

THE DETAILED DESIGN STUDY ON
AREA TRAFFIC CONTROL PROJECT IN BANGKOK
IN THE KINGDOM OF THAILAND

SUPPLEMENTARY VOLUME
PART 5
DRAFT SIGNAL INSTALLATION PLANS

FINAL REPORT

OCTOBER 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

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PART I : SCHEDULE OF DRAWINGS

VOLUME 2

TRAFFIC SIGNAL INSTALLATION PLANS

This "Volume 2 : Signal Installation Plans" contains the design of intersections and traffic signal to be centrally controlled by the Bangkok ATC System-Stage I. The drawings indicate geometric improvement to the existing intersection, conduit and location of terminal equipment.

Main items shown on each of these plans include:

- (1) Existing signal pole location and signal lantern aspects,
- (2) Newly designed signal pole location and signal lantern aspects,
- (3) Newly designed local controller location,
- (4) Signal phasing sequence under normal traffic control,
- (5) Designed aerial and underground cable locations including handholes and conduit locations,
- (6) Marking installation,
- (7) Minor geometric improvement,
- (8) List of materials and equipment necessary for the implementation of the system at the intersection.

* Note: Tenderers should note that any specifications that may have been shown as "PVC" in the drawings for field installation shall read as "Steel" instead.

SYMBOLS FOR SIGNAL ASPECTS, ETC.

SYMBOL	ITEM	SYMBOL	ITEM	SYMBOL	ITEM	SYMBOL	ITEM	SYMBOL	ITEM	SYMBOL	ITEM
									HAND HOLE (C) (EXISTING)		CABLE CVV (EXISTING)
							PUSH BUTTON		HAND HOLE (C) (NEWLY)		CABLE CVV--2 ⁰ (NEWLY)
							TRAFFIC SIGNAL CONTROLLER		HAND HOLE (D) (NEWLY)		CABLE CVV--SS2 ⁰ (NEWLY)
							ULTRASONIC TYPE DETECTOR		TERMINAL (12P OR 20P)		
							LOOP COIL TYPE DETECTOR		NEWLY SIGNAL POLE AND HEADS		
							SIGNAL POLE (EXISTING)		EXISTING SIGNAL POLE AND HEADS		
							SIGNAL POLE (NEWLY)		EXISTING SIGNAL POLE AND HEADS TO BE REMOVED		

Legend for Notes Quoted in the Drawings:

- Note 1 Possible Location of New Local Controller
- Note 2 Remove Existing Local Controller
- Note 3 Remove Existing Signal Arrow Mask
- Note 4 Remove Existing Traffic Signal Head
- Note 5 Install New Traffic Signal Head
- Note 6 Remove Existing Pedestrian Push Button

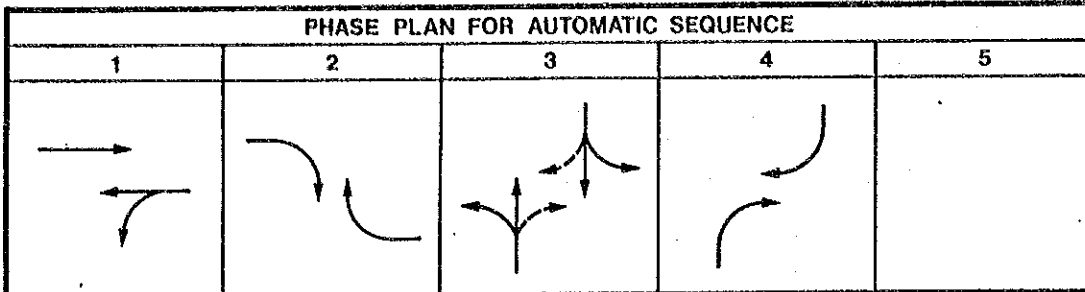
LIST OF INTERSECTIONS

No.	Intersection No.	Drawing No.	Intersection Name
1.	1	2001	RAMA VI-PHETCHABURI
2.	2	2002	KRUNG KASEM-BAMRUNG MUANG
3.	3	2003	RATCHADAMRI-RAMA I-PHLOEN CHIT
4.	4	2004	CHAROEN KRUNG-SI LOM
5.	8	2008	MAHA PHRUTTHARAM-RAMA IV-RONG MUANG
6.	9	2009	RATCHADAMNOEN KLANG-PHRA SUMEN-MAHA CHAI
7.	10	2010	LAN LUANG-RATCHADAMNOEN NOK-NAKHON SAWAN
8.	11	2011	RATCHADAMNOEN NOK-KRUNG KASEM
9.	12	2012	RATCHADAMNOEN NOK-WISUT KASAT
10.	13	2013	RATCHADAMNOEN KLANG-RATCHADAMNOEN NAI
11.	15	2015	RAMA V-SI AYUTTHAYA
12.	18	2018	PHAYA THAI-PHETCHABURI
13.	19	2019	RATCHAPRAPROP-DIN DAENG-RATCHAWITHI
14.	20	2020	WITTHAYU-PHLOEN CHIT
15.	22	2022	RATCHAPRAPROP-RATCHADAMRI-PHETCHABURI
16.	24	2024	PHAYA THAI-SOI CHULALONGKORN 12
17.	25	2025	PHAYA THAI-YOTHI-RANG NAM
18.	26	2026	NAKHON SAWAN-KRUNG KASEM-LUK LUANG
19.	29	2029	PHLAPPHLA CHAI-LUANG-MAITRI CHIT
20.	30	2030	SUAPA-LUANG-YUKHOL 2
21.	32	2032	CHAKKAPHATDI PHONG-NAKHON SAWAN
22.	34	2034	NAKHON SAWAN-PHITSANULOK
23.	35	2035	SAWANKHALOK-SI AYUTTHAYA
24.	36	2036	MAHA CHAI-YAOWARAT-PHIRAPHONG
25.	37	2037	KRUNG KASEM-LAN LUANG-LUK LUANG
26.	39	2039	RAMA VI-RATCHAWITHI
27.	40	2040	SAWANKHALOK-PHETCHABURI-LAN LUANG-PHITSANULOK
28.	41	2041	HENRI DUNANT-RAMA I
29.	42	2042	PHLOEN CHIT-SOI LANG SUAN-SOI CHIT LOM
30.	43	2043	PHLOEN CHIT-DIN DAENG PORT EXPRESSWAY
31.	44	2044	WORACHAK-BAMRUNG MUANG
32.	46	2046	CHAROEN KRUNG-RAMA IV-MITTRAPHAN
33.	47	2047	YAOWARAT-MITTRAPHAN
34.	48	2048	CHAROEN KRUNG-LAMPHUN CHAI
35.	49	2049	RATCHAWONG-YAOWARAT
36.	50	2050	CHAKKRAWAT-YAOWARAT-WORACHAK
37.	51	2051	SI LOM-RATCHADAMRI-RAMA IV
38.	52	2052	SUAPA-CHAROEN KRUNG-RATCHAWONG
39.	53	2053	WORACHAK-CHAROEN KRUNG
40.	54	2054	SAWANKHALOK-RATCHAWITHI
41.	55	2055	TRI PHET-CHAROEN KRUNG-TI THONG
42.	56	2056	MAHA CHAI-CHAROEN KRUNG
43.	57	2057	CHAKKAPHATDI PHONG-LAN LUANG
44.	58	2058	SAMSEN-CHAKKAPHONG-PHRA SUMEN
45.	59	2059	SAMSEN-WISUT KASAT
46.	63	2063	HENRI DUNANT-RAMA IV-SURAWONG
47.	64	2064	PHAYA THAI-CHULALONGKORN UNIVERSITY ENTRANCE
48.	67	2067	BANTHAT THONG-PHETCHABURI
49.	70	2070	MAHA CHAI-BAMRUNG MUANG
50.	71	2071	SAMSEN-SI AYUTTHAYA

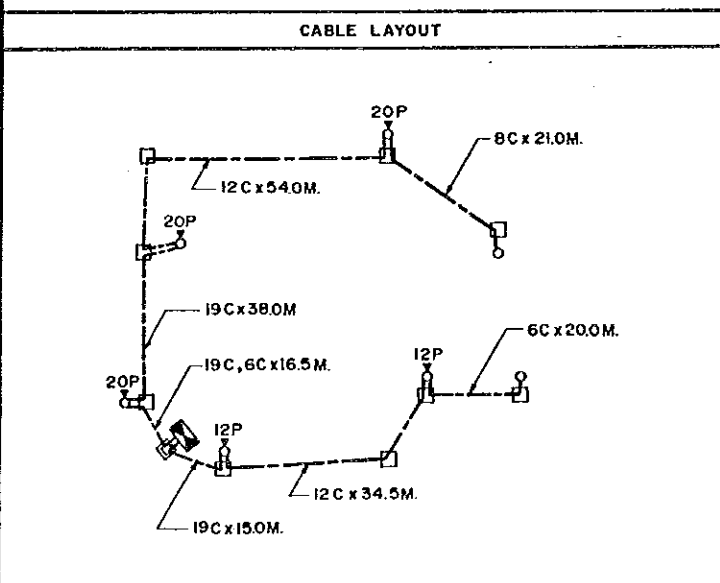
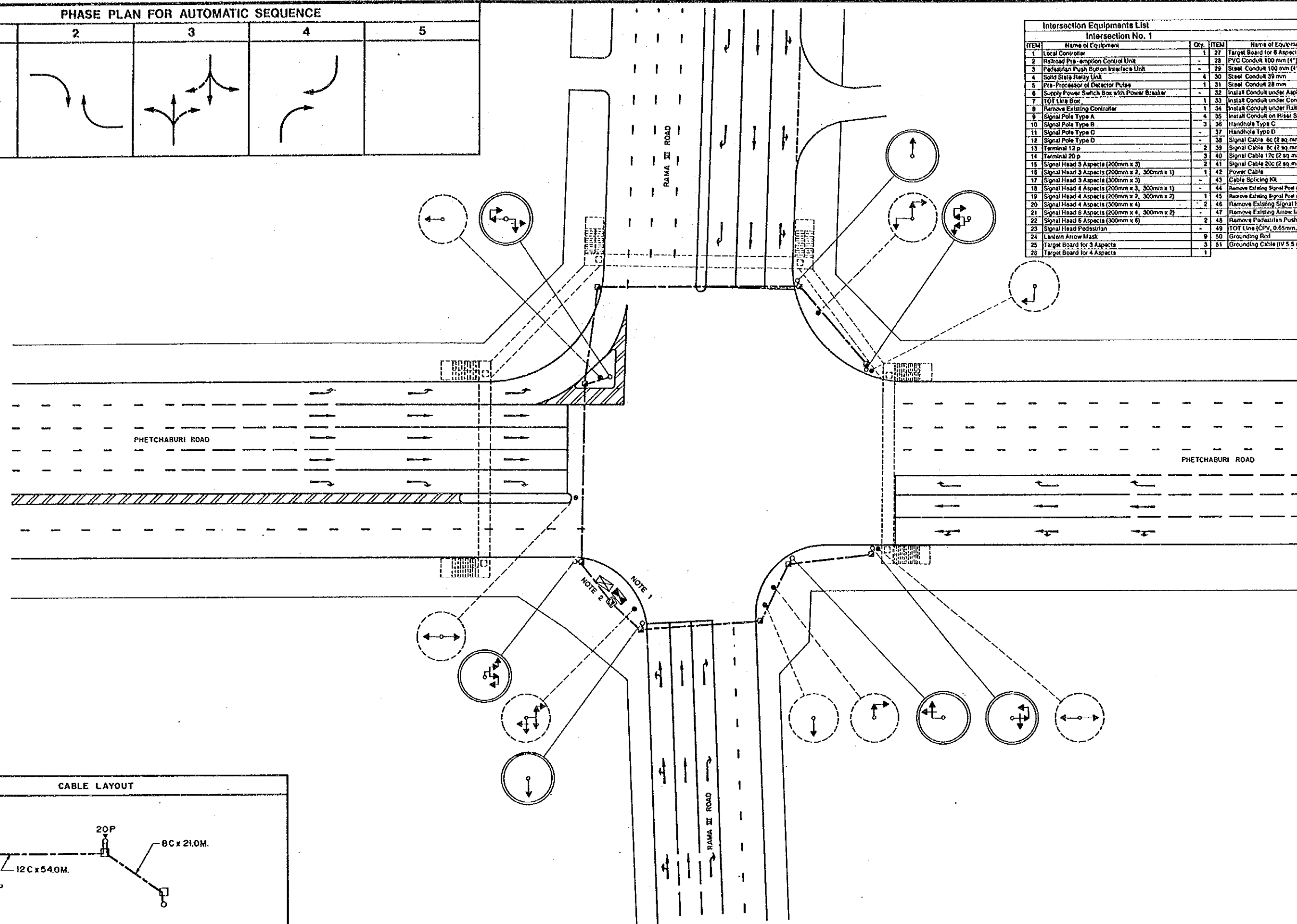
No.	Intersection No.	Drawing No.	Intersection Name
51.	72	2072	SAMSEN-KRUNG KASEM
52.	73	2073	BAMRUNG MUANG-BORIPHAT
53.	74	2074	PHITSANULOK-PRACHATHIPATAI
54.	75	2075	RATCHASIMA-SI AYUTTHAYA
55.	76	2076	RATCHADAMNOEN NOK-PHITSANULOK
56.	77	2077	PRACHATHIPATAI-WISUT KASAT
57.	78	2078	PRACHATHIPATAI-PHRA SUMEN
58.	79	2079	TANAO-RATCHADAMNOEN KLANG
59.	80	2080	WORACHAK-LUANG
60.	81	2081	ATSADANG-CHAROEN KRUNG
61.	82	2082	BANTHAT THONG-RAMA I
62.	83	2083	PRACHATHIPATAI-KRUNG KASEM
63.	84	2084	RATCHASIMA-UTHONG NOK
64.	87	2087	RAMA IV-BANTHAT THONG
65.	88	2088	PHAYA THAI-RAMA IV-SI PHRAYA
66.	89	2089	SI LOM-CONVENT
67.	93	2093	KRUNG KASEM-MAITRI CHIT-RAMA IV-TRAI MIT
68.	94	2094	TRI PHET-PHACHURAT
69.	96	2096	PHAYA THAI-RAMA I
70.	98	2098	SI LOM-SURASAK-MAHESAK
71.	99	2099	WITTHAYU-PHETCHABURI-DIN DAENG PORT EXPRESSWAY
72.	101	2101	RAMA V-PHITSANULOK
73.	102	2102	RAMA VI-YOTHI
74.	103	2103	SATHON-WITTHAYU-RAMA IV
75.	104	2104	CHARU MUANG-CHAROEN MUANG
76.	105	2105	SUKHUMVIT-SOI SUKHUMVIT 4 (NANA TAI)
77.	106	2106	NIKHOM MAKKASAN-PHETCHABURI-SOI SUKHUMVIT 3 (NANA NUA)
78.	109	2109	RAMA VI-SI AYUTTHAYA
79.	110	2110	PHAYA THAI-SI AYUTTHAYA
80.	112	2112	MAHA CHAI-LUANG
81.	114	2114	KRUNG KASEM-MITTRAPHAN-LUANG
82.	115	2115	SUKHUMVIT-SOI SUKHUMVIT 21 (ASOK)-RATCHADAPHISEK
83.	118	2118	SUNTHON KOSA-RAMA IV
84.	123	2123	RATCHADAPHISEK-RAMA IV
85.	130	2130	UNAKAN-CHAROEN KRUNG
86.	131	2131	PLAENG NAM-CHAROEN KRUNG
87.	134	2134	NEW PHETCHABURI-ASOK DIN DAENG
88.	137	2137	DECHO-SI LOM
89.	139	2139	RATCHADAMNOEN NOK-SI AYUTTHAYA
90.	140	2140	BANTHAT THONG-CHAROEN MUANG
91.	141	2141	SI PHRAYA-CHAROEN KRUNG
92.	142	2142	CHUA PHLOENG-RAMA IV-DIN DAENG PORT EXPRESSWAY
93.	143	2143	RATCHAPRAPROP-SI AYUTTHAYA
94.	144	2144	NA PHRA LAN-LAK MUANG-SANAM CHAI
95.	147	2147	BAMRUNG MUANG-TI THONG
96.	148	2148	BAMRUNG MUANG-UNAKAN
97.	160	2160	YUKHOL 2-BAMRUNG MUANG
98.	161	2161	PHLAPPHLA CHAI-BAMRUNG MUANG
99.	162	2162	SOI SUKHUMVIT 21 (ASOK)-SOI WATTANA 1
100.	163	2163	VIBHAVADI RANGSIT-DIN DAENG

No.	Intersection No.	Drawing No.	Intersection Name
101.	164	2164	PRACHA SONGKHRO-ASOK DIN DAENG
102.	175	2175	SI LOM-SOI PHIPHAT (BANGKOK BANK)
103.	178	2178	FUANG NAKHON-CHAROEN KRUNG
104.	177	2177	TANAO-BAMRUNG MUANG-FUANG NAKHON
105.	184	2184	RAMA I-RAMA VI-CHARU MUANG
106.	185	2185	RAMA IV-CHARU MUANG-MAHA NAKHON
107.	188	2188	SURAWONG-DECHO
108.	189	2189	ATSADANG-BAMRUNG MUANG
109.	191	2191	ATSADANG-PHRA PHITHAK
110.	194	2194	RATCHADAPHISEK-ASOK DIN DAENG-RAMA IX
111.	196	2196	SARASIN-RATCHADAMRI
112.	197	2197	SARASIN-SOI LANG SUAN
113.	198	2198	SARASIN-WITTHAYU-SOI RUAM RUDI
114.	199	2199	RATCHADAPHISEK-SUNTHON KOSA-RAMA III-NA RANONG
115.	214	2214	SATHON-CHAROEN KRUNG
116.	215	2215	SATHON NUA-SURASAK
117.	217	2217	SATHON NUA-PAN
118.	219	2219	SATHON-SOI SUKSA WITTHAYA (BANG RAK HOSPITAL)
119.	221	2221	SATHON NUA-PHIPHAT
120.	222	2222	SATHON NUA-CONVENT
121.	224	2224	SATHON (U-TURN NEAR SOI ATTHAKAN PRASIT)
122.	227	2228	DEMOCRACY MONUMENT 1
123.	228	2228	DEMOCRACY MONUMENT 2
124.	232	2232	BANTHAT THONG-SOI CHULALONGKORN 18
125.	236	2236	PHETCHABURI-SOI CHIT LOM
126.	237	2237	SUKHUMVIT-SOI SUKHUMVIT 11
127.	238	2238	SUKHUMVIT-SOI SUKHUMVIT 19
128.	245	2245	CHARU MUANG-CHARAT MUANG
129.	254	2255	VICTORY MONUMENT-PHACHON YOTHIN
130.	255	2255	VICTORY MONUMENT-RATCHAWITHI (EAST)
131.	256	2255	VICTORY MONUMENT-PHAYA THAI
132.	257	2255	RATCHAWITHI (WEST)-VICTORY MONUMENT
133.	266	2266	SURAWONG-SAP
134.	904	2904	NIKHOM MAKKASAN-SOI PHETCHABURI 31
135.	905	2905	SI PHRAYA-SAP
136.	706	2706	HIGHWAY-PHACHON YOTHIN
137.	707	2707	HIGHWAY-ASOK-DIN DAENG
138.	708	2708	HIGHWAY-RAMA IX
139.	801	2801	U-TURN AT ASOK DIN DAENG (WEST)
140.	802	2802	U-TURN AT ASOK DIN DAENG (EAST)
141.	803	2803	U-TURN AT PHAYA THAI (ASIA HOTEL)
142.	804	2804	U-TURN AT SUKHUMVIT (NEAR SOI SUKHUMVIT 18)
143.	805	2805	U-TURN AT RAMA IV
144.	P 1	2094	TRIPHET (TRAFFIC POLICE DIVISION)
145.	P 2	2094	TRIPHET (NEAR SOI WATLEAP)
146.	P 3	2052	CHAROENKRUNG (SOI CHAROENKRUNG 21)

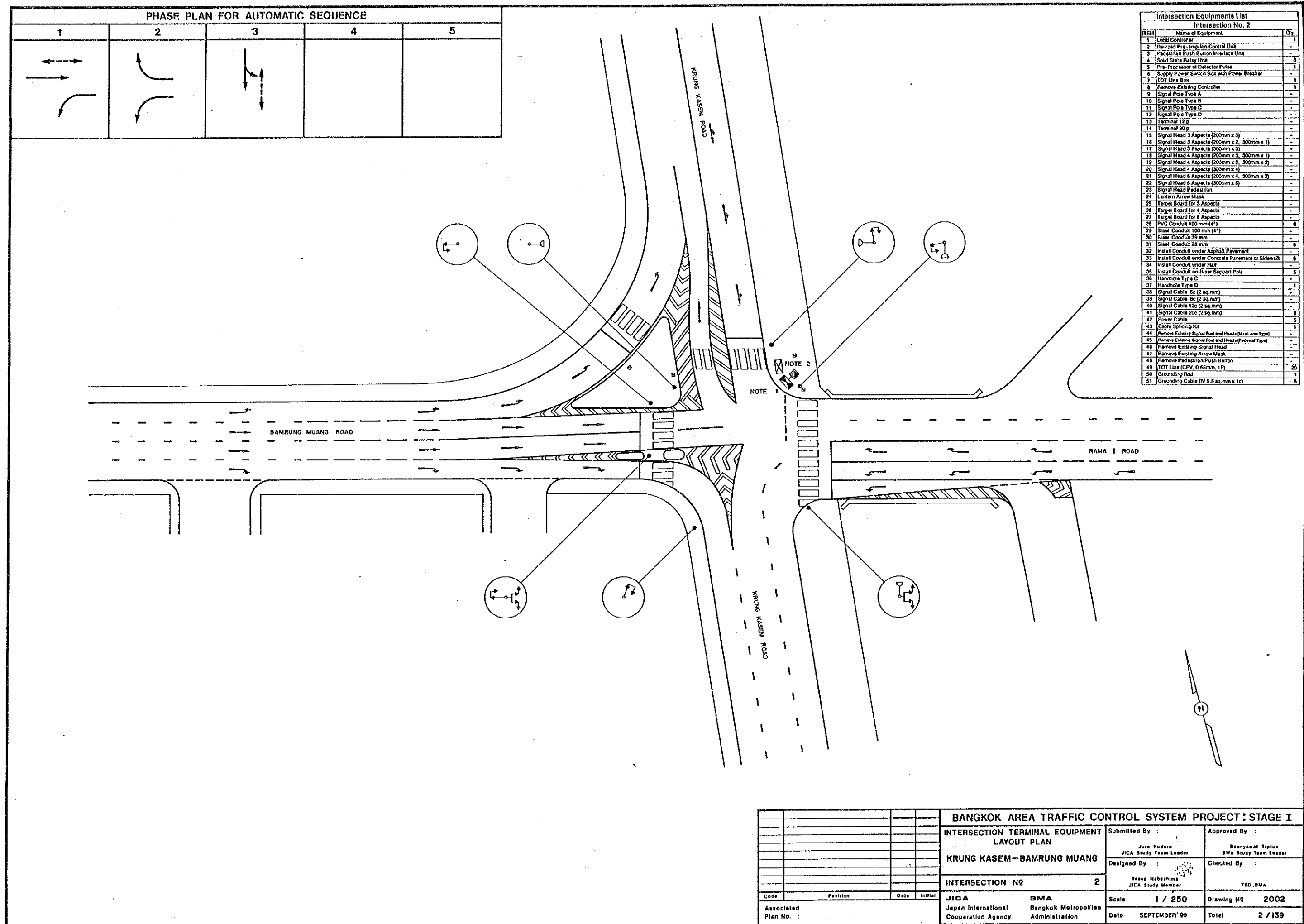
Note: Newly signalled intersection
 "Highway" at Int.No.706,707,708 means highway yet to be constructed
 INT. No. P1, P2, P3 are Pedestrian crossing signals.
 INT. No. 35, 40, 43, 54, 99, 142, 143 are Railroad Pre-emption Control signals.
 INT. No. 227, 228 are controlled by one local controller.
 INT. No. 254, 255, 256, 257 are controlled by one local controller.

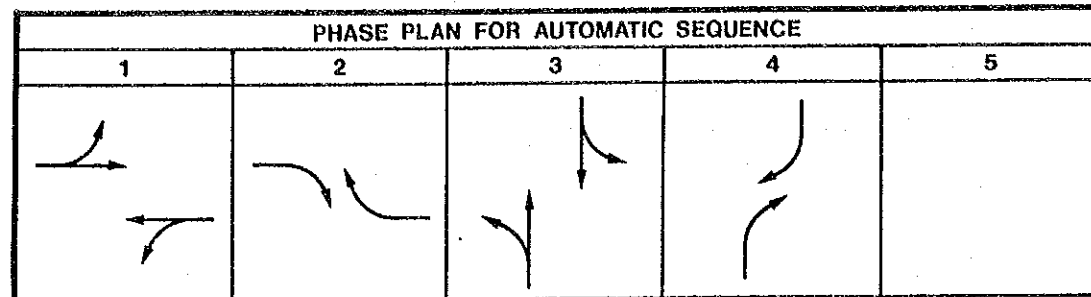


Intersection Equipments List				
Intersection No. 1				
ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment
1	Local Controller	1	27	Target Board for 8 Aspects
2	Railroad Pre-emption Control Unit	-	28	PVC Conduit 100 mm (4")
3	Pedestrian Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")
4	Solid State Relay Unit	4	30	Steel Conduit 39 mm
5	Pre-Processor of Detector Pulse	1	31	Steel Conduit 28 mm
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement
7	TOT Line Box	1	33	Install Conduit under Concrete Pavement or Sidewalk
8	Remove Existing Controller	1	34	Install Conduit under Rail
9	Signal Pole Type A	4	35	Install Conduit on Water Support Pole
10	Signal Pole Type B	3	36	Handhole Type C
11	Signal Pole Type C	-	37	Handhole Type D
12	Signal Pole Type D	-	38	Signal Cable 6C (2 sq. mm)
13	Terminal 12 p	2	39	Signal Cable 8C (2 sq. mm)
14	Terminal 20 p	3	40	Signal Cable 12C (2 sq. mm)
15	Signal Head 3 Aspects (200mm x 3)	2	41	Signal Cable 20C (2 sq. mm)
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	1	42	Power Cable
17	Signal Head 3 Aspects (300mm x 3)	-	43	Cable Splicing Kit
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-	44	Remove Existing Signal Post and Heads (Mail-box Type)
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	1	45	Remove Existing Signal Post and Heads (Pocket Type)
20	Signal Head 4 Aspects (300mm x 4)	-	46	Remove Existing Signal Head
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-	47	Remove Existing Arrow Mask
22	Signal Head 6 Aspects (300mm x 6)	-	48	Remove Pedestrian Push Button
23	Signal Head Pedestrian	-	49	TOT Line (CPV, 0.65mm, 1P)
24	Lantern Arrow Mask	9	50	Grounding Rod
25	Target Board for 3 Aspects	3	51	Grounding Cable (IV 5.5 sq. mm x 1c)
26	Target Board for 4 Aspects	1		

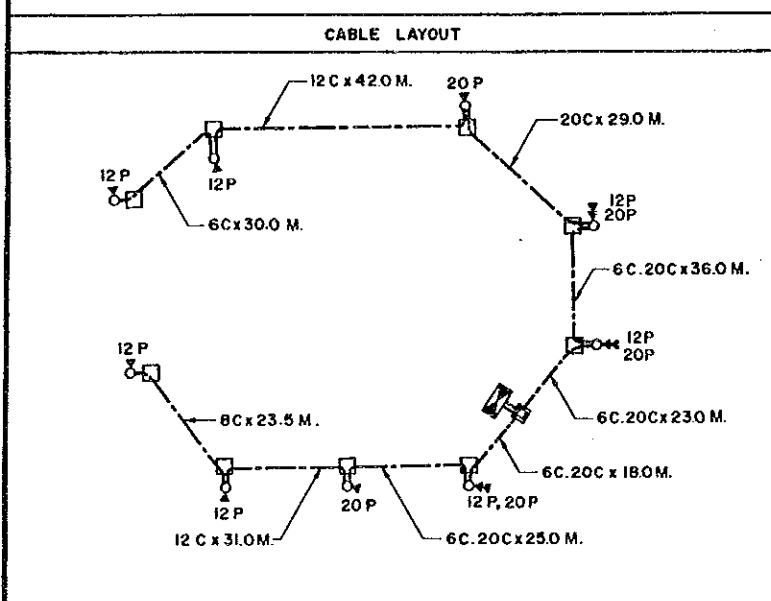
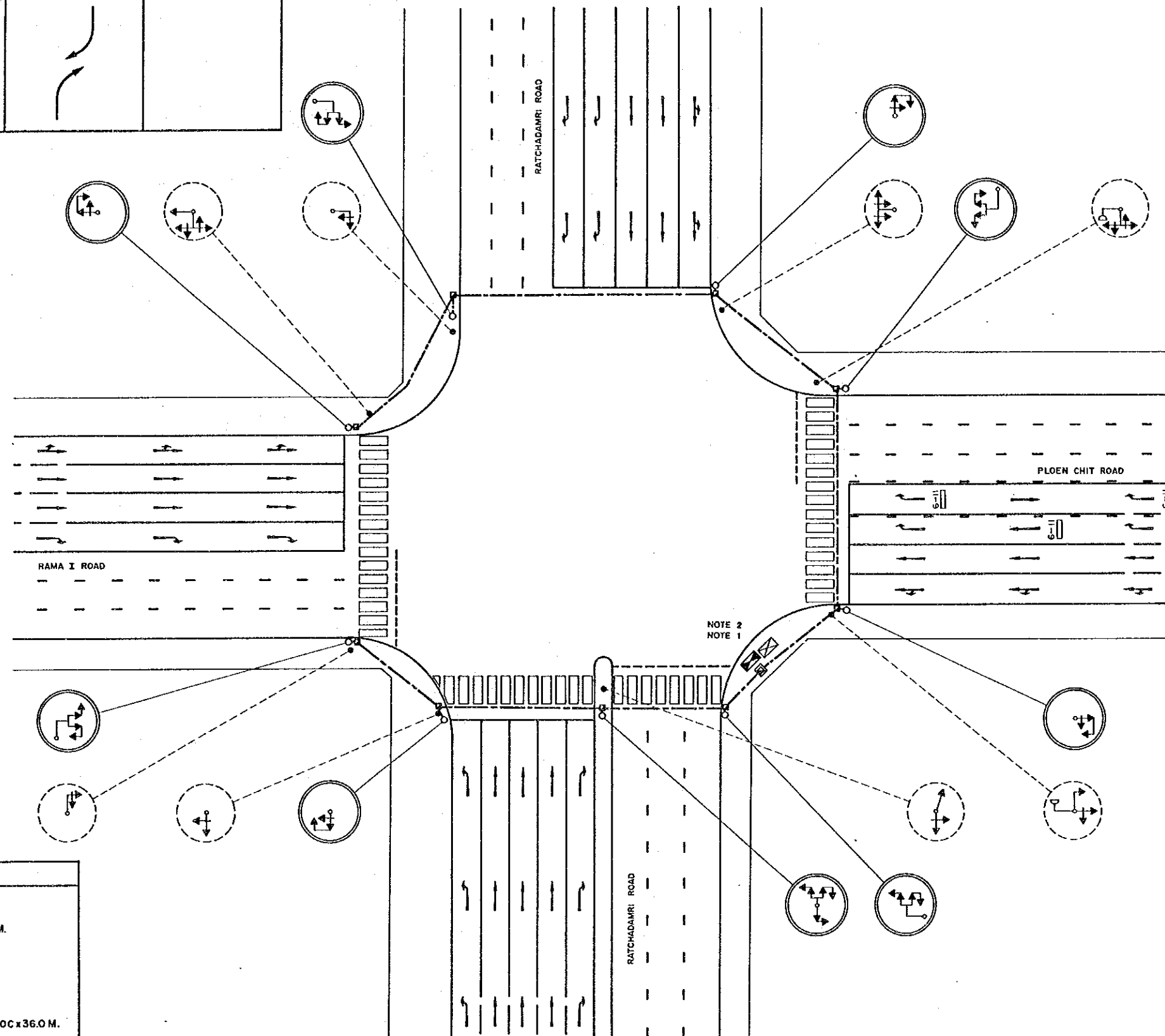


BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I				
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN				
RAMA VI - PHETCHABURI				
INTERSECTION NO. 1				
Submitted By : Jun Kodera JICA Study Team Leader		Approved By : Boonyawat Tiplue BMA Study Team Leader		
Designed By : Yasuo Nabeshima JICA Study Member		Checked By : TED, BMA		
Code	Revision	Date	Initial	
Associated Plan No. :				
JICA Japan International Cooperation Agency		BMA Bangkok Metropolitan Administration		Scale 1 / 250
				Date SEPTEMBER '90
				Drawing No 2001
				Total 1 / 139

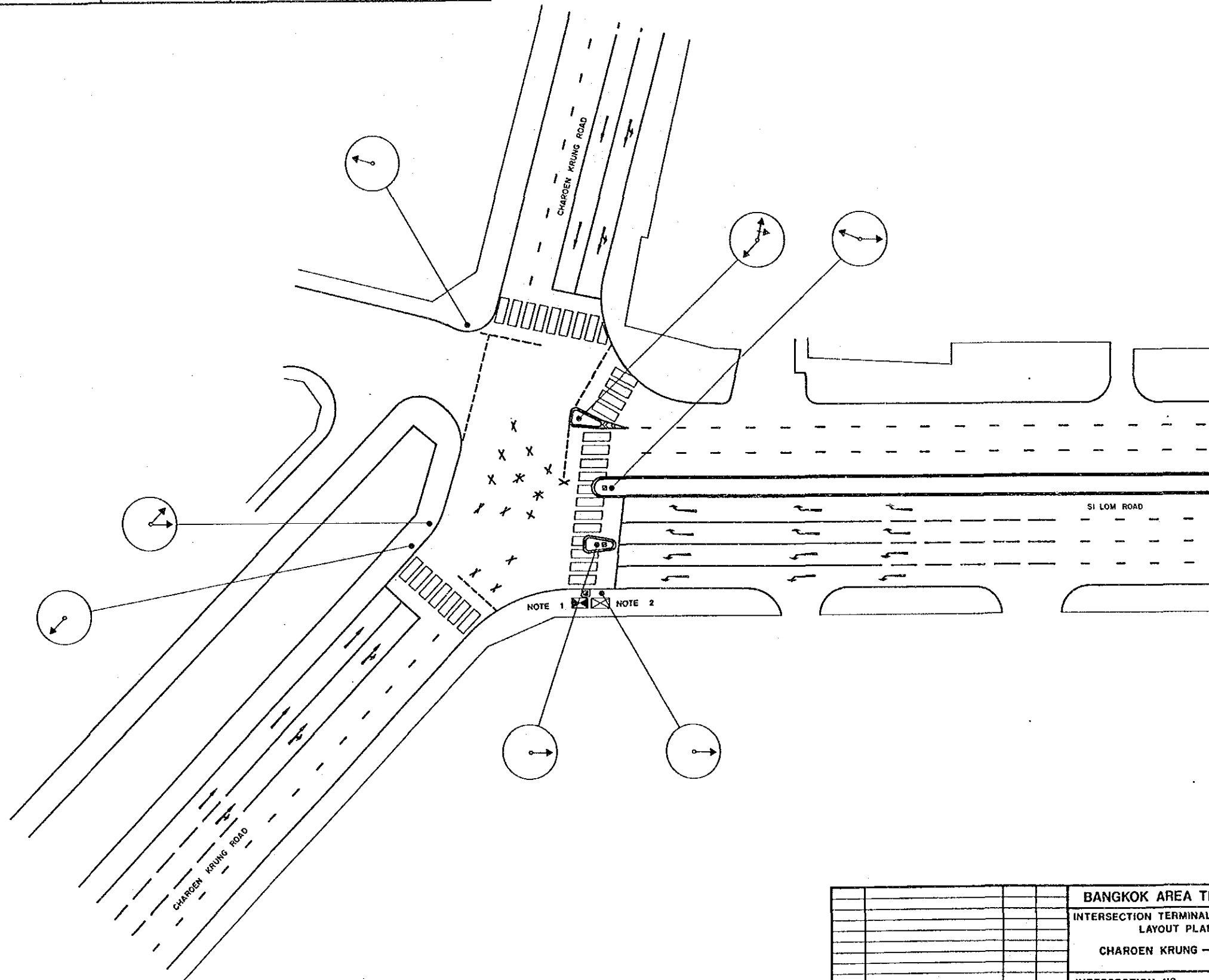
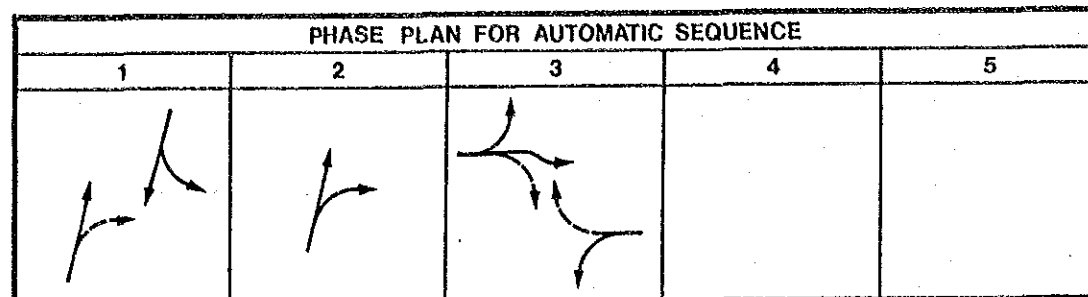




Intersection Equipments List		
Intersection No. 3		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	1
3	Pedestrian Push Button Interface Unit	1
4	Solid State Relay Unit	4
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	1
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	4
10	Signal Pole Type B	4
11	Signal Pole Type C	1
12	Signal Pole Type D	1
13	Terminal 12 p	7
14	Terminal 20 p	5
15	Signal Head 3 Aspects (200mm x 3)	1
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	1
17	Signal Head 3 Aspects (300mm x 3)	1
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	1
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	4
20	Signal Head 4 Aspects (300mm x 4)	1
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	1
22	Signal Head 6 Aspects (300mm x 6)	4
23	Signal Head Pedestrian	1
24	Lantern Arrow Mask	19
25	Target Board for 3 Aspects	1
26	Target Board for 4 Aspects	4
27	Target Board for 6 Aspects	1
28	PVC Conduit 100 mm (4")	169.5
29	Steel Conduit 100 mm (4")	1
30	Steel Conduit 39 mm	1
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	1
33	Install Conduit under Concrete Pavement or Sidewalk	169.5
34	Install Conduit under Rail	1
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	9
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	132
39	Signal Cable 8c (2 sq. mm)	23.5
40	Signal Cable 12c (2 sq. mm)	73
41	Signal Cable 20c (2 sq. mm)	131
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Mast-arm Type)	6
45	Remove Existing Signal Post and Heads (Pole-top Type)	2
46	Remove Existing Signal Head	1
47	Remove Existing Arrow Mask	1
48	Remove Pedestrian Push Button	1
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (RV 5.5 sq. mm x 1c)	5



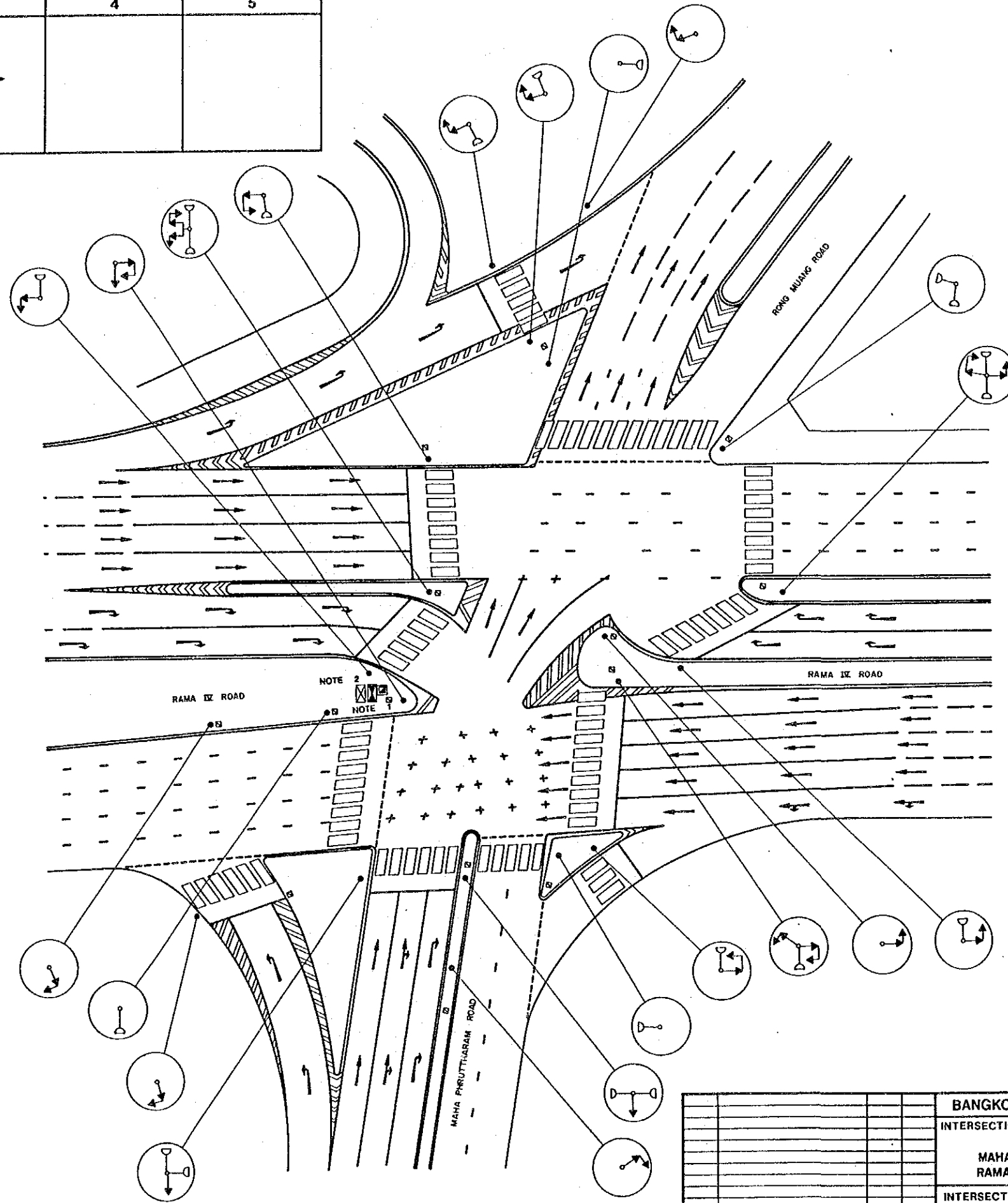
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			
RATCHADAMRI-RAMA I-PHOEN CHIT			
INTERSECTION NO		3	
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	
		BMA Bangkok Metropolitan Administration	
Submitted By :		Juro Kodera JICA Study Team Leader	Approved By : Roonyawat Tiptua BMA Study Team Leader
Designed By :		Yasuo Nabeshima JICA Study Member	Checked By : TED, BMA
Scale		1 / 250	Drawing No. 2003
Date		SEPTEMBER '90	Total 3 / 139



Intersection Equipments List		
Intersection No. 4		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4')	8
29	Steel Conduit 100 mm (4')	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	6
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Pole and Heads (Rail-street Type)	-
45	Remove Existing Signal Pole and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (PV 5.5 sq. mm x 1c)	5

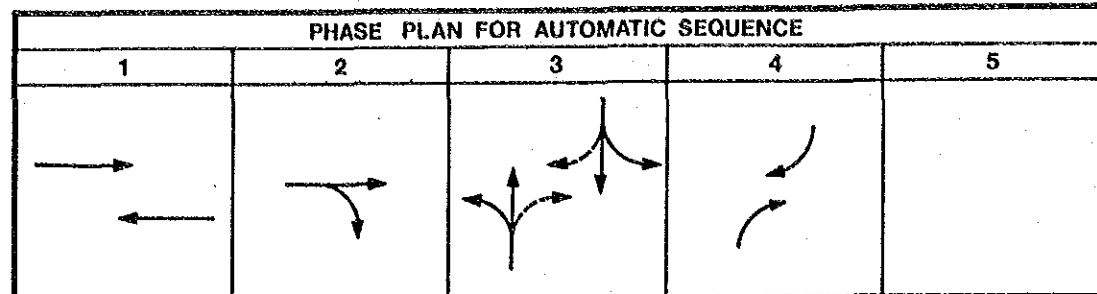
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
			Jura Kodera JICA Study Team Leader	Boonyasat Tiplus BMA Study Team Leader	
CHAROEN KRUNG - SI LOM			Designed By :	Checked By :	
			Yasuo Nabeshima JICA Study Member	TED, BMA	
INTERSECTION NO. 4			JICA	BMA	Scale 1 / 250
Associated Plan No. :			Japan International Cooperation Agency	Bangkok Metropolitan Administration	Drawing No. 2004
				Date SEPTEMBER '00	Total 4 / 139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5



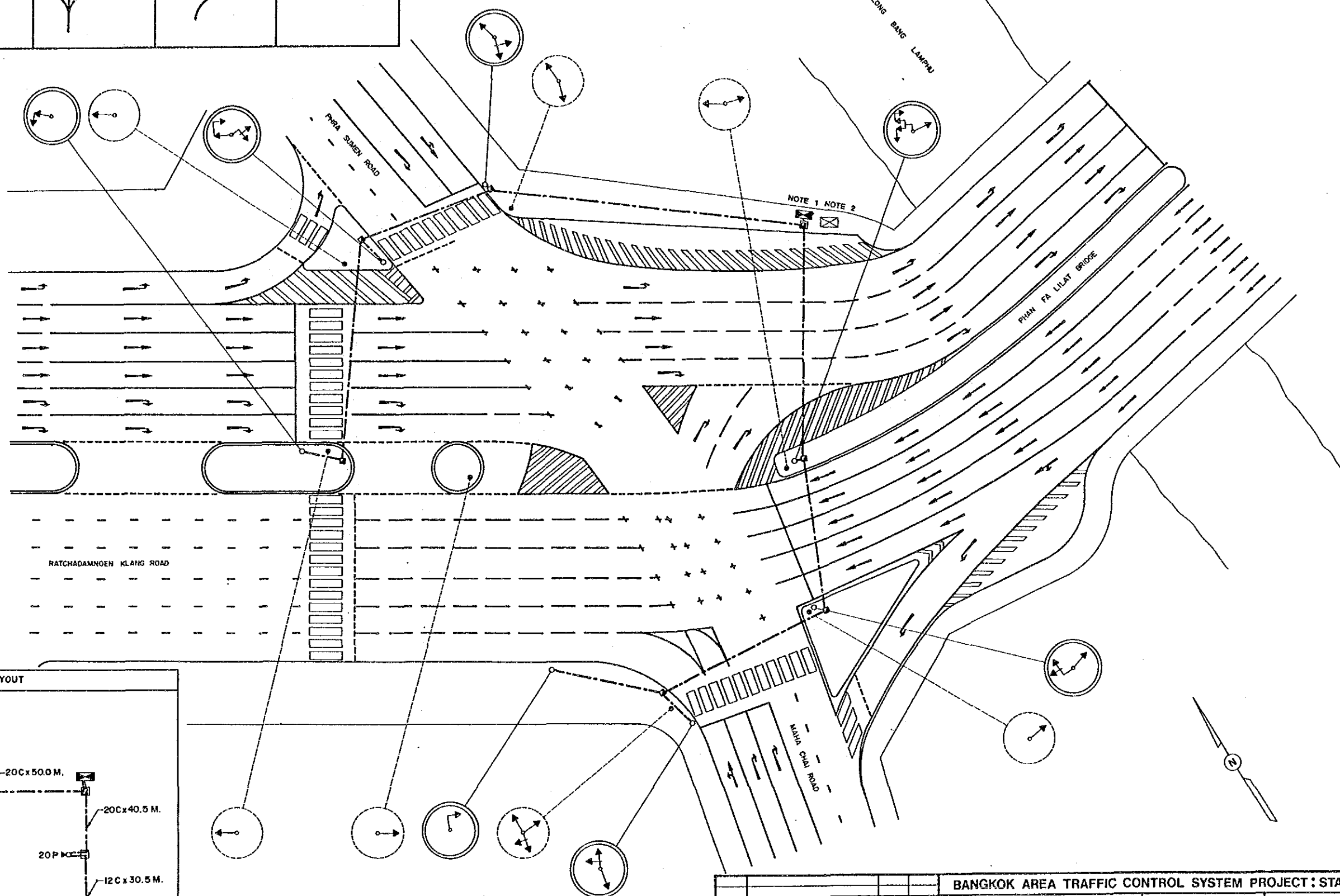
Intersection Equipments List		
Intersection No. 8		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	8
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Exhibit 12p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 5 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mark	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 50 mm	-
31	Steel Conduit 25 mm	8
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 8c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	16
42	Power Cable	5
43	Cable Splicing Kit	3
44	Remove Existing Signal Post and Heads (Mast-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestal Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mark	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	5

BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
MAHA PHRUTTHARAM - RAMA IV - RONG MUANG		Jiro Kodera JICA Study Team Leader	Boonsawat Tiptua BMA Study Team Leader
		Designed By :	Checked By :
INTERSECTION NO. 8		Yasuo Nabeshima JICA Study Member	TED.BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration
Scale		1 / 250	Drawing No. 2008
Date		SEPTEMBER '90	Total 5 / 139

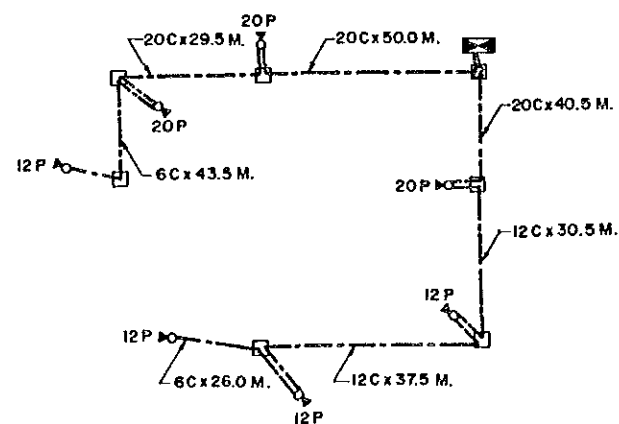


Intersection Equipments List
Intersection No. 9

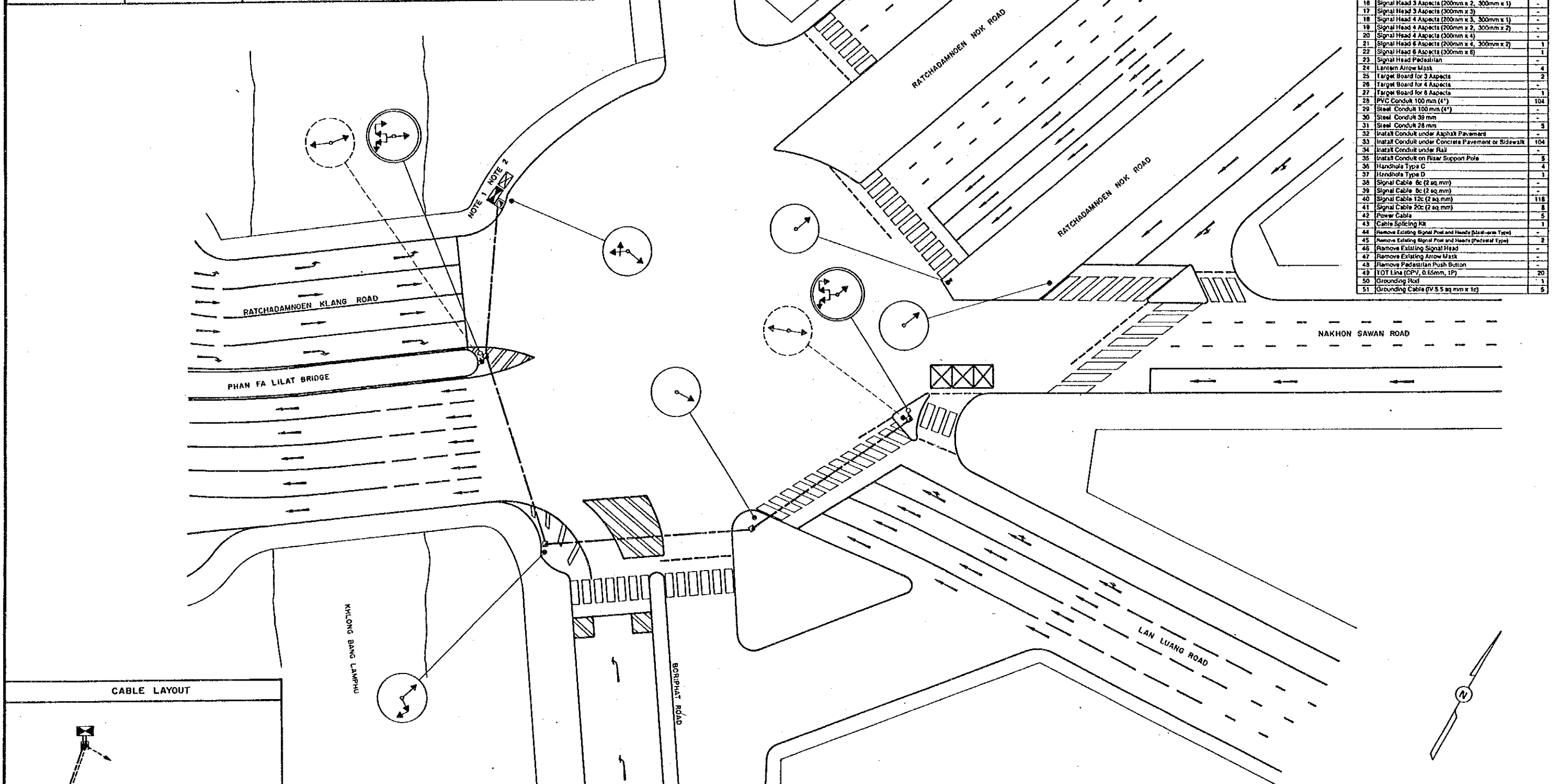
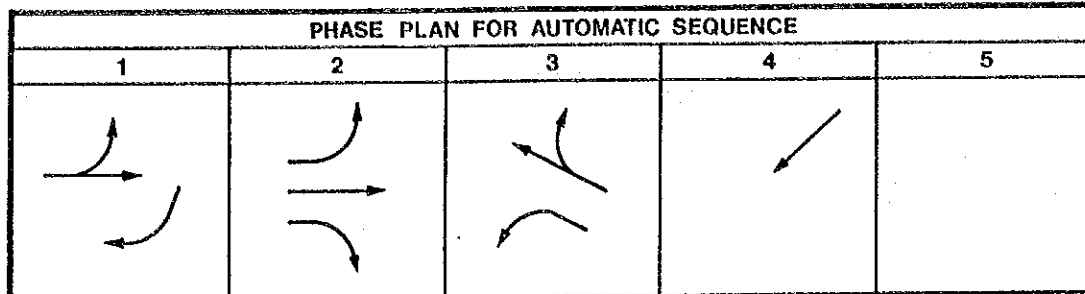
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	3
5	Pre-Processor of Detector Pulse	-
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	4
10	Signal Pole Type B	3
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	4
14	Terminal 20 p	3
15	Signal Head 3 Aspects (200mm x 3)	4
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	2
17	Signal Head 3 Aspects (300mm x 3)	1
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	2
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	2
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 8 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 8 Aspects (300mm x 6)	1
23	Signal Head Pedestrian	-
24	Lensless Arrow Mask	8
25	Target Board for 3 Aspects	8
26	Target Board for 4 Aspects	2
27	Target Board for 8 Aspects	-
28	PVC Conduit 100 mm (4")	189.5
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	8
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	189.5
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	8
36	Handhook Type C	8
37	Handhook Type D	1
38	Signal Cable 8c (2 sq. mm)	89.5
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	68
41	Signal Cable 20c (2 sq. mm)	120
42	Power Cable	5
43	Cable Splicing Kit	-
44	Remove Existing Signal Post and Heads (Metal-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestal Type)	7
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	5



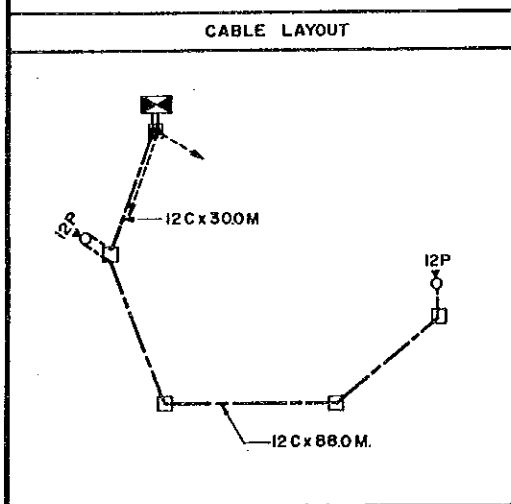
CABLE LAYOUT



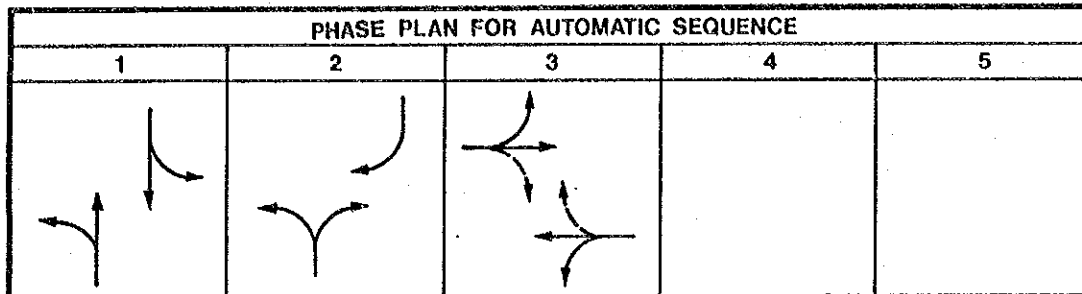
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I			
INTERSECTION LAYOUT PLAN RATCHADAMNOEN KLANG - PHRA SUMEN - MAHA CHAI		Submitted By : Jiro Kodera JICA Study Team Leader	Approved By : Nobuyasu Tipton BMA Study Team Leader
		Designed By : Yasuo Mabuchi JICA Study Member	Checked By : TED, BMA
INTERSECTION NO. 9		Scale: 1 / 250	Drawing No: 2009
Associated Plan No. :		Date: SEPTEMBER '90	Total: 6 / 139
Code	Revision	Date	Initial
JICA Japan International Cooperation Agency		BMA Bangkok Metropolitan Administration	



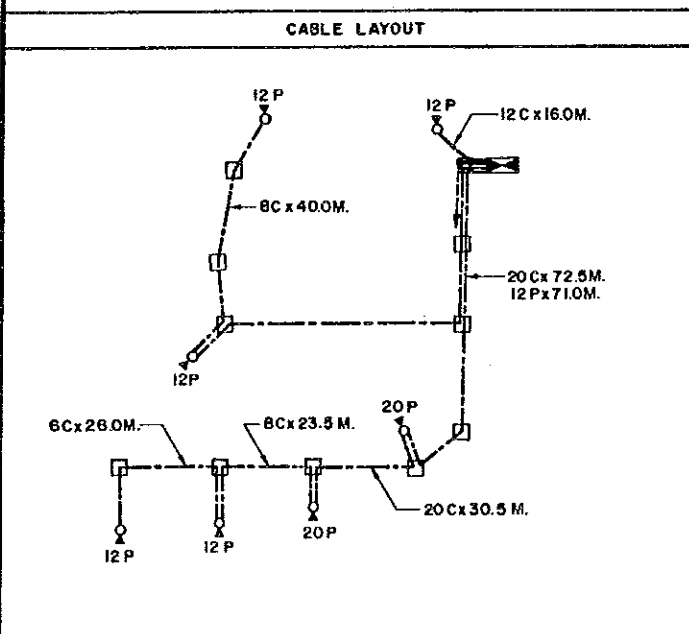
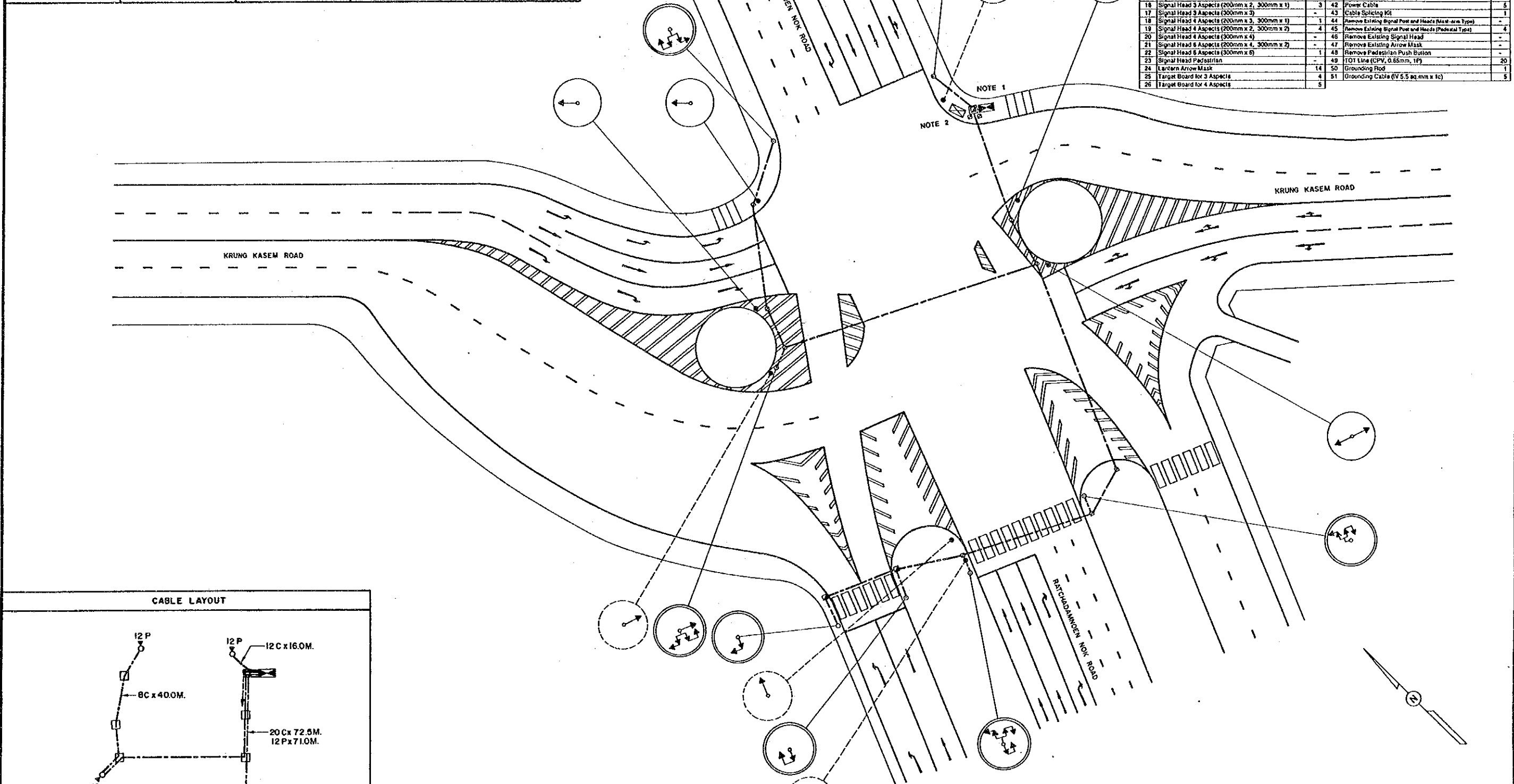
Intersection Equipments List		
Intersection No. 10		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Relay/Load Pre-emption Control Unit	1
3	Pedestrian Push Button Interface Unit	1
4	Solid State Relay Unit	3
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	1
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	1
10	Signal Pole Type B	1
11	Signal Pole Type C	1
12	Signal Pole Type D	1
13	Terminal 12 p	2
14	Terminal 20 p	2
15	Signal Head 3 Aspects (200mm x 3)	2
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	1
17	Signal Head 3 Aspects (300mm x 3)	1
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	1
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	1
20	Signal Head 4 Aspects (300mm x 4)	1
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	1
22	Signal Head 6 Aspects (300mm x 6)	1
23	Signal Head Pedestrian	1
24	Lensless Arrow Mask	4
25	Target Board for 3 Aspects	2
26	Target Board for 4 Aspects	1
27	Target Board for 6 Aspects	1
28	PVC Conduit 100 mm (4")	104
29	Steel Conduit 100 mm (4")	1
30	Steel Conduit 38 mm	1
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	1
33	Install Conduit under Concrete Pavement or Sidewalk	104
34	Install Conduit under Rail	1
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	4
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	1
39	Signal Cable 6c (2 sq. mm)	1
40	Signal Cable 12c (2 sq. mm)	118
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Pole and Heads (200mm x 3)	1
45	Remove Existing Signal Pole and Heads (300mm x 3)	2
46	Remove Existing Signal Head	1
47	Remove Existing Arrow Mask	1
48	Remove Pedestrian Push Button	1
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (4x3.5 sq. mm x 1c)	5



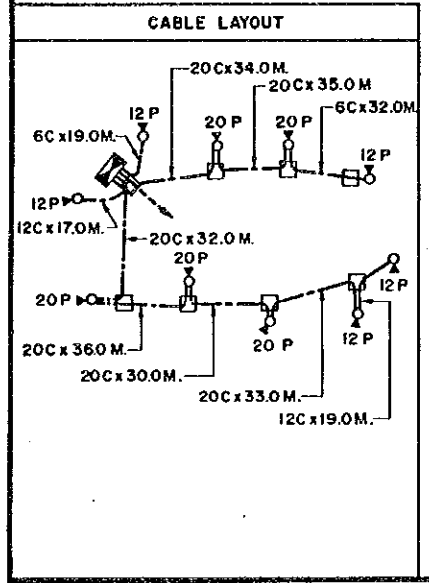
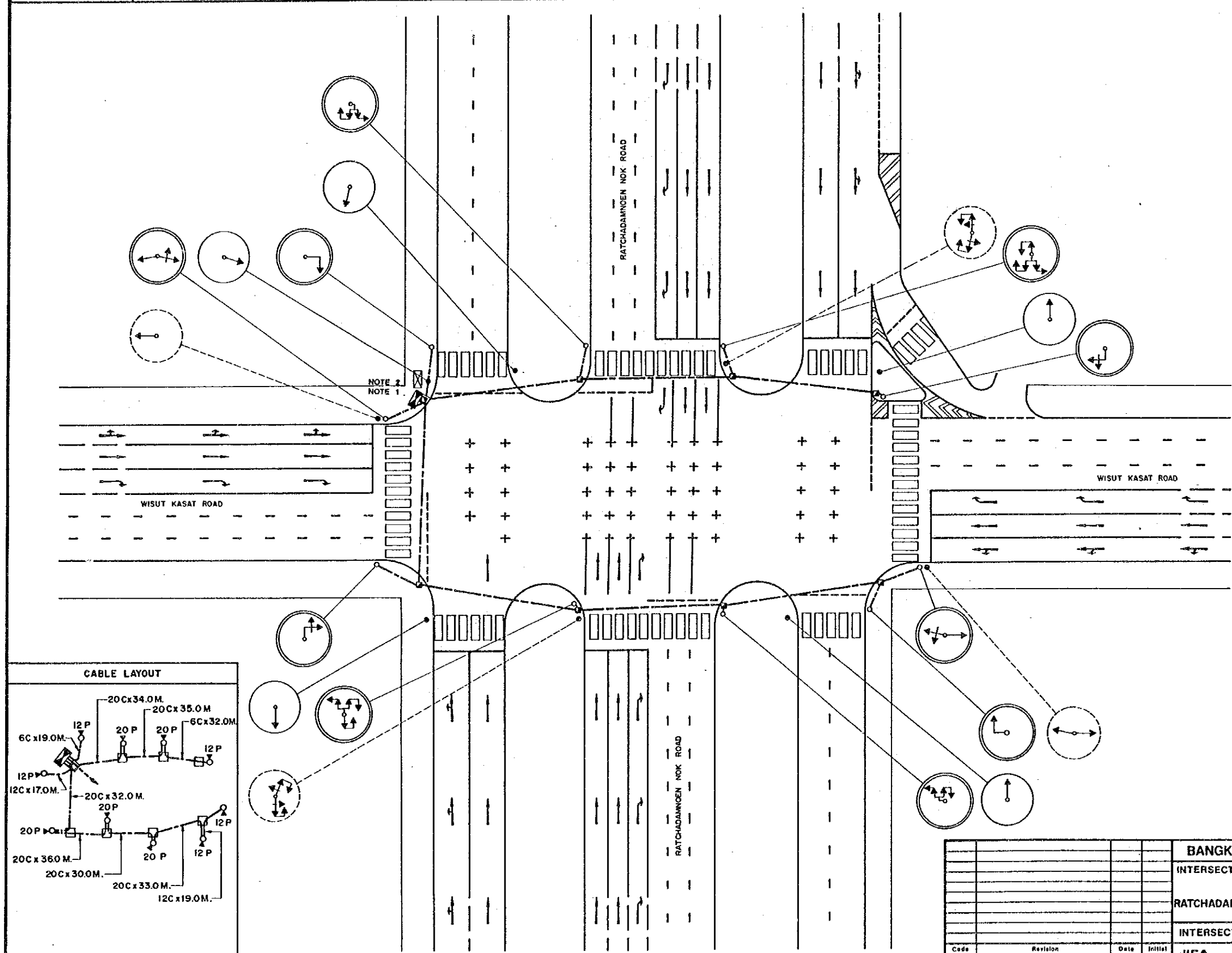
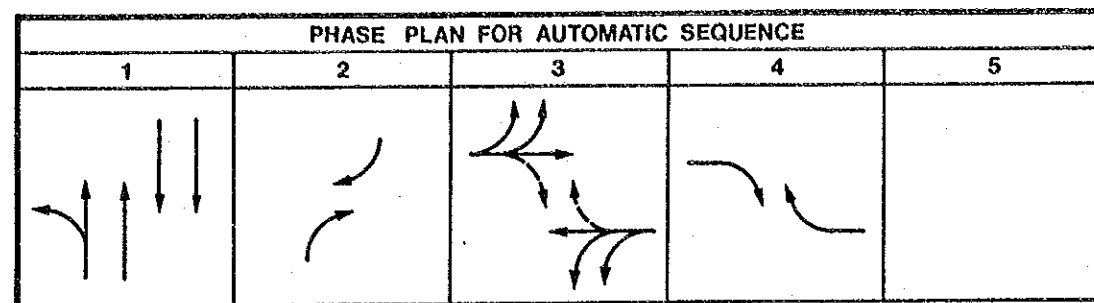
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
LAN LUANG-RATCHADAMNOEN NOK -NAKHON SAWAN		Jiro Kodera JICA Study Team Leader	Boonyawat Tipplus BMA Study Team Leader
INTERSECTION NO. 10		Designed By :	Checked By :
		Yasuo Nabeshima JICA Study Member	TED.BMA
Code	Revision	Date	Initial
Associated Plan No. :			
JICA Japan International Cooperation Agency		BMA Bangkok Metropolitan Administration	
Scale 1 / 250		Date SEPTEMBER '90	Drawing No. 2010
		Total	7 / 139



Intersection Equipments List				
Intersection No. 11				
ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment
1	Local Controller	1	27	Target Board for 6 Aspects
2	Railroad Pre-emption Control Unit	-	28	PVC Conduit 100 mm (4")
3	Pedestrian Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")
4	Solid State Relay Unit	3	30	Steel Conduit 39 mm
5	Pre-Processor of Detector Pulse	-	31	Steel Conduit 28 mm
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement
7	TOT Line Box	-	33	Install Conduit under Concrete Pavement or Sidewalk
8	Remove Existing Controller	-	34	Install Conduit under Rail
9	Signal Pole Type A	1	35	Install Conduit on Filter Support Pole
10	Signal Pole Type B	6	36	Handhole Type C
11	Signal Pole Type C	-	37	Handhole Type D
12	Signal Pole Type D	-	38	Signal Cable 6c (2 sq. mm)
13	Terminal 12 p	4	39	Signal Cable 8c (2 sq. mm)
14	Terminal 20 p	3	40	Signal Cable 12c (2 sq. mm)
15	Signal Head 3 Aspects (200mm x 3)	1	41	Signal Cable 20c (2 sq. mm)
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	3	42	Power Cable
17	Signal Head 3 Aspects (300mm x 3)	-	43	Cable Splicing Kit
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	1	44	Remove Existing Signal Post and Heads (Max-arm Type)
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	4	45	Remove Existing Signal Post and Heads (Pedestal Type)
20	Signal Head 4 Aspects (300mm x 4)	-	46	Remove Existing Signal Head
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-	47	Remove Existing Arrow Mask
22	Signal Head 6 Aspects (300mm x 6)	1	48	Remove Pedestrian Push Button
23	Signal Head Pedestrian	-	49	TOT Line (CPV, 0.65mm, 1P)
24	Leakdown Arrow Mask	14	50	Grounding Rod
25	Target Board for 3 Aspects	4	51	Grounding Cable (IV 5.5 sq. mm x 1c)
26	Target Board for 4 Aspects	5		

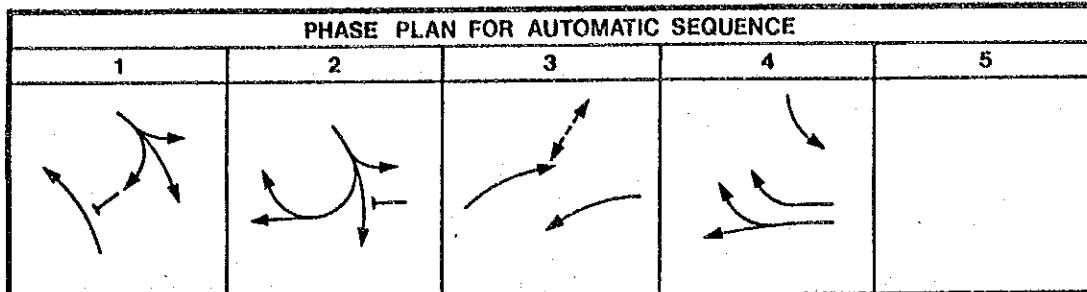


BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
RATCHADAMNOEN NOK-KRUNG KASEM		Juro Kedarn JICA Study Team Leader	Boonyawat Tiptua BMA Study Team Leader
INTERSECTION NO II		Designed By :	Checked By :
		Yasuo Mabeshima JICA Study Member	TED, BMA
Code	Revision	Date	Initial
Associated Plan No. :	JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration	Scale 1 / 250 Date SEPTEMBER '90
		Drawing No 2011	Total 8 / 139

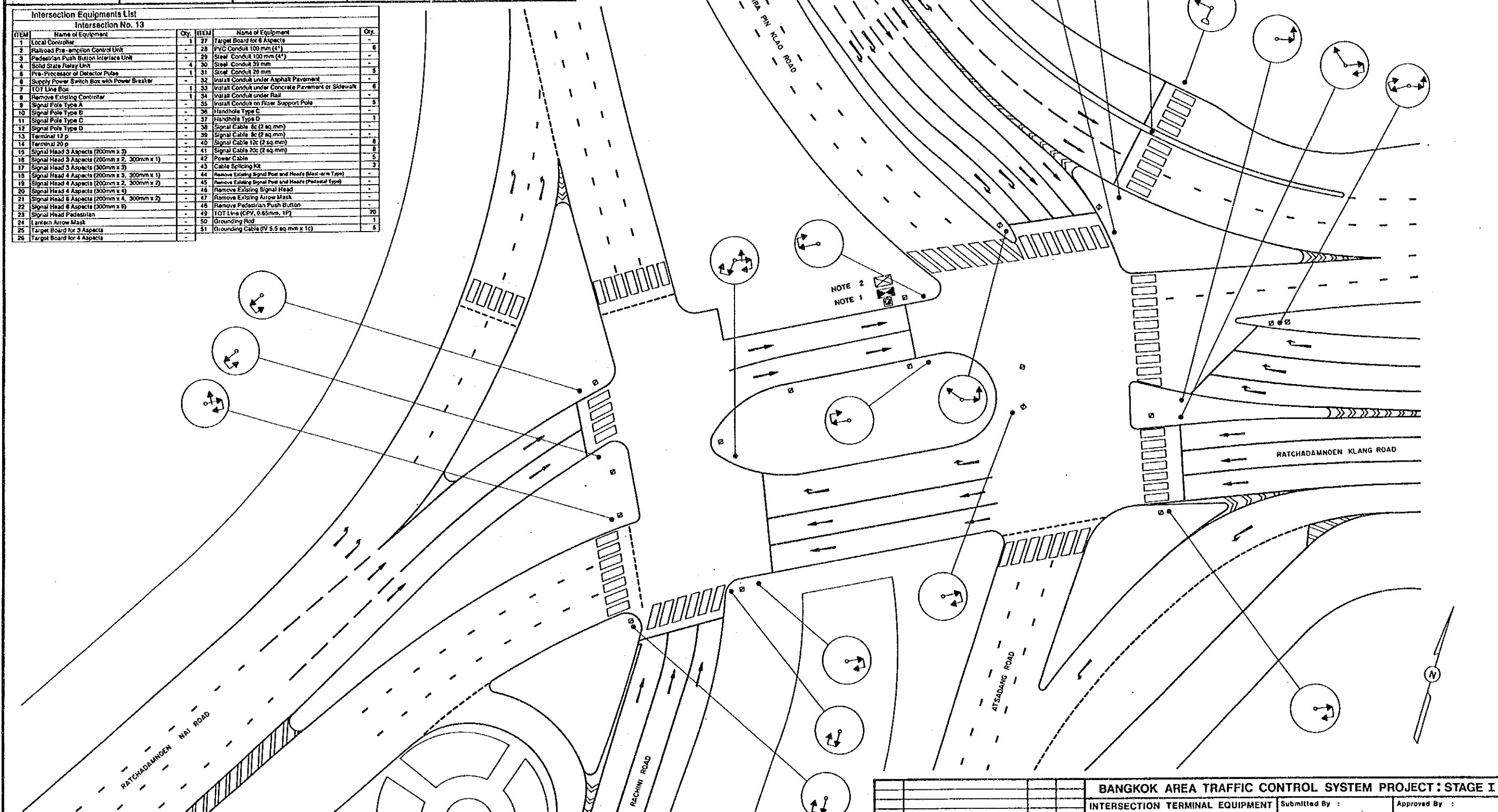


Intersection Equipments List		
Intersection No. 12		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Unidirectional Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	4
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	6
10	Signal Pole Type B	2
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	5
14	Terminal 20 p	3
15	Signal Head 3 Aspects (200mm x 3)	2
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	2
17	Signal Head 3 Aspects (300mm x 3)	2
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	2
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	2
20	Signal Head 4 Aspects (300mm x 4)	2
21	Signal Head 8 Aspects (200mm x 4, 300mm x 2)	2
22	Signal Head 8 Aspects (300mm x 6)	2
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	4
25	Target Board for 3 Aspects	4
26	Target Board for 4 Aspects	4
27	Target Board for 8 Aspects	2
28	PVC Conduit 100 mm (4")	100
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	180
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	8
36	Handhole Type C	6
37	Handhole Type D	1
38	Signal Cable 6c (2 sq.mm)	91.5
39	Signal Cable 8c (2 sq.mm)	-
40	Signal Cable 12c (2 sq.mm)	48.5
41	Signal Cable 20c (2 sq.mm)	115.5
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Pole and Heads (Max-term Type)	-
45	Remove Existing Signal Pole and Heads (Pedestrian Type)	4
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq.mm x 1c)	5

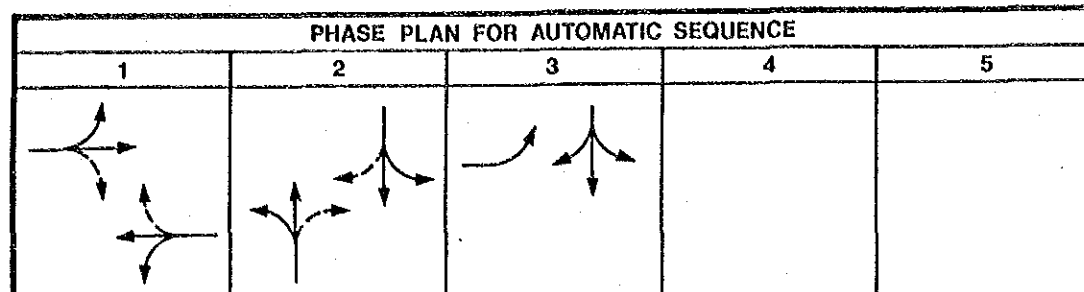
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
RATCHADAMNOEN NOK - WISUT KASAT		Juro Kodera JICA Study Team Leader	Boonyawat Tiptuan BMA Study Team Leader
INTERSECTION NO 12		Designed By : Yasuo Mabeshima JICA Study Member	Checked By : TED.BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration
		Scale 1 / 250	Drawing NO 2012
		Date SEPTEMBER '90	Total 9 / 139



Intersection Equipments List				
Intersection No. 13				
ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment
1	Local Controller	1	27	Target Board for 6 Aspects
2	Railroad Pre-emption Control Unit	-	28	PVC Conduit 100 mm (1")
3	Pedestrian Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")
4	Solid State Relay Unit	4	30	Steel Conduit 32 mm
5	Pre-Processor of Detector Pulse	1	31	Steel Conduit 28 mm
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement
7	TOT Line Box	1	33	Install Conduit under Concrete Pavement or Sidewalk
8	Remove Existing Controller	-	34	Install Conduit under Rail
9	Signal Pole Type A	-	35	Install Conduit on Tilted Support Pole
10	Signal Pole Type B	-	36	Handhole Type C
11	Signal Pole Type C	-	37	Handhole Type D
12	Signal Pole Type D	-	38	Signal Cable 6c (2 sq. mm)
13	Terminal 12 p	-	39	Signal Cable 8c (2 sq. mm)
14	Terminal 20 p	-	40	Signal Cable 12c (2 sq. mm)
15	Signal Head 3 Aspects (200mm x 3)	-	41	Signal Cable 20c (2 sq. mm)
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-	42	Power Cable
17	Signal Head 3 Aspects (300mm x 3)	-	43	Cable Splicing Kit
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-	44	Remove Existing Signal Post and Heads (Main-arm Type)
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-	45	Remove Existing Signal Post and Heads (Pedestal Type)
20	Signal Head 4 Aspects (300mm x 4)	-	46	Remove Existing Signal Head
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-	47	Remove Existing Arrow Mask
22	Signal Head 6 Aspects (300mm x 6)	-	48	Remove Pedestrian Push Button
23	Signal Head Pedestrian	-	49	TOT Line (CPV, 0.65mm, 1P)
24	Lantern Arrow Mask	-	50	Grounding Rod
25	Target Board for 3 Aspects	-	51	Grounding Cable (IV 5.5 sq. mm x 1c)
26	Target Board for 4 Aspects	-		

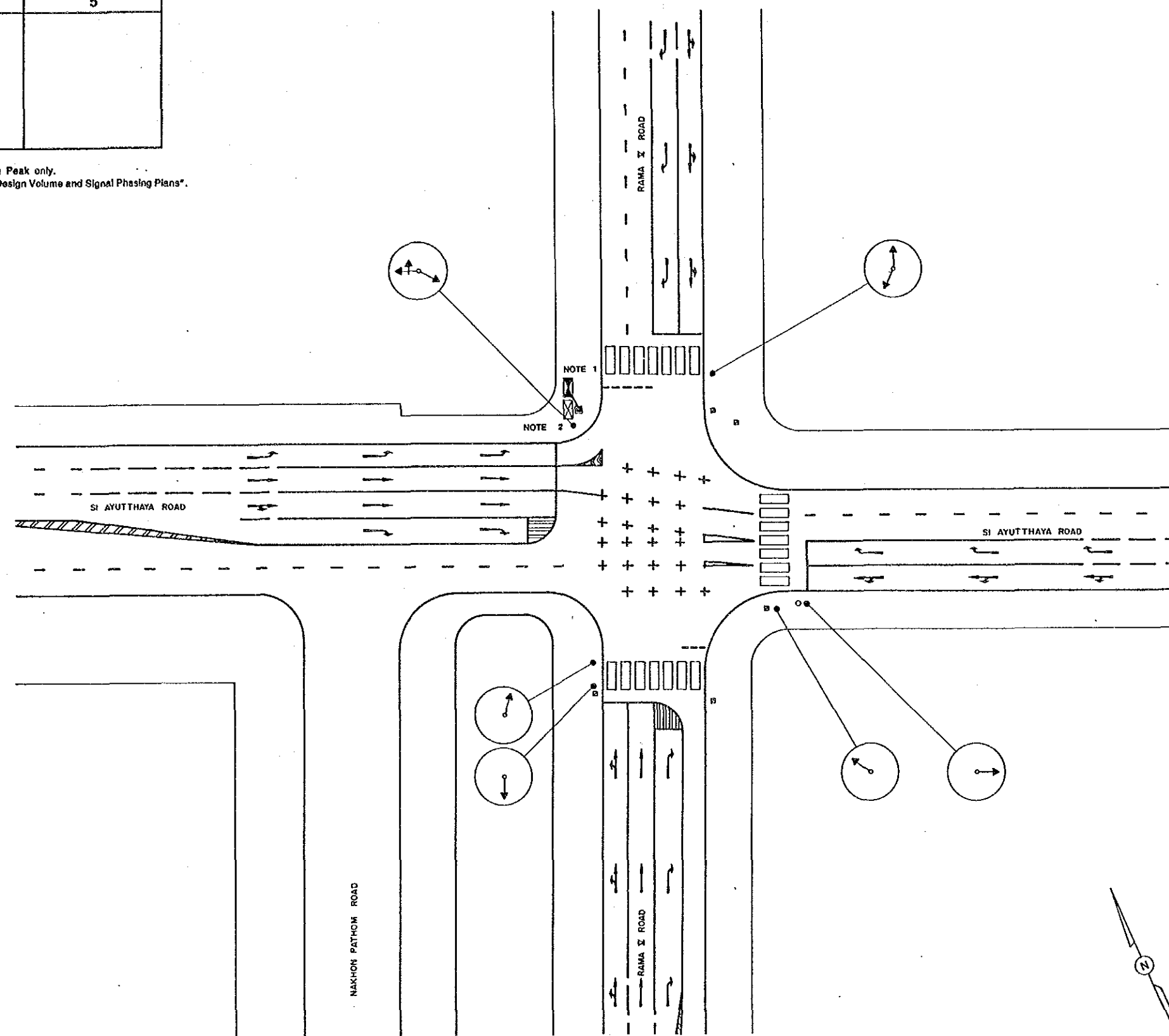


BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I									
Associated Plan No. : Code Revision Date Initial				INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN RATCHADAMNOEN KLANG - RATCHADAMNOEN NAI INTERSECTION N2 13		Submitted By :		Approved By :	
						Jura Kodera JICA Study Team Leader		Boonwatt Tiplue BMA Study Team Leader	
						Designed By :		Checked By :	
						Yasuo Hasebashi JICA Study Member		TED, BMA	
JICA Japan International Cooperation Agency				BMA Bangkok Metropolitan Administration		Scale 1 / 250		Drawing N2 2013	
						Date SEPTEMBER '90		Total 10/139	

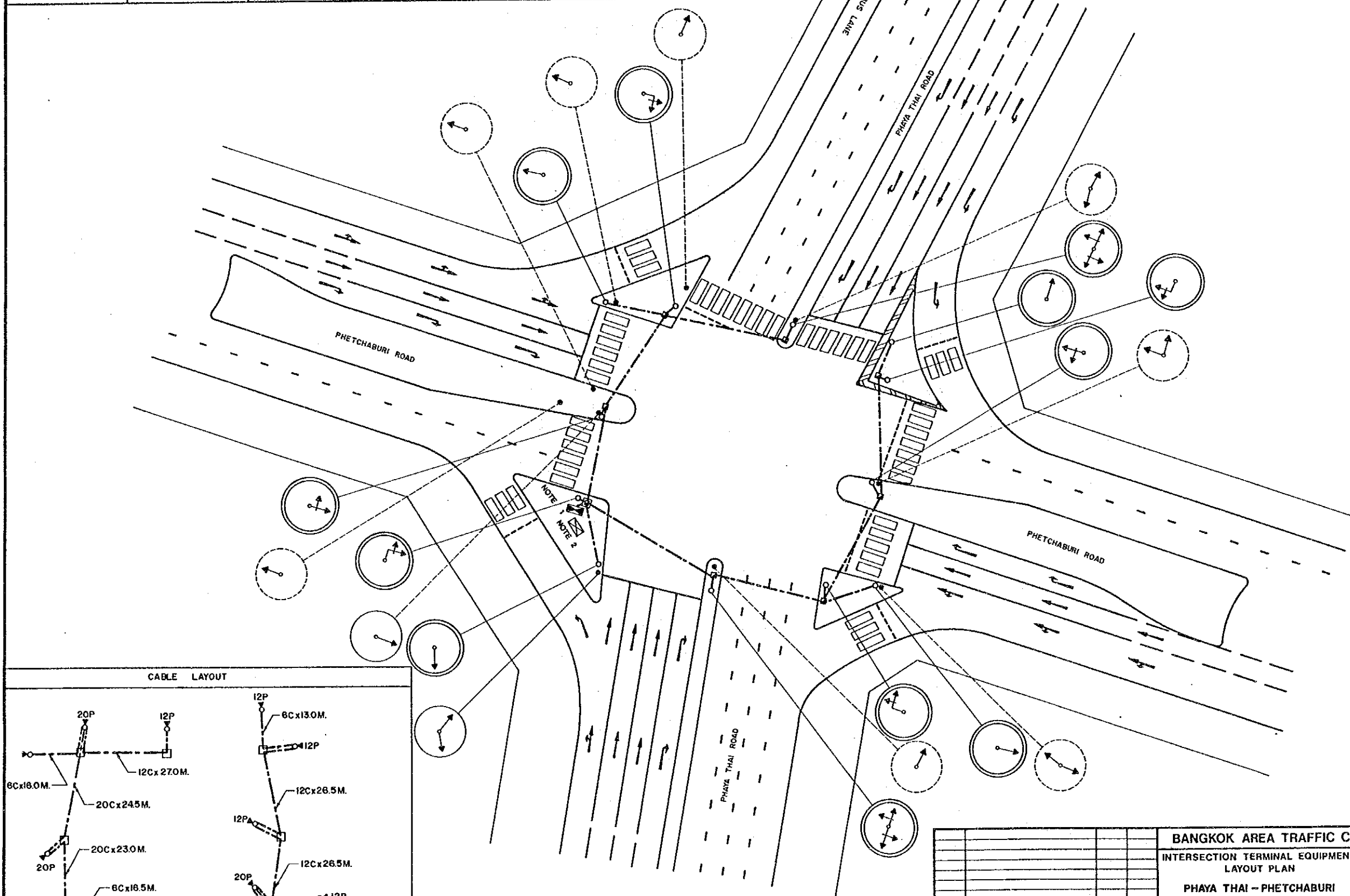
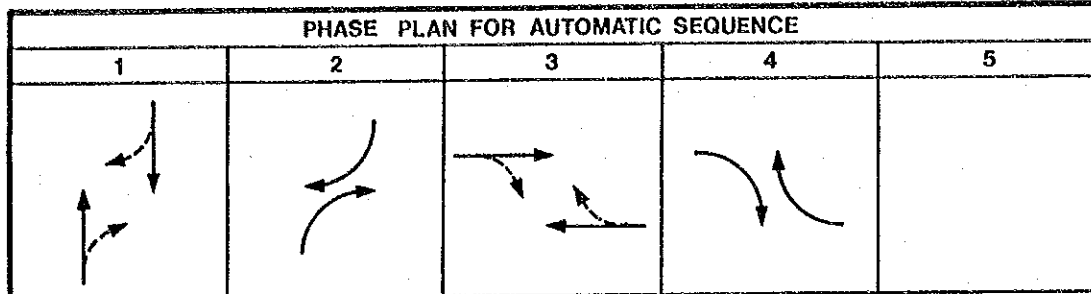


NOTE: Signal Phasing shown here is for the Morning Peak only.
For evening peak and off-peak, please refer to "Design Volume and Signal Phasing Plans".

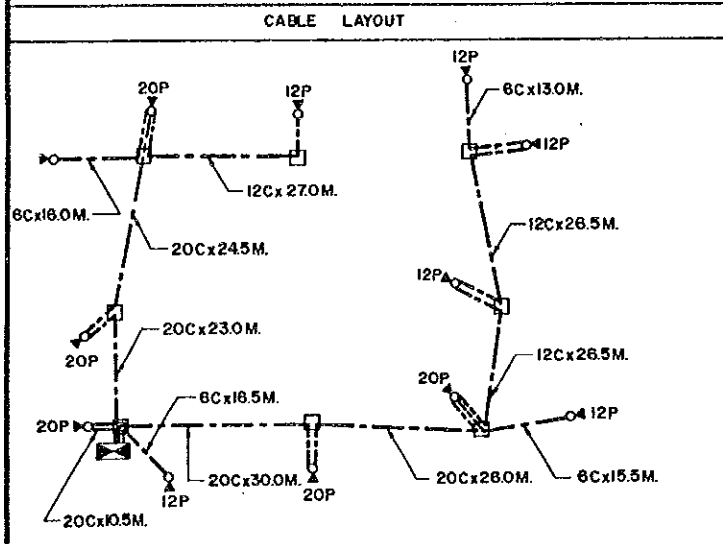
Intersection Equipments List		
Intersection No. 15		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	3
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mast	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 25 mm	-
31	Steel Conduit 25 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	8
34	Install Conduit under Road	-
35	Install Conduit on Pole Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 8c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (8-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mast	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	5



BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
			Juro Kodera JICA Study Team Leader	Boonyawat Tiplua BMA Study Team Leader	
INTERSECTION NO. 15			Designed By :	Checked By :	
			Yasuo Mabeshima JICA Study Member	YED, BMA	
Associated Plan No. :			Scale	1 / 250	Drawing No. 2015
JICA Japan International Cooperation Agency			Date	SEPTEMBER '90	Total 11/139
BMA Bangkok Metropolitan Administration					



Intersection Equipments List		
Intersection No. 18		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Relay Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	3
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	4
10	Signal Pole Type B	8
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	7
14	Terminal 20 p	5
15	Signal Head 3 Aspects (200mm x 3)	4
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	8
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	4
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mast	10
25	Target Board for 3 Aspects	4
26	Target Board for 4 Aspects	8
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (1")	148.5
29	Steel Conduit 100 mm (1")	-
30	Steel Conduit 38 mm	-
31	Steel Conduit 28 mm	8
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	148.5
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	8
36	Handhole Type C	7
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	44.5
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	80
41	Signal Cable 20c (2 sq. mm)	114
42	Power Cable	5
43	Cable Splicing Kit	-
44	Remove Existing Signal Pole and Heads (Multi-arm Type)	-
45	Remove Existing Signal Pole and Heads (Pedestrian Type)	10
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mast	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (6V 5.5 sq. mm x 1c)	5

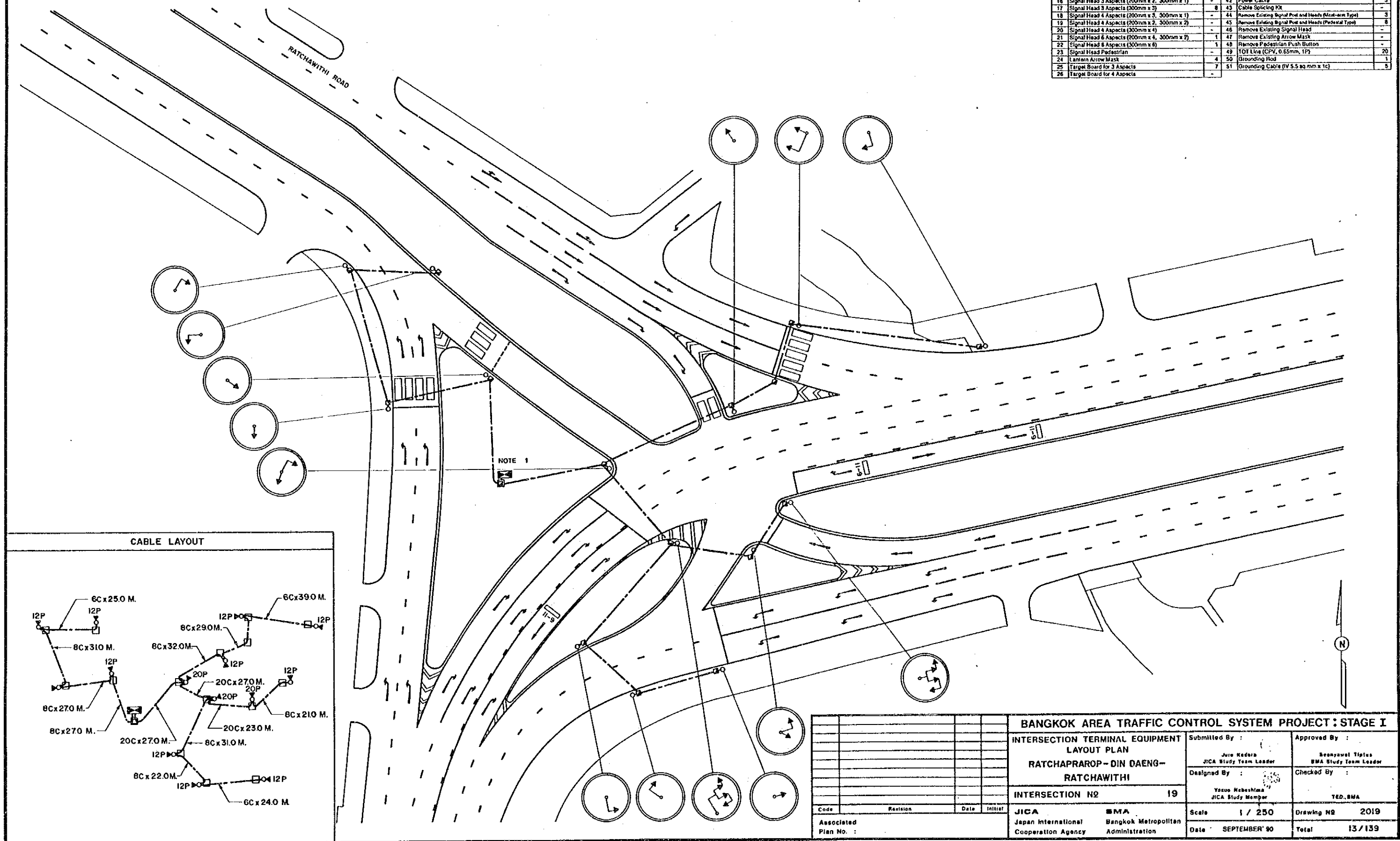


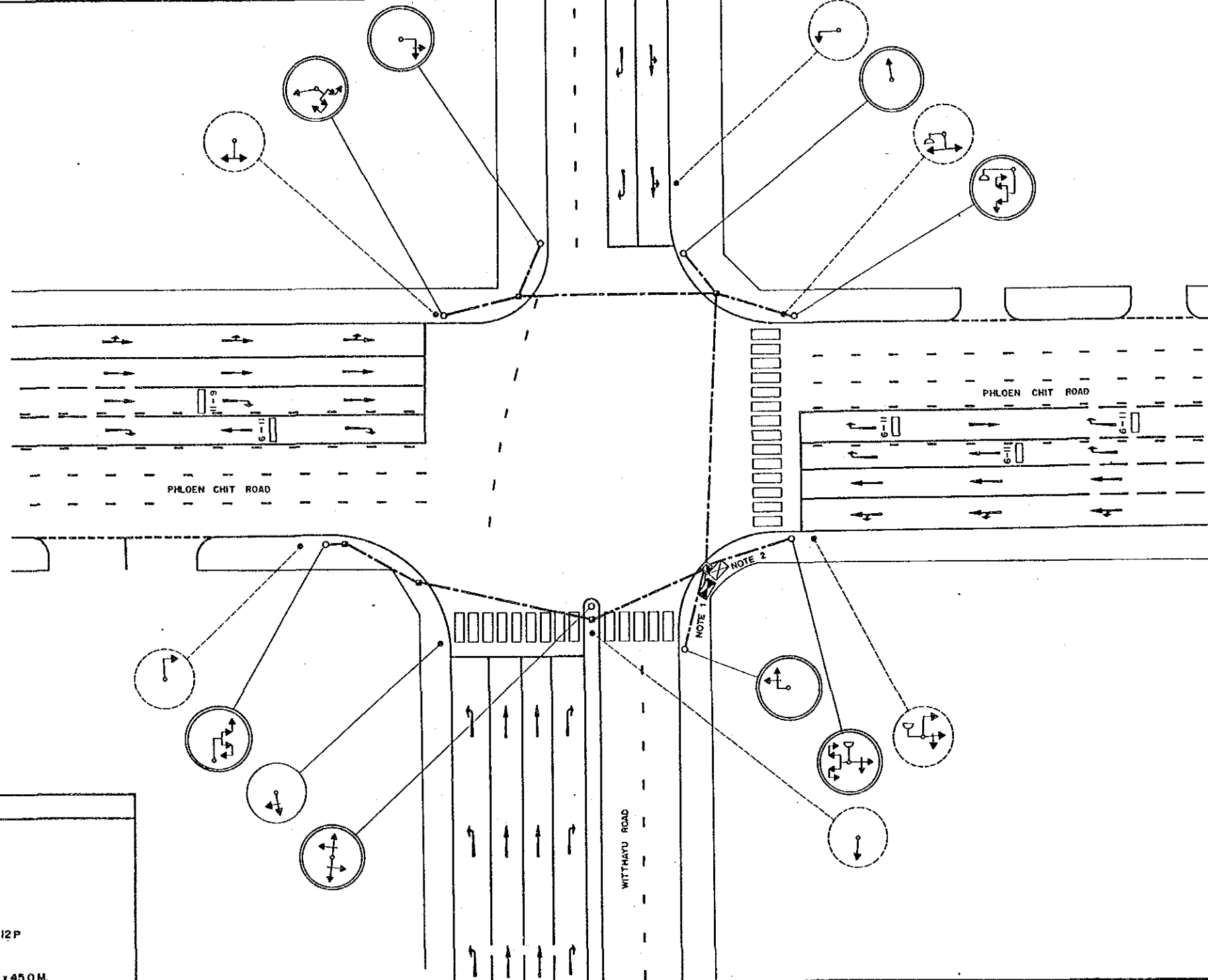
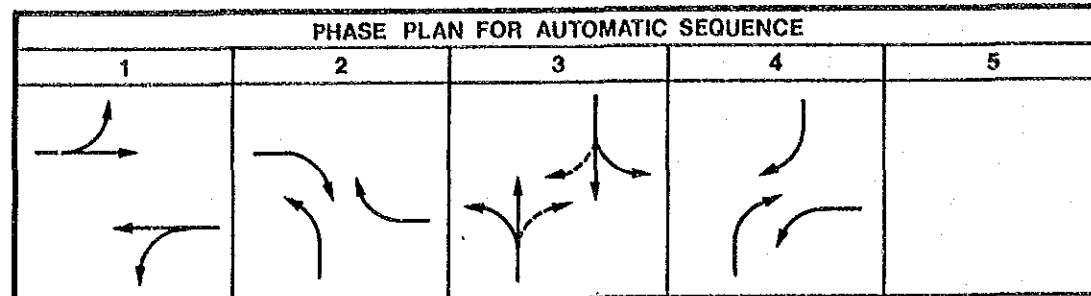
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
PHAYA THAI - PHETCHABURI		Juro Kodera JICA Study Team Leader	Boonyawat Tiplus BMA Study Team Leader
INTERSECTION NO 18		Designed By :	Checked By :
		Yasuo Nabeshima JICA Study Member	TEO, BMA
Code	Revision	Date	Initial
Associated Plan No. :			
JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration	Scale 1 / 250	Drawing No 2018
		Date SEPTEMBER '90	Total 12 / 139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5

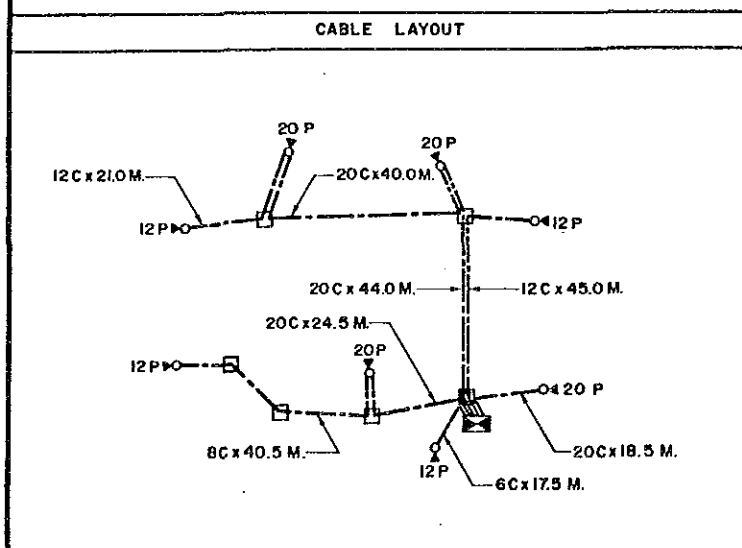
NOTE: Existing local controller, all signal poles and heads (not shown in this drawing) are to be removed.

Intersection Equipments List					
Intersection No. 19					
ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment	Qty.
1	Local Controller	-	27	Target Board for 6 Aspects	1
2	Railroad Pre-emption Contact Unit	-	28	PVC Conduit 100 mm (4")	248
3	Padmount Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")	-
4	Solid State Relay Unit	10	30	Steel Conduit 39 mm	-
5	Pie-Processor of Detector Pulse	1	31	Steel Conduit 28 mm	5
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement	-
7	TOU Time Box	1	33	Install Conduit under Concrete Pavement or Sidewalk	248
8	Remove Existing Controller	1	34	Install Conduit under Right	-
9	Signal Pole Type A	9	35	Install Conduit on Riser Support Pole	5
10	Signal Pole Type B	5	36	Handhole Type C	15
11	Signal Pole Type C	-	37	Handhole Type D	1
12	Signal Pole Type D	-	38	Signal Cable 6c (2 sq mm)	85
13	Terminal 12p	11	39	Signal Cable 8c (2 sq mm)	220
14	Signal Head 3 Aspects (300mm x 5)	3	40	Signal Cable 12c (2 sq mm)	-
15	Signal Head 3 Aspects (300mm x 2, 300mm x 1)	7	41	Signal Cable 20c (2 sq mm)	77
17	Signal Head 3 Aspects (300mm x 3)	-	42	Power Cable	5
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-	43	Cable Splicing Kit	-
19	Signal Head 4 Aspects (300mm x 2, 300mm x 2)	-	44	Remove Existing Signal Post and Heads (Post-arm Type)	3
20	Signal Head 4 Aspects (300mm x 4)	-	45	Remove Existing Signal Post and Heads (Pedestal Type)	8
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	1	46	Remove Existing Signal Head	-
22	Signal Head 6 Aspects (300mm x 6)	1	47	Remove Existing Arrow Mask	-
23	Signal Head Pedestrian	23	48	Remove Pedestrian Push Button	-
24	Lantern Arrow Mask	4	49	TOU Line (CPV, 0.65mm, 1/2)	20
25	Target Board for 3 Aspects	-	50	Grounding Rod	1
26	Target Board for 4 Aspects	7	51	Grounding Cable (IV 5.5 sq mm x 1c)	5

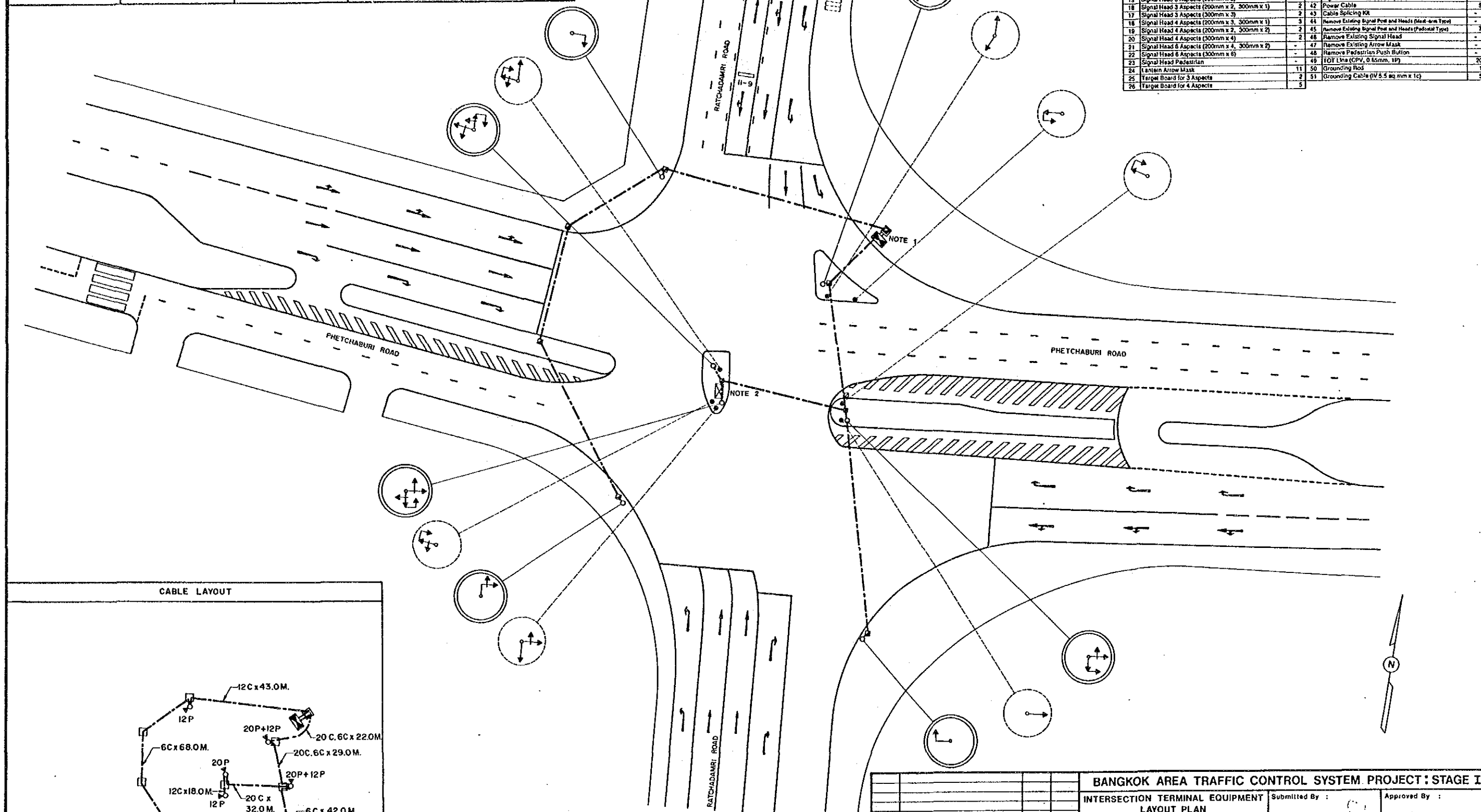
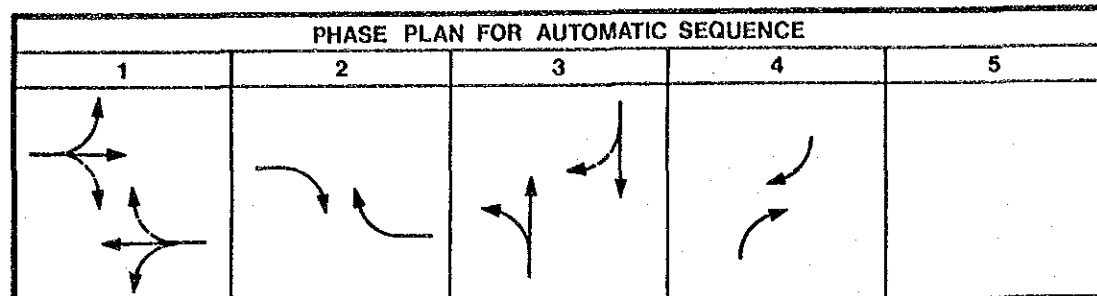




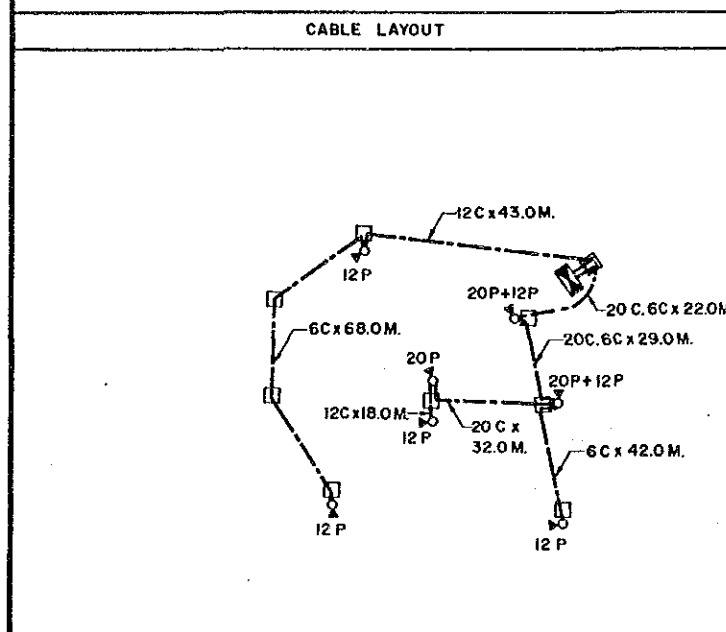
Intersection Equipments List		
Intersection No. 20		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	4
5	Pre-Processor of Detector Pulses	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	4
10	Signal Pole Type B	4
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	4
14	Terminal 20 p	4
15	Signal Head 3 Aspects (200mm x 3)	2
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	3
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	2
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	2
22	Signal Head 6 Aspects (300mm x 6)	2
23	Signal Head Pedestrian	-
24	Lensless Arrow Mask	13
25	Target Board for 3 Aspects	2
26	Target Board for 4 Aspects	3
27	Target Board for 6 Aspects	2
28	PVC Conduit 100 mm (4")	143.5
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	143.5
34	Install Conduit under Road	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	4
37	Handhole Type D	1
38	Signal Cable 6c (2 sq mm)	17.5
39	Signal Cable 8c (2 sq mm)	40.5
40	Signal Cable 17c (2 sq mm)	65
41	Signal Cable 20c (2 sq mm)	127
42	Power Cable	5
43	Cable Splicing Kit	-
44	Remove Existing Signal Post and Heads (Road-view Type)	5
45	Remove Existing Signal Post and Heads (Pedestrian Type)	1
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq.m.m x 1c)	5



BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
WITTHAYU - PHLOEN CHIT			Juro Kodera JICA Study Team Leader	Weonyawat Tiptua BMA Study Team Leader	
INTERSECTION NO 20			Designed By :	Checked By :	
			Yasuo Mabeashim JICA Study Member	TED, BMA	
Code	Revision	Date	Initial	Scale	Drawing No
Associated Plan No. :				1 / 250	2020
JICA Japan International Cooperation Agency		BMA Bangkok Metropolitan Administration		Date	Total
				SEPTEMBER '90	14 / 139

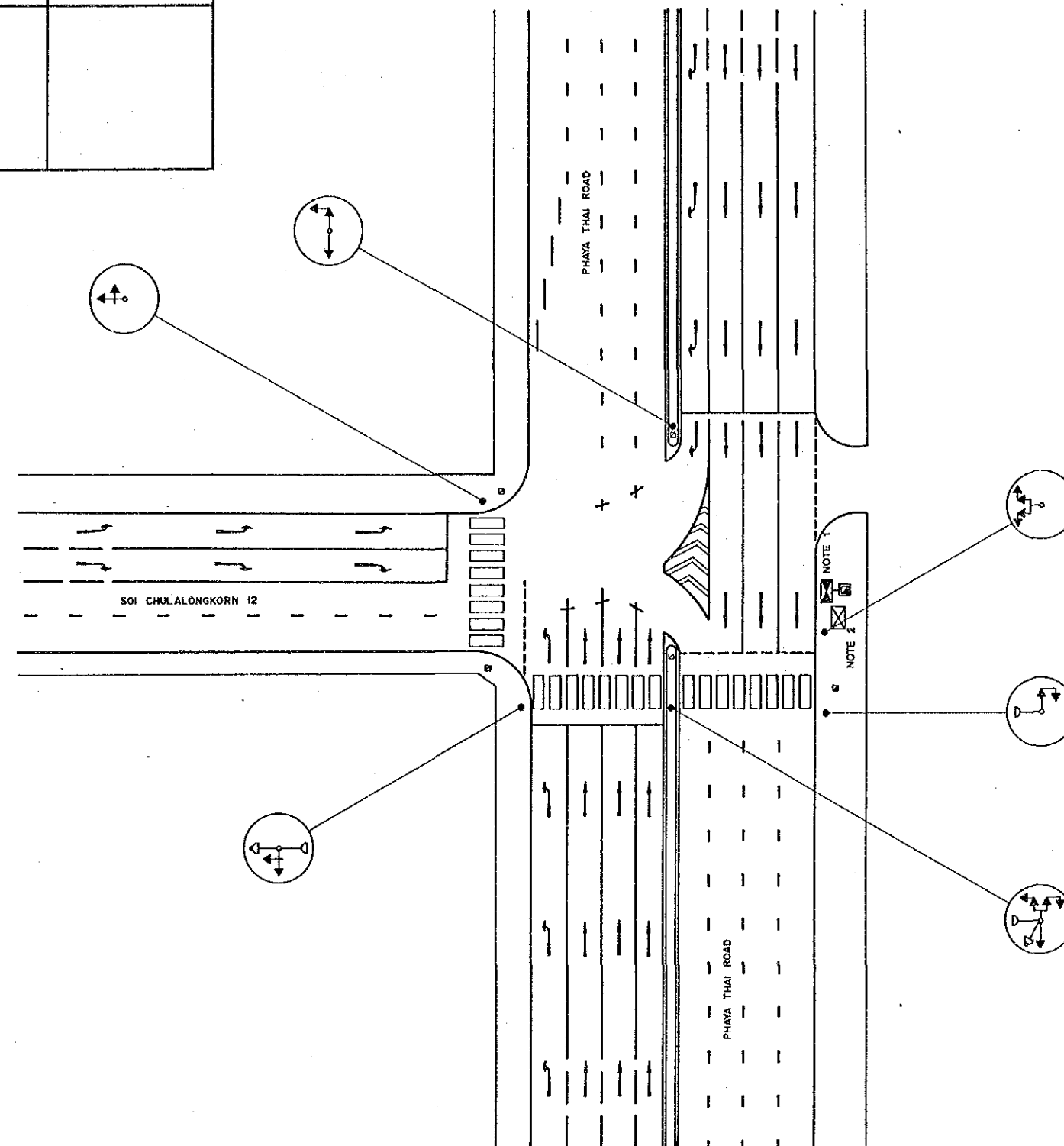


Intersection Equipments List					
Intersection No. 22					
ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment	Qty.
1	Local Controller	1	27	Target Board for 8 Aspects	182
2	Railroad Pre-emption Control Unit	-	28	PVC Conduit 100 mm (4")	-
3	Pedestrian Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")	-
4	Solid State Relay Unit	3	30	Steel Conduit 39 mm	5
5	Pre-Processor of Detector Pulse	1	31	Steel Conduit 28 mm	5
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement	-
7	TOT Line Box	1	33	Install Conduit under Concrete Pavement or Sidewalk	153
8	Remove Existing Controller	1	34	Install Conduit under Road	-
9	Signal Pole Type A	4	35	Install Conduit on Riser Support Pole	10
10	Signal Pole Type B	-	36	Handhole Type C	6
11	Signal Pole Type C	-	37	Handhole Type D	1
12	Signal Pole Type D	-	38	Signal Cable 8c (2 sq. mm)	181
13	Terminal 12 p.	4	39	Signal Cable 8c (2 sq. mm)	-
14	Terminal 20 p.	3	40	Signal Cable 12c (2 sq. mm)	61
15	Signal Head 3 Aspects (200mm x 3)	-	41	Signal Cable 20c (2 sq. mm)	63
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	2	42	Power Cable	5
17	Signal Head 3 Aspects (300mm x 3)	2	43	Cable Splicing Kit	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	3	44	Remove Existing Signal Post and Heads (Post-arm Type)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	2	45	Remove Existing Signal Post and Heads (Pedestal Type)	7
20	Signal Head 4 Aspects (300mm x 4)	2	46	Remove Existing Signal Head	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-	47	Remove Existing Arrow Mask	-
22	Signal Head 6 Aspects (300mm x 6)	-	48	Remove Pedestrian Push Button	-
23	Signal Head Pedestrian	-	49	TOT Line (CPV, 0.65mm, 1P)	20
24	Lantern Arrow Mask	11	50	Grounding Rod	1
25	Target Board for 3 Aspects	2	51	Grounding Cable (PVC 5.5 sq. mm x 1c)	5
26	Target Board for 4 Aspects	5			



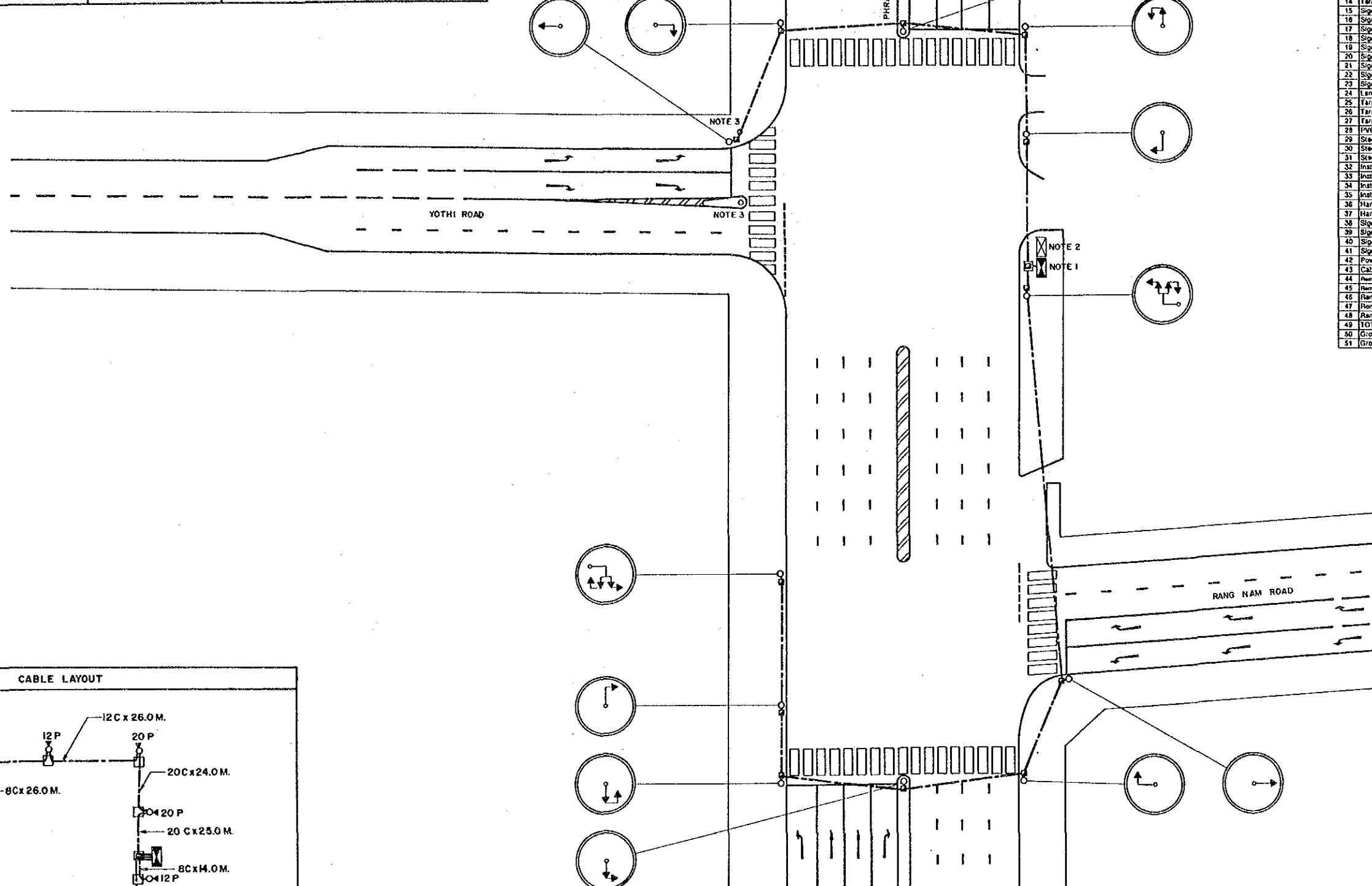
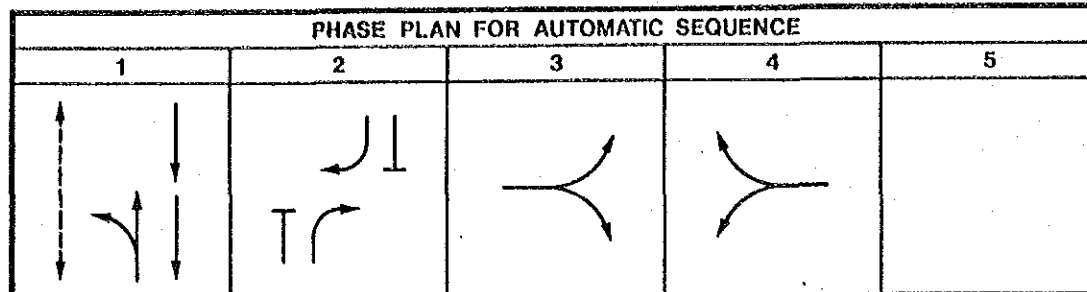
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I				
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN RATCHAPRAROP - RATCHADAPRI - PHETCHABURI		Submitted By :	Approved By :	
		Juro Kodera JICA Study Team Leader	Boonyawat Tiplus BMA Study Team Leader	
INTERSECTION NO 22		Designed By :	Checked By :	
		Yasue Nabeshima JICA Study Member	TED.BMA	
Associated Plan No. :	JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration	Scale 1 / 250	Drawing No 2022
			Date SEPTEMBER '90	Total 15 / 139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5

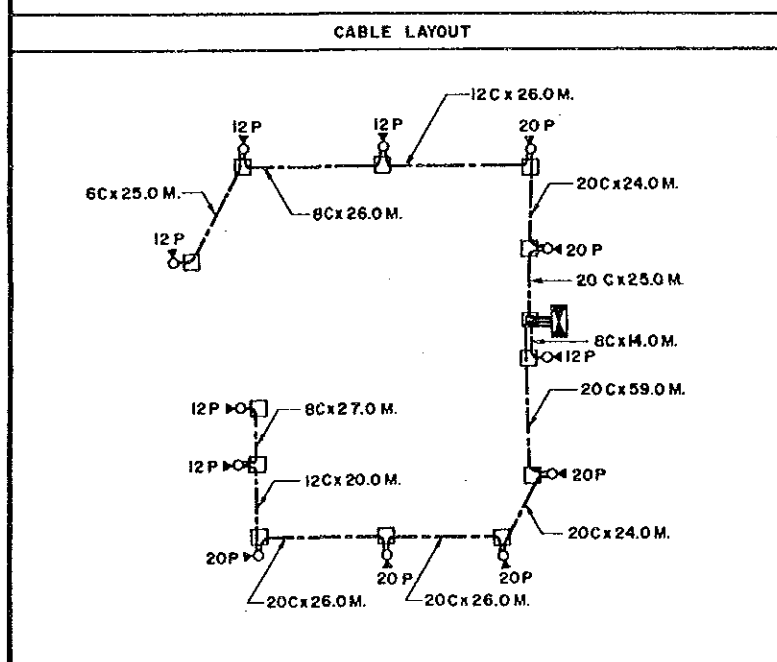


Intersection Equipments List		
Intersection No. 24		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	3
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mast	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	6
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 50 mm	-
31	Steel Conduit 25 mm	6
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	8
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Mast-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestal Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mast	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	3

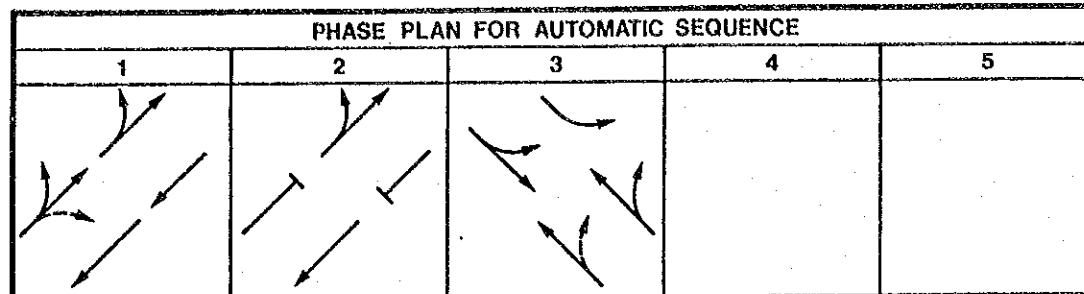
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By : Jiro Kodera JICA Study Team Leader	Approved By : Boonyarat Tiptua BMA Study Team Leader
PHAYA THAI - SOICHULALONGKORN 12		Designed By : Yasuo Kabeshima JICA Study Member	Checked By : TEO, BMA
INTERSECTION NO 24			
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency BMA Bangkok Metropolitan Administration	
Scale		1 / 250	Drawing NO 2024
Date		SEPTEMBER '90	Total 16 / 139



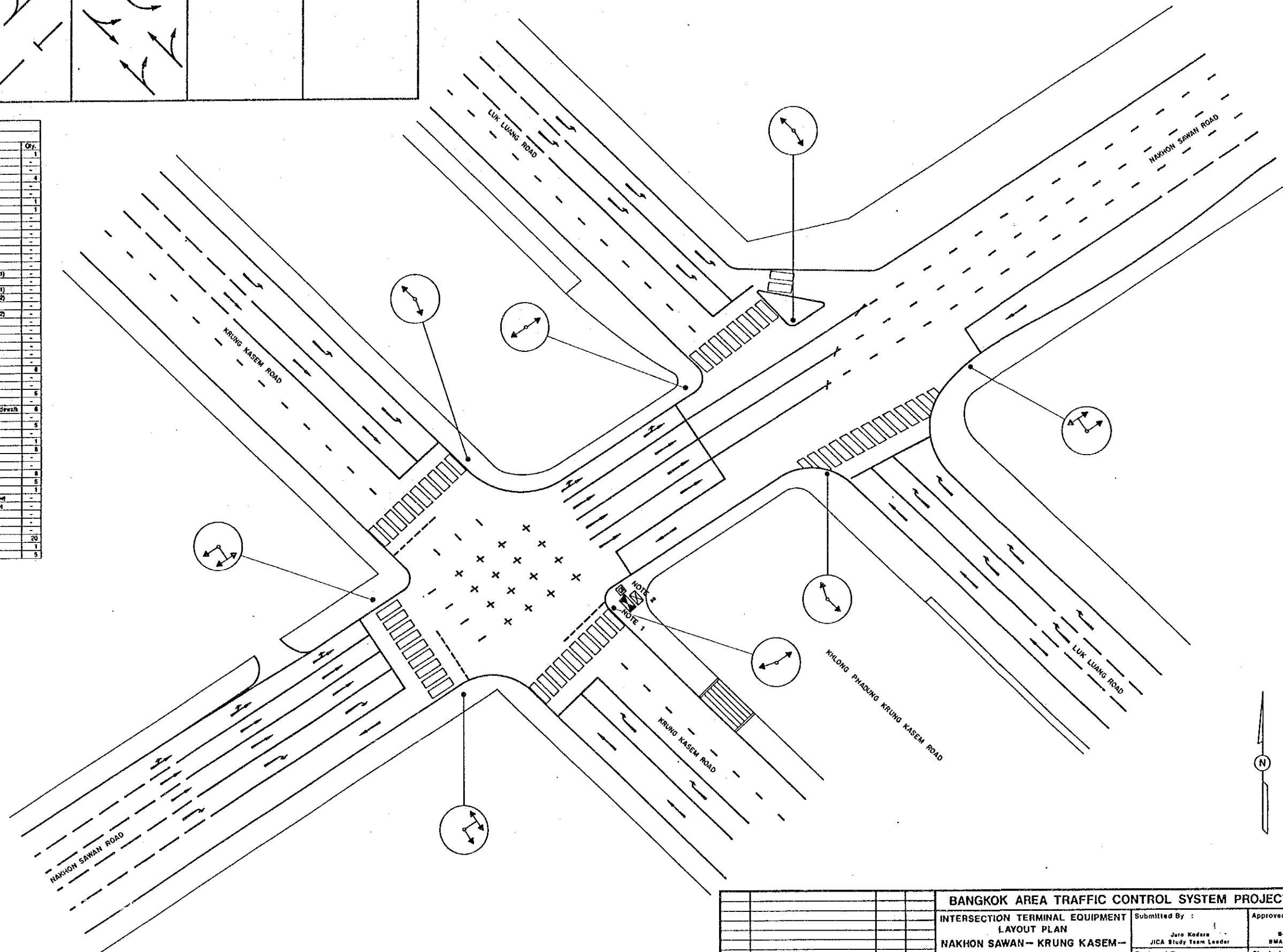
Intersection Equipments List		
Intersection No. 25		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	4
5	Pre-Processor of Detector Pulses	1
6	Supply Power Switch Box with Power Breaker	1
7	TOT Line Box	1
8	Remove Existing Controller	-
9	Signal Pole Type A	8
10	Signal Pole Type B	8
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	6
14	Terminal 20 p	6
15	Signal Head 3 Aspects (200mm x 3)	2
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	4
17	Signal Head 3 Aspects (300mm x 3)	4
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	2
23	Signal Head Pedestrian	-
24	Lensless Arrow Mask	8
25	Target Board for 3 Aspects	6
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	205
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	5
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	205
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	10
36	Handhole Type C	12
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	25
39	Signal Cable 8c (2 sq. mm)	67
40	Signal Cable 12c (2 sq. mm)	46
41	Signal Cable 20c (2 sq. mm)	184
42	Power Cable	20
43	Cable Splicing Kit	-
44	Remove Existing Signal Post and Heads (Main-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	2
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (1/4 5.5 sq. mm x 1c)	5



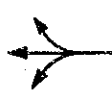
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
PHAYA THAI-YOTHI-RANG NAM		Jura Kodera JICA Study Team Leader	Boonyawat Tiglav BMA Study Team Leader
INTERSECTION NO 25		Designed By :	Checked By :
		Yasuo Kobeshima JICA Study Member	TED.BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration
		Scale	Drawing No
		1 / 250	2025
		Date	Total
		SEPTEMBER '80	17 / 139

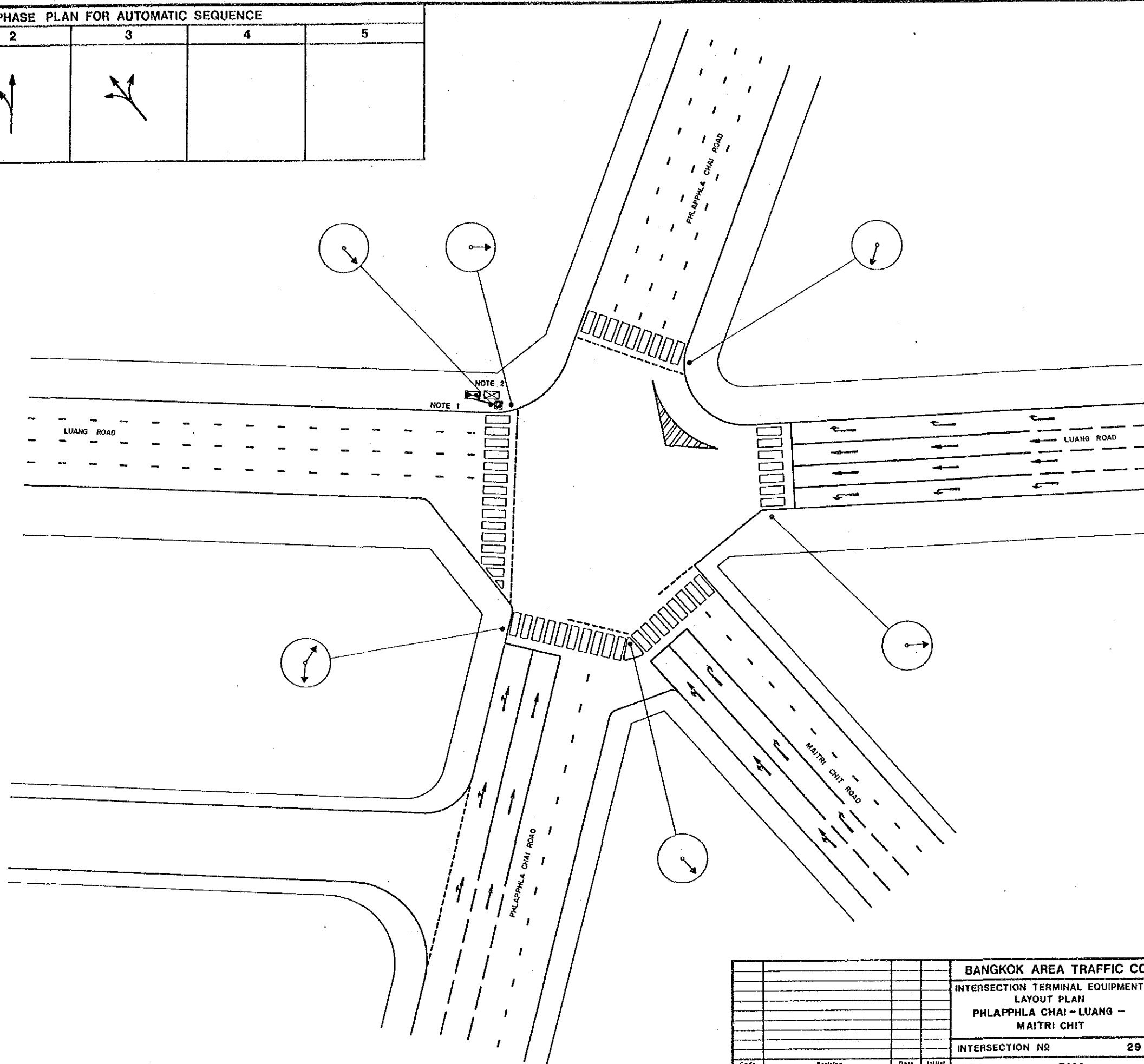


Intersection Equipments List		
Intersection No. 26		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Gold State Relay Unit	4
5	Pre-Processor of Detector Pulse	-
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 75 mm	-
31	Steel Conduit 25 mm	6
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 8c (2 sq. mm)	8
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Multi-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestal Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	5



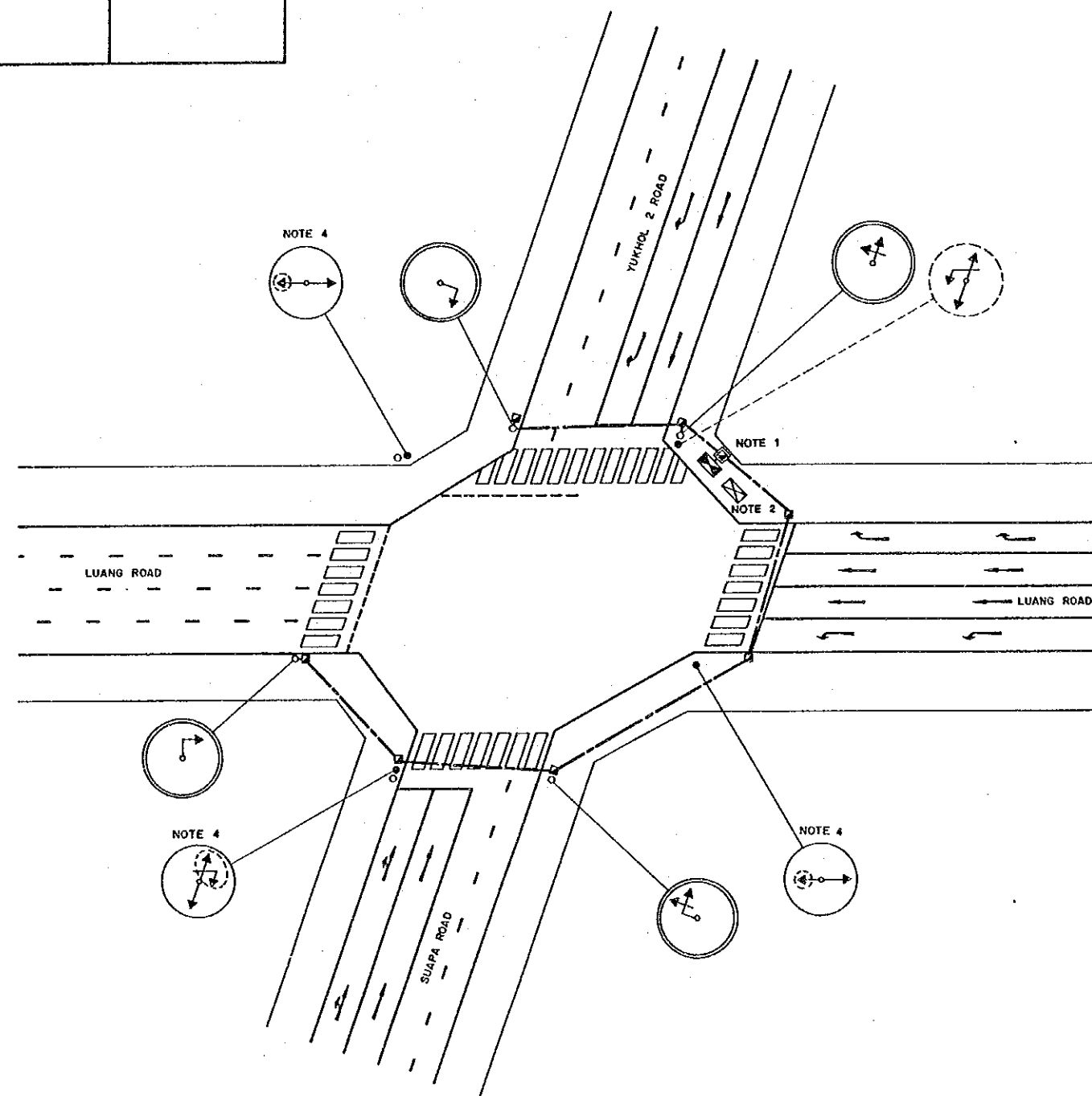
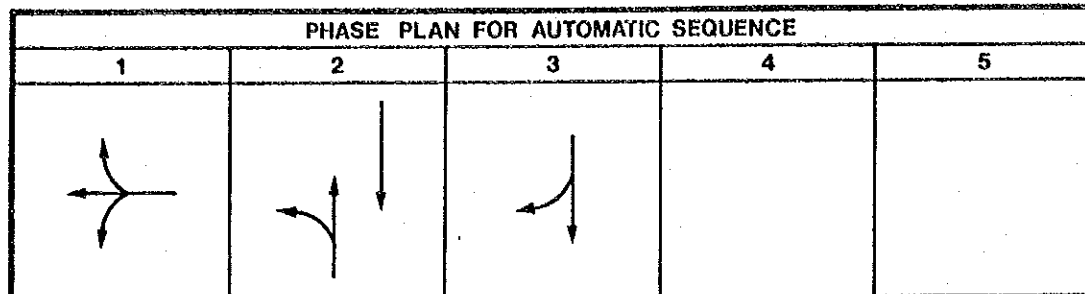
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
NAKHON SAWAN - KRUNG KASEM - LUK LUANG			Jura Kodera JICA Study Team Leader	Boonyawat Tijsue BMA Study Team Leader	
INTERSECTION NO. 26			Designed By :	Checked By :	
			Yasue Hasehime JICA Study Member	TED.BMA	
Code	Revision	Date	Initial	Scale	Drawing No.
Associated Plan No. :				1 / 250	2026
JICA Japan International Cooperation Agency		BMA Bangkok Metropolitan Administration		Date	Total
				SEPTEMBER '90	18 / 139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5
				



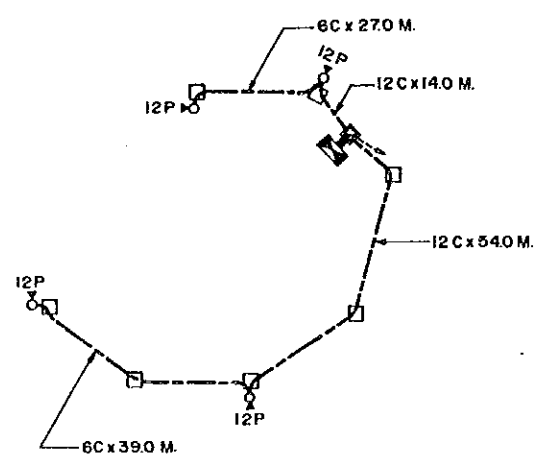
Intersection Equipments List		
Intersection No. 29		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	-
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mast	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Mid-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestal Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mast	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	5

BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
PHLAPPHLA CHAI - LUANG - MAITRI CHIT		Juro Kodera JICA Study Team Leader	Boonyarat Tiplue BMA Study Team Leader
INTERSECTION NO 29		Designed By :	Checked By :
		Yasun Maheshim JICA Study Member	TED, BMA
Code	Revision	Date	Initial
Associated Plan No. :			
JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration	Scale 1 / 250	Drawing NR 2029
		Date SEPTEMBER '90	Total 19 / 139

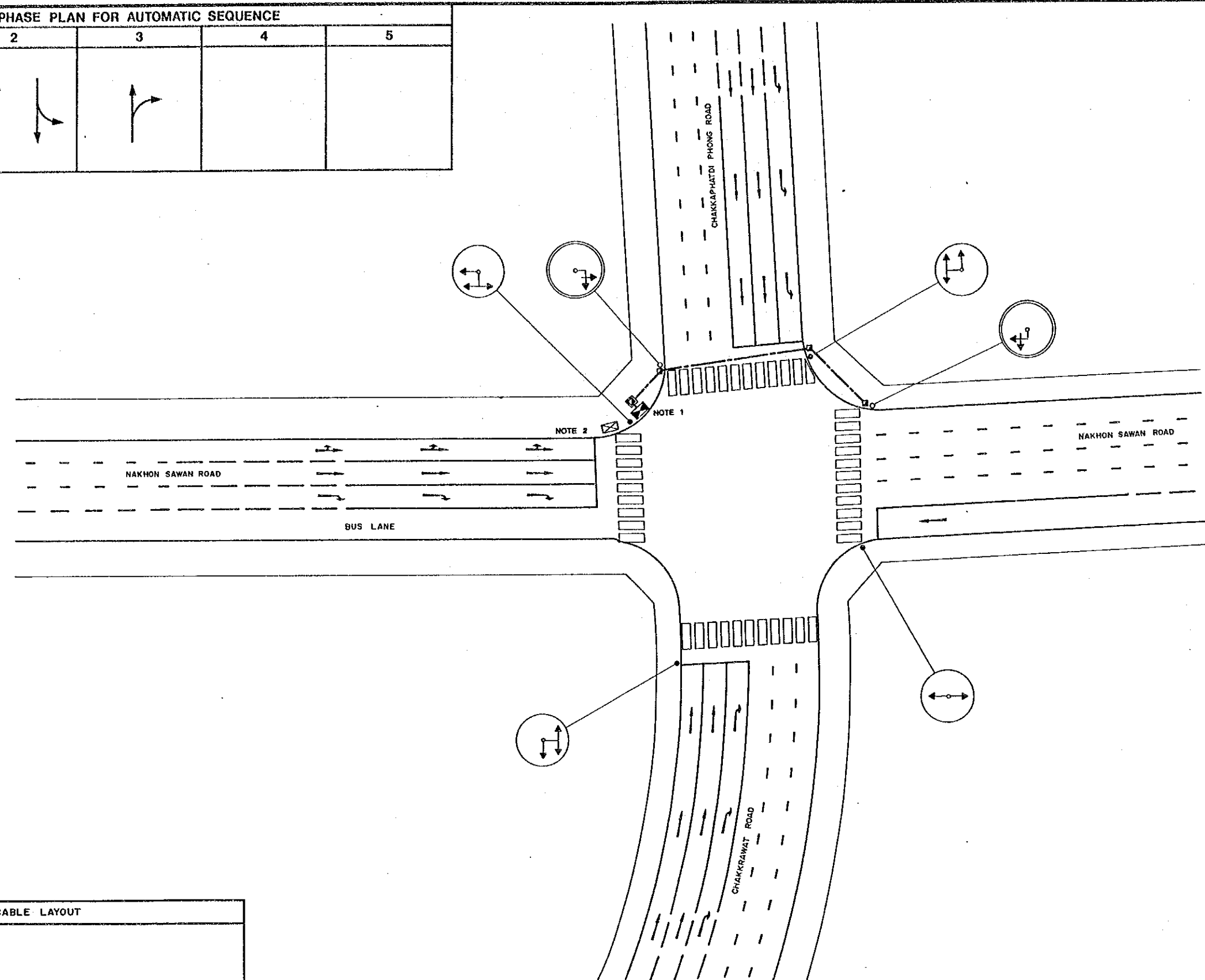
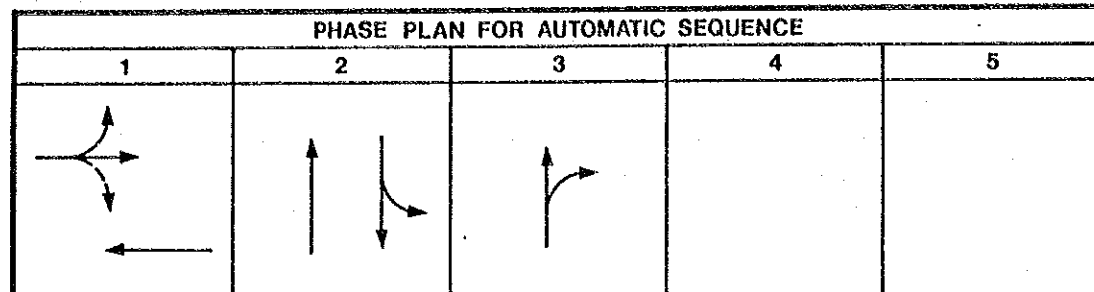


Intersection Equipment List		
Intersection No. 30		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	-
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	1
10	Signal Pole Type B	1
11	Signal Pole Type C	1
12	Signal Pole Type D	-
13	Terminal 12 p	4
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	2
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	1
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lensless Arrow Mask	2
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	1
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	90
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 50 mm	-
31	Steel Conduit 25 mm	8
32	Install Conduit under Asphalt Pavement	36
33	Install Conduit under Concrete Pavement or Sidewalk	63
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	8
36	Handhole Type C	7
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	66
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	70
41	Signal Cable 20c (2 sq. mm)	-
42	Power Cable	6
43	Cable Splicing Kit	1
44	Remove Existing Signal Pole and Heads (Main-arm Type)	-
45	Remove Existing Signal Pole and Heads (Pedestrian Type)	1
46	Remove Existing Signal Head	3
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (V 5.5 sq. mm x 1c)	5

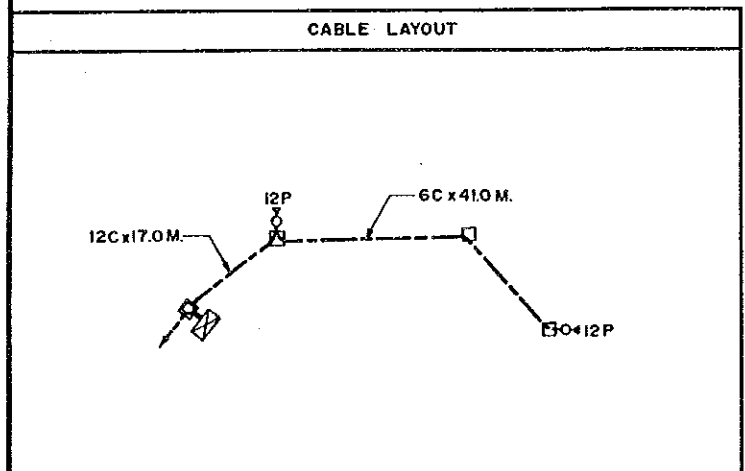
CABLE LAYOUT



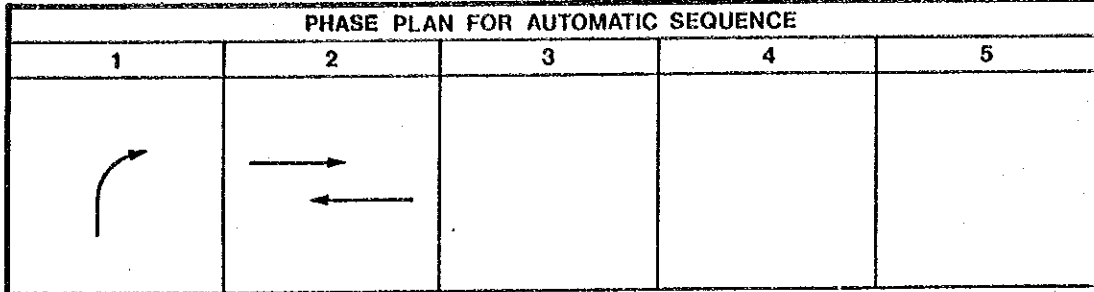
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
SUAPA-LUANG-YUKHOL 2		Jura Kodara JICA Study Team Leader	Boonyawat Tiptus BMA Study Team Leader
INTERSECTION NO 30		Designed By :	Checked By :
		Yasuo Nabeshima JICA Study Member	TED, BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA	BMA
		Japan International Cooperation Agency	Bangkok Metropolitan Administration
		Scale	1 / 250
		Date	SEPTEMBER '90
		Drawing No	2030
		Total	20 / 139



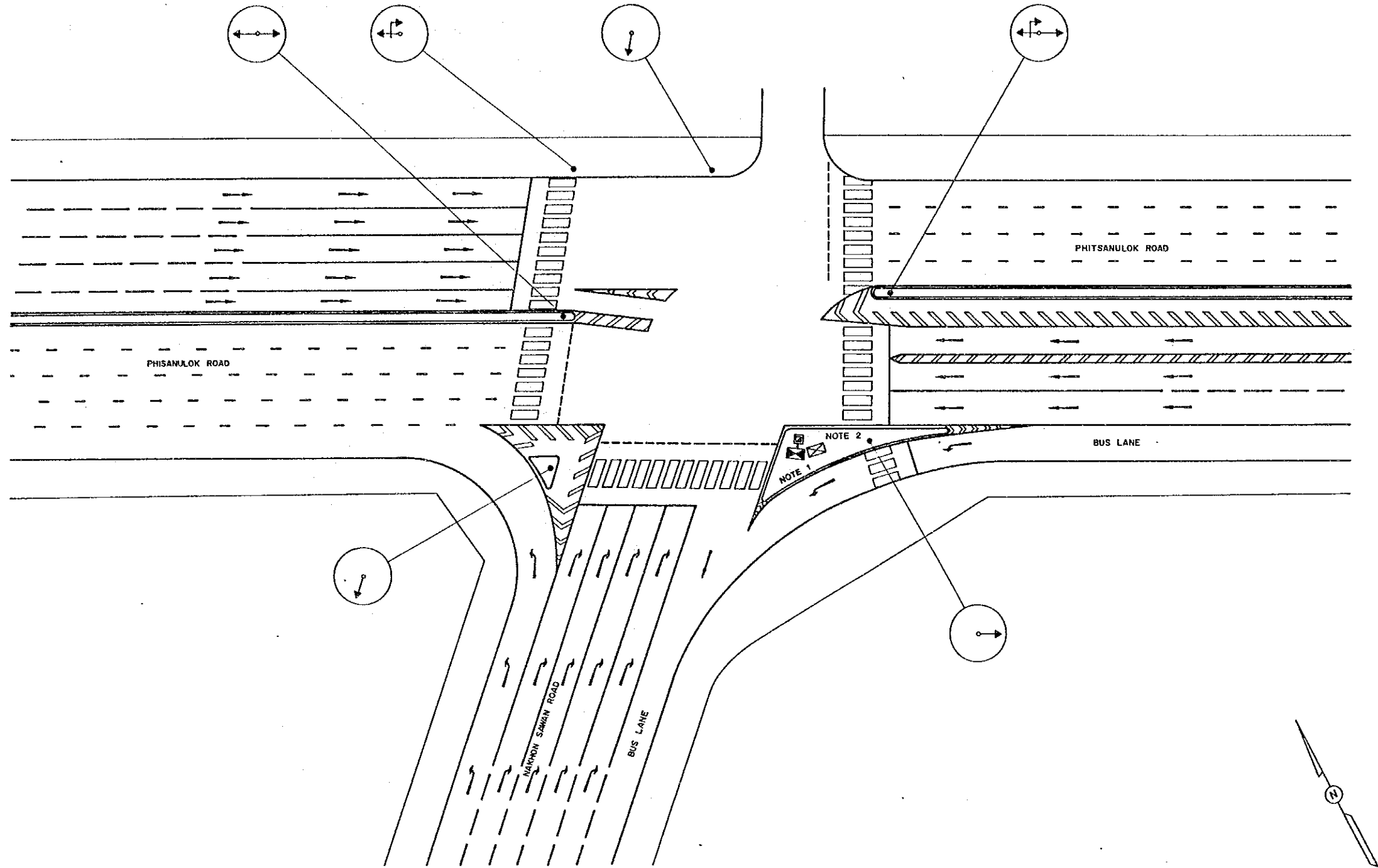
Intersection Equipments List		
Intersection No. 32		
ITEM	Name of Equipment	Qty.
1	Local Controller	-
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	-
6	Supply Power Switch Box with Power Breaker	-
7	TOF Line Box	1
8	Remove Existing Controller	-
9	Signal Pole Type A	1
10	Signal Pole Type B	2
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p.	2
14	Terminal 20 p.	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	2
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	2
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	43
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	43
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6C (2 sq. mm)	41
39	Signal Cable 8C (2 sq. mm)	-
40	Signal Cable 12C (2 sq. mm)	17
41	Signal Cable 20C (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (300mm Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOF Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 12)	5



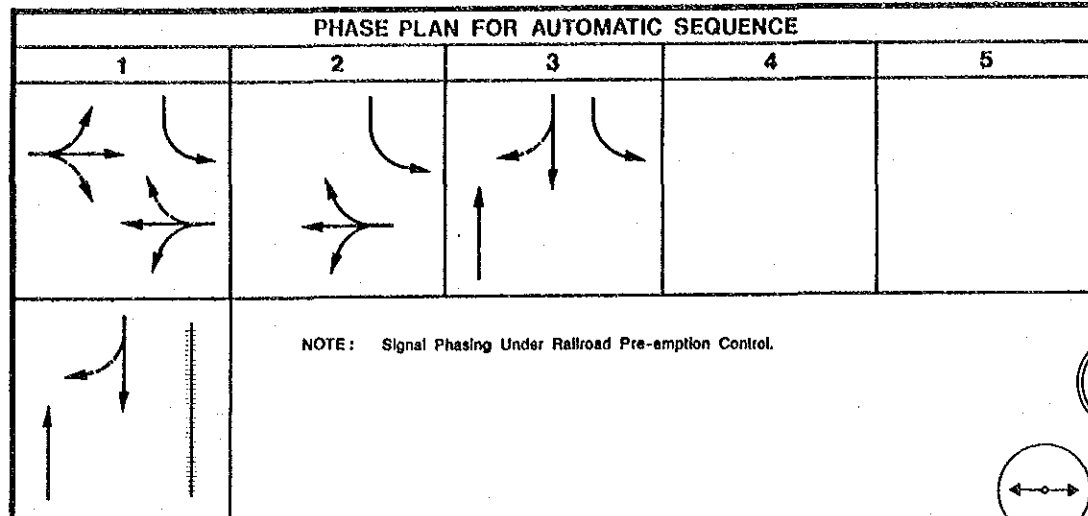
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
CHAKKAPHATDI PHONG-NAKHON SAWAN			Juro Kodera JICA Study Team Leader	Wongswat Tiplua BMA Study Team Leader	
INTERSECTION N2 32			Designed By :	Checked By :	
			Yasuo Nabeshima JICA Study Member	TED.BMA	
Code	Revision	Date	Initial	Scale	Drawing N2
Associated Plan No. :				1 / 250	2032
JICA Japan International Cooperation Agency			BMA Bangkok Metropolitan Administration	Date	Total
			SEPTEMBER '90	21 / 139	



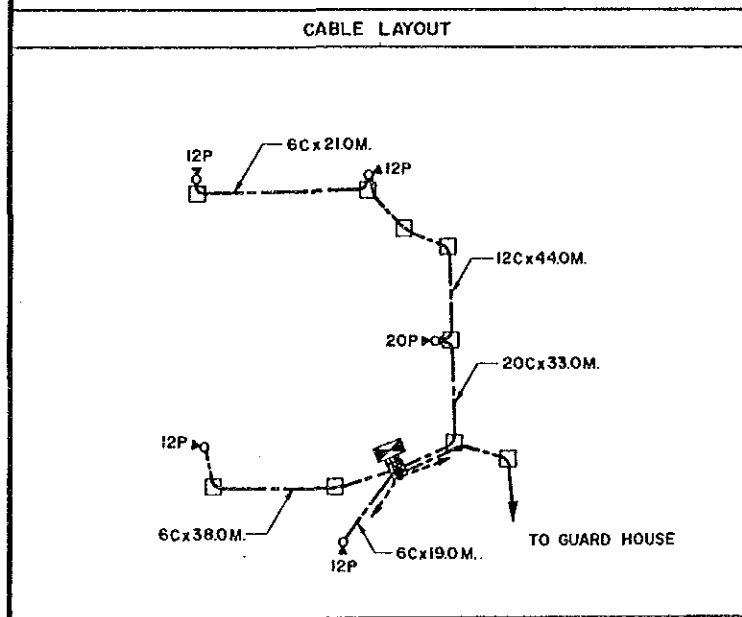
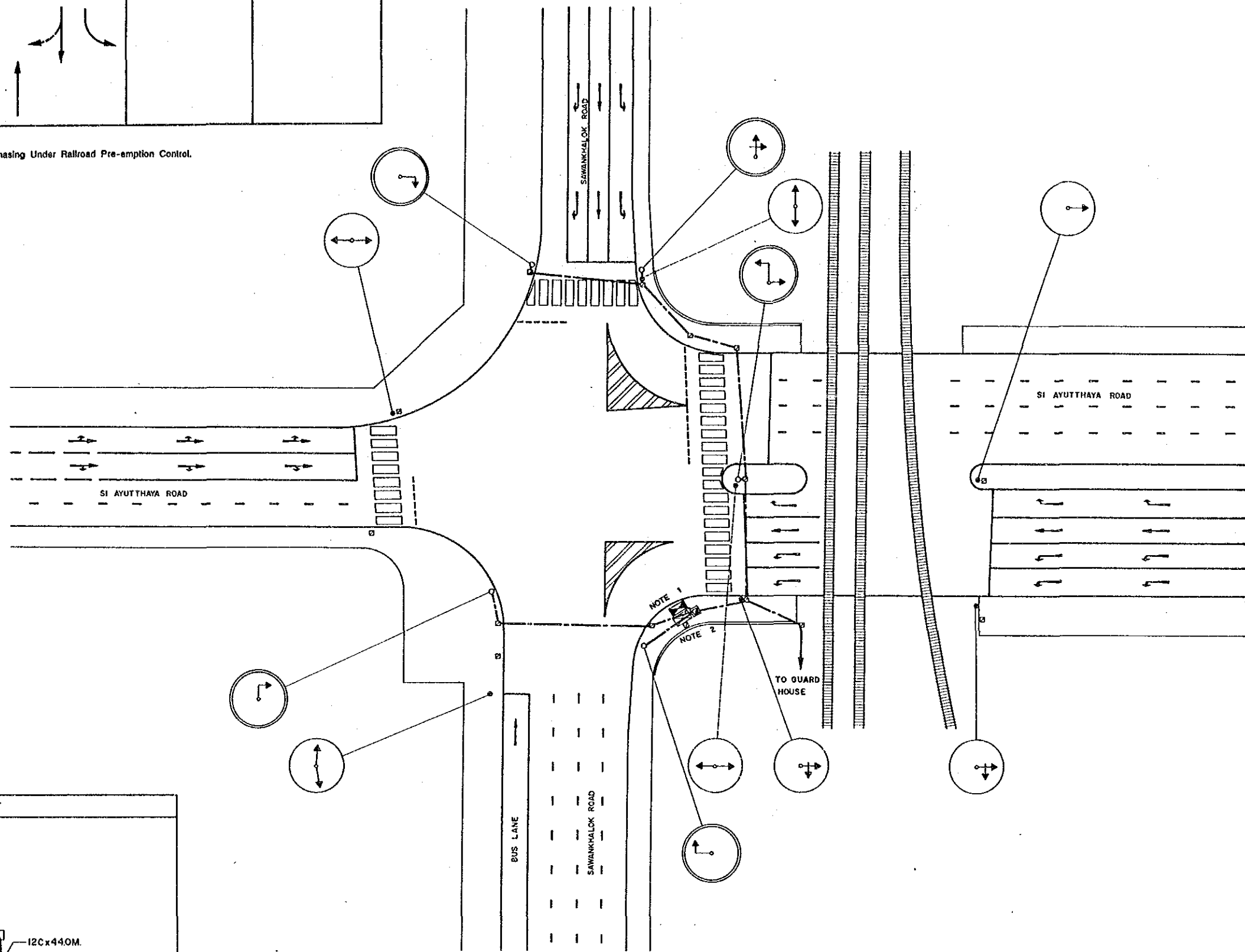
Intersection Equipments List		
Intersection No. 34		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Relayed Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 38 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	8
34	Install Conduit under Rail	-
35	Install Conduit on Piler Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 8c (2 sq.mm)	-
39	Signal Cable 8c (2 sq.mm)	-
40	Signal Cable 12c (2 sq.mm)	-
41	Signal Cable 20c (2 sq.mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Pole and Heads (Mast-arm Type)	-
45	Remove Existing Signal Pole and Heads (Pedestal Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (RV 5.5 sq.mm x 10)	5



BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN NAKHON SAWAN-PHITSANULOK INTERSECTION NO 34			Submitted By :	Approved By :	
			Juro Kodera JICA Study Team Leader	Boonyawat Tiptas BMA Study Team Leader	
			Designed By :	Checked By :	
			Yasuo Nabeshima JICA Study Member	TED, BMA	
Code	Revision	Date	Initial	Scale	Drawing No
Associated Plan No. :				1 / 250	2034
			JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration	Date SEPTEMBER '90
				Total	22 / 139

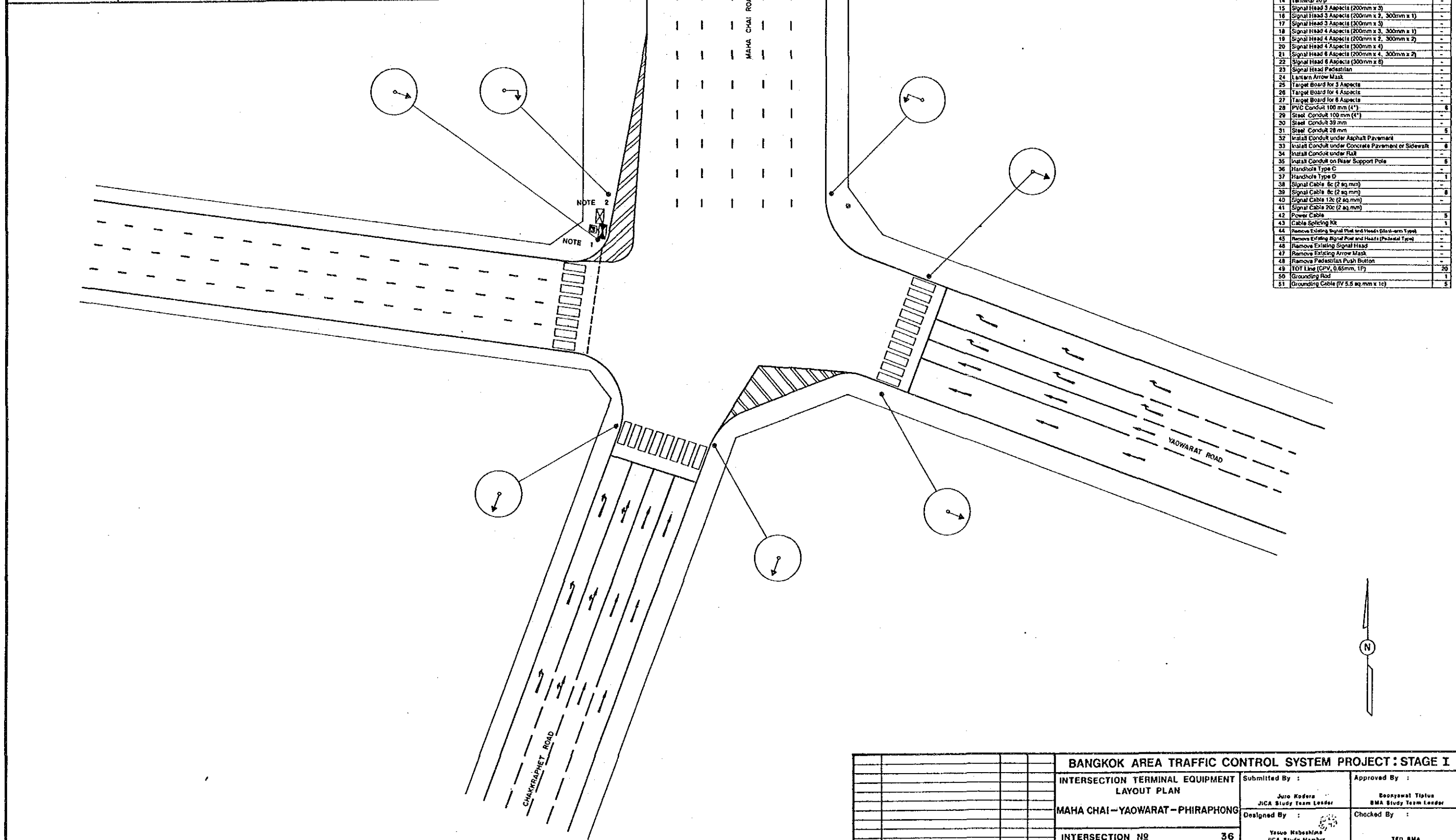


Intersection Equipments List		
Intersection No. 35		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	1
3	Pedestrian Push Button Interface Unit	1
4	Solid State Relay Unit	5
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	1
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	4
10	Signal Pole Type B	1
11	Signal Pole Type C	1
12	Signal Pole Type D	1
13	Terminal 12 p	4
14	Terminal 20 p	1
15	Signal Head 3 Aspects (200mm x 3)	1
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	1
17	Signal Head 3 Aspects (300mm x 3)	4
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	1
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	1
20	Signal Head 4 Aspects (300mm x 4)	1
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	1
22	Signal Head 6 Aspects (300mm x 6)	1
23	Signal Head Pedestrian	1
24	Lantern Arrow Mark	1
25	Target Board for 3 Aspects	1
26	Target Board for 4 Aspects	1
27	Target Board for 6 Aspects	1
28	PVC Conduit 100 mm (4")	101
29	Steel Conduit 100 mm (4")	1
30	Steel Conduit 39 mm	1
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	1
33	Install Conduit under Concrete Pavement or Sidewalk	101
34	Install Conduit under Rail	1
35	Install Conduit on Hazer Support Pole	5
36	Handhole Type C	1
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	105.5
39	Signal Cable 8c (2 sq. mm)	1
40	Signal Cable 12c (2 sq. mm)	44
41	Signal Cable 20c (2 sq. mm)	33
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Railroad Type)	1
45	Remove Existing Signal Post and Heads (Pedestrian Type)	2
46	Remove Existing Signal Head	1
47	Remove Existing Arrow Mark	1
48	Remove Pedestrian Push Button	1
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	5



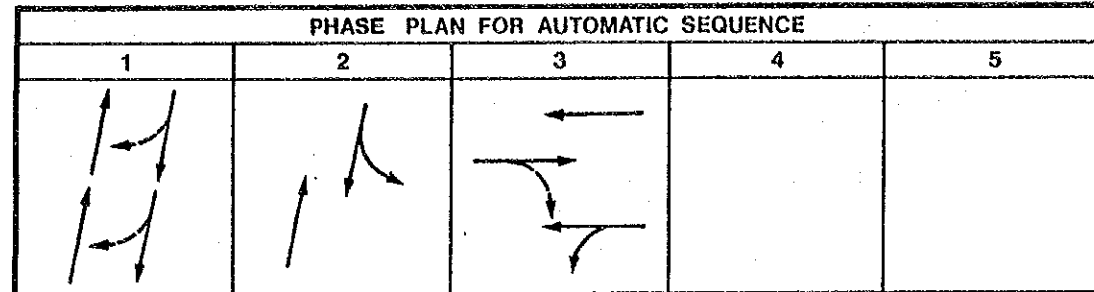
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
SAWANKHALOK - SI AYUTTHAYA			Juro Kodera JICA Study Team Leader	Boonyawat Tiptua BMA Study Team Leader	
INTERSECTION NO 35			Designed By :	Checked By :	
			Yasuo Mabeshima JICA Study Member	TED.BMA	
Code	Revision	Date	Initial	JICA	BMA
Associated Plan No. :			Japan International Cooperation Agency	Bangkok Metropolitan Administration	
			Scale	1 / 250	Drawing No 2035
			Date	SEPTEMBER '90	Total 23 / 139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
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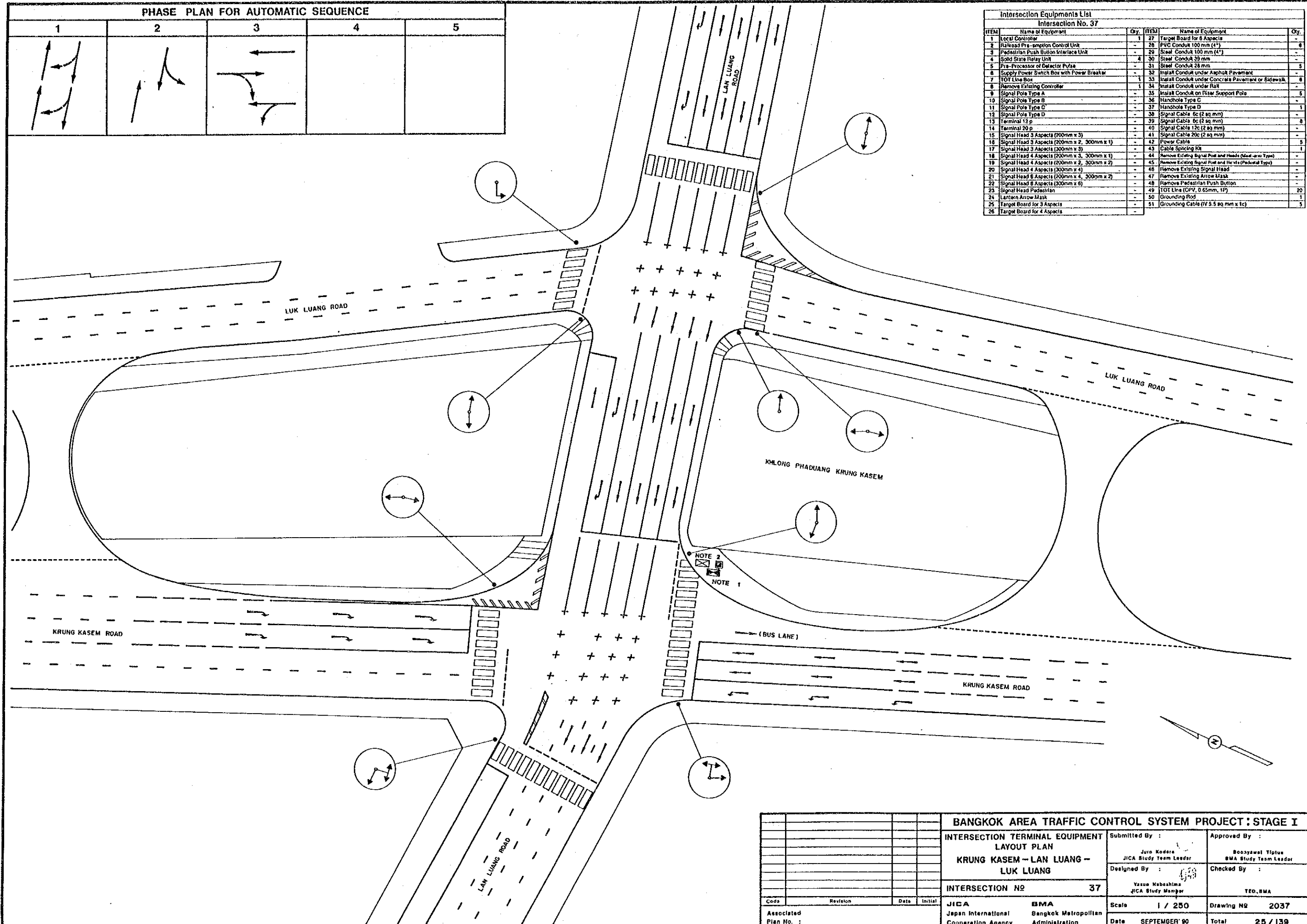


Intersection Equipments List		
Intersection No. 36		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	1
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	-
9	Signal Pole Type A	1
10	Signal Pole Type B	-
11	Signal Pole Type D	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lensless Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 38 mm	-
31	Steel Conduit 28 mm	-
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	8
34	Install Conduit under Road	-
35	Install Conduit on Near Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	-
39	Signal Cable 6c (2 sq. mm)	8
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	-
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Mast and Head (Black-arm Type)	-
45	Remove Existing Signal Pole and Head (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1F)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	5

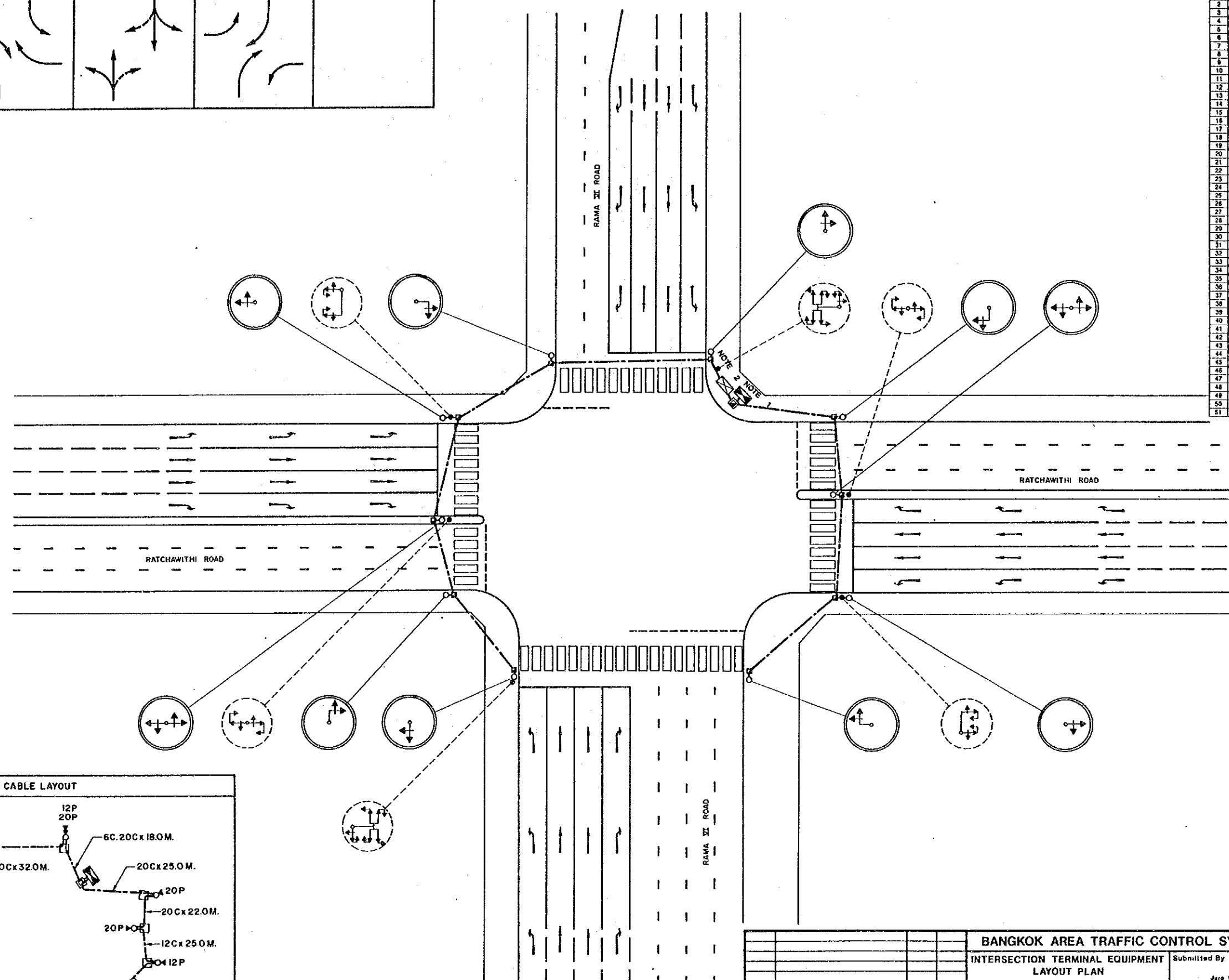
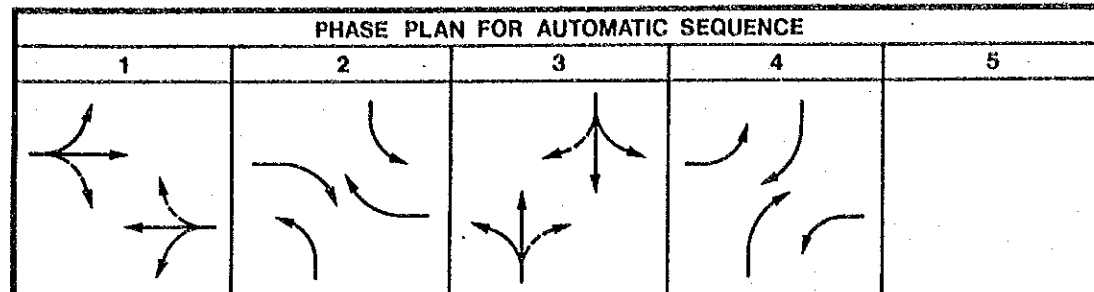
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN MAHA CHAI - YAWARAT - PHIRAPHONG INTERSECTION NO 36				Submitted By :	Approved By :		
				Juro Kodera JICA Study Team Leader	Boonyawat Tiptua BMA Study Team Leader		
				Designed By :	Checked By :		
				Yasuo Nabeshima JICA Study Member	TEO, BMA		
Code	Revision	Date	Initial	JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration	Scale 1 / 250	Drawing No 2036
Associated Plan No. :				Date SEPTEMBER '90	Total 24 / 139		



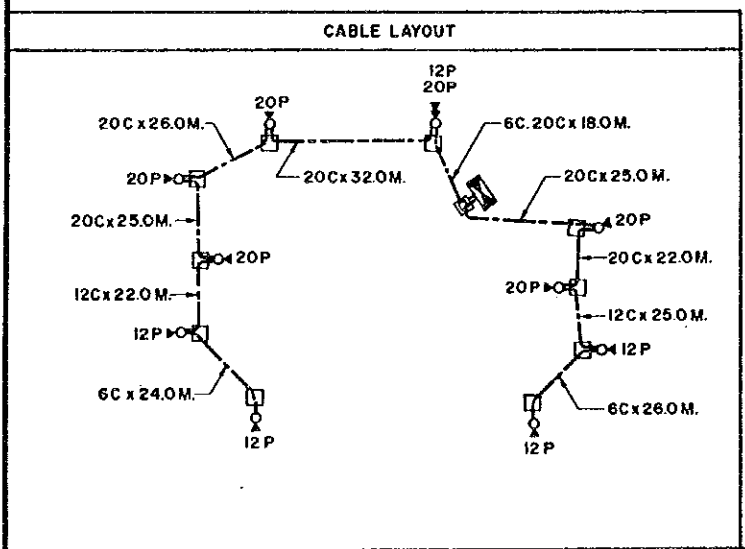
Intersection Equipments List				
Intersection No. 37				
ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment
1	Local Controller	1	27	Target Board for 6 Aspects
2	Railroad Pre-emption Control Unit	-	28	PVC Conduit 100 mm (4")
3	Pedestrian Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")
4	Speed State Relay Unit	-	30	Steel Conduit 39 mm
5	Pre-Processor of Detector Pulse	-	31	Steel Conduit 28 mm
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement
7	TOT Line Box	-	33	Install Conduit under Concrete Pavement or Sidewalk
8	Remove Existing Controller	1	34	Install Conduit under Rail
9	Signal Pole Type A	-	35	Install Conduit on Riser Support Pole
10	Signal Pole Type B	-	36	Handhole Type C
11	Signal Pole Type C	-	37	Handhole Type D
12	Signal Pole Type D	-	38	Signal Cable 6c (2 sq mm)
13	Terminal 12 p	-	39	Signal Cable 6c (2 sq mm)
14	Terminal 20 p	-	40	Signal Cable 12c (2 sq mm)
15	Signal Head 3 Aspects (200mm x 3)	-	41	Signal Cable 20c (2 sq mm)
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-	42	Power Cable
17	Signal Head 3 Aspects (300mm x 3)	-	43	Cable Splicing Kit
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-	44	Remove Existing Signal Post and Heads (dead-end Type)
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-	45	Remove Existing Signal Post and Heads (Pedestrian Type)
20	Signal Head 4 Aspects (300mm x 4)	-	46	Remove Existing Signal Head
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-	47	Remove Existing Arrow Mask
22	Signal Head 6 Aspects (300mm x 6)	-	48	Remove Pedestrian Push Button
23	Signal Head Pedestrian	-	49	TOT Line (CPV, 0.65mm, 1/2)
24	Lantern Arrow Mask	-	50	Grounding Rod
25	Target Board for 3 Aspects	-	51	Grounding Cable (IV 5.5 sq mm x 1c)
26	Target Board for 4 Aspects	-		



BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN KRUNG KASEM - LAN LUANG - LUK LUANG INTERSECTION NO. 37				Submitted By :	Approved By :
				Juro Kodera JICA Study Team Leader	Boonyawat Tiptuan BMA Study Team Leader
				Designed By :	Checked By :
				Vasue Wabeshima JICA Study Member	TEO, BMA
Code	Revision	Date	Initial	JICA	BMA
Associated Plan No. :				Japan International Cooperation Agency	Bangkok Metropolitan Administration
				Scale	1 / 250
				Date	SEPTEMBER '90
				Drawing No.	2037
				Total	25 / 139

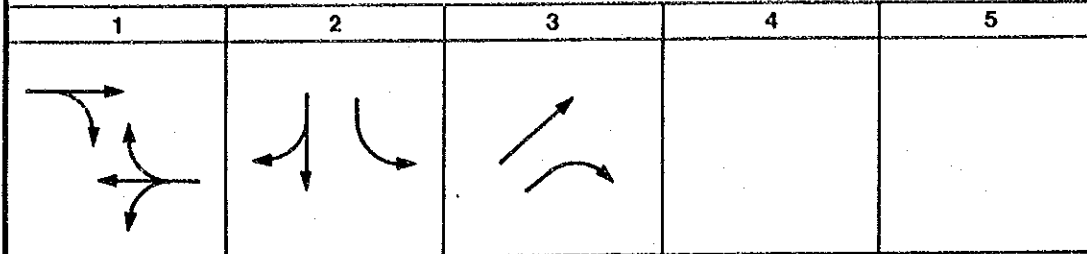


Intersection Equipments List		
Intersection No. 39		
ITEM	Name of Equipment	Qty
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	4
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	4
10	Signal Pole Type B	4
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	5
14	Terminal 20 p	6
15	Signal Head 3 Aspects (200mm x 5)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	8
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	4
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lensless Arrow Mask	12
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	8
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	173
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	173
33	Install Conduit under Concrete Pavement or Sidewalk	-
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	10
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	68
39	Signal Cable 6c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	47
41	Signal Cable 20c (2 sq. mm)	148
42	Power Cable	5
43	Cable Splicing Kit	-
44	Remove Existing Signal Post and Heads (Main-arm Type)	4
45	Remove Existing Signal Post and Heads (Pedestrian Type)	2
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (V 5.5 sq. mm x 1c)	5



BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By : Juro Kadera JICA Study Team Leader	Approved By : Boonyawat Tipius BMA Study Team Leader
RAMA VI - RATCHAWITHI		Designed By : Yasuo Kubeshima JICA Study Member	Checked By : TED, BMA
INTERSECTION NO. 39		Scale : 1 / 250	Drawing No. : 2039
JICA Japan International Cooperation Agency		BMA Bangkok Metropolitan Administration	Date : SEPTEMBER '90
Associated Plan No. :		Total : 26 / 139	

PHASE PLAN FOR AUTOMATIC SEQUENCE

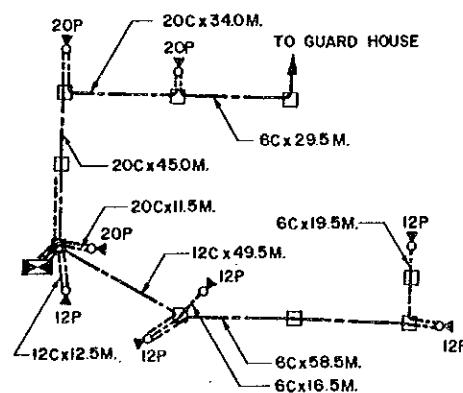


NOTE: Signal Phasing Under Railroad Pre-emption Control.

Intersection Equipments List		
Intersection No. 40		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	1
3	Pedestrian Push Button Interface Unit	3
4	Solid State Relay Unit	3
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	1
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	4
10	Signal Pole Type B	3
11	Signal Pole Type C	1
12	Signal Pole Type D	1
13	Terminal 12 p	5
14	Terminal 20 p	3
15	Signal Head 3 Aspects (200mm x 3)	2
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	1
17	Signal Head 3 Aspects (300mm x 3)	4
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	1
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	3
20	Signal Head 4 Aspects (300mm x 4)	2
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	1
22	Signal Head 6 Aspects (300mm x 6)	1
23	Signal Head Pedestrian	1
24	Lantern Arrow Mask	12
25	Target Board for 3 Aspects	3
26	Target Board for 4 Aspects	3

Intersection Equipments List		
Intersection No. 40		
ITEM	Name of Equipment	Qty.
27	Target Board for 6 Aspects	1
28	PVC Conduit 100 mm (4")	166
29	Steel Conduit 100 mm (4")	21
30	Steel Conduit 38 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	163
34	Install Conduit under Rail	21
35	Install Conduit on Riser Support Pole	3
36	Handhole Type C	3
37	Handhole Type D	3
38	Signal Cable 6c (2 sq. mm)	132
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	62
41	Signal Cable 20c (2 sq. mm)	90.5
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Narrow Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	6
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (V 5.5 sq. mm x 1c)	5

CABLE LAYOUT



BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I

INTERSECTION TERMINAL EQUIPMENT
LAYOUT PLAN
SAWANKHALOK - PHETCHABURI -
LAN LUANG - PHITSANULOK

Submitted By :
Jiro Kodera
JICA Study Team Leader
Designed By :
Yasuo Nabeshima
JICA Study Member

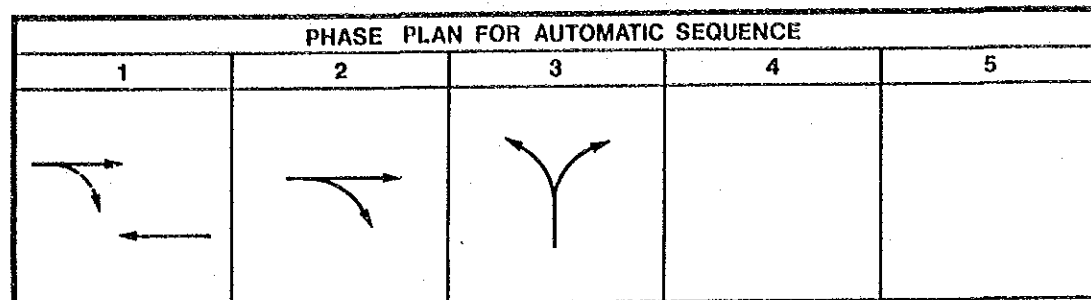
Approved By :
Boonyawat Tiptus
BMA Study Team Leader
Checked By :
YEO, BMA

INTERSECTION NO. 40

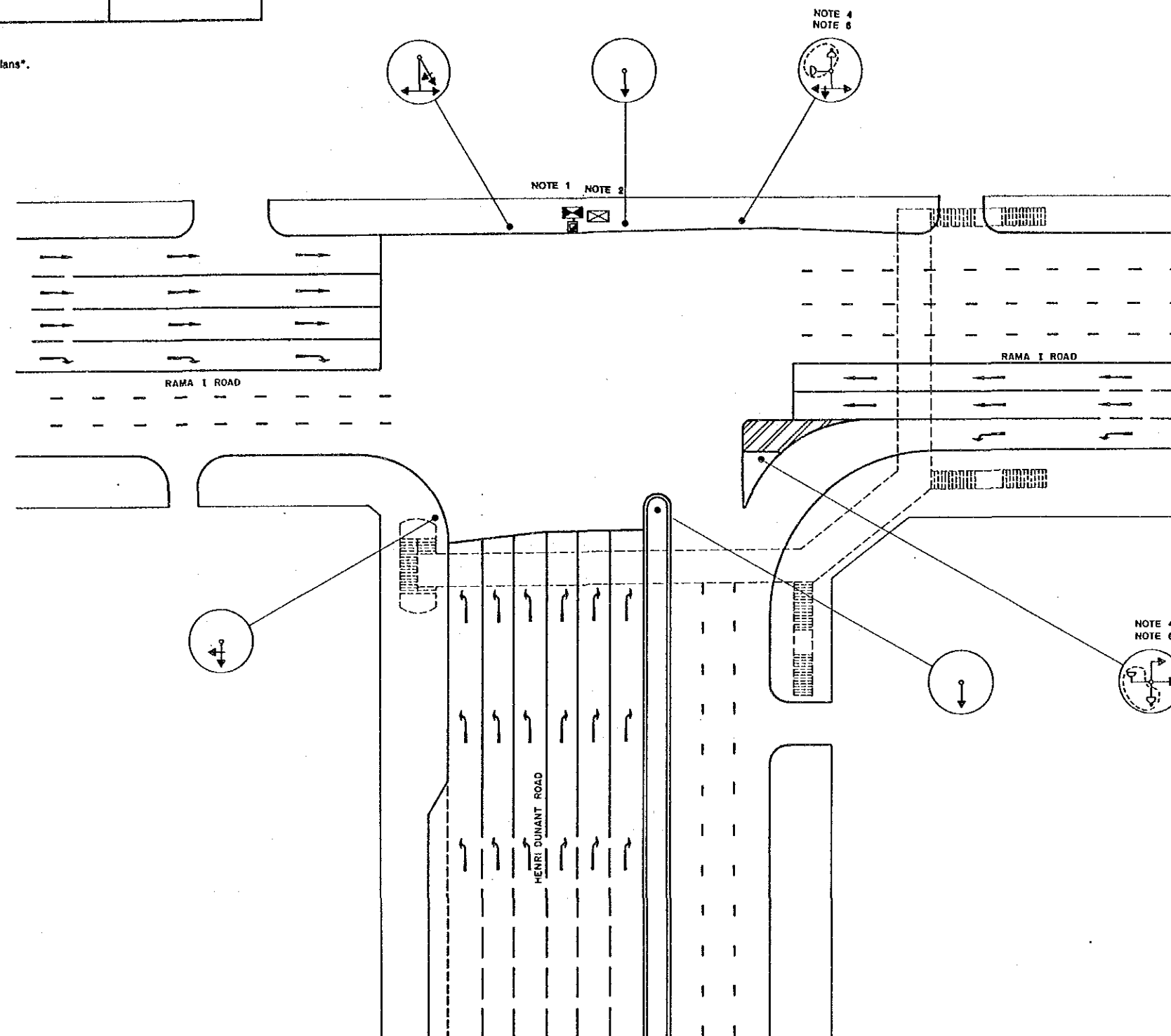
JICA
Japan International
Cooperation Agency

BMA
Bangkok Metropolitan
Administration

Scale 1 / 250
Date SEPTEMBER '90
Drawing NO. 2040
Total 27 / 139

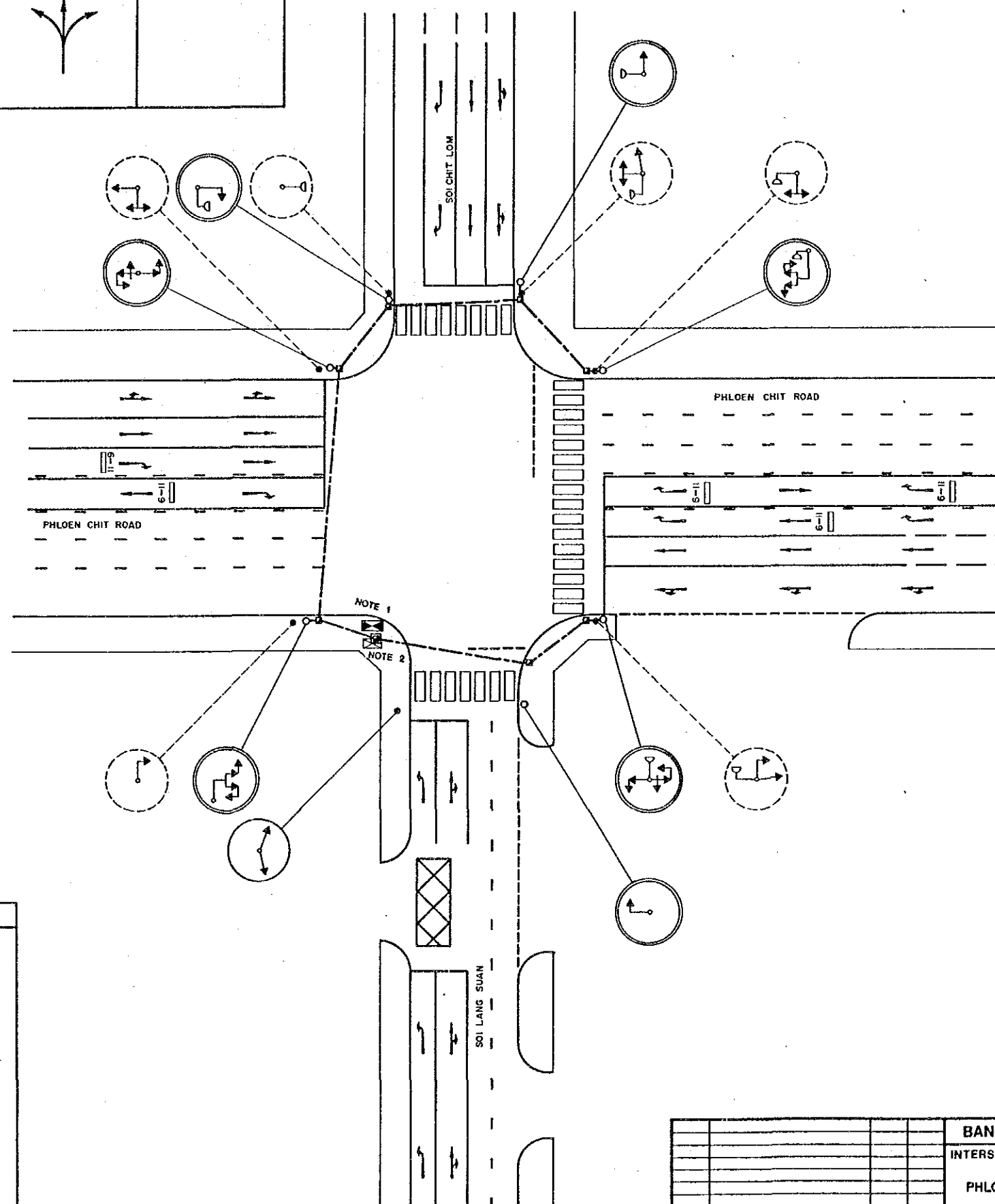
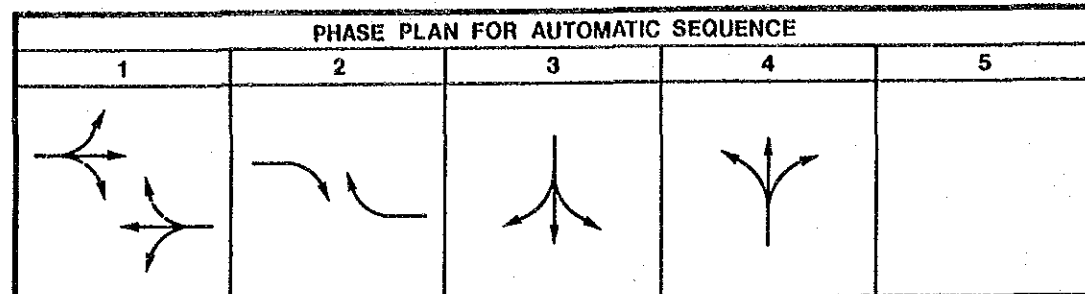


NOTE: Signal Phasing shown here is for the Morning Peak only.
For evening peak and off-peak, please refer to "Design Volume and Signal Phasing Plans".



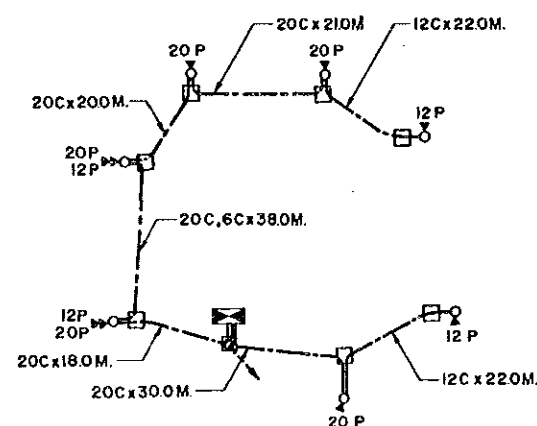
Intersection Equipments List		
Intersection No. 41		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	-
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lenses Arrow Mark	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	6
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 38 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	8
34	Install Conduit under Road	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	8
41	Signal Cable 20c (2 sq. mm)	-
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Main-Run Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	2
47	Remove Existing Arrow Mark	-
48	Remove Pedestrian Push Button	2
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (0V 5.5 sq. mm x 1c)	5

BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
HENRI DUNANT-RAMA I		Juro Kodera JICA Study Team Leader	Boonyawat Tiptua BMA Study Team Leader
INTERSECTION NO 41		Designed By :	Checked By :
		Yasuo Nabeshima JICA Study Member	TED.BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration
Scale 1 / 250		Drawing NO 2041	
Date : SEPTEMBER '90		Total 28 / 139	

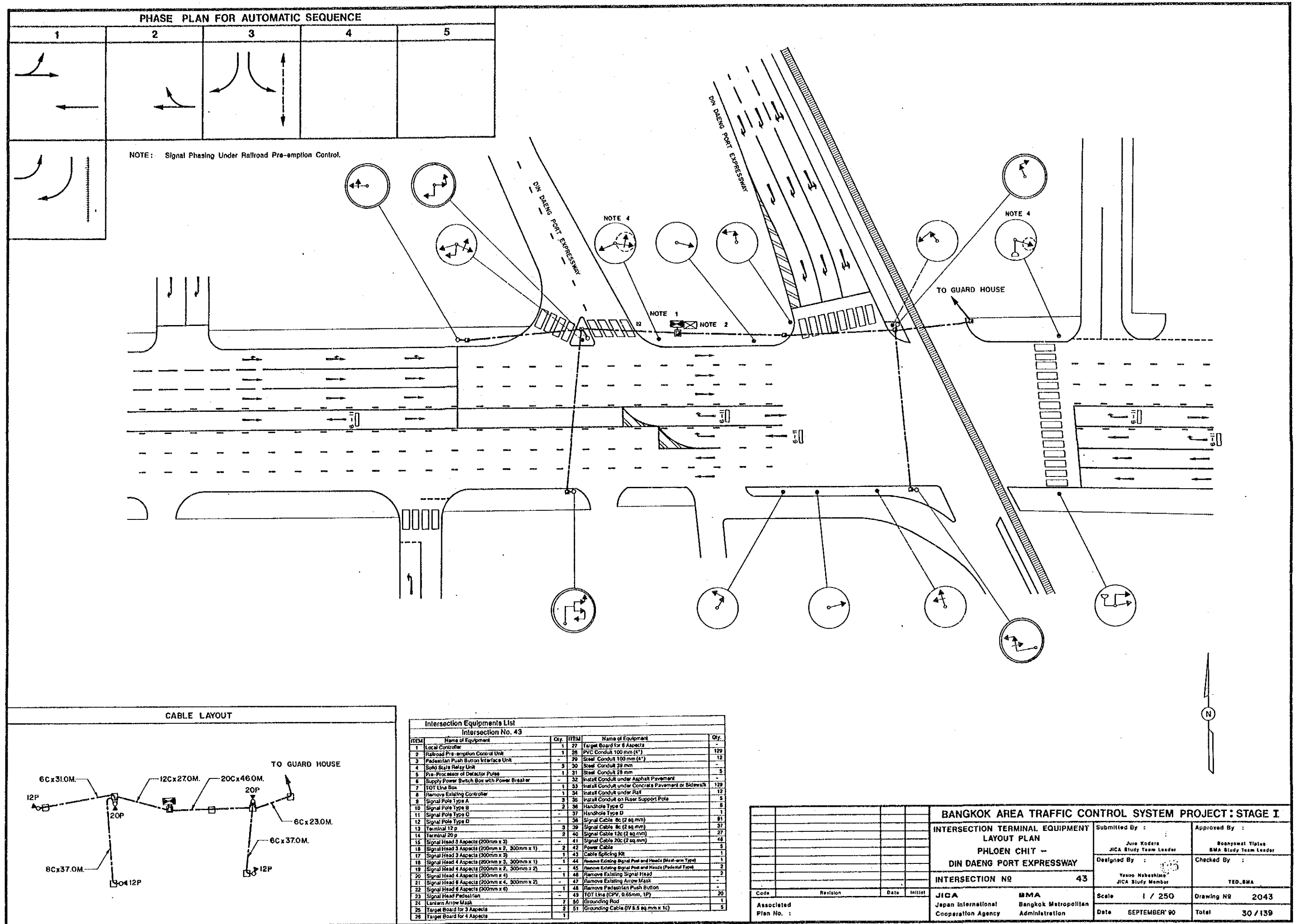


Intersection Equipments List		
Intersection No. 42		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Fire-alarm Control Unit	1
3	Pedestrian Push Button Interface Unit	1
4	Solid State Relay Unit	3
5	Pri - Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	1
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	4
10	Signal Pole Type B	2
11	Signal Pole Type C	1
12	Signal Pole Type D	1
13	Terminal 12 p	4
14	Terminal 20 p	5
15	Signal Head 3 Aspects (200mm x 3)	1
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	2
17	Signal Head 3 Aspects (300mm x 3)	2
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	1
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	2
20	Signal Head 4 Aspects (300mm x 4)	1
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	1
22	Signal Head 6 Aspects (300mm x 6)	2
23	Signal Head Pedestrian	4
24	Lensless Arrow Mask	10
25	Target Board for 3 Aspects	3
26	Target Board for 4 Aspects	2
27	Target Board for 6 Aspects	1
28	PVC Conduit 100 mm (4")	110
29	Steel Conduit 100 mm (4")	1
30	Steel Conduit 39 mm	1
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	1
33	Install Conduit under Concrete Pavement or Sidewalk	110
34	Install Conduit under Rail	1
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	7
37	Handhole Type D	1
38	Signal Cable 6C (2 sq. mm)	38
39	Signal Cable 8C (2 sq. mm)	1
40	Signal Cable 18C (2 sq. mm)	44
41	Signal Cable 20C (2 sq. mm)	127
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Star-arm Type)	5
45	Remove Existing Signal Post and Heads (Pedestrian Type)	1
46	Remove Existing Signal Head	1
47	Remove Existing Arrow Mask	1
48	Remove Pedestrian Push Button	1
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (TV 5.5 sq. mm x 1c)	5

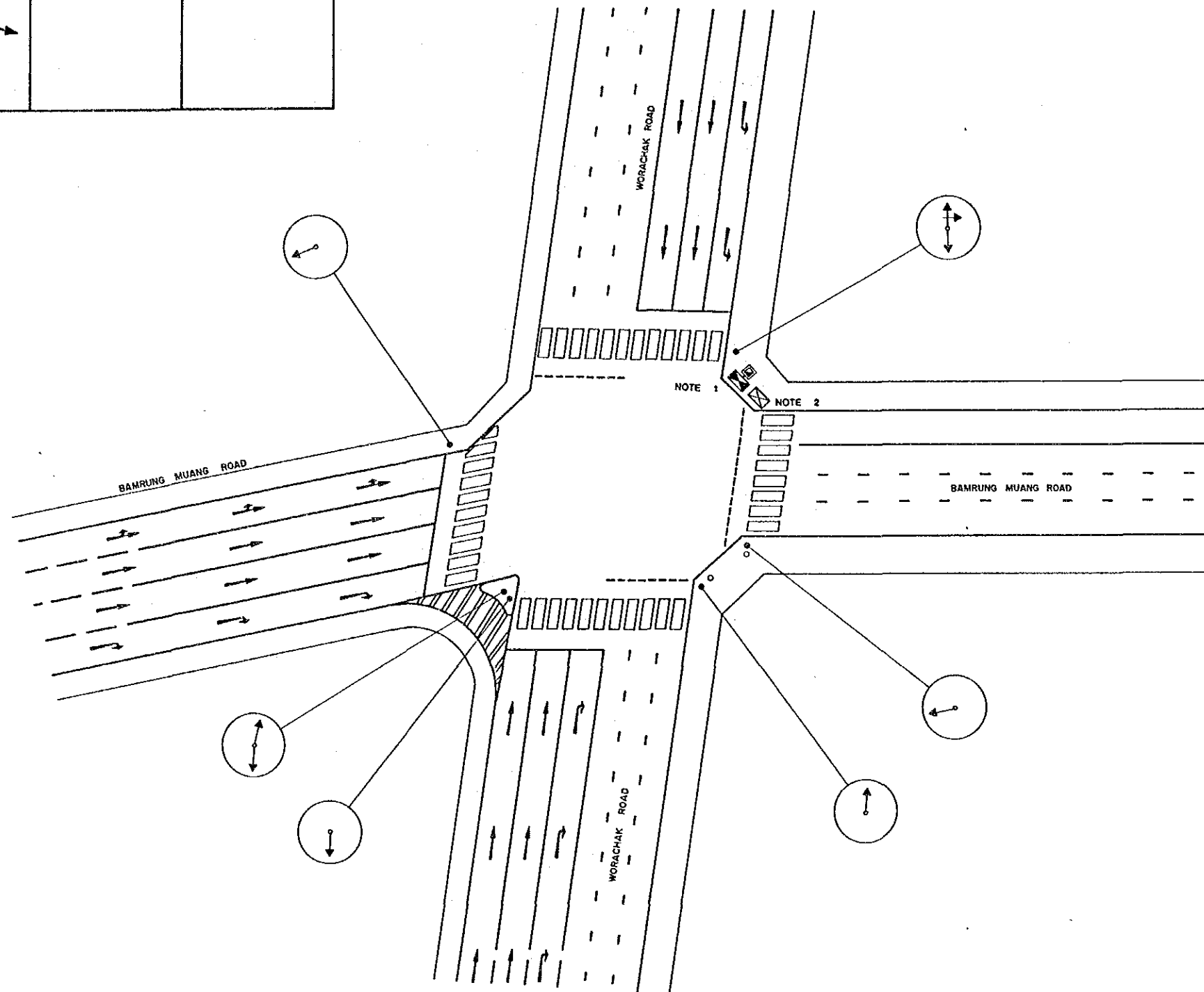
CABLE LAYOUT



BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
PHLOEN CHIT-SOI LANG SUAN--SOI CHIT LOM		Juro Kodera JICA Study Team Leader	Roonyawat Tiptue BMA Study Team Leader
INTERSECTION NO 42		Designed By :	Checked By :
		Yasuo Kobeshima JICA Study Member	TED.BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA	BMA
		Japan International Cooperation Agency	Bangkok Metropolitan Administration
		Scale	1 / 250
		Date	SEPTEMBER '90
		Drawing NO	2042
		Total	29 / 139



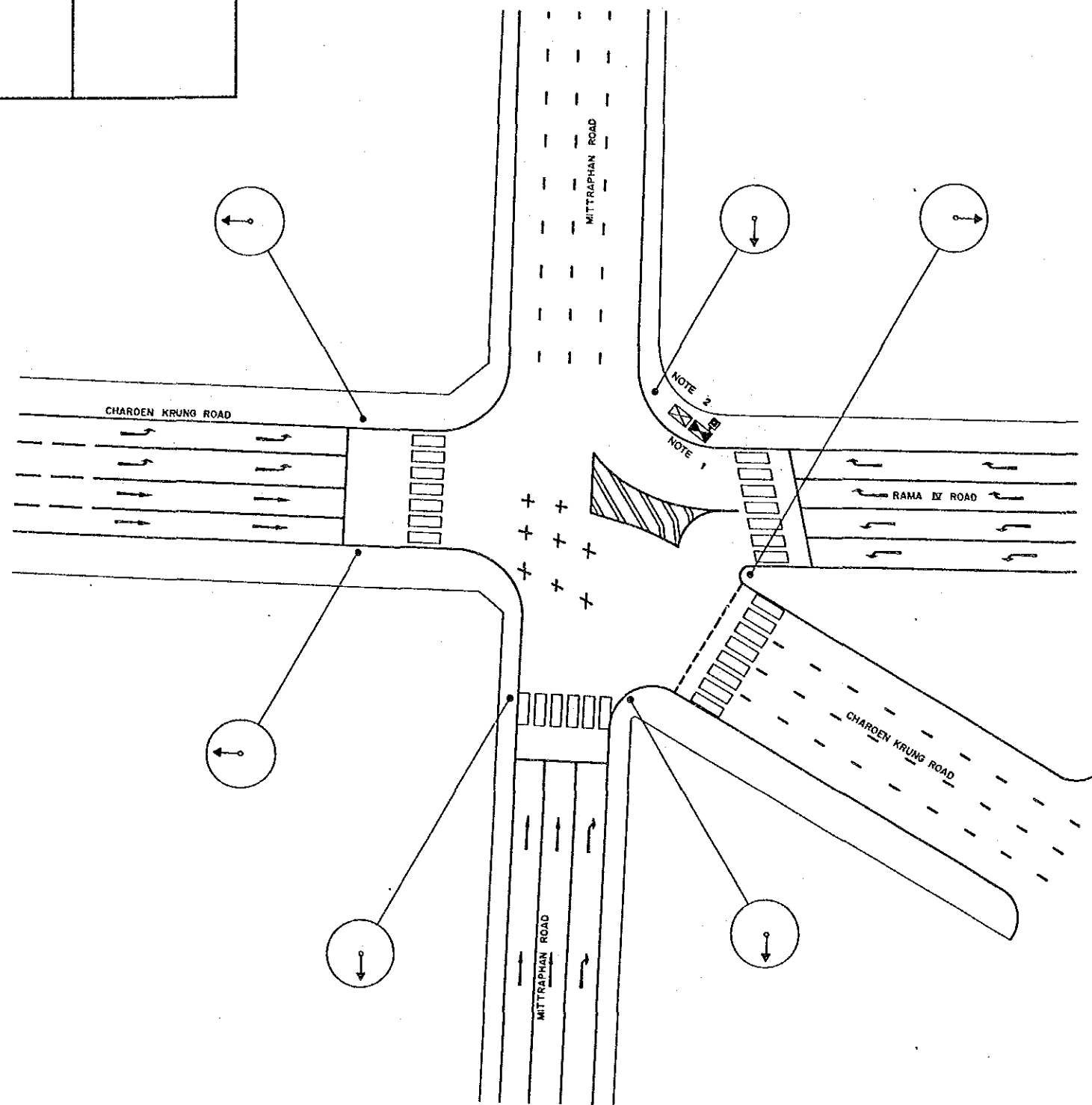
PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5



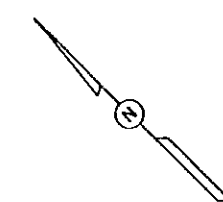
Intersection Equipments List		
Intersection No. 44		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	6
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 33 mm	-
31	Steel Conduit 25 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq mm)	-
39	Signal Cable 8c (2 sq mm)	-
40	Signal Cable 12c (2 sq mm)	8
41	Signal Cable 20c (2 sq mm)	-
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (4x4-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Existing Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (V 5.5 sq mm x 1c)	5

BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
WORACHAK - BAMRUNG MUANG			Juro Kodera JICA Study Team Leader	Boonyawat Tiptua BMA Study Team Leader	
INTERSECTION NO 44			Designed By :	Checked By :	
			Yasuo Nebeshimi JICA Study Member	TED, BMA	
Code	Revision	Date	Initial	Scale	Drawing No
Associated Plan No. :				1 / 250	2044
JICA Japan International Cooperation Agency			BMA Bangkok Metropolitan Administration		Date SEPTEMBER '90
				Total	31 / 139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5

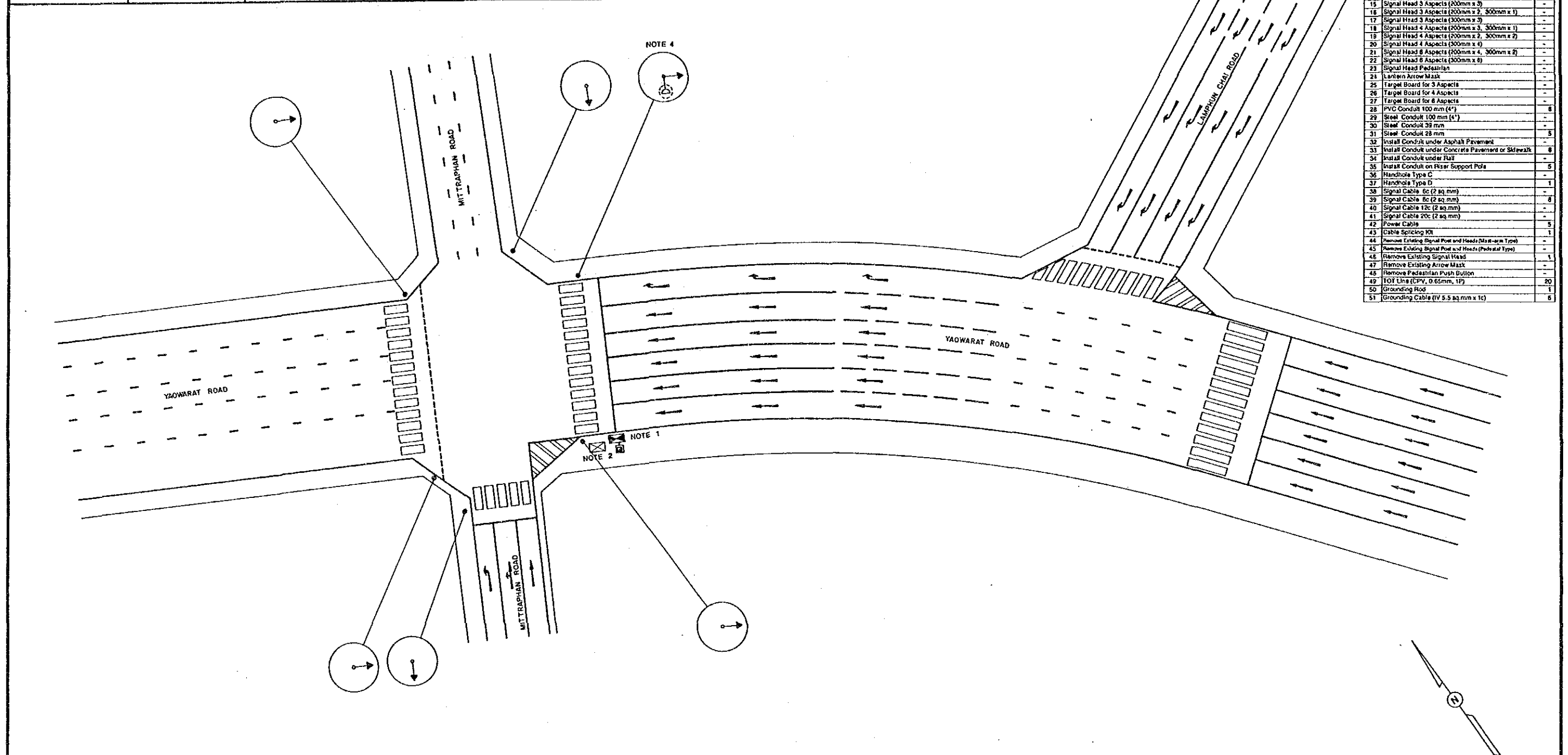


Intersection Equipments List		
Intersection No. 46		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	-
6	Supply Power Switch Box with Power Breaker	-
7	TOT Live Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p.	-
14	Terminal 20 p.	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	6
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 33 mm	-
31	Steel Conduit 25 mm	3
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	6
41	Signal Cable 20c (2 sq. mm)	-
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Main-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Live (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	5



BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN CHAROEN KRUNG-RAMA IV-- MITTRAPHAN INTERSECTION NO. 46		Submitted By :	Approved By :
		Jiro Kodera JICA Study Team Leader	Boonyawat Tiptua BMA Study Team Leader
		Designed By : Yasuo Nakashima JICA Study Member	Checked By : TED, BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration
Scale		1 / 250	Drawing NO 2046
Date		SEPTEMBER '90	Total 32 / 139

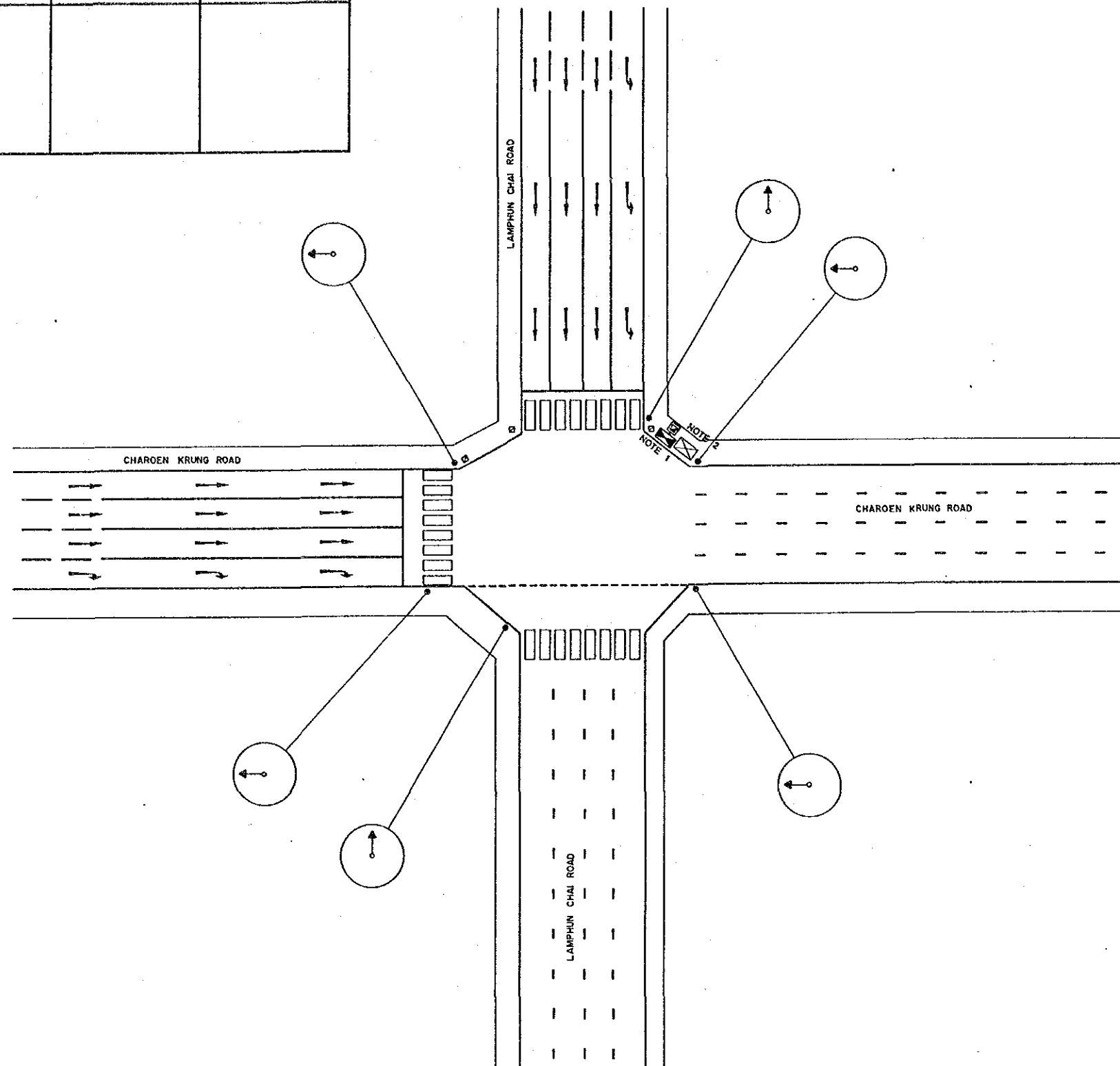
PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5
				



Intersection Equipments List		
Intersection No. 47		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	1
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	-
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (300mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 8 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 8 Aspects (300mm x 8)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 8 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 38 mm	-
31	Steel Conduit 25 mm	3
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	8
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 8c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	8
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	-
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Main-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	1
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 12)	20
50	Grounding Rod	1
51	Grounding Cable (IV 5.5 sq. mm x 1c)	6

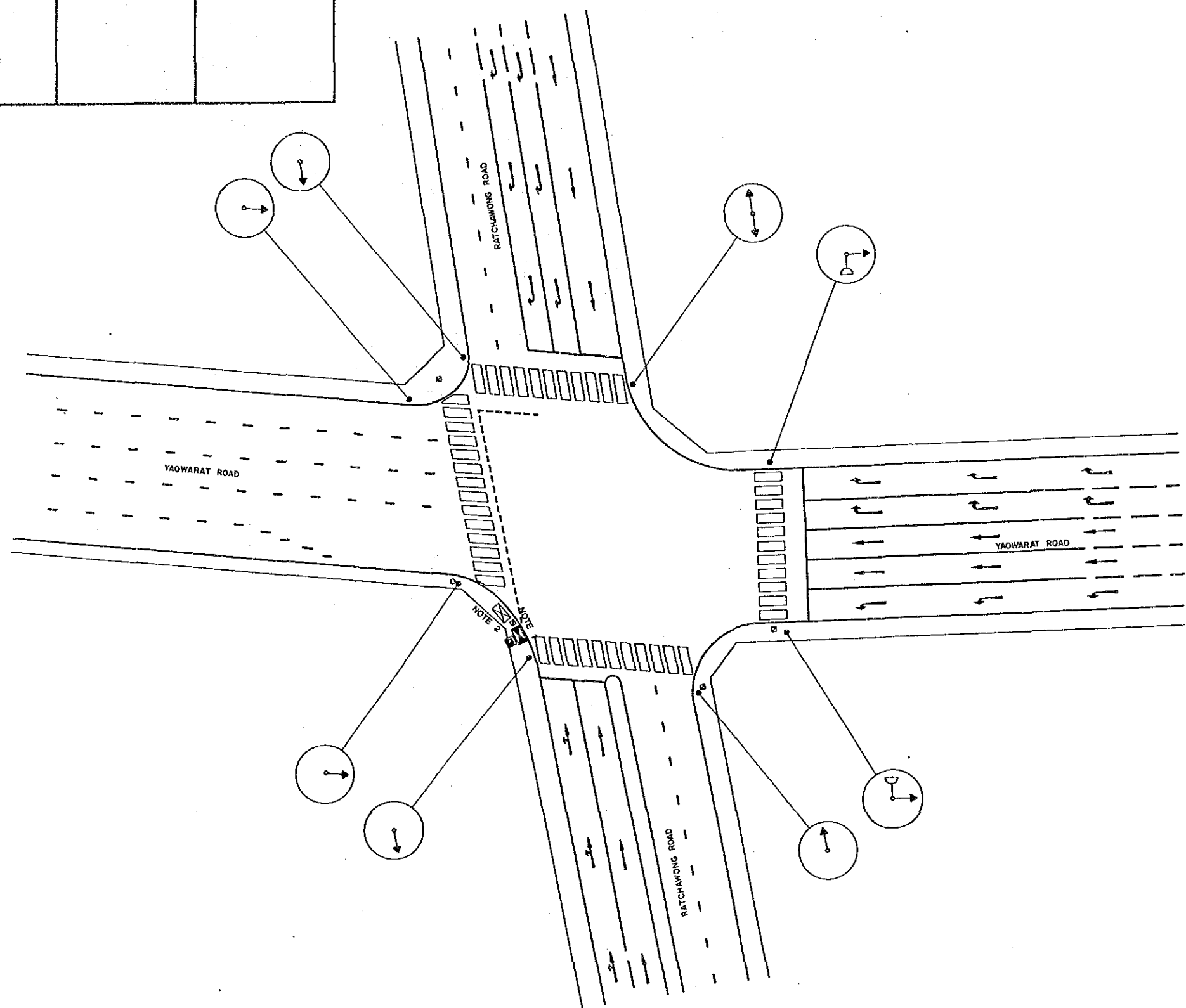
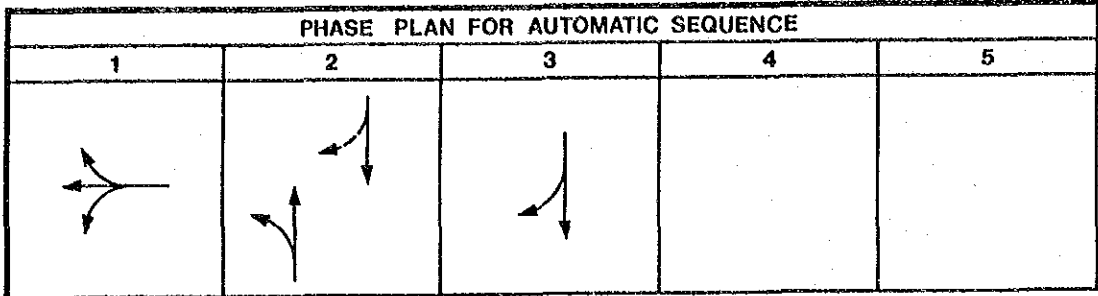
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
YAOWARAT - MITTRAPHAN			Juro Kodera JICA Study Team Leader	Beanyawat Tiptua BMA Study Team Leader	
INTERSECTION NO 47			Designed By :	Checked By :	
			Yasoo Nabeshima JICA Study Member	TED, BMA	
Code	Revision	Date	Initial	Scale	1 / 250
Associated Plan No. :			JICA	BMA	Drawing NO 2047
			Japan International Cooperation Agency	Bangkok Metropolitan Administration	Date SEPTEMBER '90
					Total 33/139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5



Intersection Equipments List		
Intersection No. 48		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	1
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	-
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 5)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lensless Arrow Mast	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	8
34	Install Conduit under Right	-
35	Install Conduit on River Support Pole	8
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq mm)	-
39	Signal Cable 8c (2 sq mm)	8
40	Signal Cable 12c (2 sq mm)	-
41	Signal Cable 20c (2 sq mm)	-
42	Power Cable	8
43	Cable Splicing Kit	1
44	Remove Existing Signal Pole and Head (Main-arm Type)	-
45	Remove Existing Signal Pole and Head (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mast	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPW, Ø 65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (Ø 5.5 sq mm x 1c)	5

BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
CHAROEN KRUNG - LAMPHUN CHAI			Jiro Kodera JICA Study Team Leader	Boonyawat Tiptus BMA Study Team Leader	
INTERSECTION NO 48			Designed By :	Checked By :	
			Yasue Kobashima JICA Study Member	TED, BMA	
Code	Revision	Date	Initial	Scale	1 / 250
Associated Plan No. :			JICA	BMA	Drawing NO 2048
			Japan International Cooperation Agency	Bangkok Metropolitan Administration	Date SEPTEMBER '90
					Total 34 / 139

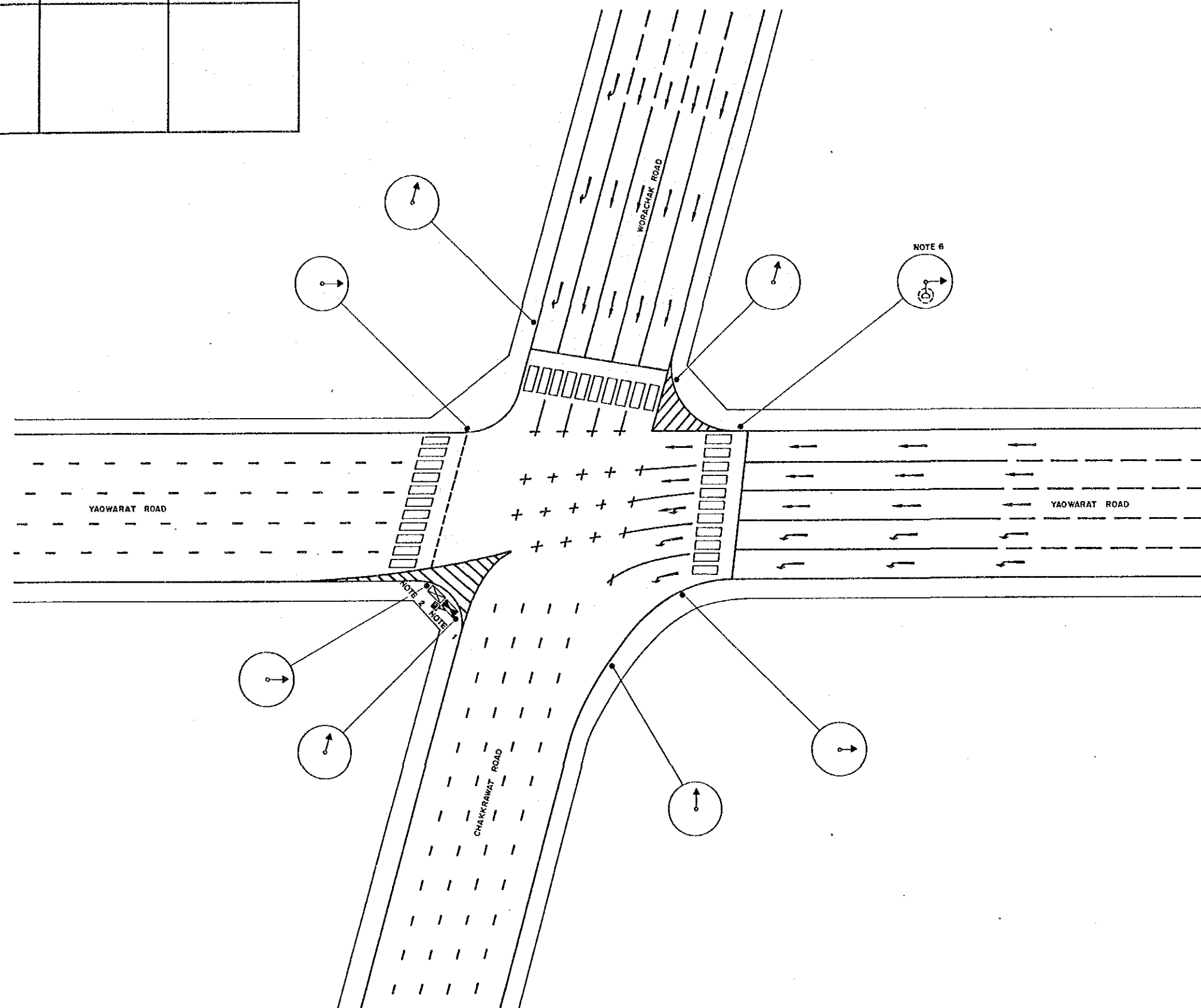


Intersection Equipments List		
Intersection No. 49		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulses	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mark	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	8
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Mid-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestal Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mark	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (W 5.5 sq. mm x 1c)	5

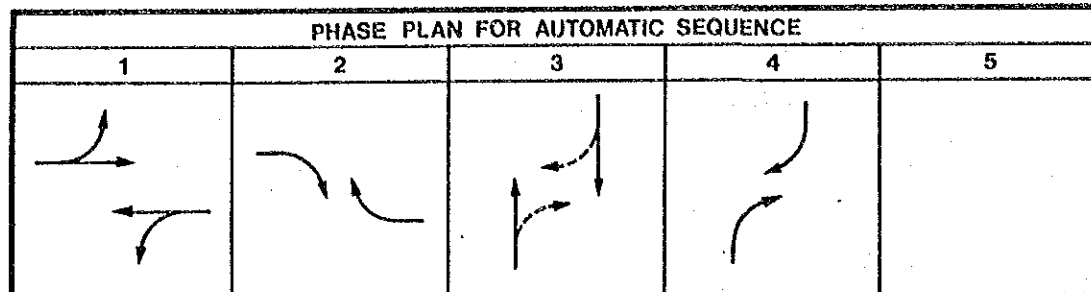
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN RATCHAWONG - YAOWARAT		Submitted By :	Approved By :
		Juro Kodera JICA Study Team Leader	Boonyawat Tiptus BMA Study Team Leader
INTERSECTION NO 49		Designed By :	Checked By :
		Yasuo Nabeshima JICA Study Member	TED, BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration
Scale		1 / 250	Drawing NO 2049
Date		SEPTEMBER '90	Total 35 / 139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5
				

Intersection Equipments List		
Intersection No. 50		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	1
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	1
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lensless Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	6
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	6
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq mm)	-
39	Signal Cable 6c (2 sq mm)	8
40	Signal Cable 12c (2 sq mm)	-
41	Signal Cable 20c (2 sq mm)	-
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Mast-arm Type)	-
45	Remove Existing Signal Post and Heads (Pole-top Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (RV 5.5 sq mm x 1p)	5

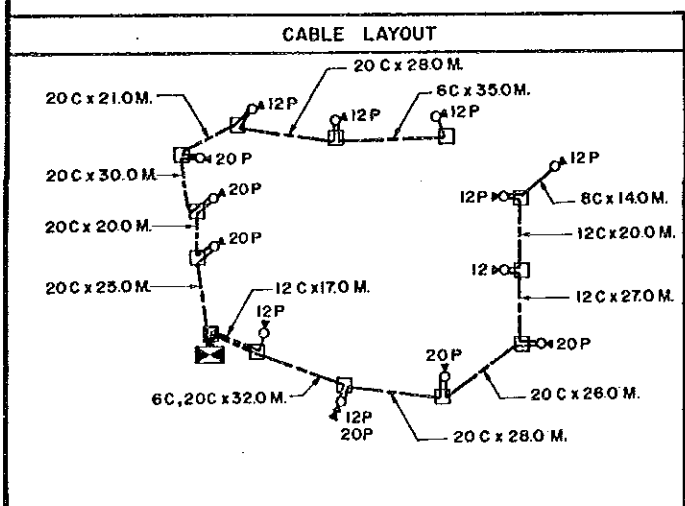
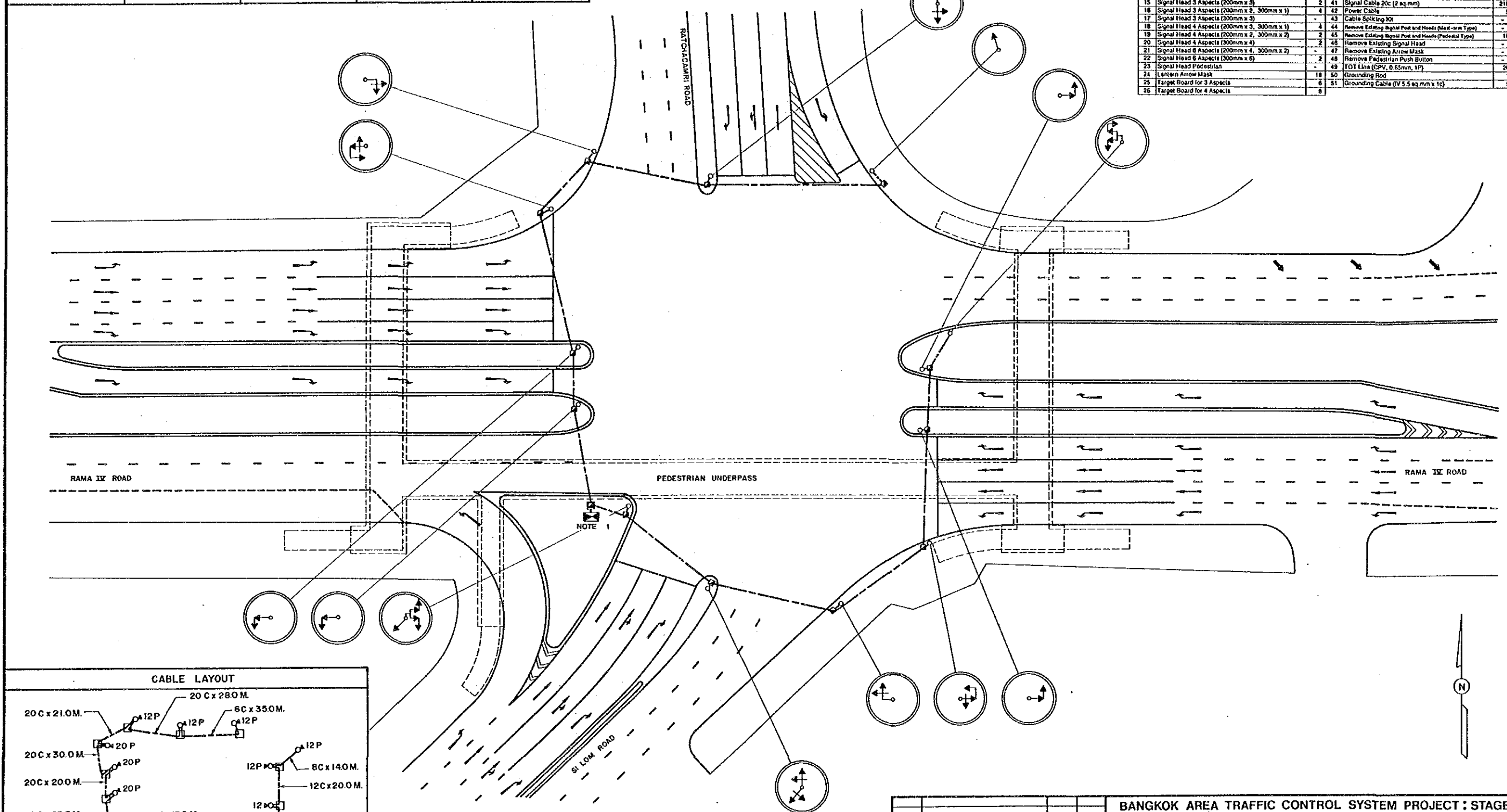


BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
CHAKKRAWAT-YAOWARAT-WORACHAK		Juro Kodera JICA Study Team Leader	Boonyawat Tiplue BMA Study Team Leader
INTERSECTION NO 50		Designed By :	Checked By :
		Yasuo Nabeshima JICA Study Member	YEO, BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration
		Scale 1 / 250	Drawing No 2050
		Date SEPTEMBER '90	Total 36 / 139



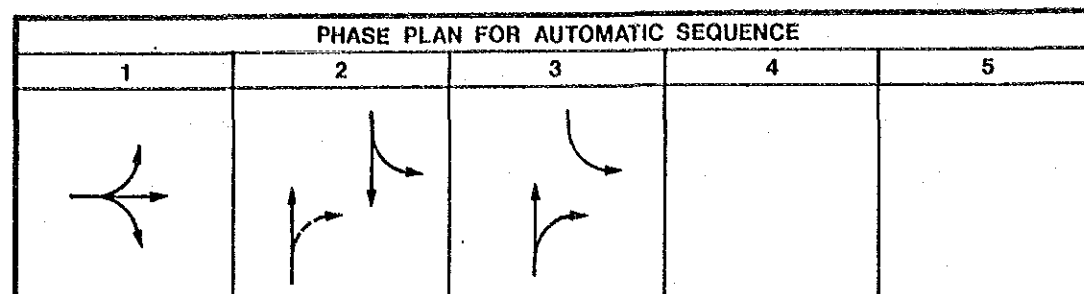
Intersection Equipments List
Intersection No. 51

ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment	Qty.
1	Local Controller	1	27	Target Board for 4 Aspects	-
2	Railroad Pre-emption Control Unit	-	28	PVC Conduit 100 mm (4")	198
3	Pedestrian Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")	-
4	Solid State Relay Unit	4	30	Steel Conduit 39 mm	-
5	Pre-Processor of Detector Pulse	1	31	Steel Conduit 28 mm	8
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement	-
7	TOT Line Box	1	33	Install Conduit under Concrete Pavement or Sidewalk	198
8	Remove Existing Controller	-	34	Install Conduit under Rail	-
9	Signal Pole Type A	4	35	Install Conduit on Riser Support Pole	5
10	Signal Pole Type B	9	36	Handhole Type C	12
11	Signal Pole Type C	-	37	Handhole Type D	1
12	Signal Pole Type D	-	38	Signal Cable 6c (2 sq. mm)	87
13	Terminal 12 p	8	39	Signal Cable 8c (2 sq. mm)	14
14	Terminal 20 p	7	40	Signal Cable 12c (2 sq. mm)	64
15	Signal Head 3 Aspects (200mm x 3)	2	41	Signal Cable 20c (2 sq. mm)	210
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	4	42	Power Cable	5
17	Signal Head 3 Aspects (300mm x 3)	-	43	Cable Splicing Kit	-
18	Signal Head 4 Aspects (200mm x 3)	4	44	Remove Existing Signal Post and Heads (Main-arm Type)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	2	45	Remove Existing Signal Post and Heads (Pedestrian Type)	10
20	Signal Head 4 Aspects (300mm x 4)	2	46	Remove Existing Signal Head	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-	47	Remove Existing Arrow Mast	-
22	Signal Head 6 Aspects (300mm x 6)	2	48	Remove Pedestrian Push Button	-
23	Signal Head Pedestrian	-	49	TOT Line (CPV, 0.65mm, 1P)	20
24	Lensless Arrow Mast	19	50	Grounding Rod	1
25	Target Board for 3 Aspects	6	51	Grounding Cable (IV 5.5 sq. mm x 10)	5
26	Target Board for 4 Aspects	8			

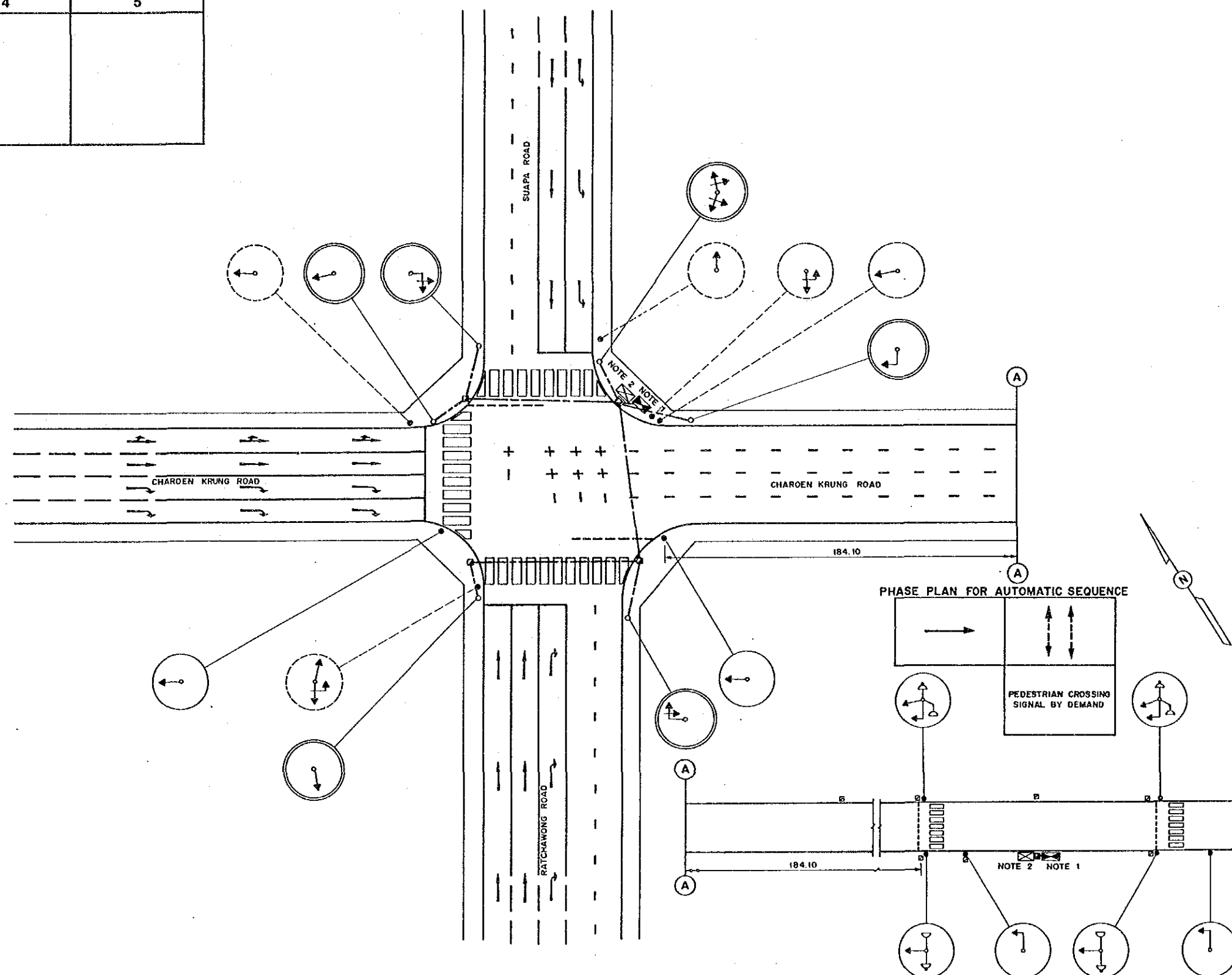


NOTE: Existing local controller, all signal poles and heads (not shown in this drawing) are to be removed.

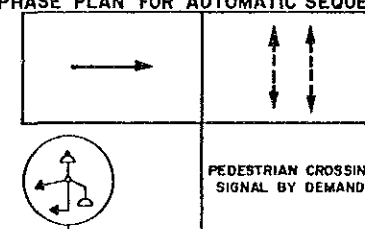
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
SI LOM - RATCHADARNI - RAMA IV		Juro Kudara JICA Study Team Leader	Boonyawat Tiptus BMA Study Team Leader
INTERSECTION NO 51		Designed By :	Checked By :
		Yasuo Mubeshime JICA Study Member	TEO, BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration
		Scale 1 / 250	Drawing NO 2051
		Date SEPTEMBER '90	Total 37 / 139



Intersection Equipments List		
Intersection No. 52		
ITEM	Name of Equipment	Qty.
1	Local Controller	2
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	1
4	Solid State Relay Unit	3
5	Pre-Processor of Detector Pulse	-
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	2
8	Remove Existing Controller	2
9	Signal Pole Type A	3
10	Signal Pole Type B	3
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	4
14	Terminal 20 p	2
15	Signal Head 3 Aspects (300mm x 3)	-
16	Signal Head 3 Aspects (300mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	1
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	2
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	2
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	4
25	Target Board for 3 Aspects	1
26	Target Board for 4 Aspects	2
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	98.5
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement or Sideroad	50
33	Install Conduit under Concrete Pavement or Sideroad	48.5
34	Install Conduit under R&B	-
35	Install Conduit on Flare Support Pole	5
36	Handhole Type C	3
37	Handhole Type D	1
38	Signal Cable 6C (2 sq. mm)	88
39	Signal Cable 8C (2 sq. mm)	8
40	Signal Cable 12C (2 sq. mm)	83.5
41	Signal Cable 20C (2 sq. mm)	31.5
42	Power Cable	10
43	Cable Splicing Kit	2
44	Remove Existing Signal Post and Heads (Main-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	5
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CIV. 0.65mm, 1P)	40
50	Grounding Rod	2
51	Grounding Cable (IV 5.5 sq. mm x 16)	10

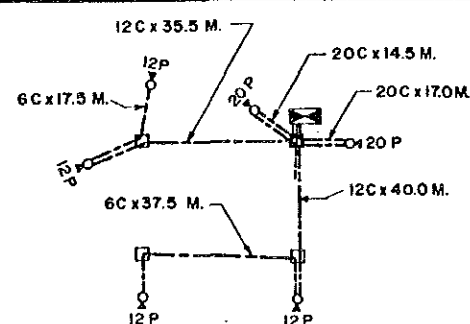


PHASE PLAN FOR AUTOMATIC SEQUENCE



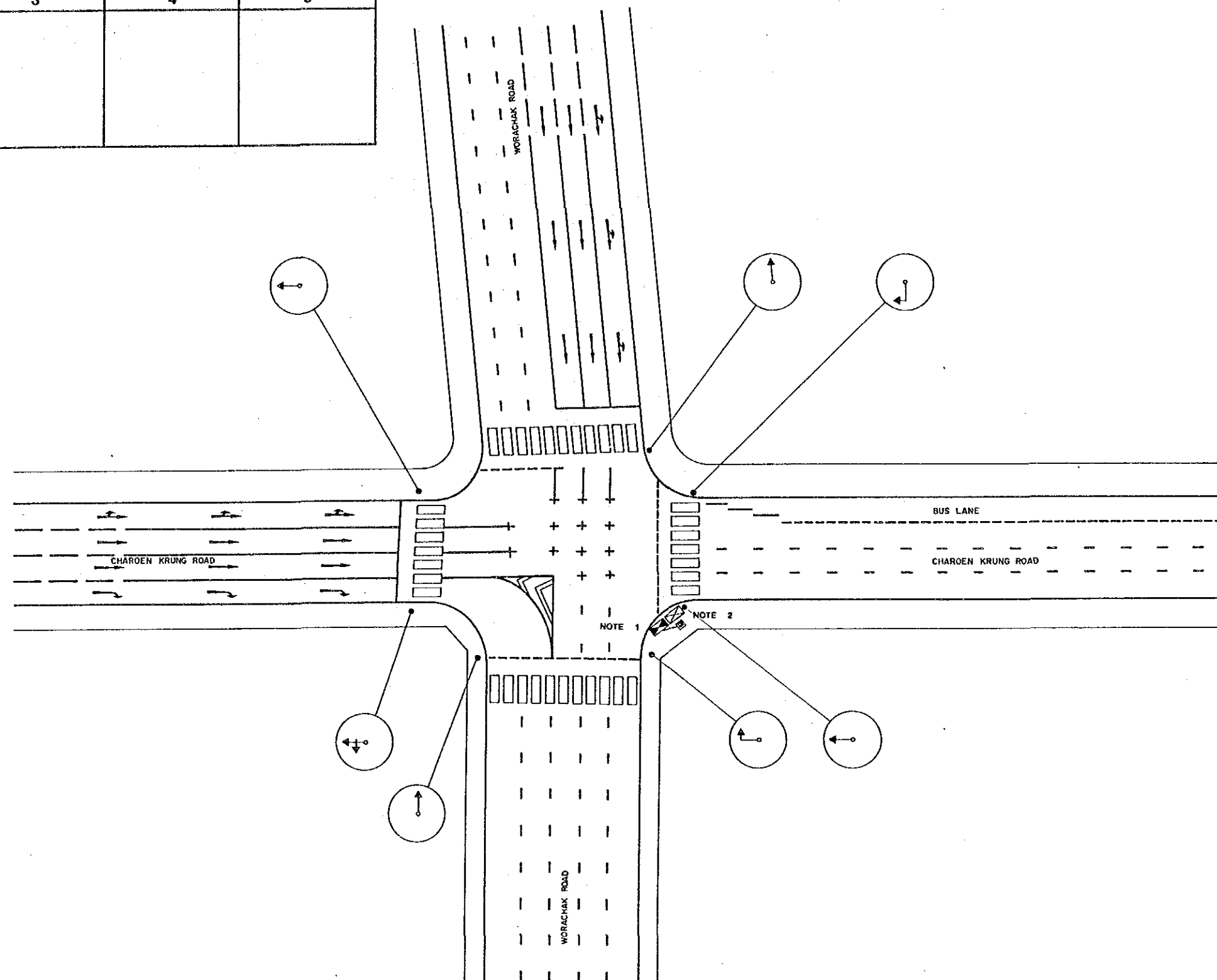
SCALE 1 : 500

CABLE LAYOUT



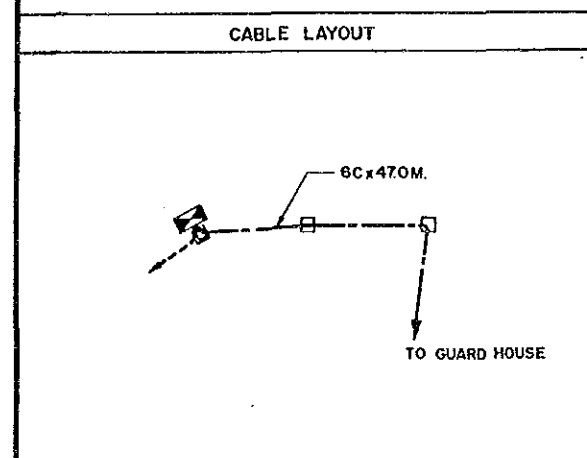
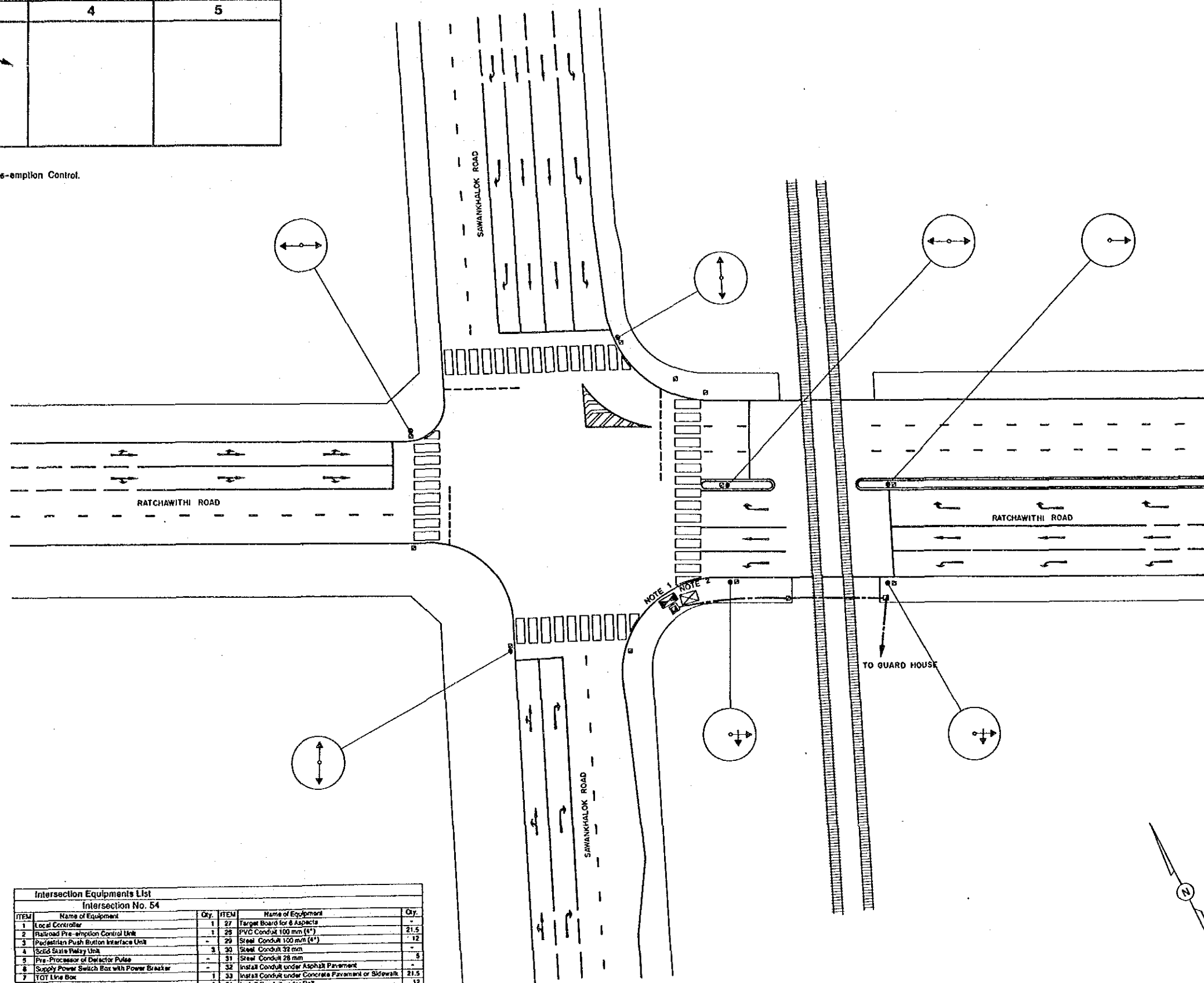
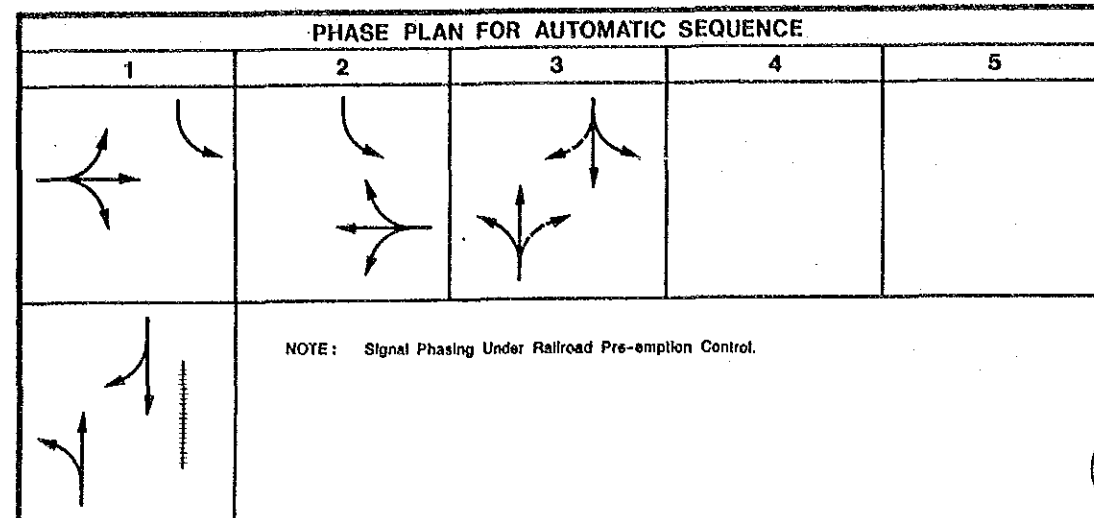
				BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
				INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN SUAPA-CHAROEN KRUNG- RATCHAWONG		Submitted By : Juro Kodera JICA Study Team Leader		Approved By : Boonyawat Tiptua BMA Study Team Leader	
						Designed By : Yasuo Nabeshima JICA Study Member		Checked By : TED, BMA	
				INTERSECTION NO 52,P3					
Code		Revision		Date		Initial			
Associated Plan No. :				JICA Japan International Cooperation Agency		BMA Bangkok Metropolitan Administration		Scale 1 / 250	
								Drawing NO 2052	
								Date SEPTEMBER '90	
								Total 38 / 139	

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5



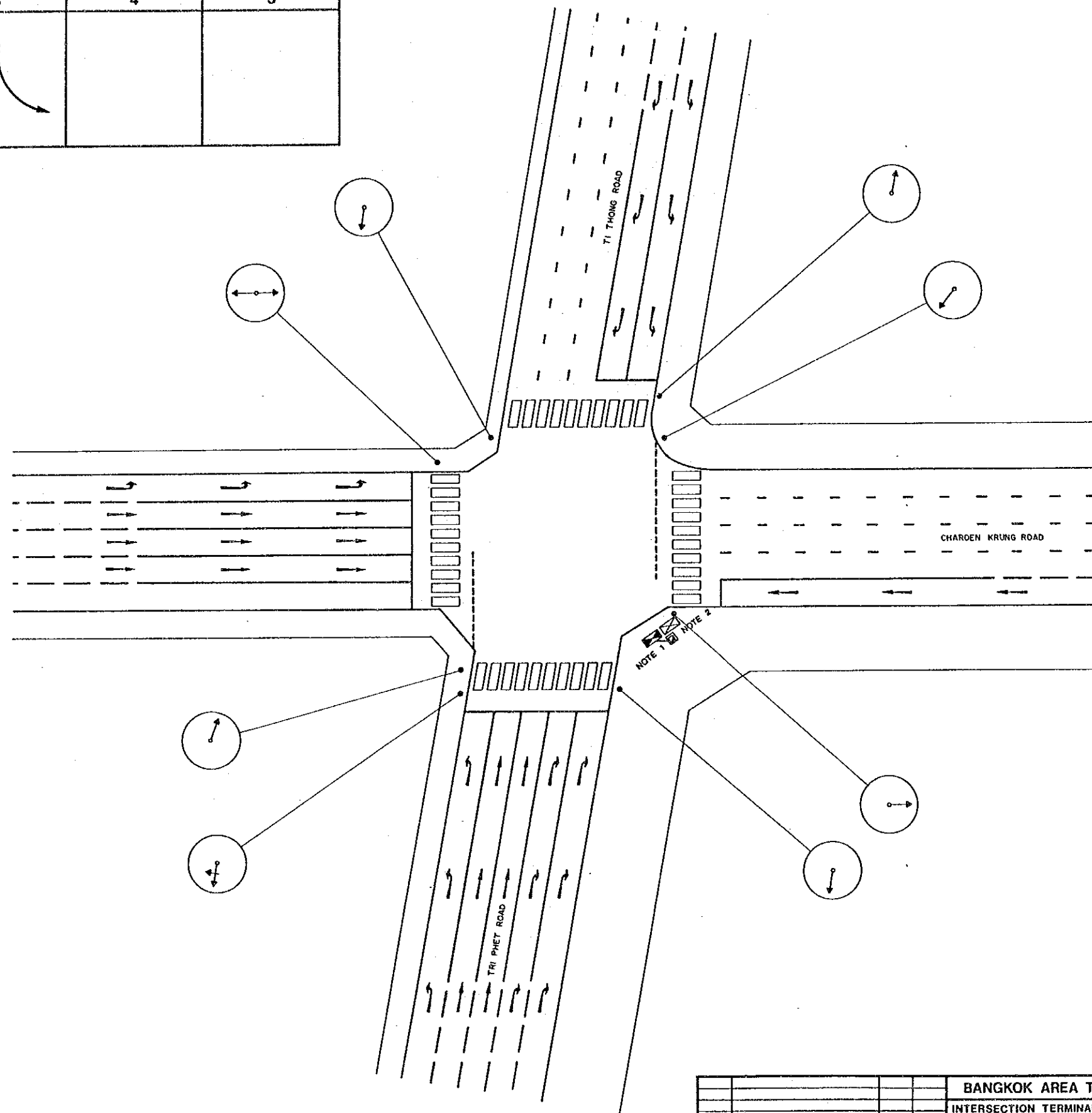
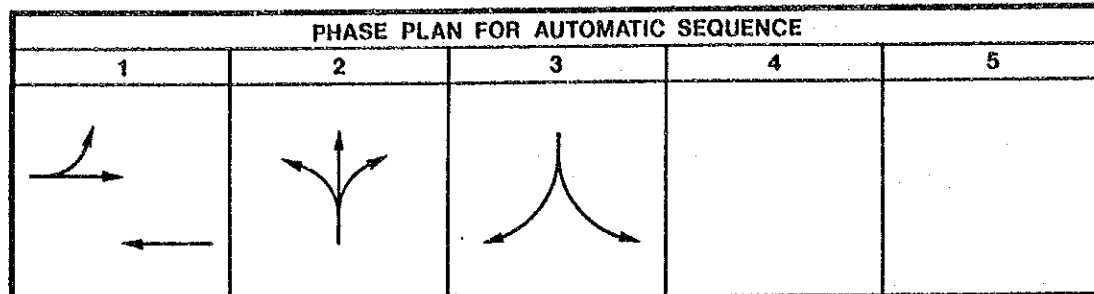
Intersection Equipments List		
Intersection No. 53		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	-
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 18 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (300mm x 3)	-
16	Signal Head 3 Aspects (300mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (300mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (300mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (300mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mast	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	6
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Flare Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 18c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Pole and Heads (Main-arm Type)	-
45	Remove Existing Signal Pole and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mast	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPI, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (RV 5.5 sq. mm x 1c)	5

BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
WORACHAK - CHAROEN KRUNG			Juro Kodera JICA Study Team Leader	Boonyawat Tiplus BMA Study Team Leader	
INTERSECTION NO 53			Designed By :	Checked By :	
			Yasuo Mabeshima JICA Study Member	TED, BMA	
Code	Revision	Date	Initial	Scale	Drawing No
Associated Plan No. :				1 / 250	2053
JICA Japan International Cooperation Agency			BMA Bangkok Metropolitan Administration		Date
			SEPTEMBER '90		Total
					39 / 139



Intersection Equipments List				
Intersection No. 54				
ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment
1	Local Controller	1	27	Target Board for 8 Aspects
2	Railroad Pre-emption Control Unit	1	28	PVC Conduit 100 mm (4")
3	Pedestrian Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")
4	Solid State Relay Unit	3	30	Steel Conduit 38 mm
5	Pre-Processor of Detector Pulse	-	31	Steel Conduit 28 mm
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement
7	TOT Line Box	-	33	Install Conduit under Concrete Pavement or Sidewalk
8	Remove Existing Controller	-	34	Install Conduit under Rail
9	Signal Pole Type A	-	35	Install Conduit on Riser Support Pole
10	Signal Pole Type B	-	36	Handhole Type C
11	Signal Pole Type C	-	37	Handhole Type D
12	Signal Pole Type D	-	38	Signal Cable 6C (2 sq mm)
13	Terminal 12 p	-	39	Signal Cable 8C (2 sq mm)
14	Terminal 20 p	-	40	Signal Cable 12C (2 sq mm)
15	Signal Head 3 Aspects (200mm x 3)	-	41	Signal Cable 20C (2 sq mm)
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-	42	Power Cable
17	Signal Head 3 Aspects (300mm x 2)	-	43	Cable Splicing Kit
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-	44	Remove Existing Signal Post and Heads (Recall-arm Type)
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-	45	Remove Existing Signal Post and Heads (Pedestal Type)
20	Signal Head 4 Aspects (300mm x 4)	-	46	Remove Existing Signal Head
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-	47	Remove Existing Arrow Mark
22	Signal Head 6 Aspects (300mm x 6)	-	48	Remove Pedestrian Push Button
23	Signal Head Pedestrian	-	49	TOT Line (CPV, 0.65mm, 1P)
24	Updown Arrow Mark	-	50	Grounding Rod
25	Target Board for 3 Aspects	-	51	Grounding Cable (RV 5.5 sq mm x 1c)
26	Target Board for 4 Aspects	-		

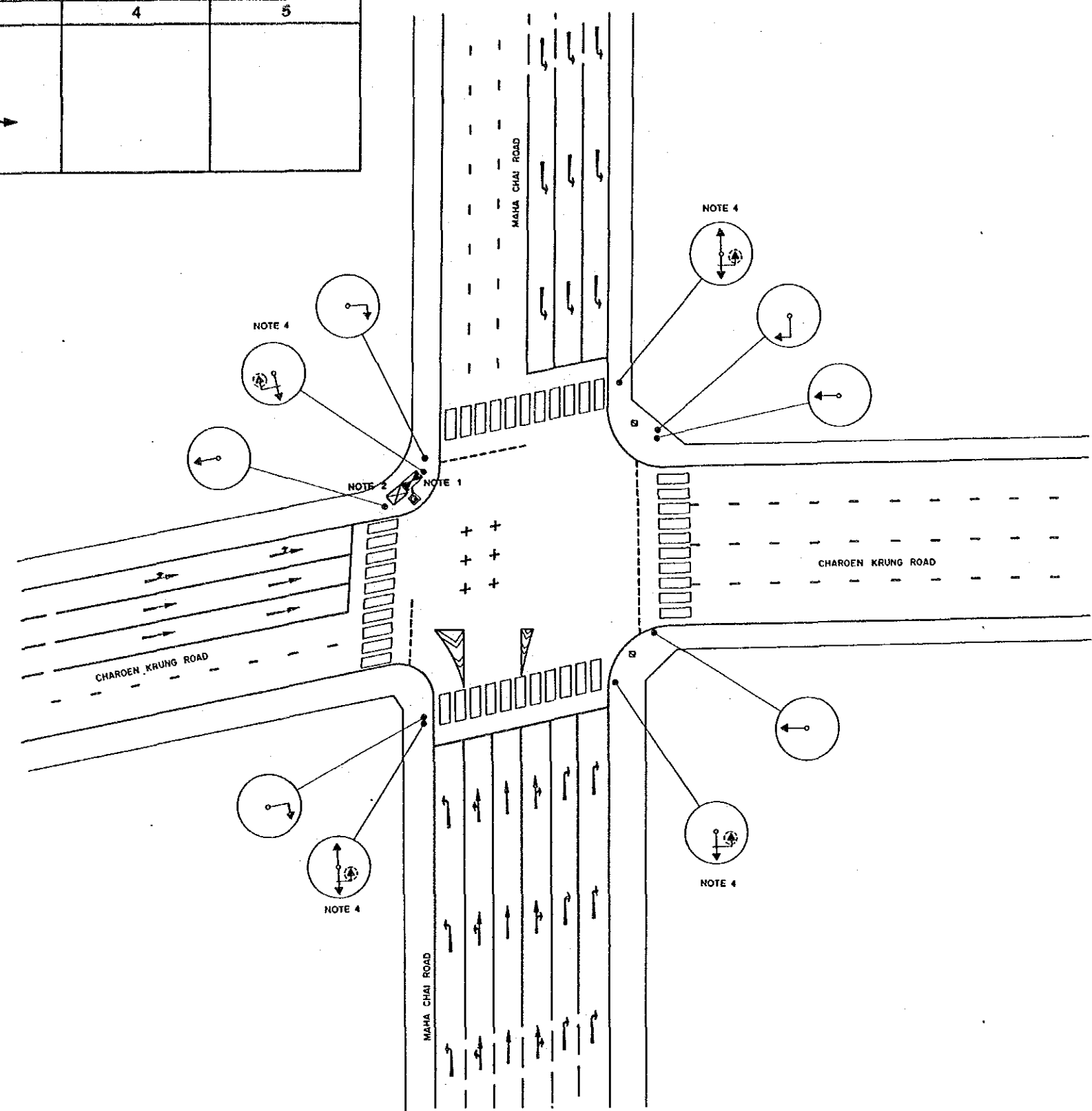
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
SAWANKHALOK - RATCHAWITHI		Jura Kadea JICA Study Team Leader	Boonyawat Tiptus BMA Study Team Leader
INTERSECTION NO 54		Designed By :	Checked By :
		Yasuo Kishibashi JICA Study Member	TED, BMA
Associated Plan No. :		Scale 1 / 250	Drawing No 2054
		Date SEPTEMBER '90	Total 40 / 139



Intersection Equipments List		
Intersection No. 55		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Relay and Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor or Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 38 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	8
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Mask-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (TV 5.5 sq. mm x 1c)	5

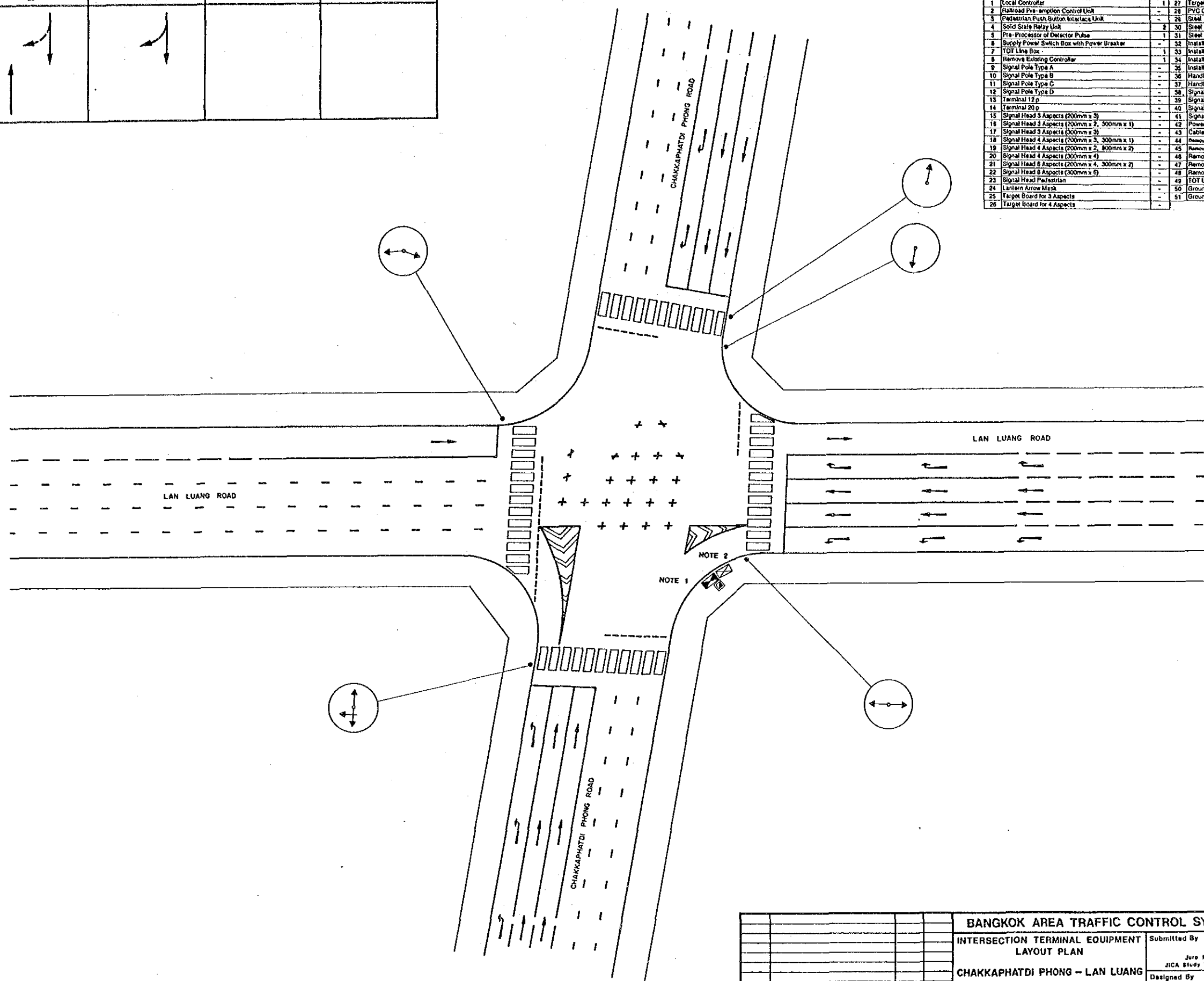
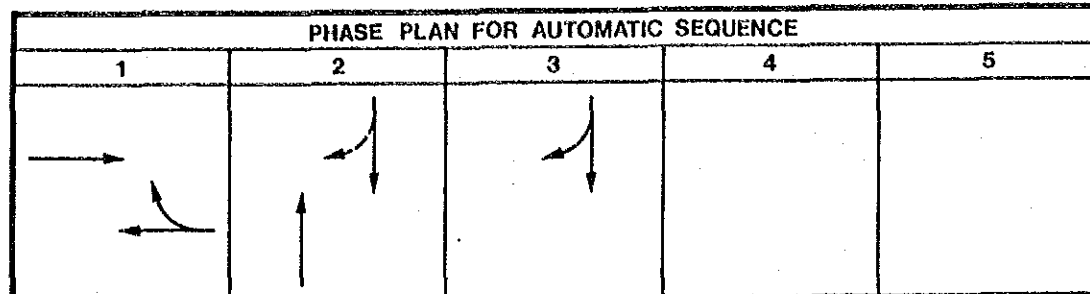
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
TRI PHET - CHAROEN KRUNG - TI THONG		Jure Kodera JICA Study Team Leader	Boonyawat Tiplus BMA Study Team Leader
INTERSECTION NO 55		Designed By :	Checked By :
		Yasue Nobuchika JICA Study Member	YED, BMA
Code	Revision	Date	Initial
Associated Plan No. :		JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration
		Scale 1 / 250	Drawing NO 2055
		Date SEPTEMBER '90	Total 41/139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5
				



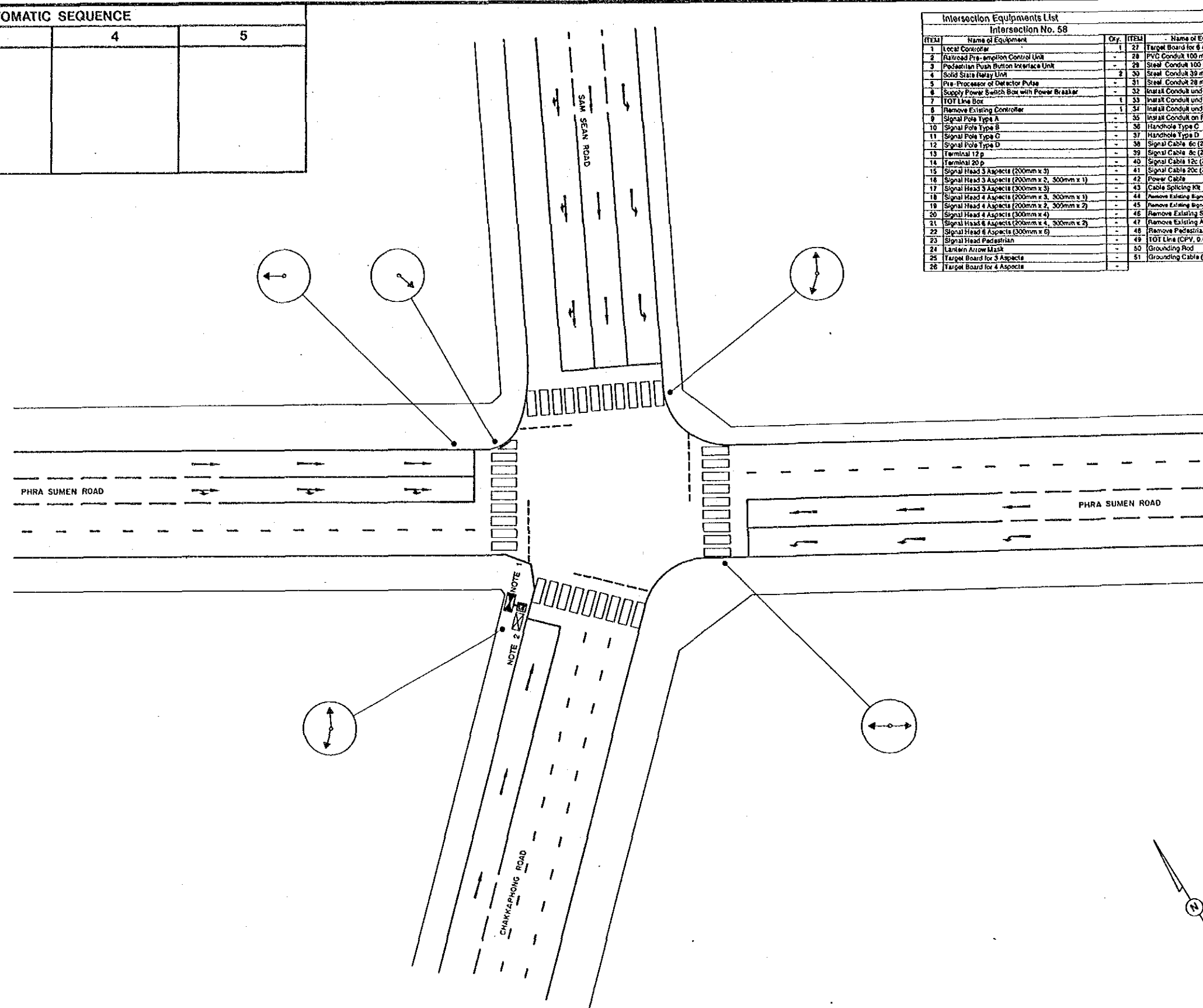
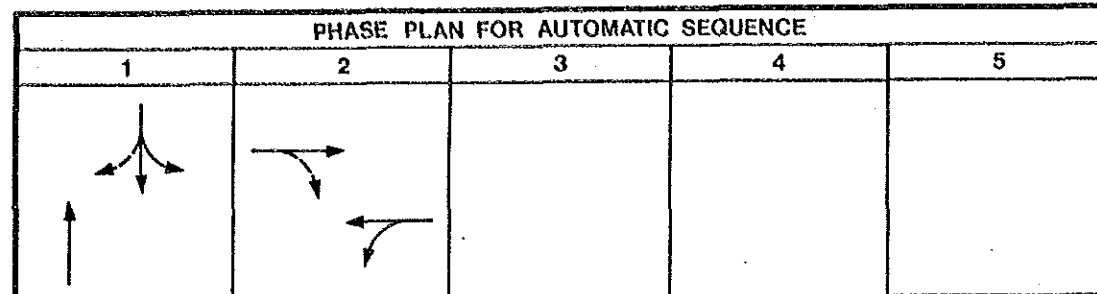
Intersection Equipments List		
Intersection No. 56		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	-
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	-
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	8
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 39 mm	-
31	Steel Conduit 28 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	8
34	Install Conduit under Flag	-
35	Install Conduit on Riser Support Pole	8
36	Handhole Type D	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	-
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	8
41	Signal Cable 20c (2 sq. mm)	-
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Post and Heads (Mast-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestal Type)	-
46	Remove Existing Signal Head	4
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (1V 5.5 sq. mm x 1c)	5

BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
MAHA CHAI - CHAROEN KRUNG			Juro Kodera JICA Study Team Leader	Boonyawal Tiptua BMA Study Team Leader	
INTERSECTION NO 56			Designed By :	Checked By :	
			Yasue Nabeshima JICA Study Member	TED, BMA	
Code	Revision	Date	Initial	Scale	Drawing NR
Associated Plan No. :			JICA Japan International Cooperation Agency	1 / 250	2056
			BMA Bangkok Metropolitan Administration	Date SEPTEMBER '90	Total 42 / 139



Intersection Equipments List				
Intersection No. 57				
ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment
1	Local Controller	1	27	Target Board for 6 Aspects
2	Railroad Pre-emption Control Unit	-	28	PVC Conduit 100 mm (4")
3	Pedestrian Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")
4	Solid State Relay Unit	2	30	Steel Conduit 39 mm
5	Pre-Processor of Detector Pulse	1	31	Steel Conduit 28 mm
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement
7	TOT Line Box	1	33	Install Conduit under Concrete Pavement or Sidewalk
8	Remove Existing Controller	1	34	Install Conduit under Rail
9	Signal Pole Type A	-	35	Install Conduit on Riser Support Pole
10	Signal Pole Type B	-	36	Handhole Type C
11	Signal Pole Type C	-	37	Handhole Type D
12	Signal Pole Type D	-	38	Signal Cable 6c (2 sq. mm)
13	Terminal 12 p	-	39	Signal Cable 8c (2 sq. mm)
14	Terminal 20 p	-	40	Signal Cable 12c (2 sq. mm)
15	Signal Head 3 Aspects (200mm x 3)	-	41	Signal Cable 20c (2 sq. mm)
16	Signal Head 3 Aspects (200mm x 2, 500mm x 1)	-	42	Power Cable
17	Signal Head 4 Aspects (200mm x 3)	-	43	Cable Splicing Jot
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-	44	Remove Existing Signal Post and Heads (Blat-arm Type)
19	Signal Head 4 Aspects (200mm x 2, 800mm x 2)	-	45	Remove Existing Signal Post and Heads (Pedestrian Type)
20	Signal Head 4 Aspects (300mm x 4)	-	46	Remove Existing Signal Head
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-	47	Remove Existing Arrow Mark
22	Signal Head 8 Aspects (200mm x 6)	-	48	Remove Pedestrian Push Button
23	Signal Head Pedestrian	-	49	TOT Line (CPV, 0.65mm, 10')
24	Lantern Arrow Mark	-	50	Grounding Rod
25	Target Board for 3 Aspects	-	51	Grounding Cable (IV 5.5 sq. mm x 1c)
26	Target Board for 4 Aspects	-		

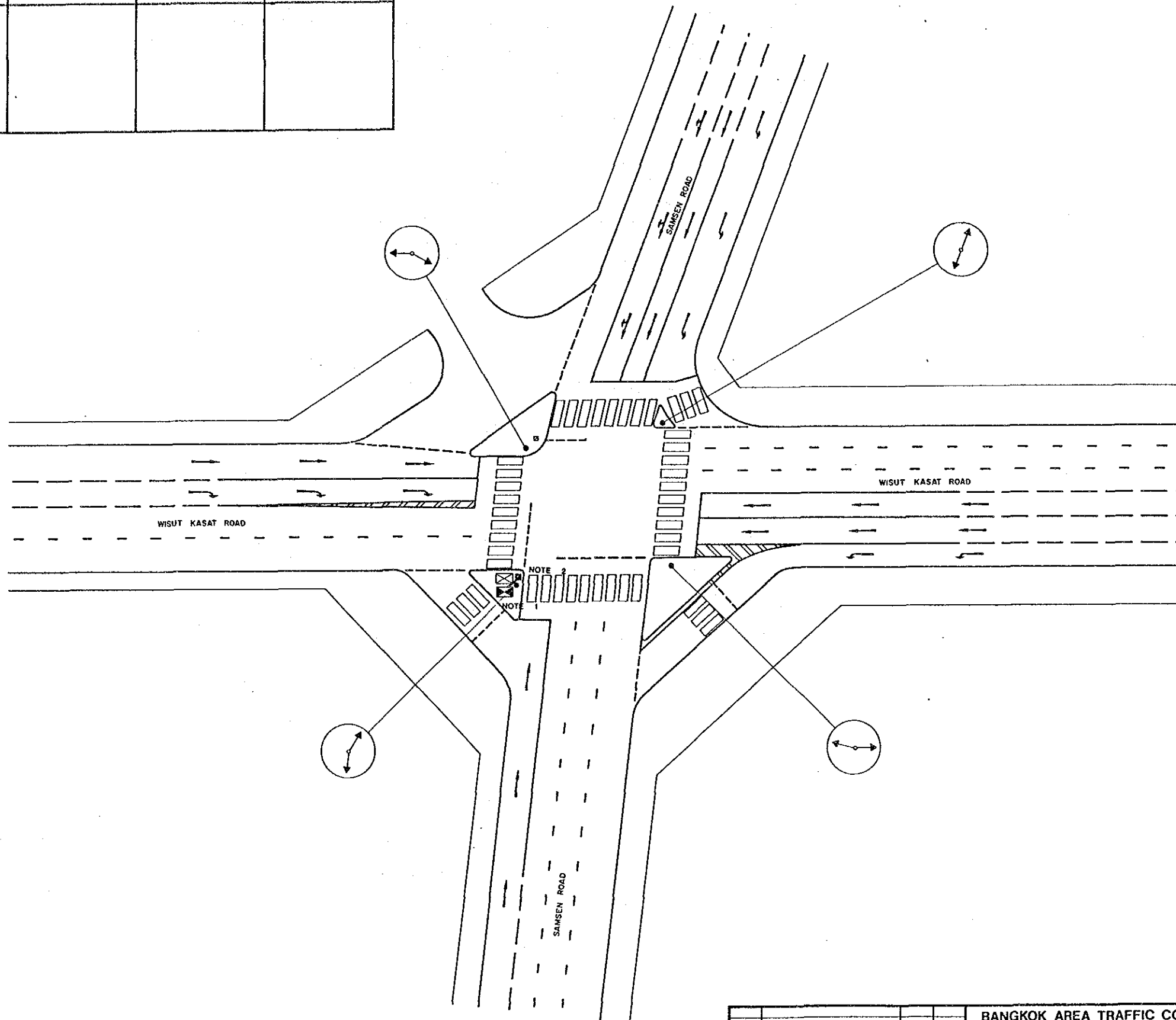
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
CHAKKAPHATDI PHONG - LAN LUANG		Juro Kodera JICA Study Team Leader	Boonyawat Tiplus BMA Study Team Leader
INTERSECTION NO 57		Designed By :	Checked By :
JICA		Yasuo Nabeshima JICA Study Member	TED.BMA
Code	Revision	Date	Initial
Associated Plan No. :		Scale	Drawing No
Japan International Cooperation Agency		1 / 250	2057
BMA Bangkok Metropolitan Administration		Date	Total
		SEPTEMBER '90	43 / 139



Intersection Equipments List				
Intersection No. 58				
ITEM	Name of Equipment	Qty.	ITEM	Name of Equipment
1	Local Controller	1	27	Target Board for 8 Aspects
2	Railroad Pre-emption Control Unit	-	28	PVC Conduit 100 mm (4")
3	Pedestrian Push Button Interface Unit	-	29	Steel Conduit 100 mm (4")
4	Solid State Relay Unit	2	30	Steel Conduit 32 mm
5	Pre-Processor of Detector Pulse	-	31	Steel Conduit 28 mm
6	Supply Power Switch Box with Power Breaker	-	32	Install Conduit under Asphalt Pavement
7	TOT Line Box	1	33	Install Conduit under Concrete Pavement or Sidewalk
8	Remove Existing Controller	-	34	Install Conduit under Rail
9	Signal Pole Type A	1	35	Install Conduit on Riser Support Pole
10	Signal Pole Type B	-	36	Handhole Type C
11	Signal Pole Type C	-	37	Handhole Type D
12	Signal Pole Type D	-	38	Signal Cable 6c (2 sq. mm)
13	Terminal 12 p	-	39	Signal Cable 8c (2 sq. mm)
14	Terminal 20 p	-	40	Signal Cable 12c (2 sq. mm)
15	Signal Head 3 Aspects (200mm x 3)	-	41	Signal Cable 20c (2 sq. mm)
16	Signal Head 3 Aspects (200mm x 3, 500mm x 1)	-	42	Power Cable
17	Signal Head 3 Aspects (300mm x 3)	-	43	Cable Splicing Kit
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-	44	Remove Existing Signal Post and Heads (Max. 4m Type)
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-	45	Remove Existing Signal Post and Heads (Pedestal Type)
20	Signal Head 4 Aspects (300mm x 4)	-	46	Remove Existing Signal Head
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-	47	Remove Existing Arrow Mask
22	Signal Head 6 Aspects (300mm x 6)	-	48	Remove Pedestrian Push Button
23	Signal Head Pedestrian	-	49	TOT Line (CPV, 6.65mm, 1P)
24	Lantern Arrow Mask	-	50	Grounding Rod
25	Target Board for 3 Aspects	-	51	Grounding Cable (IV 5.6 sq. mm x 1c)
26	Target Board for 4 Aspects	-		

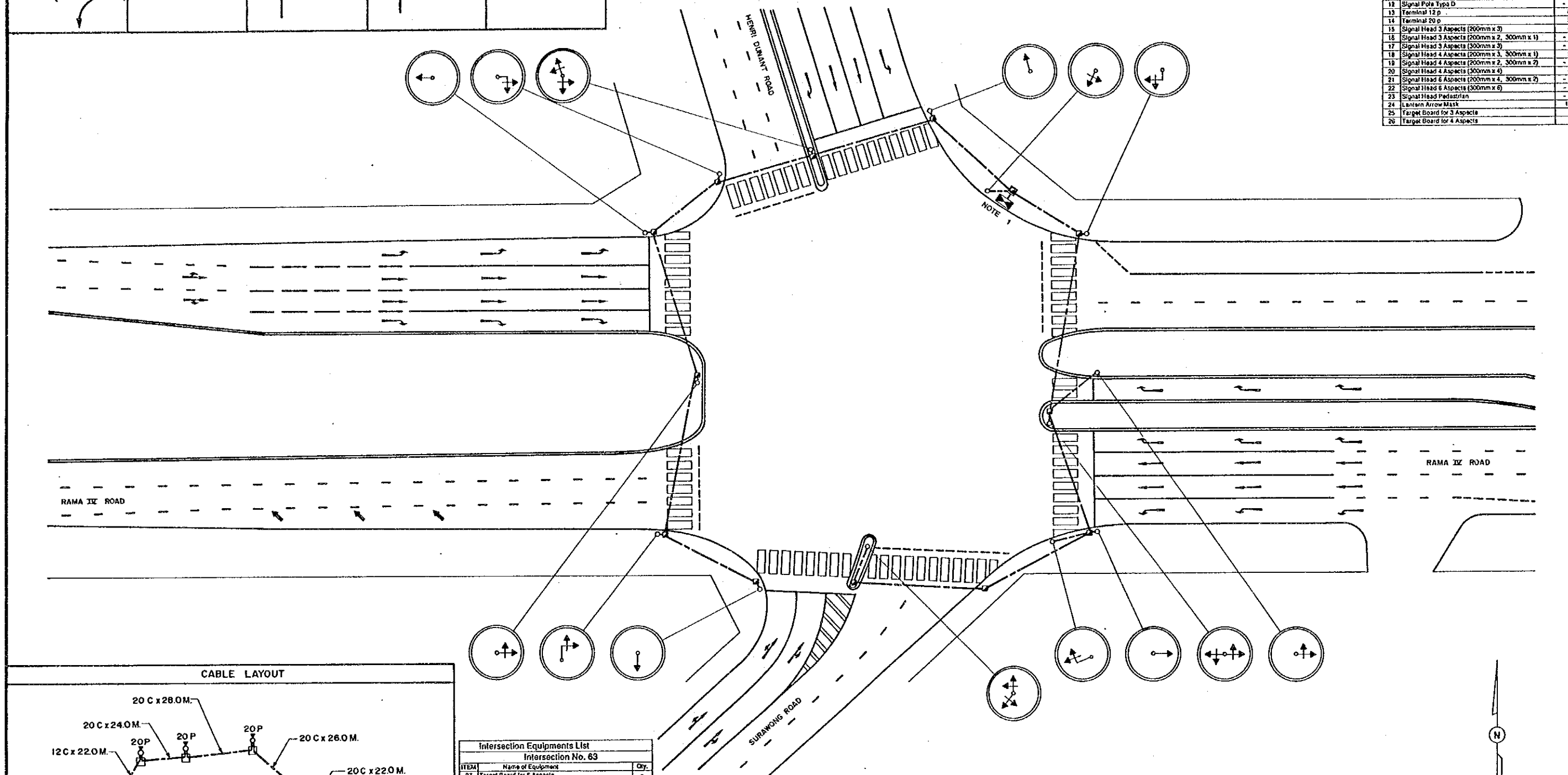
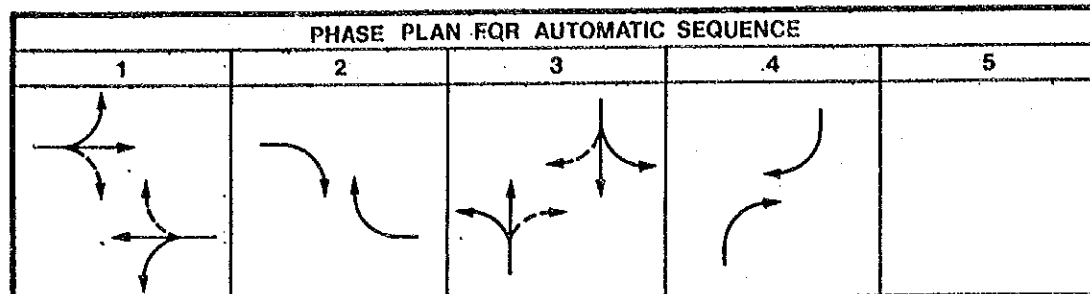
BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I							
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN				Submitted By :	Approved By :		
SAMSAN-CHAKKRAPHONG-PHRA SUMEN				Juro Kodera JICA Study Team Leader	Boonyawat Tiptus BMA Study Team Leader		
INTERSECTION NO 58				Designed By :	Checked By :		
				Yasuo Nishishima JICA Study Member	TED, BMA		
Code	Revision	Date	Initial	JICA	BMA	Scale	1 / 250
Associated Plan No. :				Japan International Cooperation Agency	Bangkok Metropolitan Administration	Drawing No	2058
				Date		SEPTEMBER '90	Total 44 / 139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5

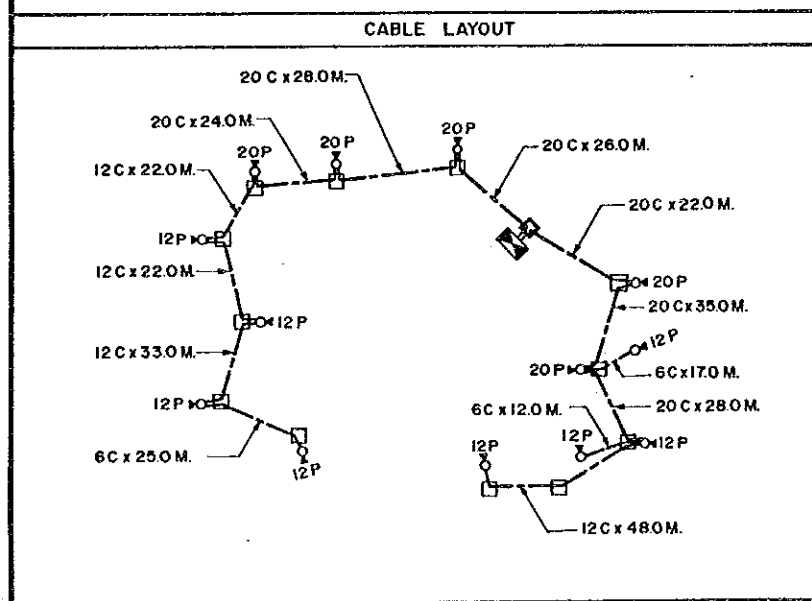


Intersection Equipments List		
Intersection No. 59		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	2
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	1
7	TOT Line Box	-
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (300mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 5 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 5 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Luminous Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 5 Aspects	-
28	PVC Conduit 100 mm (4")	6
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 50 mm	-
31	Steel Conduit 25 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Road	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq mm)	-
39	Signal Cable 6c (2 sq mm)	-
40	Signal Cable 12c (2 sq mm)	-
41	Signal Cable 20c (2 sq mm)	8
42	Power Cable	5
43	Cable Splicing Kit	1
44	Remove Existing Signal Pole and Heads (4-arm Type)	-
45	Remove Existing Signal Pole and Heads (Pedestrian Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (RV 5.5 sq mm x 1c)	5

BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
			Jure Kodera JICA Study Team Leader	Boonyawat Tiplua BMA Study Team Leader	
SAMSEN-WISUT KASAT			Designed By :	Checked By :	
			Yasuo Hasehima JICA Study Member	TED, BMA	
INTERSECTION NO. 59			Scale	Drawing No. 2059	
JICA Japan International Cooperation Agency			Date SEPTEMBER '90	Total 45 / 139	
BMA Bangkok Metropolitan Administration					



Intersection Equipments List		
Intersection No. 63		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	-
5	Pre-Processor of Detector Pulse	1
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	4
10	Signal Pole Type B	9
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	8
14	Terminal 20 p	5
15	Signal Head 3 Aspects (200mm x 3)	4
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	9
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	4
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	13
25	Target Board for 3 Aspects	4
26	Target Board for 4 Aspects	9

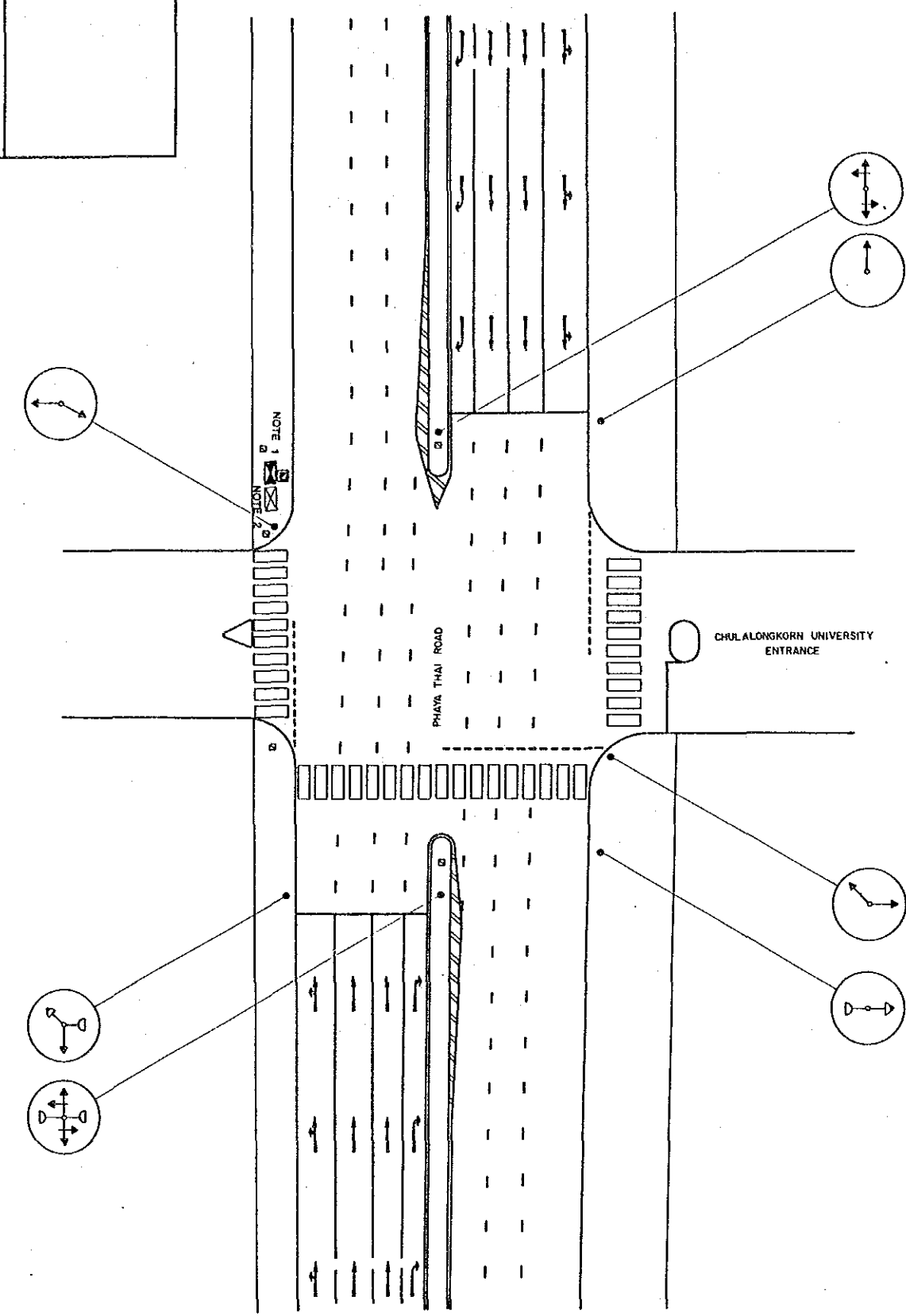


Intersection Equipments List		
Intersection No. 63		
ITEM	Name of Equipment	Qty.
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	228
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 50 mm	-
31	Steel Conduit 25 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	228
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	12
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	54
39	Signal Cable 6c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	134
41	Signal Cable 20c (2 sq. mm)	163
42	Power Cable	5
43	Cable Splicing Kit	-
44	Remove Existing Signal Pole and Heads (Main-arm Type)	-
45	Remove Existing Signal Pole and Heads (Pedestrian Type)	8
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (0.55 sq. mm x 1c)	5

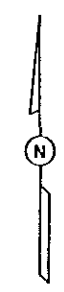
NOTE: Existing local controller, all signal poles and heads (not shown in this drawing) are to be removed.

BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT : STAGE I					
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN			Submitted By :	Approved By :	
HENRI DUNANT-RAMA IV-SURAWONG			Juro Kodera JICA Study Team Leader	Seonyawat Titlus BMA Study Team Leader	
INTERSECTION NO 63			Designed By :	Checked By :	
			Yusuf Nabeshim JICA Study Member	TED, BMA	
Code	Revision	Date	Initial	Scale	Drawing No
Associated Plan No. :				1 / 250	2063
JICA Japan International Cooperation Agency		BMA Bangkok Metropolitan Administration		Date SEPTEMBER '90	Total 46 / 139

PHASE PLAN FOR AUTOMATIC SEQUENCE				
1	2	3	4	5



Intersection Equipments List		
Intersection No. 64		
ITEM	Name of Equipment	Qty.
1	Local Controller	1
2	Railroad Pre-emption Control Unit	-
3	Pedestrian Push Button Interface Unit	-
4	Solid State Relay Unit	-
5	PVA-Processor of Detector Pulse	3
6	Supply Power Switch Box with Power Breaker	-
7	TOT Line Box	1
8	Remove Existing Controller	1
9	Signal Pole Type A	-
10	Signal Pole Type B	-
11	Signal Pole Type C	-
12	Signal Pole Type D	-
13	Terminal 12 p	-
14	Terminal 20 p	-
15	Signal Head 3 Aspects (200mm x 3)	-
16	Signal Head 3 Aspects (200mm x 2, 300mm x 1)	-
17	Signal Head 3 Aspects (300mm x 3)	-
18	Signal Head 4 Aspects (200mm x 3, 300mm x 1)	-
19	Signal Head 4 Aspects (200mm x 2, 300mm x 2)	-
20	Signal Head 4 Aspects (300mm x 4)	-
21	Signal Head 6 Aspects (200mm x 4, 300mm x 2)	-
22	Signal Head 6 Aspects (300mm x 6)	-
23	Signal Head Pedestrian	-
24	Lantern Arrow Mask	-
25	Target Board for 3 Aspects	-
26	Target Board for 4 Aspects	-
27	Target Board for 6 Aspects	-
28	PVC Conduit 100 mm (4")	6
29	Steel Conduit 100 mm (4")	-
30	Steel Conduit 59 mm	-
31	Steel Conduit 25 mm	5
32	Install Conduit under Asphalt Pavement	-
33	Install Conduit under Concrete Pavement or Sidewalk	6
34	Install Conduit under Rail	-
35	Install Conduit on Riser Support Pole	5
36	Handhole Type C	-
37	Handhole Type D	1
38	Signal Cable 6c (2 sq. mm)	8
39	Signal Cable 8c (2 sq. mm)	-
40	Signal Cable 12c (2 sq. mm)	-
41	Signal Cable 20c (2 sq. mm)	8
42	Power Cable	5
43	Cable Splicing YB	1
44	Remove Existing Signal Post and Heads (Post-arm Type)	-
45	Remove Existing Signal Post and Heads (Pedestal Type)	-
46	Remove Existing Signal Head	-
47	Remove Existing Arrow Mask	-
48	Remove Pedestrian Push Button	-
49	TOT Line (CPV, 0.65mm, 1P)	20
50	Grounding Rod	1
51	Grounding Cable (BV 5.5 sq. mm x 1c)	5



BANGKOK AREA TRAFFIC CONTROL SYSTEM PROJECT: STAGE I			
INTERSECTION TERMINAL EQUIPMENT LAYOUT PLAN		Submitted By :	Approved By :
PHAYA THAI -		Juro Kodera	Boonyawat Tiplus
CHULALONGKORN UNIVERSITY ENTRANCE		JICA Study Team Leader	BMA Study Team Leader
INTERSECTION NO 64		Designed By :	Checked By :
		Yasuo Nabeshima	TED, BMA
		JICA Study Member	
Associated Plan No. :	JICA Japan International Cooperation Agency	BMA Bangkok Metropolitan Administration	Scale 1 / 250
			Drawing NO 2064
		Date SEPTEMBER '90	Total 47 / 139