

EXISTING DATA	DESIGN DATA			SECTION 1			SECTION 2			SECTION 3		
	DESIGNED FULL SUPPLY LEVEL	DESIGNED BED LEVEL	DISTANCE (m)	Q	n	s	Q	n	s	Q	n	s
DESIGNED FULL SUPPLY LEVEL	192.0	191.0	18	0.67248	0.018	1/4000	0.67248	0.018	1/3850	0.67248	0.018	1/3850
DESIGNED BED LEVEL	191.0	190.0	18	0.018	1.44	1.50	0.018	1.44	1.50	0.018	1.44	1.50
DISTANCE (m)	18	18	18	1.44	1.50	1.50	1.44	1.50	1.50	1.44	1.50	1.50
STATION (m)	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
LATEST FULL SUPPLY LEVEL	191.5	190.5	18	1.50	1.25	0.30	1.50	1.25	0.30	1.50	1.25	0.30
N S L RIGHT	191.5	190.5	18	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
N S L LEFT	190.5	189.5	18	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
BED LEVEL	190.5	189.5	18	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
RIGHT OF WAY LEFT (ft)	190.5	189.5	18	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
RIGHT OF WAY RIGHT (ft)	190.5	189.5	18	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
R.D. (ft)	190.5	189.5	18	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30

DESCRIPTION	SYMBOLS
WATER COURSE (with R.O 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 (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, Mosque, Tomb	
Road metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Grove, Cross	
DISCHARGE (cumec) O	
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	

REVISION NO.	REVISION DATE	DESIGNED BY	APPROVED BY
A			
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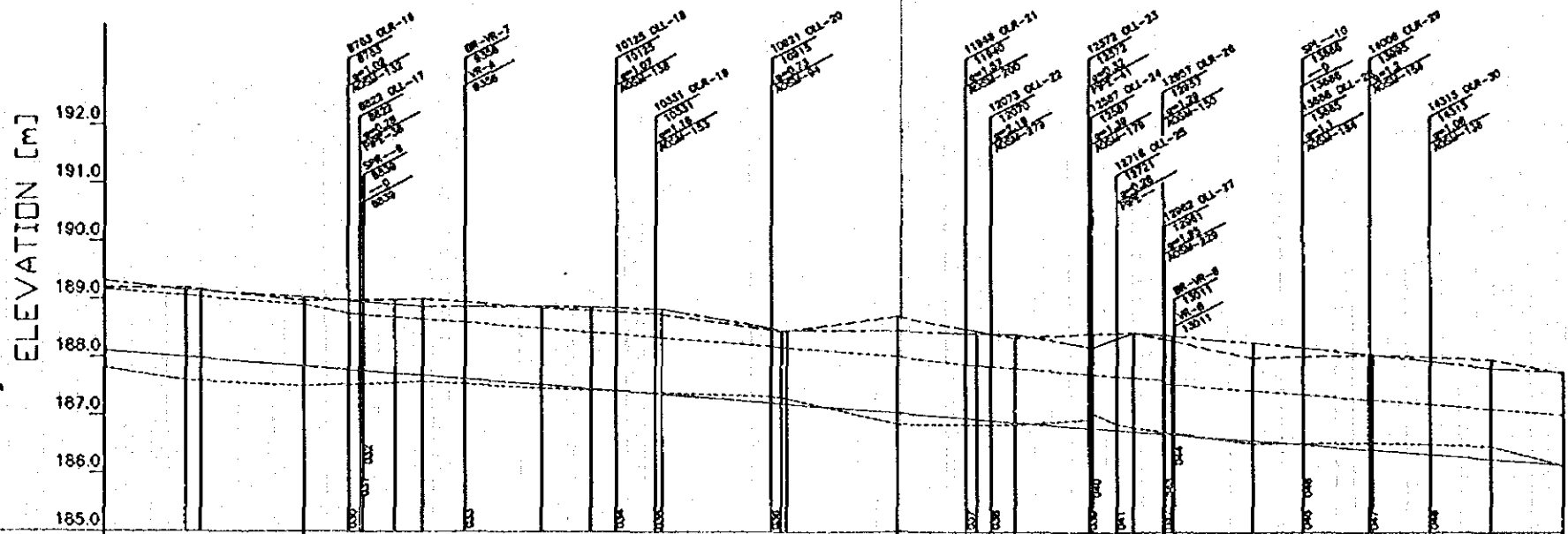
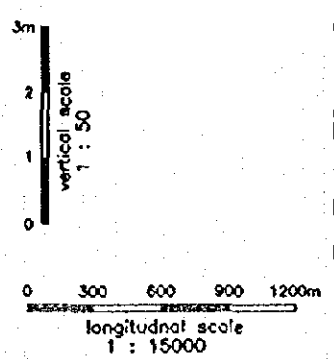
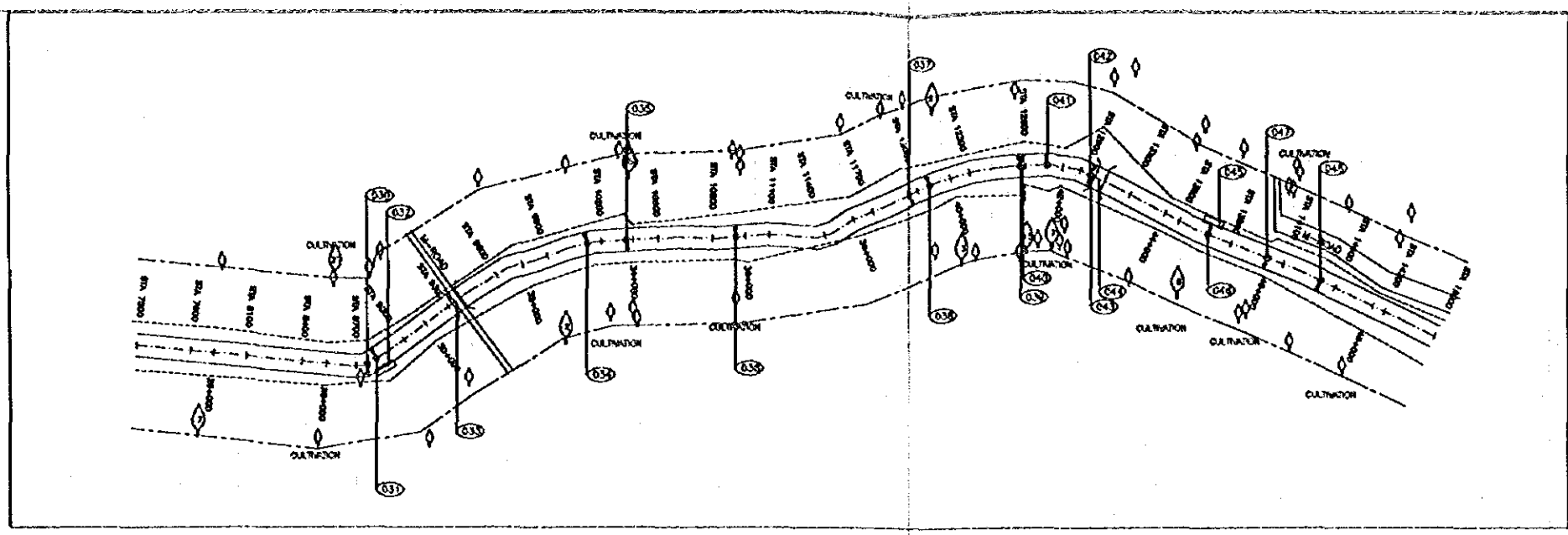
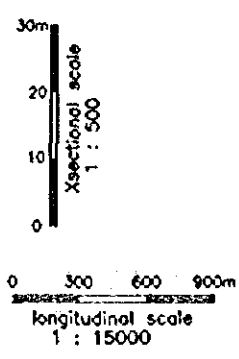
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 000 (0+000) TO : 7500 (24+600)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-1



EXISTING DATA DESIGN PROPERTIES

	Section 3	Section 4	Section 5	Section 6
DESIGNED FULL SUPPLY LEVEL	187.20	187.20	187.20	187.20
DESIGNED BED LEVEL	187.20	187.20	187.20	187.20
DISTANCE (m)	0	0	0	0
STATION (m)	7400	7400	7400	7400
LATEST FULL SUPPLY LEVEL	187.20	187.20	187.20	187.20
N S L RIGHT	187.20	187.20	187.20	187.20
N S L LEFT	187.20	187.20	187.20	187.20
BED LEVEL	187.20	187.20	187.20	187.20
RIGHT OF WAY LEFT (ft)	187.20	187.20	187.20	187.20
RIGHT OF WAY RIGHT (ft)	187.20	187.20	187.20	187.20
R.D. (ft)	187.20	187.20	187.20	187.20

DESCRIPTION	SYMBOLS
WATER COURSE (with R.O. 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 (OL)	
OUTLET RIGHT (OR)	
FALL/DROP (DF)	
CROSS REGULATOR	
MEASUREMENT STRUCTURE	
WATERCOURSE CROSSING	
TRANSITION	
STEP LEFT (SL) STEP RIGHT (SR)	
ESCAPE	
LINED PORTION	
PFC	
DESIGN STRUCTURE NUMBER	
RAILWAY LINE	
RIGHT OF WAY	
DESIGN CENTER LINE	
EXISTING CENTER LINE	
DESIGN BANK	
EXISTING BANK	
DESIGN F.S.L.	
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 _o
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

ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

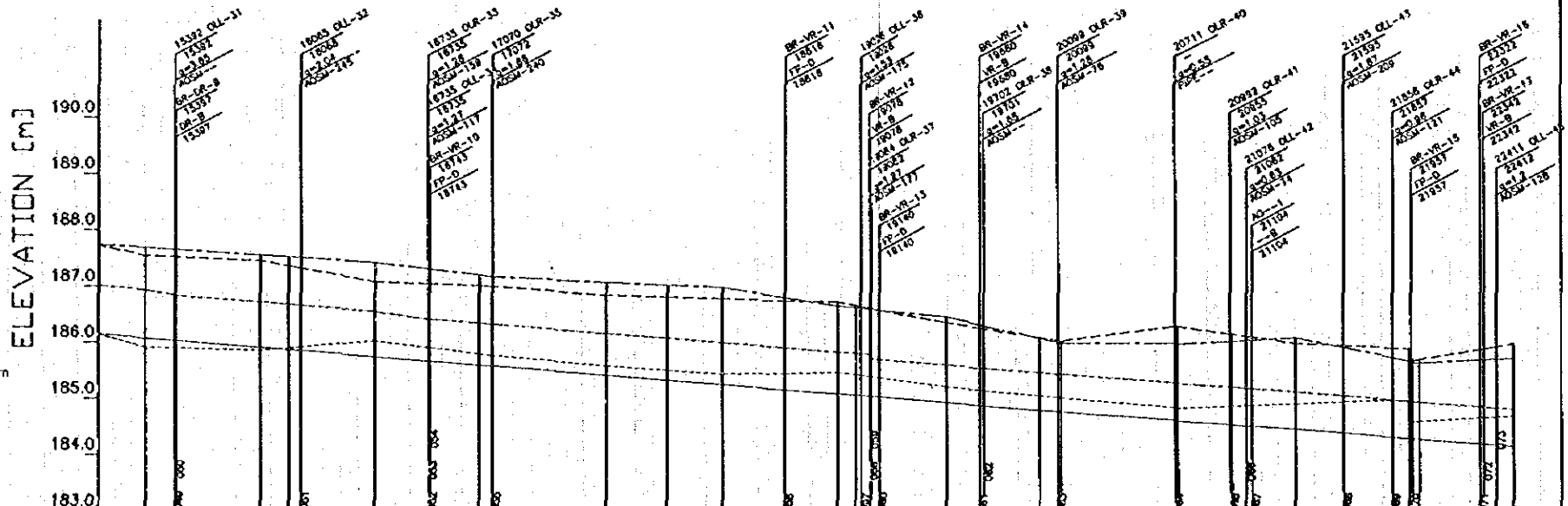
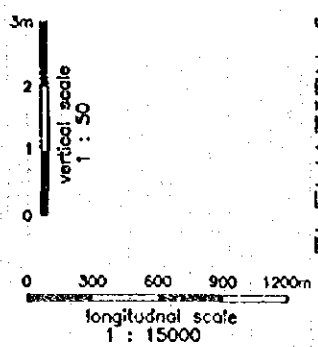
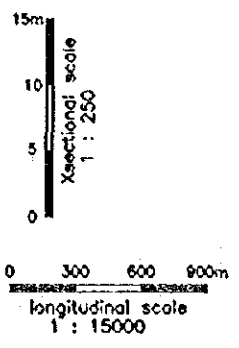
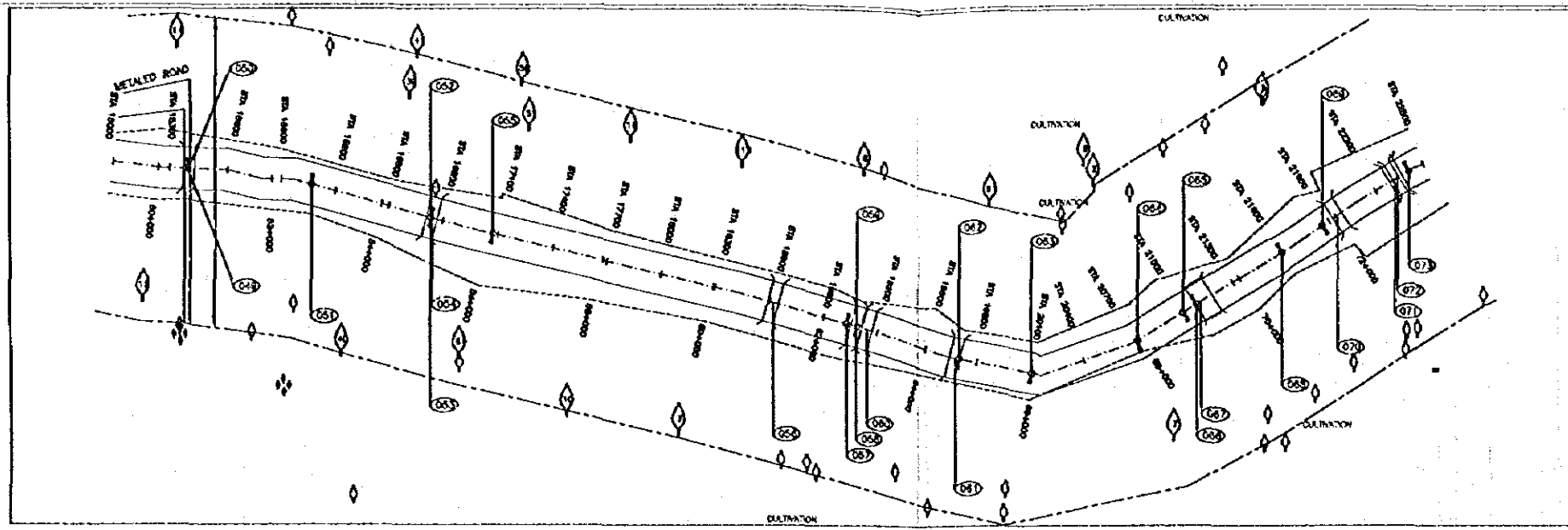
THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 7500 (24+600) TO : 15000 (49+200)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-2

DESCRIPTION	SYMBOLS
WATER COURSE (with R.O. 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 ORNAGE CULVERT	
INVERTED SIPHON	
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, Village, Mosque, Tomb	
Road: metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Groove, Grose	
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 6	Section 7	Section 8	Section 9	Section 10	Section 11
Q (m ³ /s) 21.44	Q (m ³ /s) 27.27	Q (m ³ /s) 27.09	Q (m ³ /s) 27.77	Q (m ³ /s) 27.77	Q (m ³ /s) 27.64
n 0.018	n 0.018	n 0.018	n 0.018	n 0.018	n 0.018
s 1/3650	s 1/3650	s 1/3650	s 1/3650	s 1/3650	s 1/3650
y (m) 1.18	y (m) 1.10	y (m) 1.04	y (m) 0.97	y (m) 0.97	y (m) 0.88
b 1.50	b 1.50	b 1.50	b 1.50	b 1.25	b 1.00
V (m/s) 0.85	V (m/s) 0.65	V (m/s) 0.60	V (m/s) 0.57	V (m/s) 0.56	V (m/s) 0.53
z 1.25	z 1.25	z 1.25	z 1.25	z 1.25	z 1.25
FrB (m) 0.30	FrB (m) 0.30	FrB (m) 0.30	FrB (m) 0.30	FrB (m) 0.30	FrB (m) 0.30
CCA (ha) 2896	CCA (ha) 2452	CCA (ha) 2181	CCA (ha) 207	CCA (ha) 528	CCA (ha) -
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 NO.	REVISION DATE	BY	CHKD
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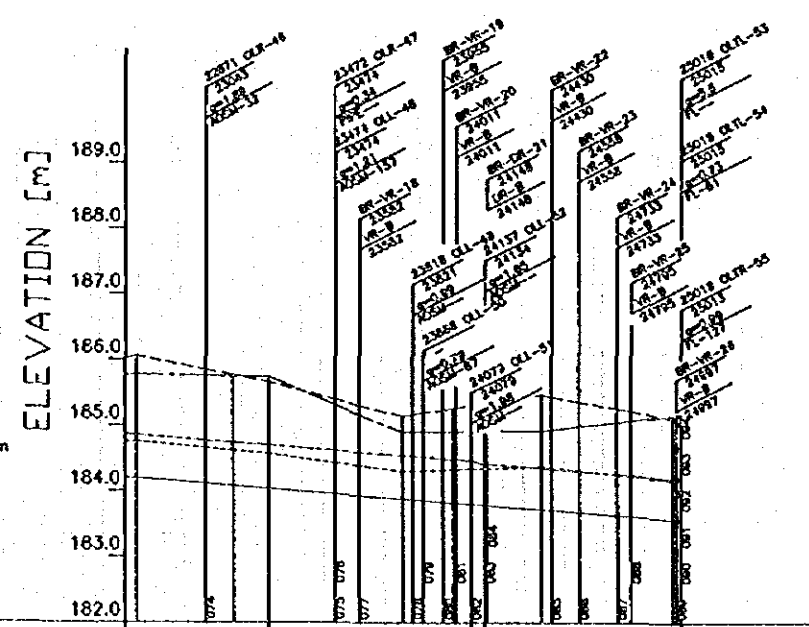
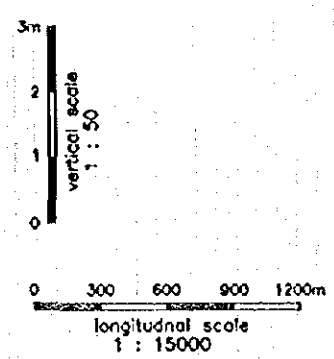
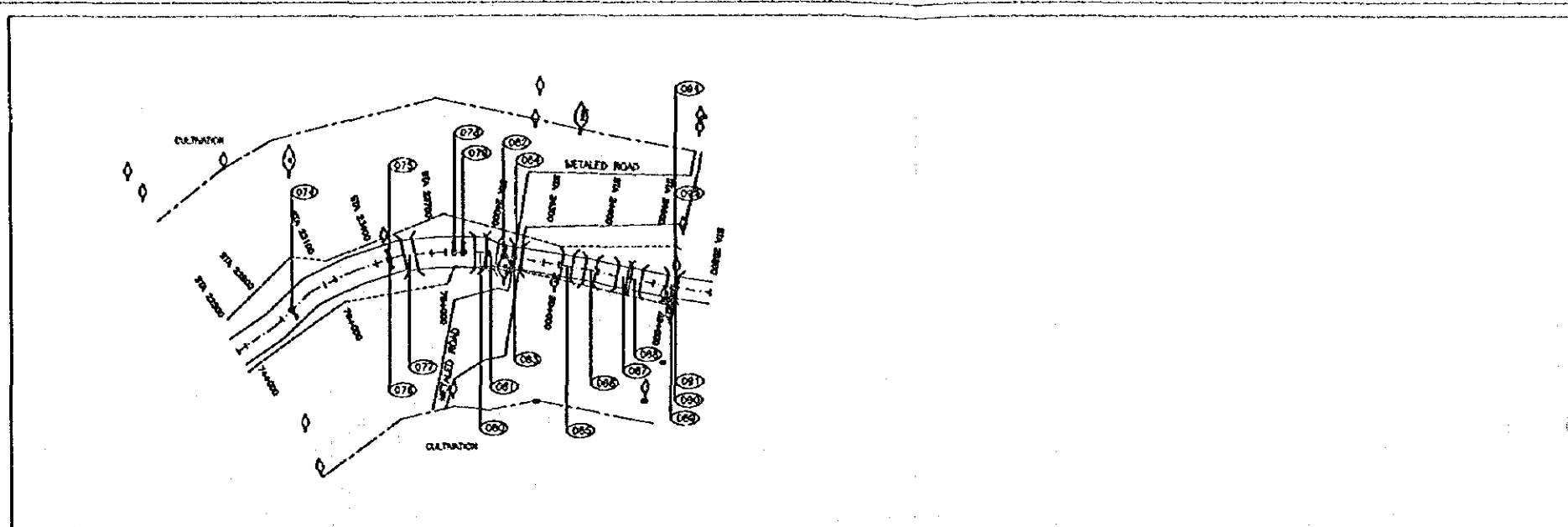
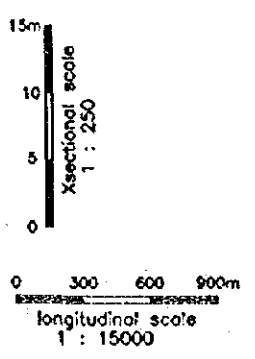
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 15000 (49+200) TO : 22500 (73+800)

JAPAN INTERNATIONAL COOPERATION AGENCY | LCC-3



EXISTING DATA DESIGN DATA DESIGN PROPERTIES

	Section 11	Section 12	Section 13	25018 CLR-26
DESIGNED FULL SUPPLY LEVEL	188.70	188.70	188.70	188.70
DESIGNED BED LEVEL	186.50	186.50	186.50	186.50
DISTANCE (m)	22500	22500	22500	22500
STATION (m)	22500	22500	22500	22500
LATEST FULL SUPPLY LEVEL	188.70	188.70	188.70	188.70
N S L RIGHT	188.70	188.70	188.70	188.70
N S L LEFT	188.70	188.70	188.70	188.70
BED LEVEL	186.50	186.50	186.50	186.50
RIGHT OF WAY LEFT (ft)	188.70	188.70	188.70	188.70
RIGHT OF WAY RIGHT (ft)	188.70	188.70	188.70	188.70
R.D. (ft)	188.70	188.70	188.70	188.70

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 (OUR)	
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, Village, Mosque, Tomb	
Road: metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Trees, Jungle	
Grass, Grass	
DISCHARGE (cumec) 0	
OUTLET DISCHARGE (cumec) 4	
RED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE #	
SIDE SLOPE z	
WATER DEPTH y	
FREE BOARD Frb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

REVISION NO.	REVISION DATE	CHECKED NAME/DATE	APPROVED NAME/DATE
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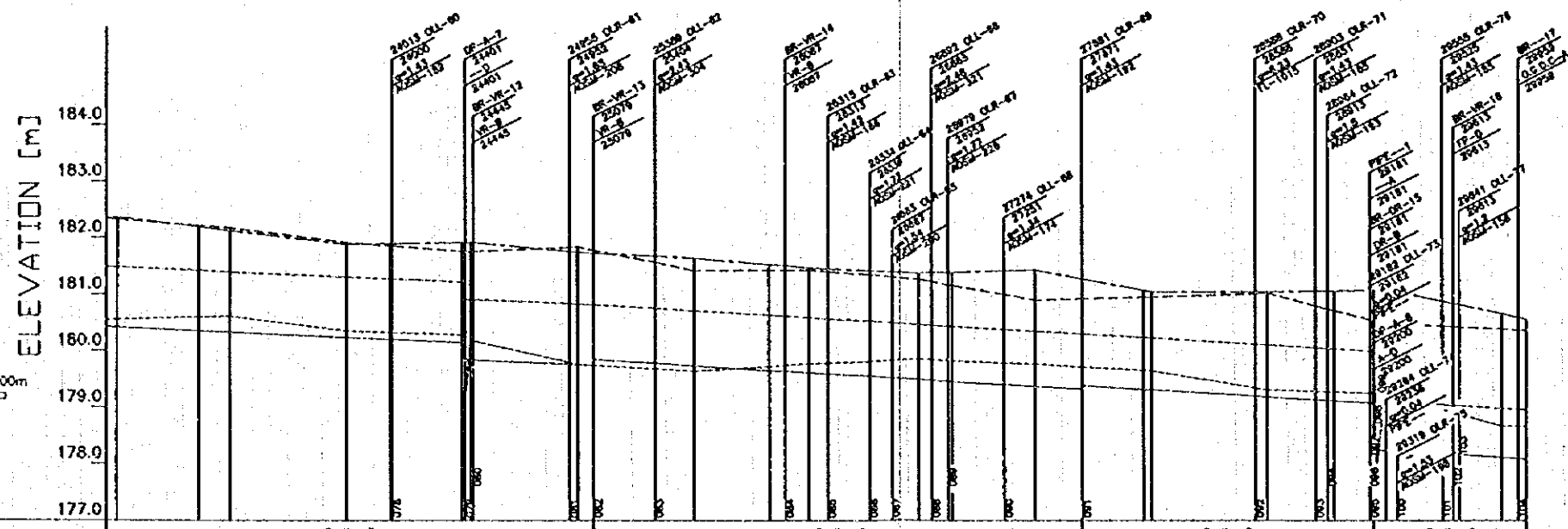
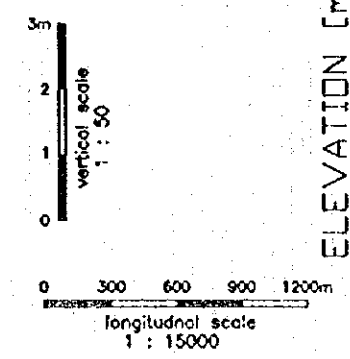
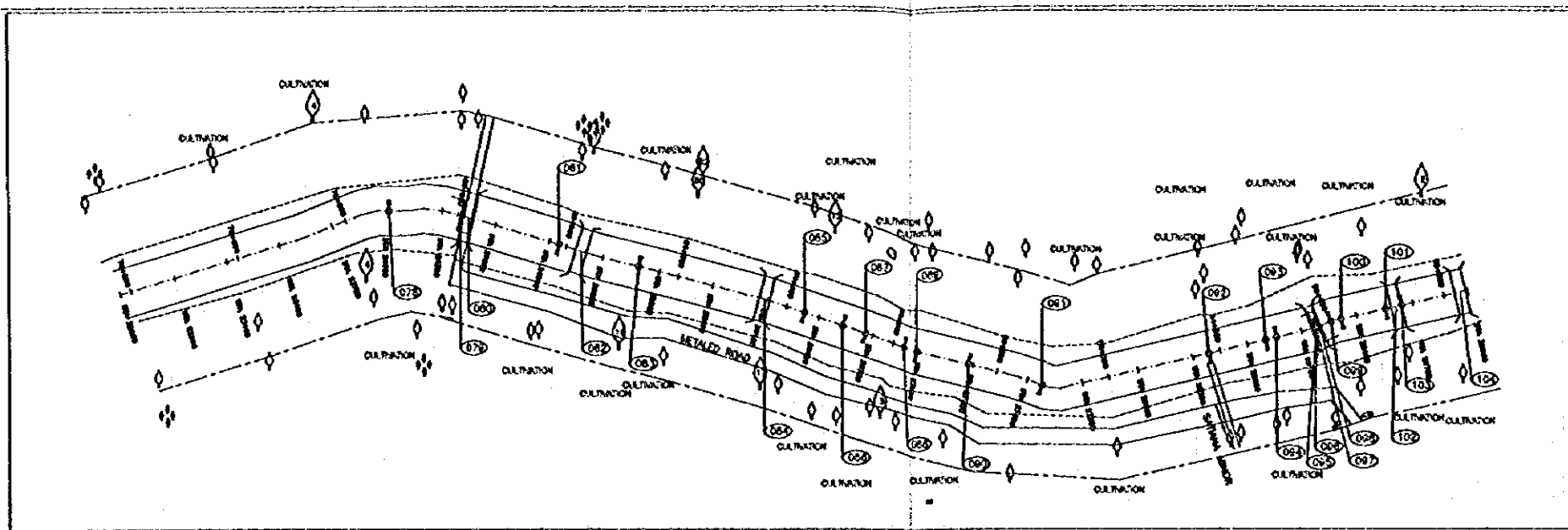
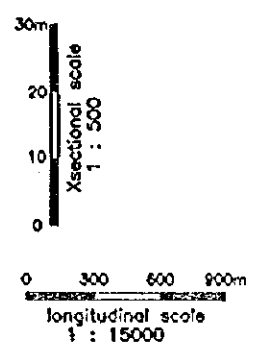
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 22500 (73+800) TO : 25468 (83+535)

JAPAN INTERNATIONAL COOPERATION AGENCY | LCC-4



EXISTING DATA DESIGN SECTION PROPERTIES

	Section 5	Section 6	Section 7	Section 8
DESIGNED FULL SUPPLY LEVEL	182.12	181.85	181.58	181.31
DESIGNED BED LEVEL	179.90	179.63	179.36	179.09
DISTANCE (m)	22500	22500	22500	22500
STATION (m)	22500	22500	22500	22500
LATEST FULL SUPPLY LEVEL	182.12	181.85	181.58	181.31
N S L RIGHT	182.12	181.85	181.58	181.31
N S L LEFT	179.90	179.63	179.36	179.09
BED LEVEL	179.90	179.63	179.36	179.09
RIGHT OF WAY LEFT (ft)	22500	22500	22500	22500
RIGHT OF WAY RIGHT (ft)	22500	22500	22500	22500
R.D. (ft)	22500	22500	22500	22500

DESCRIPTION	SYMBOLS
WATER COURSE (with R.O. 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 / OULVERT SECTION	
CROSS DRAINAGE OULVERT	
INVERTED SECTION	
OUTLET LEFT (OL)	
OUTLET RIGHT (OR)	
FALL/DROP (OF)	
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.	
N.S.L. RIGHT	
N.S.L. LEFT	
BED LEVEL	
Building, Mosque, Tomb	
Road: metalled, unmetalled, port-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Graves, Orches	
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	REVISED	DESIGNED	APPROVED
NO.	DATE	DATE	DATE
A			
B			
C			
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ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

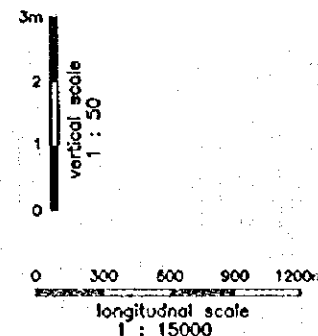
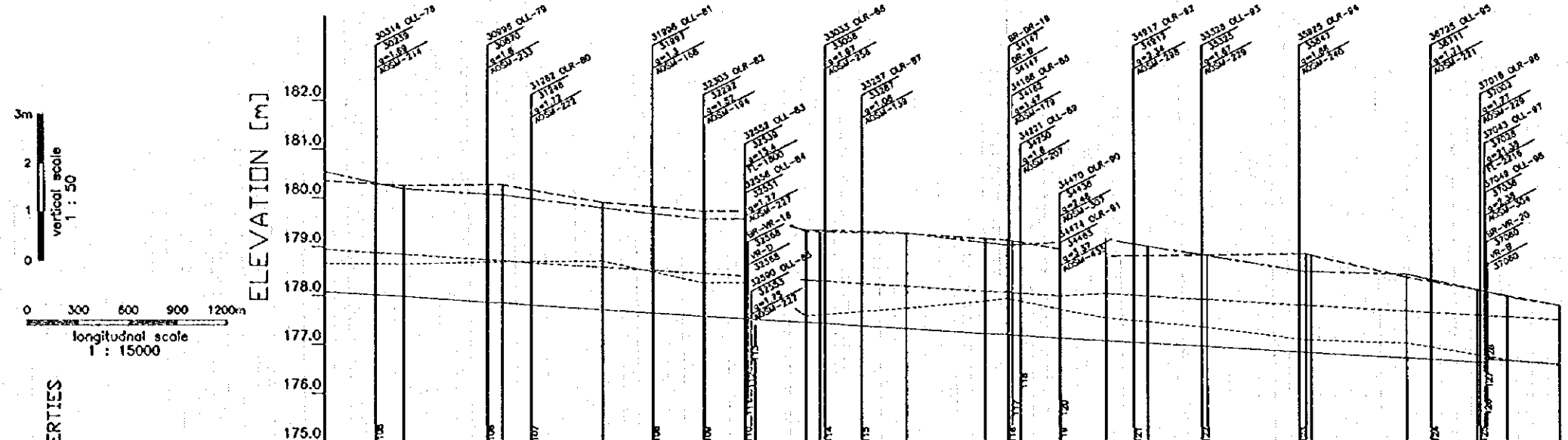
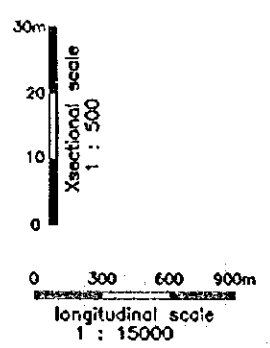
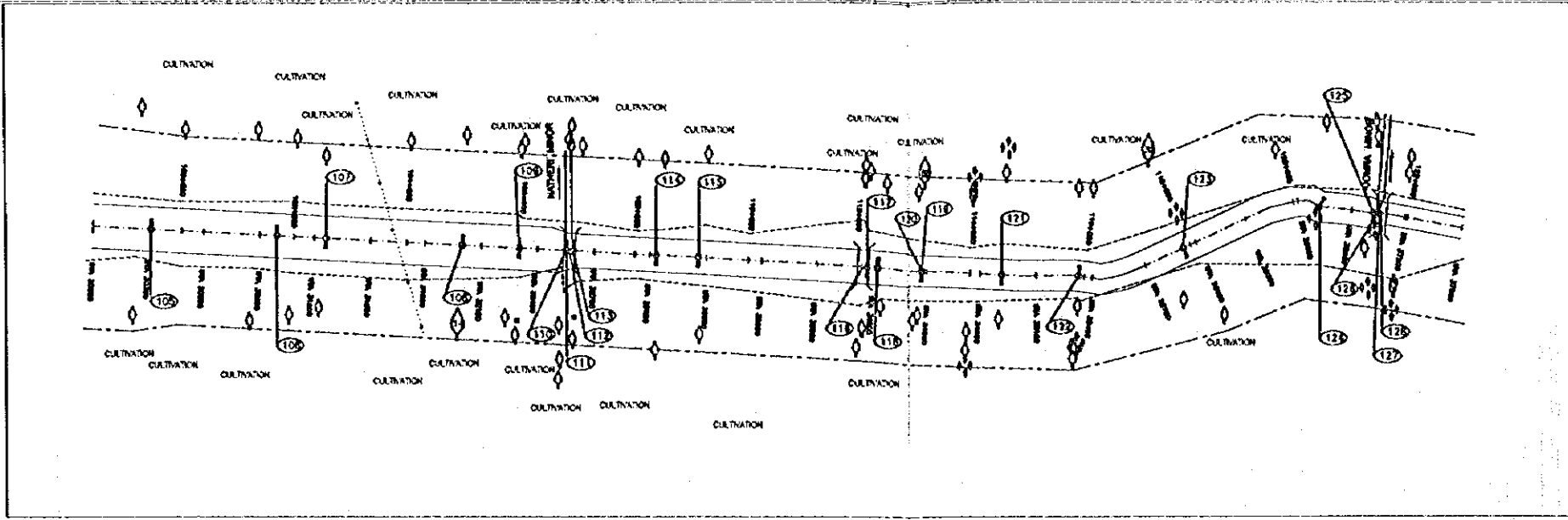
THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 22500 (73+800) TO : 30000 (98+400)

JAPAN INTERNATIONAL COOPERATION AGENCY | LCC-8

DESCRIPTION	SYMBOLS
WATER COURSE (with R.O 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 (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	
M S L RIGHT	
M S L LEFT	
BED LEVEL	
Building, Village, Mosque, Tomb	
Roads: metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with flow, Water Course, Pond	
Tree, Jungle	
Cross, Cross	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL COMMAND AREA CCA	
BED SLOPE e	
SHOE SLOPE z	
WATER DEPTH y	
FREE BOARD Frb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	



EXISTING DATA DESIGN PROPERTIES

	Section 8	Section 9	Section 10	Section 11
DESIGNED FULL SUPPLY LEVEL	30000+400	30000+400	30000+400	30000+400
DESIGNED BED LEVEL	30000+400	30000+400	30000+400	30000+400
DISTANCE (m)	30000+400	30000+400	30000+400	30000+400
STATION (m)	30000+400	30000+400	30000+400	30000+400
LATEST FULL SUPPLY LEVEL	30000+400	30000+400	30000+400	30000+400
N S L RIGHT	30000+400	30000+400	30000+400	30000+400
N S L LEFT	30000+400	30000+400	30000+400	30000+400
BED LEVEL	30000+400	30000+400	30000+400	30000+400
RIGHT OF WAY LEFT (ft)	30000+400	30000+400	30000+400	30000+400
RIGHT OF WAY RIGHT (ft)	30000+400	30000+400	30000+400	30000+400
R.D. (ft)	30000+400	30000+400	30000+400	30000+400

REVISION	NO.	DATE	BY	APP'D
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D				

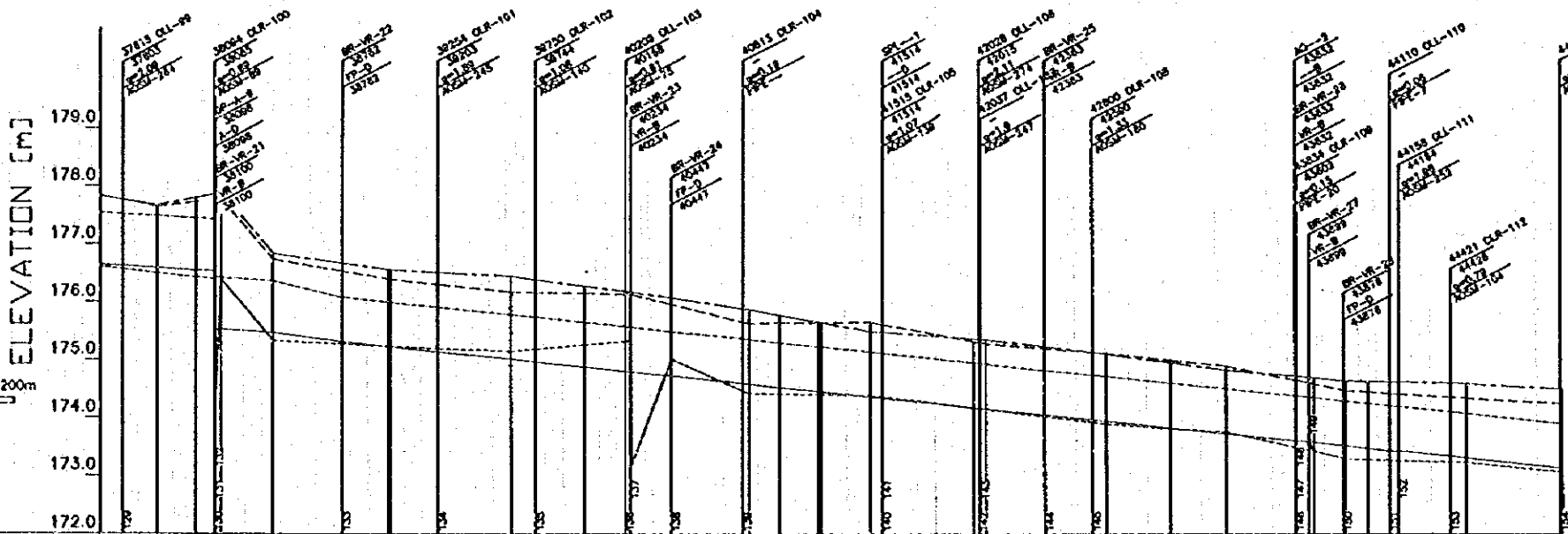
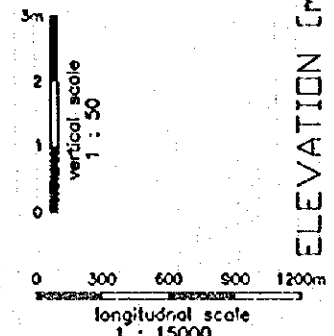
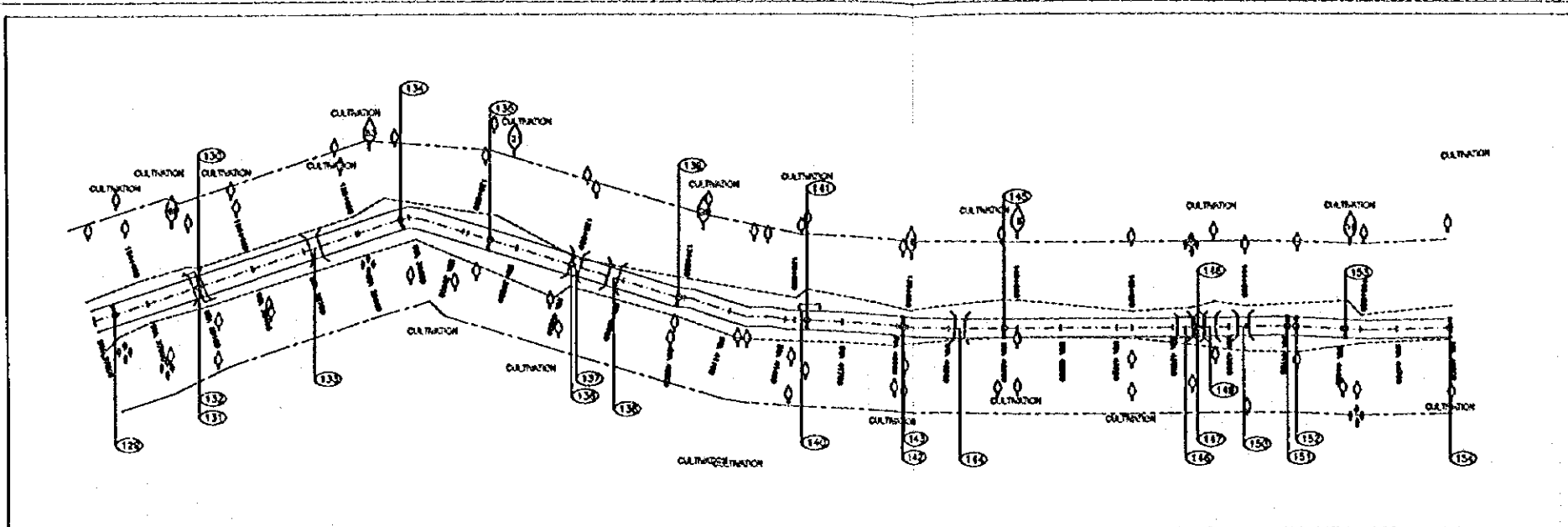
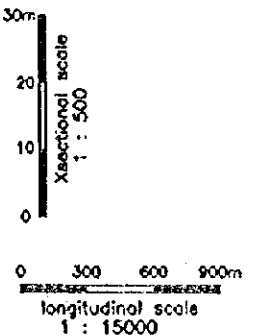
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 30000 (98+400) TO : 37500 (123+000)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-9



EXISTING DATA DESIGN PROPERTIES

	Section 11	Section 12	Section 13	Section 14	Section 15
DESIGNED FULL SUPPLY LEVEL	177.81	177.81	177.81	177.81	177.81
DESIGNED BED LEVEL	177.81	177.81	177.81	177.81	177.81
DISTANCE (m)	37500-37510	37510-37520	37520-37530	37530-37540	37540-37550
STATION (m)	37500-37510	37510-37520	37520-37530	37530-37540	37540-37550
LATEST FULL SUPPLY LEVEL	177.81	177.81	177.81	177.81	177.81
N S L RIGHT	177.81	177.81	177.81	177.81	177.81
N S L LEFT	177.81	177.81	177.81	177.81	177.81
BED LEVEL	177.81	177.81	177.81	177.81	177.81
RIGHT OF WAY LEFT (ft)	177.81	177.81	177.81	177.81	177.81
RIGHT OF WAY RIGHT (ft)	177.81	177.81	177.81	177.81	177.81
R.D. (ft)	177.81	177.81	177.81	177.81	177.81

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 (OL)	
OUTLET RIGHT (OR)	
FALL/DROP (OP)	
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	
BUCKING, Village, Mosque, Tomb	
Road: metalled, unmetalled, cart-track	
Electric line, Telephone line	
River with bar, 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	
FRICE BOARD Frb	
TAL LEFT TL	
TAL RIGHT TR	
TAL FRONT TF	

REVISION	NO.	DATE	BY	CHKD	DATE
A					
B					
C					
D					

ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

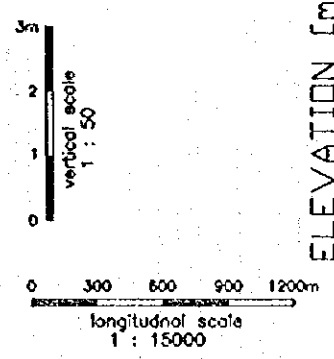
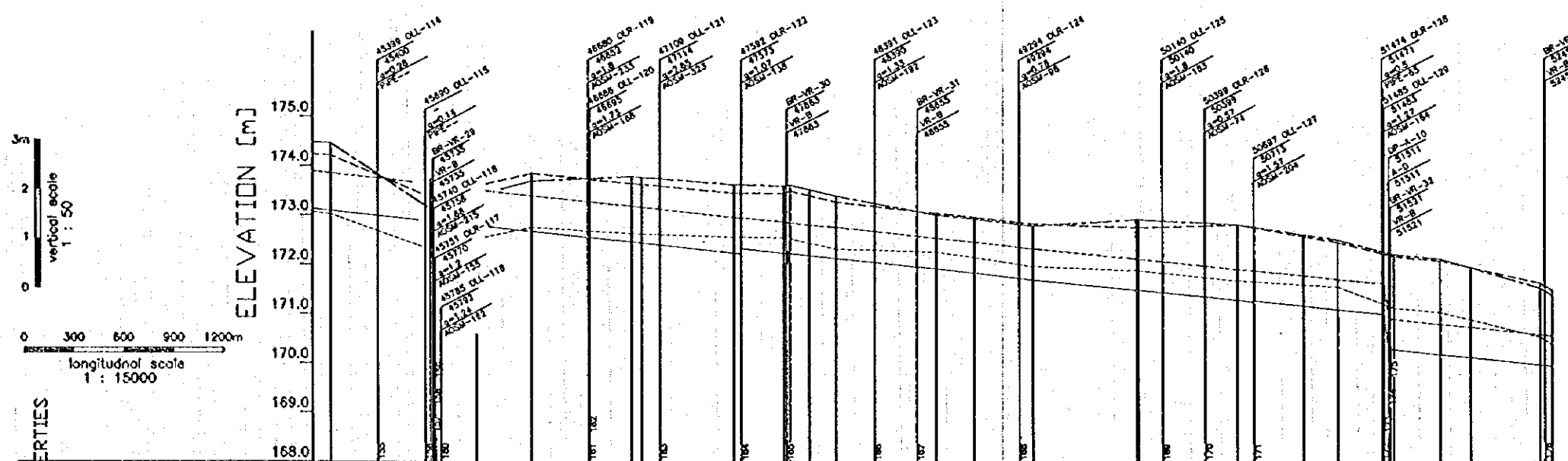
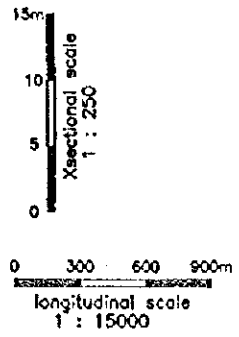
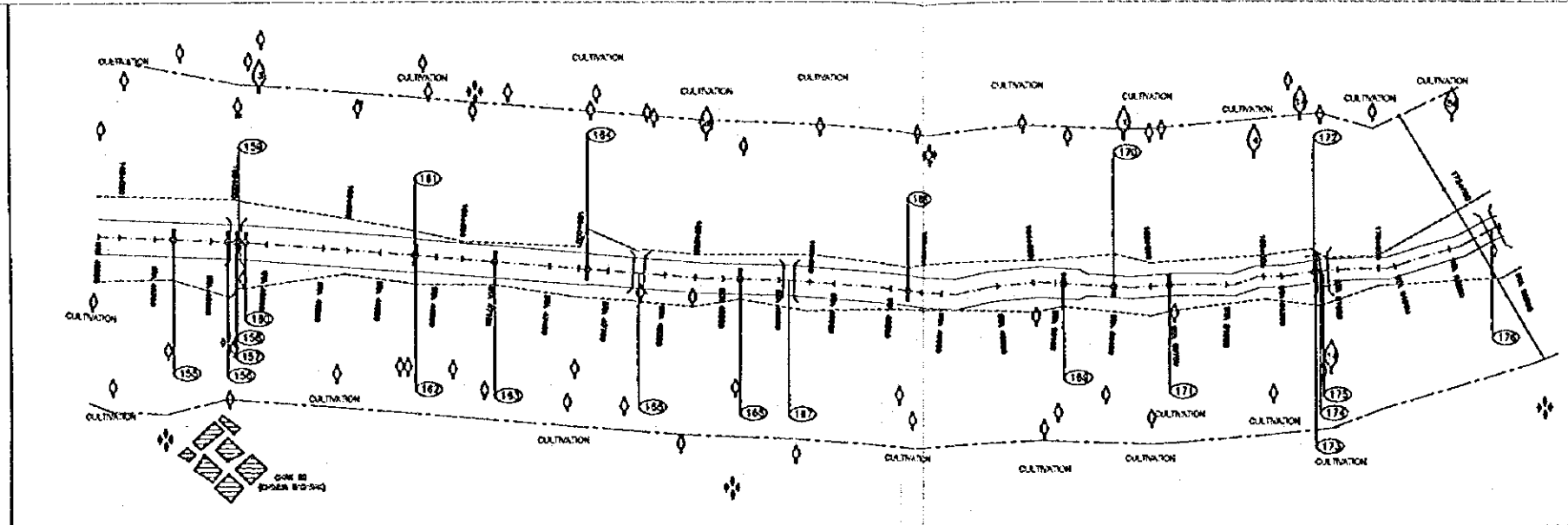
THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 37500 (123+000) TO : 45000 (147+600)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-10

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)	
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	
Grave, 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	



SECTION PROPERTIES	Section 15		Section 16		Section 17		Section 18		Section 19	
	Q (m³/s)	n	Q (m³/s)	n	Q (m³/s)	n	Q (m³/s)	n	Q (m³/s)	n
DESIGNED FULL SUPPLY LEVEL	174.30		174.30		174.30		174.30		174.30	
DESIGNED BED LEVEL	170.00		170.00		170.00		170.00		170.00	
DISTANCE (m)	45000		45000		45000		45000		45000	
STATION (m)	45000		45000		45000		45000		45000	
LATEST FULL SUPPLY LEVEL	174.30		174.30		174.30		174.30		174.30	
N S L RIGHT	174.30		174.30		174.30		174.30		174.30	
N S L LEFT	174.30		174.30		174.30		174.30		174.30	
BED LEVEL	170.00		170.00		170.00		170.00		170.00	
RIGHT OF WAY LEFT (ft)	174.30		174.30		174.30		174.30		174.30	
RIGHT OF WAY RIGHT (ft)	174.30		174.30		174.30		174.30		174.30	
R.D. (ft)	174.30		174.30		174.30		174.30		174.30	

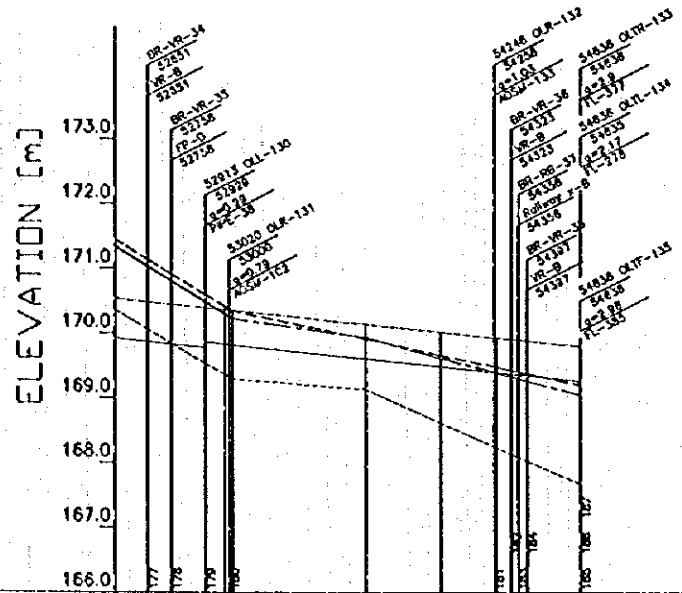
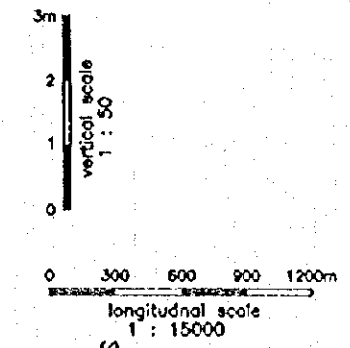
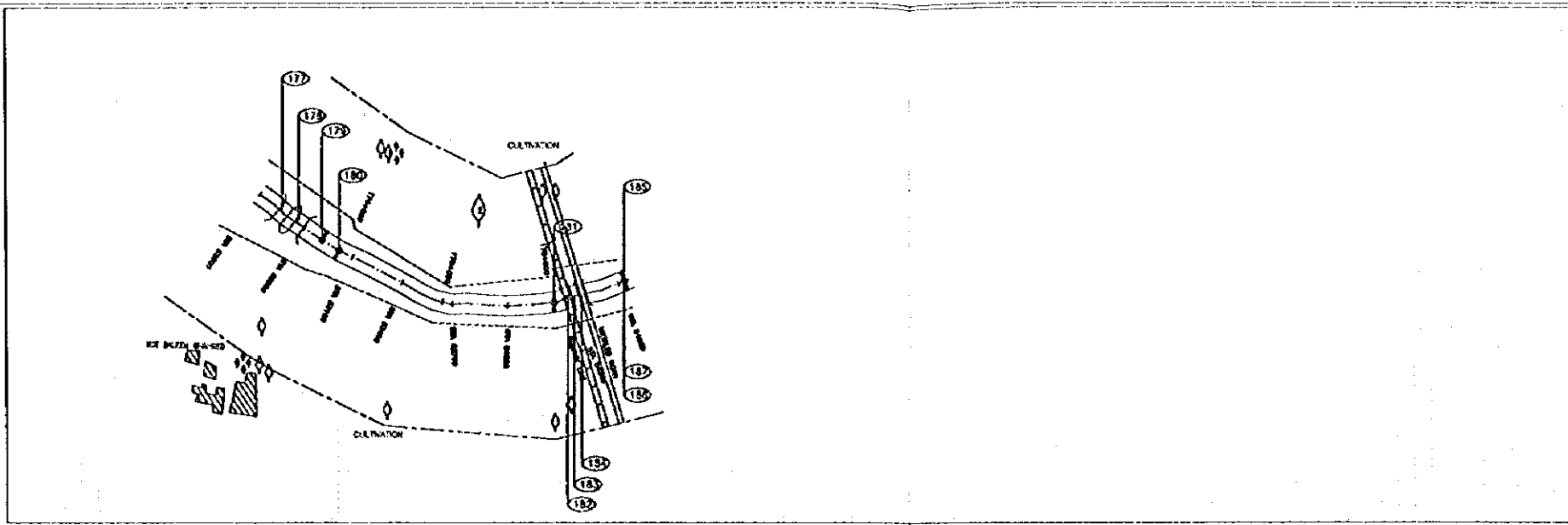
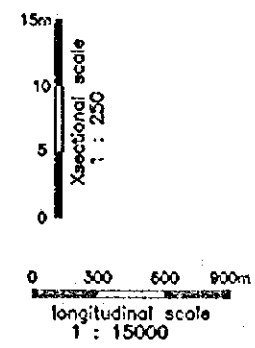
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 45000 (147+600) TO : 52500 (172+200)

JAPAN INTERNATIONAL COOPERATION AGENCY | LCC-11



EXISTING DATA	Section 19		Section 20	
		177	178	179
DESIGNED FULL SUPPLY LEVEL	172.50	172.50	172.50	172.50
DESIGNED BED LEVEL	170.50	170.50	170.50	170.50
DISTANCE (m)	0	100	0	100
STATION (m)	52500	52600	52500	52600
LATEST FULL SUPPLY LEVEL	172.50	172.50	172.50	172.50
N S L RIGHT	172.50	172.50	172.50	172.50
N S L LEFT	172.50	172.50	172.50	172.50
BED LEVEL	170.50	170.50	170.50	170.50
RIGHT OF WAY LEFT (ft)	172.50	172.50	172.50	172.50
RIGHT OF WAY RIGHT (ft)	172.50	172.50	172.50	172.50
R.D. (ft)	172.50	172.50	172.50	172.50

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 / OULVERT SECTION	
CROSS DRAINAGE OULVERT	
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	
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	
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 z	
WATER DEPTH y	
FREE BOARD Fb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

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

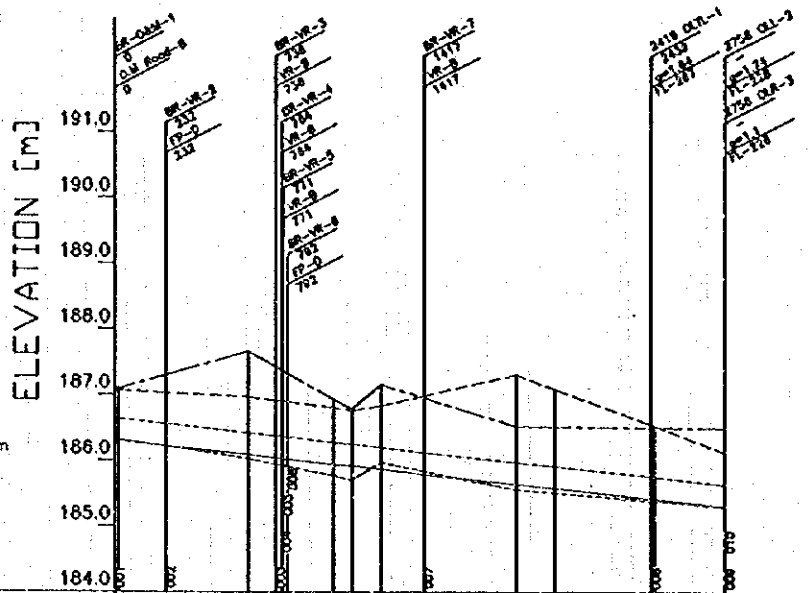
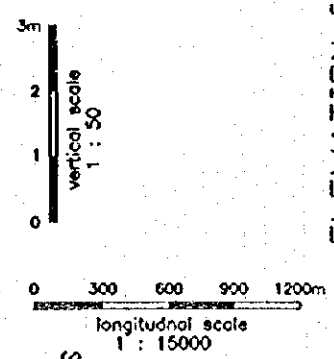
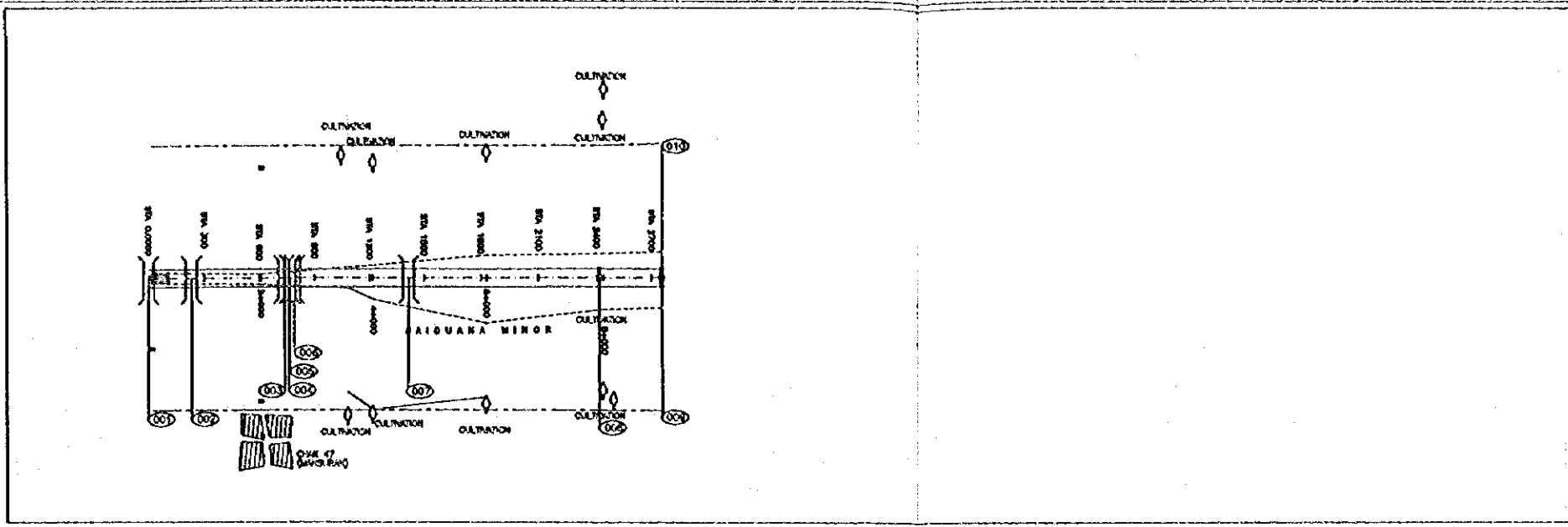
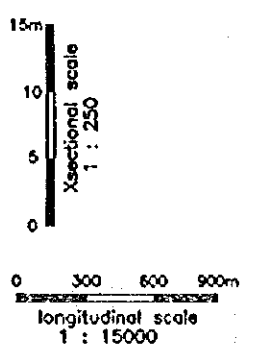
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 52500 (172+200) TO : 54636 (179+206)

JAPAN INTERNATIONAL COOPERATION AGENCY | LCC-12



EXISTING DATA DESIGN DATA DESIGN SECTION PROPERTIES

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

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 (OL)	
OUTLET RIGHT (OR)	
FALL/DROP (FD)	
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 rice, 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	
TAL LEFT TL	
TAL RIGHT TR	
TAL FRONT TF	

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

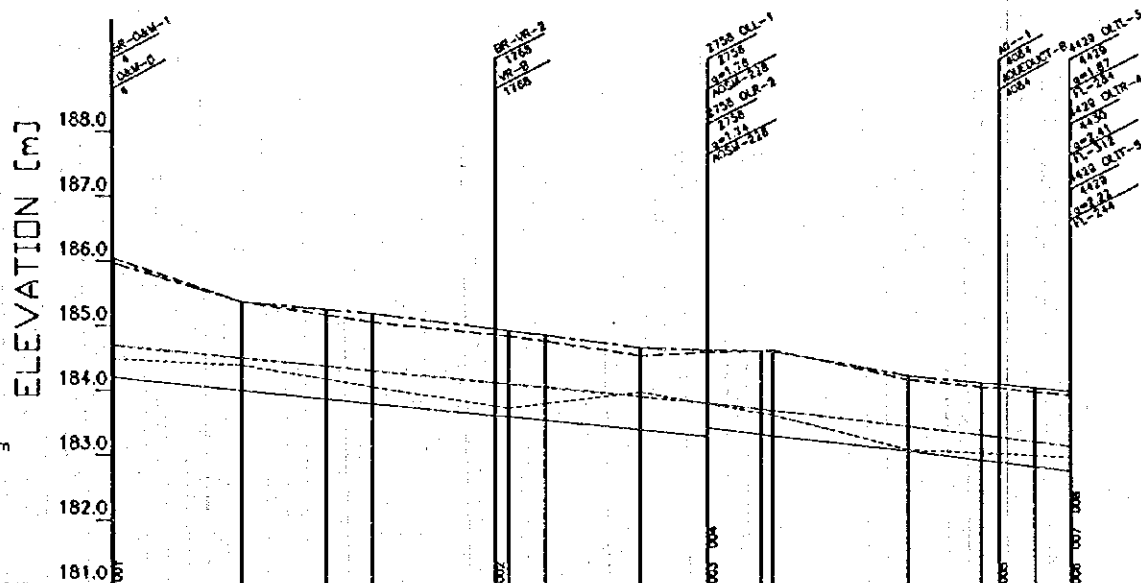
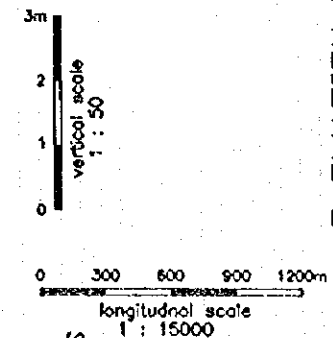
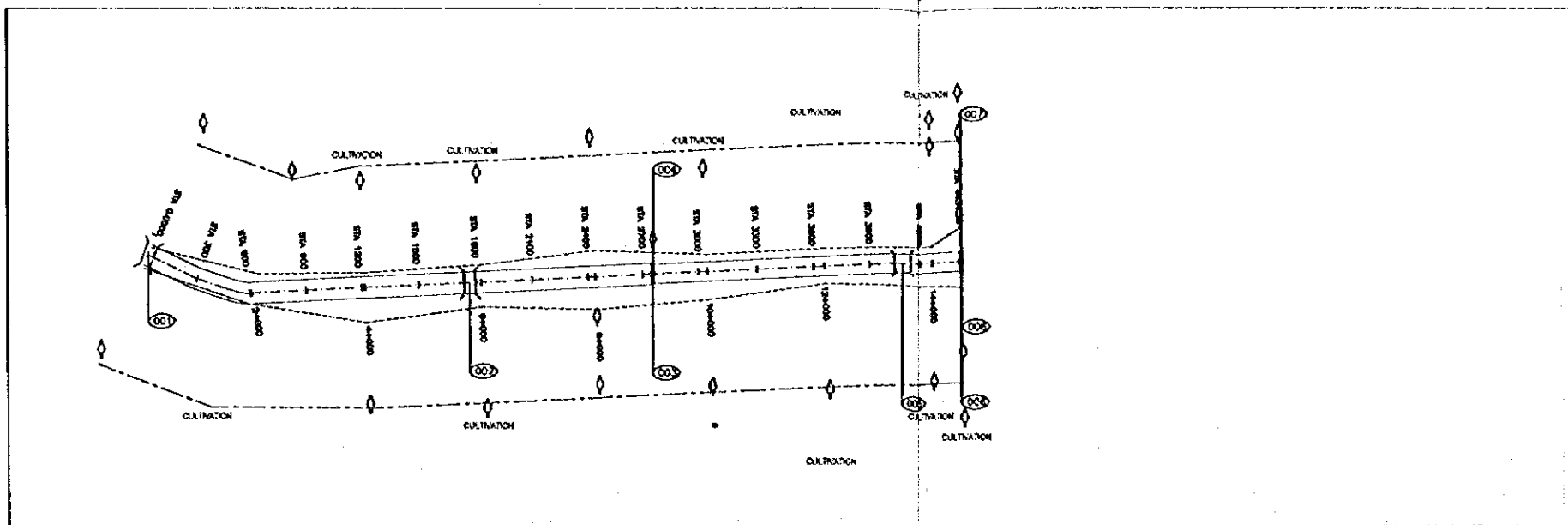
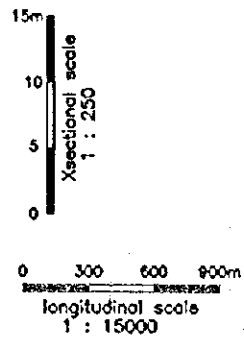
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L C C
DISTRIBUTARY : NASRANA
MINOR : SADUANA

FROM STA 000 (0+000) TO : 2756 (9+040)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-13



EXISTING DATA	Section 1		Section 2	
	0	100	0	100
DESIGNED FULL SUPPLY LEVEL	186.50	185.50	185.50	184.50
DESIGNED BED LEVEL	184.50	183.50	183.50	182.50
DISTANCE (m)	0	100	0	100
STATION (m)	0	100	0	100
LATEST FULL SUPPLY LEVEL	186.50	185.50	185.50	184.50
N S L RIGHT	185.50	184.50	184.50	183.50
N S L LEFT	184.50	183.50	183.50	182.50
BED LEVEL	184.50	183.50	183.50	182.50
RIGHT OF WAY LEFT (ft)	186.50	185.50	185.50	184.50
RIGHT OF WAY RIGHT (ft)	186.50	185.50	185.50	184.50
R.D. (ft)	186.50	185.50	185.50	184.50

DESCRIPTION	SYMBOLS
WATER COURSE (with R.O. 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 SYPHON	
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	
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 z	
WATER DEPTH y	
FREE BOARD Fb	
TAL LEFT RL	
TAL RIGHT TR	
TAL FRONT TF	

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

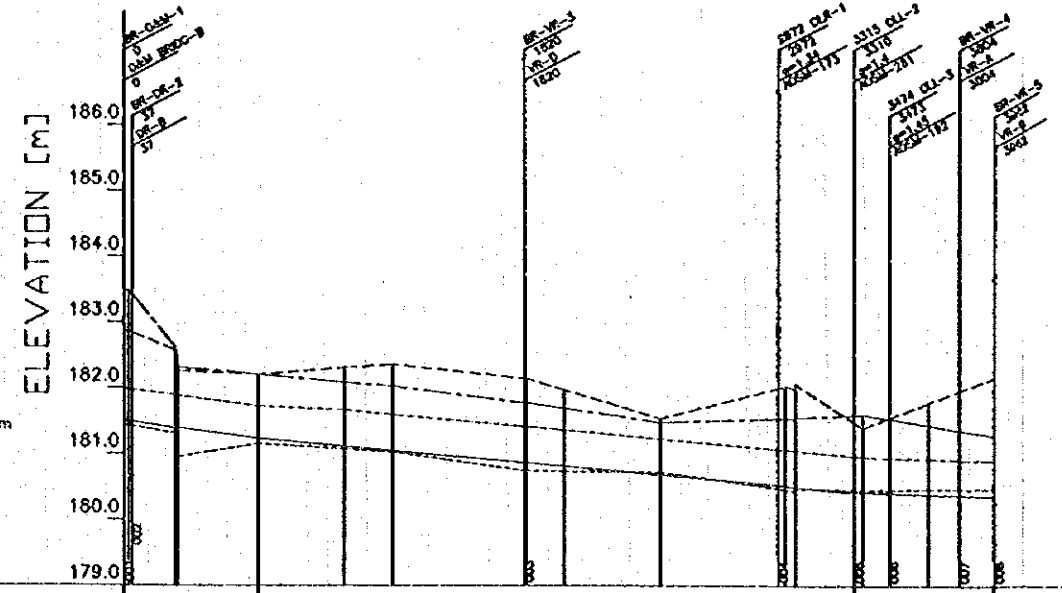
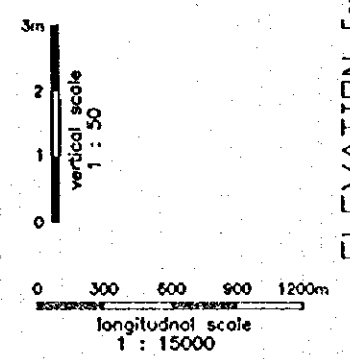
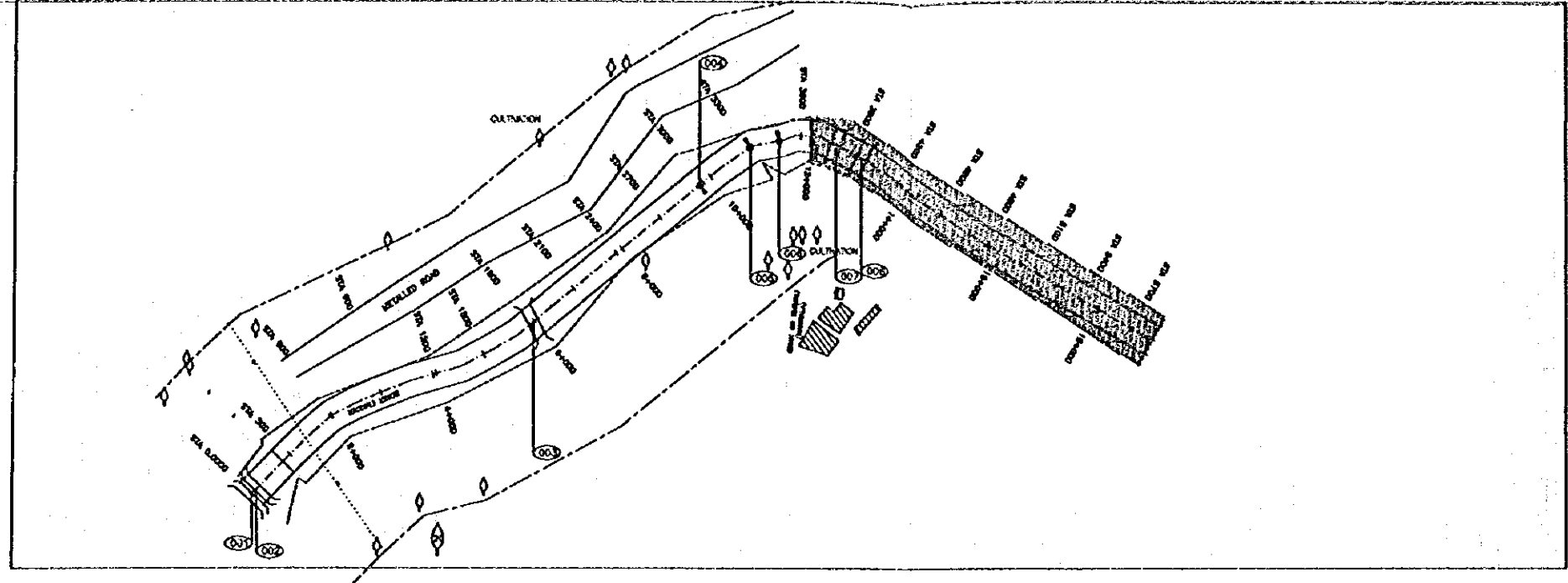
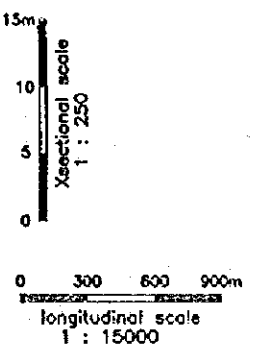
ISLAMIC REPUBLIC OF PAKISTAN
 GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
 CANAL SYSTEM: L C C
 DISTRIBUTARY : NASRANA
 MINOR : KHILLIANA

FROM STA 00 (0+000) TO : 4429 (14+527)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-14



EXISTING DATA DESIGN DATA SECTION PROPERTIES

	Section 1	Section 2	Section 3
DESIGNED FULL SUPPLY LEVEL	182.00	182.00	182.00
DESIGNED BED LEVEL	181.00	181.00	181.00
DISTANCE (m)	0 - 1000	0 - 1000	0 - 1000
STATION (m)	000 - 1000	000 - 1000	000 - 1000
LATEST FULL SUPPLY LEVEL	182.00	182.00	182.00
N S L RIGHT	181.00	181.00	181.00
N S L LEFT	181.00	181.00	181.00
BED LEVEL	181.00	181.00	181.00
RIGHT OF WAY LEFT (ft)	181.00	181.00	181.00
RIGHT OF WAY RIGHT (ft)	181.00	181.00	181.00
R.D. (ft)	181.00	181.00	181.00

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 (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	
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 rice, 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 F/B	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

SECTION	RECEIVED	APPROVED
A		
B		
C		
D		

ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

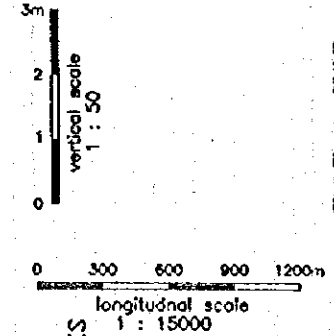
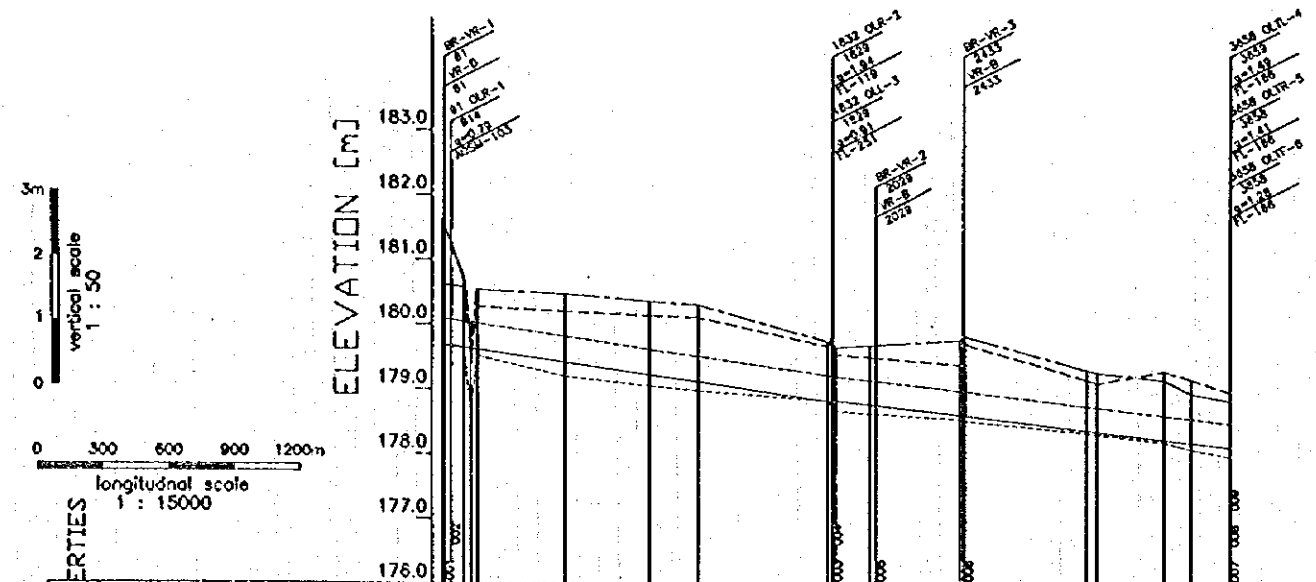
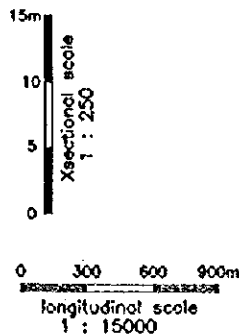
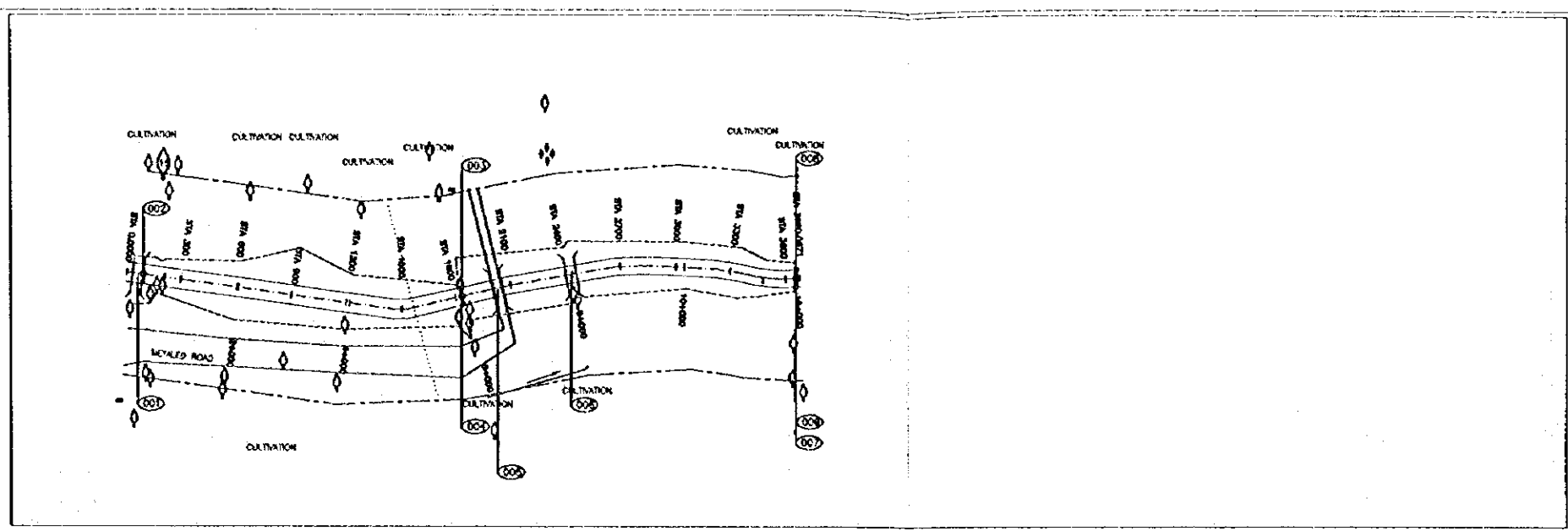
THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L C C
DISTRIBUTARY : NASRANA
MINOR : NARWALA

FROM STA 000 (0+000) TO : 3962 (12+995)

JAPAN INTERNATIONAL COOPERATION AGENCY KCC-15

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 (OUR)	
FALL/DROP (OP)	
GROSS 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 z	
WATER DEPTH y	
FREE BOARD Frb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	



EXISTING DATA	DESIGN DATA		DESIGN DATA	
	Section 1	Section 2	Section 3	Section 4
DESIGNED FULL SUPPLY LEVEL	180.00	180.00	180.00	180.00
DESIGNED BED LEVEL	179.50	179.50	179.50	179.50
DISTANCE (m)	0-1000	1000-1400	1400-1800	1800-2200
STATION (m)	0+000	1+000	1+400	1+800
LATEST FULL SUPPLY LEVEL	180.00	180.00	180.00	180.00
N S L RIGHT	180.00	180.00	180.00	180.00
N S L LEFT	180.00	180.00	180.00	180.00
BED LEVEL	179.50	179.50	179.50	179.50
RIGHT OF WAY LEFT (ft)	180.00	180.00	180.00	180.00
RIGHT OF WAY RIGHT (ft)	180.00	180.00	180.00	180.00
R.D. (ft)	180.00	180.00	180.00	180.00

REVISION	NO.	DATE	BY	CHECKED
A				
B				
C				
D				

ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

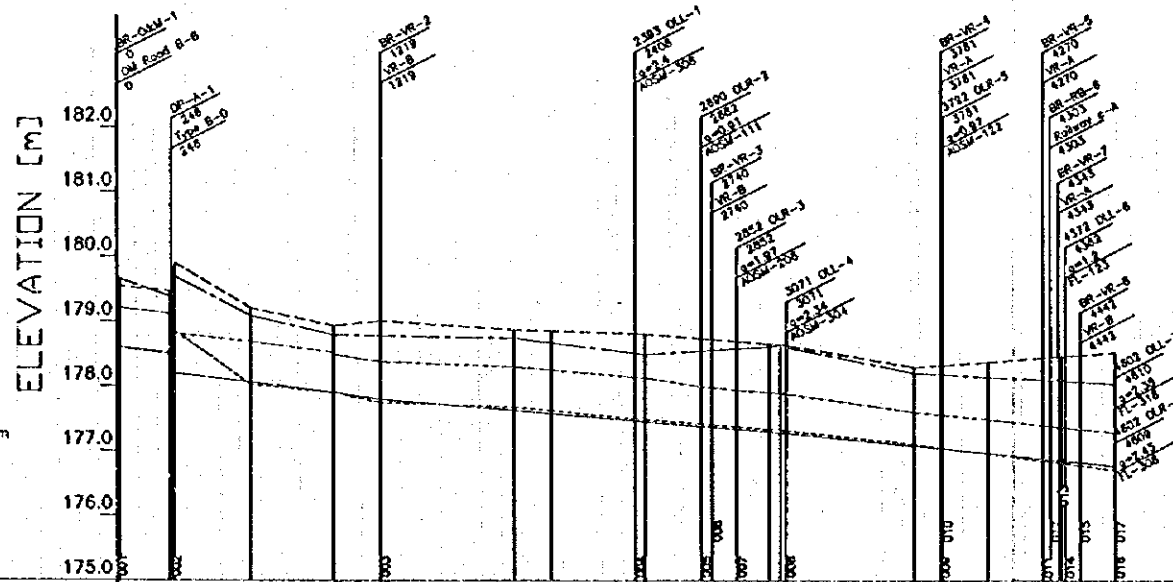
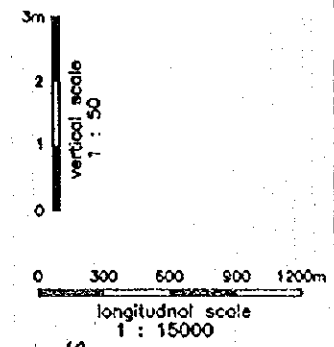
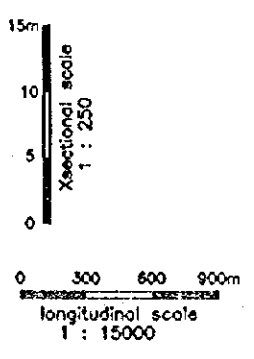
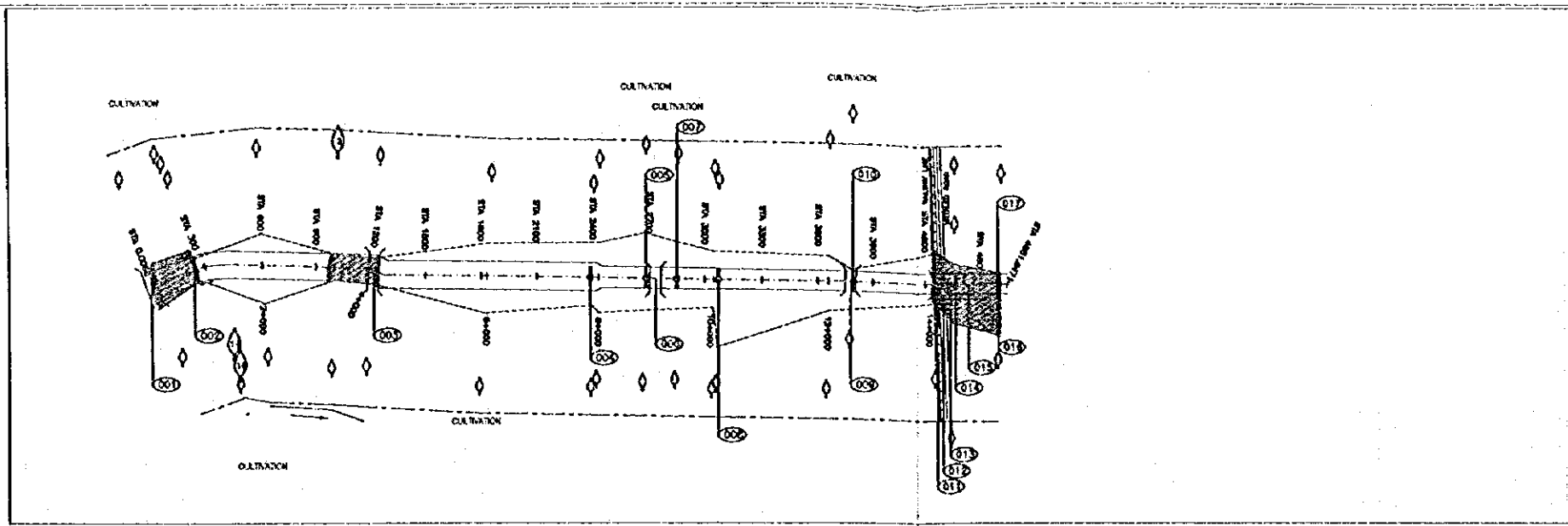
THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L C C
DISTRIBUTARY : NASRANA
MINOR : SATIANA

FROM STA 000 (0+000) TO : 3658 (11+998)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-16

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)	(RB)
OPERATION & MAINTENANCE (O&M) ROAD BRIDGE	
TUNNEL / OULVERT SECTION	
CROSS DRAINAGE OULVERT	
INVERTED SIFTON	
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	(31)
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	F/S
TAIL LEFT	TL
TAIL RIGHT	TR
TAIL FRONT	TF



EXISTING DATA DESIGN DATA	SECTION PROPERTIES				
	Section 1	Section 2	Section 3	Section 4	Section 5
DESIGNED FULL SUPPLY LEVEL	178.00	178.00	178.00	178.00	178.00
DESIGNED BED LEVEL	177.50	177.50	177.50	177.50	177.50
DISTANCE (m)	0-100	100-200	200-300	300-400	400-500
STATION (m)	0+00	1+00	2+00	3+00	4+00
LATEST FULL SUPPLY LEVEL	177.80	177.80	177.80	177.80	177.80
N S L RIGHT	177.50	177.50	177.50	177.50	177.50
N S L LEFT	177.50	177.50	177.50	177.50	177.50
BED LEVEL	177.50	177.50	177.50	177.50	177.50
RIGHT OF WAY LEFT (ft)	177.50	177.50	177.50	177.50	177.50
RIGHT OF WAY RIGHT (ft)	177.50	177.50	177.50	177.50	177.50
R.D. (ft)	177.50	177.50	177.50	177.50	177.50

REVISION	RE-DESIGNED	DESIGNED	APPROVED
NO.	DATE	DATE	DATE
A			
B			
C			
D			

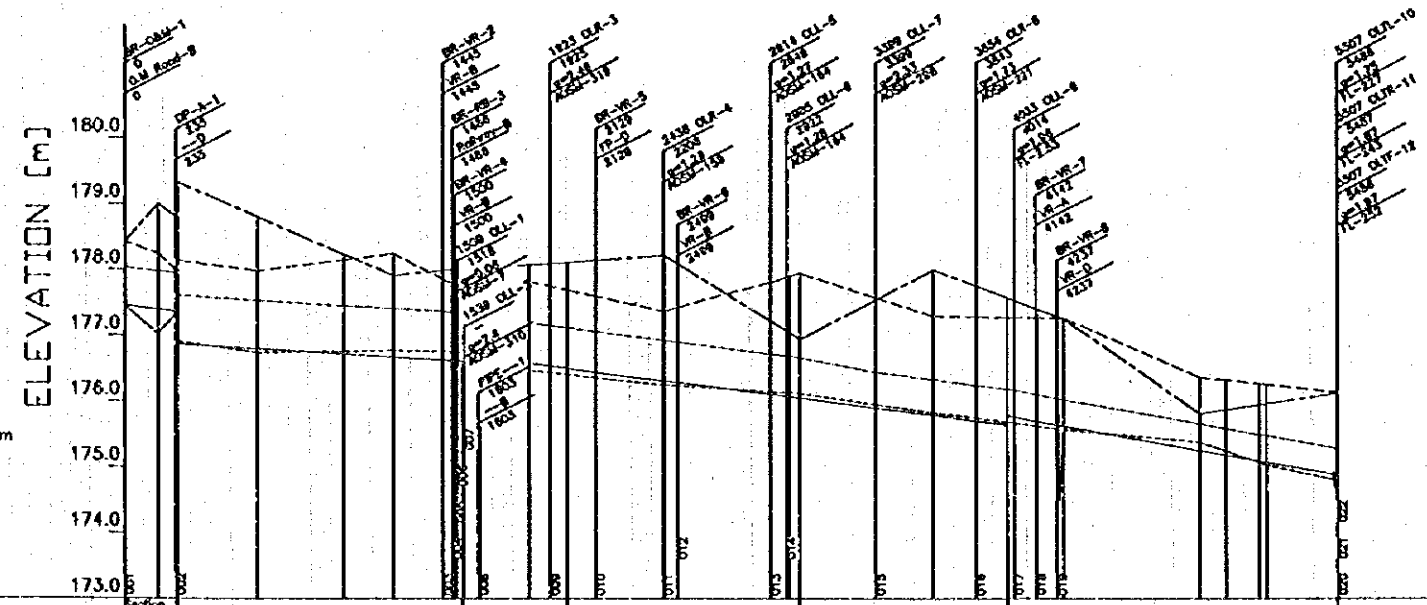
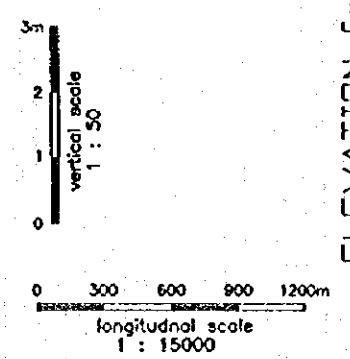
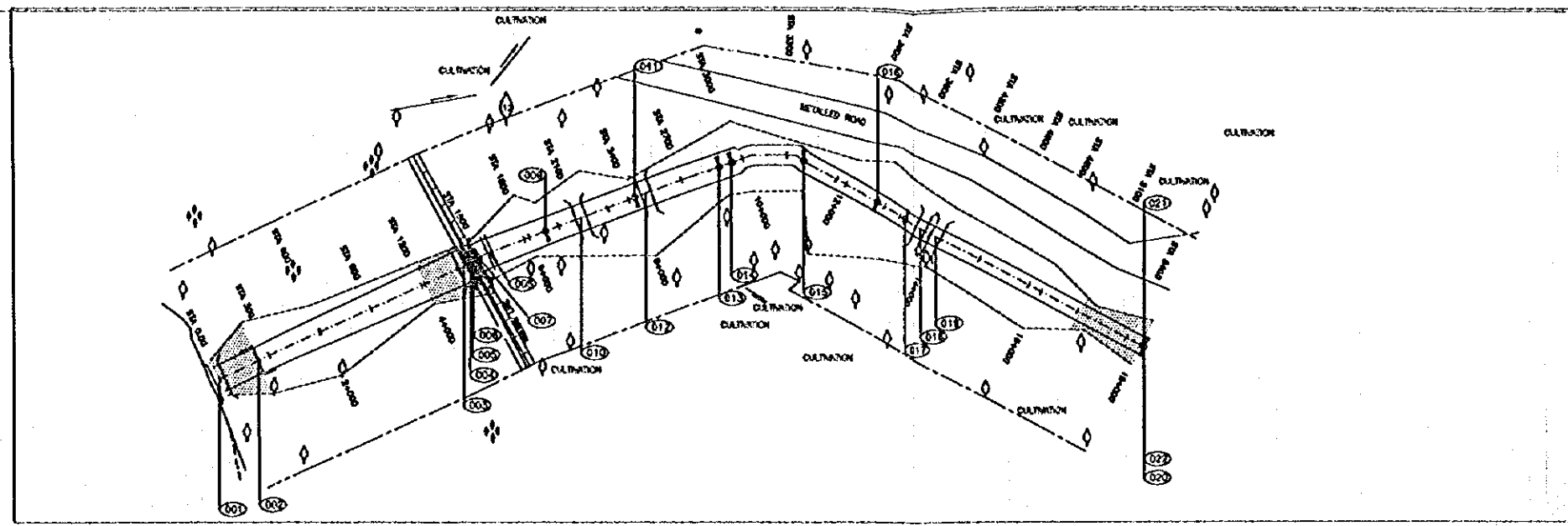
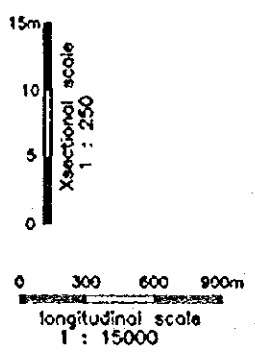
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

PLAN AND PROFILE OF
CANAL SYSTEM: L C C
DISTRIBUTARY : NASRANA
MINOR : NATHERI

FROM STA 000 (0+000) TO : 4062 (15+095)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-17



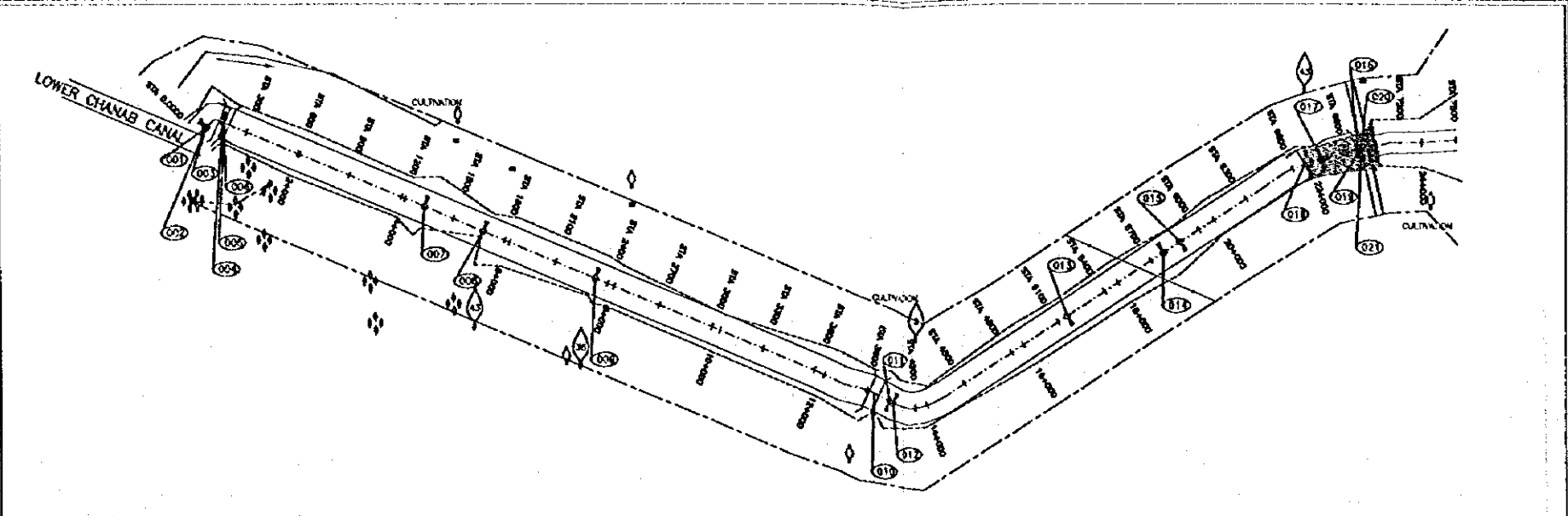
EXISTING DATA DESIGN DATA DESIGN PROPERTIES

Section	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
Q	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
s	1/2400	1/2400	1/2328	1/2328	1/2328	1/1847
y (m)	0.732	1.037	0.810	0.815	0.860	0.555
b	1.00	0.80	0.80	0.48	0.48	0.48
V	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
z	1.25	1.25	1.25	1.25	1.25	1.25
Frb	0.15	0.30	0.30	0.30	0.15	0.15
CCA	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
DESIGNED FULL SUPPLY LEVEL	177.40	177.40	177.40	177.40	177.40	177.40
DESIGNED BED LEVEL	177.40	177.40	177.40	177.40	177.40	177.40
DISTANCE (m)	0	300	600	900	1200	1500
STATION (m)	0+000	0+300	0+600	0+900	1+200	1+500
LATEST FULL SUPPLY LEVEL	177.40	177.40	177.40	177.40	177.40	177.40
N S L RIGHT	177.40	177.40	177.40	177.40	177.40	177.40
N S L LEFT	177.40	177.40	177.40	177.40	177.40	177.40
BED LEVEL	177.40	177.40	177.40	177.40	177.40	177.40
RIGHT OF WAY LEFT (ft)	177.40	177.40	177.40	177.40	177.40	177.40
RIGHT OF WAY RIGHT (ft)	177.40	177.40	177.40	177.40	177.40	177.40
R.D. (ft)	177.40	177.40	177.40	177.40	177.40	177.40

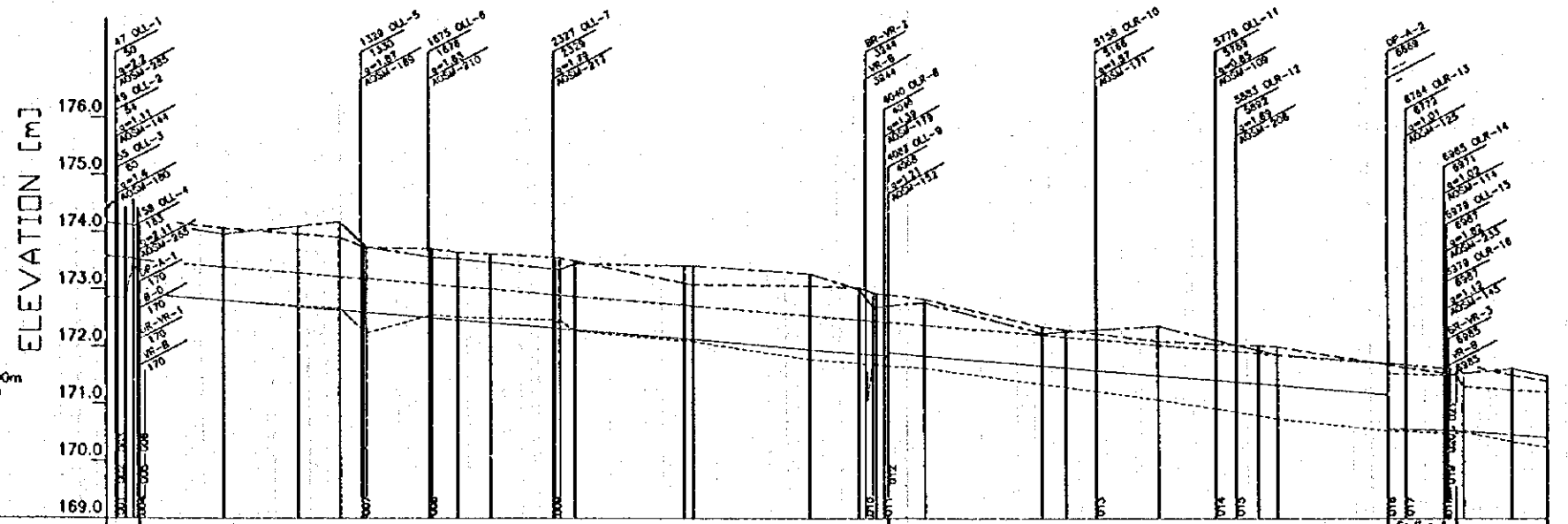
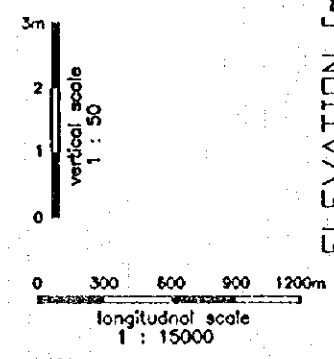
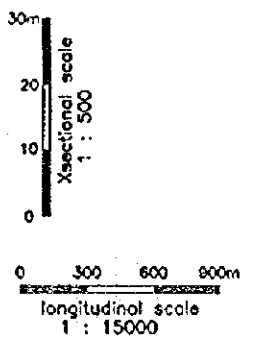
DESCRIPTION	SYMBOLS
WATER COURSE (with R.D. mark)	
REGULATOR	
AQUEDUCT	
BRIDGE (BR)	
ARTERIAL BRIDGE (AR)	
DISTRICT ROAD BRIDGE (DR)	
VILLAGE ROAD BRIDGE (VR)	
FOOT BRIDGE (FB)	
RAILWAY BRIDGE (RB)	
OPERATION & MAINTENANCE (OM)	
ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SIFON	
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 Ace, Water Course, Pond	
Tree, Jungle	
Gravel, Grass	
DISCHARGE (cumec) Q	
OUTLET DISCHARGE (cumec) q	
BED WIDTH b	
ROUGHNESS COEFFICIENT n	
VELOCITY V	
CANAL DRAINAGE AREA CCA	
BED SLOPE i	
SIDE SLOPE s	
WATER DEPTH y	
FREE BOARD Frb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

REVISION NO.	REVISION DATE	REVISION BY	REVISION FOR
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 C C
 DISTRIBUTARY : NASRANA
 MINOR : DOMRA
 FROM STA 000 (0+000) TO : 5507 (18+063)
 JAPAN INTERNATIONAL COOPERATION AGENCY LCC-18



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	
Grove, Grass	
DISCHARGE (cumec)	Q
OUTLET DISCHARGE (cumec)	q
BED WIDTH	b
ROUGHNESS COEFFICIENT	n
VELOCITY	V
CANAL DOWNLAND 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 DATASECTION PROPERTIES

	Section 1	Section 2	Section 3	Section 4	Section 5
Q (m ³ /s)	85	78	49	34	19
n	0.018	0.018	0.018	0.030	0.018
s	1/2860	1/3580	1/3580	1/10000	1/14000
b (m)	1.88	1.89	0.83	1.27	1.08
V (m/s)	4.09	4.00	4.00	4.00	1.50
V (m/s)	7.71	6.63	6.60	3.27	3.81
Z	1.25	1.25	1.25	1.25	1.25
Frb (m)	0.30	0.30	0.30	0.30	0.30
CCA (ha)	3665	3889	232	415	1815
DESIGNED FULL SUPPLY LEVEL	175.80	175.80	175.80	175.80	175.80
DESIGNED BED LEVEL	175.50	175.50	175.50	175.50	175.50
DISTANCE (m)	0-1000	1000-2000	2000-3000	3000-4000	4000-5000
STATION (m)	0-1000	1000-2000	2000-3000	3000-4000	4000-5000
LATEST FULL SUPPLY LEVEL	175.80	175.80	175.80	175.80	175.80
N.S.L. RIGHT	175.80	175.80	175.80	175.80	175.80
N.S.L. LEFT	175.80	175.80	175.80	175.80	175.80
BED LEVEL	175.80	175.80	175.80	175.80	175.80
RIGHT OF WAY LEFT (ft)	175.80	175.80	175.80	175.80	175.80
RIGHT OF WAY RIGHT (ft)	175.80	175.80	175.80	175.80	175.80
R.D. (ft)	175.80	175.80	175.80	175.80	175.80

DESIGN PD	DESIGN PD	DESIGN PD	DESIGN PD
A			
B			
C			
D			

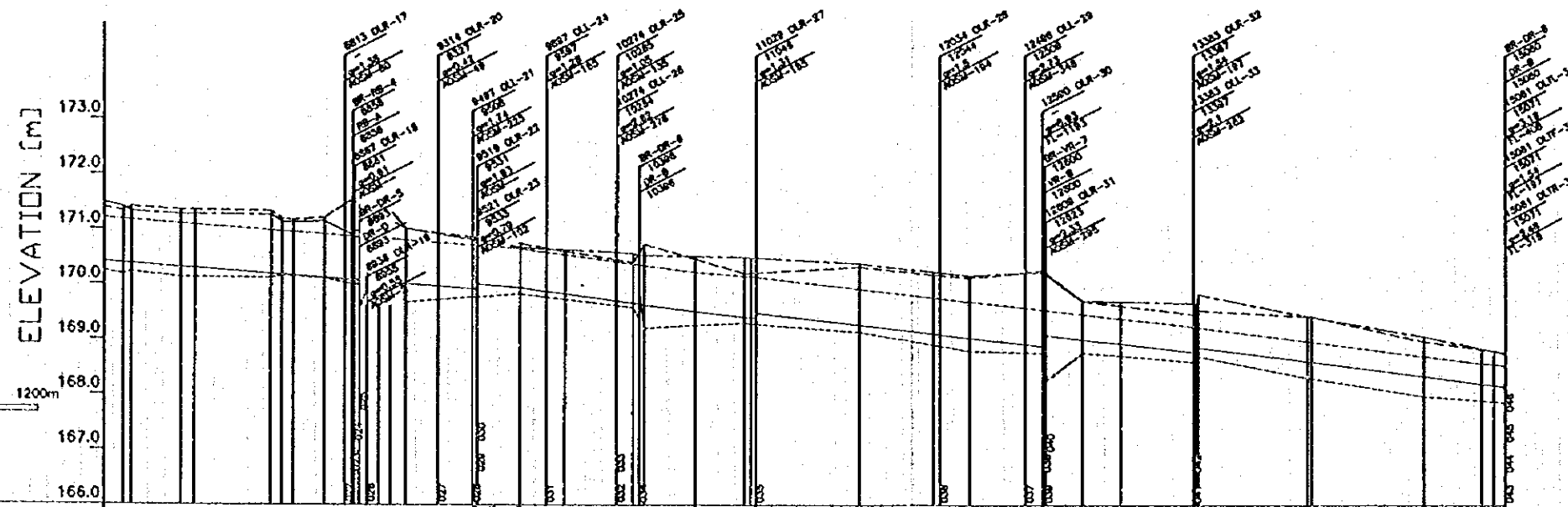
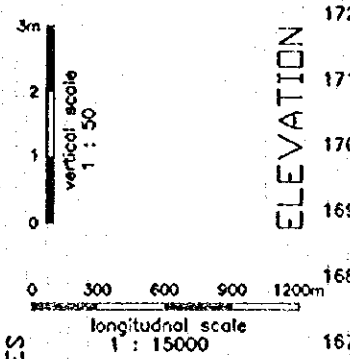
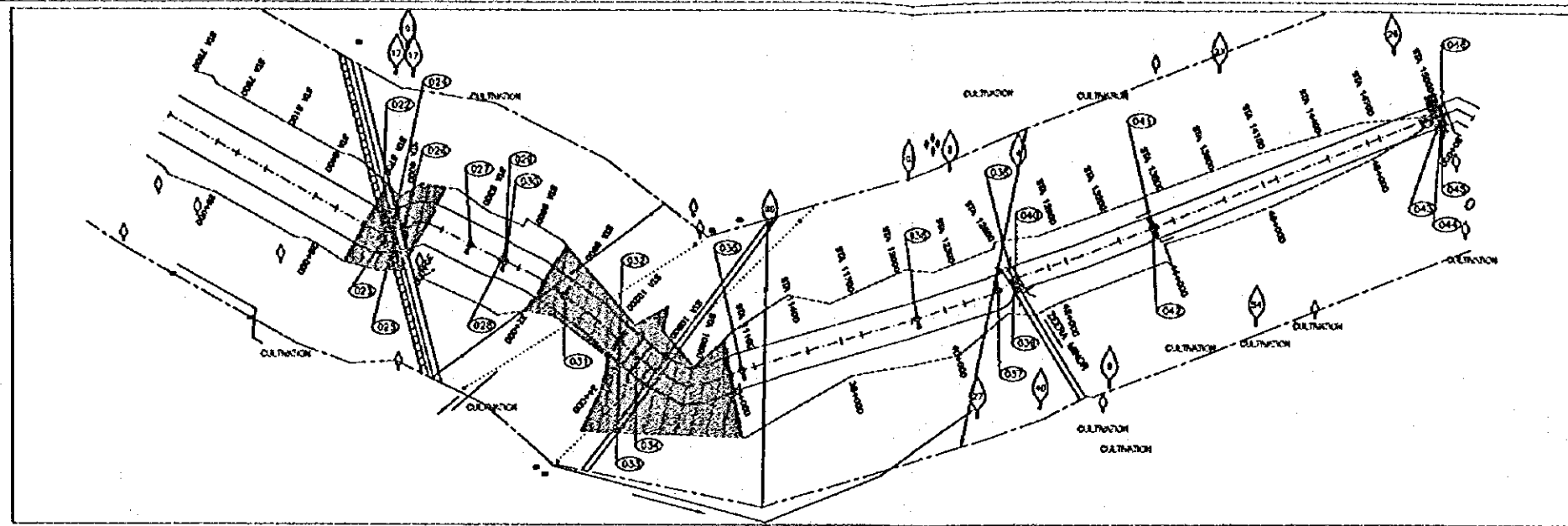
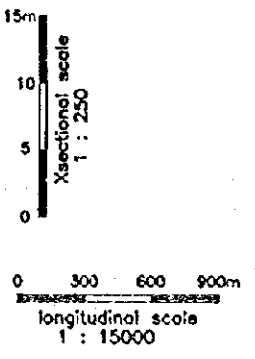
ISLAMIC REPUBLIC OF PAKISTAN
GOVERNMENT OF PUNJAB

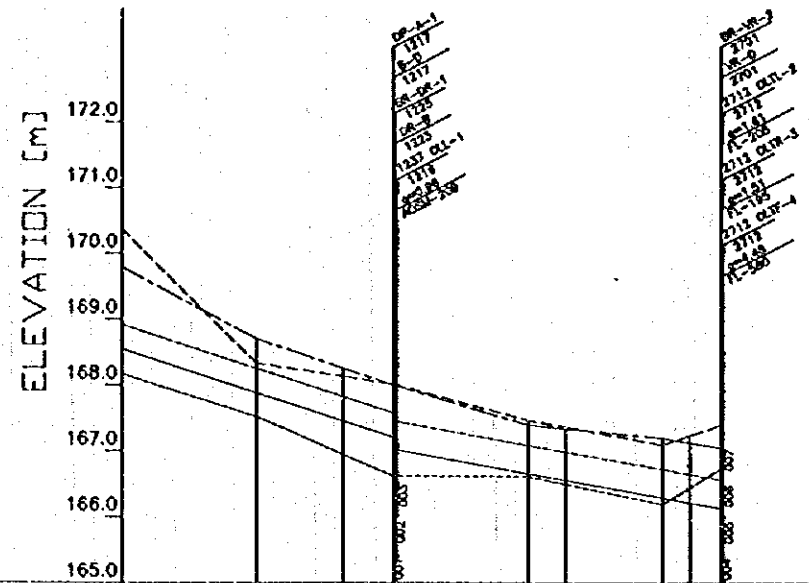
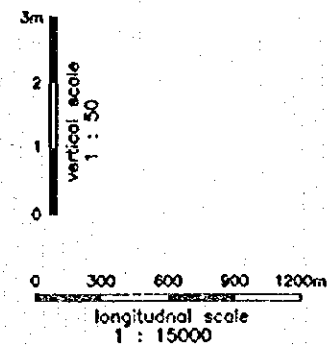
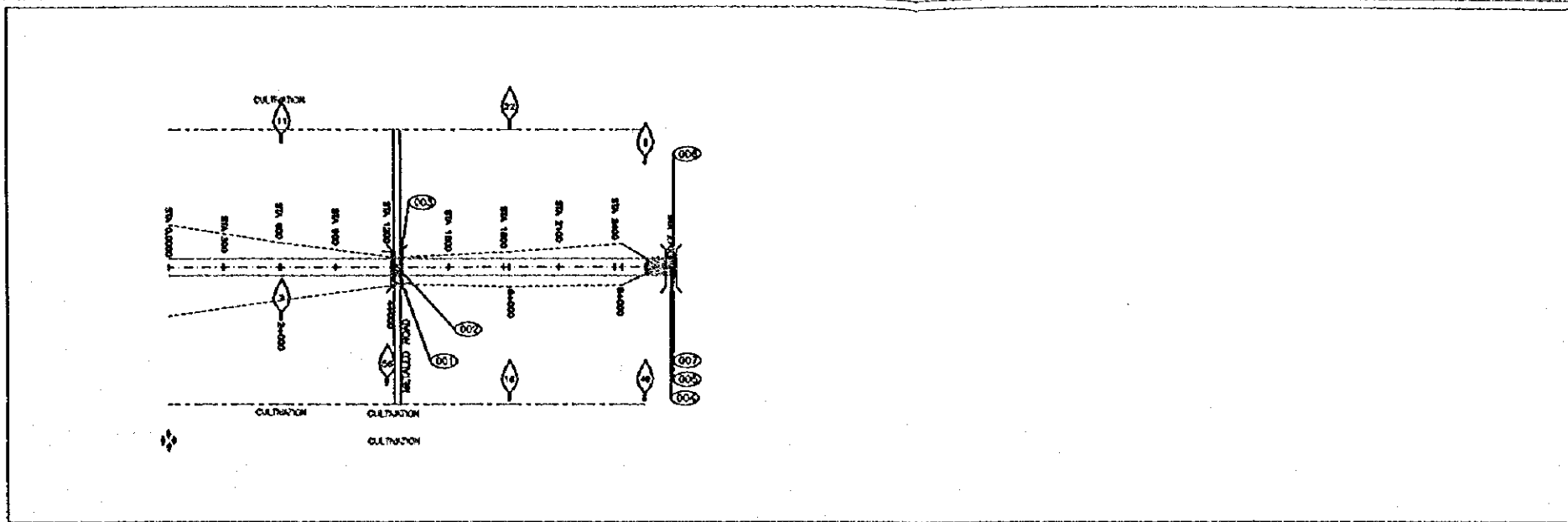
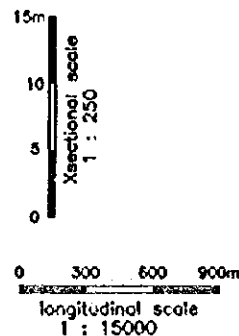
THE LINING OF DISTRIBUTARIES AND MINORS IN PUNJAB

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

FROM STA 000(0+000) TO : 7500 (24+600)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-19





EXISTING DATA DESIGN DATA

	Section 1	Section 2
DESIGNED FULL SUPPLY LEVEL	170.00	169.50
DESIGNED BED LEVEL	167.50	167.00
DISTANCE (m)	0+00	0+00
STATION (m)	0+00	0+00
LATEST FULL SUPPLY LEVEL	168.50	168.00
N S L RIGHT	168.50	168.00
N S L LEFT	167.50	167.00
BED LEVEL	167.50	167.00
RIGHT OF WAY LEFT (ft)	168.50	168.00
RIGHT OF WAY RIGHT (ft)	167.50	167.00
R.D. (ft)	168.50	168.00

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 (OM)	
ROAD BRIDGE	
TUNNEL / CULVERT SECTION	
CROSS DRAINAGE CULVERT	
INVERTED SYPHON	
OUTLET LEFT (OLL)	
OUTLET RIGHT (OLR)	
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 Ffb	
TAIL LEFT TL	
TAIL RIGHT TR	
TAIL FRONT TF	

REACH NO.	REACH NAME	DESIGN 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 C C
DISTRIBUTARY : GOJRA
MINOR : ZEERA

FROM STA 000 (0+000) TO : 2712 (8+895)

JAPAN INTERNATIONAL COOPERATION AGENCY LCC-21