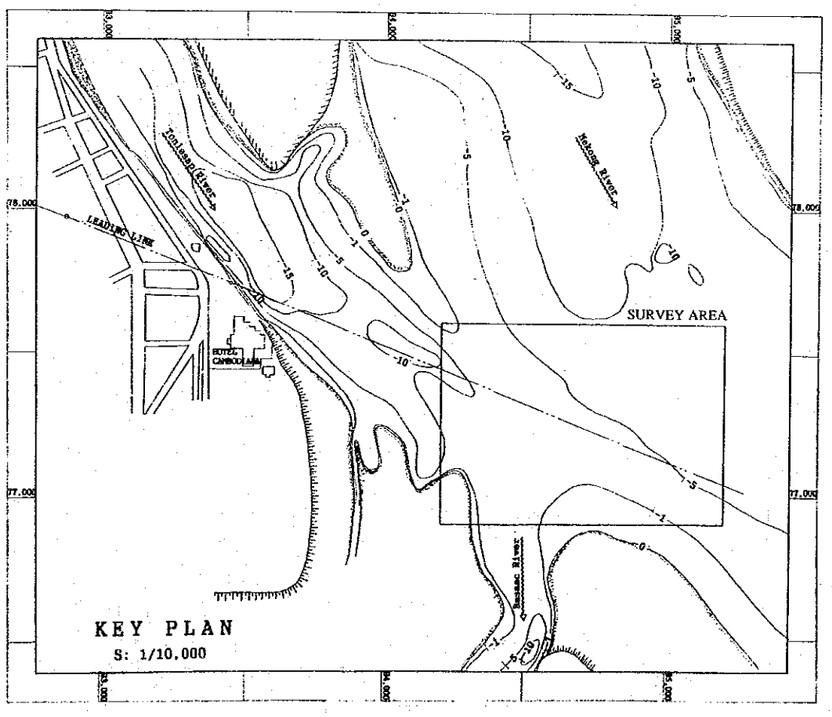
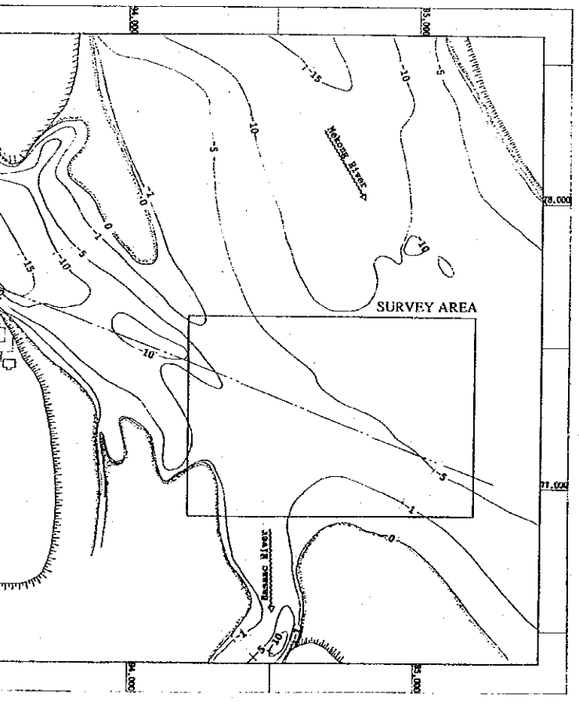


77,400
77,300
77,200
77,100
77,000
76,900
94,200
94,300
94,400
94,500
94,600
94,700
94,800
94,900
95,000

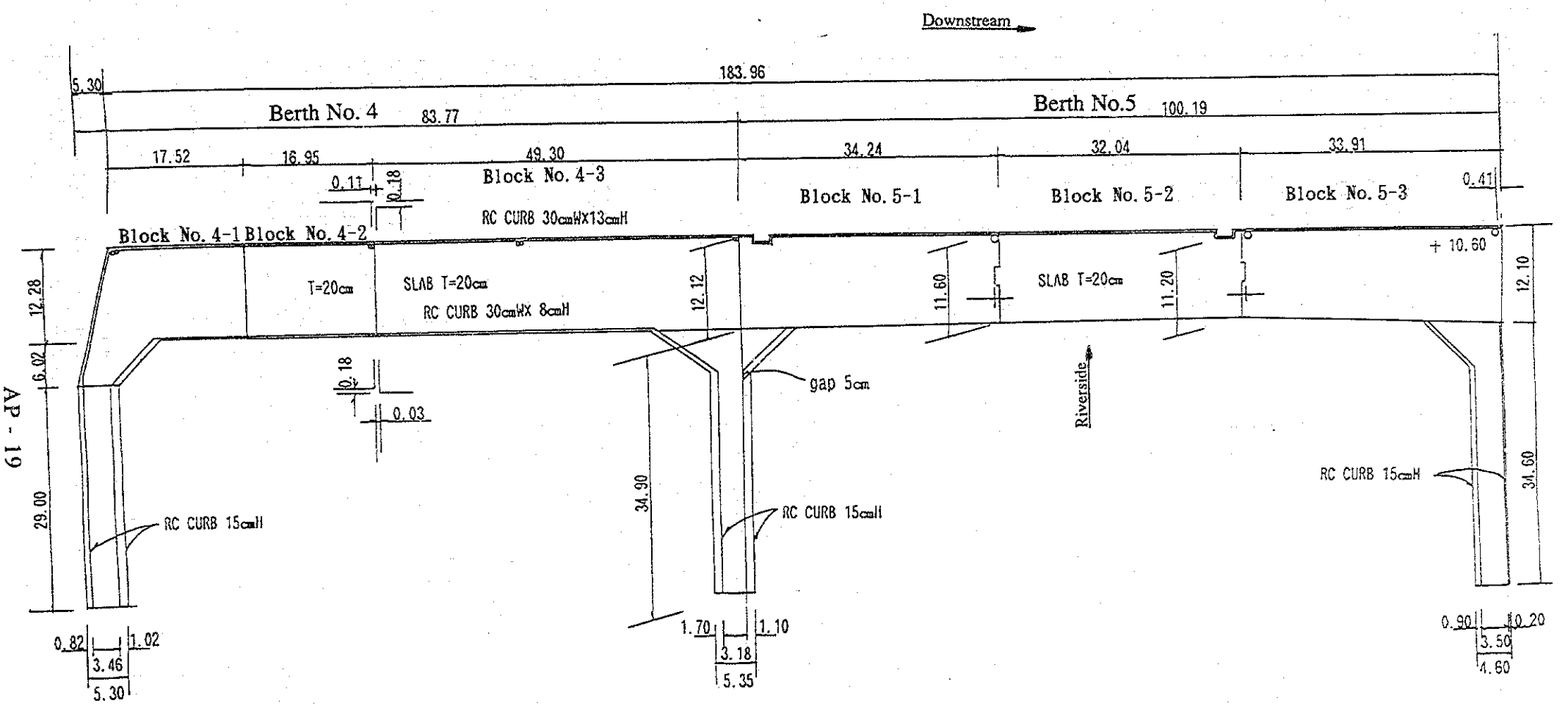


N

Date of survey; December 11 to 23,1992

TRANSPORT ENGINEERING DESIGN INSTITUTE TEDI - SOUTH	PORT OF PHNOMPENH NAVIGATION CHANNEL
TEAM LEADER: Nguyen tan Son CHECKED BY: Tran thanh Sơn	
January 15th, 1993 DEPUTY DIRECTOR Nguyen van Thanh	HYDROGRAPHIC PLAN Scale : 1 / 1000

APPENDIX 6 PIER INSPECTION RESULTS



Access Bridge No. 1

Access Bridge No. 2

Access Bridge No. 3

AP - 19

Fig. 6-1
PIER INSPECTION RESULT
Plan of Berth No. 4 and No. 5
Unit : m

Appendix 6

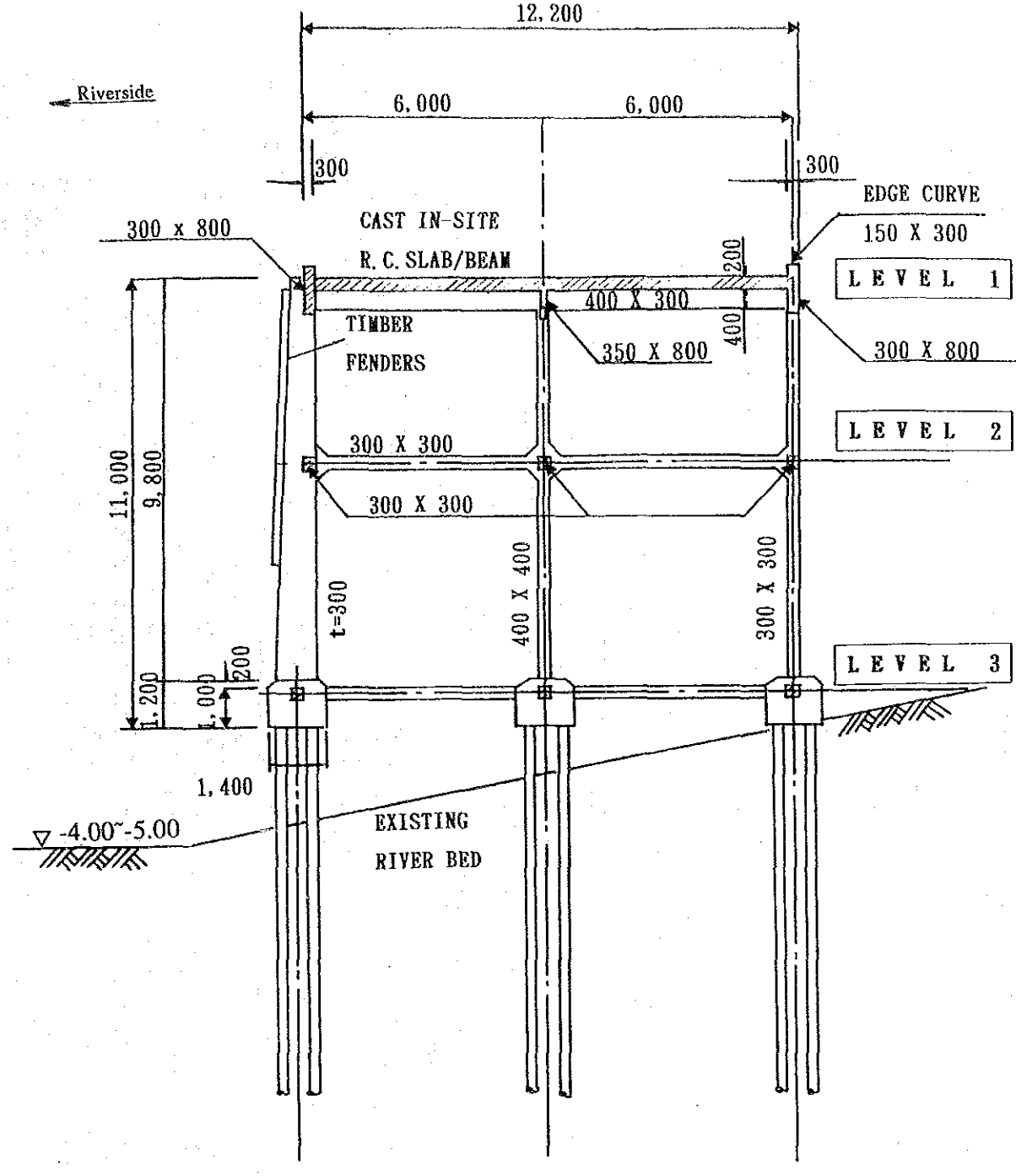
BERTH NO. 5

Column Number	Column Distance (m)	Distance fm edge to 1st Column (m)	Distance fm 1st Column 2nd Column (m)	Distance fm 2nd Column to edge (m)	Width of slab (m)
Berth edge	1.26				
⑯	6.50	2.01	8.21	1.88	12.10
⑮	6.44	1.77	8.21	1.92	11.90
⑭	6.50	1.56	8.20	1.98	11.74
⑬	6.49	1.31	8.20	2.06	11.57
⑫	6.55	1.17	8.21	2.00	11.38
⑪	6.49	1.00	8.21	2.01	11.22
Joint	(0.17)				
⑩	6.45	1.02	8.21	2.03	11.26
⑨	6.55	1.04	8.22	2.11	11.37
⑧	6.47	1.16	8.22	2.03	11.41
⑦	6.38	1.15	8.20	2.15	11.50
Joint	(0.13)				
⑥	6.60	1.32	8.22	2.07	11.61
⑤	6.52	1.44	8.23	2.09	11.76
④	6.45	1.59	8.24	2.04	11.87
③	6.53	1.72	8.23	1.99	11.94
②	6.68	1.81	8.25	1.95	12.01
①	1.33	1.81	8.24	2.07	12.12
Berth Edge					

BERTH NO.4

Column Number	Column Distance (m)	Distance fm Edge to 1st Column (m)	Distance fm 1st Column to 2nd Column (m)	Distance fm 2nd Column to 3rd Column (m)	Distance fm 3rd Column to Edge (m)	Width of Slab (m)
Berth edge	0.28					12.12
⑯	5.62		5.72	6.15	0.15	
⑮	6.12		5.73	6.12	0.15	
⑭	6.00		5.73	6.10	0.15	
⑬	6.06	0.25	5.76	6.12	0.14	12.27
⑫	6.12	0.25	5.79	6.12	0.14	12.30
⑪	6.09	0.28	5.83	6.08	0.15	12.33
⑩	6.10	0.26	5.85	6.07	0.15	12.33
⑨	5.56	0.24	5.89	6.03	0.15	12.30
⑧	1.51	0.26	5.95	5.98	0.15	12.34
Joint	(0.18)					
⑦	4.87	0.15	5.87	6.11	0.15	12.28
⑥	5.98	0.16	5.94	6.01	0.15	12.26
⑤	6.08	0.22	5.94	5.97	0.15	12.28
Joint	(0.15)					
④	5.64	0.21	6.05	5.93	0.15	12.34
③	6.51		5.98	6.28	0.15	12.33
②	4.67		5.86	6.00	0.14	
①	3.20		5.95	6.06	0.15	

Table 6-1
PIER INSPECTION RESULT
Pile Arrangement of Berth No. 4 and No. 5



EXISTING R.C.PILES

(350 X 350□or350Dia○, L=11,000)

ROW A, BENT 1&7 : 3piles/column
〃 BENT 5 : 4piles/column
〃 OTHERS : 2piles/column
ROW B & C : Not visible

Fig. 6-2
PIER INSPECTION RESULT
Typical Section of Berth No. 4
Unit : mm

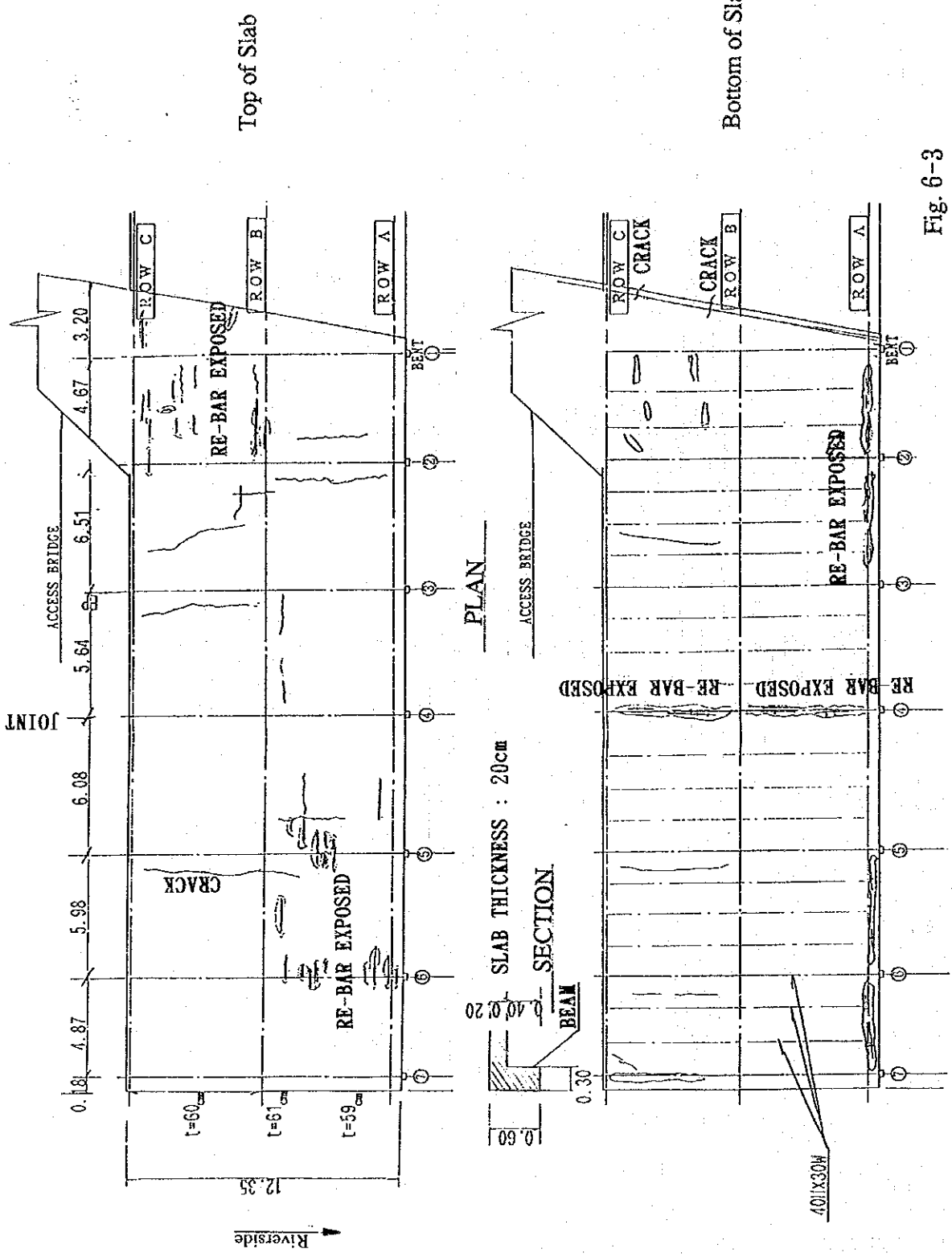


Fig. 6-3
PIER INSPECTION RESULT
Top and Bottom of Slab - 1 of
Berth No. 4
Unit : m

LEGEND
: Crack at concrete
: Concrete taken off and Re-bar exposed

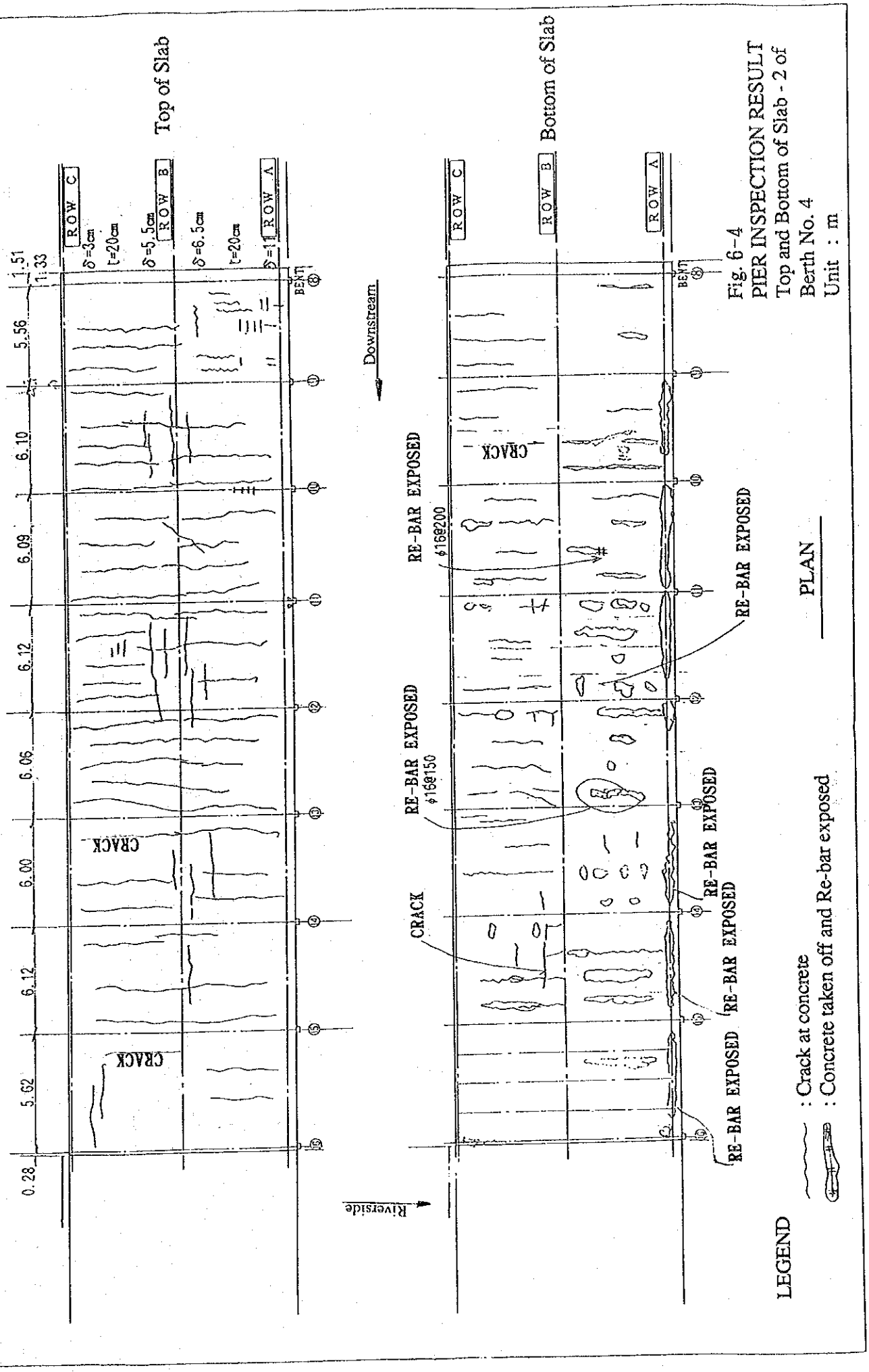
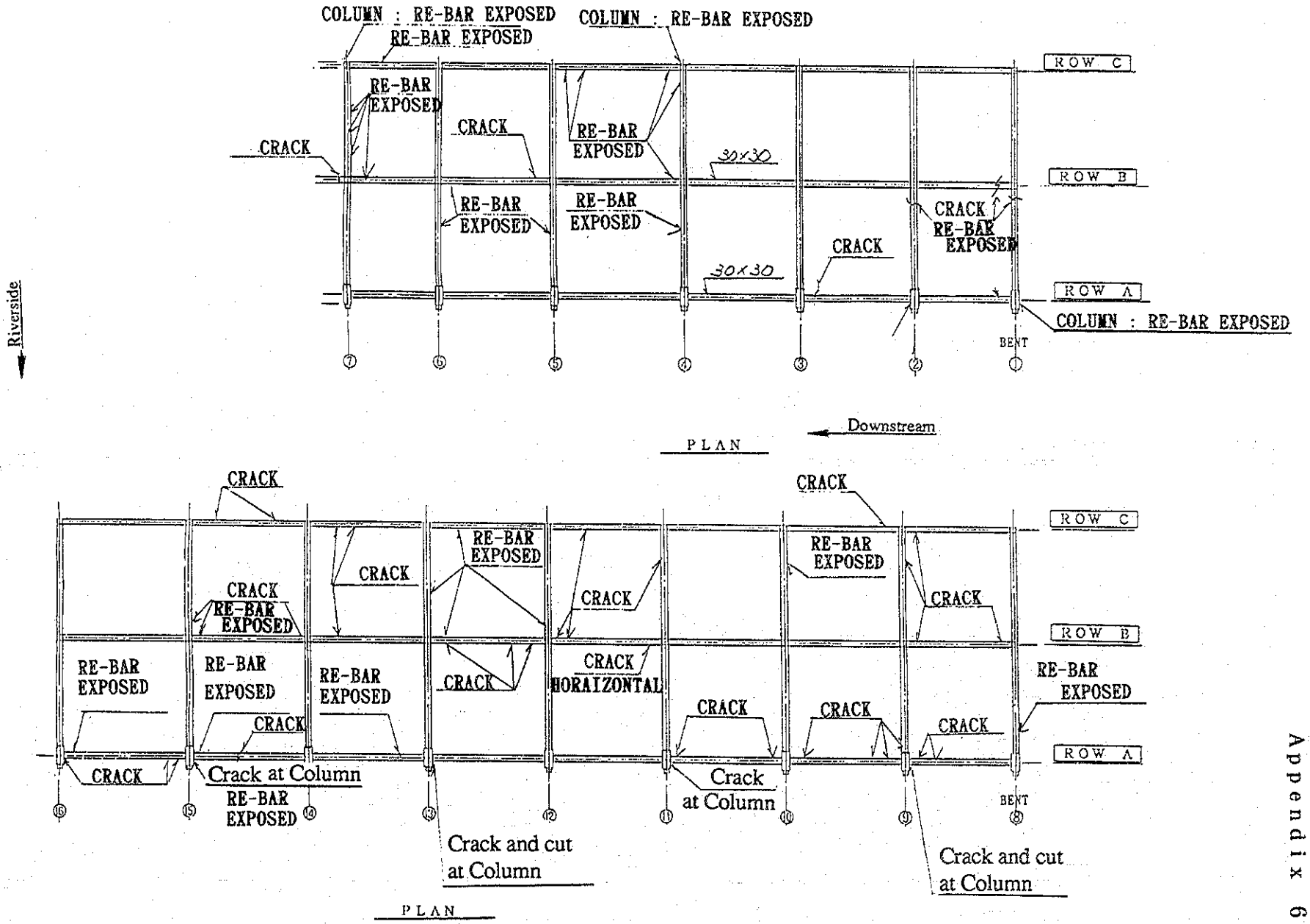


Fig. 6-4
PIER INSPECTION RESULT
Top and Bottom of Slab - 2 of
Berth No. 4
Unit : m



LEGEND

: Crack at concrete

: Concrete taken off and Re-bar exposed

Fig. 6-5
PIER INSPECTION RESULT
Beam at Level 2 and Column of Berth No. 4

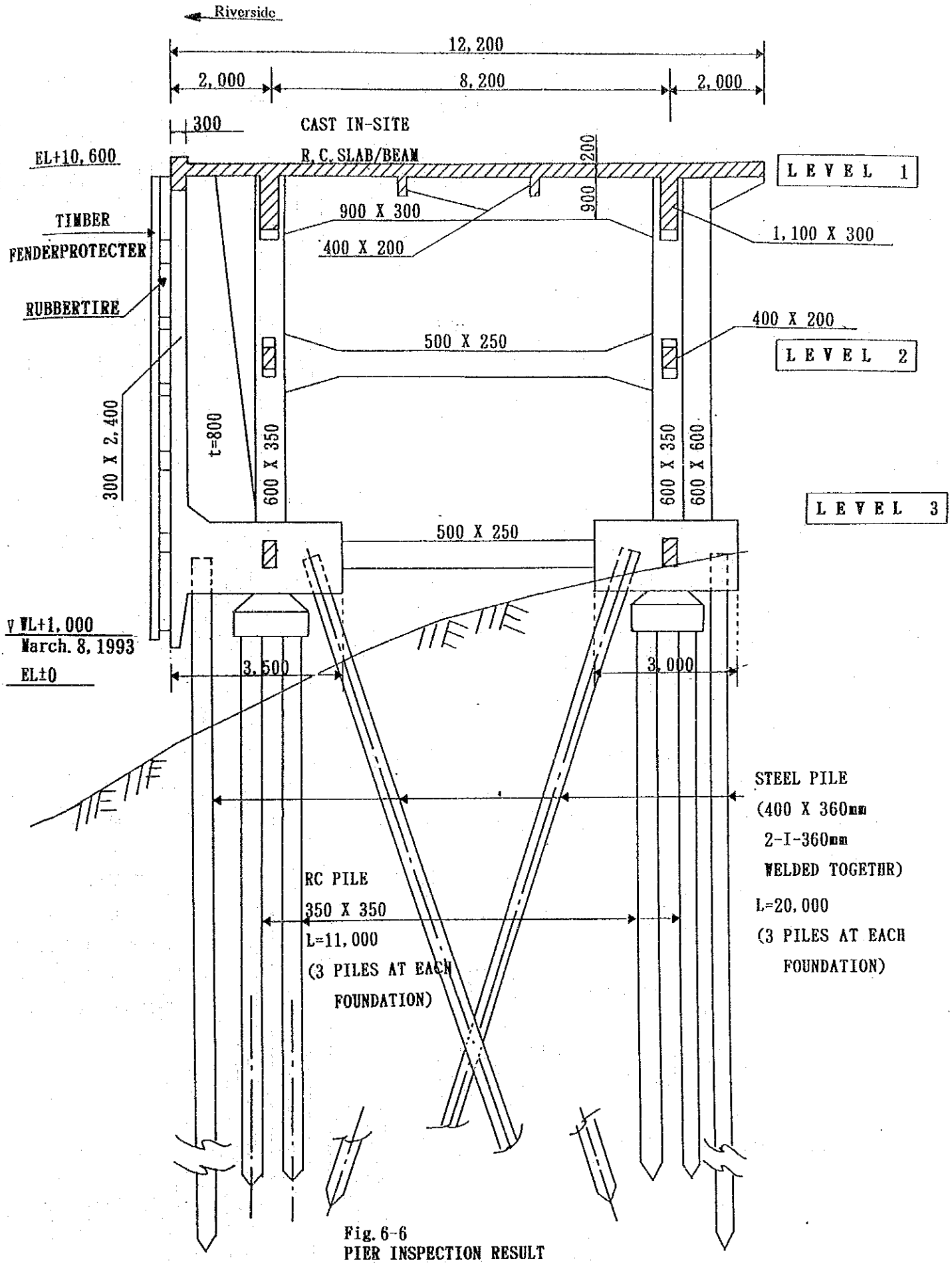


Fig. 6-6
PIER INSPECTION RESULT
Typical Section-1 of Berth No. 5
Unit : mm

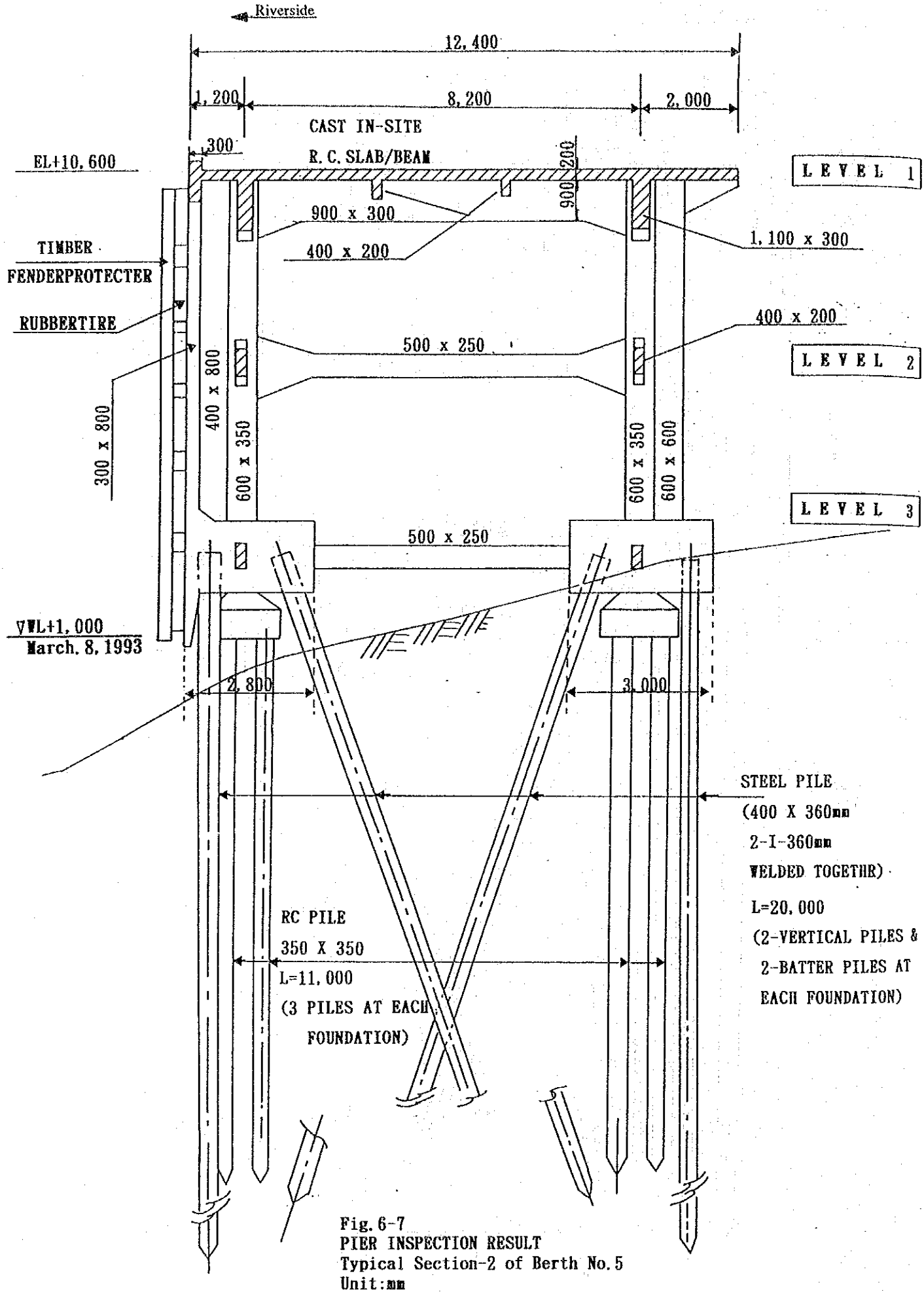


Fig. 6-7
PIER INSPECTION RESULT
Typical Section-2 of Berth No.5
Unit:mm

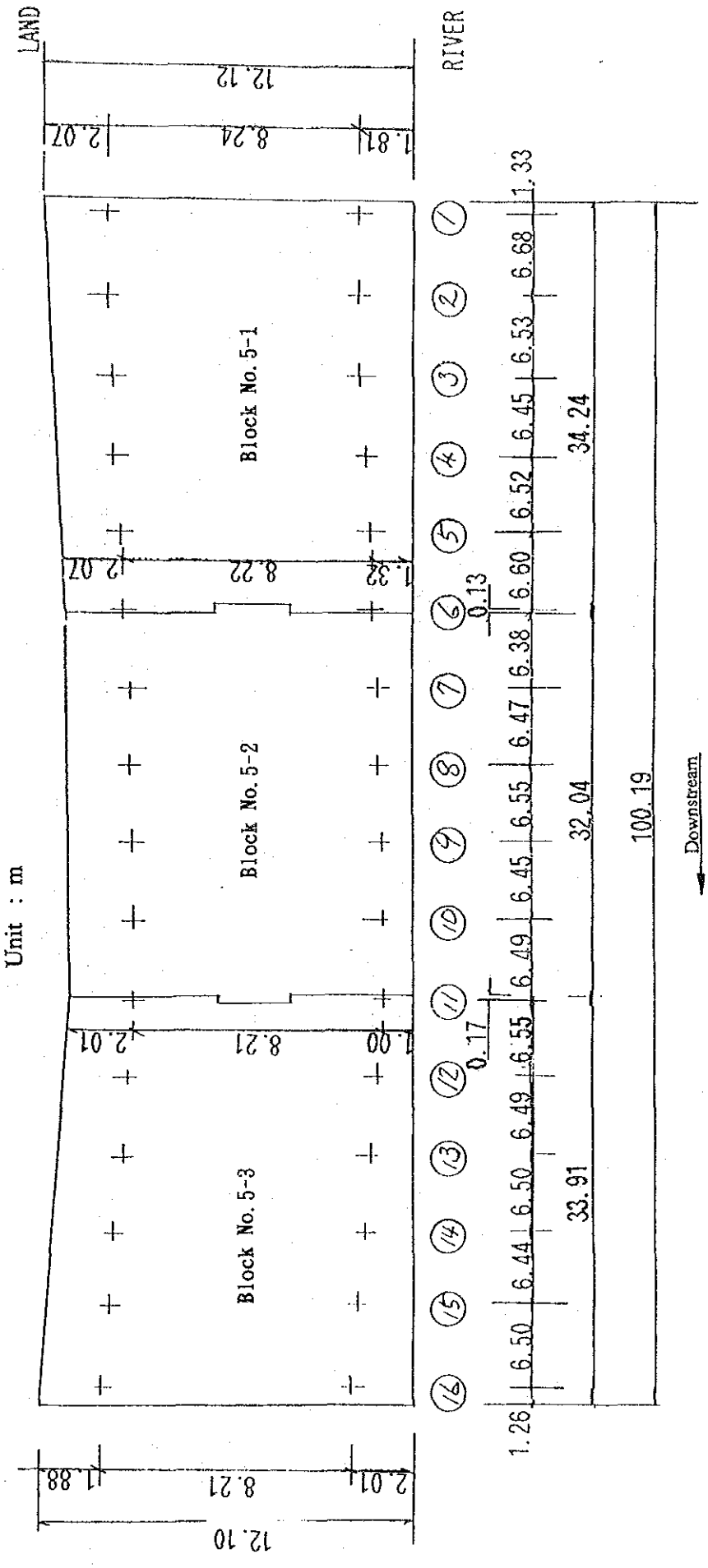
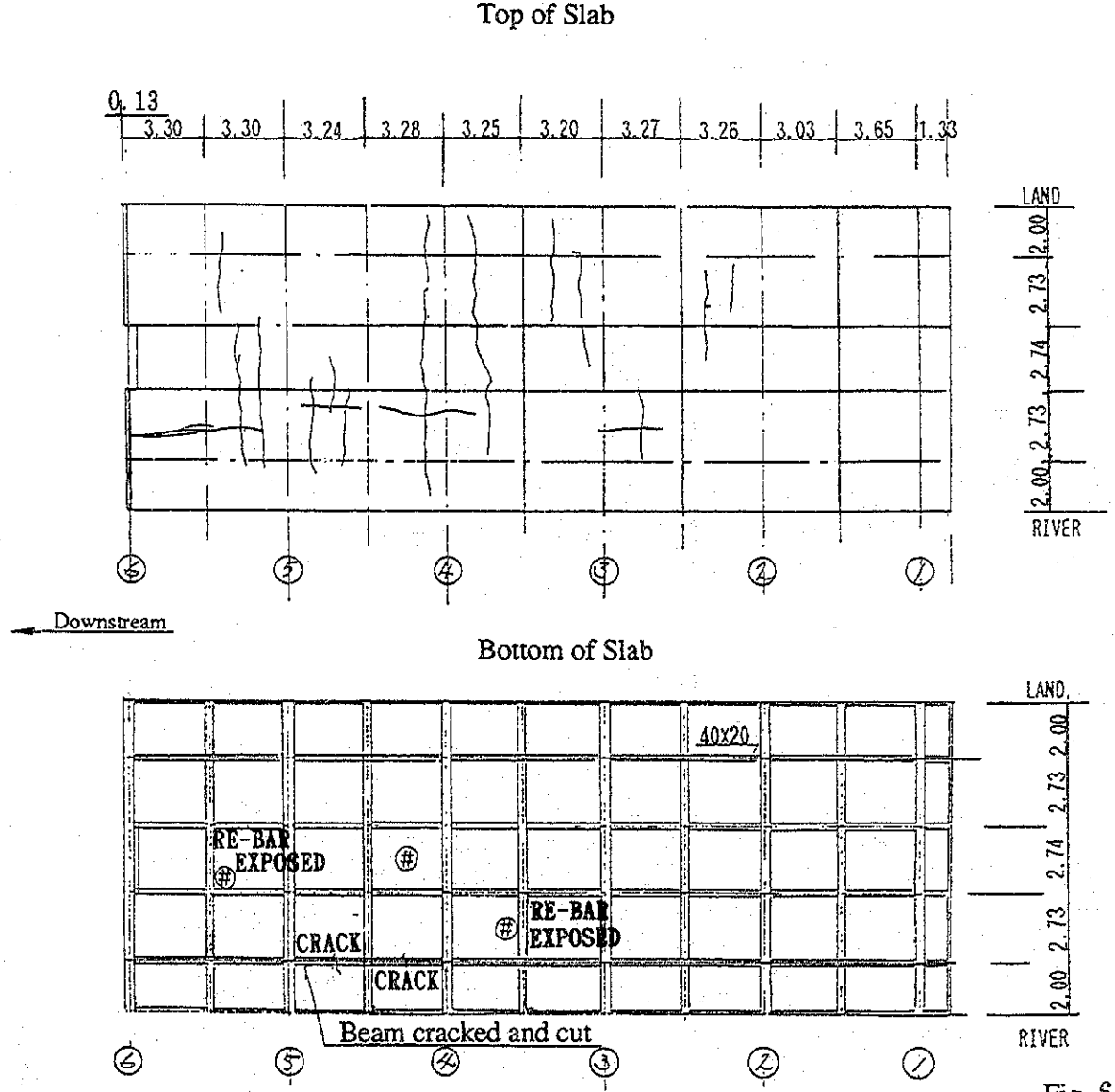


Fig. 6-8
PIER INSPECTION RESULT
Plan of Column of Berth No. 5
Unit : m

Scale : 1: 200 in vertical way
: 1: 500 in horizontal way
Unit : m

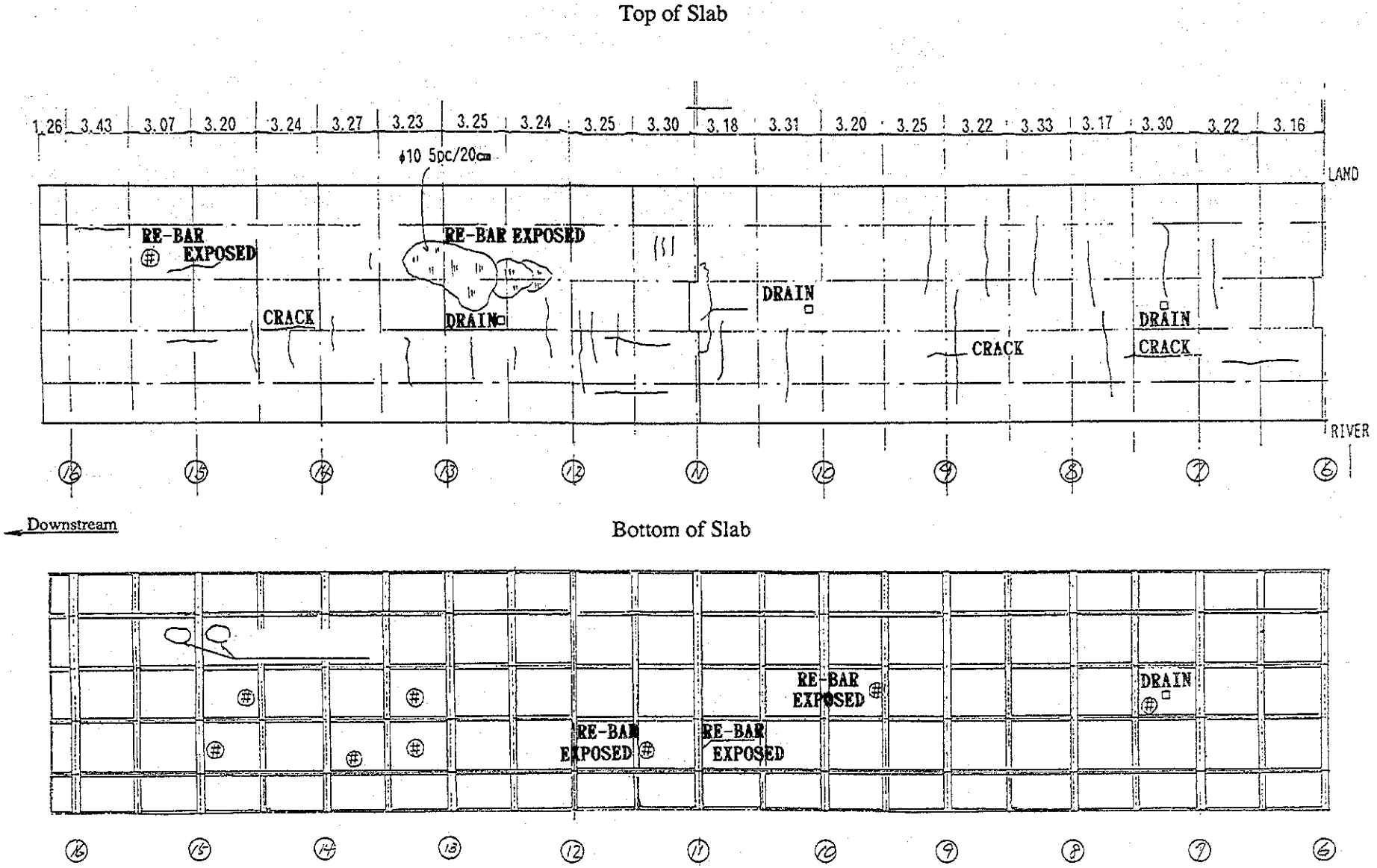


LEGEND

: Crack at concrete

: Concrete taken off and Re-bar exposed

Fig. 6-9
PIER INSPECTION RESULT
Top and Bottom of Slab - 1 of
Berth No. 5
Unit : m



PLAN

LEGEND

: Crack at concrete

: Concrete taken off and Re-bar exposed

Fig. 6-10
PIER INSPECTION RESULT
Top and Bottom of Slab - 2 of
Berth No. 5
Unit : m

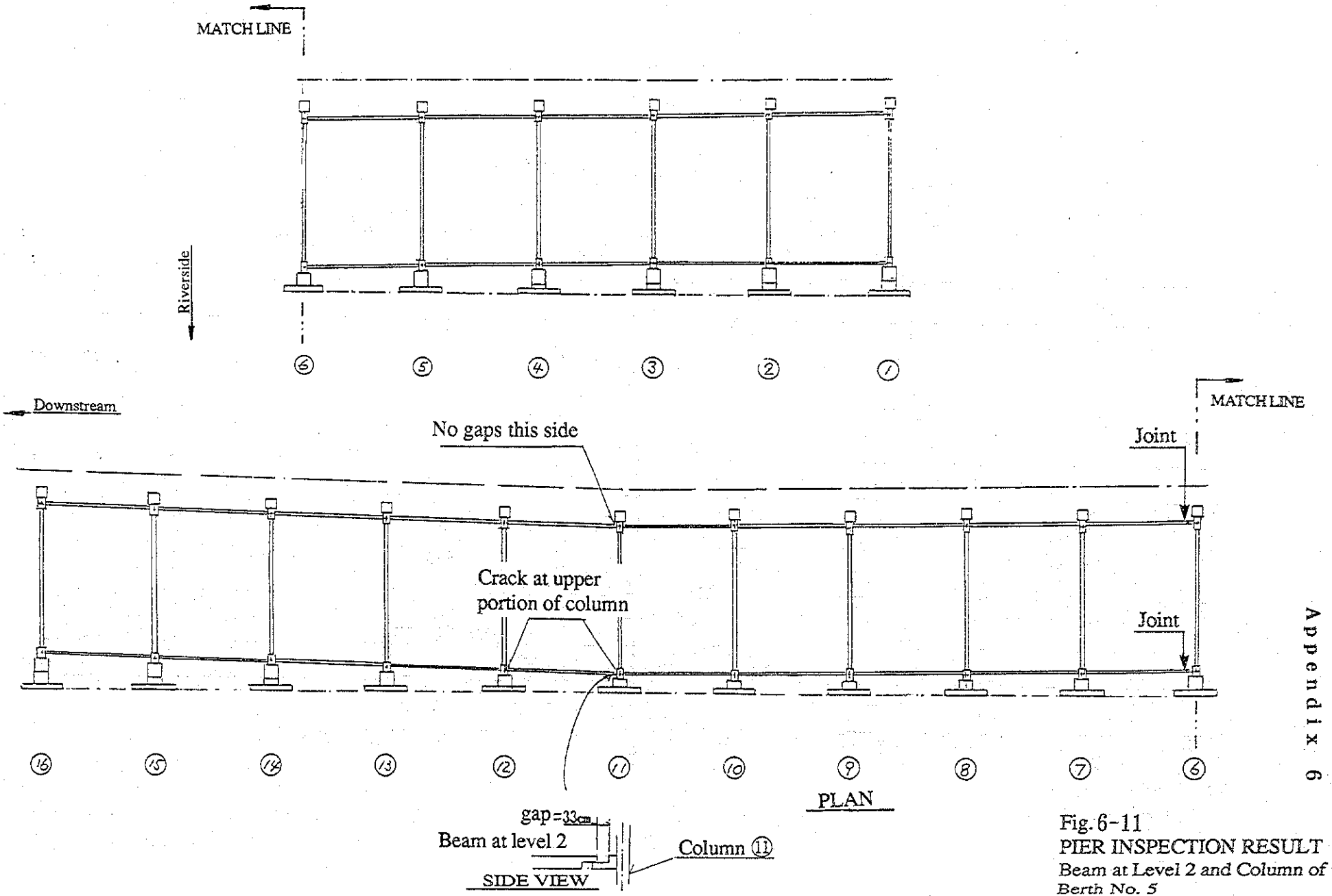


Fig. 6-11
PIER INSPECTION RESULT
Beam at Level 2 and Column of Berth No. 5

Table 6-2 Structural Description of Berth No. 4 and No. 5

Berth Number	Present Condition	Structure Checking	Rehabilitation Work Considered
Berth No. 4 Refer to Drawing of Appendix 6-2 to 6-5	<u>Foundation Pile</u> • 2 to 3 RC piles (35 cm square cross section x 11 m lg.) were provided for individual column foundation. • There are cracks between the column and footing of columns. <u>Columns</u> • There are cracks on columns on the river side, and the concrete cover has become delaminated exposing the reinforcing. • There is heavy scaling with loss of surface motar, and coarse aggregates are clearly exposed. <u>Beams & Girders</u> • Many are cracked, exposing reinforcing steel which are corroded. • Level 2 beams & girders have heavy scaling and coarse aggregate is exposed. <u>Concrete Deck</u> • Many cracks at top and bottom surface. • There are potholes where reinforcing steel is exposed. • The structure was constructed in 1952. • The loading of trucks is controlled, and limited to 0.5 t/m².	The deck with a T-15 load (gross weight 14 tons) was applied to structural check. The results are as follows. The allowable stress assumed concrete 70 kg/cm², reinforcing steel 1,400 cm². (unit: kg/cm²) 		Deck	Beam[a]	Beam[b]
concrete	65	85	63
reinf. steel	2,800	1,900	2,060		Rehabilitation will be by constructing new deck, and increasing beams and girders by increasing cross section. Old concrete will have to be chipped off prior to placing new concrete over old members. • New piling may have to be added. • Existing structures will require strengthening before they can be used as a base to perform the work as they are not safe.
Berth No. 5 Refer to Drawings of 6-6 to 6-11	<u>Foundation Pile</u> • 3 RC piles (35 cm square cross section x 11 m lg.) were provided. • Berth was collided into which caused the structure to shift 120 cm toward the land side and so there were 2 batter and 2 vertical piles were driven for each column to reinforce the structure. <u>Columns</u> • The columns on the river side are cracked and the steel reinforcing is exposed and corroded. <u>Beams and Girders</u> • Many beams and girders are cracked exposing the reinforcing steel. • Some Level 2 beams shown where they have shifted 33 cm parallel to the face line of berth. <u>Concrete Deck</u> • There are numerous cracks on both the top and bottom surfaces. • There are potholes with exposed reinforcing steel. • The structure was constructed in 1960. • There is a restriction on the loading of trucks on the berth of 1.0 t/m².	The facility was checked for a T-20 load (gross weight of 20 tons), and a T-14 load (gross weight of 14 ton) for structural analysis in the decks and beams. The allowable stress assumed is 70 kg/cm² for concrete, and 1,400 kg/cm² for the reinforcing steel. • T-20 (gross weight 20 ton) Case 		Deck	Beam[a]	Beam[b]	Beam[c]
---	---	---	---	---
concrete	117	69	86	46
reinf. steel	2,520	1,156	2,660	1,660 | (unit: kg/cm²) • T-14 (gross weight 14 ton) Case |	Deck	Beam[a]	Beam[b]	Beam[c]
---	---	---	---	---
concrete	85	52	70	37
reinf. steel	1,825	875	2,130	1,330 | (unit: kg/cm²)	• It is proposed to drive piles in the center position of the deck. Construct beams on top of new pile in the direction parallel to the face line of berth. Construct a new deck over the old deck. • The length of span of the beams at right angle direction will decrease, and will less stressed. • Horizontal forces will be not carried by the strengthened existing berth, but are supported by the new structures in front of old one. • For this rehabilitation plan, structural check was made. The load by a T-20 (gross weight 20 ton) load has been used to check the stresses in the deck and beams for which the following values have been obtained. Allowable stress assumed is 70 kg/m² for concrete, 1,400 kg/cm² for reinforcing steel. • T-20 (gross weight 20 ton) Case |	Deck	Beam[a]	Beam[b]	Beam[c]
---	---	---	---	---
concrete	60	76	30	60
reinf. steel	1,500	1,280	990	2,130	 (unit: kg/cm²) • With an additional provided at each deck, there will still be some components that will be stressed beyond their allowable limit.

APPENDIX 7 CARGO HANDLING EQUIPMENT INSPECTION RESULTS

Table 7 - 1 CHECK LIST FOR TRUCK CRANE

Main part	Check point	USSR			CHINA	KATO				
		B1	B2	4718	4731	0402	0403	0404	0405	0406
Engine	Cooling water	○	△	△	×	△	△	△	△	△
	Radiator function	○	△	△	×	△	△	△	△	△
	Battery function	×	△	△	△	△	△	△	△	△
	Air element function	×	×	×	×	×	×	×	×	×
	Fanbelt tention	○	×	×	×	×	×	×	×	×
	Spark plug function									
	Death point function									
	Timing adjustment	△	×	×	×	×	×	×	×	×
	Revolt, idling function	△	×	×	×	△	△	△	×	×
	Caburator function									
	LPG equipment	△	△	△	△	△	△	△	△	△
	Fixing engine	○	○	○	×	×	×	×	○	○
	Engine oil	○	○	○	○	△	△	△	△	△
Body	Fuel filter function	×	×	×	×	×	×	×	×	×
	Clutch function	△	×	○	×	×	×	×	△	△
	Break function	△	△	△	×	△	△	△	△	△
	Handbreak function	×	△	△	×	△	△	△	△	△
	Handle function	○	○	○	△	○	○	○	○	○
	Seering gear box oil quality	×	×	△	△	△	△	△		
	Power steering system leaking	△	△	△	△	△	△	△	△	△
	Steering function	△	△	△	△	△	△	△		
	Transmission, differential, torque	○	○	○	○	×	×	×	△	△
	Gear cases oil quality	○	○	○	×	△	×	△	○	○
	Tire air pressure, damage	○	△	○	×	×	×	×	×	×
	Wheel bolt & nuts	○	○	○	○	○	○	○	○	○
	Headguard function	○	△	△	△	△	△	△	△	△
	Outriggers oil pressure function	△	△	△	△	△	△	△	△	△
Lifting	Outrigger pad function	△	△	△	△	△	△	△	△	△
Oil equipment	Lubrication oil					△	△	△	△	△
	Oil controll					△	△	△	△	△
	Swing cylinder					△	△	△	△	△
	Mach cylinder function									
	Boom function	○	○	○	○	△	△	△	△	△
	Hoses damage	△	×	△	△	×	×	×	×	×
	Attachment	△	×	△	△	△	△	△	△	△
Others	Lamps	△	×	×	×	×	×	○	×	×
	Wiring	△	×	△	×	△	△	△	△	△
	Starter	○	△	×	△	△	△	△	△	△
	Battery	×	×	×	×	×	×	×	×	×
	Seat belt	×	×	×	×	×	×	×	×	×
	Back mirror	×	×	×	×	×	×	×	×	×
	Road test	○	△	△	△	△	△	△	△	△

○ : NORMAL △ : NEED REPAIR × : BAD

Table 7 - 2 CHECK LIST FOR FORK LIFT

Main part	Check point	KOMATSU 4725	KOMATSU 4726	KOMATSU 4727	TOYOTA 4709	TOYOTA 4710	TOYOTA 4712
Engine	Cooling water	△	○	△	△	△	△
	Radiator function	△	○	○	×	×	○
	Battery function	△	△	△	△	△	△
	Air element function	×	×	×	×	×	×
	Fanbelt tention	△	△	△	○	○	○
	Spark plug function				×	×	×
	Death point function						
	Timing adjustment	×	×	×	×	×	×
	Revolt,idling function	×	×	×	×	×	×
	Caburator function						
	LPG equipment	△	△	△	○	○	○
	Fixing engine	×	×	×	○	○	○
	Engine oil	△	△	△	△	△	○
Body	Fuel filter function	×	×	×	×	×	×
	Clutch function	△	△	△	△	△	△
	Break function	△	△	△	△	△	△
	Handbreak function	△	△	△	△	△	△
	Handle function	○	○	○	○	○	○
	Seering gear box oil quality	×	×	×	×	×	△
	Power steering system leaking	△	△	△	△	△	△
	Steering function	△	△	△	△	△	△
	Transmission,differential,torque	○	○	○	○	○	○
	Gear cases oil quality	○	○	○	○	○	○
	Tire air pressure,damage	△	△	△	×	×	×
	Wheel bolt & nuts	△	△	△	○	○	○
	Headguard function	○	○	○	○	○	○
Lifting	Lublication oil leakage	△	△	△	△	△	△
Oil equipment	Oil control valve oil leakage	△	△	△	△	△	△
	Lift tilt cylinder oil leak	×	×	×	×	×	×
	Lift tilt cylinder function	×	×	×	○	○	△
	Lift chaine,wheel function	△	△	△	△	△	○
	Swing cylinder	△	△	△	○	○	○
	Fork damage	×	×	×	○	○	○
Others	Hoses damage				○	○	○
	Attachment				○	○	○
	Lamps	×	×	×	×	×	×
	Wiring	△	△	△	△	△	△
	Starter	×	×	△	△	△	△
	Battery			×	×	×	×
	Seat belt						
	Back mirror	×	×	×	×	×	×

○ : NORMAL △ : NEED REPAIR × : BAD

Table 7 - 3 CHECK LIST FOR TRUCK

Main part	Check point	KAMAZ (SOVIET)									
		0096	0097	0098	0099	0771	0772	0773	0774	0775	0776
Engine	Cooling water	○	○	○	○	△	△	○	△	○	△
	Radiator function	○	○	○	○	○	○	○	○	○	△
	Battery function	△	△	△	△	△	△	△	△	△	△
	Air element function	×	×	×	×	×	×	×	×	○	×
	Fanbelt tention	×	×	×	×	×	×	×	×	○	×
	Spark plug function										
	Death point function										
	Timing adjustment	○	○	○	○	×	×	×	×	×	×
	Revolt, idling function	○	○	○	○	×	×	×	×	×	×
	Caburator function										
	LPG equipment	○	○	○	○	△	△	△	△	△	△
	Fixing engine	○	○	○	○	×	×	×	×	×	×
	Engine oil	○	○	○	○	△	△	△	△	△	△
Body	Fuel filter function	×	×	×	×	×	×	×	×	×	×
	Clutch function	○	○	○	○	△	△	△	△	△	△
	Break function	○	○	○	○	△	△	△	△	△	△
	Handbreak function	○	○	○	○	△	△	△	△	△	△
	Handle function	○	○	○	○	○	○	○	○	○	○
	Seering gear box oil quality	○	○	○	○	△	△	△	△	△	△
	Power steering system leaking	○	○	○	○	△	△	△	△	△	△
	Steering function	○	○	○	○	×	×	×	×	×	×
	Transmission, differential, torque	○	○	○	○	△	△	△	△	△	△
	Gear cases oil quality	○	○	○	○	△	△	△	△	△	△
	Tire air pressure, damage	○	○	○	○	○	○	○	○	○	×
	Wheel bolt & nuts	○	○	○	○	○	△	△	△	△	△
	Headguard function	△	△	△	△	△	△	△	△	△	△
	Outriggers oil pressure function	○	○	○	○	△					
Lifting	Outrigger pad function					△					
Oil equipment	Lubrication oil										
	Oil controll										
	Swing cylinder										
	Mach cylinder function										
	Boom function										
	Hoses damage										
	Attachment										
Others	Lamps	×	×	○	○	×	×	×	○	○	×
	Wiring	△	△	△	△	△	△	△	○	○	△
	Starter	△	△	△	△	△	△	△	△	△	△
	Battery	×	×	×	×	×	×	×	×	○	×
	Seat belt	×	×	×	×	×	×	×	×	×	×
	Back mirror	×	×	×	×	×	×	×	×	×	×
	Road test	○	○	○	○	○	△	○	○	○	△

○ : NORMAL △ : NEED REPAIR × : BAD

Table 7 - 4 CHECK LIST FOR TRUCK

Main part	Check point				MAZ	FUSO-FN				
		0777	0781	0782	0783	0778	0779			
Engine	Cooling water	○	△	△	△	△	○			
	Radiator function	○	△	△	△	△	△			
	Battery function	△	△	△	△	△	△			
	Air element function	○	×	×	×	×	×			
	Fanbelt tention	○	×	×	×	×	×			
	Spark plug function									
	Death point function									
	Timing adjustment	×	×	×	×	×	×			
	Revolt, idling function	×	×	×	△	×	×			
	Caburator function									
	LPG equipment	△	○	○	○	△	△			
	Fixing engine	×	○	○	○	○	○			
	Engine oil	△	○	○	○	○	○			
Body	Fuel filter function	×	×	×	×	×	×			
	Clutch function	△	△	△	△	△	△			
	Break function	△	×	×	△	△	△			
	Handbreak function	△	×	×	△	△	△			
	Handle function	○	○	○	○	○	○			
	Seering gear box oil quality	△	△	△	△					
	Power steering system leaking	△	△	△	△					
	Steering function	×	△	△	○					
	Transmission, differential, torque	△	○	○	△	△	△			
	Gear cases oil quality	△	○	○	○	△	△			
	Tire air pressure, damage	○	×	×	△	×	×			
	Wheel bolt & nuts	△	○	○	○	○	○			
	Headguard function	△	△	△	△	×	×			
	Outriggers oil pressure function		△	△	△	×	×			
Lifting	Outrigger pad function		△	△	○	×	×			
Oil equipment	Lubrication oil									
	Oil controll									
	Swing cylinder									
	Mach cylinder function									
	Boom function									
	Hoses damage									
	Attachment									
Others	Lamps	○	×	×	×	×	×			
	Wiring	○	△	△	△	×	×			
	Starter	○	△	△	△	×	×			
	Battery	×	×	×	×	×	×			
	Seat belt	×	×	×	×	×	×			
	Back mirror	×	×	×	×	×	×			
	Road test	○	△	△	△	○	△			

○ : NORMAL △ : NEED REPAIR × : BAD

APPENDIX 8 CARGO VOLUME HANDLED AND USAGE IN THE PORT OF PHNOM PENH

Table 8 - 1 Volume of Cargo Handled at Port of Phnom Penh

	1985	1986	1987	1988	1989	1990	1991	1992
Foreign Trade								
EXPORT	21,289	30,112	37,124	52,033	51,633	95,466	78,420	38,570
RAW RUBBER	–	–	–	–	416	12,062	7,078	12,341
NATURAL RUBBER	15,200	20,493	23,460	22,720	24,082	22,423	19,107	10,137
SAW TIMBER	–	–	–	–	–	–	101	144
FLOORING STRIPE	–	–	–	–	–	2,694	–	100
LOG WOOD	2,499	869	323	4,341	3,897	3,224	805	540
AGRICULTURE PRODUCT	3,544	6,957	11,456	23,562	20,669	26,382	44,617	7,919
GENERAL CARGO	46	1,793	1,865	–	–	–	–	6,301
RICE (SEED)	–	–	20	–	–	–	–	–
SCRAP IRON	–	–	–	651	2,978	26,748	4,533	–
TOBACCO	–	–	–	276	–	–	1,416	–
JUTE	–	–	–	52	206	1,129	–	511
BUFFALO	–	–	–	17	–	80	152	487
RATTAN	–	–	–	12	58	194	457	225
STELT FISH	–	–	–	400	–	–	381	–
ALOES WOOD	–	–	–	2	–	25	73	24
WHITE RICE	–	–	–	–	–	502	–	–
CONTAINER (個)	–	–	–	–	–	–	–	141
IMPORT	30,931	54,202	55,049	57,700	45,945	96,247	200,378	223,714
WHITE RICE	–	25,501	24,063	17,084	13,136	16,544	30,138	18,795
RICE SEED	–	–	–	4,332	–	–	2,716	–
CEMENT	–	–	12,368	71,289	12,242	39,888	68,807	71,056
FERTILIZER	–	–	–	5,609	–	6,884	25,499	7,562
BICYCLE	–	–	–	40	–	–	–	–
GENERAL CARGO	30,931	31,701	18,618	19,346	20,144	32,897	64,486	122,368
WHEAT FLOUR	–	–	–	–	374	–	4,425	–
WATER PUMP	–	–	–	–	49	34	–	–
FLOUR	–	–	–	–	–	200	3,023	–
BAR IRON	–	–	–	–	–	–	380	1,543
ENGINE	–	–	–	–	–	–	248	–
BRIDGE	–	–	–	–	–	–	170	1,075
NaOH	–	–	–	–	–	–	206	360
STEEL	–	–	–	–	–	–	240	–
SHORE CRANE	–	–	–	–	–	–	40	–
CONTAINER (pcs)	–	–	–	–	–	–	–	71
TOBACO	–	–	–	–	–	–	–	884
Foreign Trade Total	50,220	87,314	92,173	109,733	97,578	191,713	279,098	262,284
Domestic Commerce								
LOCAL CARGOES	22,370	15,875	23,909	24,250	33,852	37,961	28,107	13,174
WOOD	3,881			–	72	–	–	–
NATURAL RUBBER	7,061	5,472	7,422	6,087	8,124	4,053	2,470	1,083
AGRICALTURE PRODUCT	2,224	2,277	3,980	13,678	20,564	33,708	–	232
WHITE RICE	–	–	606	445	4,093	–	–	453
GENERAL CARGO	7,067	7,331	7,923	–	–	–	2,563	11,406
RICESEED	–	–	3,924	4,040	–	–	–	–
RAW RUBBER	218	795	54	–	753	–	–	–
STEEL	–	–	–	–	93	81	–	–
ASPHALT	–	–	–	–	153	119	–	–
CONTAINER	–	–	–	–	–	–	–	–
Foreign + Domestic	74,590	103,199	116,082	133,983	131,430	229,673	307,205	275,458

NOTES: 1. Source : Planning Div. Port of Phnom Penh
2. As of end of Oct. 1992

Table 8 - 2 Number of Vessels Entered at the Port of Phnom Penh

	1985	1986	1987	1988	1989	1990	1991	1992
Free Nations	33	43	38	38	45	80	186	286
ex USSR	34	40	32	32	33	49	14	20
Vietnam	5	68	87	117	65	87	79	512
Cambodia	114	69	100	125	82	49	19	17
Total	186	220	257	312	225	265	298	835

NOTES: 1. Source : Planning Div. Port of Phnom Penh
2. As of end of Oct. 1992

Table 8 - 3 Mooring of Vessels at Phnom Penh Port No.1

No.	Name of Vessels	⑥	7	8	9	⑩	11	12	⑬	14	15	16	17	18	19	⑳	21	22	23
		S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W
1	HIAP TONG 12/3																		
2	HAI HUI 8 12/5																		
3	TONG HOE																		
4	GENKAI 8 12/5																		
5	NHUT TAO																		
6	UNIVERSAL 1 12/5																		
7	SHERATON																		
8	HOSHO MARU 12/5																		
9	SPRING STAR																		
10	DM 157									?									
11	SHERATON II																		
12	NAGA ROSE																		
13	DM 074																		12/26 →
14	ANGKOR. W. I																		
	TONG MUN																		

NOTES: 1. 12/10 : National Holiday

2. Legend

- ——— Stevedoring (one shift only : Port No. 1)
- - - - - - - Stand - By (Port No. 1)
- △~~~ Arrival and waiting at anchorage
- ~~~o Waiting at anchorage and departure
- ▭ Stevedoring (one shift only : Port no. 2)

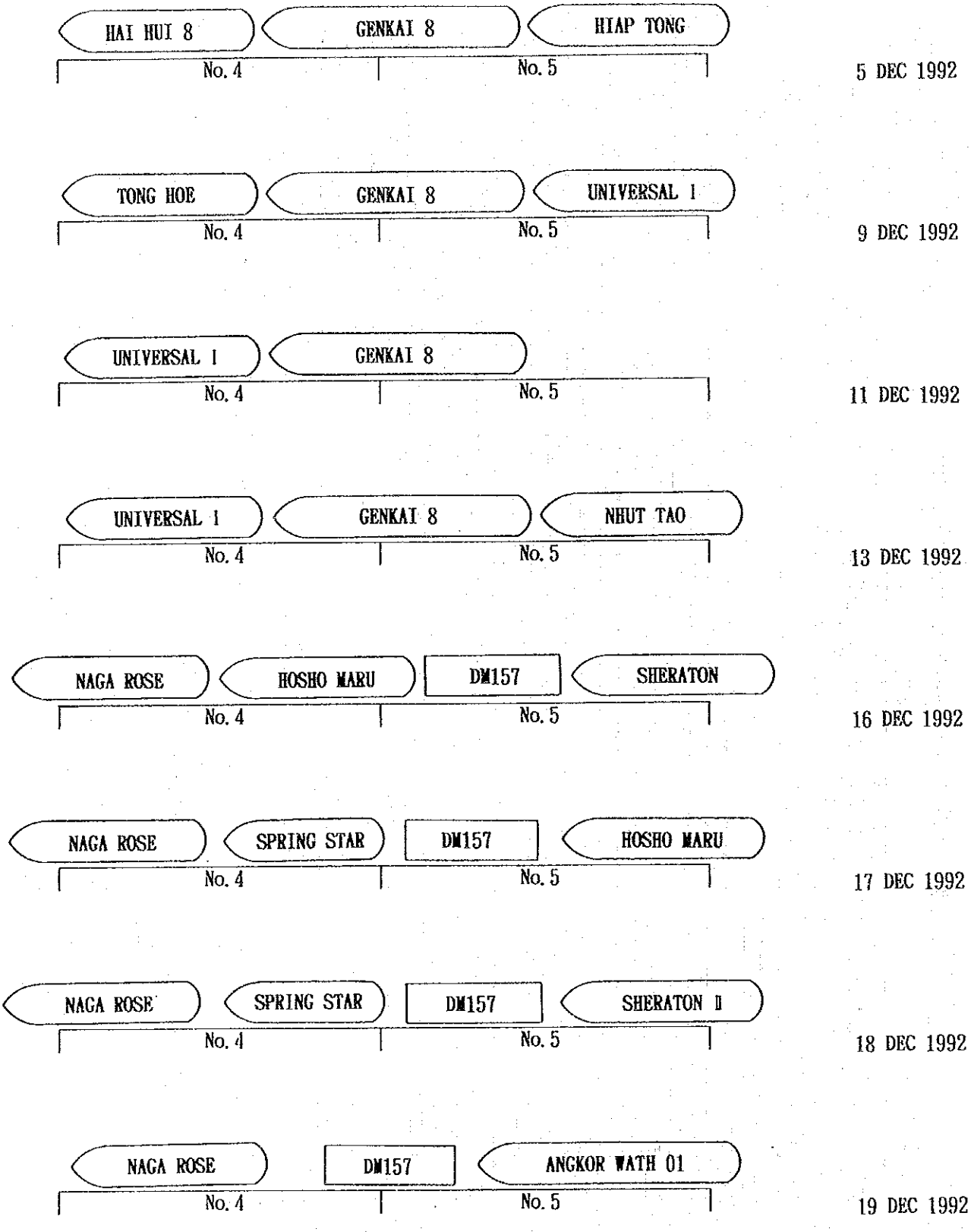


Fig. 8 - 1 Mooring of Vessels at Phnom Penh Port No.1

Fig. 8 - 4 Terminal Performance report

No.	Name of Vessels	GT (DWT)	Cargo Vol. (ton) 1)	Shipment Destination	2)	3)	4)	Type of cargo	Type and Number of crane	5)	Port demurrage(hr) on arrival	Port demurrage(hr) departure
1	M/V HIAP TONG	1222	D 121.4	From Singapore	15.5 /3	7.83	62.6	General cargo	シップクレーン×2+25t	2	29	15.5
			L 6.0	To. Singapore	0.5 /1	–	–	Lumber	—	(1)		
2	M/V HAI HUI 8	555	D 253.4	Singapore	24.9 /3	10.18	81.4	General cargo	6t×2+16t	–	19.5	1.5
			L –	–	–	–	–	—	—	–		
3	M/V TONG HOE	200	D 207.3	Singapore	25.3 /2	8.19	65.5	General cargo	6t×2	–	20.5	71.5
			L –	–	–	–	–	—	—	–		
4	M/V GENKAI 8	1478	D 1105.5	Singapore	91.3 /3	12.11	96.9	General cargo	16t+6.5t+25t	8.	22.5	69.5
			L 109.2	Singapore	10.3 /2	10.60	84.8	Lumber	16t×2	(6)		
5	M/V NHUT TAO	722	D 199.5	Hong Kong	32.75/3	6.09	48.7	General cargo	6.5t×3	–	141.5	44
			L 347.3	Hong Kong	–Port No2–			Maize	—	–		
6	M/V UNIVERSAL 1	200(699)	D 547.3	Hong Kong	62.0 /3	8.82	70.6	General cargo	25t+6.5t×2	–	62	22.5
			L –	Viet Nam	–	–	–	—	—	–		
7	M/V SHERATON	500	D 108.3	Singapore	12.3 /1	8.80	70.4	General cargo	シップクレーン	4	147	22.5
			L –	–	–	–	–	—	—	(2)		
8	M/V HOSHO MARU	497	D 547.4	Singapore	40.2 /3	13.62	109.0	General cargo	6.5t×3	14	214.5	96.5
			L 27.8	Singapore	3.0 /1	9.27	74.1	Empty container	25t	(11)		
9	M/V SPRING SATR	199	D 304.8	Singapore	36.7 /3	8.31	66.5	General cargo	6.5t×3	–	62.5	49.0
			L –	–	–	–	–	—	—	(2)		
10	Lighter DM 157		D 861.0	Vite Nam	39.3 /2	21.91	175.3	Rice	25t+16t	–	?	?
			L –	–	–	–	–	—	—	–		
11	M/V SHERATION II	701	D 31.5	Singapore	7.17/2	4.39	35.1	General cargo	25t+シップクレーン	–	26.5	0.5
			L –	–	–	–	–	—	—	–		
12	M/V NAGA ROSE	412	D 654.7	Thailand	59.6 /3	10.98	87.9	General cargo	16t+6.5t×2	–	210.5	21.0
			L –	–	–	–	–	—	—	(11)		
13	Lighter DM 074		D 898.8	Vite Nam	55.75/3	16.12	129.0	Rice	25t+16t+6.5t	–	?	?
			L –	–	–	–	–	—	—	–		
14	M/V ANGKOR WATH 01	2574(3230)	D 378.7	Singapore	45.8 /3	8.27	66.1	General cargo	25t+6.5t×2	–	136.0	
			L –	–	–	–	–	—	—	–		
	M/V TONG MUN	673	D 93.5	Singapore	–Port No2–			Cars	—	–	46	47
			L –	–	–	–	–	—	—	–		

NOTES : 1. D = Discharge, L = Loading
2. Total cargo handling hours(hr./number of gangs)
3. Cargo handling volume per gang per hour(t/hr./gang)
4. Cargo handling volume per shift per gang(t/shift/gang)
5. Number of container(Empty)

Table 8 - 5 Schedule Vessels at Phnom Penh Port

Name of Shipping Co. (Country)	Name of Vessels
1. LINE FAST PTE (SINGAPORE)	1. M/V SHUHO MARU
	2. M/V HONG ZHAN
	3. M/V SHUNFU
	4. M/V ZHU HANG
	5. M/V GENKAI 8
2. NEW STRAIT (SINGAPORE)	6. M/V TROPICAL ROSE
	7. M/V HANA
3. HAI HUI (SINGAPORE)	8. M/V HAI HIU 8
	9. M/V HAI HUI 1
	10. M/V SOON SOON 1
4. HEAP HOE (SINGAPORE)	11. M/V TONG HOE
	12. M/V TONG SERN
	13. M/V SENTIASA
	14. M/V TONG MUN
	15. M/V SPRING STAR
	16. M/V HEAP TONG
5. THAI BUN ROONG (SINGAPORE)	17. M/V HOPE WELL
	18. M/V CHANG AIM
6. NAGA SHIPPING (THAI)	19. M/V ANNABA
	20. M/V NAGAROSE
7. LIM BENG HO SHIPPING (SINGAPORE)	21. M/V SHERATON
	22. M/V SHERATON 2
8. ? (CAMBODIA)	23. M/V ANGKOR WATH 01

Table 8 - 6 Vessels Handling Mainly Containers

Serial No.	Name of Vessels (Registry)	G. T. (t)	No. of Container/vol.		Content of container		Handling Hrs.		Efficiency		Time in port	Date of departure
			D	L	D	L	D	L	D	L		
34.	Arktis Princess (Danish)	1599	16ヲ/ 208t	15ヲ/ 208t	G.C	Empty	(D+L)= 4 hrs		(D+L)= 52 t/hr		21hrs	92. 10. 4
40.	Asian Pride (Singapore)	1590	28ヲ/ 458t	—	〃	—	6. 5hrs	—	70 t/hr	—	46hrs	92. 10. 28
65.	Artis Princess (Danish)	1599	?ヲ/ 565t	—	〃	—	25. 3hrs	—	22 t/hr	—	117hrs	92. 8. 8
71.	Jumbo Callisto (German)	1597	?ヲ/1476t	—	〃	—	33 hrs	—	45 t/hr	—	211hrs	92. 9. 8
82.	Arktis Grace (Danish)	1829	?ヲ/ 424t	—	〃	—	13 hrs	—	33 t/hr	—	94hrs	92. 9. 13
83.	Arktis Princess (Danish)	1599	?ヲ/ 866t	—	〃	—	11 hrs	—	79 t/hr	—	40hrs	92. 9. 11
93.	Arktis Princess (Danish)	1599	88ヲ/ 733t	?／?	〃	Maize	9 hrs	—	81 t/hr	—	42hrs	92. 9. 22
145.	(Lighter) DM 244 (Viet Nam)	504	32ヲ/ ? t	—	〃	—	18. 5hrs	—	1. 7t/hr	—	414hrs	92. 7. 4
146.	Arktis Blue (Danish)	2815	?ヲ/ 706t	—	〃	—	15 hrs	—	47 t/hr	—	67hrs	92. 6. 21
171.	Super Eight (Bahamas)	2854	?ヲ/ 645t	—	〃	—	38. 5hrs	—	17 t/hr	—	141hrs	92. 6. 30
178.	Orient Express (Thailand)	1008	?ヲ/ 299t	—	〃	—	14. 5hrs	—	21 t/hr	—	189hrs	92. 5. 31
218.	Angkor Wath 01 (Cambadia)	2574	?ヲ/ ? t	—	Marble	—	12. 0hrs	—	1. 5t/hr	—	355hrs	92. 6. 27

NOTES : 1. Source : "Statement of Fact" Jan. 11 to Dec. 19, 1992
2. All containers are 20'
3. D : Discharge, L : Loading
4. Time in port includes the time at anchorage
5. All vessels moored at Port No. 1
6. Data were not available for those shown with ? wheter container or not.

APPENDIX 9 STATISTIC DATA OF THE PORT OF SIHANOUKVILLE

Table 9-1 Cargo Handling Equipent of Sihanoukville Port

as of Nov. 30. 11. '92

Item	Description	Nos. of Unit	HP	Capa-city	Sevvice-able	to be repaired	Remarks
Truck							
	-Fuso FK	1	80	5T	1	0	
	-Fuso FN	6	160	10T	4	2	Need repair
	-MAZ 5335	2	180	7T	2	0	
	-MAZ 3371	2	180	7T	2	0	
	-MAZ Plat forme	8	130	20T	8	0	
	-KAMAZ 33321	5	210	10T	5	0	
Tractor							
	-Tractor Betarus	10	65	4T	10	0	
	-Tractor	23	—	—	17	—	
	-Tractor Plat forme	8	—	20T	8	6	Old, can not be used
	-Tractor	4	—	20T	4	0	
	-Tractor	2	—	40T	2	0	
	-KAMAZ	5	—	7T	5	0	
	-Tractor Plat forme	6	3	30T	6	0	
Stevedoring/Crane							
	-Elevateur 4045	10	80	5T	10	0	
	-Bulgaria	3		-4.5T	2	1	No good condition
	-GRUE KATO	2	80	5.5T	1	1	No good condition
	-GRUE MAZ	6	180	7T	5	1	No good condition
	-GRUE BUMAZ	2	—	30T	2	0	
	-GRUE k.C	1	—	16T	0	1	No good condition
	-GRUE k.C	2	—	25T	1	1	No good condition
	-GRUE KRAZ	1	—	16T	1	0	
	-GRUE ZUL	1	210	10T	1	0	
Construction Equipment							
	-Truck MAZ BPN	5	—	—	5	0	
	-Truck KAMAZ	4	—	—	4	0	
	-Buldozer	3	—	—	2	1	No good condition
	-Excavateur	2	—	—	2	0	
	-Niveulense	1	—	—	1	0	
	-Chargeur	1	—	—	1	0	
	-Roulo	2	—	—	2	0	

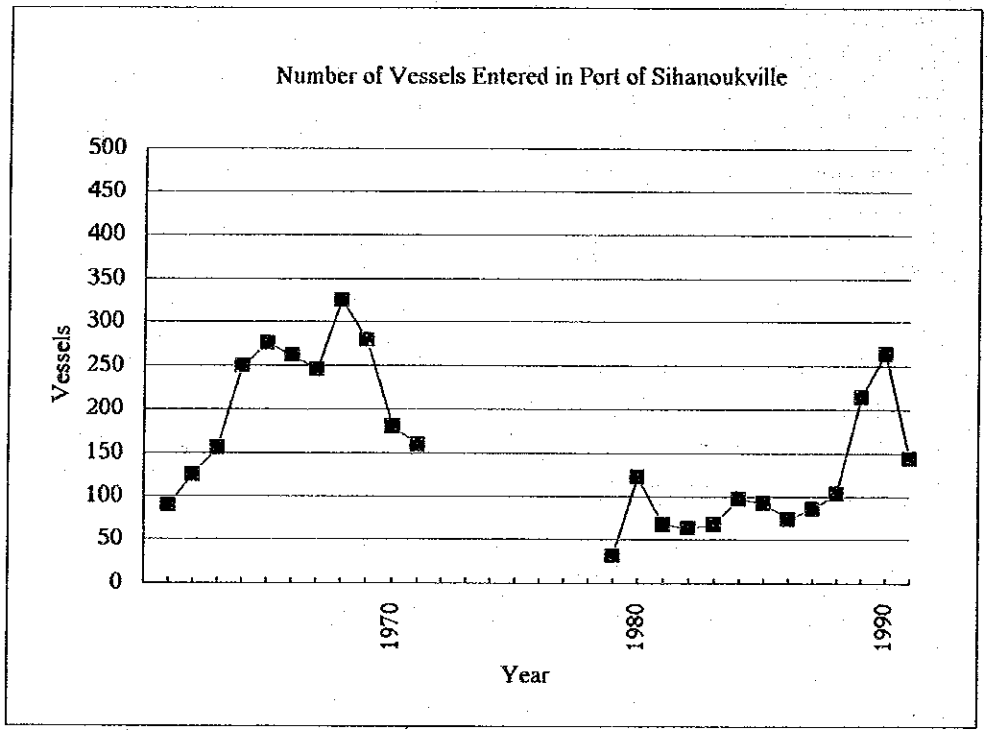
Data : Office of Sihanoukville port

Table 9-2
Number of Vessels Entered in Port of Sihanoukvile

Year	Vessels
1961	89
1962	125
1963	155
1964	250
1965	276
1966	261
1967	245
1968	325
1969	279
1970	180
1971	159
1972	
1973	
1974	
1975	

Year	Vessels
1976	
1977	
1978	
1979	32
1980	122
1981	68
1982	63
1983	68
1984	98
1985	93
1986	74
1987	86
1988	103
1989	214
1990	264
1991	144

Note : Data for 1973-1978 is not available due to the civil war.



Tebel 9-3 Number of vessels by Nationality

Nathonality	Number of ship call
Russia/USSR	4
Vietnam	4
China	7
Panama	63
Japan	7
Thailand	19
Philippines	2
Malaysia	2
Indonesia	7
Antigor	9
Honduras	2
Denmark	17
Greek	3
Norway	2
Bahama	3
India	1
Singapore	1
Liberia	1
Malta	3
Cambodia/(Barge)	6
Total	163

Notes : 1. Jan to Sep. 1992
2. Source : office of Sihanoukville port

Fig 9-4
Volume of Foreign Cargo at the Port of Sihanoukville

Unit: ton

Year	Export	Import	Total
1961	35,084	60,491	95,575
1962	77,918	88,421	166,339
1963	143,123	226,436	369,559
1964	186,834	328,000	514,834
1965	487,413	454,815	942,228
1966	270,376	278,149	548,525
1967	249,589	293,948	543,537
1968	389,757	358,081	747,838
1969	671,672	282,538	954,210
1970	449,361	285,565	734,926
1971	101,079	122,245	223,324
1972	14,780	80,792	95,572
1973			
1974			
1975			
1976			

Year	Export	Import	Total
1977			
1978			
1979	2,735	69,781	72,516
1980	1,720	289,801	291,521
1981	5,027	185,695	190,722
1982	14,355	115,473	129,828
1983	2,182	95,142	97,324
1984	7,979	110,448	118,427
1985	11,514	104,642	116,156
1986	8,017	121,463	129,480
1987	17,466	143,931	161,397
1988	24,466	182,787	207,253
1989	85,999	177,951	263,950
1990	83,659	200,069	283,728
1991	86,873	45,677	132,550

Note: data for 1973-1978 is not available due to the civil war.

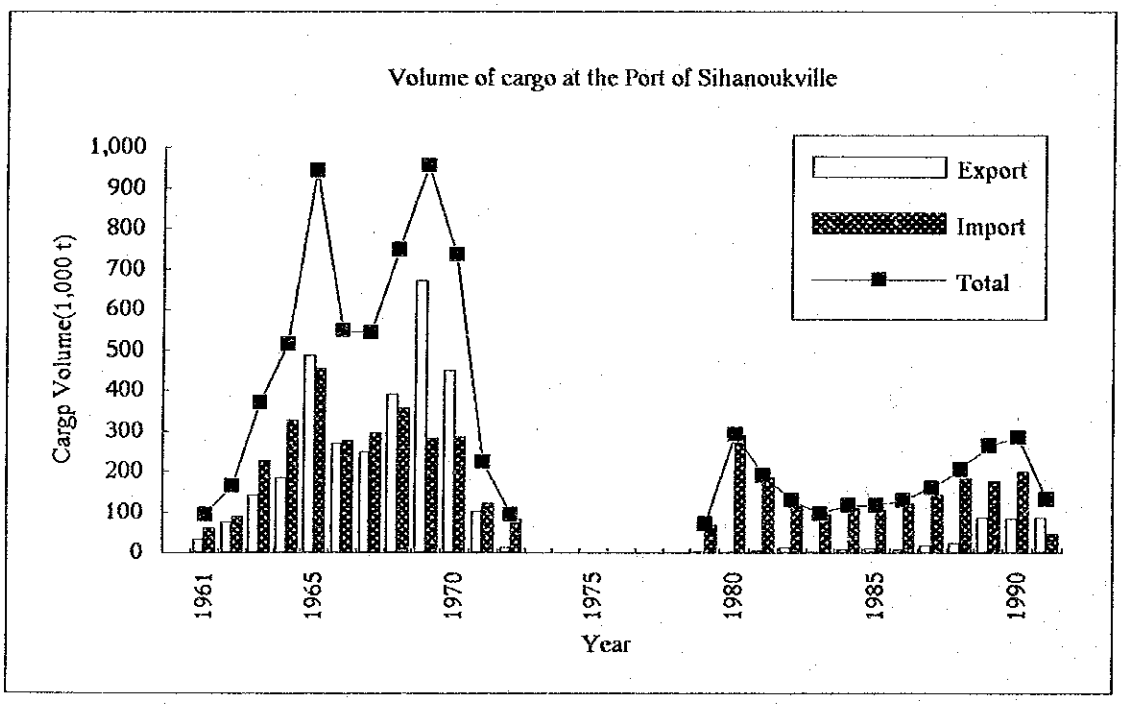


Table 9-5 Details of Cargo

	DESCRIPTION	UNIT	CARGO VOLUME(TON)
I	TRAFFIC OF CARGOES	TONS	176,886
	-Import Total		122,089
	-Export Total		54,797
A.	Import Cargoes by Commodity		
	-Rice		5,970
	-Fertilizer		5,499
	-Cement		44,324
	-Fuel		5,112
	-All kinds of Metal		8,016
	-Machinary & Equipmeut		7,221
	-General Cargoes		31,820
	-Containers		14,127
B.	Export Cargoes by Commodity		
	-Rubber		94
	-Log Woods		48,511
	-Saw Woods		5,946
	-Peppers		56
	-Rattan		178
	-General Cargoes		12
II	CAPACITY OF LIFTING IN TOTAL		245,090
	OF IMPORT EXPORT'S CARGOES		
	-Lifting Cargoes direct		93,741
	-Lifting Cargoes Through		
	Warehouse & open Space		151,349

Source : office of Sihanoukville port

Table 9-6 Number of Contaivers

Month	No. ofContainer Imported(TEU)
April 1992	72
May	153
June	251
July	400
Aug	256
Sep	450
Oct	444
Total	2462

Notes : 1. April to October 1992.
2. Number of exported container during the same period was 1858 TEU but almost all were empty container.
3. Data : Office Of Sihanoukville port

Fig.9–1 Organization of the Port of Sihanoukville

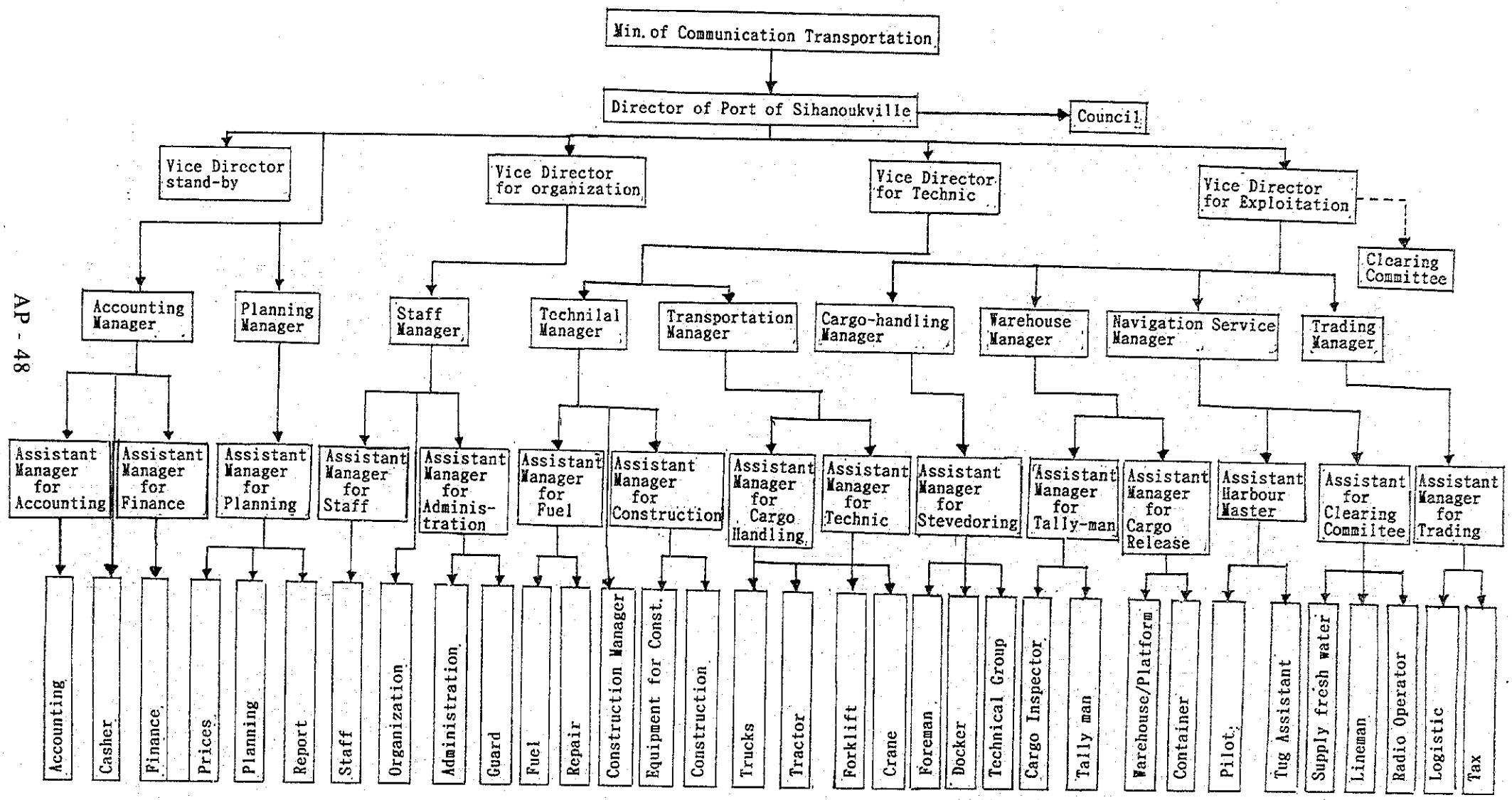


Table 9-7 Trainning Schedule of the port of Sihanoukville(1993)

ITEM	No. of Staff
Domestic Trainning	
Computer	2
Financial/Casher	2
Management	2
Overseas Training	
Training for international port	5
Study for law of international port	2

Source : office of Sihanoukvill porte

Table 9-8 Financial Status of the Sihanoukville Port

Year	Income	Expense
1983	10,424,006.41	6,503,976.00
1984	21,869,751.31	18,991,530.00
1985	28,624,438.61	19,010,103.16
1986	31,866,031.05	19,690,546.80
1987	27,880,394.92	23,630,416.96
1988	69,024,991.31	56,147,069.81
1989	142,140,384.50	79,890,495.02
1990	671,782,867.27	318,124,320.27
1991	948,707,419.64	732,275,696.80
1~10/92	1,716,338,326.46	920,646,895.21
	3,668,658,611.48	2,194,911,050.03

Data : Office of Sihanoukville port

APPENDIX 10 DATA OF DEMAND FORECAST

Table 10-1 The Target under the 2nd National 5 Year Plan (1991 ~ 1995)

Item	1986 (Actual)	1990 (Actual)	1991 (Planned)	1995 (Planned)
Population (1,000)	7,774	8,680	8,923	9,960
GNP (US$ mil.)*	2,305	3,266	3,593	5,260
Grain (1,000 ton)	2,130	2,825	3,030	4,100
Food Products per Capita (kg/per.)	275	326	340	412
Rubber (ton)	24,510	45,000	45,500	48,500
Lumber (1,000 m^3)	150.5	250	250	300
Electric Power (mil. kwh)	146.4	220	220	400
Exports (US$ mil.)*	64	91	100	168
Imports (US$ mil.)*	307	414	428	491

Notes 1. Source: Ministry of Planning

2. *Price as of 1984. Exchange Rate: US$1.00 = 8.0 Riel

Table 10-2 The Minimum Export Volumes for the 5 Year Plan

Commodities	Unit	1991	1992	1993	1994	1995	1991-95
Rice	Tons	-	-	16,000	16,000	20,000	52,000
Crepe Rubber	Tons	40,000	40,000	41,000	42,000	43,000	206,000
Timber	Thousand m^3	100	100	100	100	100	500
Soybeans	Tons	23,000	24,000	26,000	28,000	30,000	131,000
Beans	Tons	4,000	4,500	4,500	5,000	5,000	23,000
Sesame	Tons	4,000	4,200	4,300	4,500	4,500	21,500
Red maize	Tons	32,000	34,000	36,000	38,000	40,000	180,000
Tobacco	Tons	1,050	1,050	1,050	1,050	1,050	5,250
Pepper	Tons	170	200	300	400	500	1,570
Car Tires	Set	6,000	6,000	6,000	6,000	6,000	30,000

Source: Ministry of Planning (2nd 5Yr Plan)

Table 10-3 A comparison of the Foreign Trade by the Mekong Secretariat and the 5 Year Plan

Yr	Imports (Mil. US$)			Exports (Mil. US$)		
	Mekong Secretariat	5 Yr Plan	Ministry of Planning (Actual)	Mekong Secretariat	5 Yr Plan	Ministry of Planning (Actual)
1986		307		n.a.	64	
1987	121			n.a.		
1988	130		126	n.a.		32.5
1989			135	n.a.		44.3
1990		414	115	n.a.	91	34.7
1991	195	428	259	n.a.	100	71.3
1995	443	491		n.a.	168	
2000	695			n.a.		
2010	935			n.a.		

Table 10-4 Population and Forecast

Year	Population (Person)
1990	8,567,582
1991	8,781,771
1992	9,001,315
1993	9,226,348
1994	9,457,007
1995	9,693,132
1996	9,555,768
1997	10,184,162
1998	10,438,766
1999	10,699,735
2000	10,967,248

Notes: The forecasted population is based on the 1981 census to which
1981 ~ 1990:
annual growth of 2.8 %/yr added
after 1990:
annual growth of 2.5 %/yr added

Source: Ministry of Planning

Table 10-5 Population by Province

(Unit: 1,000)

Province	1981	1990
1. Phnom Penh City	329	478
2. Kandal	720	867
3. Kompong Cham	1,070	1,371
4. Svay Rieng	292	374
5. Prey Veng	672	862
6. Takeo	530	680
7. Kompong Thom	379	486
8. Siem Reap	477	595
9. Banteay Meanchey	-	426
10. Battambang	719	513
11. Pursat	175	225
12. Kompong Chhnang	221	283
13. Kompong Som	53	68
14. Kampot	354	453
15. Koh Kong	25	33
16. Kompong Speu	340	436
17. Preah Vihear	69	89
18. Stung Treng	39	50
19. Rattanakiri	45	58
20. Mondul Kiri	16	20
21. Kratie	157	201
Total/Cambodia	6,682	8,568

Table 10-6 Export and Import Estimation by Mekong Secretariat (Feb. 1992)

in 1,000 tonnes

	Item	Esumated Cargo (Whole Country) x 1,000 ton (growth rate : %)				Share of Cargo (%)								Share among Main Ports (%)								Cargo Volume among Main Port							
						Main Ports				others land trap. included				Phnom Penh Port				Sihanoukville				Phnom Penh Port				Sihanoukville			
		1990/1991	1995	2000	2010	90/91	1995	2000	2010	90/95	1995	2000	2010	90/91	1995	2000	2010	90/91	1995	2000	2010	90/91	1995	2000	2010	90/91	1995	2000	2010
EXPORT	Rice	-30	270	370	130	【-30】	270	370	130	【0】	0	0	0	【50】	50	50	50	【50】	50	50	50	【-15】	135	185	65	【-15】	135	185	65
		注 1) (10)		(3)	(2.5)																								
	Rubber	35	43	52	74	【35】	43	52	74	【0】	0	0	0	【90】	90	80	80	【10】	10	20	20	【32】	39	42	59	【3】	4	10	15
		注 1) (1.2)		(3.6)	(3.5)																								
	Lumber	100	290	450	550	【30】	90	150	250	【70】	200	300	300	【40】	40	40	40	【60】	60	60	60	【12】	36	60	100	【18】	54	90	150
		注 1) (0)		(9.5)	(2.4)																								
	Marine Goods	注 2) 【5】	15	22	25	【2】	5	10	10	【3】	10	12	15	【20】	20	20	20	【80】	80	80	80	【0】	1	2	2	【2】	4	8	8
	Red beans	19	40	50	55	【19】	40	50	55	【0】	0	0	0	【100】	100	100	100	【0】	0	0	0	【19】	40	50	55	【0】	0	0	0
	Soybeans	28	30	40	45	【28】	30	40	45	【0】	0	0	0	【100】	100	100	100	【0】	0	0	0	【28】	30	40	45	【0】	0	0	0
	Other farm Product	【5】	10	20	250	【5】	10	20	50	【0】	0	0	200	【100】	100	100	100	【0】	0	0	0	【5】	10	20	50	【0】	0	0	0
	Bauxite	0	0	0	200	0	0	0	200	0	0	0	0	-	-	-	100	-	-	-	0	0	0	0	200	-	-	-	0
	Total Export	【192】	698	1.004	1.329	【119】	488	692	814	【73】	210	312	515	【81】	60	58	71	【19】	40	42	29	【96】	291	399	576	【23】	197	293	238
		(34)		(7.5)	(2.8)																								
IMPORT	Flour	8	10	12	16	【8】	10	12	16	【0】	0	0	0	【80】	80	80	80	【20】	20	20	20	【6】	8	10	13	【2】	2	2	3
		(3.5)		(3.5)	(3.5)																								
	Fertilizer	66	90	126	0	【66】	90	126	0	【0】	0	0	0	【50】	50	50	50	【50】	50	50	50	【33】	45	63	0	【33】	45	63	0
		(6.3)		(7.0)																									
	Petroleum	150	255	350	560	【150】	250	350	545	【0】	5	8	15	97	60	6	29	3	40	94	71	【145】	150	20	160	【5】	100	330	385
		(11)		(7)	(4.5)																								
	Cement	69	230	300	450	【69】	230	295	440	【0】	0	5	10	【50】	50	50	30	【50】	50	50	70	【35】	115	147	132	【34】	115	148	308
		(27)		(5.5)	(4.0)																								
	Machinery	【10】	20	30	50	【10】	20	25	40	【0】	0	5	10	【70】	70	60	60	【30】	30	40	40	【 7】	14	15	24	【3】	6	10	16
		(8.4)		(10)																									
	Manuf. Product	125	165	200	310	【25】	30	100	150	【100】	135	100	160	【70】	70	60	60	【30】	30	40	40	【18】	21	60	90	【7】	9	40	60
		(5.7)		(4.0)	(4.5)																								
	Total Import	【458】	770	1.026	1.386	【358】	630	908	1.191	【100】	140	118	195	【72】	56	35	35	【28】	44	65	65	【259】	353	315	419	【99】	277	593	772
		(12)		(6.0)	(3.0)																								
	Total	【650】	1.468	2.030	2.715	【477】	1.118	1.600	2.005	【173】	350	430	710	【74】	58	45	50	【26】	42	55	60	【353】	644	714	995	【122】	474	886	1.010
		(20)		(6.7)	(3.0)																								

1) Growth rate : growth rate is against to the production

2) [ ] : Figures in [ ] was estimated as complementary

Source : Mekong Secre.

(a) Export

a) Rice

Table 10-7 A comparison for Rice Production

	Mekong Secretariat			5 Yr. Plan		Ministry of Planning (Actual)		
Year	Area (Mil. ha)	Production (Mil. ton)	Unit Yield (ton/ha)	Area (Mil. ha)	Production (Mil. ton)	Area (Mil. ha)	Production (Mil. ton)	Unit Yield (ton/ha)
1969 (Max.)	2.80	3.80	1.36	n.a.				
1989	2.40	2.57	1.07	n.a.		1.57	2.28	1.45
1990				n.a.		1.53	2.15	1.41
1991	1.91	2.40	1.26	n.a.	2.95	1.72	2.40	1.40
1995	2.40	3.90	1.63	n.a.	4.00			
2000	2.80	4.50	1.61	n.a.				
2010	3.40	5.10	1.50	n.a.				

Table 10-8 The forecast of the Rice Produced, Area Plan and Export Amount (Mekong Secretariat)

Year	1991	1995	2000	2010
Population (million)	8.92	9.84	11.13	13.70
Domestic Consumption (million tons)	2.40	2.66	3.01	3.70
Cultivated Area (million ha)	1.91	2.40	2.80	3.40
Yield Rate (ton/ha)	1.26	1.60	1.60	1.50
Production (million tons) 1)	2.40	3.90	4.50	2.10
Export (million tons) 2)	-0.03	0.27	0.37	0.13

Note: Rice consumption: 270 kg/Person/Yr 1) Paddy 2) Rice

1) Paddy 2) Rice

According to the Ministry of Planning the slowdown of rice production in the period 1990 ~ 1991 is attributed to the floods which occurred at this time.

The area of the rice planting of 3.40 million ha in 2010 exceeds the maximum area (approx. 2.8 million ha) before the war (1960s), but depending on the establishment of law and order, if multiple planting were started with the use of chemical fertilizer, and the unit yield could be increased, the total production to be exported could become a possibility.

Table 10-9 Area and Product of Rice

Province City	1990		1991	
	Area Surface (1,000ha)	Quantity (1,000T)	Area Surface (1,000ha)	Quantity (1,000T)
Total	1,534.5	2,149.6	1,719.1	2,400.0
Phonom penh	10.6	16.4	10.0	19.0
Province Kandal	67.1	164.6	19.5	177.0
Province Kampong Cham	169.4	261.3	176.0	256.6
Province Sray Rieng	147.7	143.0	154.3	154.0
Province Prey Veng	234.4	388.4	218.3	275.0
Province Takeo	194.0	384.2	185.5	292.6
Province Kampong Thom	111.7	135.3	130.4	149.3
Province Siem Reap	136.1	137.1	150.0	169.0
Province Banteay Heanchey	79.5	79.1	132.0	226.0
Province Battambong	91.0	119.0	87.0	125.0
Province Pursat	51.0	83.0	66.2	99.0
Province Kampong Chhnang	57.8	90.2	59.5	96.0
Province Kampong Som	9.0	12.0	9.5	15.0
Province Kampot	67.9	80.8	113.0	148.0
Province Kohgong	4.0	4.0	4.6	71.5
Province Kampong Speu	36.0	41.0	68.5	87.0
Province Preah Vihear	12.0	25.0	12.6	20.4
Province Stung Treng	10.0	15.0	9.0	16.2
Province Rattanak Kiri	11.0	16.0	10.7	18.0
Province Mondol Kiri	5.0	7.0	3.5	5.4
Province Kretie	29.3	47.2	27.0	44.0

Source : Ministry of Planning

b) Rubber

Next to rice, rubber is on a par with lumber as the important agricultural produce.

As shown below the forecast by the Mekong Secretariat is based on the 5 Year Plan. The area of rubber plantation is forecasted for 55,500 ha for 1995, and the forecast of the Mekong Secretariat for 2010 is along these lines. If the privatization of the rubber plantation proceeds according to the 5 Year Plan the proposed objection should be attainable.

Table 10-10 Production of Rubber

Year	Mekong Secretariat			5 Year Plan			Ministry of Planning (Actual)		
	Area (1,000 ha)	Production (1,000 ton)	Unit Yield (ton/ha)	Area (1,000 ha)	Production (1,000 ton)	Unit Yield (ton/ha)	Area (1,000 ha)	Production (1,000 ton)	Unit Yield (ton/ha)
1968 (Max.)	66.6	51.3	0.77						
1989	41.6	31.0	0.74				46.9	33.2	0.71
1990	52.0	45.0	0.86				46.9	23.4	0.50
1991				52.2	45.5	0.87	45.1	23.8	0.53
1995	55.0	48.5	0.88	55.5	48.5	0.87			
2000	64.0	58.0	0.91						
2010	81.0	82.0	1.01						

Table 10-11 Export of Rubber

Year	Mekong Secretariat (1,000 ton)	5 Year Plan (1,000 ton)	Ministry of Planning (1,000 ton) Actual
1966 (Max.)	50.8		
1968	48.9		
1988	26.7		27
1989	24.5		33
1990	34.7		24
1991		40	34
1995	43	43	
2000	52		
2010	74		

c) Lumber

Table 10-12 Production and Export of Lumber

(1,000 m^3)

Year	Mekong Secretariat		5 Year Plan		Ministry of Planning (Actual)	
	Production	Export	Production	Export	Production	Export
1967	350	95.1				
1987			305		387	25
1988	280	60			315	53
1989	300	80			280	91
1990	350	100	250		262	97
1991			250	100		216
1995	350	290	300	100		
2000	550	450				
2010	700	550				

Although there may be some differences in the figure, the exact figure are not available. Cambodia is worried about indiscriminate cutting of trees and have placed a ceiling of 100,000 m^3/yr as lumber is a ready cash crop and the figures are twice the target quantities. There is very little information of the forest area statistics, and one source in 1960 has reported 13 million ha. When this is compared with other neighboring countries in Indochina, it is as follows:

Table 10-13 Forest Area and Production

	Area (1,000 km^2)	Forest Area (1,000 km^2)	Percentage (%)	Production (Mil. m^3)
Cambodia	181	130	72	0.3
Thailand	513	142	28	38.0
Vietnam	332	93	28	27.0
Laos	237	129	54	3.0

As can be seen in the above, it can be assumed that the export of lumber will increase with Thailand and Vietnam as lumber producing countries, and since there is no reliable source of information, the figures issued by the Mekong Secretariat was used. At the present time there is no indication of indiscriminate felling of trees, and in order to keep from making the same mistake made by other countries, Cambodia should maintain a balance of the cutting of trees and re-forestration.

d) Other Export Items

Marine Product

Table 10-14 Maine Product

Year	Fresh Water Fish			Salt Water Fish			Cultured Fish			Total		
	Mekong Sect.	5 Yr. Plan	Min. of Planning	Mekong Sect.	5 Yr. Plan	Min. of Planning	Mekong Sect.	5 Yr. Plan	Min. of Planning	Mekong Sect.	5 Yr. Plan	Min. of Planning
1989	50.5		50.5	26.0		26.0	5.5		5.5	82.0		82.0
1990	57.7		65.1	26.1		39.9	5.4		6.4	91.2		111.4
1991		55	74.7		25	36.4		5	6.7		85	117.8
1995		65			30			10			105	

Export of Marine Products

The Mekong Secretariat has forecasted a few thousand ton/yr of the above.

Maize

The Mekong Secretariat has predicted that the export of maize will cease within 5 years as the production has grown less by the year (1980 ~ 1988). Although, actually the production has decreased, the production and export is continuing even though the rates have fallen as shown in the following Tables 10-15 and 10-16 of Appendix 10-3.

Table 10-15 Production and Export of Maize

Year	Production (x 1,000 ton)		Export (x 1,000 ton)		
	Mekong Secretariat	Ministry Planning	Mekong Secretariat	5 Yr. Plan	Ministry of Planning
1966	135.8		133.4		
1980	122.7				
1988	46.9	45.0			19
1989		54.0			15
1990		35.5			6
1991		43.4		32	25
1995				40	

Allowing some for domestic consumption, the export quantities have been estimated at 1/3 of the 5 Year Plan.

Table 10-16 Area and Product of Maize

Province City	1990		1991	
	Area Surface (ha)	Quantity (T)	Area Surface (ha)	Quantity (T)
Total	44,358	35,454	46,485	43,441
Phonom penh	198	178	227	207
Province Kandal	13,994	9,724	15,350	13,698
Province Kampong Cham	10,019	7,159	11,910	14,219
Province Sray Rieng	150	142	128	80
Province Prey Veng	6,209	5,806	4,912	2,592
Province Takeo	562	418	737	548
Province Kampong Thom	437	350	1,057	1,023
Province Siem Reap	920	820	895	494
Province Banteay Heanchey	302	302	264	192
Province Battambong	903	903	706	705
Province Pursat	330	292	266	310
Province Kampong Chhnang	1,720	1,813	1,574	1,884
Province Kampong Som	7	7	—	—
Province Kampot	1,887	1,881	1,197	935
Province Kohgong	215	144	377	230
Province Kampong Speu	853	725	577	1,452
Province Preah Vihear	590	650	—	—
Province Stung Treng	424	347	375	460
Province Rattanak Kiri	185	185	—	—
Province Mondol Kiri	165	144	430	280
Province Kretie	4,288	3,004	4,303	4,134

Source : Ministry of Planning

Red Beans

Table 10-17 Production and Export of Red Beans

Year	Production (x 1,000 ton)			Export (x 1,000 ton)		
	Mekong Secretariat	5 Yr. Plan	Ministry of Planning	Mekong Secretariat	5 Yr. Plan	Ministry of Planning
1988	21.9		*			
1990			13.4			0.5
1991			12.5		4	2.5
1995				40.0	5	
2000				50.0		
2010				55.0		

The qualities proposed by the Mekong Secretariat is larger than the figures for the 5 Year Plan, the reason for this is unknown. The figures given by the 5 Year Plan have been adapted.

*Note: See Table 10-19 of Appendix 10-3.

Soybeans

Table 10-18 Production and Export of Soybeans

Year	Production (x 1,000 ton)		Export (x 1,000 ton)		
	Mekong Secretariat	Ministry of Planning	Mekong Secretariat	5 Yr. Plan	Ministry of Planning
1955	7.5	*			
1988	12.2	12			
1989		20.3			16
1990		21.4			14
1991		34.8	27.6	23	45
1995			30.0	30	
2000			40.0		
2010			45.0		

*: See Table 10-20 of Appendix 10-3.

Table 10-19 Area and Product of Beans

Province City	1990		1991	
	Area Surface (ha)	Quantity (T)	Area Surface (ha)	Quantity (T)
Total	28,210	13,416	26,780	12,525
Phonom penh	2	2	4	2
Province Kandal	3,331	1,271	3,268	930
Province Kampong Cham	12,239	6,361	11,213	5,051
Province Sray Rieng	—	—	5	3
Province Prey Veng	753	372	799	315
Province Takeo	873	425	1,457	621
Province Kampong Thom	2,104	829	2,425	1,214
Province Siem Reap	1,712	1,016	424	113
Province Banteay Meanchey	91	45	129	71
Province Battambong	1,113	285	1,173	684
Province Pursat	474	177	385	230
Province Kampong Chhnang	3,150	1,444	3,341	2,185
Province Kampong Som	—	—	—	—
Province Kampot	—	—	109	665
Province Kohgong	—	—	—	—
Province Kampong Speu	1,200	600	1,269	562
Province Preah Vihear	91	53	—	—
Province Stung Treng	208	97	389	281
Province Rattanak Kiri	38	19	—	—
Province Mondol Kiri	161	85	—	—
Province Kretie	670	335	390	225

Source : Ministry of Planning

Table 10-20 Area and Product of Soybeans

Province City	1990		1991	
	Area Surface (ha)	Quantity (T)	Area Surface (ha)	Quantity (T)
Total	14,694	21,356	14,199	34,870
Phonom penh	—	—	—	—
Province Kandal	—	—	—	—
Province Kampong Cham	13,308	19,696	13,003	34,500
Province Sray Rieng	—	—	—	—
Province Prey Veng	—	—	—	—
Province Takeo	—	—	—	—
Province Kampong Thom	1,345	1,614	1,189	2,360
Province Siem Reap	—	—	—	—
Province Banteay Meanchey	—	—	—	—
Province Battambong	17	20	4	6
Province Pursat	—	—	3	4
Province Kampong Chhnang	—	—	—	—
Province Kampong Som	—	—	—	—
Province Kampot	—	—	—	—
Province Kohgong	—	—	—	—
Province Kampong Speu	—	—	—	—
Province Preah Vihear	—	—	—	—
Province Stung Treng	—	—	—	—
Province Rattanak Kiri	14	14	—	—
Province Mondol Kiri	—	—	—	—
Province Kretie	10	12	—	—

Source : Ministry of Planning

Other Farm Produce

Sesame

Table 10-21 Production and Export of Sesame

Year	Production (x 1,000 ton)		Export (x 1,000 ton)		
	Mekong Secretariat	Ministry of Planning	Mekong Secretariat	5 Yr. Plan	Ministry of Planning
1955	3.2	*			
1988	3.3		4.6?		
1990		4.3			
1991		7.5	1.3	n.a.	4.0
1995			4.5		4.5
2000			5.5		
2010			6.0		

* Note: See Table 10-22 Appendix 10-3.

According to the Mekong Secretariat other farm produces including (vegetables, fruit, livestock) are forecasted to be as follow:

1995	10,000 ton/yr
2000	20,000 ton/yr
2010	250,000 ton/yr

Table 10-22 Area and Product of Sesame

Province City	1990		1991	
	Area Surface (ha)	Quantity (T)	Area Surface (ha)	Quantity (T)
Total	9,457	4,312	15,529	7,521
Phonom penh	—	—	—	—
Province Kandal	1,348	400	1,770	851
Province Kampong Cham	4,336	2,298	9,546	2,765
Province Sray Rieng	—	—	14	6
Province Prey Veng	1,353	764	1,585	958
Province Takeo	72	42	40	13
Province Kampong Thom	186	30	487	143
Province Siem Reap	450	135	460	1,840
Province Banteay Heanchey	4	2	45	23
Province Battambong	5	3	29	13
Province Pursat	104	25	92	45
Province Kampong Chhnang	102	37	169	87
Province Kampong Som	—	—	—	—
Province Kampot	56	17	14	53
Province Kohgong	—	—	—	—
Province Kampong Speu	40	12	23	12
Province Preah Vihear	50	23	—	—
Province Stung Treng	23	16	92	60
Province Rattanak Kiri	100	70	—	—
Province Mondol Kiri	—	—	—	—
Province Kretie	1,228	438	1,163	652

Source : Ministry of Planning

(b) Imports

a) Foodstuffs

As stated in paragraph (a) a) Cambodia is almost self-supporting for rice, the Mekong Secretariat has forecast the requirements for flour as follows:

Year	Imports (1,000 ton)
1991	8
1995	9.5
2000	11.5
2010	16.0

The yearly rate of increase is 3.5 %.

b) Fertilizers

Table 10-23 Production and Import of Fertilizers

Year	Required Amount (1,000 ton)	Yearly Increase Rate (%)	Domestic Production (1,000 ton)	Imports (1,000 ton)
1991	66	8	0	66
1995	90	7	0	90
2000	126	4.5	0	126
2010	195		200	0

Note:
1. Source: Mekong Secretariat (from Ministry of Agriculture)
2. unit Quantities: 37.5 kg/ha (1995), 34.0 kg/ha (1991)

c) Fuel Oil

Table 10-24 Import of Fuel Oil

Year	Imports (1,000 ton)	Imported at Phnom Penh (1,000 ton)
1984	134	134
1990	177	177
1991	150	150
1992	217	215
1995	255	150
2000	358	20
2010	560	160

Note: Source: Mekong Secretariat

As the oil refinery facilities have not been in operation since 1970, almost oil products are imported through Phnom Penh Port. The oil products under the jurisdiction of the Ministry of Transport are not unloaded at Phnom Penh Port (Port No. 1, Port No. 2), but are unloaded at the following points:

- KM 4/Resseykeo (Ministry of Commerce): 4 km upstream of Port No. 1, on right bank.
- KM 13/Prekphneour (Army, Leased to Commercial Enterprise): 13 km upstream of Port No. 1, on right bank
- Unloading facility of diesel fuels for Generating Plant (C1, C4): 500 m upstream of Port No. 1, on right bank
- Kbalthnal: Private enterprise, on right bank of Bassac River on Rt. 1
- Unloading facility of diesel fuel for Generating Plant (C2): On right bank of Bassac River

There are no prospects of petroleum products to be unloaded at Port No. 1 or No. 2 and so the petroleum products will not be considered in this demand forecast.

d) Construction Materials (Cement)

Table 10-25 Import of Cement

Year	Required Amounts (1,000 ton)	Consumption per Capita (kg/yr)	Domestic Production (1,000 ton)	Imports (1,000 ton)
1989		1.4	0	12.2
1990		4.6	0	40.0
1991		7.7	0	68.8
1995	230	23.0	0	230
2000	360	32.0	60	300
2010	560	40.0	110	450

Source: Mekong Secretariat

The information in the above for the imports in 1989 ~ 1991 agrees closely with the data provided by the Department of the Phnom Penh Port. However it is suspected that the data of the Department included the amount of cargo

unloaded on the river banks in addition to the quantities unloaded at Port No. 1 and No. 2. On the other hand, it is felt that there are large quantities being unloaded on the river banks but there is no source where this could be checked with. In the future, when the port facilities have been rehabilitated, it is felt that the materials being unloaded on the river banks would eventually be unloaded at Port No. 1 and No. 2, and so it was decided to use the data of the Mekong Secretariat.

e) Machinery and Manufactured Item

Machinery

Year	Imports (1,000 ton)
1995	20
2000	30
2010	50

Source: Mekong Secretariat

Manufactured Items

Table 10-26 Import of Manufactured Items

Year	Carried in Statistics [1] (1,000 ton)	Not Carried in Statistics [2] (1,000 ton)	Total (1,000 ton)	Growth Rate (%)
1991	100	25	125	
1995	135	30	165	7
2000	80	120	200	4.5
2010	110	200	310	4.5

Source: Mekong Secretariat
1) Handled at Main Ports
2) Handled at Other than Main Ports

Table 10-27 Comparison of Actual Figures with the Demand Forecast of the Mekong Secretariat

Phnom Penh Port

Items	Actual Quantities (1,000 ton)						Mekong Secretariat (1,000 ton)				
	1989	1990		1991	1992		[90/91]		1995	2000	2010
Exports			%			%		%			
Rice	-	0.5	1	-	-		0	0	135	185	65
Rubber	24.5	34.4	36	26.2	27.0	58	32	33	39	42	59
Lumber	3.9	5.9	6	0.9	0.9	2	12	13	36	60	100
Marine Products	-	-	-	0.4	-	-	0	0	1	2	2
Red Beans / Soybeans / Other Farm Produce	20.9	27.9	29	46.7	10.6	23	52	54	80	110	150
Others*2	3.0	26.8	28	4.5	7.7	17	-	-	-	-	-
Total	52.3	95.5	100	78.7	46.2	100	96	100	291	399	376
Imports											
Rice	13.1	16.3	17	32.9	22.6	8	15	13	0	0	0
Flour	0.4	0.2	0	7.4	-		6	5	8	10	13
Fertilizer	-	6.9	7	25.5	9.1	3	33	29	45	63	0
Cement	12.2	39.9	42	68.8	85.3	32	35	31	115	147	132
Manufactured Items (General Cargo)	20.2	32.9	34	65.8	151.6	56	25	22	35	75	114
Total	45.9	96.2	100	200.4	268.6	100	114	100	203	295	257
Grand Total	98.2	191.7		279.1	314.8	-	210	-	494	694	635

Notes:
1. The figures for 1992 were obtained by extrapolating the figure for 10 months to 1 year (10 month x 1.2).
2. Mainly scrap iron and general cargo.
3. Petroleum products and bauxite have been excluded since they are not handled at Port No. 1, No. 2.

Siahnoukville Port

Items	Actual Quantities (1,000 ton)					Mekong Secretariat (1,000 ton)				
	1989	1990	1991	1992		[90/91]		1995	2000	2010
Exports					%		%			
Rice				0		0		135	185	65
Rubber				-		3	13	4	10	15
Lumber				72.6	99	18	78	54	90	150
Marine Products				-		2	9	4	8	8
Red Beans / Soybeans / Other Farm Produce				0.3	1	0	0	0	0	0
Others				0.1	0	-	-	-	-	-
Total	86.0	83.7	86.9	73.0	100	23	100	197	293	238
Imports										
Rice				8.0	5	15	15	0	0	0
Flour				-		2	2	2	2	3
Fertilizer				7.3	4	33	33	45	63	0
Fuel Oil				6.8	4	5	5	100	330	385
Cement				59.1	36	34	35	115	148	308
Manufactured Items (General Cargo)				81.6	50	10	10	15	50	76
Total	178.0	200.0	45.7	162.8	100	99	100	277	593	772
Grand Total	264.0	283.7	132.6	235.8	-	122		474	886	1,010

Notes:
1. The figures for 1992 were obtained by extrapolating 9 months into 1 year: actual amount of 9 month x 12/9

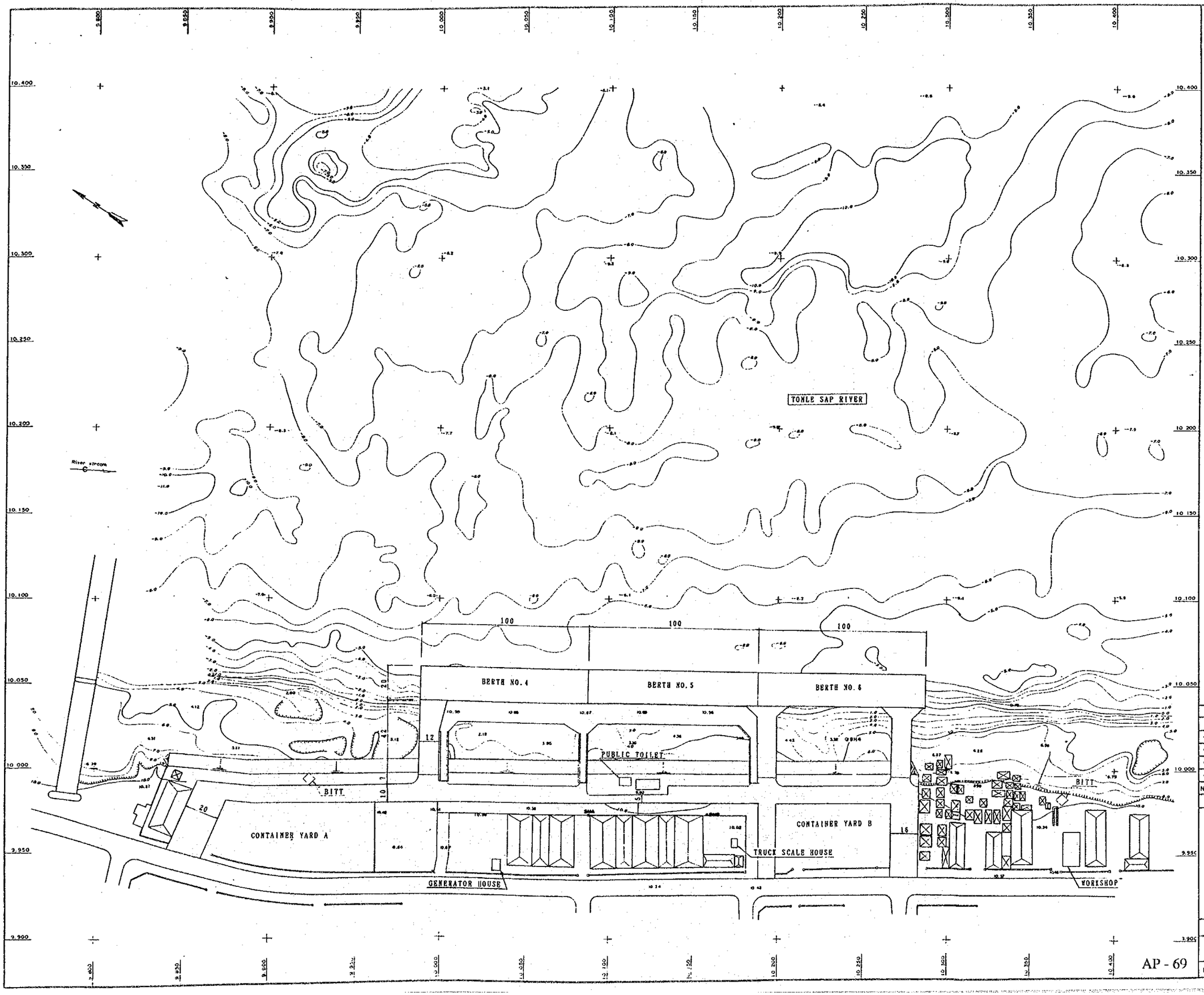
Table 10-28 The Result of Investigation of Import/Export Cargo Items of Commodity

Numbering	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14
Volume of Cargo	428 ton	250 ton	207 ton	1,105 ton	200 ton	547 ton	108 ton	547 ton	305 ton	861 ton	32 ton	624 ton	862 ton	375 ton
Ship Name	Hiap Ton	Hai Hui 8	Tong Hoe	Genkai 8	Nhut Tao	Universal 1	Sheraton	Hosho Maru	Spring Star	Lighter DM157	Sheraton II	Naga Rose	Lighter DM074	Angkor W. 01
Spair Parts for machinery	○			○	○			○	○					○
Construction/Agri. Equipment	○			○							○	○		
Second hand motor cycle	○	○	○	○			○		○		○			○
Generator	○	○	○	○										
Textile	○	○	○	○			○	○	○		○			○
Alcohol, Soft drinks	○	○	○	○	○		○		○			○		○
Cooking oil	○		○						○			○		
Building Material	○	○		○	○			○	○		○	○		○
Food stuff	○						○							
Tabacco	○		○	○	○				○			○		
Medicine	○	○	○	○					○					○
Furniture	○	○		○			○	○	○					
Book, stationary		○		○	○		○		○					○
Machinery, tool		○	○		○		○					○		
Electrical			○	○	○		○		○		○	○		○
Fishing material				○										
Daily necessaries				○	○		○		○			○		
Steel material				○										
Engine							○	○	○					
Lub. oil							○		○					
Frozen food staff							○							
Rice										○			○	
Fruits											○			
Sugar												○		
Battery														○

Note 1. Source : Manifest and the study team

2. Period : During Dec. 7 to Dec. 20, 1992

APPENDIX 11 BASIC DESIGN DRAWINGS (REDUCED SIZE)



GENERAL NOTES

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BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF PHNOM PENH IN CAMBODIA

GENERAL ARRANGEMENT

PACIFIC CONSULTANTS INTERNATIONAL

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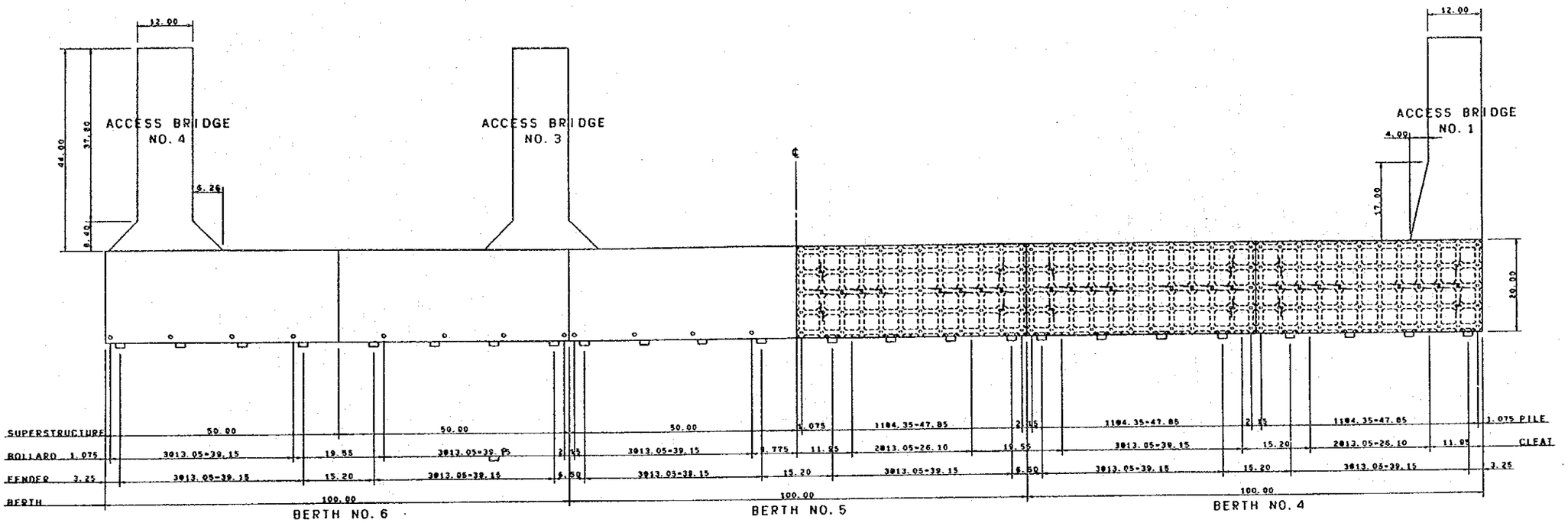
AP - 69

A-A SECTION



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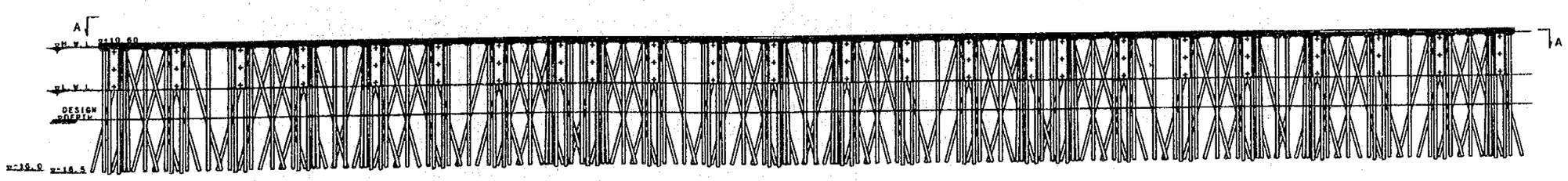

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REVISIONS				

BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF PHNOM PENH IN CAMBODIA

GENERAL PLAN OF BERTHS NO4, 5 &6

PACIFIC CONSULTANTS INTERNATIONAL

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DATE | DWG. NO. 2

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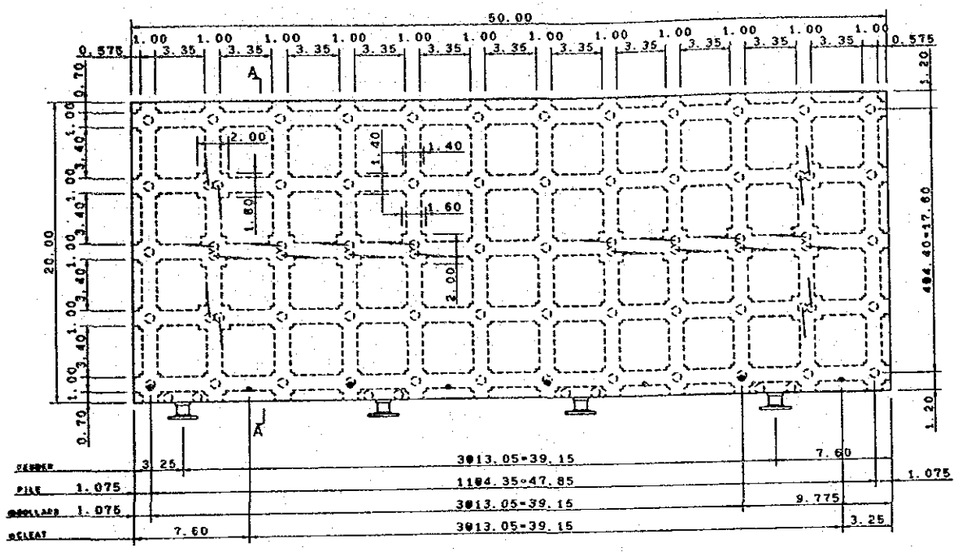

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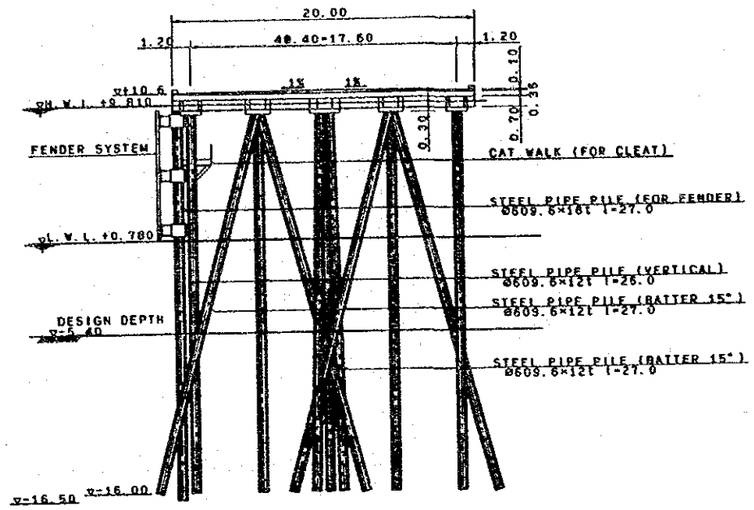

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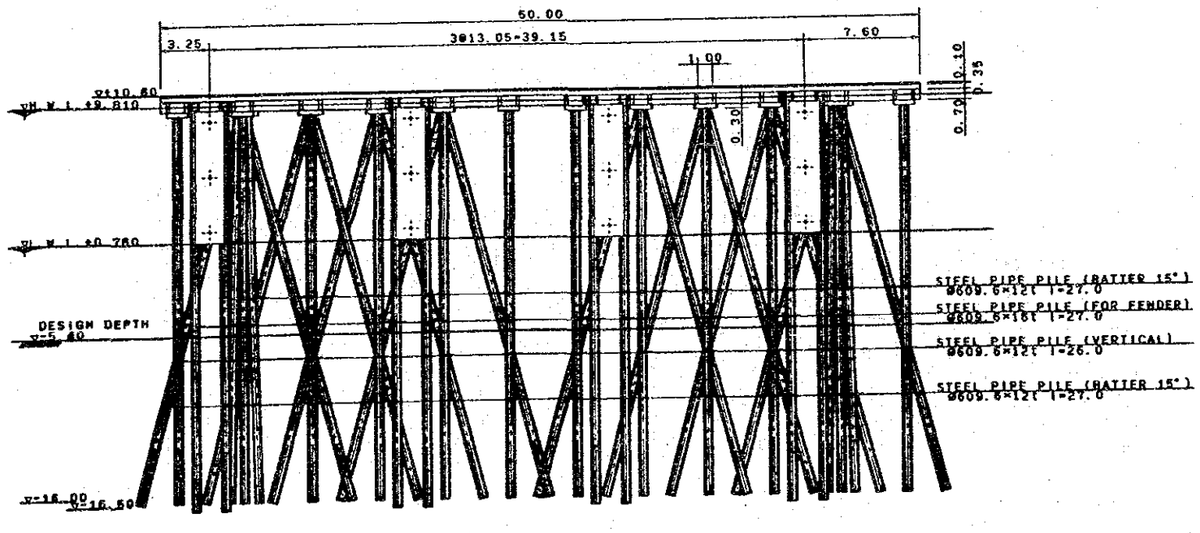

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BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF PHNOM PENH IN CAMBODIA

GENERAL PLAN OF BERTH STRUCTURE

PACIFIC CONSULTANTS INTERNATIONAL

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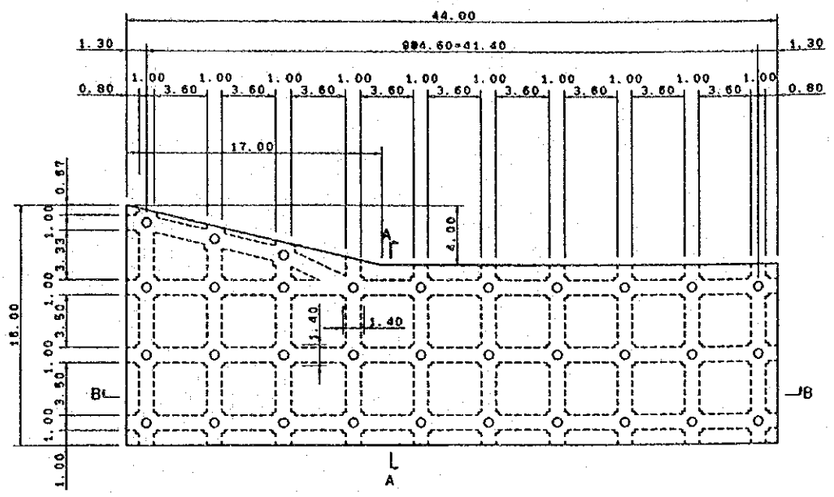

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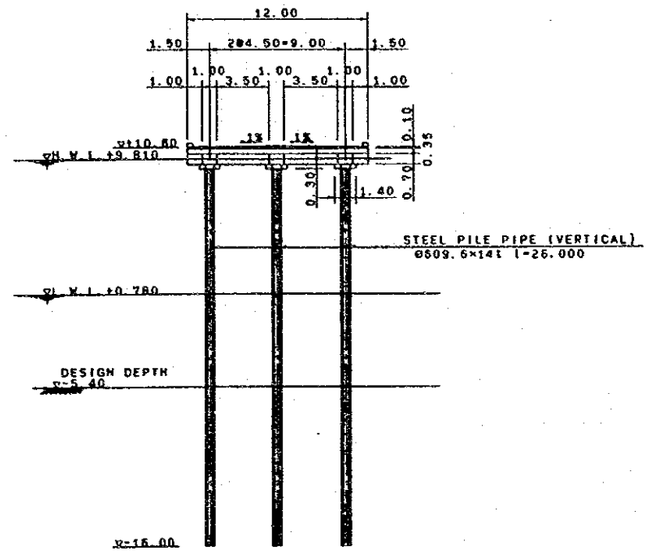

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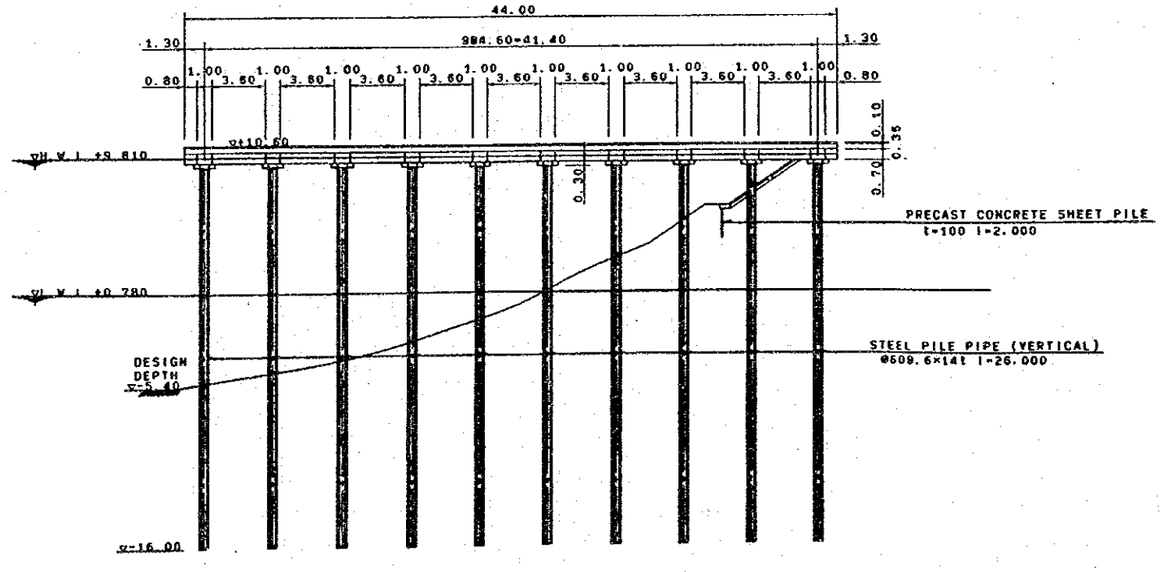

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BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF PHNOM PENH IN CAMBODIA

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PACIFIC CONSULTANTS INTERNATIONAL

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DATE | DWG. NO. 4

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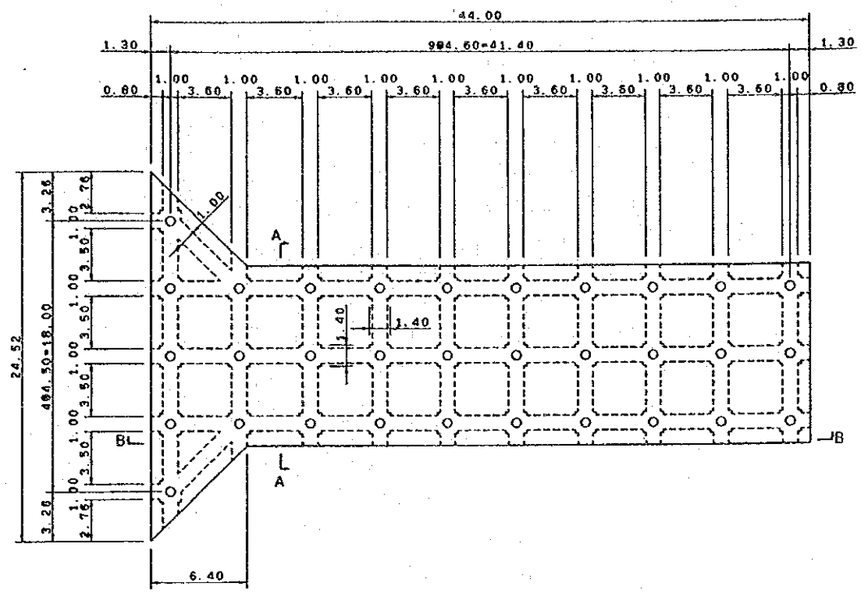

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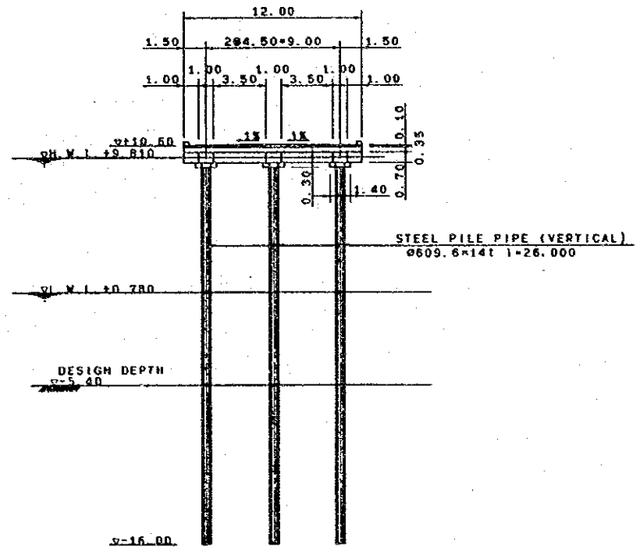

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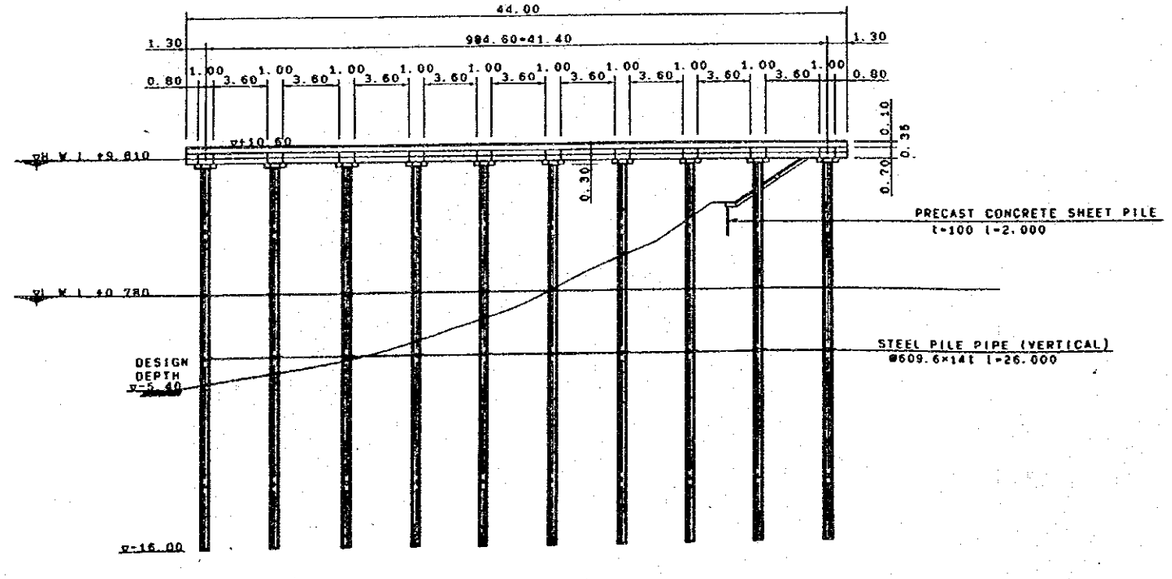

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BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF PHNOM PENH IN CAMBODIA

GENERAL PLAN OF ACCESS BRIDGES NO. 3&4

PACIFIC CONSULTANTS INTERNATIONAL

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DATE	DWG. NO. 5

GENERAL NOTES

REVETMENT AND PAVEMENT

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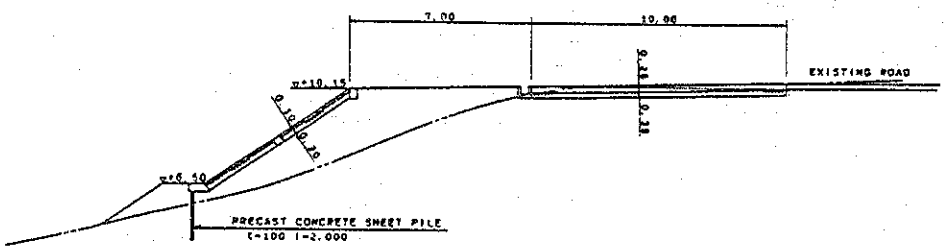

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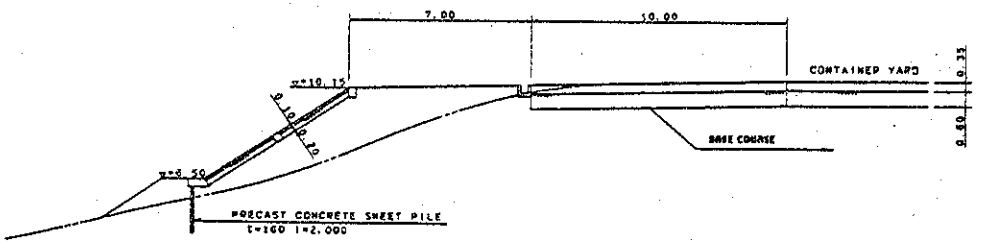
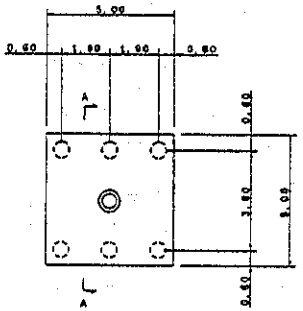


BITT STRUCTURE

TOP VIEW



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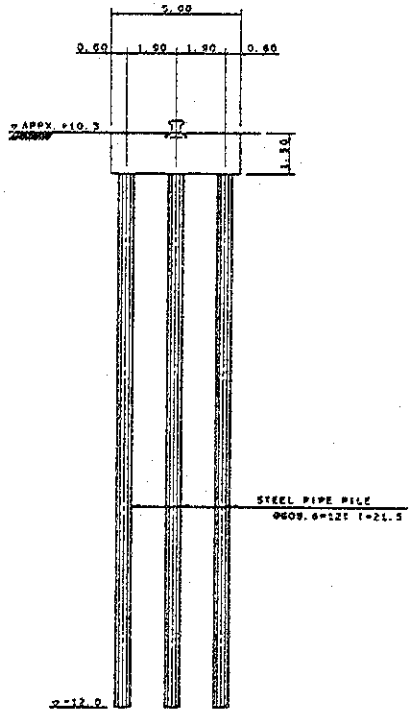

AP - 74

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BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF PHNOM PENH IN CAMBODIA

REVETMENT & PAVEMENT AND BITT STRUCTURE

PACIFIC CONSULTANTS INTERNATIONAL

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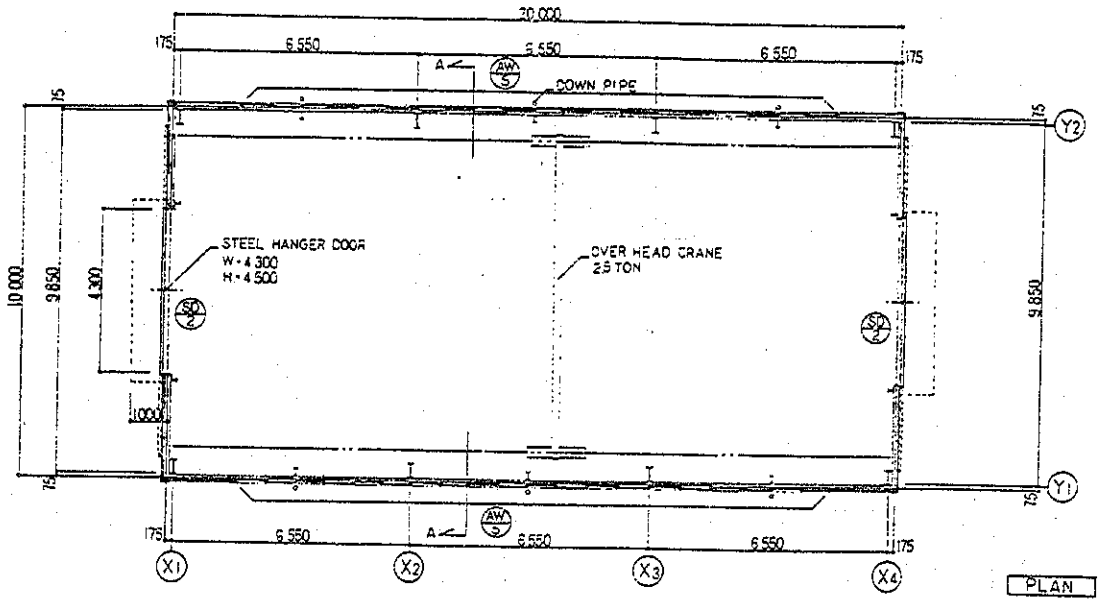
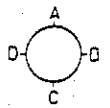
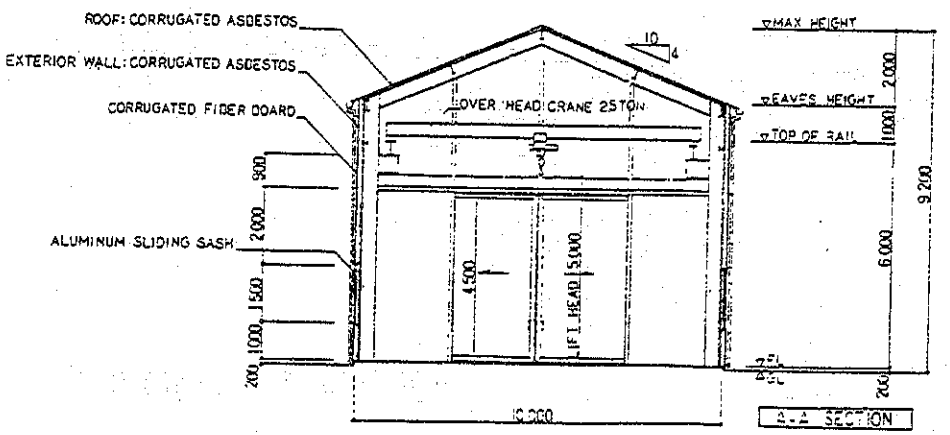
AP - 75







GENERAL NOTES

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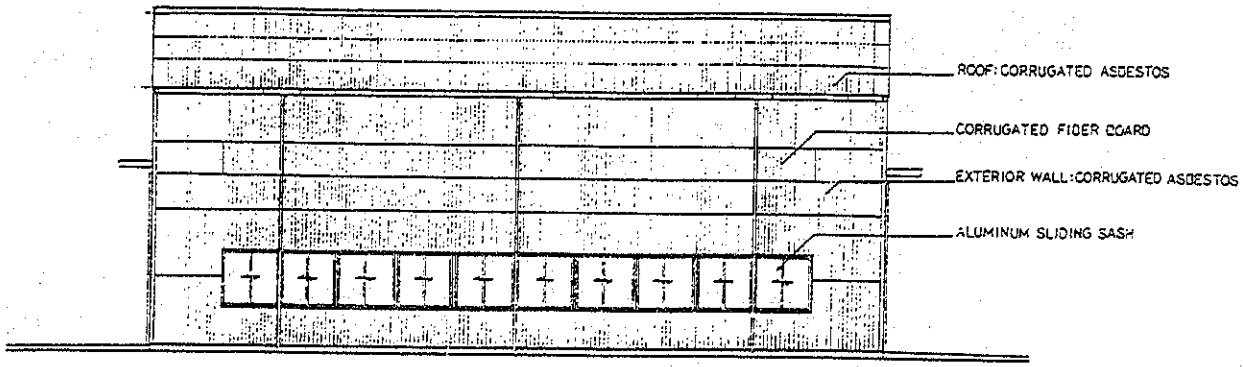
NO.	DATE	DESCRIPTION	BY	APP'D
REVISIONS				

BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF PHNOM PENH IN CAMBODIA

WORKSHOP (1) PLAN SECTION

PACIFIC CONSULTANTS INTERNATIONAL



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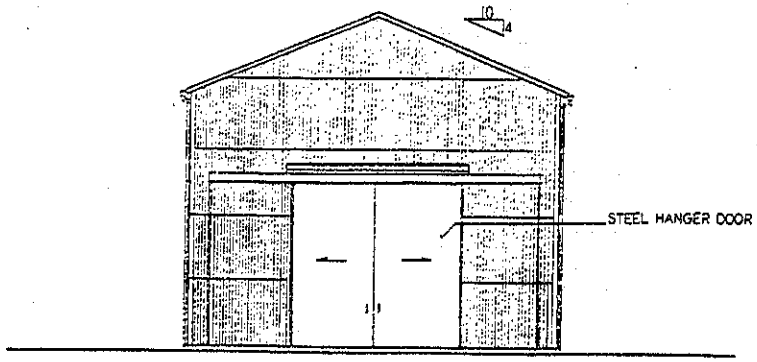

D ELEVATION

GENERAL NOTES

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REVISIONS

BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF PHNOM PENH IN CAMBODIA

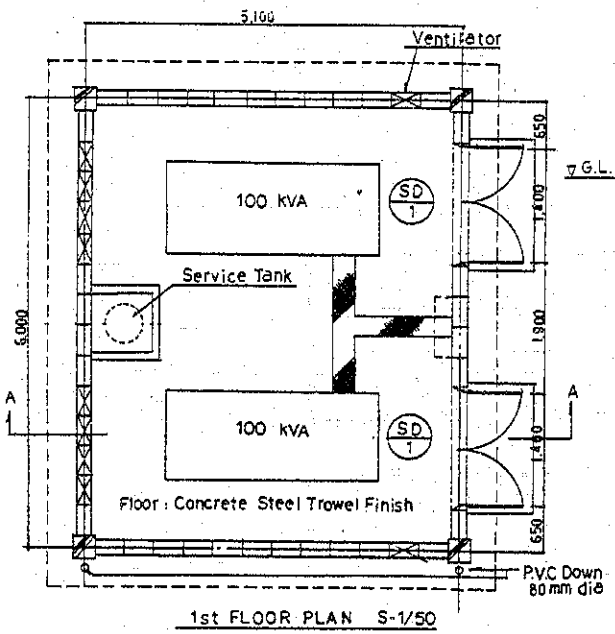
WORKSHOP (2) ELEVATION

PACIFIC CONSULTANTS INTERNATIONAL

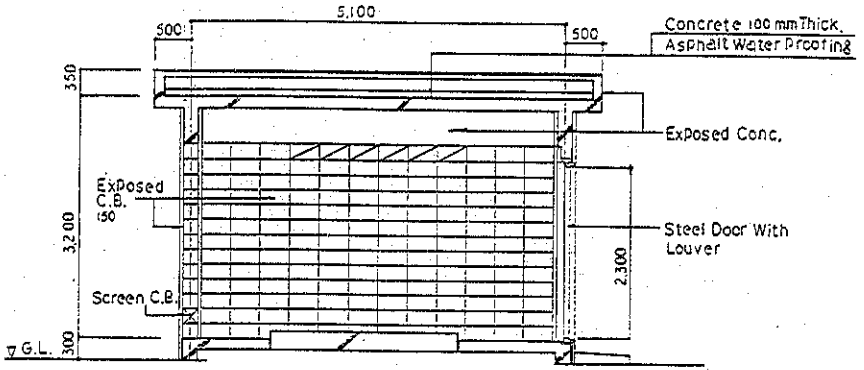
			◇

DATE | DWG. NO. 8

AP-77



1st FLOOR PLAN S-1/50



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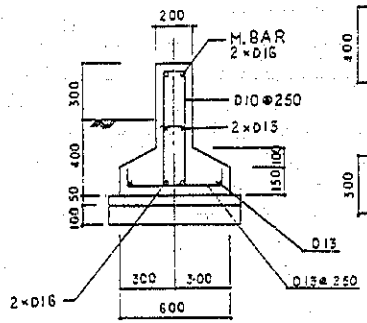
S-1/50



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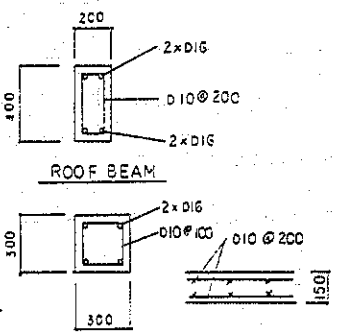


COLUMN SLAB

GENERATOR HOUSE

GENERAL NOTES

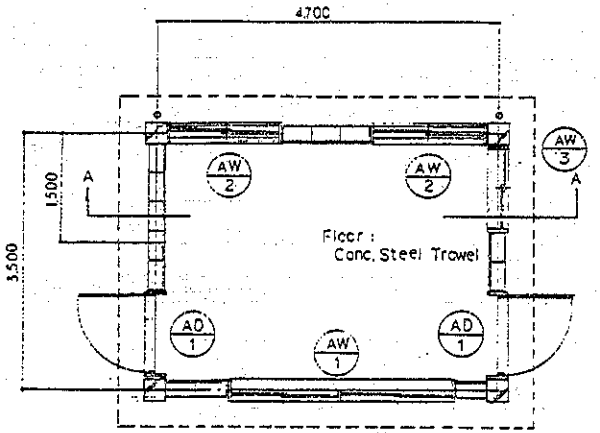
DESCRIPTION	DWG. NO.
REFERENCE DRAWINGS	

NO.	DATE	DESCRIPTION	BY	APP'D
REVISIONS				

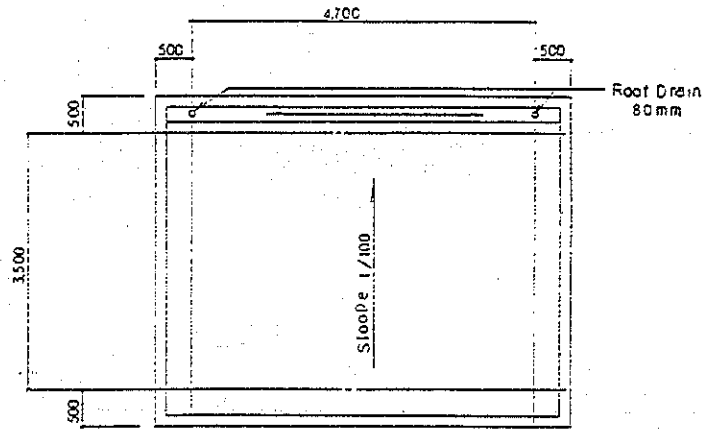
DESIGN STUDY AND REHABILITATION OF THE PORT OF PREAH SIHANOUK IN CAMBODIA

GENERATOR HOUSE

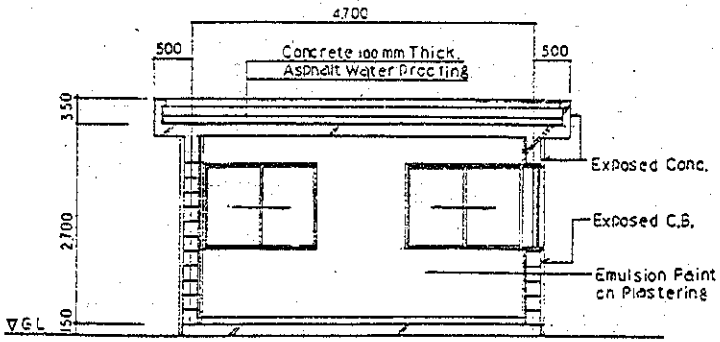
PACIFIC CONSULTANTS INTERNATIONAL



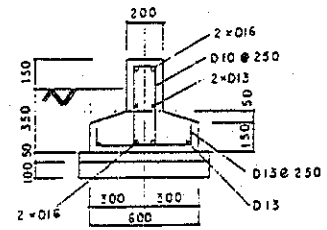
1st FLOOR PLAN



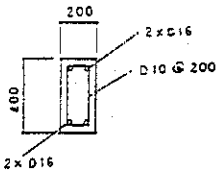
ROOF PLAN



A—A SECTION



FANDATION BEAM/ FOOTING



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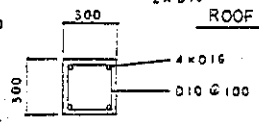

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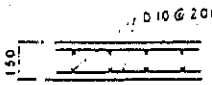

SLAB

GENERAL NOTES

DESCRIPTION	DWG. NO.
REFERENCE DRAWINGS	
◇	
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NO.	DATE	DESCRIPTION	BY
REVISIONS			

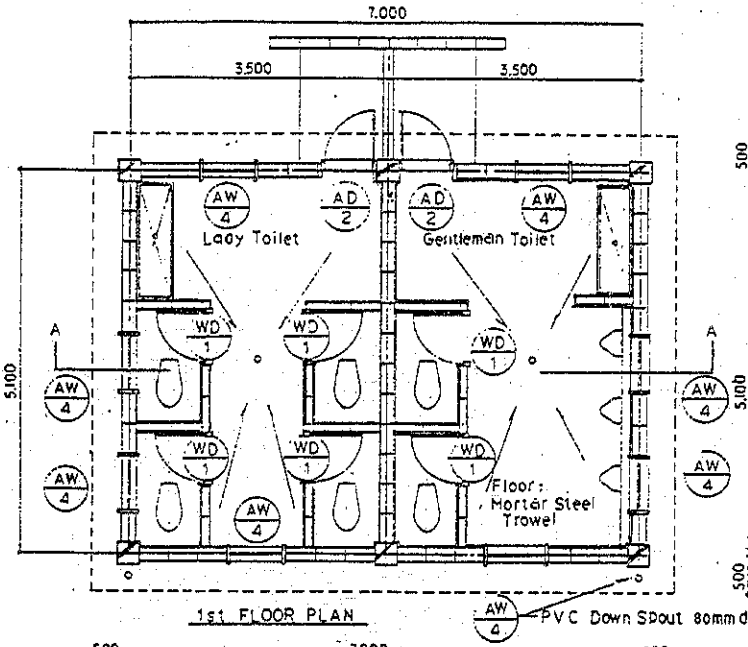
BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF SIHANOUKVILLE IN CAMBODIA

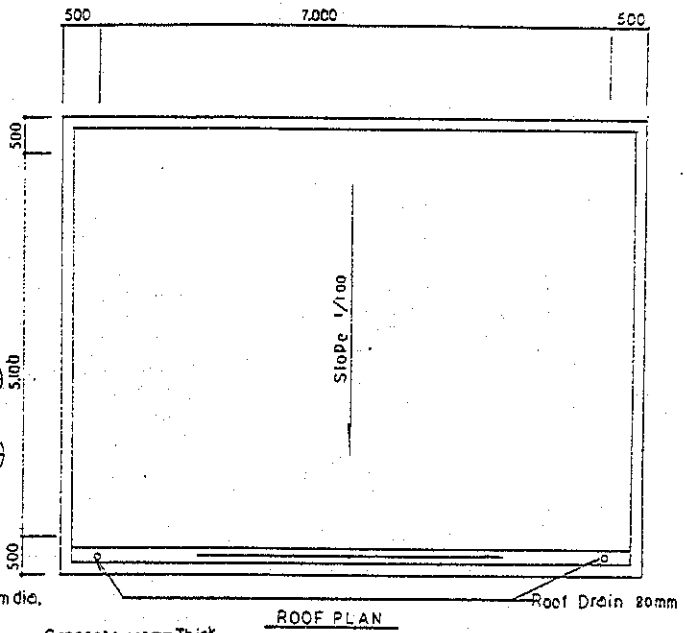
TRUCK SCALE HOUSE

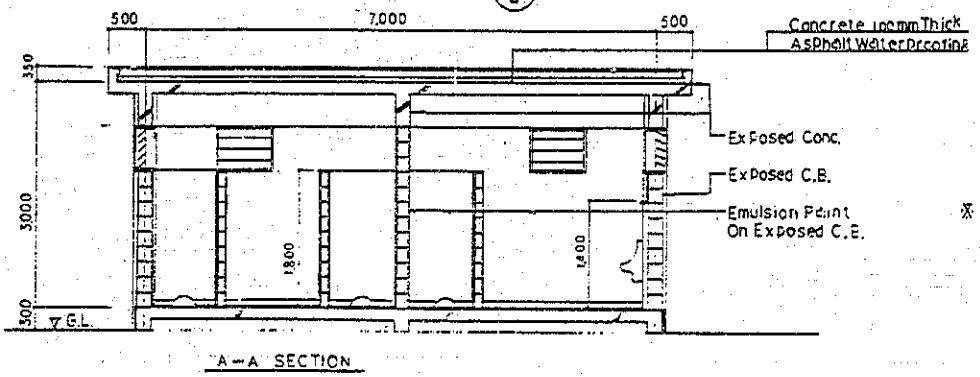
PACIFIC CONSULTANTS INTERNATIONAL

			◇

DATE | DWG. NO. S0







※ STRUCTURAL SECTION'S SAME AS GENERATOR HOUSE.

GENERAL NOTES

DESCRIPTION	DWG. NO.
REFERENCE DRAWINGS	
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NO.	DATE	DESCRIPTION	BY	APP'D
REVISIONS				

BASIC DESIGN STUDY FOR REHABILITATION OF THE PORT OF PHNOM PENH IN CAMBODIA

TOILET

PACIFIC CONSULTANTS INTERNATIONAL

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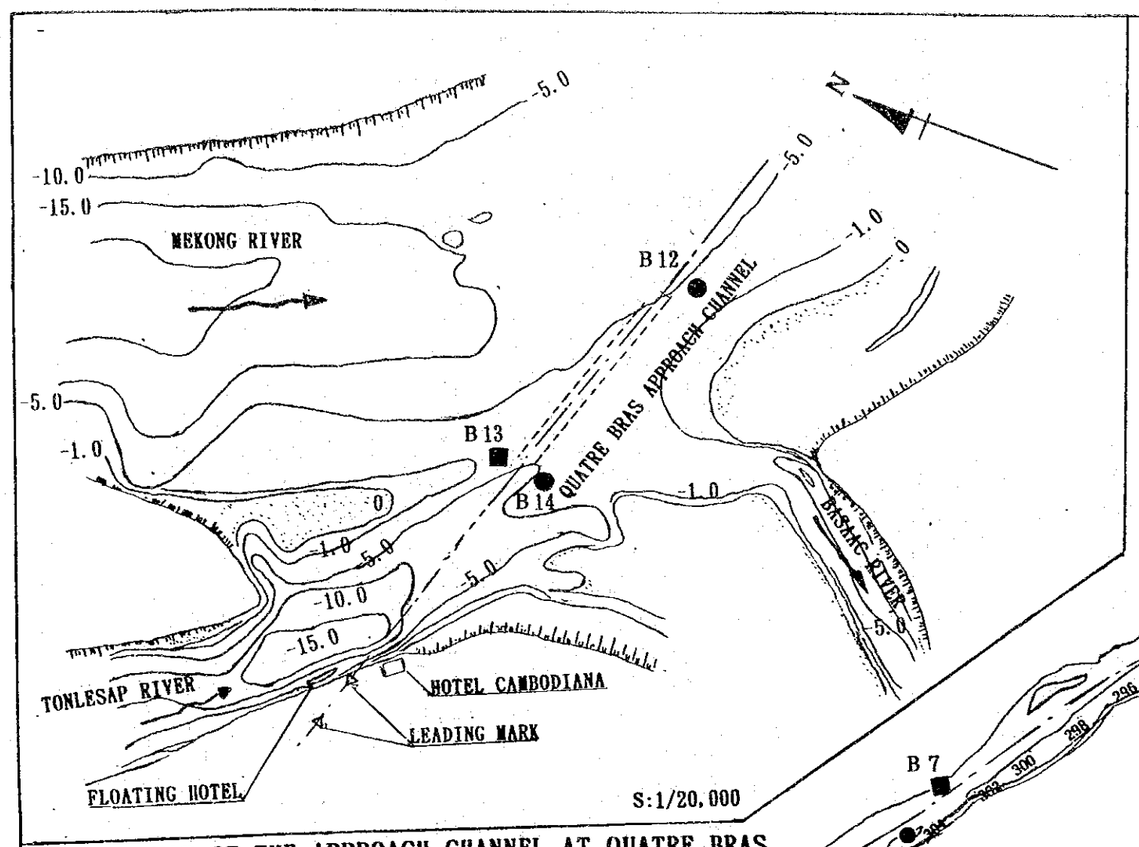
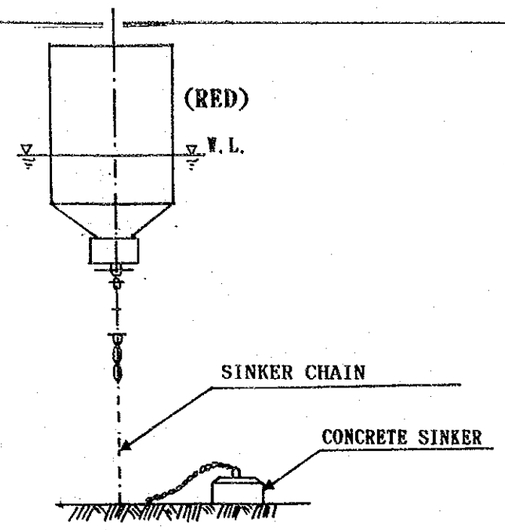
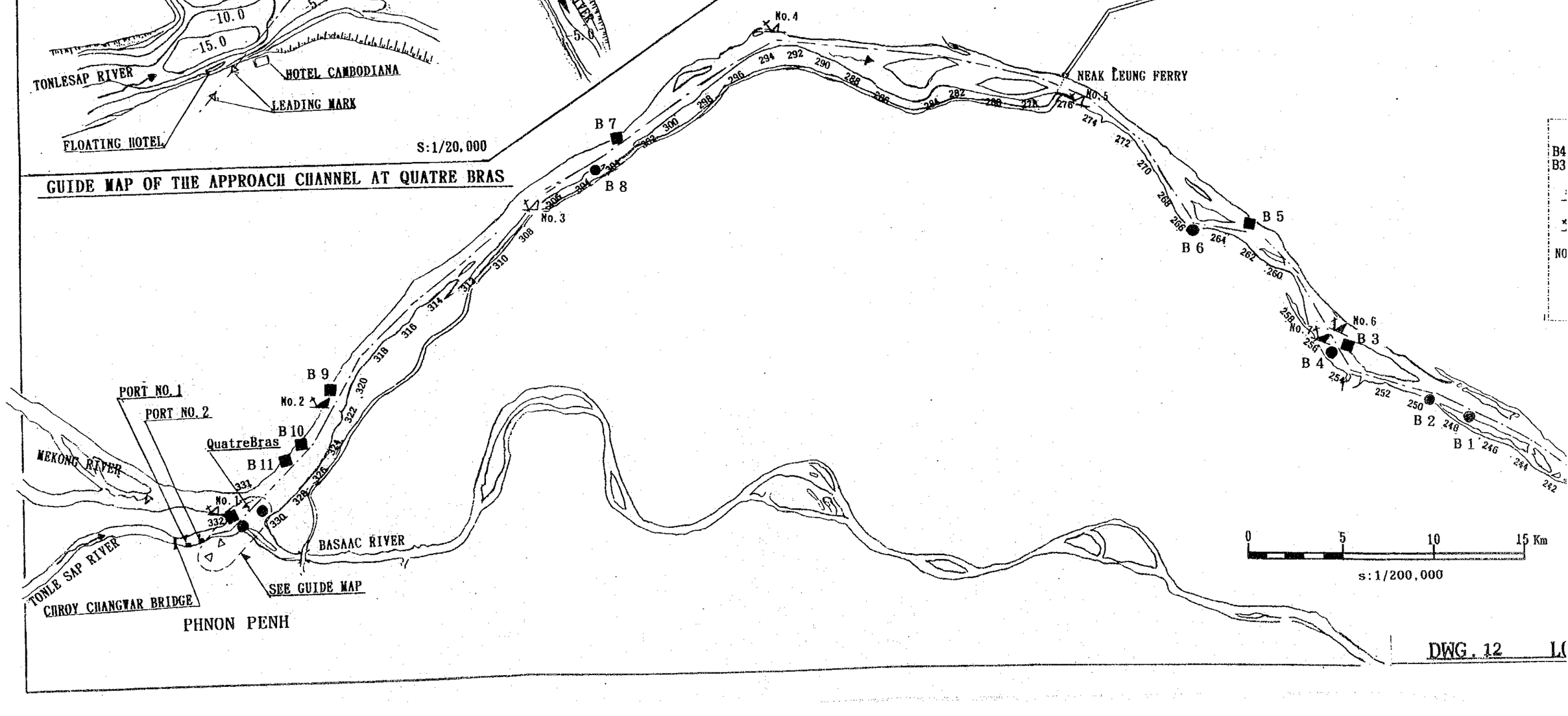
DATE	DWG. NO.		



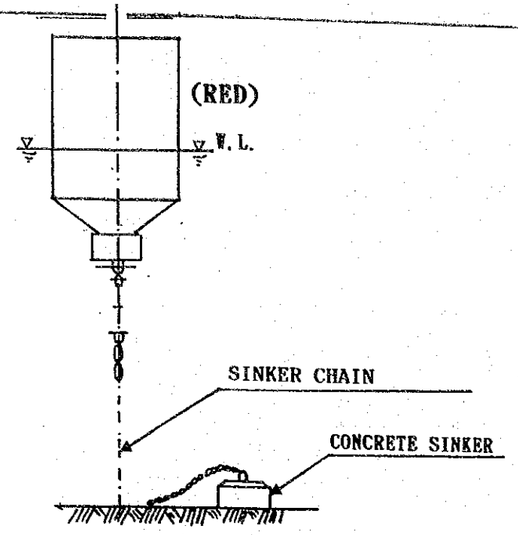
GUIDE MAP OF THE APPROACH CHANNEL AT QUATRE BRAS



MARKER BUOY (PORT SIDE)



DWG. 12



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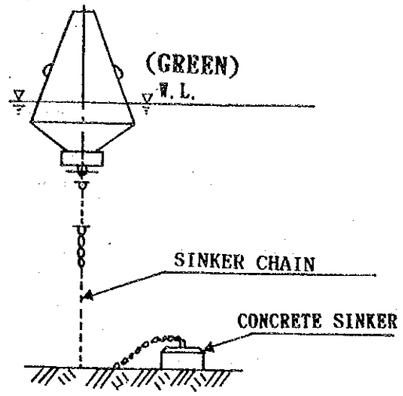

MARKER BUOY (STARBOARD)

DWG. 12 LOCATION OF NEW NAVIGATION AIDS SYSTEM

JICA