50	194.50	194.50
RIGHT OF WAY LEFT (ft)	197.25	197.25	197.25	197.25
RIGHT OF WAY RIGHT (ft)	197.25	197.25	197.25	197.25
R.D. (ft)	197.25	197.25	197.25	197.25

REVISION	REASON	DATE	APPROVED
A			
B			
C			
D			

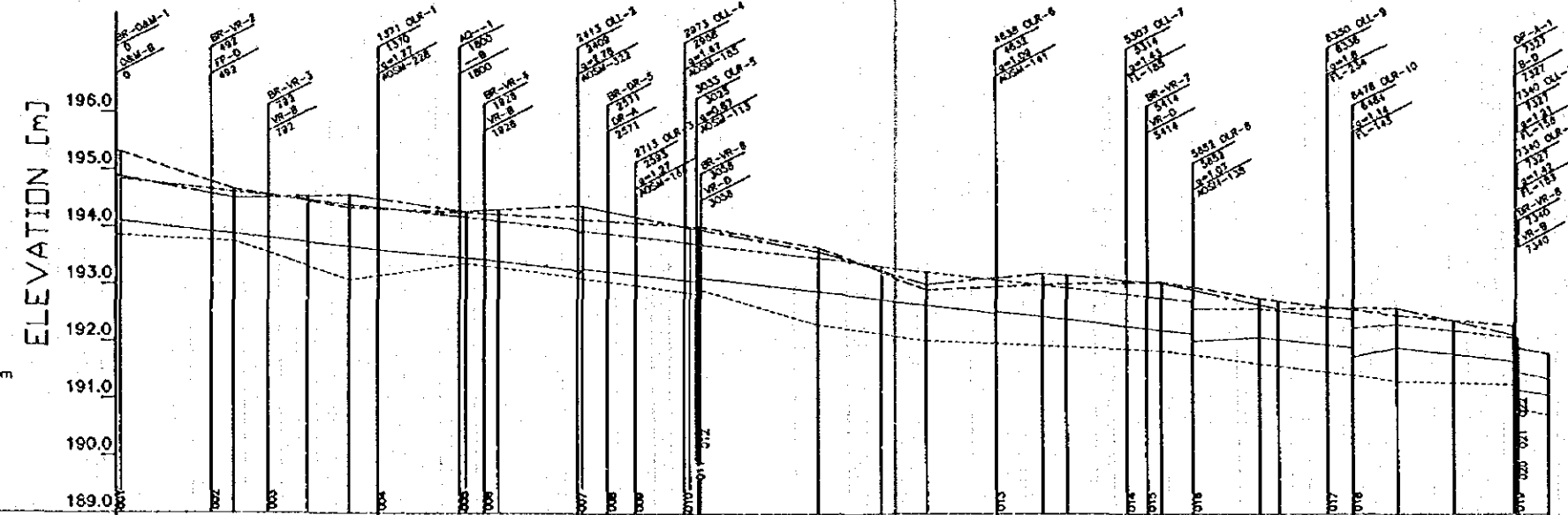
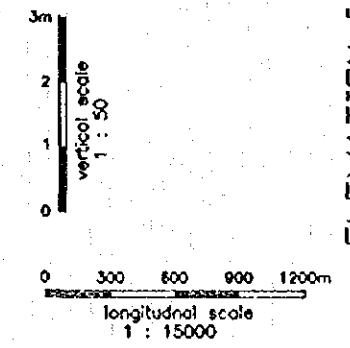
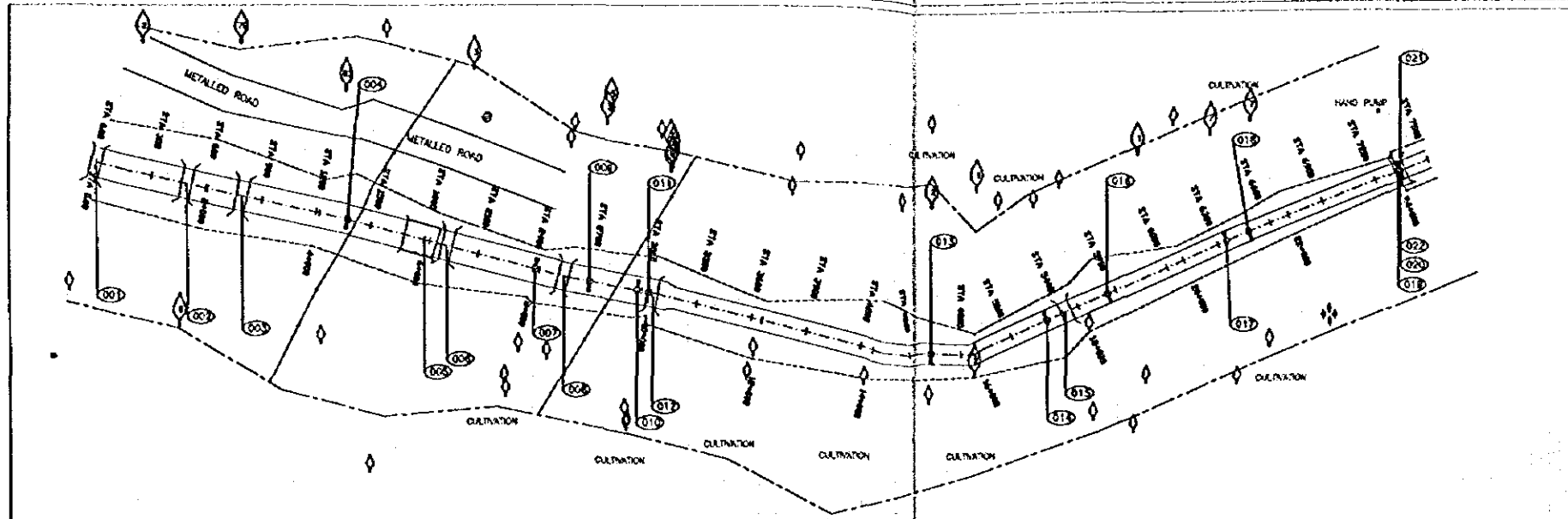
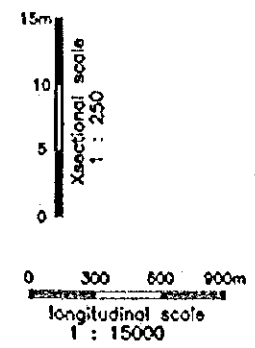
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY : HUJAN
MINOR : TANGU

FROM STA 0000 (00+000) TO : 4857 (15+931)

JAPAN INTERNATIONAL COOPERATION AGENCY LJC-13



DESCRIPTION	SYMBOLS
WATER COURSE (with R.D mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL ROAD BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (O&M) ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIPHON	
OUTLET LEFT (OL)	
OUTLET RIGHT (OR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road metalled/unmetalled cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Graves, Cross	
DISCHARGE (cumec)	Q
OUTLET DISCHARGE (cumec)	q
BED WIDTH	b
ROUGHNESS COEFFICIENT	n
VELOCITY	V
CANAL COMMAND AREA	CCA
BED SLOPE	s
SIDE SLOPE	z
WATER DEPTH	y
FREE BOARD	Frb
TAL LEFT	TL
TAL RIGHT	TR
TAL FRONT	TF

EXISTING DATA DESIGN DATA SECTION PROPERTIES

	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7
D	0 m/50.83	0 m/50.57	0 m/50.49	0 m/50.38	0 m/50.34	0 m/50.27	0 m/50.18
s	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018
z	1/2640	1/2640	1/2640	1/2640	1/2640	1/2640	1/2640
y (m)	1.04	1.01	0.98	0.74	0.71	0.55	0.58
b	1.48	1.48	1.48	1.48	1.48	1.48	1.48
V (m/s)	0.82	0.80	0.58	0.54	0.53	0.50	0.45
N	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Frb (m)	0.30	0.30	0.30	0.15	0.15	0.15	0.15
CCA (ha)	2123	2101	2138	1129	1123	1297	1241
DESIGNED FULL SUPPLY LEVEL							
DESIGNED BED LEVEL							
DISTANCE (m)							
STATION (m)							
LATEST FULL SUPPLY LEVEL							
N S L RIGHT							
N S L LEFT							
BED LEVEL							
RIGHT OF WAY LEFT (ft)							
RIGHT OF WAY RIGHT (ft)							
R.D. (ft)							

REVISION	REVISION	REVISION	REVISION
NO.	DATE	DESCRIPTION	BY
A			
B			
C			
D			

ISLAMIC REPUBLIC OF PAKISTAN
 GOVERNMENT OF PUNJAB
 THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB
 PLAN AND PROFILE OF
 CANAL SYSTEM: L J C
 DISTRIBUTARY : HUJAN
 MINOR : JASPAL
 FROM STA 000 (0+000) TO : 7500 (24+600)
 JAPAN INTERNATIONAL COOPERATION AGENCY | LJC-14

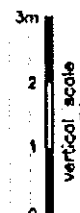
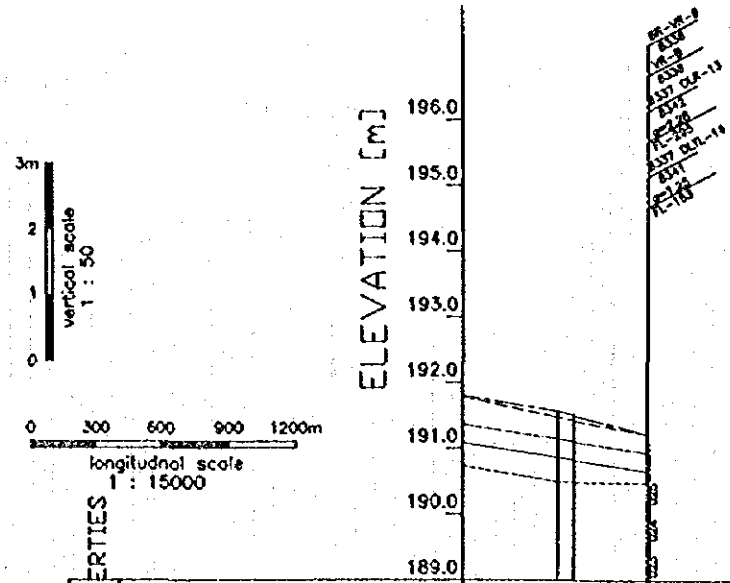
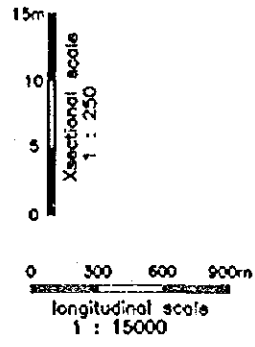
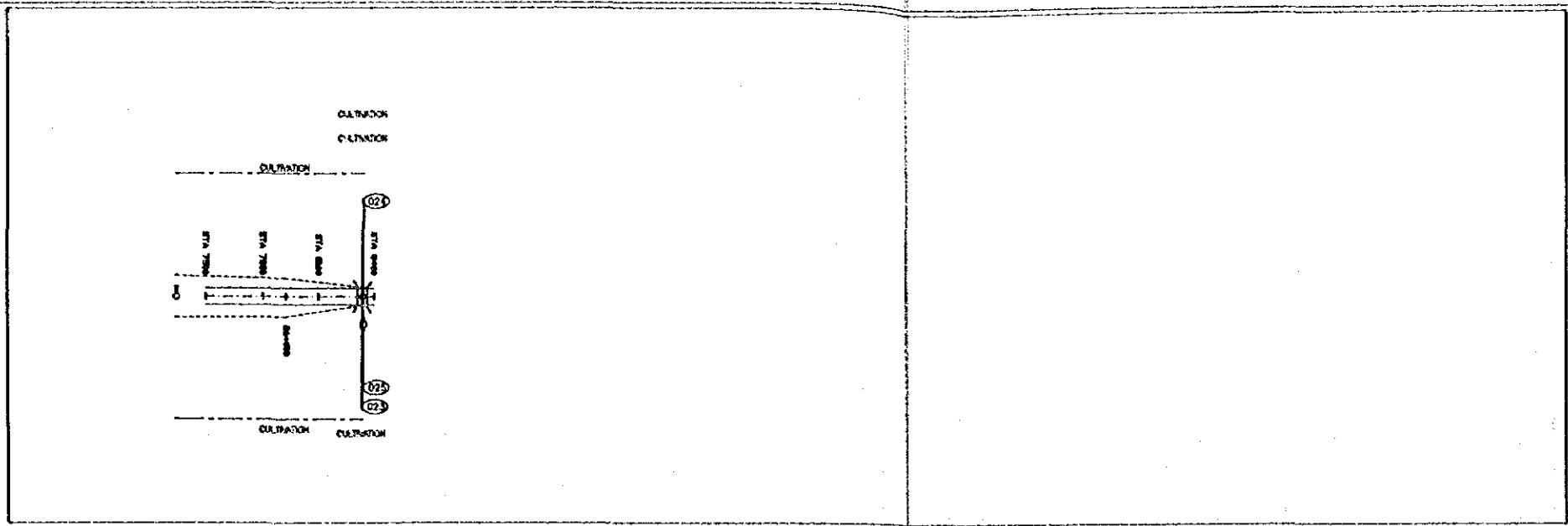
DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RS)	
OPERATION & MAINTENANCE (O&M) ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIPHON	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OLR)	
FALL/STOP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SPL) STEP RIGHT (SPR)	
ESCAPE	
LINED PORTION	
PIPE	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F S L	
DESIGN BED LEVEL	
N S L RIGHT	
N S L LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Road: metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Grove, Grass	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE s	
SIDE SLOPE s	
WATER DEPTH y	
FREE BOARD F/B	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

SECTION	INCH	FOOT	FEET	APPROX
A				
B				
C				
D				

ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L J C
DISTRIBUTARY : HUJAN
MINOR : JASPAL
FROM STA 7500 (24+600) TO : 8342 (27+362)



EXISTING DATA DESIGN DATA SECTION PROPERTIES

EXISTING DATA	DESIGN DATA	SECTION PROPERTIES
DESIGNED FULL SUPPLY LEVEL		
DESIGNED BED LEVEL		
DISTANCE (m)		
STATION (m)		
LATEST FULL SUPPLY LEVEL		
N S L RIGHT		
N S L LEFT		
BED LEVEL		
RIGHT OF WAY LEFT (ft)		
RIGHT OF WAY RIGHT (ft)		
R.D. (ft)		

Section 8

Q	2.70/10
n	1/0.18
s	1/1870
y (m)	0.43
b	0.66
V (m/s)	0.43
z	1.00
Frb (m)	0.15
CCA	0.00