

ROYAL GOVERNMENT OF LAOS

VIENTIANE AIRPORT EXTENSION PROJECT

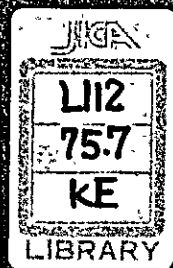
DRAWINGS
FOR
CONSTRUCTION WORKS

CONSULTING ENGINEERS

NIPPON KOEI CO., LTD.

TOKYO JAPAN

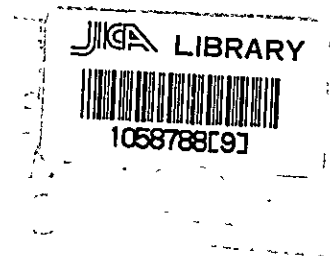
MAY 1969



ROYAL GOVERNMENT OF LAOS

VIENTIANE AIRPORT EXTENSION PROJECT

DRAWINGS
FOR
CONSTRUCTION WORKS



(A)

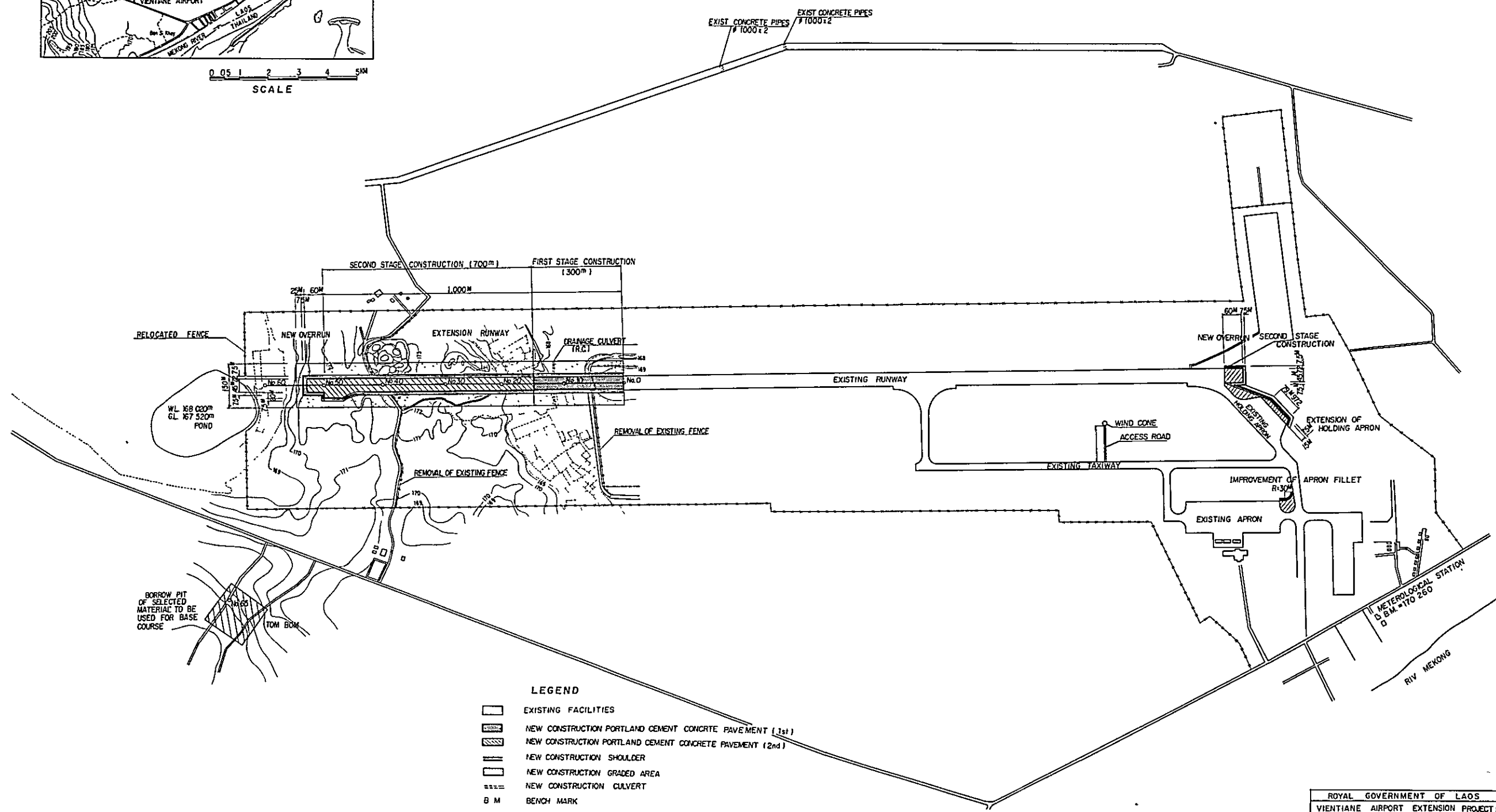
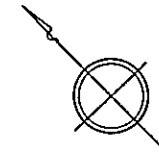
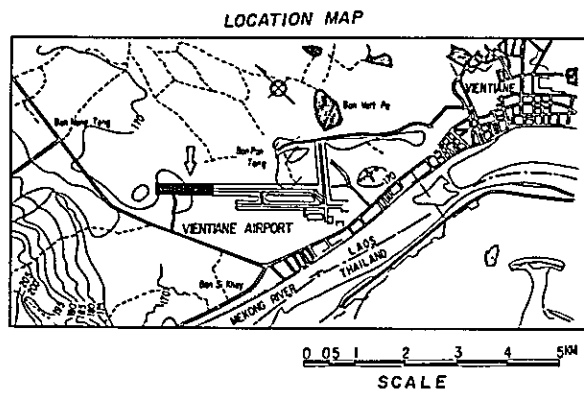
CONSULTING ENGINEERS
NIPPON KOEI CO., LTD.

TOKYO JAPAN
MAY 1969

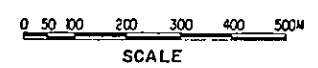
国際協力事業団	
受入 月日 84. 7. - 4	127/2
登録No. 108056	75.7
	KE)

DRAWING LIST

SHEET NO.	TITLE	SHEET NO.	TITLE
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- LEGEND
- EXISTING FACILITIES
 - NEW CONSTRUCTION PORTLAND CEMENT CONCRETE PAVEMENT (1st)
 - NEW CONSTRUCTION PORTLAND CEMENT CONCRETE PAVEMENT (2nd)
 - NEW CONSTRUCTION SHOULDER
 - NEW CONSTRUCTION GRADED AREA
 - NEW CONSTRUCTION CULVERT
 - B M BENCH MARK



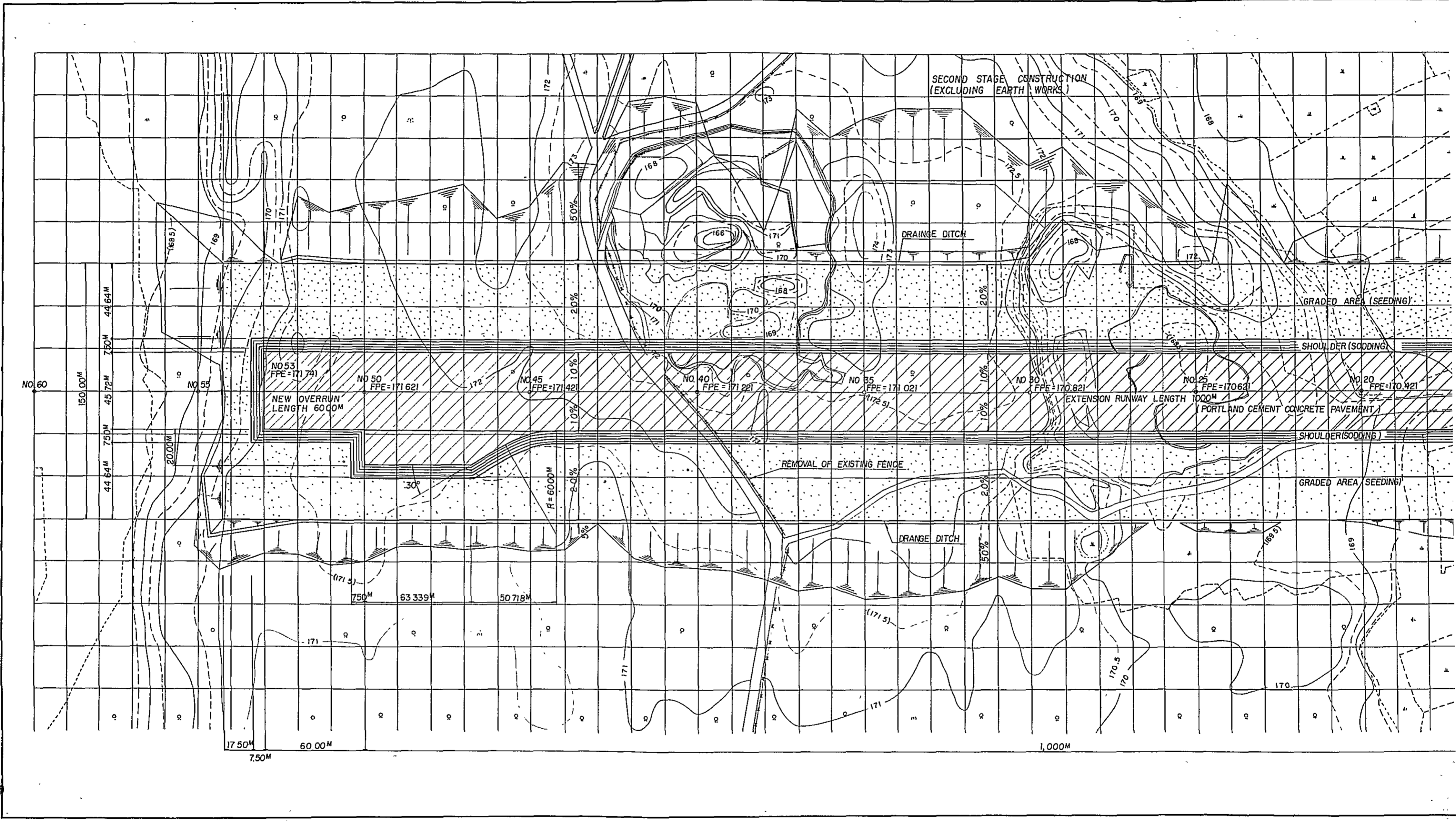
ROYAL GOVERNMENT OF LAOS
VIENTIANE AIRPORT EXTENSION PROJECT
(WATTAY)

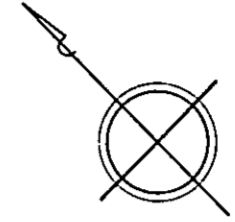
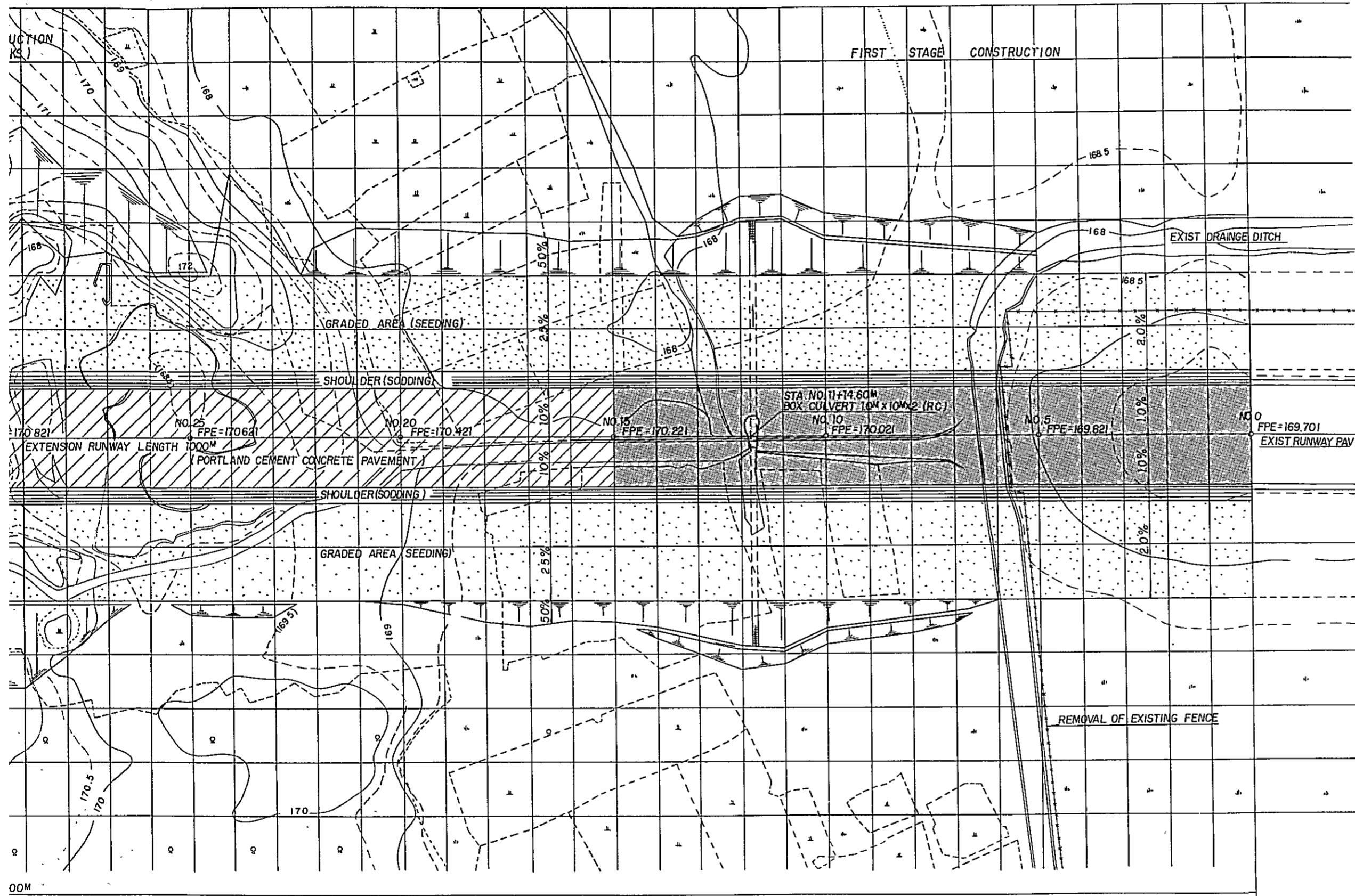
LOCATION MAP AND
GENERAL LAYOUT

PREPARED BY: *H. Matsuda* CHECKED BY: *H. Matsuda*
 DESIGNED BY: *H. Matsuda* APPROVED BY: *H. Matsuda*







DATE: APR 1969

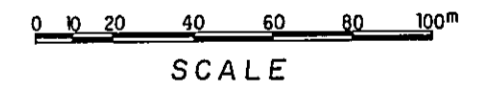
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 Sheet 1 of 44





LEGEND

-  PORTLAND CEMENT CONCRETE PAVEMENT (FIRST STAGE)
-  PORTLAND CEMENT CONCRETE PAVEMENT (SECOND STAGE)
-  SHOULDER (SODDING)
-  GRADED AREA (SEEDING)
-  DRAINAGE DITCH
-  DRAINAGE CULVERT (REINFORCED CONCRETE)

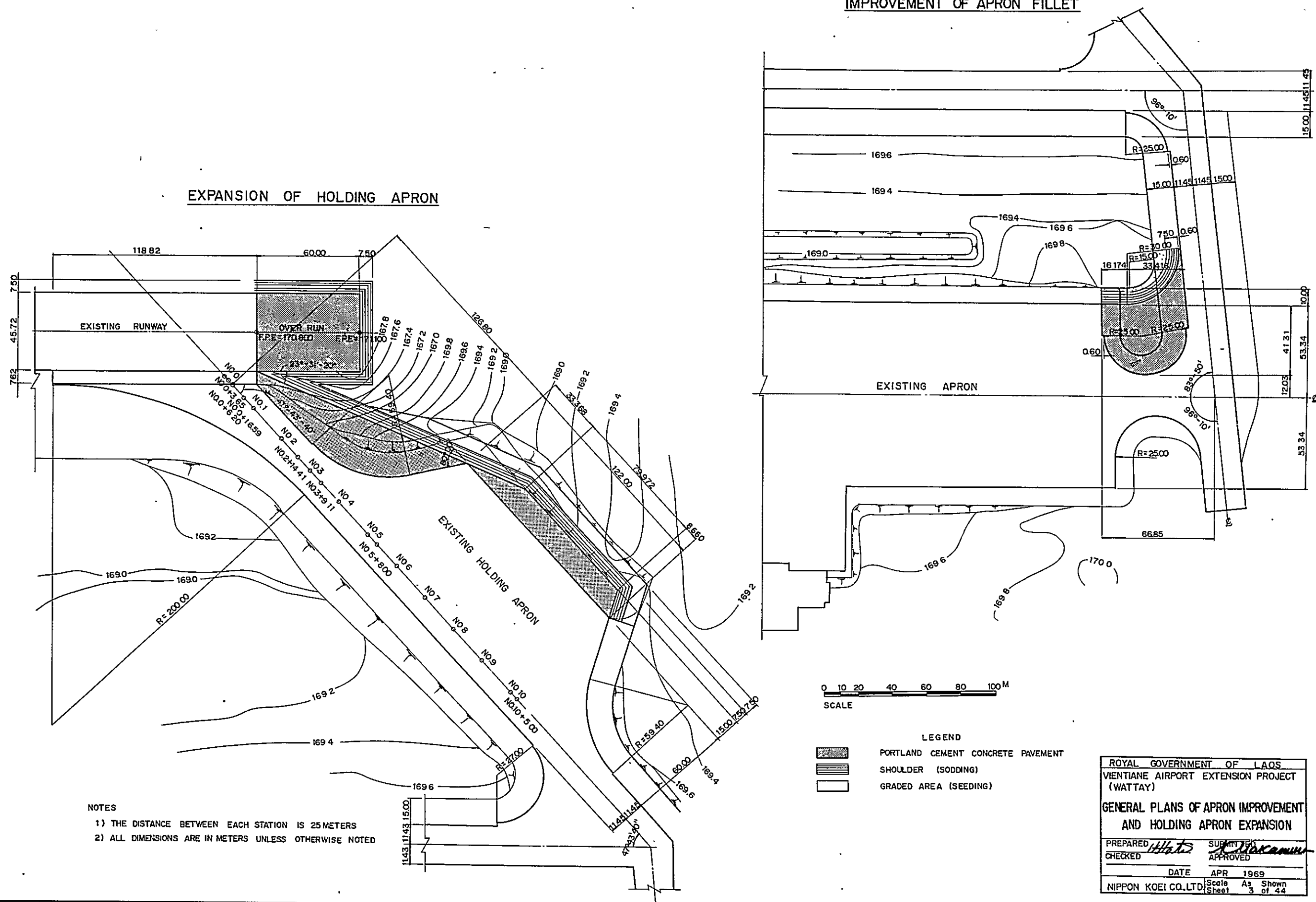


ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
GENERAL PLAN OF RUNWAY EXTENSION	
PREPARED <i>Wats</i>	SUMMITTED <i>Chakamun</i>
CHECKED	APPROVED
DATE APR. 1969	
NIPPON KOEI CO., LTD Scale AS Shown Sheet 2 of 44	

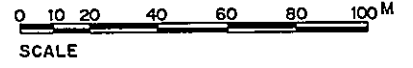
00M

IMPROVEMENT OF APRON FILLET




EXPANSION OF HOLDING APRON



- NOTES
- 1) THE DISTANCE BETWEEN EACH STATION IS 25 METERS
 - 2) ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED



LEGEND

 PORTLAND CEMENT CONCRETE PAVEMENT
 SHOULDER (SODDING)
 GRADED AREA (SEEDING)

ROYAL GOVERNMENT OF LAOS
 VIETIANE AIRPORT EXTENSION PROJECT
 (WATTAY)

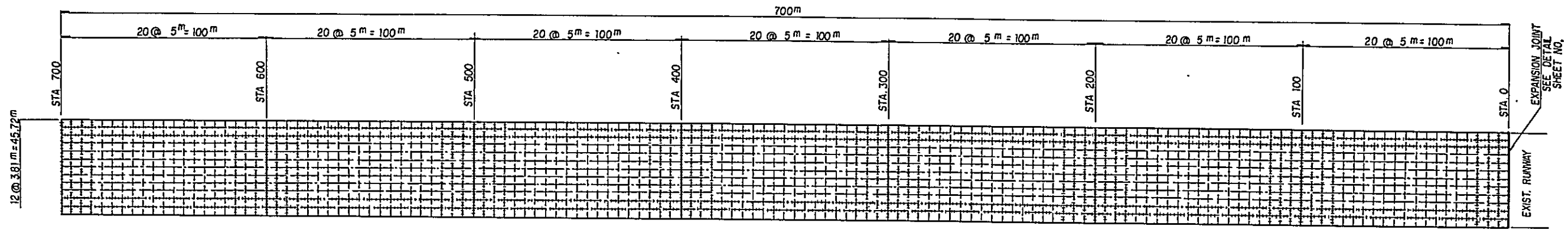
**GENERAL PLANS OF APRON IMPROVEMENT
 AND HOLDING APRON EXPANSION**

PREPARED *H.H.H.* CHECKED *H.H.H.*
 SUBMITTED BY *A. Nakamura*
 APPROVED *A. Nakamura*

DATE APR 1969

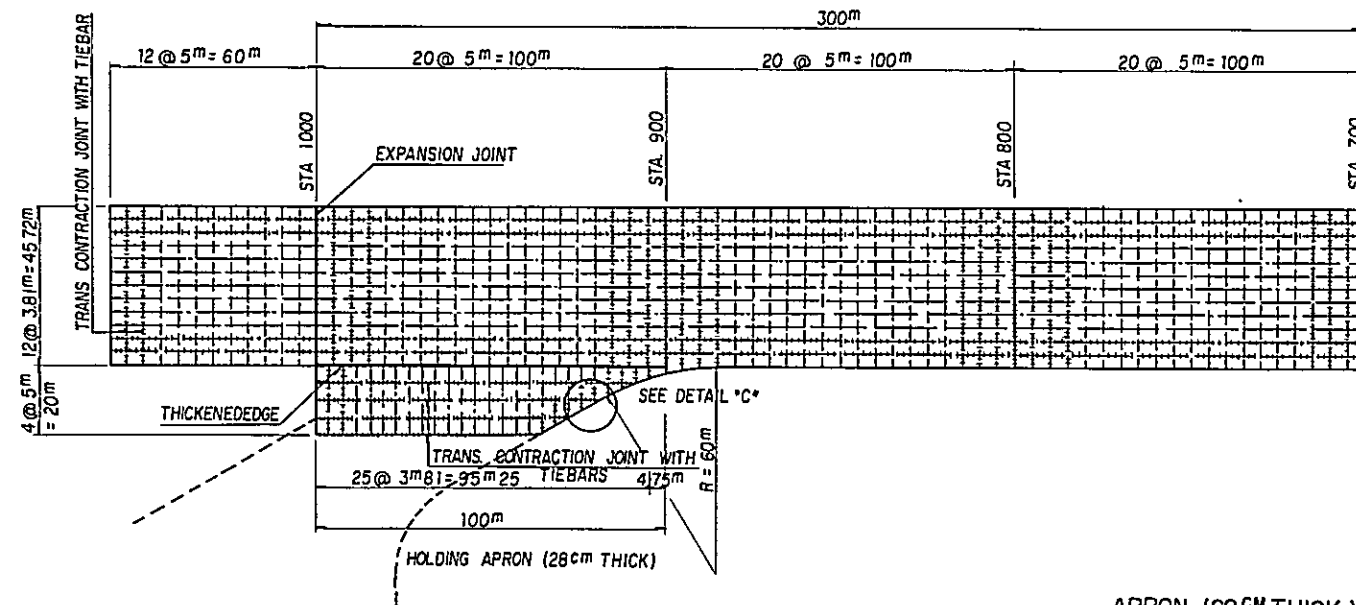
NIPPON KOEI CO.LTD. Scale As Shown Sheet 3 of 44

RUNWAY (25^{CM} THICK)



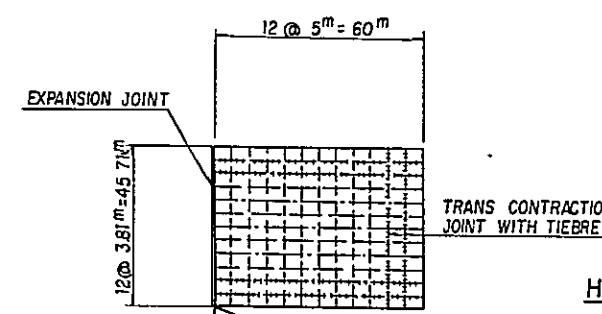
WEST SIDE OVERRUN (15^{CM} THICK)

RUNWAY (28^{CM} THICK)

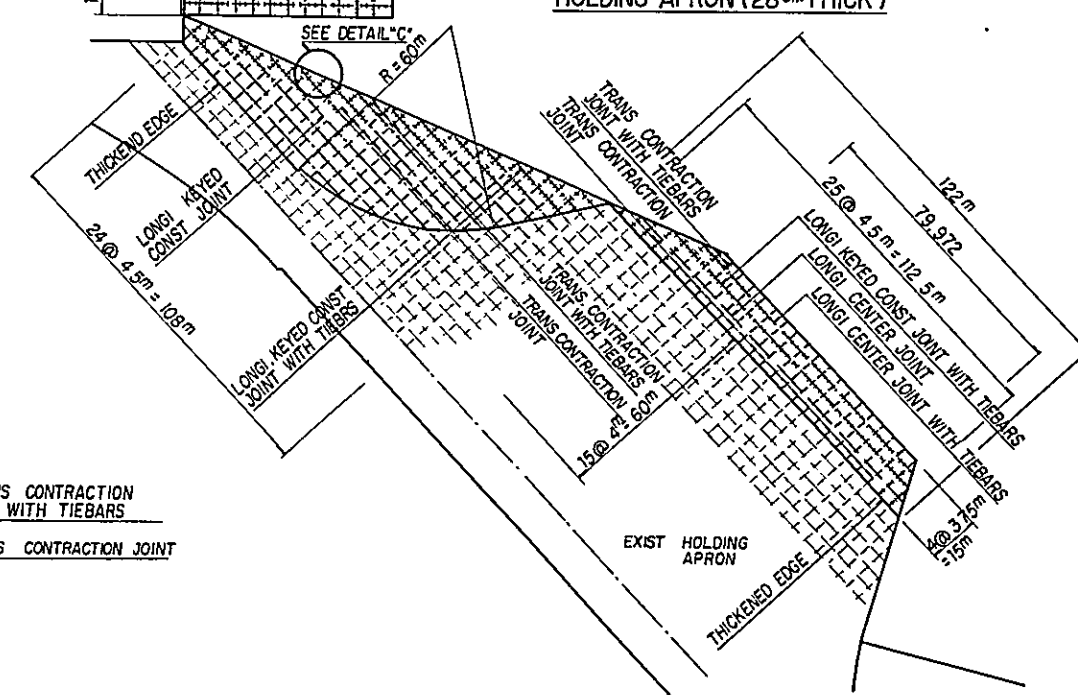


EAST SIDE OVERRUN (25^{CM} THICK)

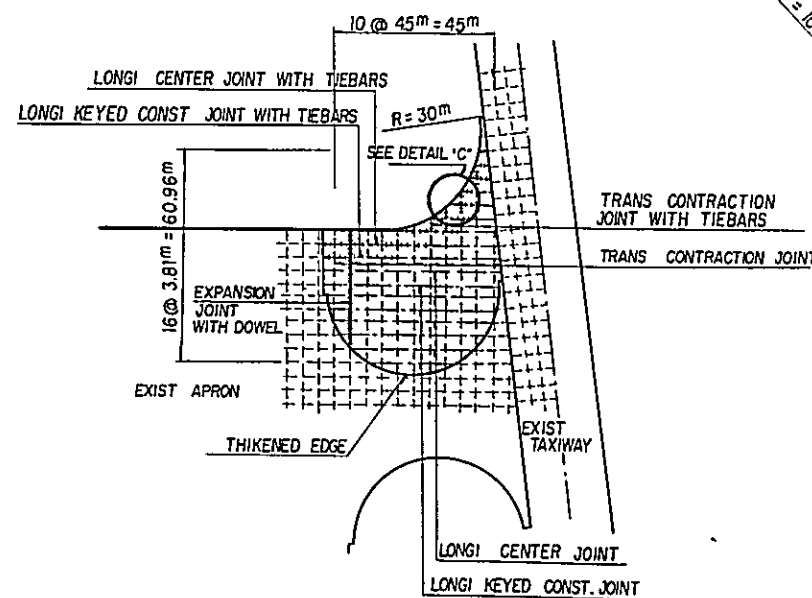
DETAIL "C"
NOT TO SCALE



HOLDING APRON (28^{CM} THICK)



APRON (28^{CM} THICK)

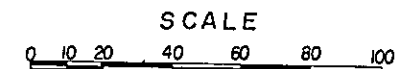


LEGEND

- LONGITUDINAL CENTER JOINT
- LONGITUDINAL CENTER JOINT WITH TIEBARS
- LONGITUDINAL KEYED CONSTRUCTION JOINT
- LONGITUDINAL KEYED CONSTRUCTION JOINT WITH TIEBARS
- EXPANSION JOINT
- TRANSVERS CONTRACTION JOINT
- TRANSVERS CONTRACTION JOINT WITH DOWEL
- EXPANSION JOINT WITH DOWEL

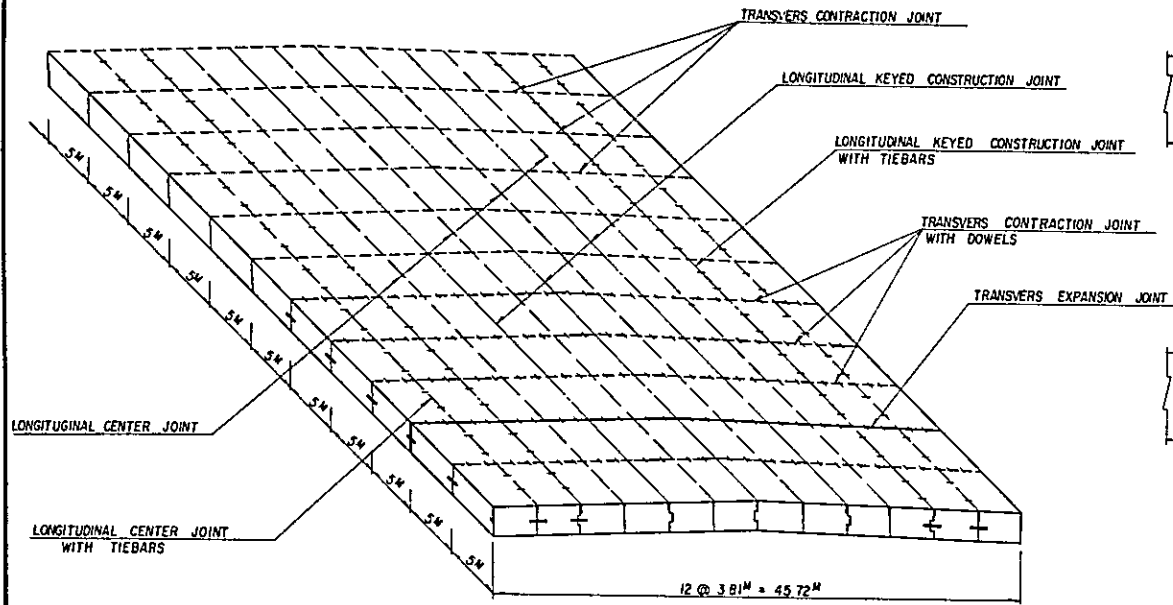
NOTES

1 ALL DIMENSIONS ARE IN METERS UNLESS OTHER-WISE NOTED



ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
JOINTING PLAN	
PREPARED <i>H.H.H.</i>	SUBMITTED <i>H.H.H.</i>
CHECKED	APPROVED
DATE	APR. 1969
NIPPON KOEI CO., LTD	Scale AS Shown Sheet 4 of 44

JOINTING ARRANGEMENT
NOT TO SCALE



CHAIR DETAIL
NOT TO SCALE

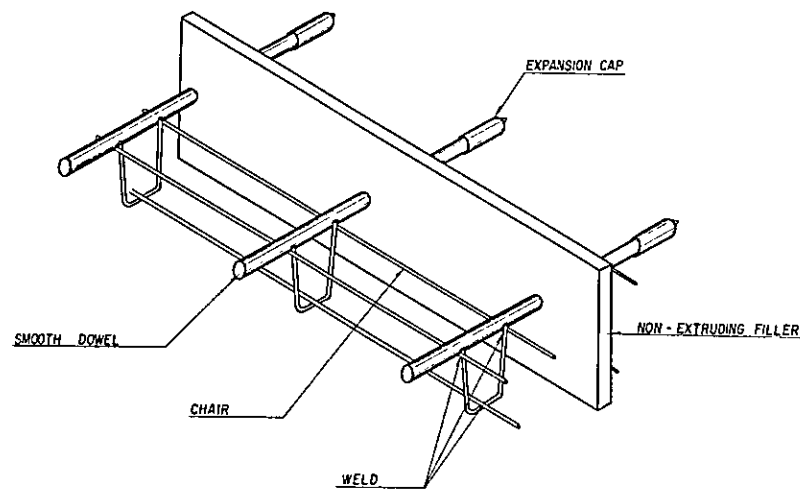


TABLE - 1

PAVEMENT THICKNESS T (CM)	KEYED JOINT DIMENSION (MM)				DEPTH OF CONSTRUCTION h (MM)
	a	b	c	d	
28	70	50	25	105	60
25	70	50	25	90	60
15	60	35	25	45	40

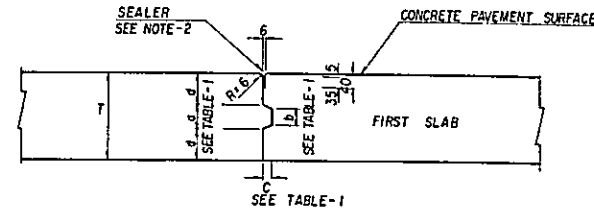
TABLE - 2

PAVEMENT THICKNESS T (CM)	DEFORMED STEEL TIE BAR SIZE AND SPACING (MM)		
	DIAMETER	LENGTH	SPACING
28	16	800	800
25	16	800	800
15	13	600	900

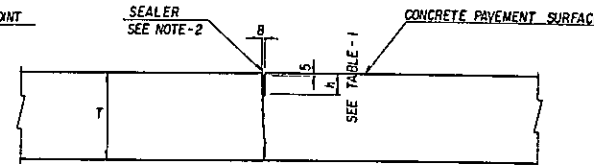
- NOTES**
- 1 ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN
 - 2 PAVEMENT JOINTS FOR ALL 25CM THICKNESS SHALL BE SEALED WITH A BITUMINOUS SEALER HOT POURED TYPE CONFORMING TO US FEDERAL SPECIFICATION SS-5-164 AND ALL OTHER PAVEMENTS CONFORMING TO US FEDERAL SPECIFICATION SS-5-167-6

LONGITUDINAL

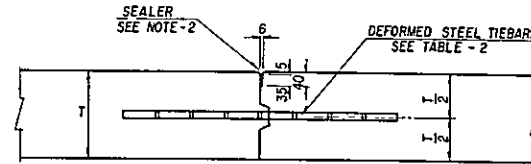
KEYED CONSTRUCTION JOINT



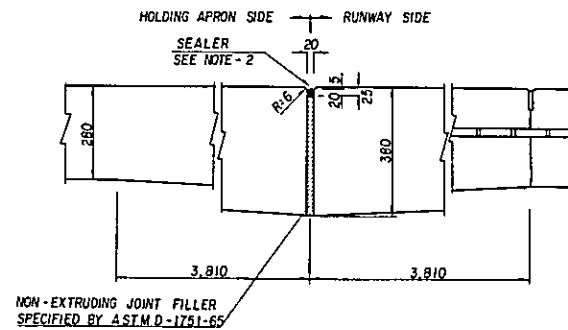
CENTER JOINT



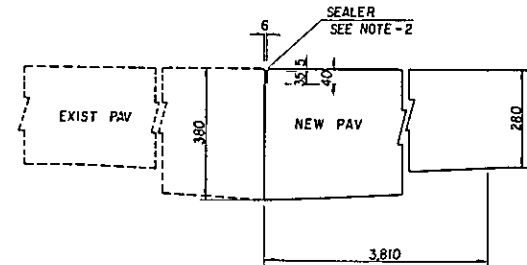
KEYED CONSTRUCTION JOINT WITH TIEBARS



EXPANSION JOINT FOR THICKENED EDGE

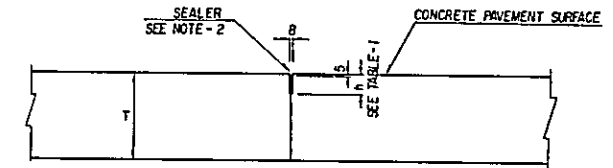


CONSTRUCTION JOINT THICKENED EDGE LONGITUDINAL & TRANSVERS

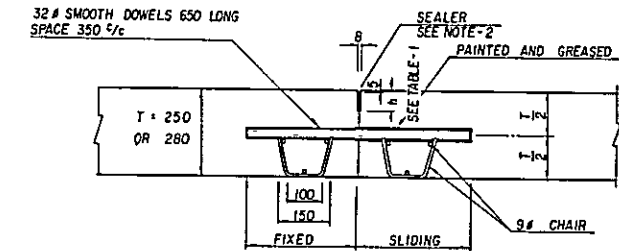


TRANSVERS

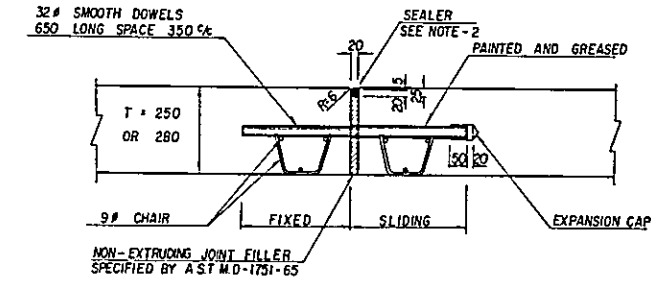
CONTRACTION JOINT



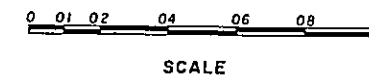
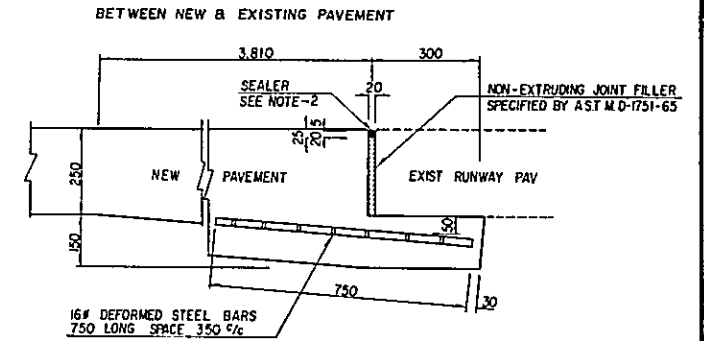
CONTRACTION JOINT WITH DOWEL



EXPANSION JOINT



EXPANSION JOINT BETWEEN NEW & EXISTING PAVEMENT



ROYAL GOVERNMENT OF LAOS
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)

JOINT DETAILS

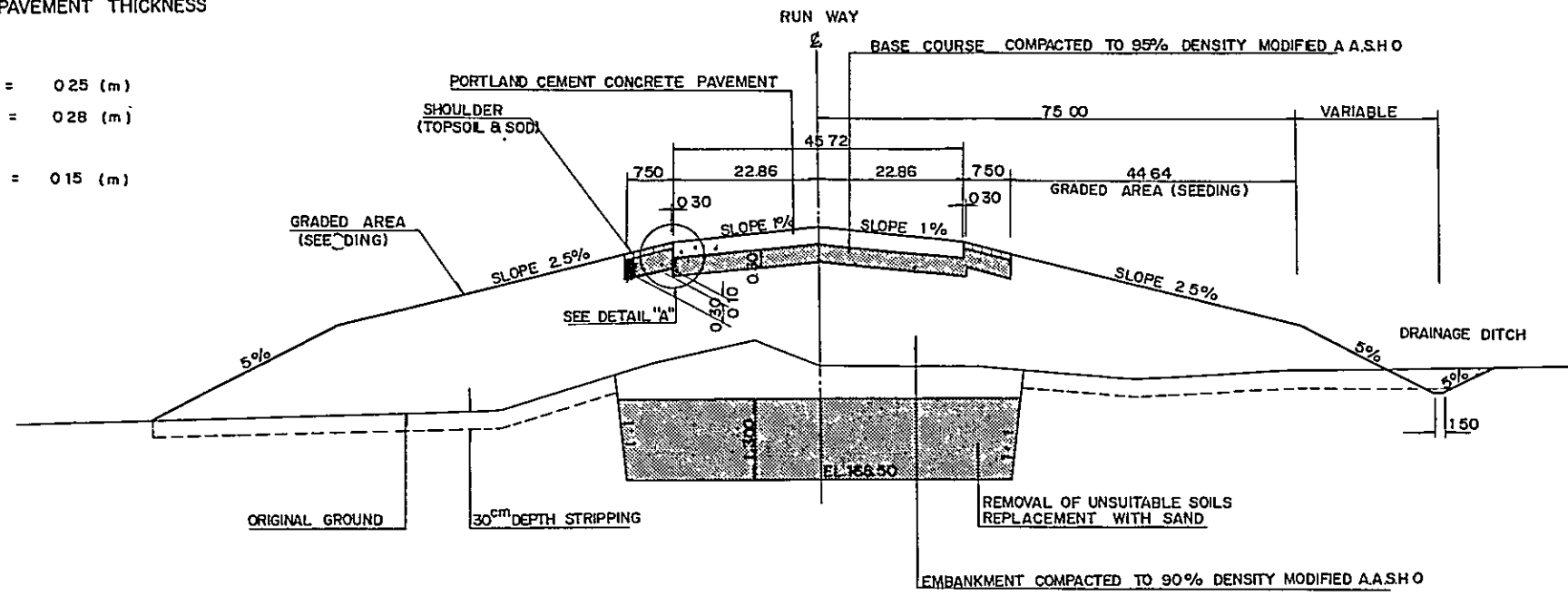
PREPARED: *[Signature]* SUBMITTED: *[Signature]*
CHECKED: *[Signature]* APPROVED: *[Signature]*

DATE: APR 1969
Scale: AS SHOWN
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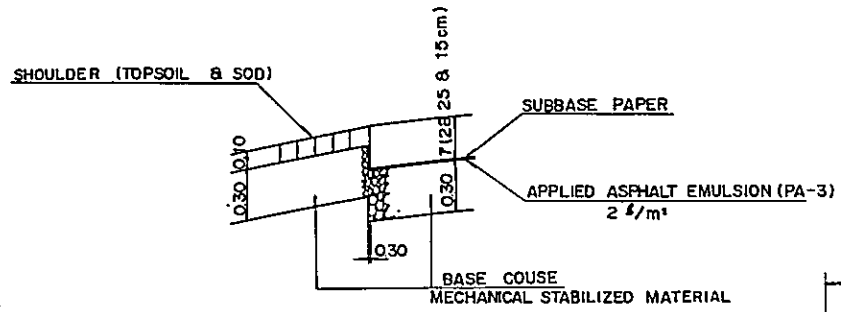
TYPICAL CROSS SECTION RUNWAY & WEST SIDE OVERRUN IN FILL

PORTLAND CEMENT CONCRETE PAVEMENT THICKNESS

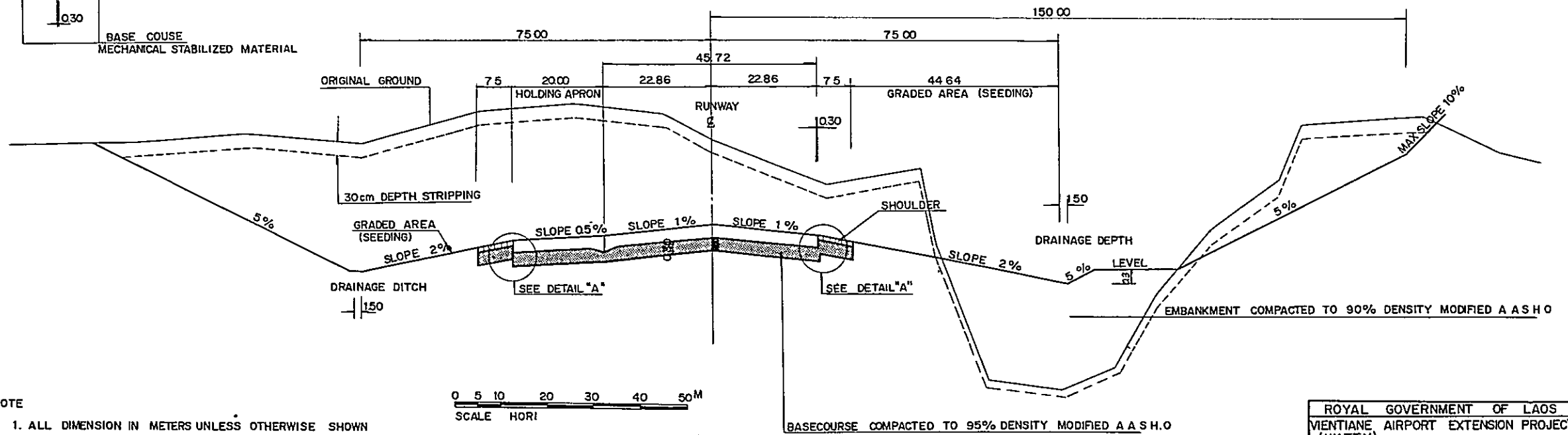
RUN WAY		
STA NO 0	TO STA NO 35	= 0.25 (m)
STA. NO 35	TO STA NO 50	= 0.28 (m)
ALL OVERRUN		= 0.15 (m)



DETAIL "A"

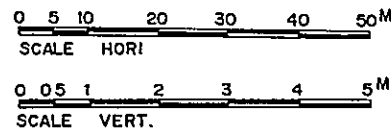


TYPICAL CROSS SECTION RUNWAY & WEST SIDE OVERRUN IN CUT



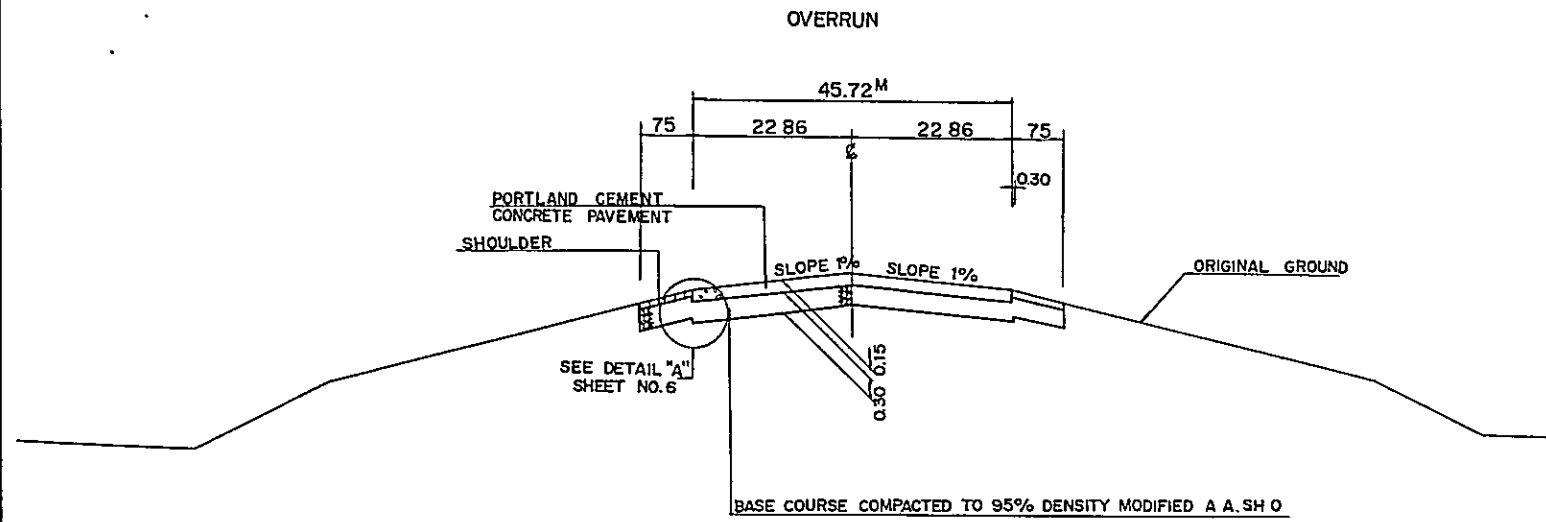
NOTE

1. ALL DIMENSION IN METERS UNLESS OTHERWISE SHOWN

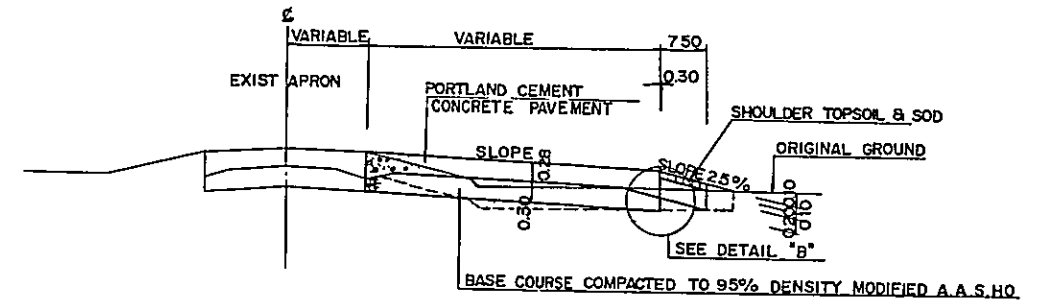


ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTY)	
TYPICAL CROSS SECTION (1)	
PREPARED	SUBMITTED
CHECKED <i>H.Hat</i>	APPROVED <i>A. Lakom</i>
DATE APR. 1969	
NIPPON KOEI CO. LTD. Scale As Shown Sheet 6 of 44	

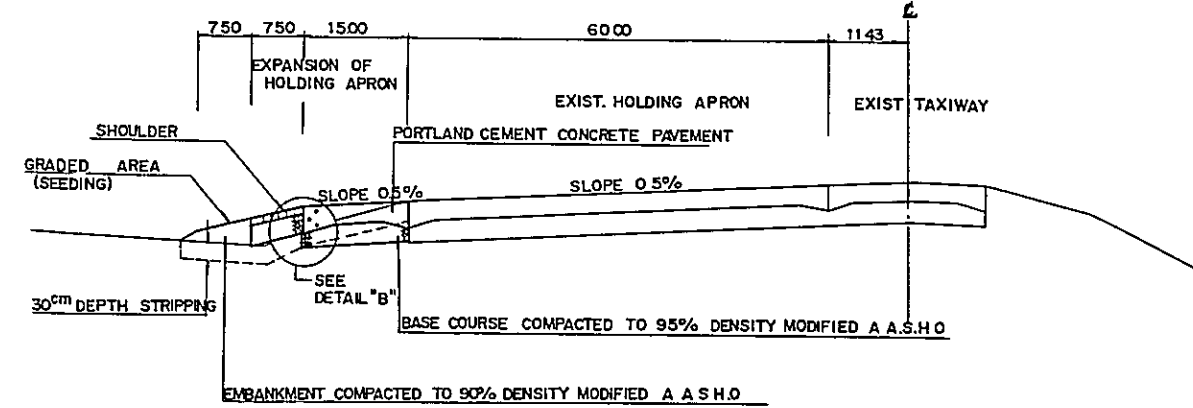
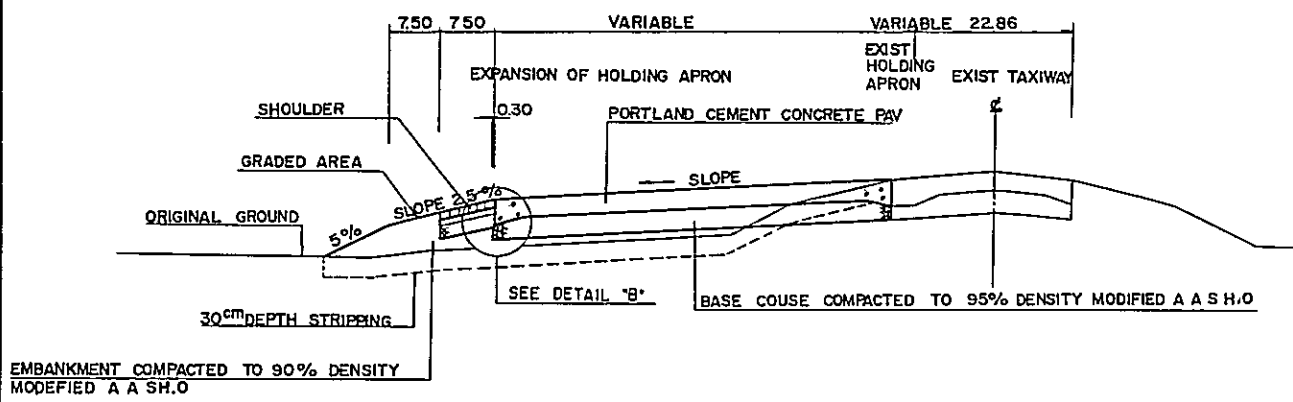
TYPICAL CROSS SECTION OF EAST SIDE OVERRUN



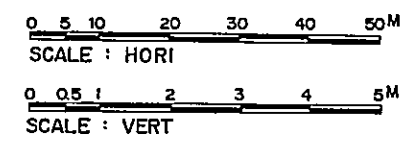
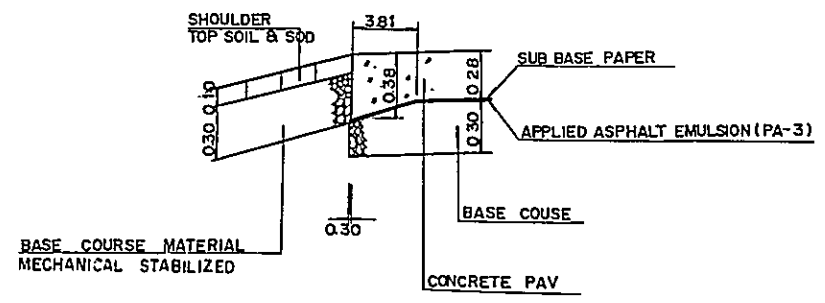
TYPICAL CROSS SECTION OF APRON



TYPICAL CROSS SECTION OF HOLDING APRON

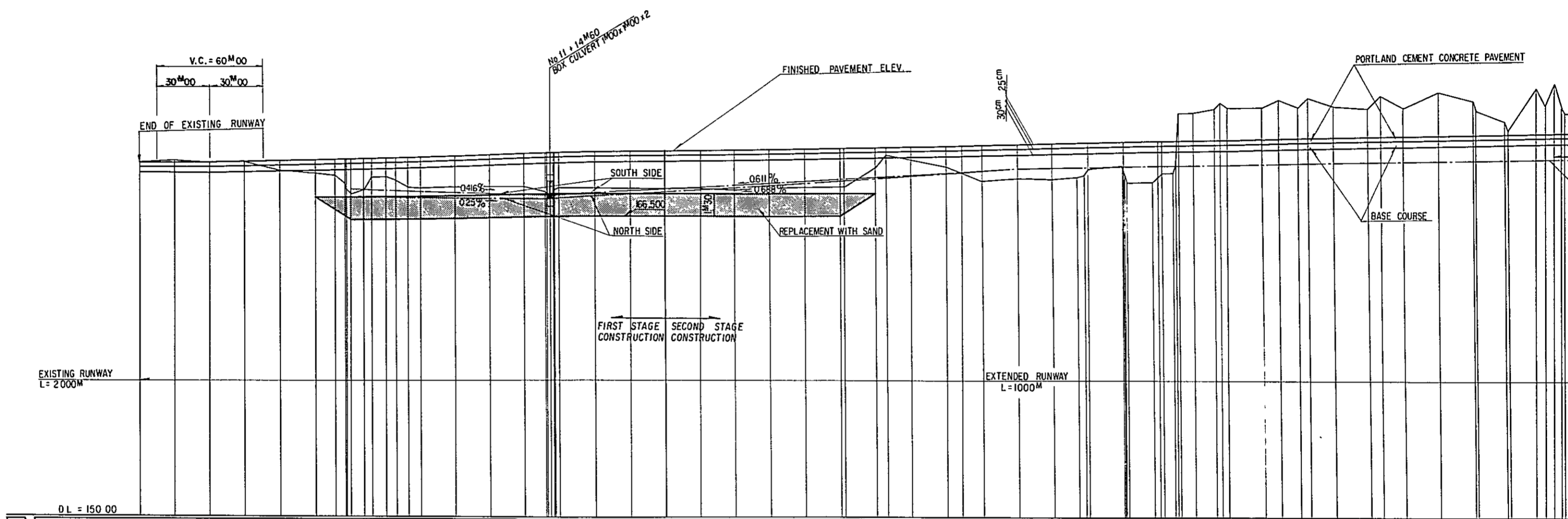


DETAIL "B"

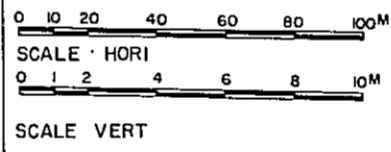
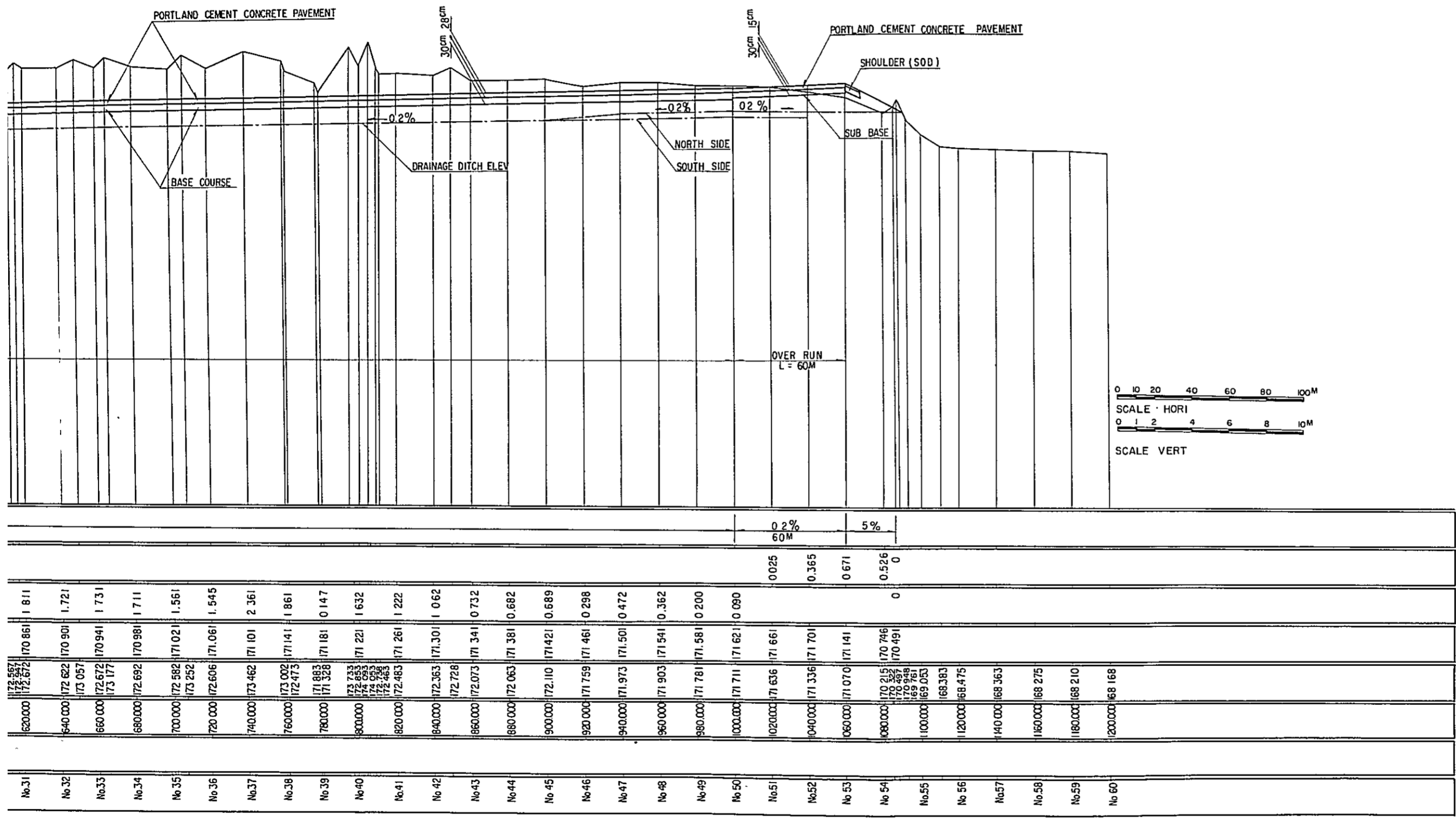


NOTES,
1 ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
TYPICAL CROSS SECTION (II)	
PREPARED	SUBMITTED
CHECKED	APPROVED
DATE APR. 1969	
Scale As Shown	
NIPPON KOEI CO., LTD. Sheet 7 of 44	



STATION	DIST.	ADDIST.	GROUND ELEV.	FINISHED Pav. ELEV.	CUT	BANK	SLOPE
No 0	0	0	169.701	169.701	0		
No 1	20.000	20.000	169.730	169.703	0.027	0.006	
No 2	40.000	40.000	169.710	169.716		0.096	
No 3	60.000	60.000	169.667	169.713		0.576	
No 4	80.000	80.000	169.205	169.781		0.766	
No 5	100.000	100.000	169.035	169.821		1.959	
No 6	120.000	120.000	168.890	169.861		1.111	
No 7	140.000	140.000	168.790	169.901		1.736	
No 8	160.000	160.000	168.215	169.941		1.726	
No 9	180.000	180.000	168.255	169.981		1.798	
No 10	200.000	200.000	168.223	170.021		1.871	
No 11	220.000	220.000	168.190	170.061		1.964	
No 12	240.000	240.000	167.940	170.101		2.026	
No 13	260.000	260.000	168.115	170.141		2.091	
No 14	280.000	280.000	168.090	170.181		2.094	
No 15	300.000	300.000	168.127	170.221		2.121	
No 16	320.000	320.000	168.140	170.261		2.211	
No 17	340.000	340.000	168.090	170.301		2.156	
No 18	360.000	360.000	168.185	170.341		2.184	
No 19	380.000	380.000	168.197	170.381		2.176	
No 20	400.000	400.000	168.245	170.461		1.121	
No 21	420.000	420.000	169.340	170.461		0.776	
No 22	440.000	440.000	169.725	170.501		1.206	
No 23	460.000	460.000	169.335	170.541		2.004	
No 24	480.000	480.000	168.571	170.581		1.886	
No 25	500.000	500.000	168.735	170.621		1.991	
No 26	520.000	520.000	168.670	170.661		1.506	
No 27	540.000	540.000	168.760	170.701		1.646	
No 28	560.000	560.000	169.325	170.741		2.026	
No 29	580.000	580.000	168.725	170.781			
No 30	600.000	600.000	172.347	170.821	1.526		
No 31	620.000	620.000	172.672	170.861	1.811		
No 32	640.000	640.000	172.622	170.901	1.721		
No 33	660.000	660.000	172.672	170.941	1.731		
No 34	680.000	680.000	172.692	170.981	1.711		
No 35	700.000	700.000	172.582	171.021	1.561		
No 36	720.000	720.000	172.606	171.061	1.545		
No 37	740.000	740.000	173.462	171.101	2.361		
No 38	760.000	760.000	173.002	171.141	1.861		
No 39	780.000	780.000	171.863	171.181	0.147		
No 40	800.000	800.000	172.733	171.221	1.632		



ROYAL GOVERNMENT OF LAOS
VIENTIANE AIRPORT EXTENSION PROJECT
(WATTAY)

PROFILE OF RUNWAY

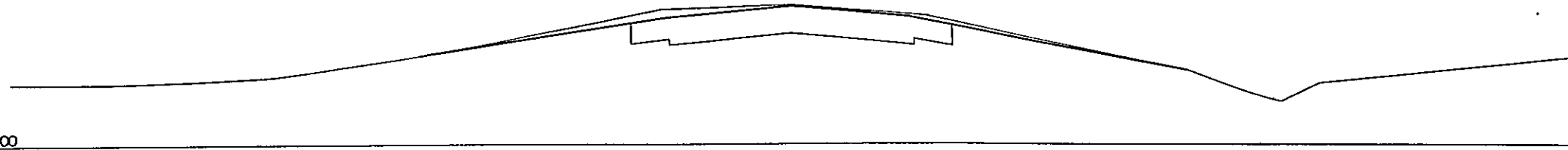
PREPARED: *[Signature]* SUBMITTED: *[Signature]*
 CHECKED: *[Signature]* APPROVED: *[Signature]*

DATE: APR 1969
 Scale: AS SHOWN
 NIPPON KOEI CO., LTD. Sheet 8 of 44

No. 2

GE = 169^M710
FPE = 169.716

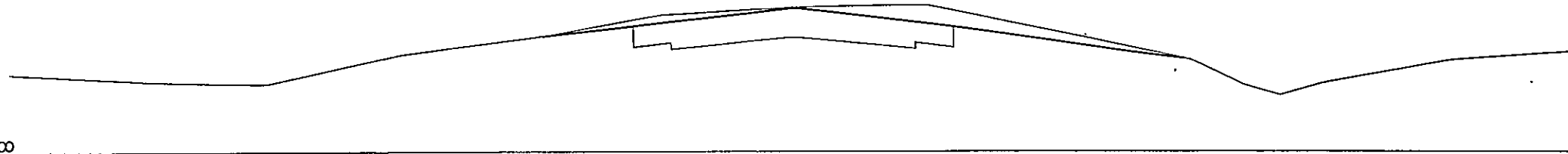
DL = 16700



No. 1

GE = 169^M730
FPE = 169.703

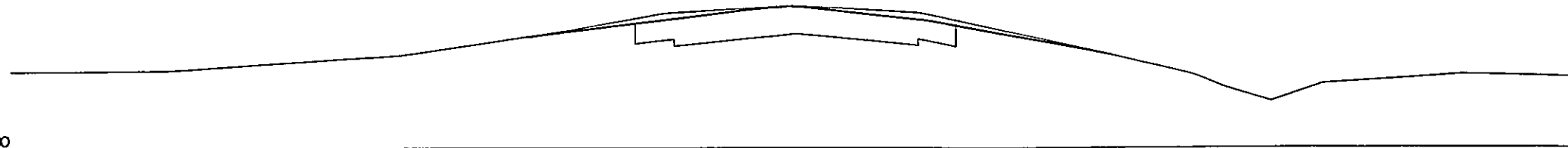
DL = 16700



No. 0

GE = 169^M701
FPE = 169.701

DL = 16700



NOTES

GE . GROUND ELEVATION
FPE . FINISHED PAVEMENT ELEVATION

0 5 10 20 30 40 50^M

SCALE . HORI

0 0.5 1 2 3 4 5^M

SCALE : VERT

ROYAL GOVERNMENT OF LAOS
VIENTIANE AIR PORT EXTENSION PROJECT
(WATTAY)

CROSS SECTIONS OF RUNWAY

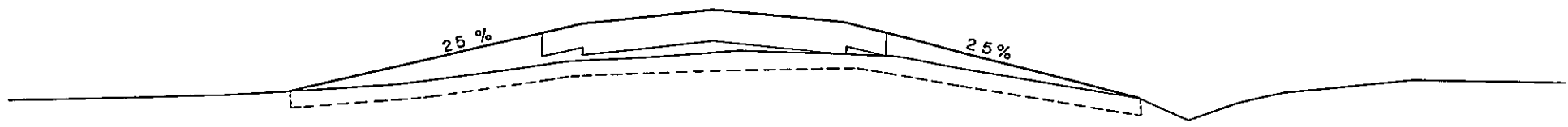
(1)

PREPARED *H.H.T.* SUBMITTED *K. Khammou*
CHECKED _____ APPROVED _____

DATE APR. 1969

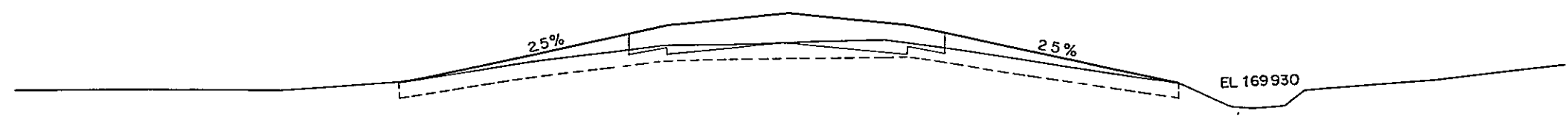
NIPPON KOEI CO., LTD. Scale As Shown
Sheet 9 of 44

NO.5
 GE = 169^M035
 FPE = 169 821



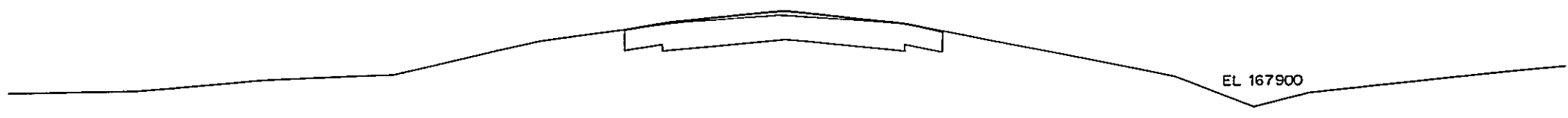
DL = 167 00

NO.4
 GE = 169^M205
 FPE = 169 781

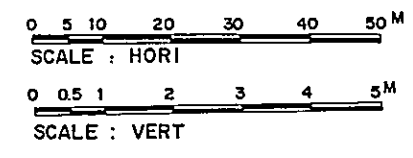


DL = 167 00

NO.3
 GE = 169^M667
 FPE = 169 743



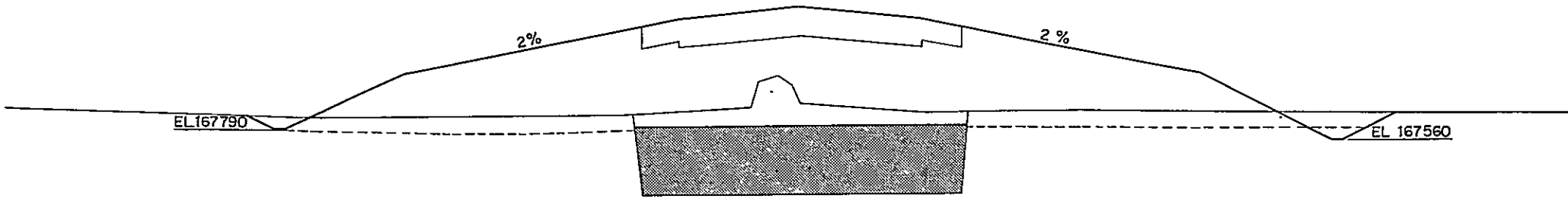
DL = 167 00



ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY (2)	
PREPARED	SUBMITTED
CHECKED <i>Hato</i>	APPROVED <i>Watanabe</i>
DATE APR. 1969	
NIPPON KOEI CO., LTD. Scale As Shown Sheet 10 of 44	

No. 11

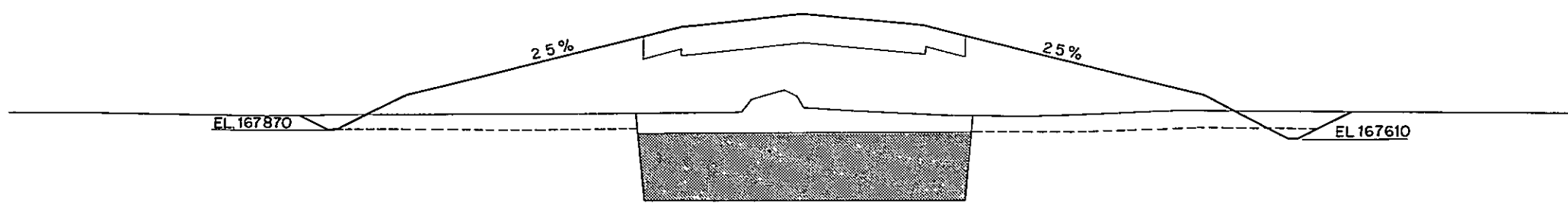
GE = 168^M190
FPE = 170.061



DL = 166 00

No. 10

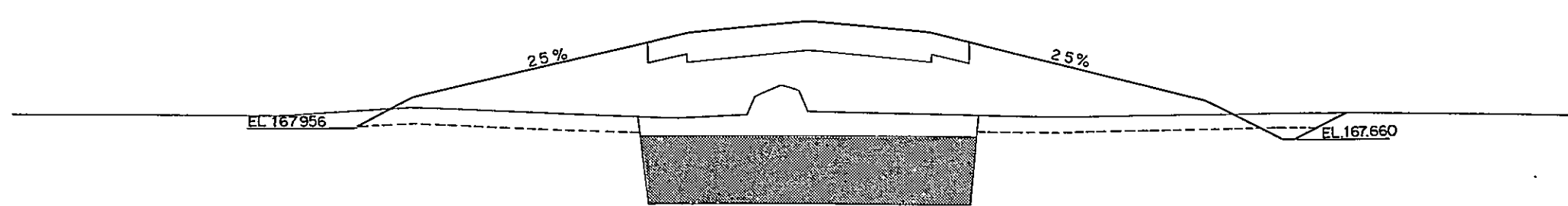
GE = 168^M223
FPE = 170.021



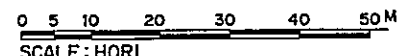
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No. 9

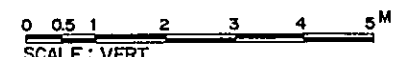
GE = 168^M255
FPE = 169.981



DL = 166 00

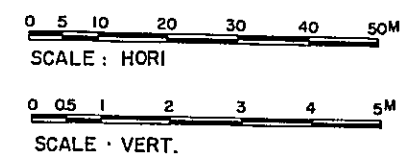
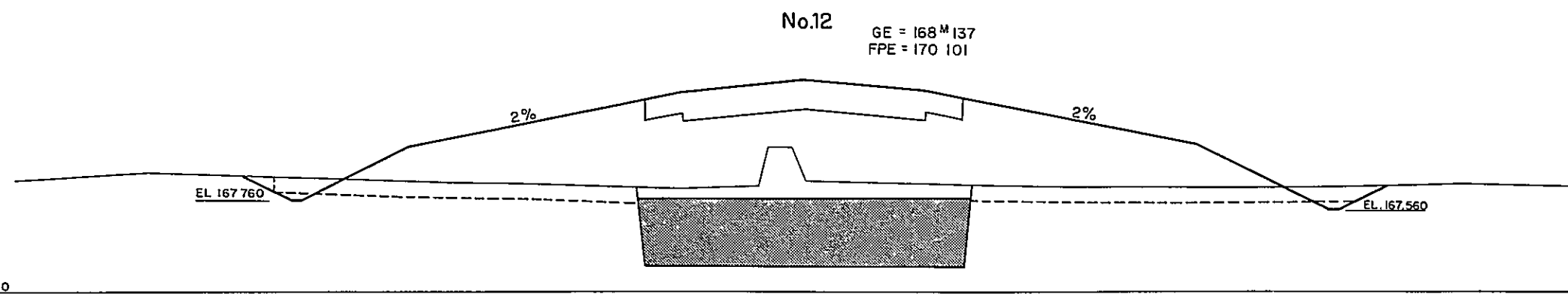
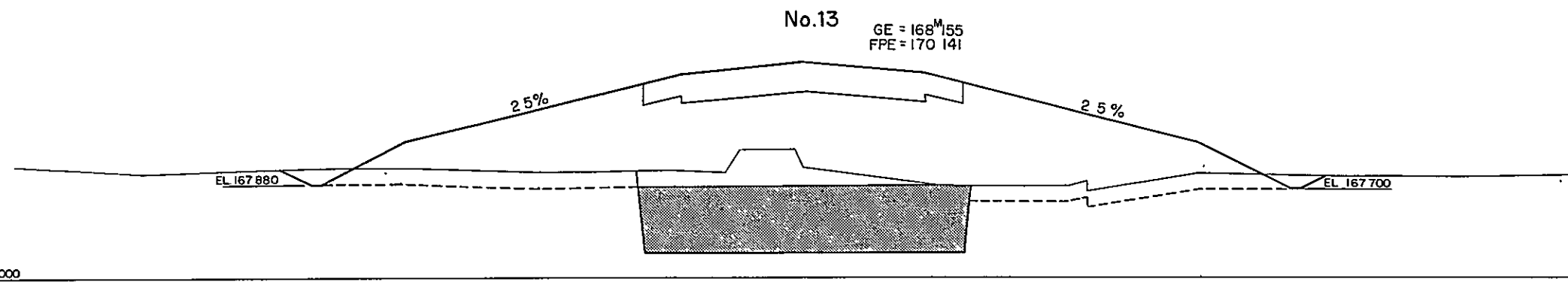
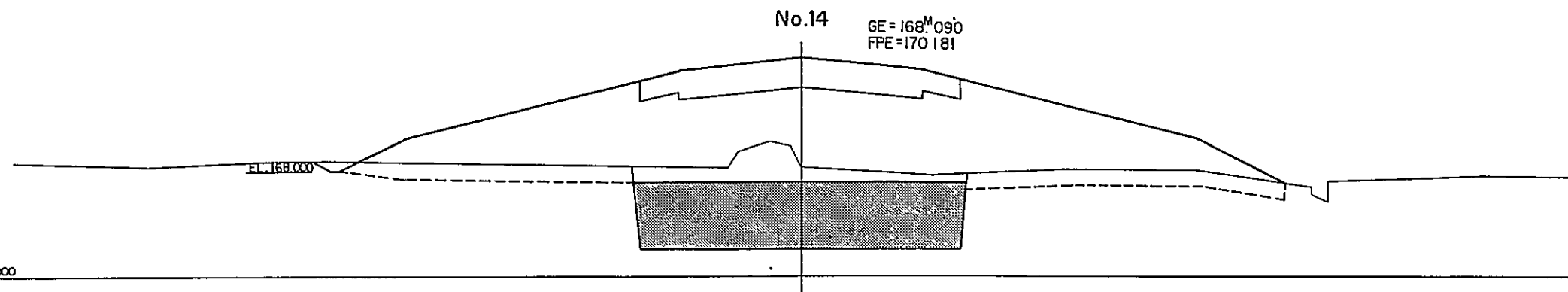


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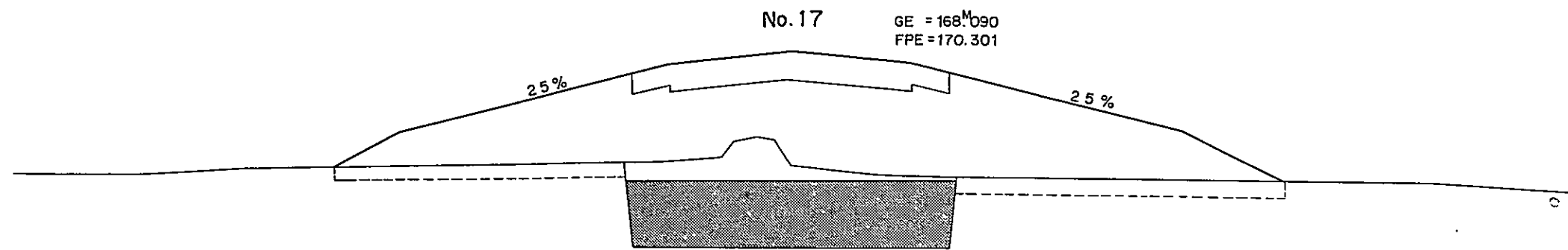


SCALE: VERT

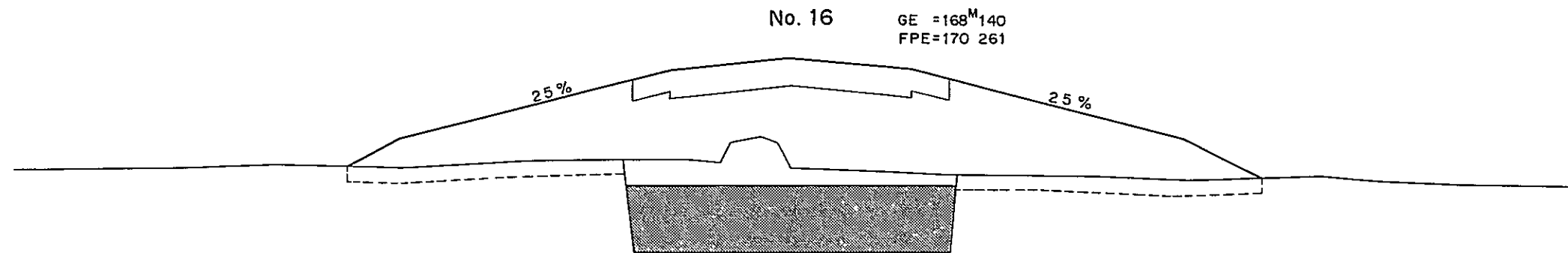
ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIR PORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY (4)	
PREPARED	SUBMITTED
CHECKED <i>W. K.</i>	APPROVED <i>K. K.</i>
DATE APR. 1969	
NIPPON KOEI CO. LTD	SCALE As Shown SHEET 12 of 44



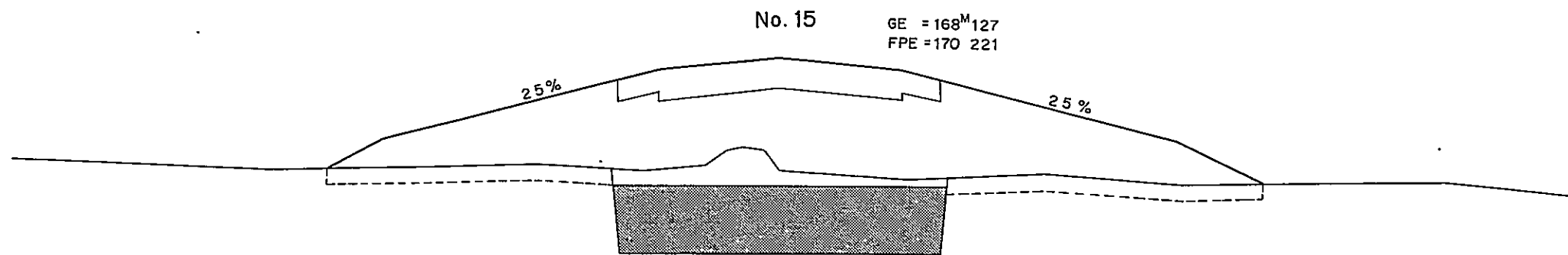
ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY (5)	
PREPARED CHECKED <i>H. H. H.</i>	SUBMITTED APPROVED <i>A. A. A.</i>
DATE APR 1969	
NIPPON KOEI CO., LTD Scale AS Shown Sheet 13 of 44	



D.L = 166.00



D.L = 166.00



D.L = 166.00



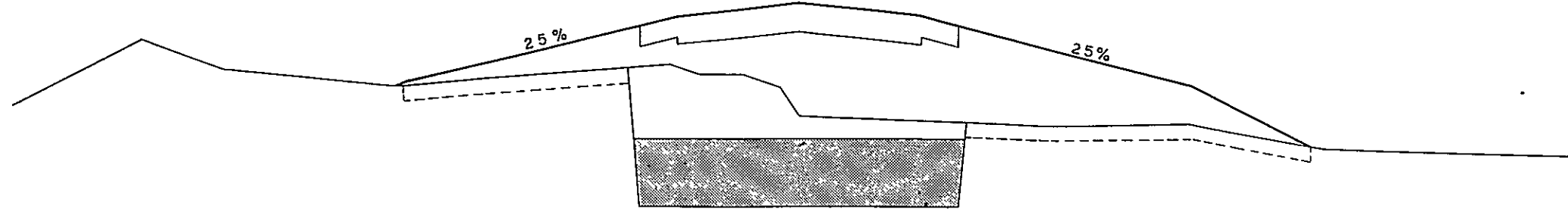
SCALE: HORI



SCALE: VERT

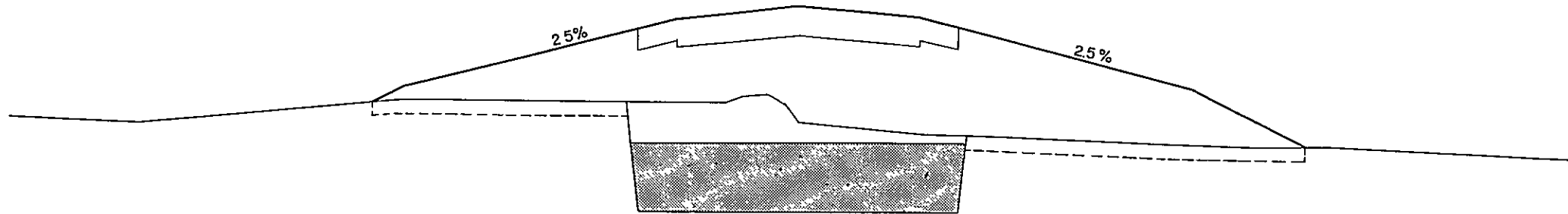
ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY	
(6)	
PREPARED <i>H.H.</i>	SUBMITTED <i>K. Khammou</i>
CHECKED <i>H.H.</i>	APPROVED <i>K. Khammou</i>
DATE	APR. 1969
NIPPON KOEI CO., LTD.	Scale As Shown Sheet 14 of 44

No. 20
GE = 168^M245
FPE = 170.421



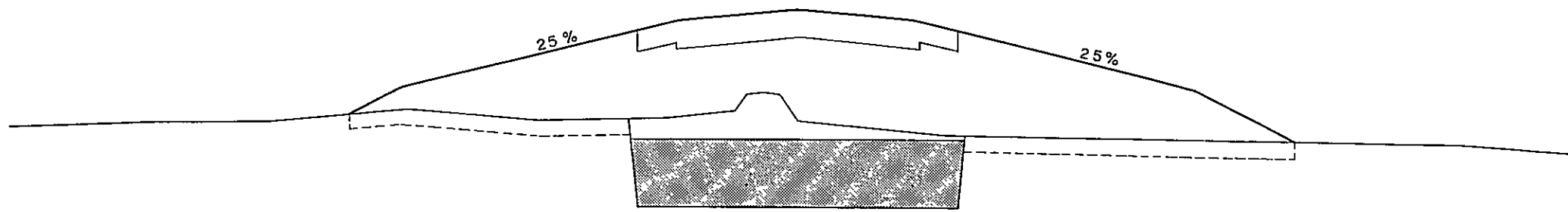
D.L. = 166.00

No. 19
GE = 168^M197
FPE = 170.381



D.L. = 166.00

No. 18
GE = 168^M185
FPE = 170.341



D.L. = 166.00

0 5 10 20 30 40 50M
SCALE · HORI

0 0.5 1 2 3 4 5M
SCALE · VERT

ROYAL GOVERNMENT OF LAOS
VIENTIANE AIR PORT EXTENSION PROJECT
(WATTAY)

CROSS SECTION OF RUNWAY
(7)

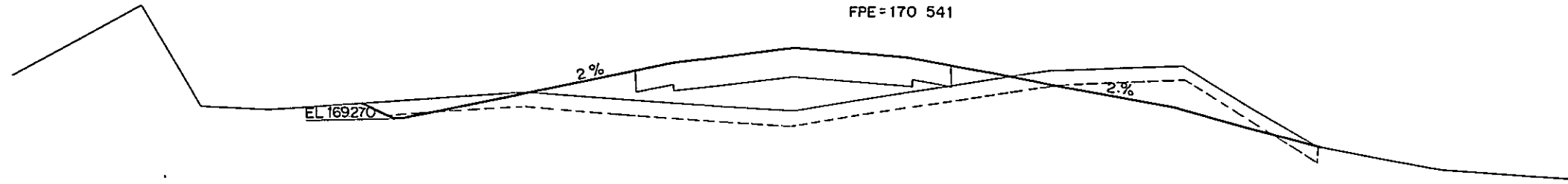
PREPARED *H. H. H.* CHECKED *H. H. H.* SUPERVISOR *H. H. H.* APPROVED *H. H. H.*

DATE APR. 1969

NIPPON KOEI CO. LTD. Scale As Shown Sheet 15 of 44

No. 23

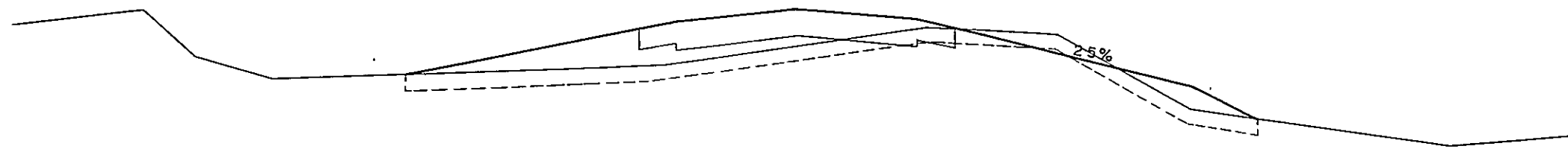
GE = 169^M335
FPE = 170 541



D.L = 16700

No. 22

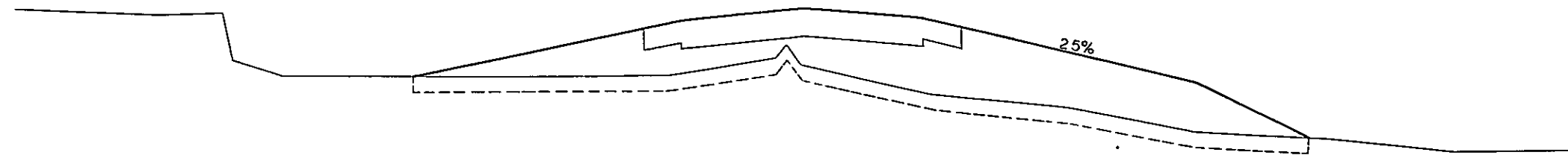
GE = 169^M725
FPE = 170 501



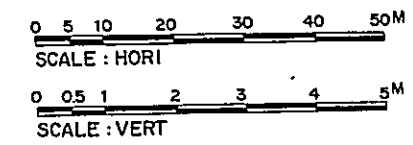
D.L = 16700

No. 21

GE = 169^M340
FPE = 170. 461



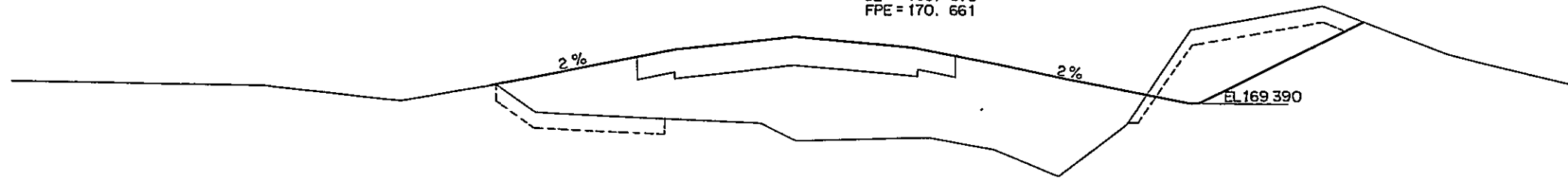
D.L = 16700



ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIR PORT EXTENSION PROJECT (WATTAY)	
CROSS SECTION OF RUNWAY (8)	
PREPARED <i>[Signature]</i>	SUBMITTED <i>[Signature]</i>
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>
DATE APR. 1969	
Scale As Shown NIPPON KOEI CO., LTD. Sheet 16 of 44	

No. 26

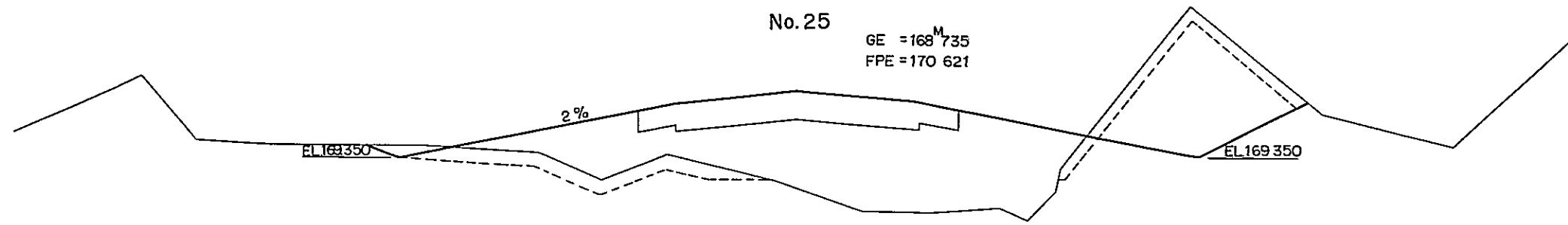
GE = 168^M 670
FPE = 170. 661



DL = 16700

No. 25

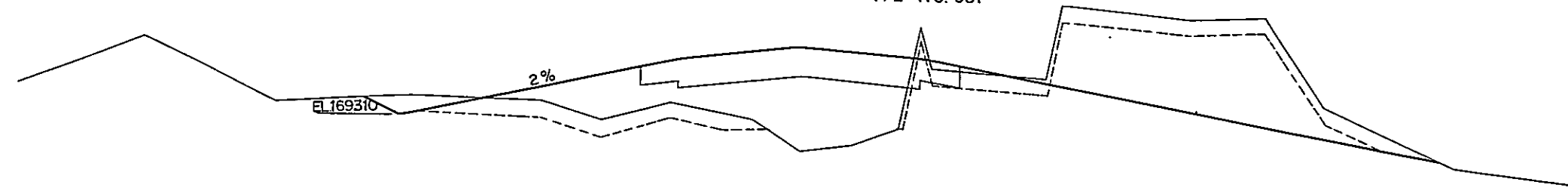
GE = 168^M 735
FPE = 170 621



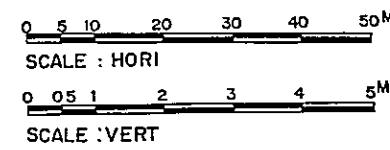
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No. 24

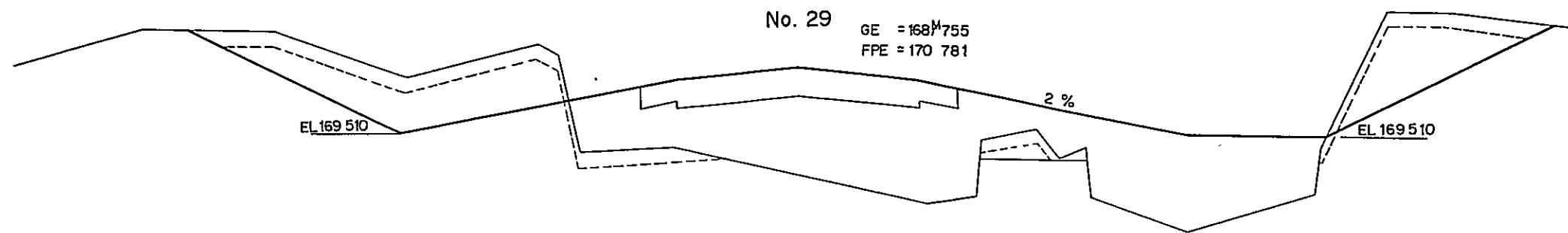
GE = 168^M 577
FPE = 170. 581



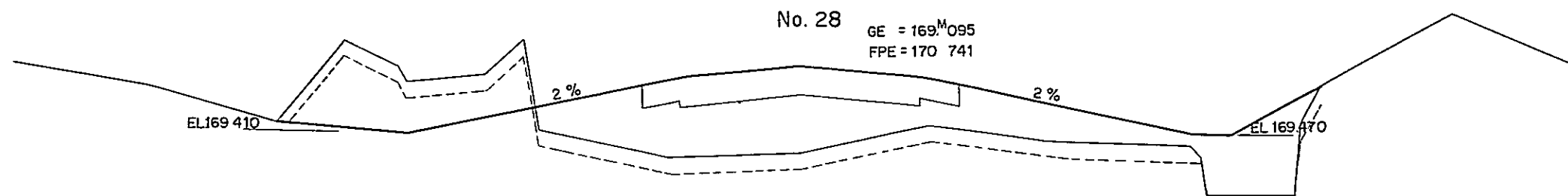
DL = 16700



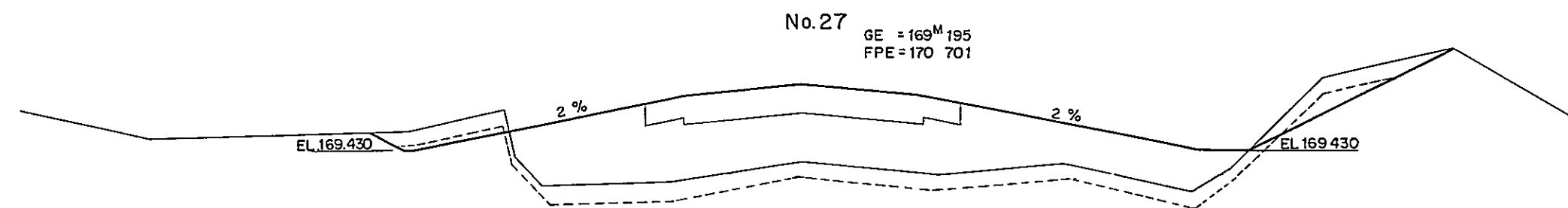
ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIR PORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY (9)	
PREPARED	SUBMITTED
CHECKED <i>Mats</i>	APPROVED <i>Matsumu</i>
DATE APR. 1969	
NIPPON KOEI CO.,LTD.	SCALE As Shown SHEET 17 of 44



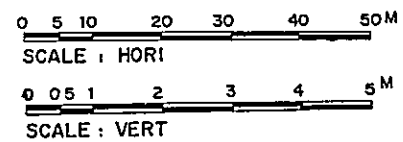
DL = 16700



DL = 16700



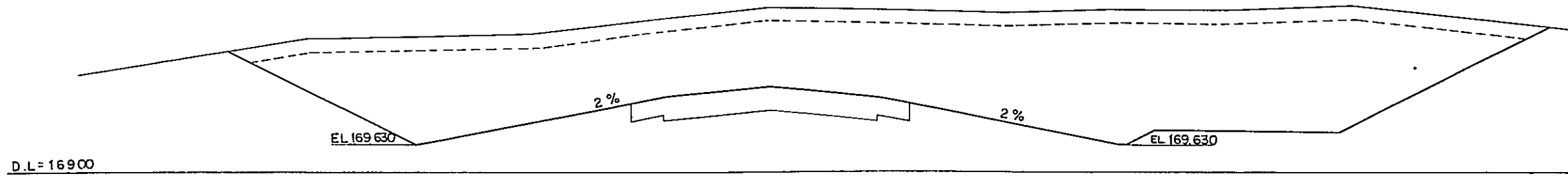
DL = 16700



ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY	
(10)	
PREPARED	SPONTED
CHECKED <i>H.H.H.</i>	APPROVED <i>K. K.</i>
DATE	APR. 1969
NIPPON KOEI CO., LTD.	Scale As Shown Sheet 18 of 44

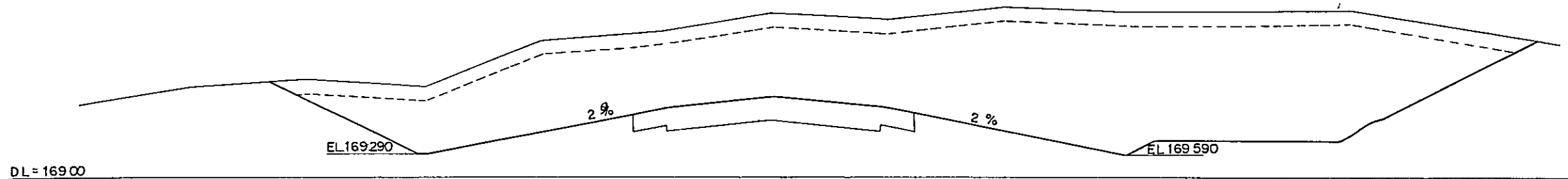
No. 32

GE = 172^M622
FPE = 170 901



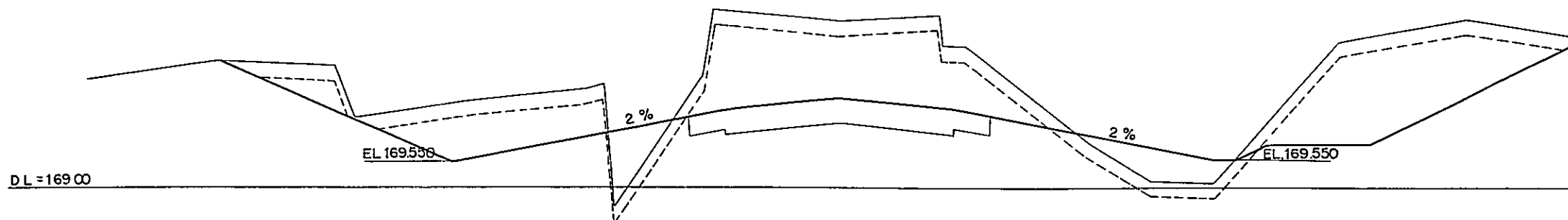
No. 31

GE = 172^M672
FPE = 170 861



NO. 30

GE = 172^M347
FPE = 170 821



0 5 10 20 30 40 50M

SCALE : HORI

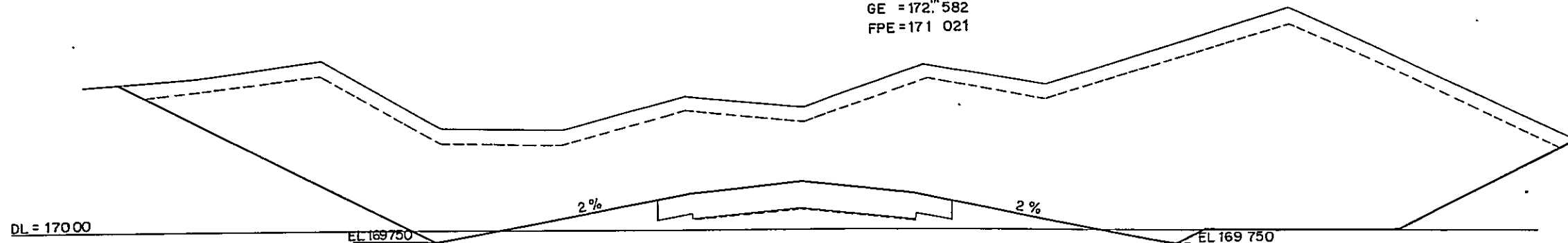
0 0.5 1 2 3 4 5M

SCALE : VERT

ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIR PORT EXTENSION PROJECT (WATTAY)	
CROSS SECTION OF RUNWAY (11)	
PREPARED <i>[Signature]</i>	SUBMITTED <i>[Signature]</i>
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>
NIPPON KOEI CO., LTD. Scale As Shown Sheet 19 of 44	

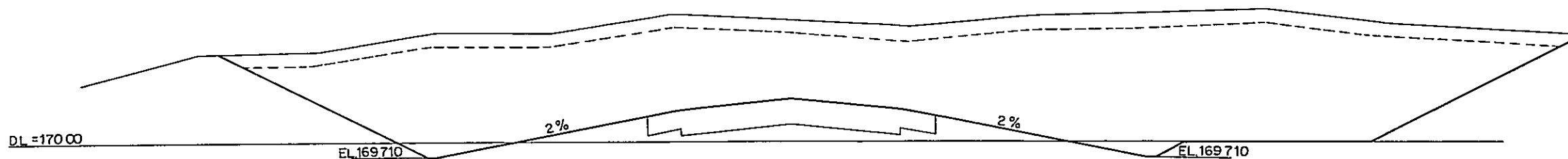
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GE = 172.582
FPE = 171.021



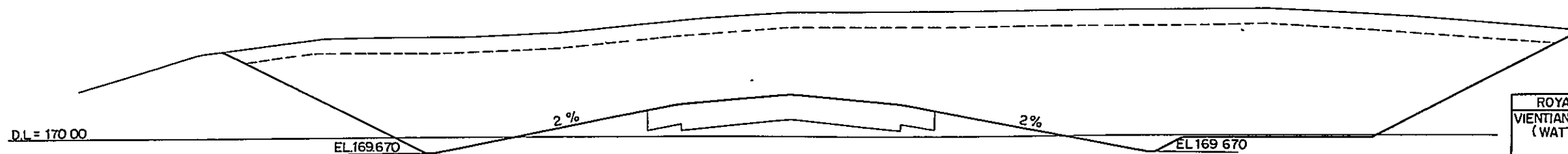
NO. 34

GE = 172.692
FPE = 170.981



NO. 33

GE = 172.672
FPE = 170.941



0 5 10 20 30 40 50 M

SCALE : HORI.

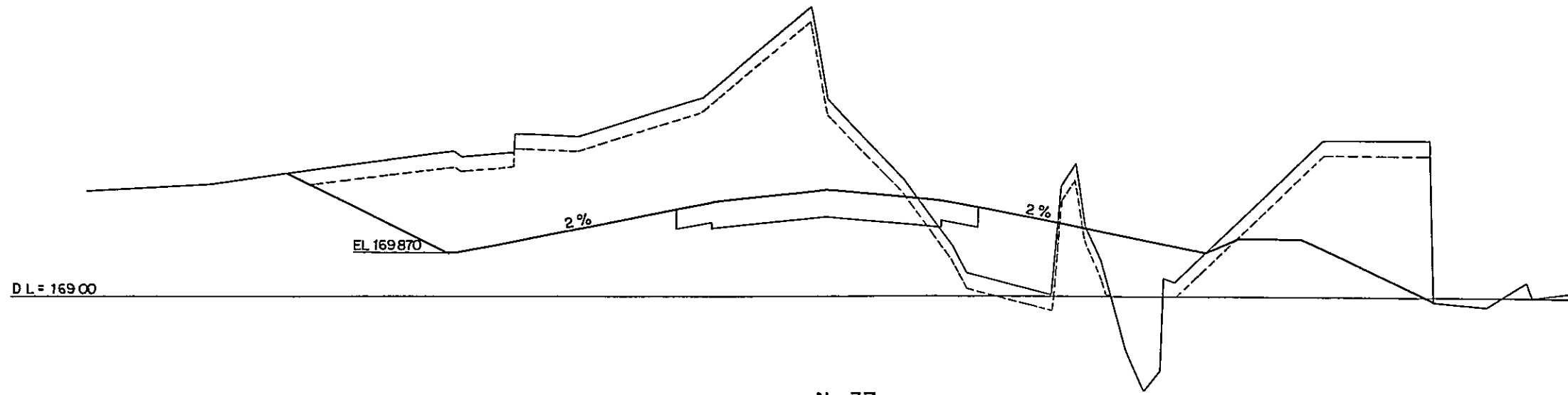
0 0.5 1 2 3 4 5 M

SCALE : VERT.

ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY (12)	
PREPARED	SKETCHED
CHECKED	APPROVED
DATE	APR. 1969
NIPPON KOEI CO., LTD.	Scale As Shown Sheet 20 of 44

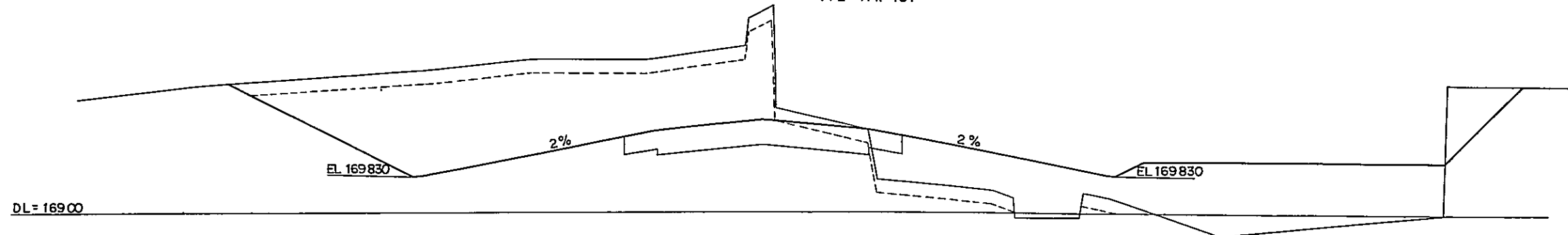
No. 38

GE = 173^M002
FPE = 171. 141



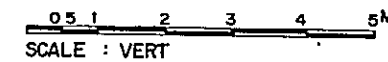
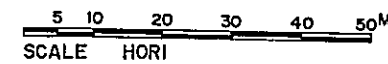
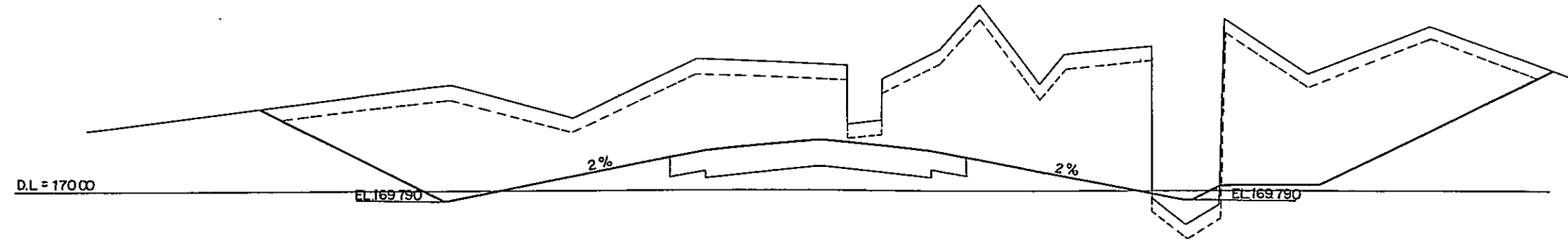
No. 37

GE = 173^M462
FPE = 171. 101



No. 36

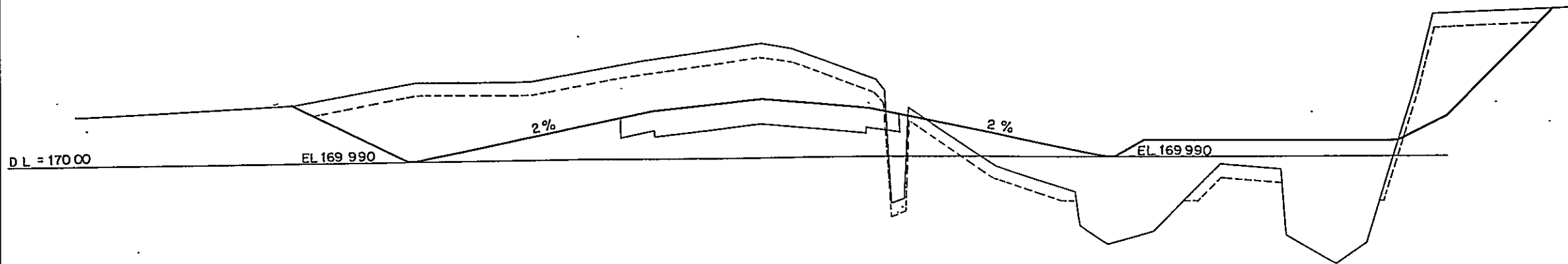
GE = 172^M606
FPE = 171 061



ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTY)	
CROSS SECTIONS OF RUNWAY (13)	
PREPARED <i>H.H.H.</i>	SUBMITTED <i>K. K.</i>
CHECKED	APPROVED
DATE APR. 1969	
NIPPON KOEI CO., LTD.	Scale As Shown Sheet 21 of 44

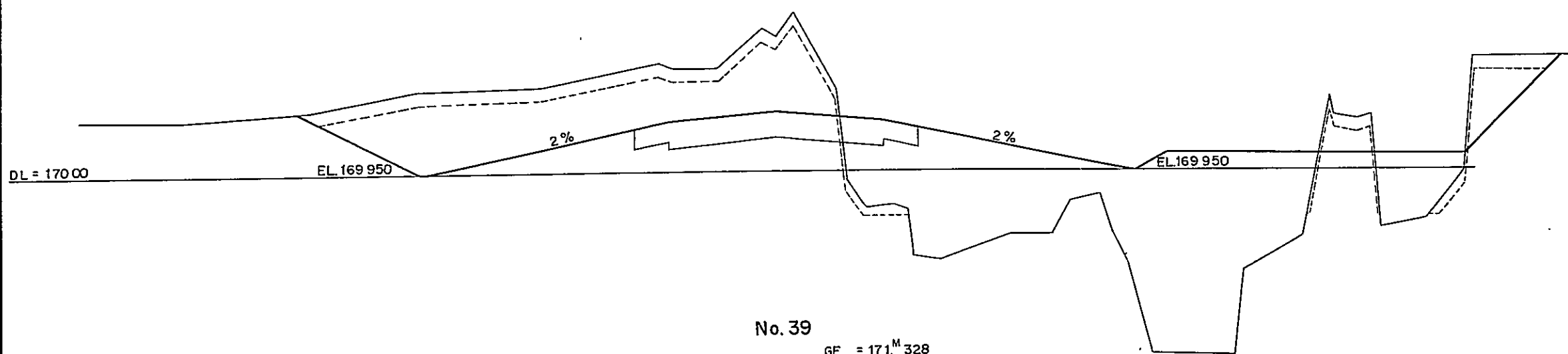
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GE = 172^M483
FPE = 171. 261



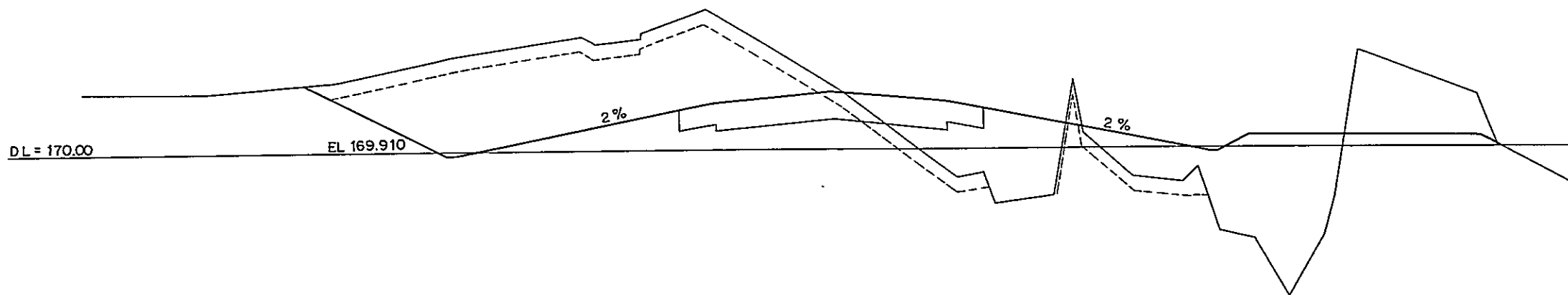
No. 40

GE = 172^M853
FPE = 171. 221



No. 39

GE = 171^M328
FPE = 171. 181



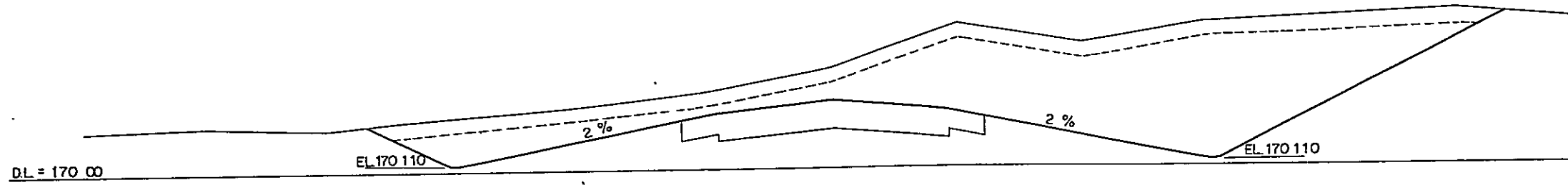
0 5 10 20 30 40 50M
SCALE: HORI.

0 0.5 1 2 3 4 5M
SCALE: VERT.

ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT	
CROSS SECTIONS OF RUNWAY	
(14)	
PREPARED	SUBMITTED
CHECKED <i>Wats</i>	APPROVED <i>Phommavong</i>
DATE	APR. 1969
NIPPON KOEI CO., LTD.	Scale As Shown Sheet 22 of 44

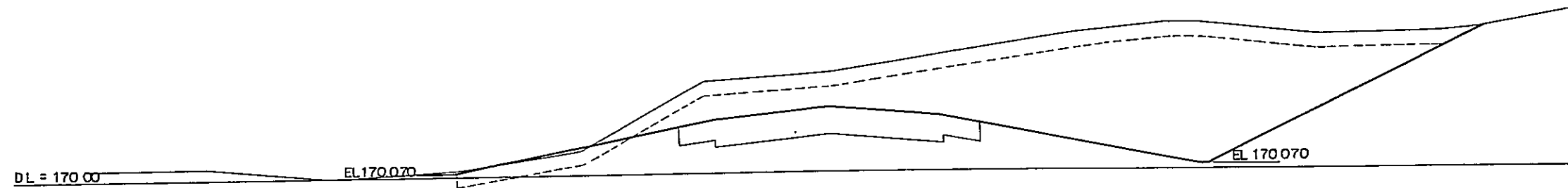
No. 44

GE = 172^M063
FPE = 171 381



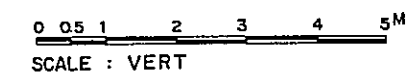
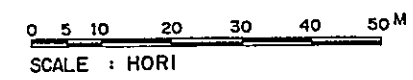
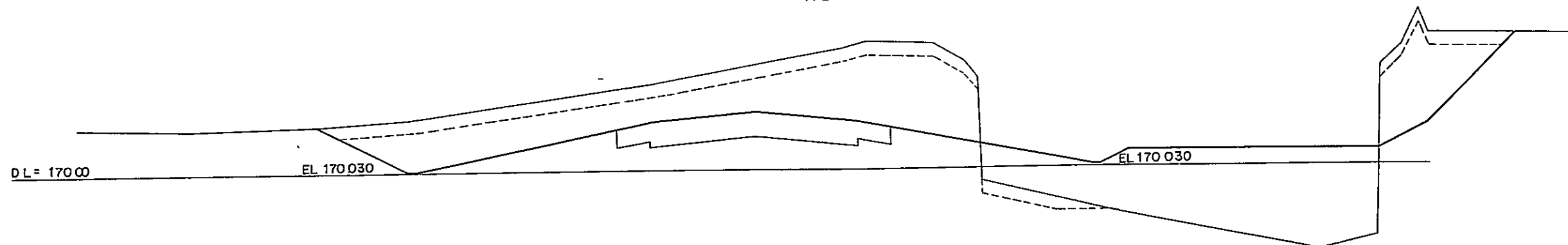
No. 43

GE = 172^M073
FPE = 171 341



No. 42

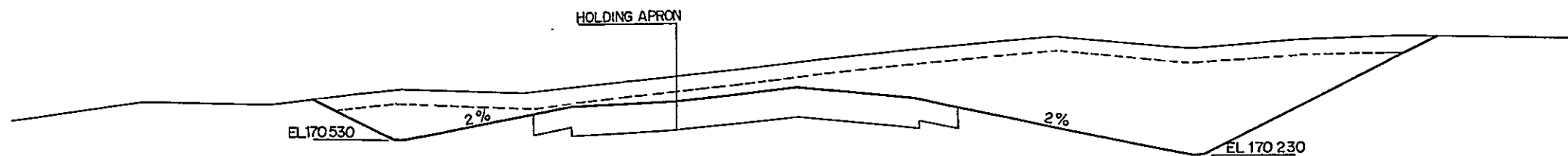
GE = 172^M363
FPE = 171.301



ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY (15)	
PREPARED <i>W. K.</i>	SUBMITTED <i>W. K.</i>
CHECKED <i>W. K.</i>	APPROVED <i>W. K.</i>
DATE APR. 1969	
NIPPON KOEI CO., LTD	Scale As Shown Sheet 23 of 44

NO. 47

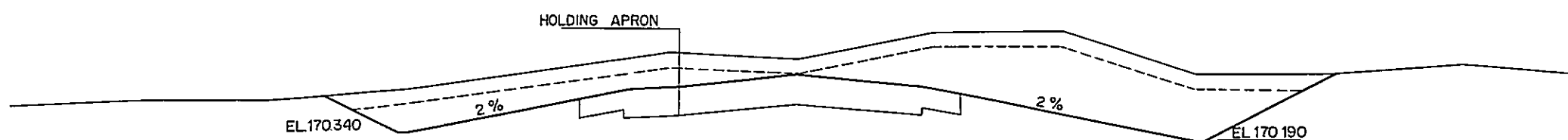
GE = 171.973
FPE = 171.501



DL = 169.00

NO. 46

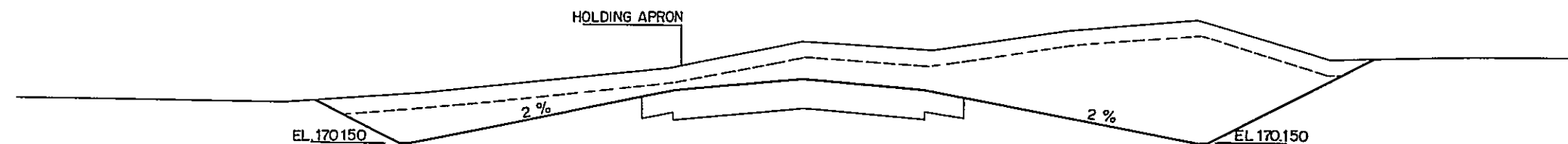
GE = 171.759
FPE = 171.461



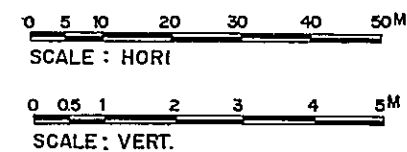
DL = 169.00

NO. 45

GE = 172.110
FPE = 171.421



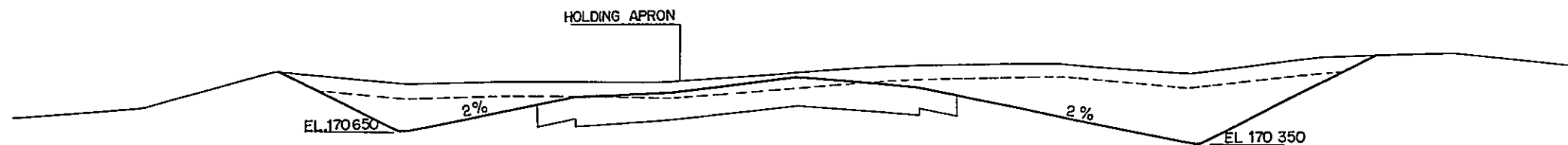
DL = 169.00



ROYAL GOVERNMENT OF LAOS	
VENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY (16)	
PREPARED	SUBMITTED
CHECKED	APPROVED
DATE	APR. 1969
NIPPON KOEI CO., LTD.	Scale As Shown Sheet 24 of 44

No. 50

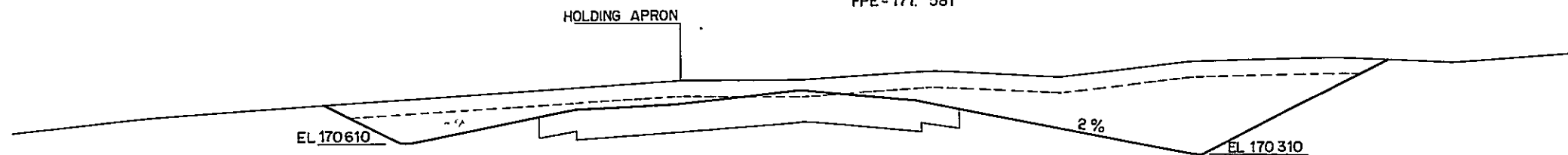
GE = 171.711
FPE = 170.621



DL = 169 00

No. 49

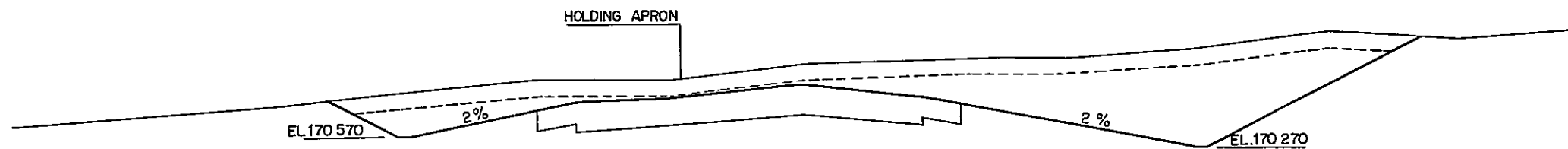
GE = 171.781
FPE = 171.581



DL = 169 00

No. 48

GE = 171.903
FPE = 171.541



DL = 169 00

0 5 10 20 30 40 50M

SCALE : HORI.

0 0.5 1 2 3 4 5M

SCALE : VERT.

ROYAL GOVERNMENT OF LAOS
VIENTIANE AIRPORT EXTENSION PROJECT
(WATTAY)

CROSS SECTIONS OF RUNWAY

(17)

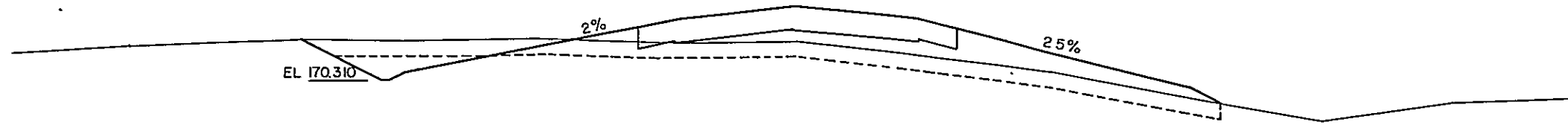
PREPARED: *Matsuo* SUBMITTED: *K. Yamamura*
CHECKED: *Matsuo* APPROVED: *K. Yamamura*

DATE APR. 1969

NIPPON KOEI CO., LTD. Scale As Shown
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No. 53

GE = 171^M070
FPE = 171 741



DL = 169 000

No. 52

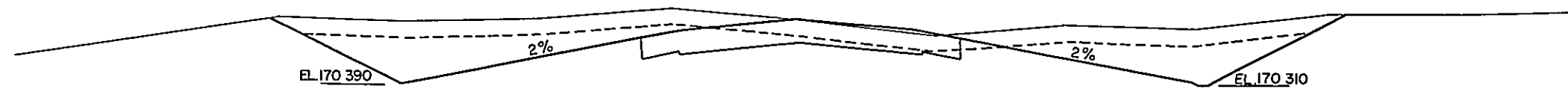
GE = 171^M336
FPE = 171 701



DL = 169 000

No. 51

GE = 171^M636
FPE = 171 661



DL = 169 000

0 5 10 20 30 40 50^M

SCALE : HORI

0 0.5 1 2 3 4 5^M

SCALE : VERT.

ROYAL GOVERNMENT OF LAOS
VIENTIANE AIRPORT EXTENSION PROJECT
(WATTAY)

CROSS SECTIONS OF RUNWAY
(18)

PREPARED: *[Signature]* SUBMITTED: *[Signature]*
CHECKED: *[Signature]* APPROVED: *[Signature]*

DATE APR 19 69

NIPPON KOEI CO., LTD. Scale AS Shown
Sheet 26 of 44

No. 56

DL = 167 00

No. 55

DL = 167 00

No. 54

GE = 170^M 215
FPE = 170 741

EL 170 270

2%

25%

DL = 168 00

0 5 10 20 30 40 50M

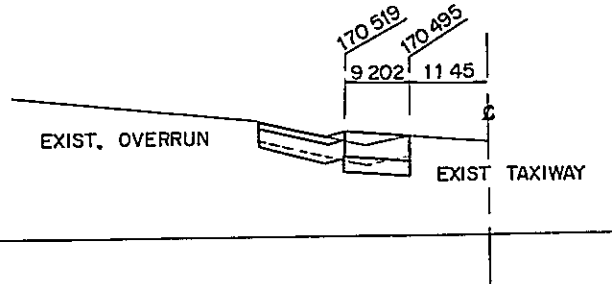
SCALE : HORI.

0 0.5 1 2 3 4 5M

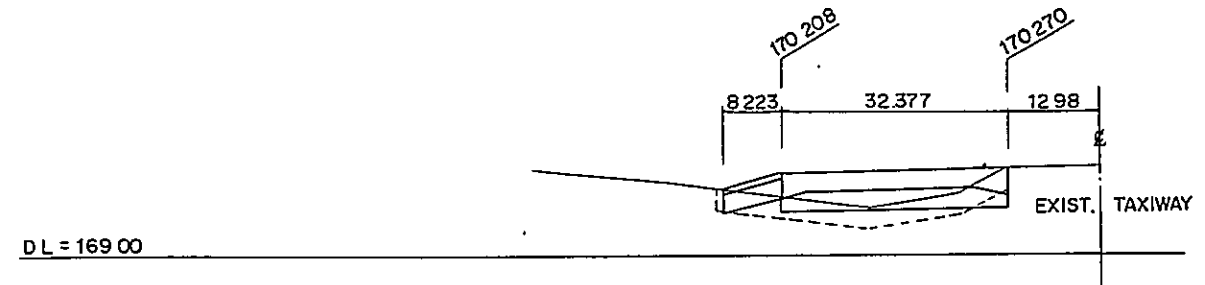
SCALE : VERT.

ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTIONS OF RUNWAY	
(19)	
PREPARED	SUBMITTED
CHECKED <i>H. S. H.</i>	APPROVED <i>K. K.</i>
DATE APR. 1969	
NIPPON KOEI CO., LTD.	Scale As Shown Sheet 27 of 44

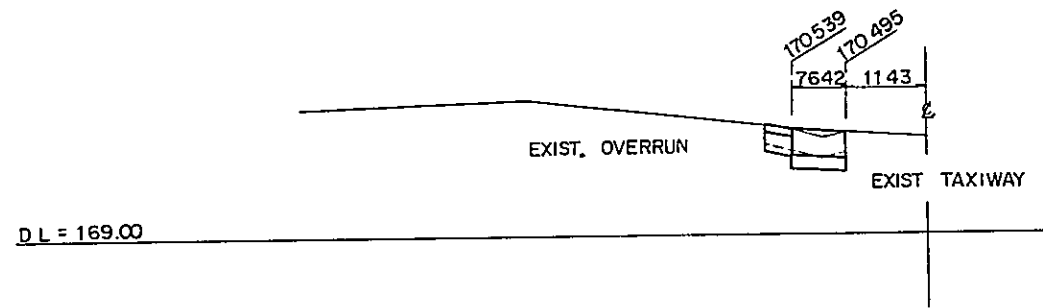
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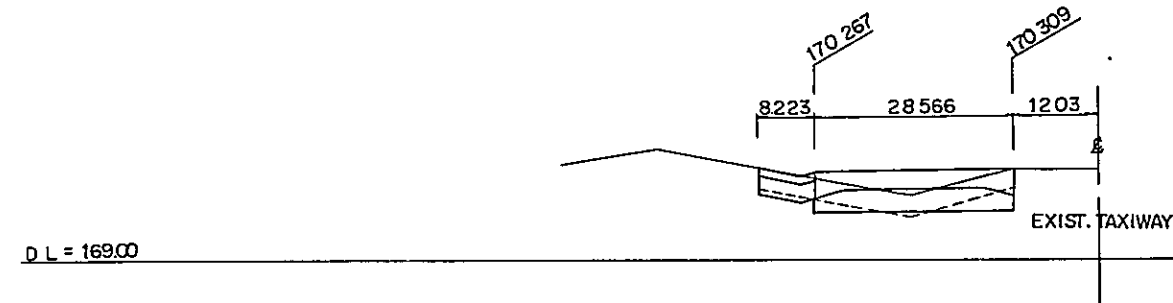
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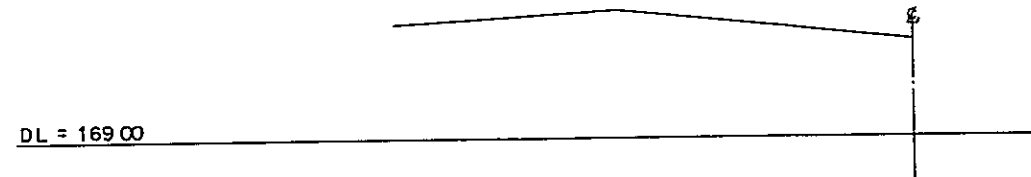
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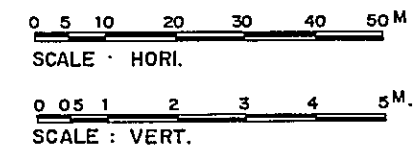
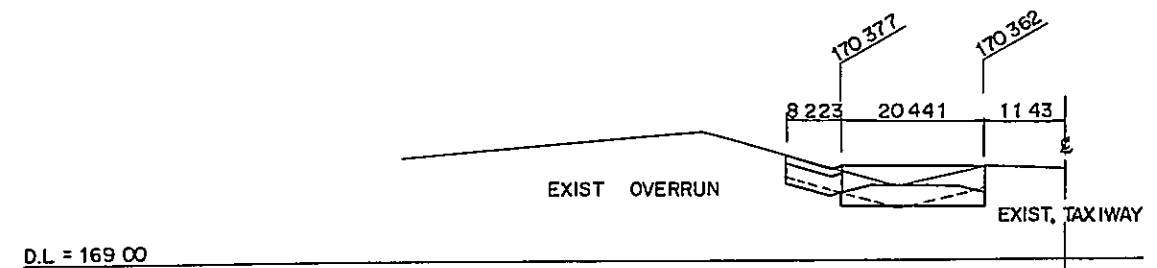
NO. 2 + 14.41



No. 0 + 3.65



No. 2



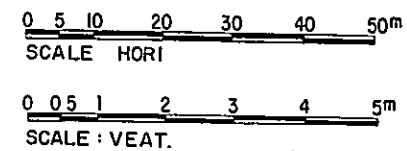
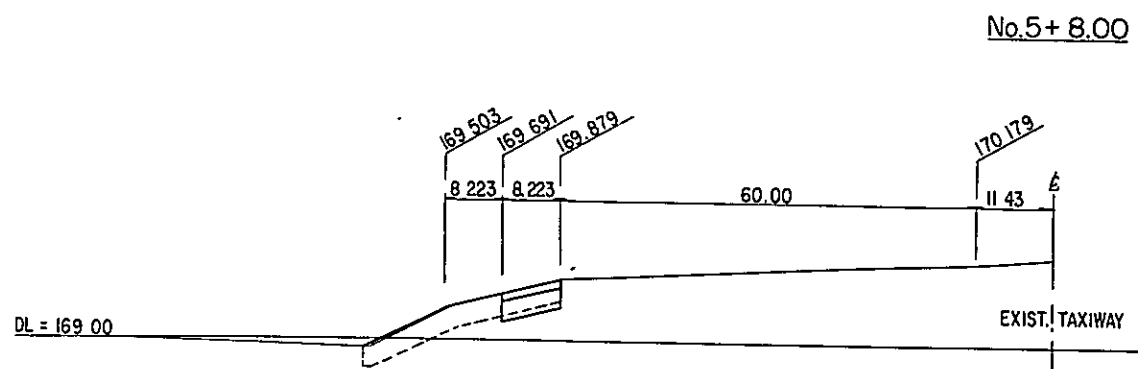
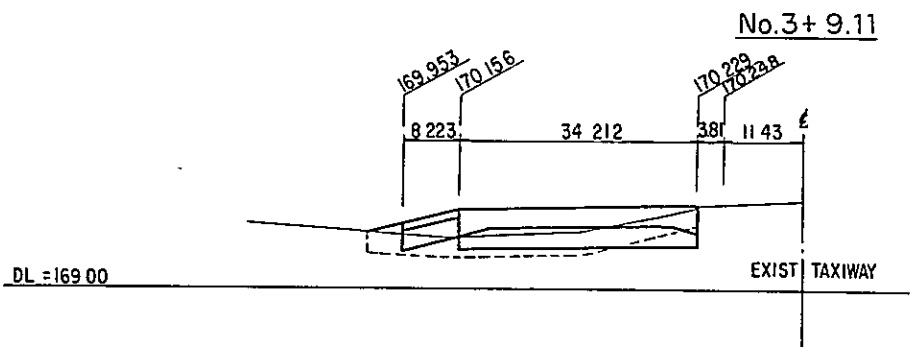
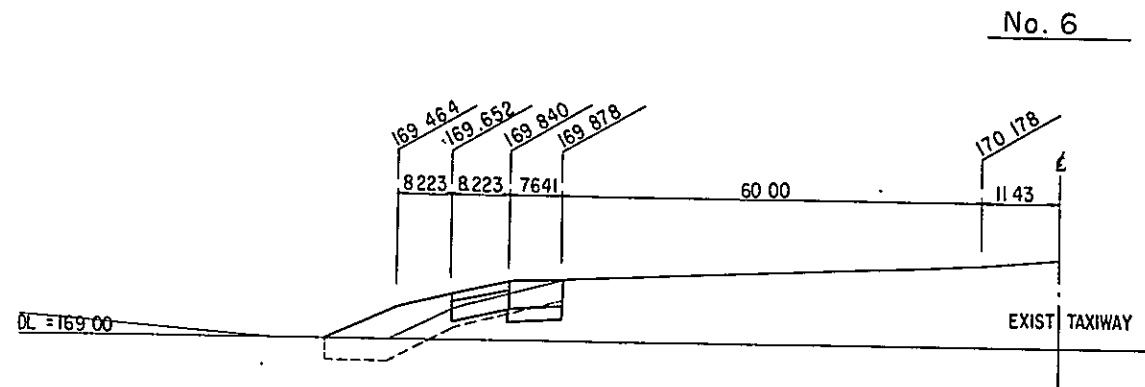
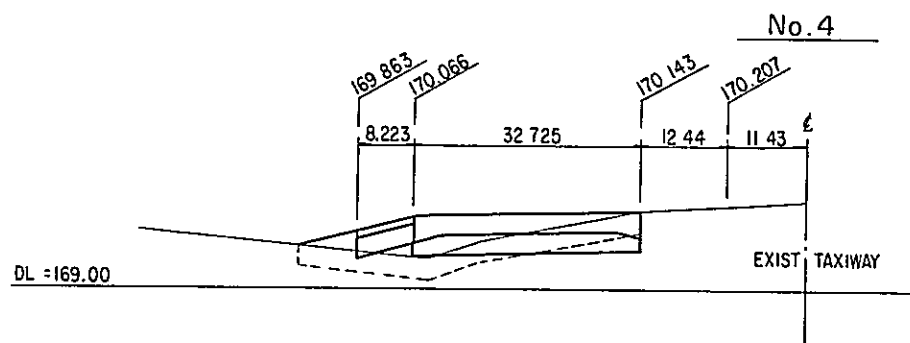
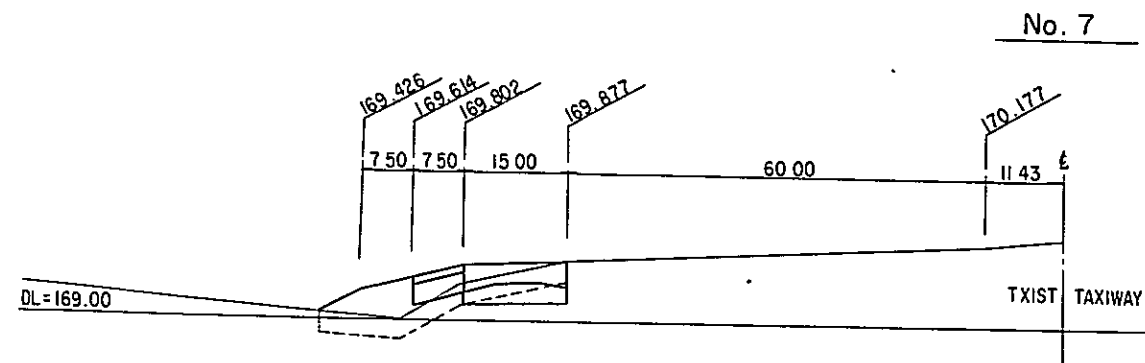
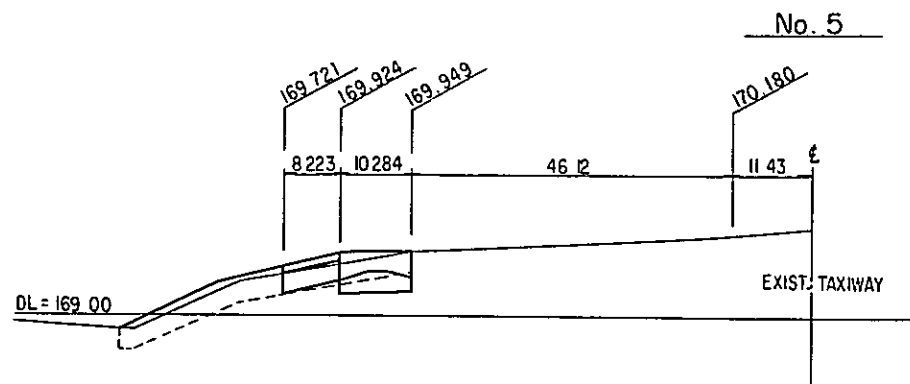
SECOND STAGE CONSTRUCTION
 ROYAL GOVERNMENT OF LAOS
 VIENTIANE AIRPORT EXTENSION PROJECT
 (WATTAY)

CROSS SECTIONS OF
 HOLDING APRON (1)

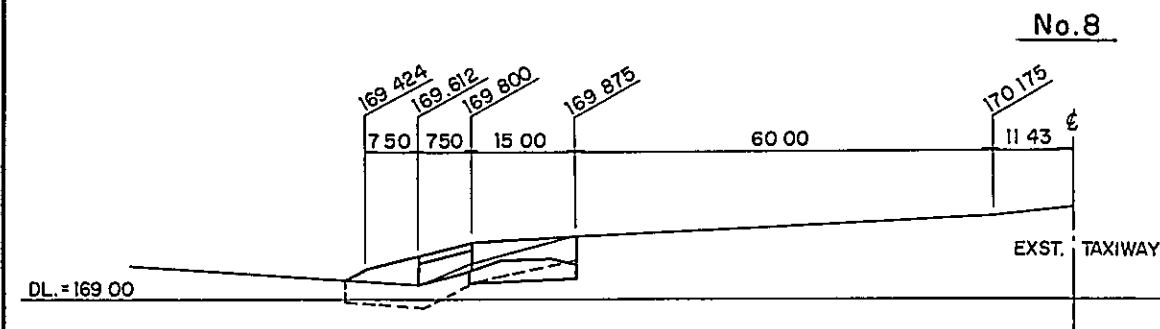
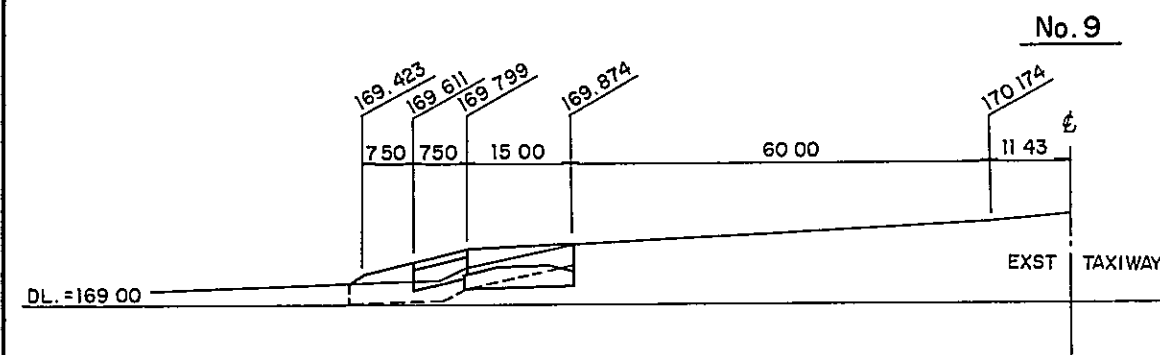
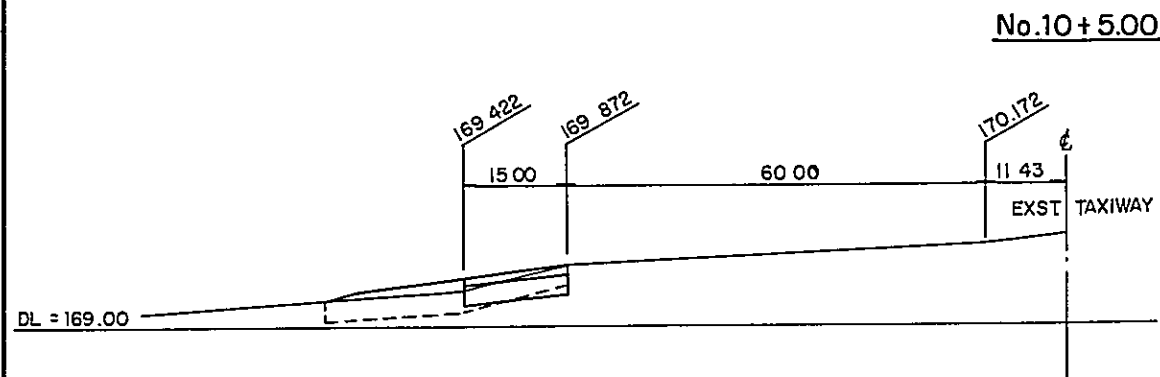
PREPARED *[Signature]* SUBMITTED *[Signature]*
 CHECKED *[Signature]* APPROVED *[Signature]*

DATE APR. 1969

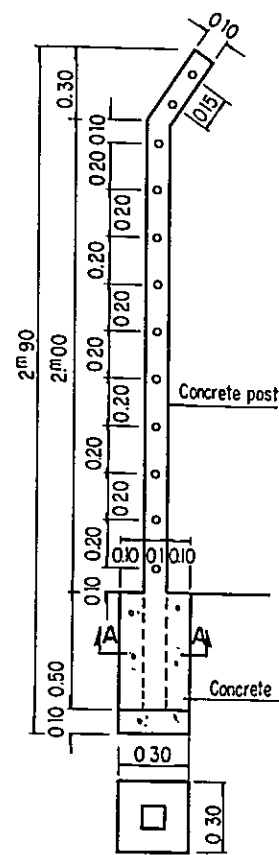
NIPPON KOEI CO., LTD Scale As Shown
 Sheet 28 of 44



SECOND STAGE CONSTRUCTION	
ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTION OF HOLDING APRON (2)	
PREPARED	SUBMITTED
CHECKED <i>WLB</i>	APPROVED <i>WLB</i>
DATE	APR. 1969
NIPPON KOEI CO., LTD	Scale As Shown Sheet 29 of 44

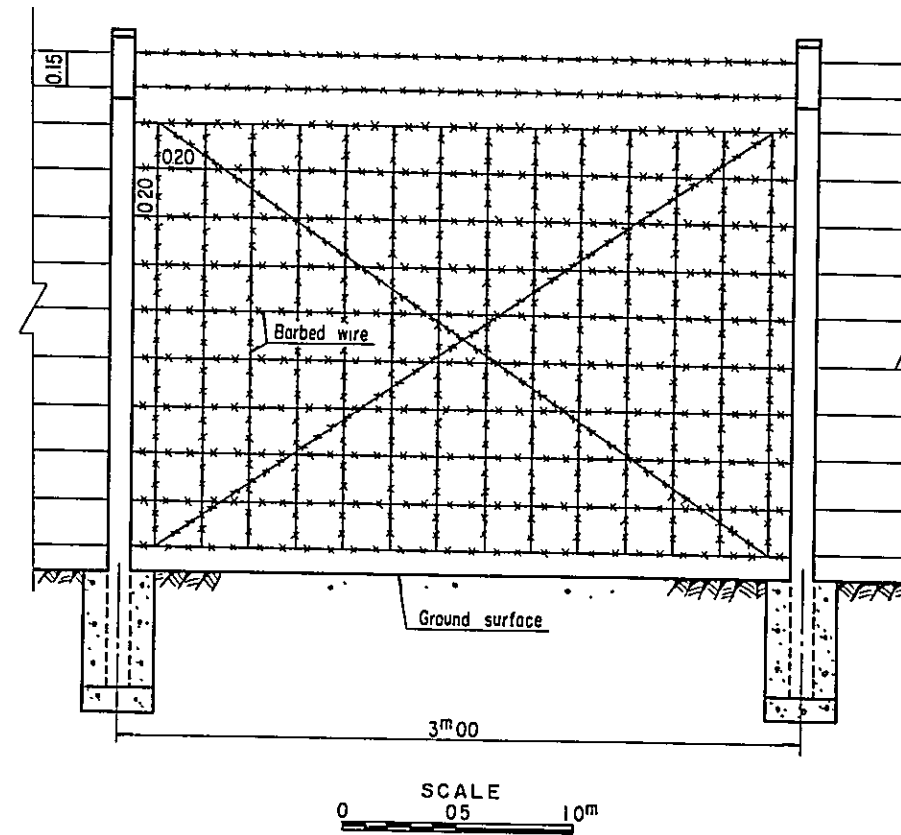


PROFILE

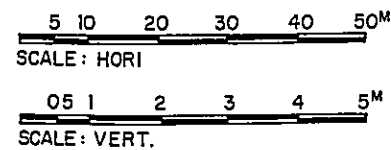


SECTION A - A

RELOCATED FENCE DETAIL



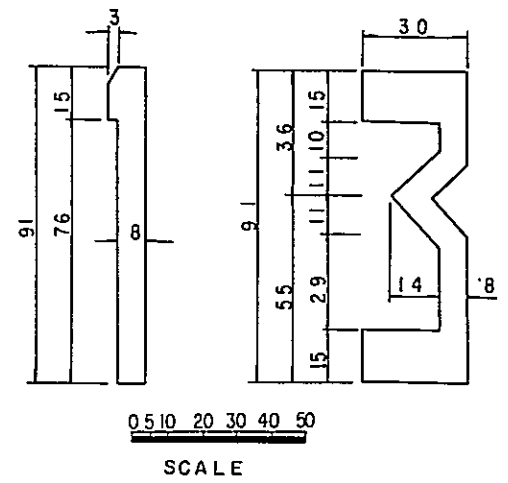
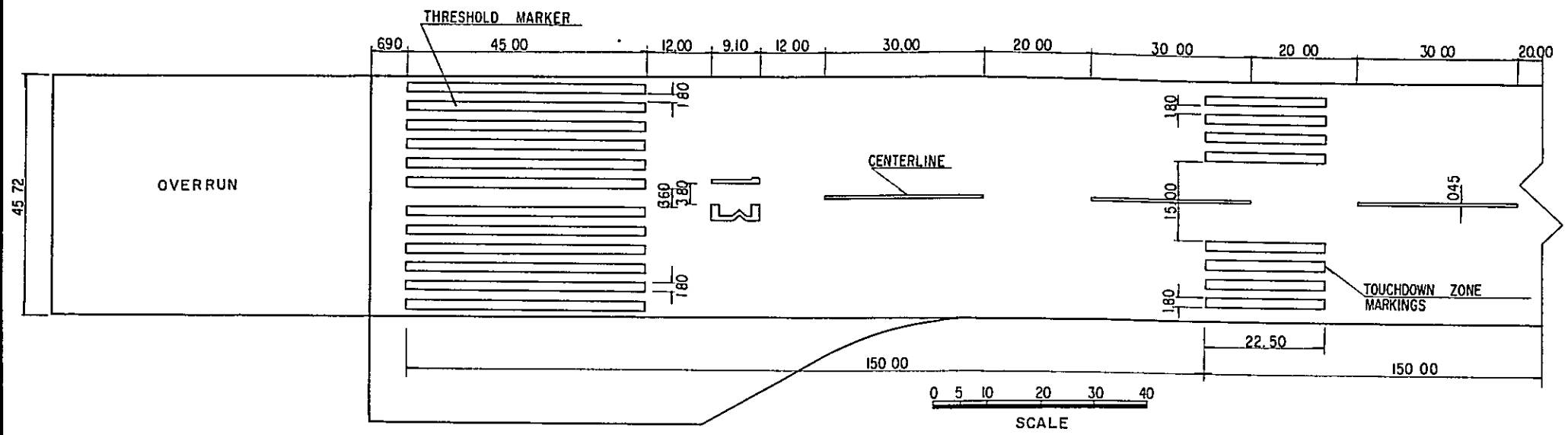
NOTE
ALL DIMENSIONS ARE IN METERS UNLESS OTHER-WISE NOTED



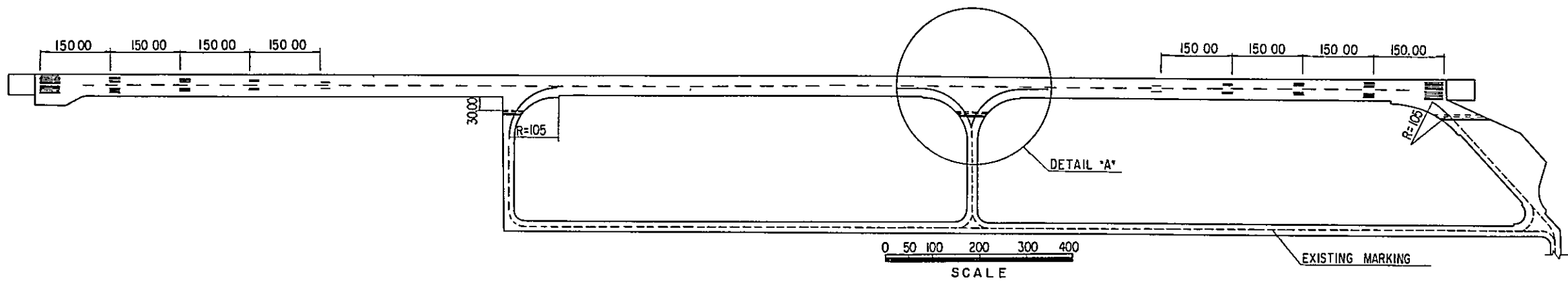
ROYAL GOVERNMENT OF LAOS	
VIENTIAN AIRPORT EXTENSION PROJECT (WATTAY)	
CROSS SECTION OF HOLDING APRON AND RELOCATED FENCE DETAIL (3)	
PREPARED: <i>H.H.S.</i>	SUBMITTED: <i>K. Nakamura</i>
CHECKED: <i>H.H.S.</i>	APPROVED: <i>K. Nakamura</i>
DATE APR 1969	
NIPPON KOEI CO., LTD	Scale AS Shown Sheet 30 of 44

RUNWAY MARKING

DETAIL OF NUMERALS

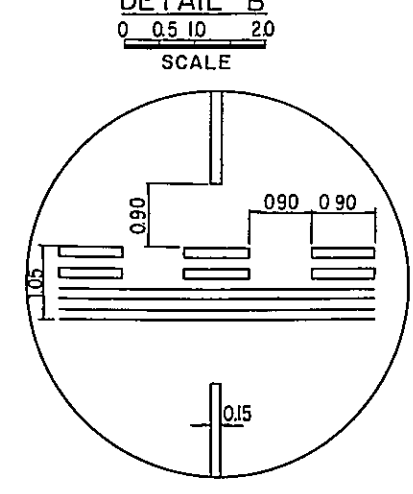
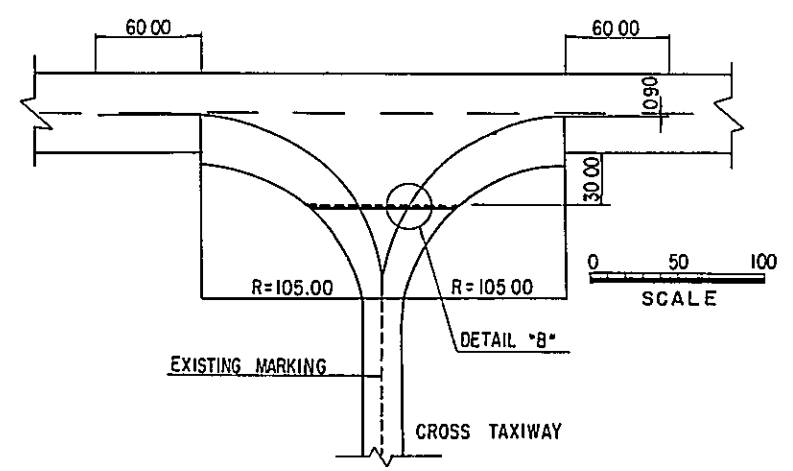


PLAN OF RUNWAY AND TAXIWAY MARKING



TAXIWAY CENTERLINE
DETAIL A

TAXIWAY HOLDINGLINE MARKER
DETAIL B

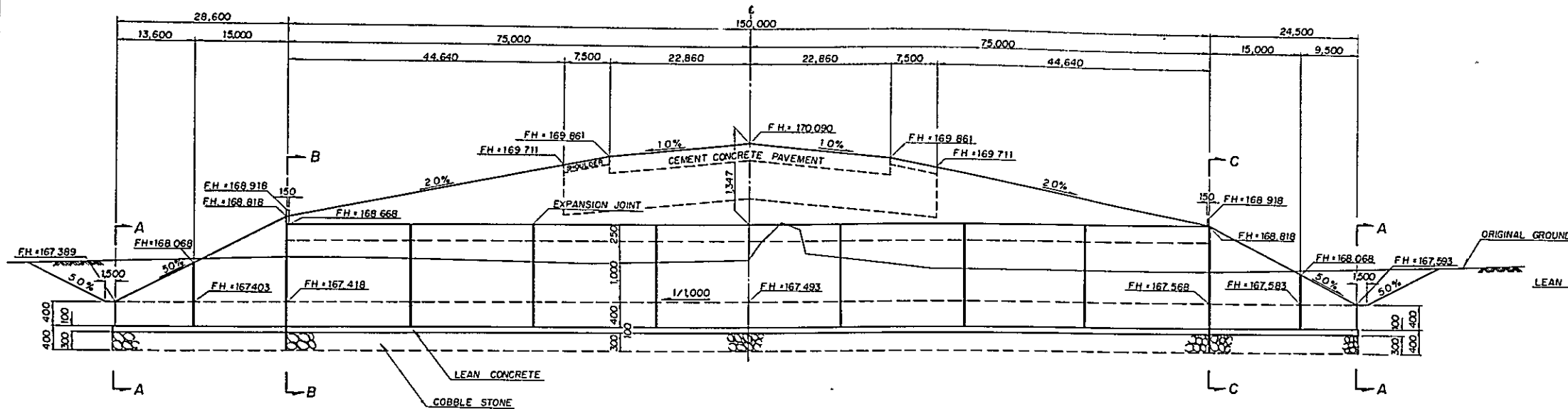


NOTES

- 1) RUNWAY MARKINGS SHALL BE MADE WITH WHITE REFLECTIVE PAINT AND TAXIWAY MARKINGS SHALL BE MADE WITH YELLOW NON-REFLECTIVE PAINT.
- 2) ALL DIMENSIONS ARE IN METERS UNLESS OTHER-WISE NOTED

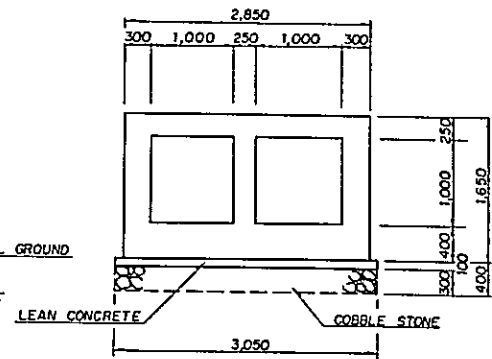
ROYAL GOVERNMENT OF LAOS	
VIENTIAN AIRPORT EXTENSION PROJECT (WATTAY)	
MARKING	
PREPARED <i>[Signature]</i>	SUBMITTED <i>[Signature]</i>
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>
DATE APR 1969	
NIPPON KOEI CO.,LTD	Scale AS Shown Sheet 31 of 44

PROFILE

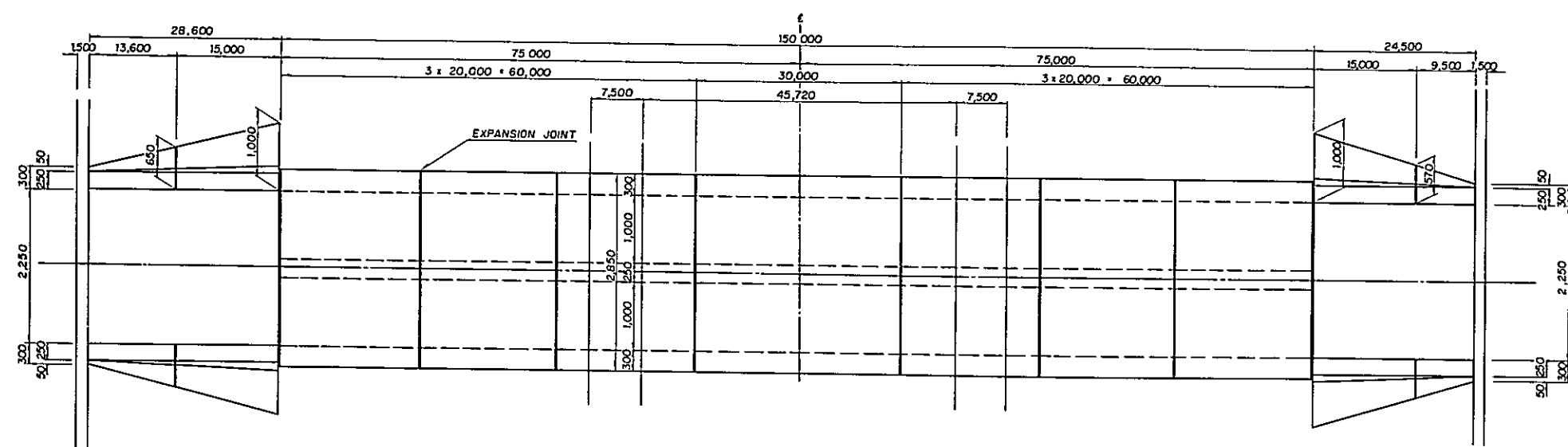


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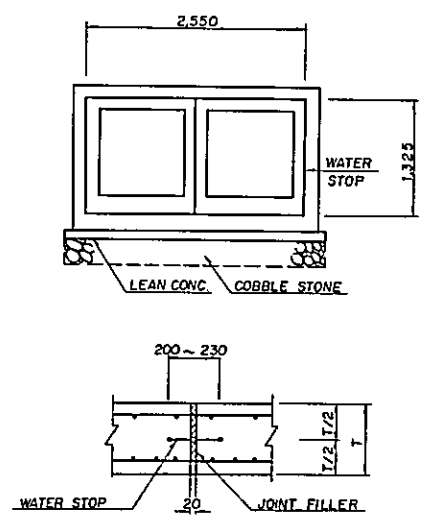
SECTION



PLAN



DETAIL OF EXPANSION JOINT

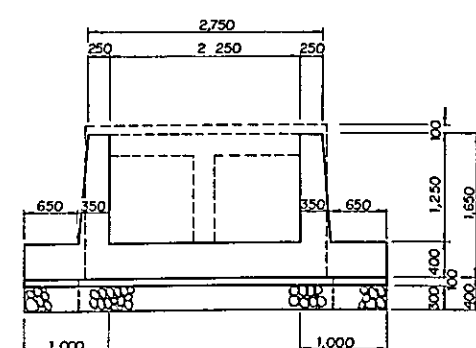
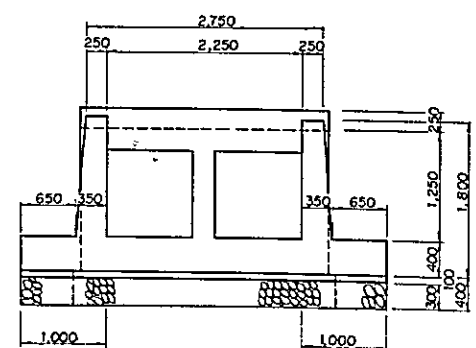
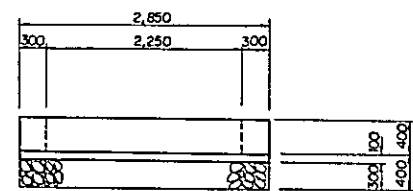


0 10 20 30 40 50 CM
SCALE

B-B SECTION

C-C SECTION

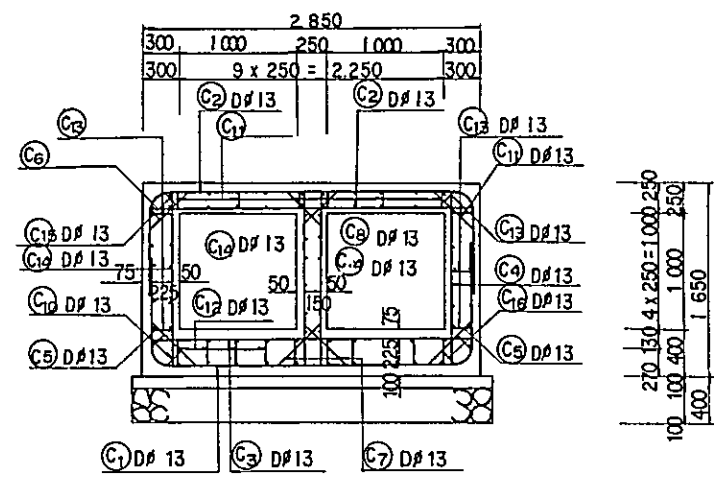
A-A SECTION



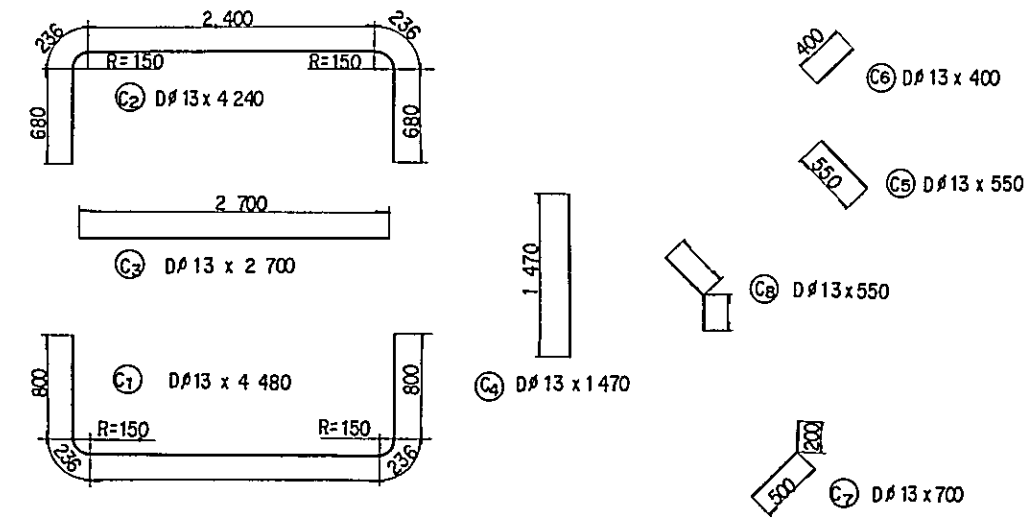
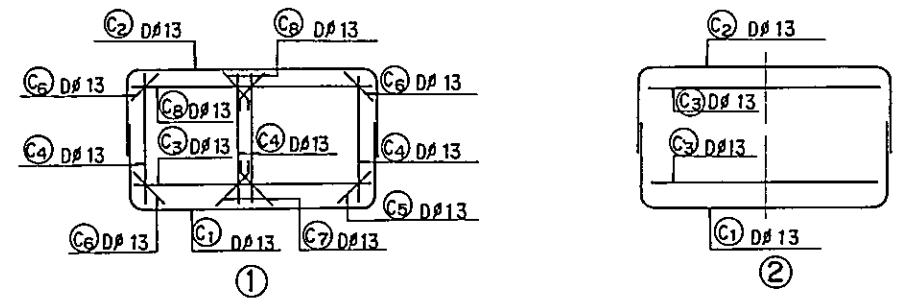
0 0.5 1 2 3 4 M
SCALE - VERT.

0 5 10 20 30 40 M
SCALE - HORI

ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
DRAINAGE PLAN & PROFILE	
PREPARED	SUBMITTED
CHECKED	APPROVED
DATE	APR 1969
Scale AS Shown	Sheet 32 of 44
NIPPON KOEI CO. LTD	



COMBINATION OF REINFORCEMENT



LIST OF STIRRUP

MARKS	a	b	L	REMARKS
C11 #13	516	140	1010	┌┐
C12	516	240	1210	•
C13	—	190	410	└┘
C14	—	163	370	•
C15	516	130	990	┌┐
C16	516	180	1090	•

LIST OF REINFORCEMENT (PER 30^M)

MARK	SECTION	LENGTH	EACH	WEIGHT/one	WEIGHT	REMARKS
C 1	D#13	4.480	239	4.458	1065.5	┌┐
C 2	"	4.240	239	4.219	1008.3	┌┐
3	"	2.700	480	2.687	1289.8	—
4	"	1.470	480	1.463	702.2	└┘
5	"	550	240	0.547	131.3	└┘
6	"	400	240	0.398	95.5	└┘
7	"	700	240	0.697	167.3	└┘
8	"	550	240	0.547	131.3	└┘
9	"	5.500	340	4.428	1860.8	—
10	"	4.450	68	4.428	301.1	•
11	"	1.010	178	1.005	178.9	┌┐
12	"	1.210	178	1.205	214.5	•
13	"	410	178	0.408	72.6	└┘
14	"	370	89	0.368	32.8	•
15	"	990	120	0.985	118.2	┌┐
16	"	1.090	120	1.085	130.2	•
				D # 13	7 500.3 kg	
				TOTAL	7 500.3 kg	

LIST OF REINFORCEMENT (PER 20^M)

MARK	SECTION	LENGTH	EACH	WEIGHT/one	WEIGHT	REMARKS
C 1	D#13	4.480	159	4.458	708.8	┌┐
2	"	4.240	159	4.219	670.8	┌┐
3	"	2.700	320	2.687	859.8	—
4	"	1.470	320	1.463	468.2	└┘
5	"	550	160	0.547	87.5	└┘
6	"	400	160	0.398	63.7	└┘
7	"	700	160	0.697	111.5	└┘
8	"	550	160	0.547	87.5	└┘
9	"	5.500	204	5.473	1116.5	—
10	"	4.570	68	4.547	309.2	•
11	"	1.010	118	1.005	118.6	┌┐
12	"	1.210	118	1.205	142.1	•
13	"	410	118	0.408	48.1	└┘
14	"	370	59	0.368	21.7	•
15	"	990	80	0.985	78.8	┌┐
16	"	1.090	80	1.085	86.8	•
				D # 13	4 979.6 kg	
				TOTAL	4 979.6 x 6 = 29.871.6 kg	



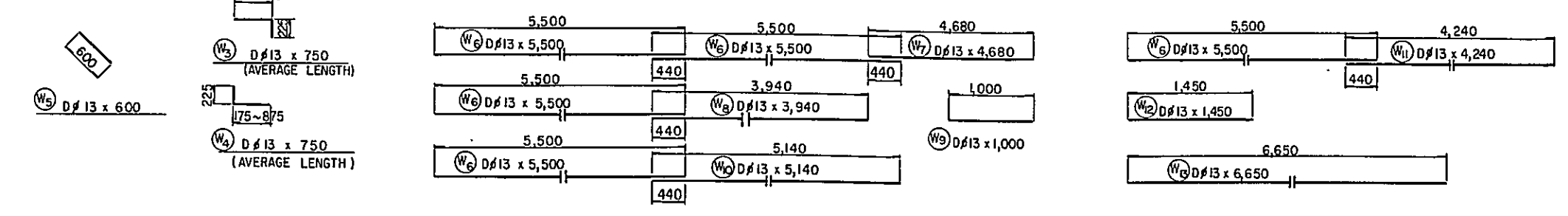
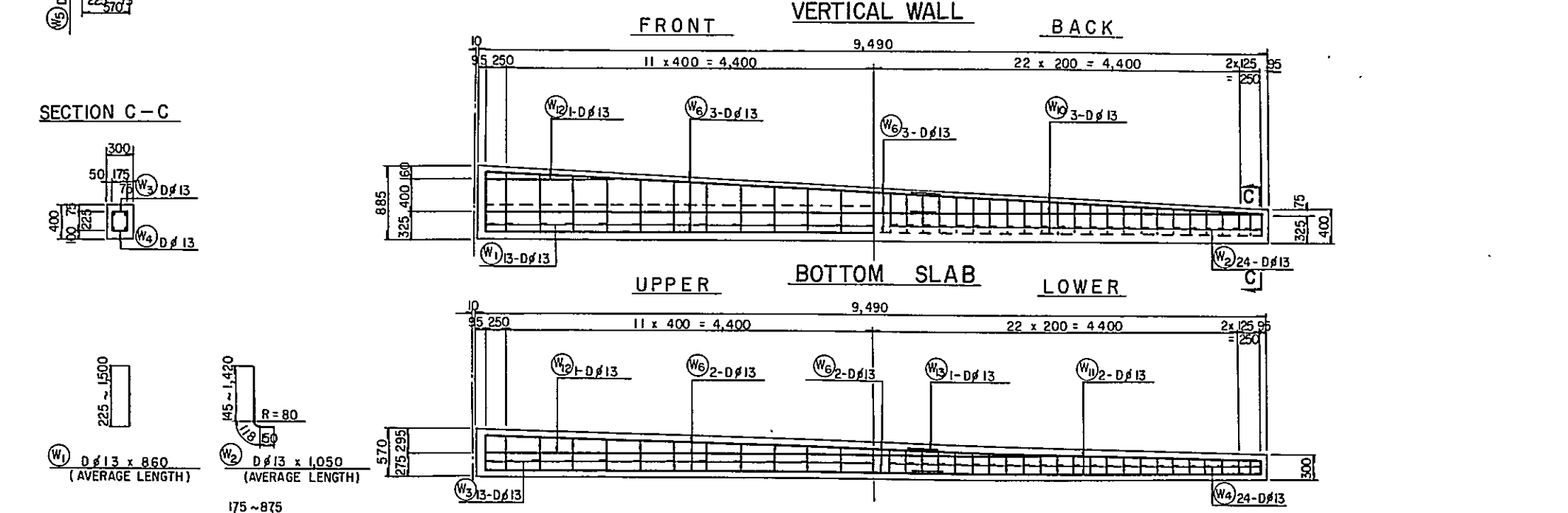
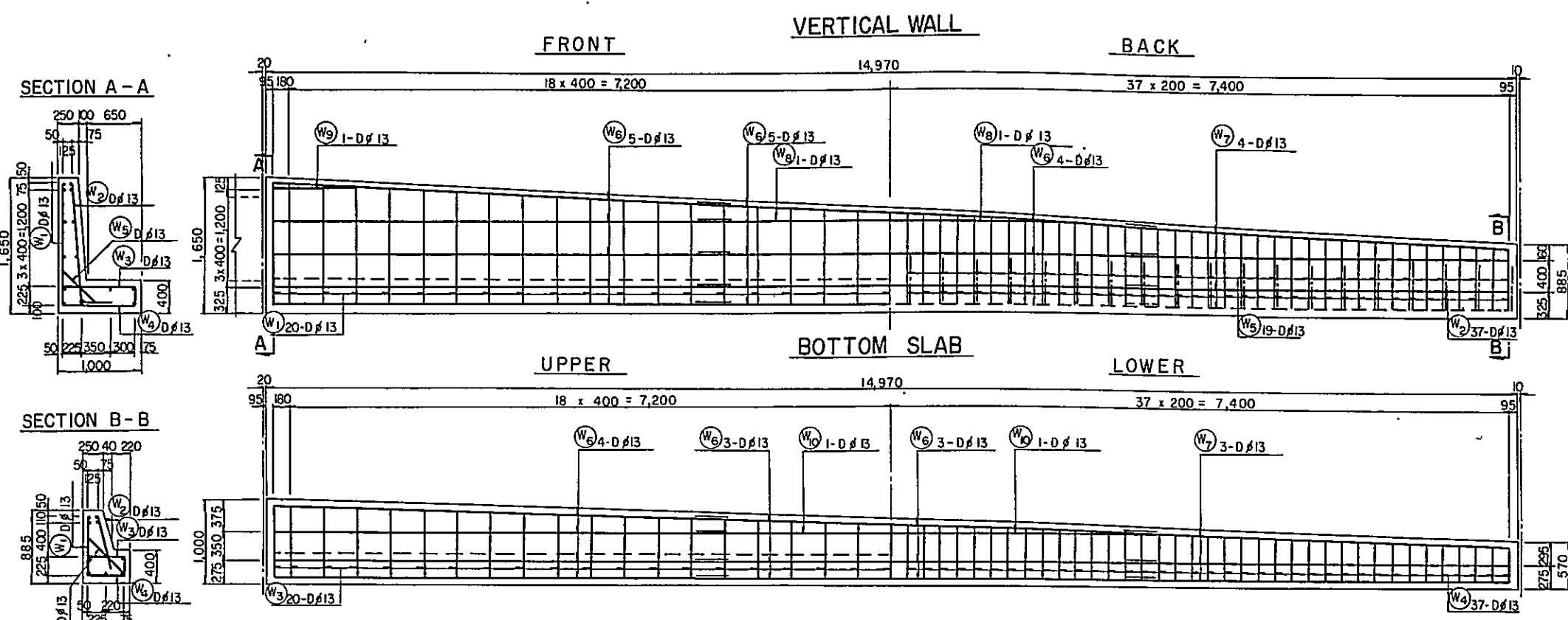
ROYAL GOVERNMENT OF LAOS
 VIENTIANE AIRPORT EXTENSION PROJECT
 (WATTY)

DRAINAGE, ARRANGEMENT

PREPARED *[Signature]* SUBMITTED *[Signature]*
 CHECKED *[Signature]* APPROVED *[Signature]*

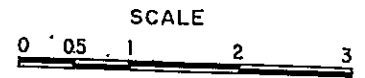
DATE APR. 1969

NIPPON KOEI CO., LTD. Scale As Shown
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LIST OF REINFORCEMENT

MARK	SECTION	LENGTH	EACH	WEIGHT/ONE	WEIGHT	REMARKS
W1	D#13	860	64	0.856	54.8	1 (Average Length)
W2	"	1,050	124	1.045	129.6	1 (Average Length)
W3	"	750	64	0.747	47.8	(*)
W4	"	750	124	0.747	92.6	(*)
W5	"	600	51	0.597	30.4	
W6	"	5,500	36	5.473	197.0	
W7	"	4,680	10	4.657	46.6	
W8	"	3,940	2	3.920	7.8	
W9	"	1,000	2	0.995	2.0	
W10	"	5,140	2	5.114	10.2	
W11	"	4,240	6	4.219	25.3	
W12	"	1,450	2	1.443	2.9	
W13	"	6,650	2	6.616	13.2	
				D#13	660.4 kg	
				TOTAL	660.4 x 2 = 1,320.8 kg	



ROYAL GOVERNMENT OF LAOS
 VIENTIANE AIRPORT EXTENSION PROJECT
 (WATTAY)

DRAINAGE, WING WALL (1)

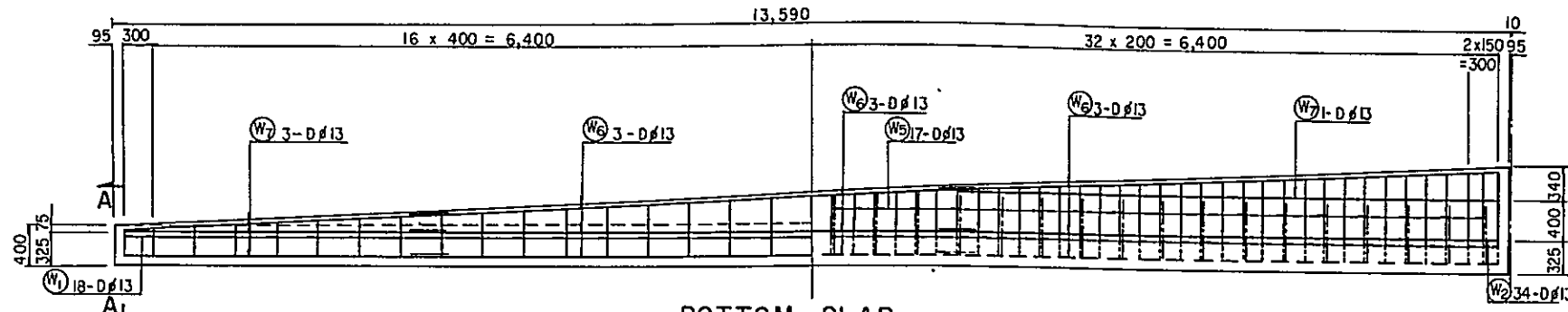
PREPARED: *[Signature]* SUBMITTED: *[Signature]*
 CHECKED: *[Signature]* APPROVED: *[Signature]*

DATE: APR 1969
 NIPPON KOEI CO., LTD. Scale AS Shown
 Sheet 34 of 44

VERTICAL WALL

FRONT

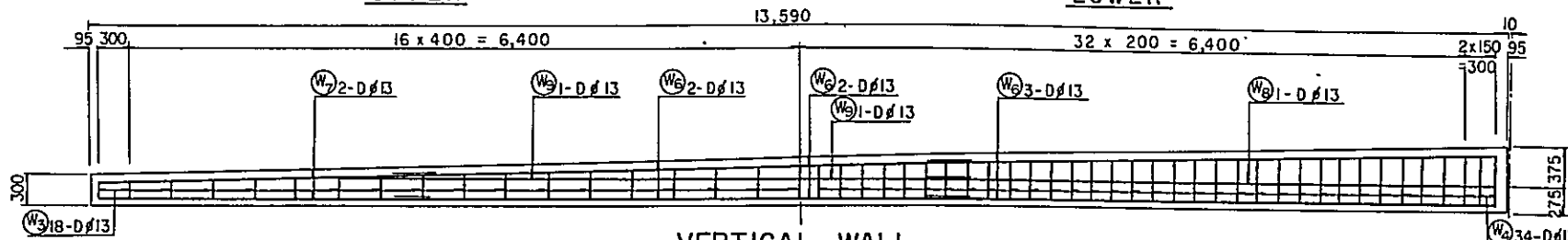
BACK



BOTTOM SLAB

UPPER

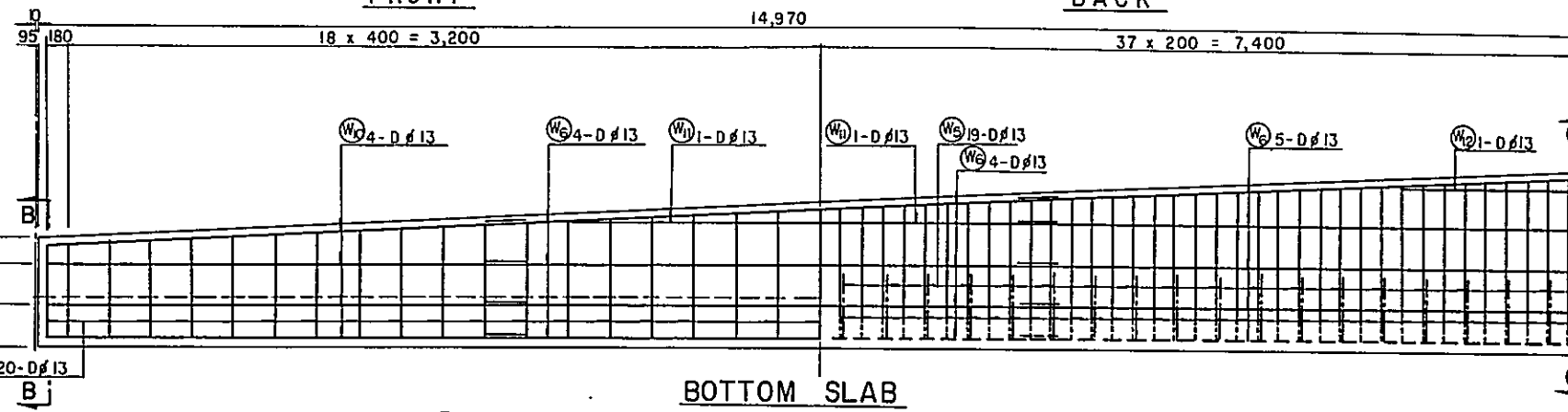
LOWER



VERTICAL WALL

FRONT

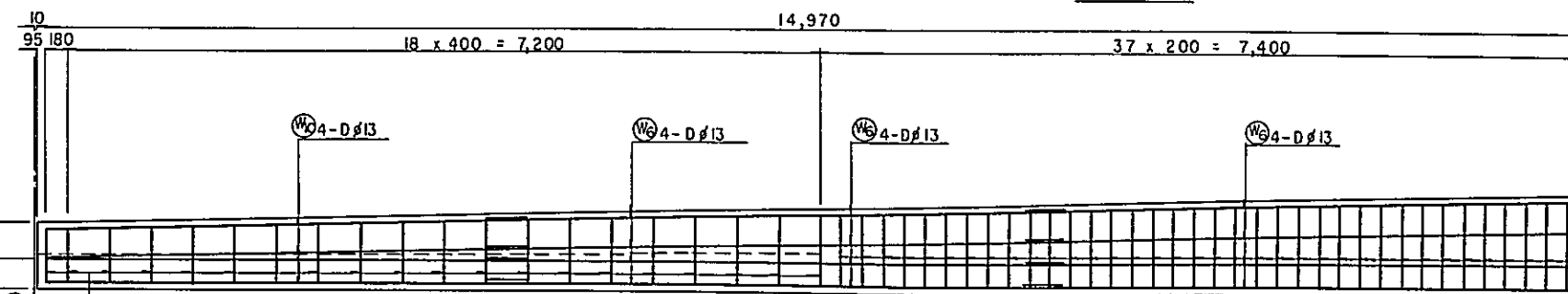
BACK



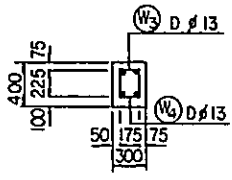
BOTTOM SLAB

UPPER

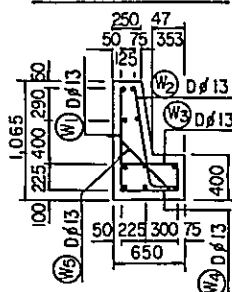
LOWER



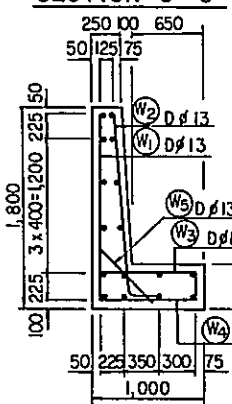
SECTION A - A



SECTION B - B

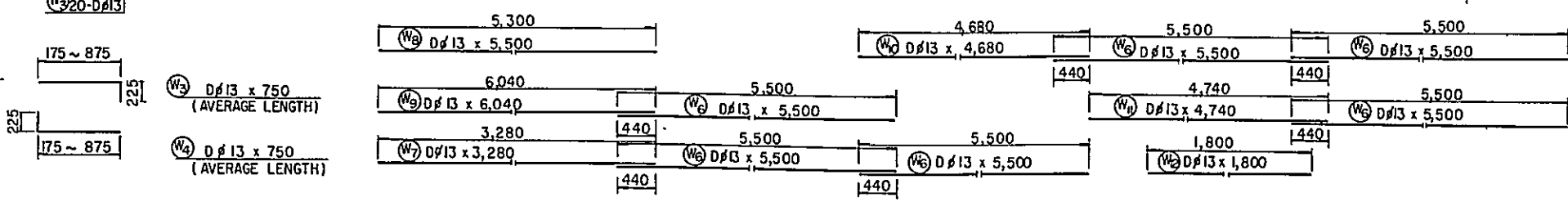
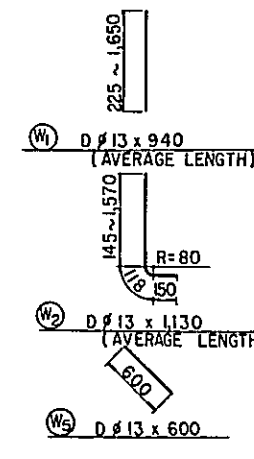


SECTION C - C



LIST OF REINFORCEMENT

MARK	SECTION	LENGTH	EACH	WEIGHT/ONE	WEIGHT	REMARKS
W 1	D#13	940	74	0.935	69.2	(AVERAGE LENGTH)
2		1,130	144	1.124	161.9	()
3		750	74	0.746	55.2	()
4		750	144	0.746	107.4	()
5		600	55	0.597	32.8	
6		5,500	40	5.474	219.0	
7		3,280	6	3.264	19.6	
8		5,300	2	5.274	10.5	
9		6,040	2	6.010	12.0	
10		4,680	12	4.657	55.9	
11		4,740	2	4.716	9.4	
12		1,800	2	1.791	3.6	
				D#13	756.5 kg	
				TOTAL	756.5 x 2 = 1,513.0 kg	



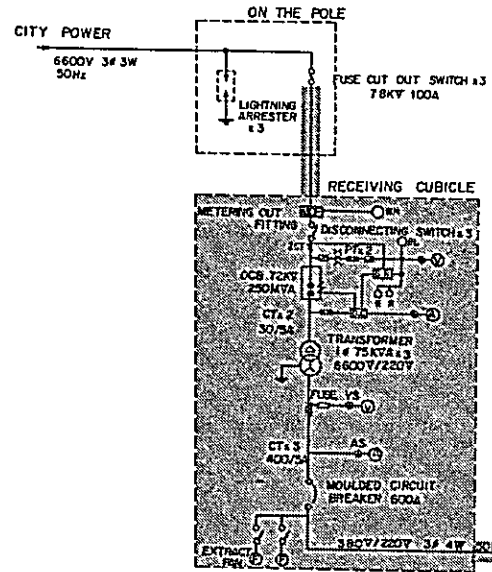
ROYAL GOVERNMENT OF LAOS
 VIENTIANE AIRPORT EXTENSION PROJECT
 (WATTAY)

DRAINAGE, WING WALL (2)

PREPARED: *[Signature]* SUBMITTED: *[Signature]*
 CHECKED: *[Signature]* APPROVED: *[Signature]*

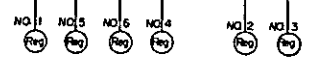
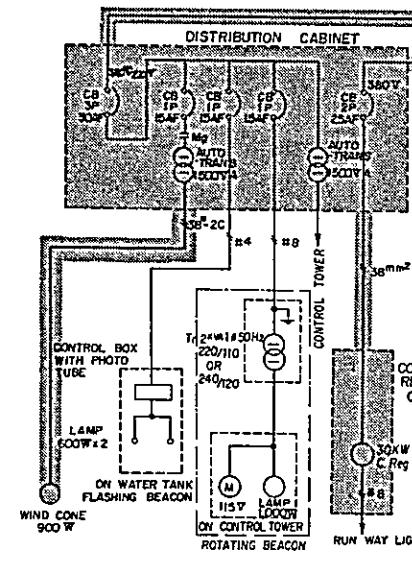
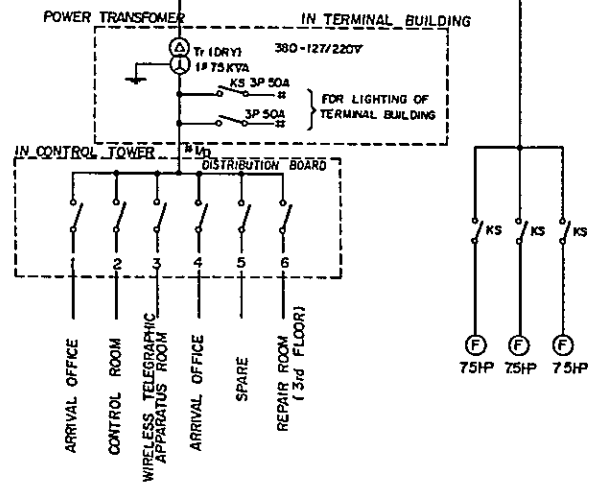
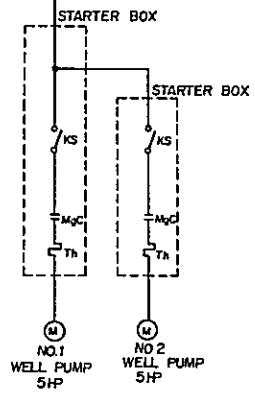
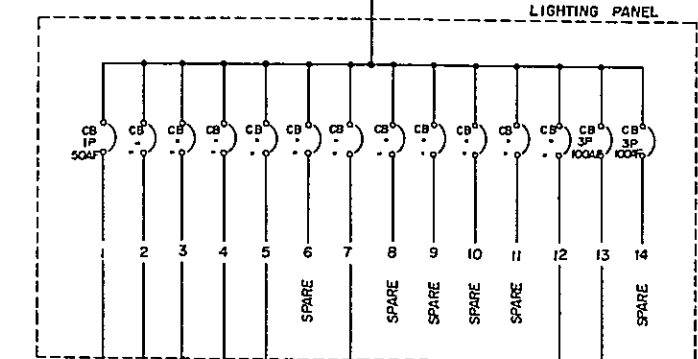
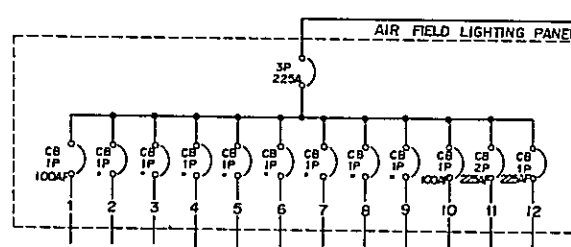
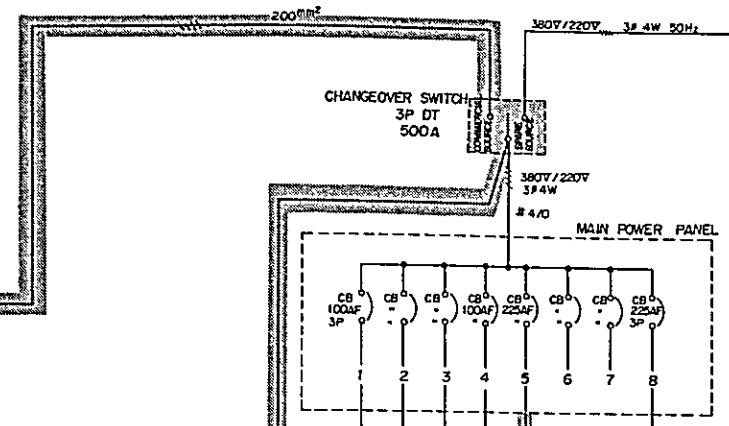
DATE: APR. 1969

NIPPON KOEI CO., LTD Scale AS Shown Sheet 35 of 44



LEGEND

	- ARRESTER
	- CUT OUT SWITCH WITH FUSE
	- TRANSFORMER
	- KNIFE SWITCH
	- CIRCUIT BREAKER
	- MAGNETIC CONTACTOR
	- THERMAL RELAY
	- EARTH
	- GENERATOR
	- MOTOR
	- REGULATOR
	- FAN



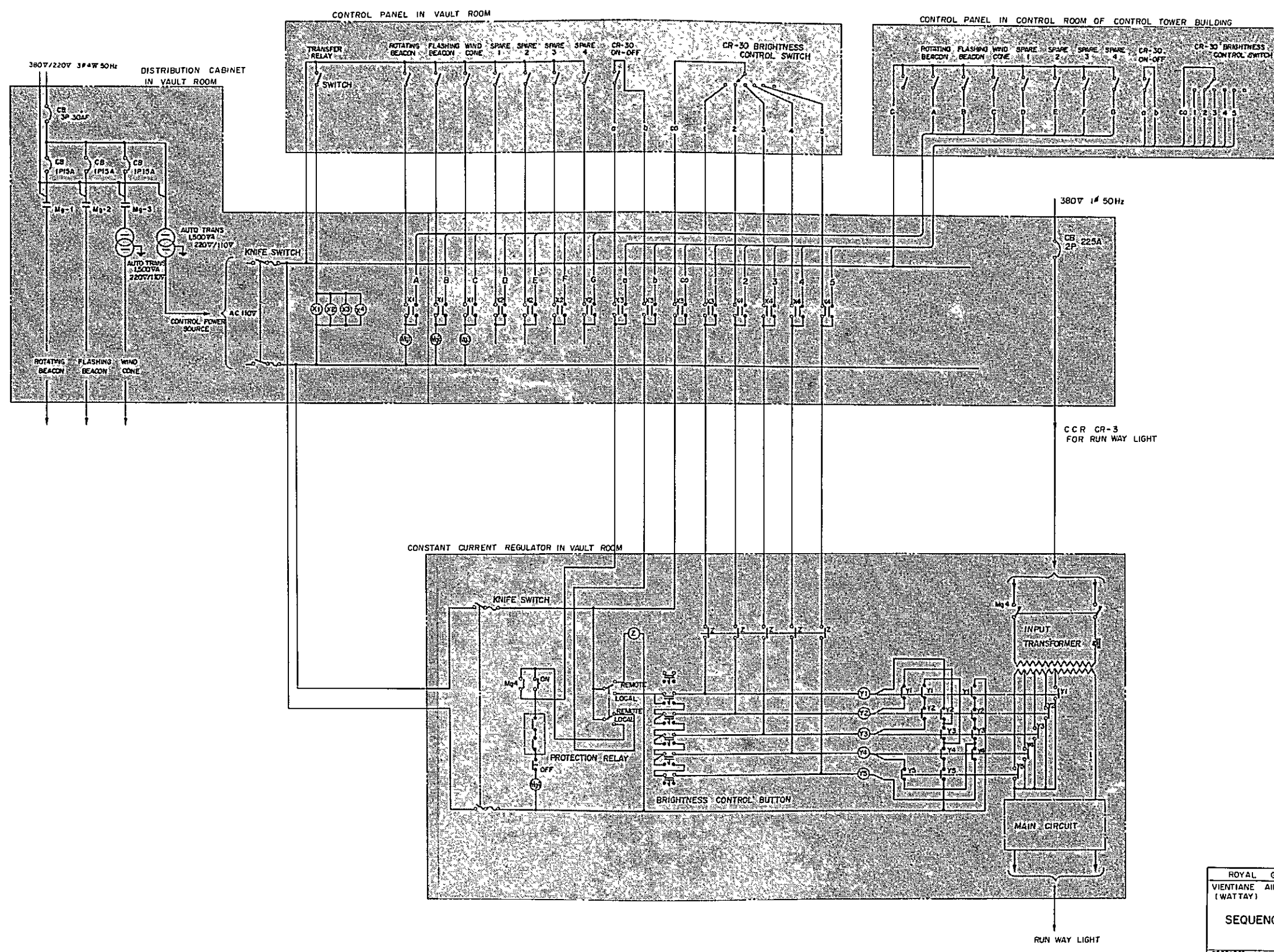
NOTE NEW CONSTRUCTION WORK

ROYAL GOVERNMENT OF LAOS
 VIENTIANE AIRPORT EXTENSION PROJECT
 (WATTAY)

SKELETON DIAGRAM

PREPARED: *oera*
 APPROVED: *Shinjiro*

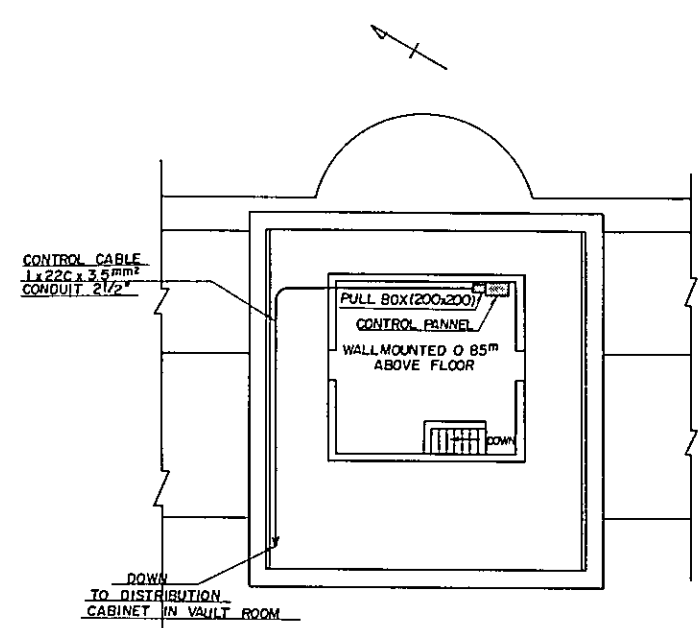
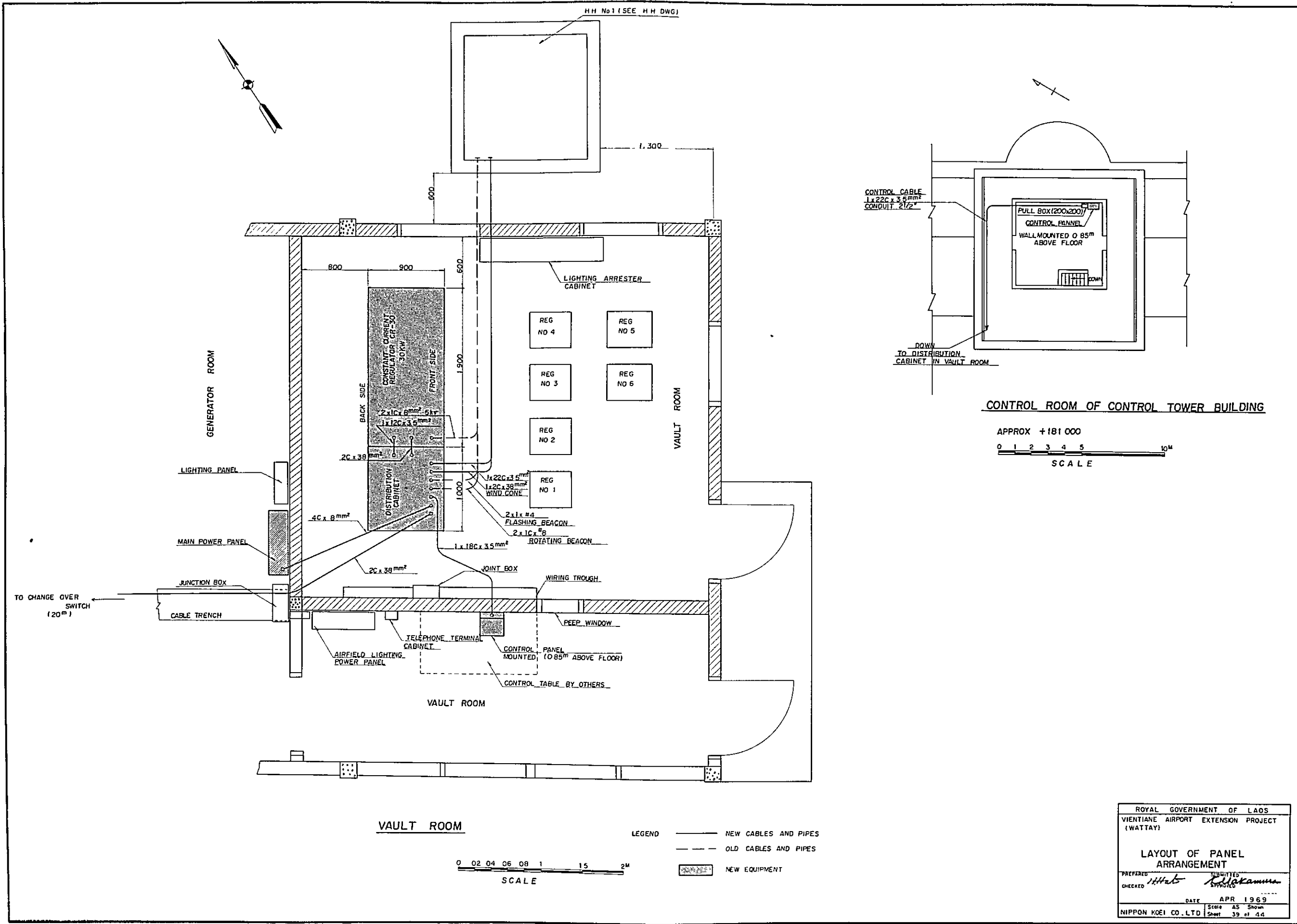
DATE: APR 19 69
 NIPPON KOEI CO., LTD Scale AS Shown
 Sheet 37 of 44



CCR CR-3
FOR RUN WAY LIGHT

RUN WAY LIGHT

ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
SEQUENCE DIAGRAM FOR LIGHTING	
PREPARED CHECKED <i>Watt</i>	SUBMITTED APPROVED <i>Phomm</i>
DATE APR 1969	
Scale A5 Shown Sheet 38 of 42	
NIPPON KOEI CO. LTD	



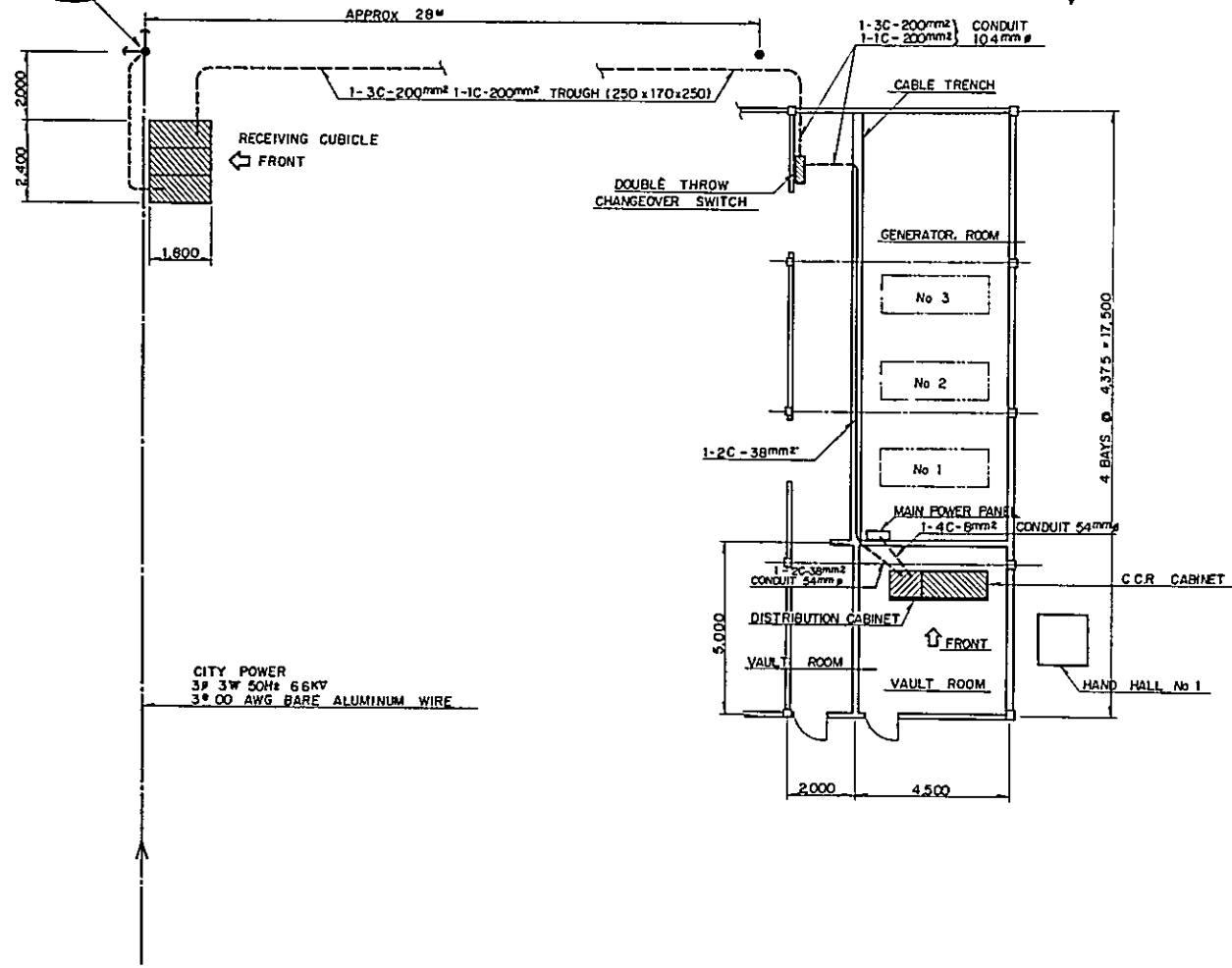
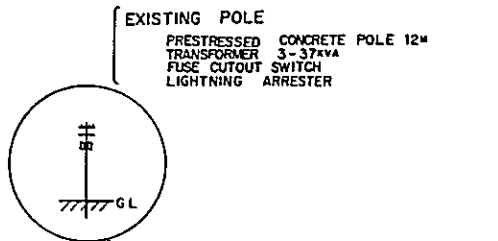
CONTROL ROOM OF CONTROL TOWER BUILDING

APPROX +181 000
 0 1 2 3 4 5 10^M
 SCALE

VAULT ROOM
 0 0.2 0.4 0.6 0.8 1 1.5 2^M
 SCALE

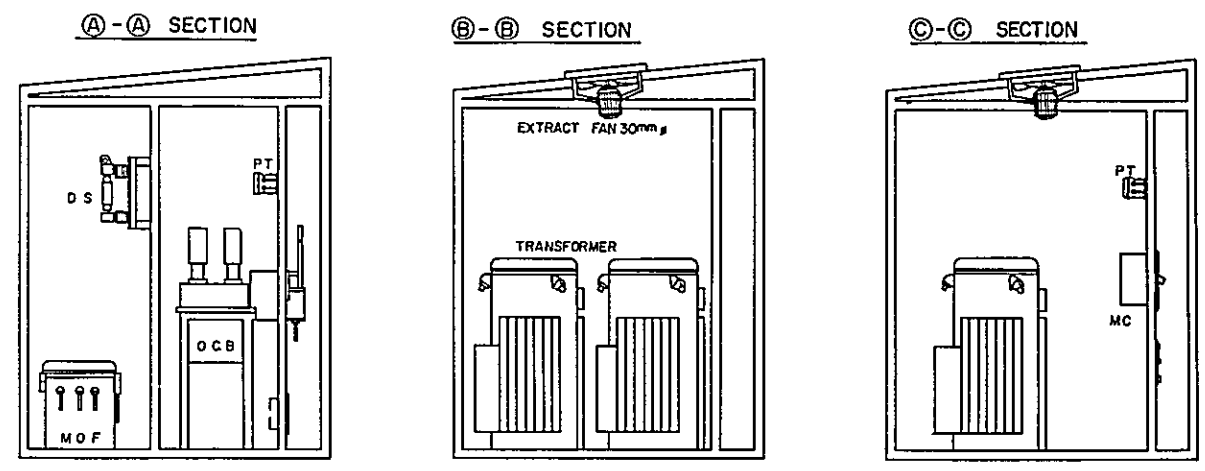
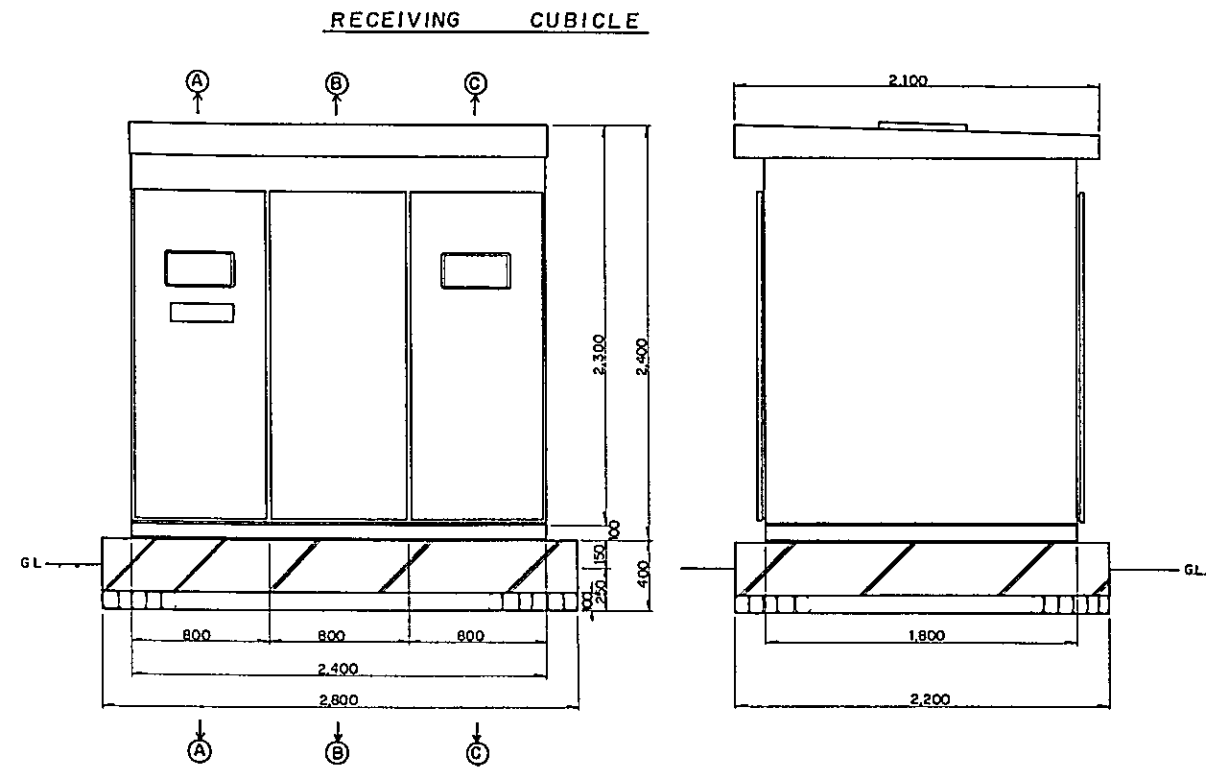
LEGEND
 ——— NEW CABLES AND PIPES
 - - - OLD CABLES AND PIPES
 [Hatched Box] NEW EQUIPMENT

ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
LAYOUT OF PANEL ARRANGEMENT	
PREPARED BY: <i>HH</i>	SUBMITTED BY: <i>K. Nakamura</i>
CHECKED BY: <i>HH</i>	DATE: APR 1969
NIPPON KOEI CO., LTD. Scale: AS SHOWN Sheet: 39 of 44	

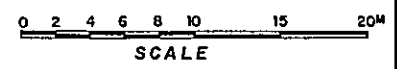
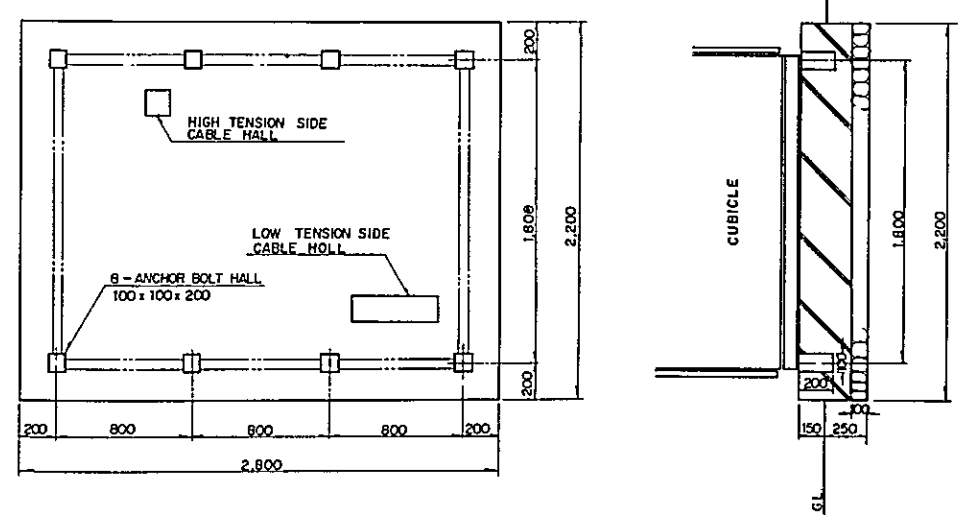


LAYOUT OF RECEIVING EQUIPMENT

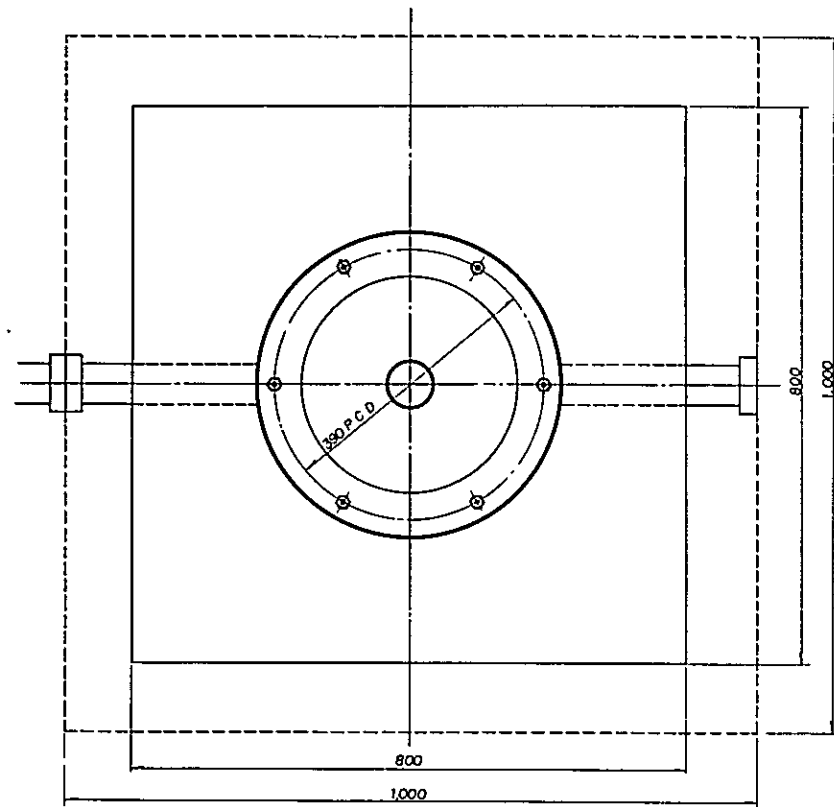
LEGEND
 NEW CONSTRUCTION



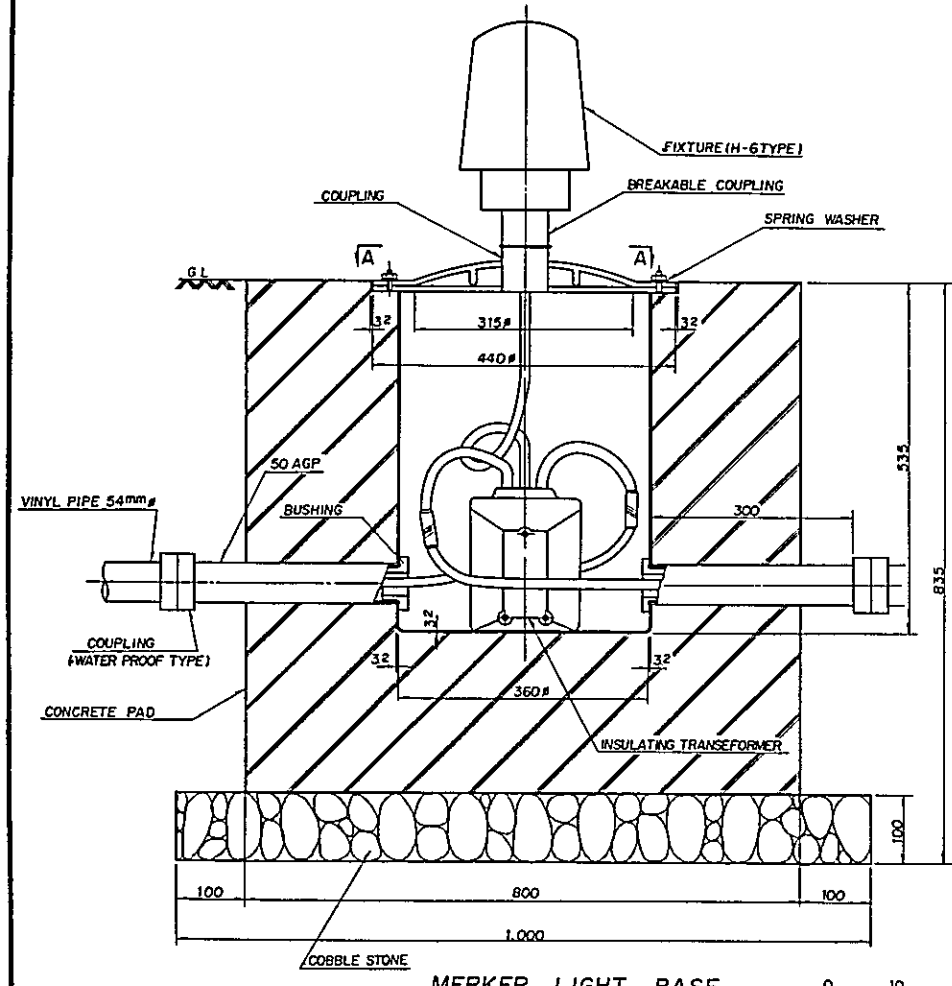
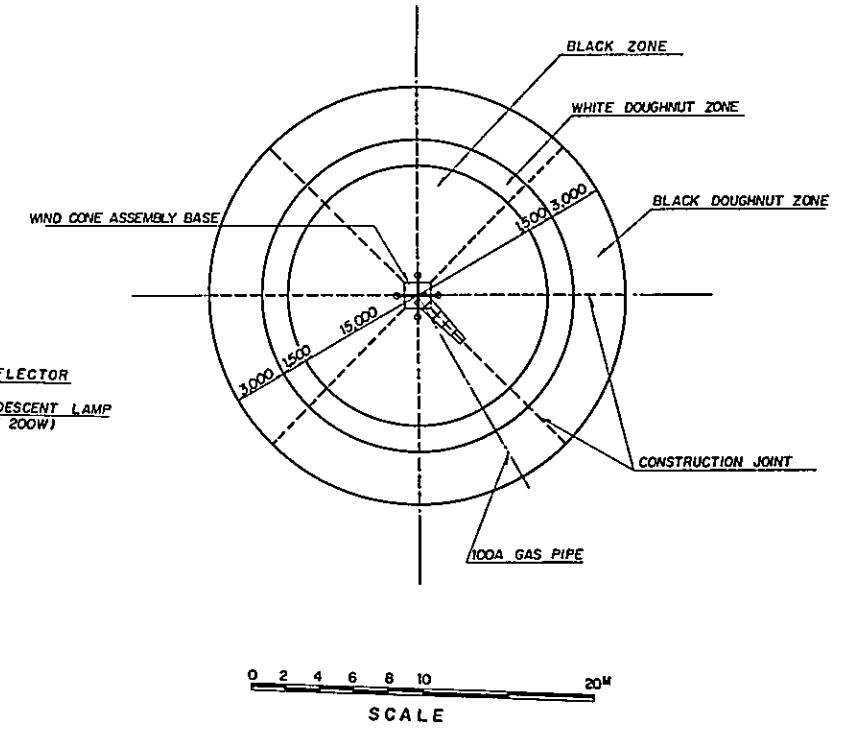
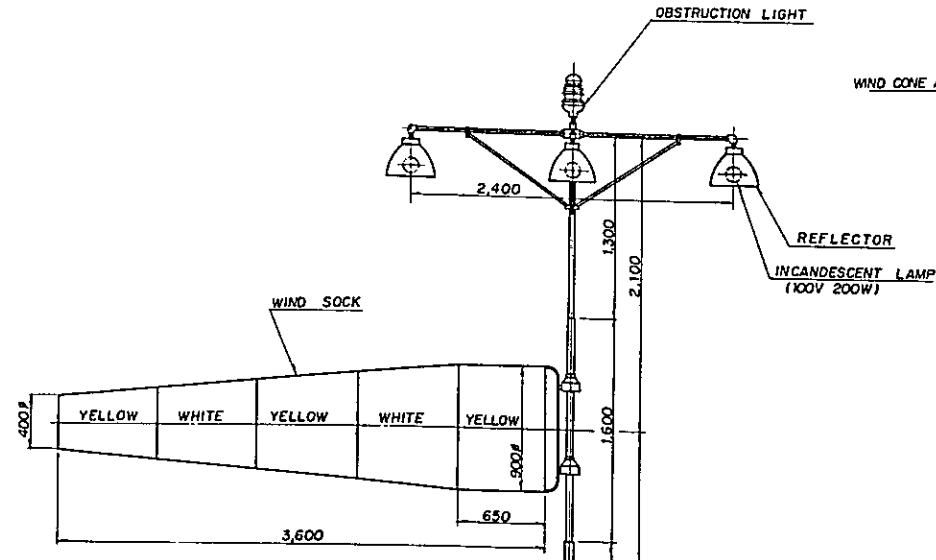
DETAIL OF BASE



ROYAL GOVERNMENT OF LAOS
 VIENTIANE AIRPORT EXTENSION PROJECT
 (WATTAY)
 LAYOUT OF RECEIVING EQUIPMENT
 PREPARED BY: *[Signature]* SUBMITTED BY: *[Signature]*
 CHECKED BY: *[Signature]* APPROVED BY: *[Signature]*
 DATE: APR 1969
 NIPPON KOEI CO., LTD. Scale AS Shown Sheet 40 of 44

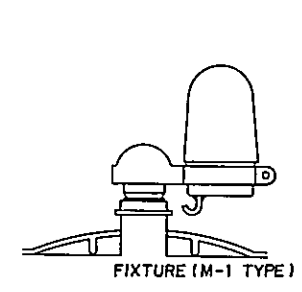


SECTION A - A

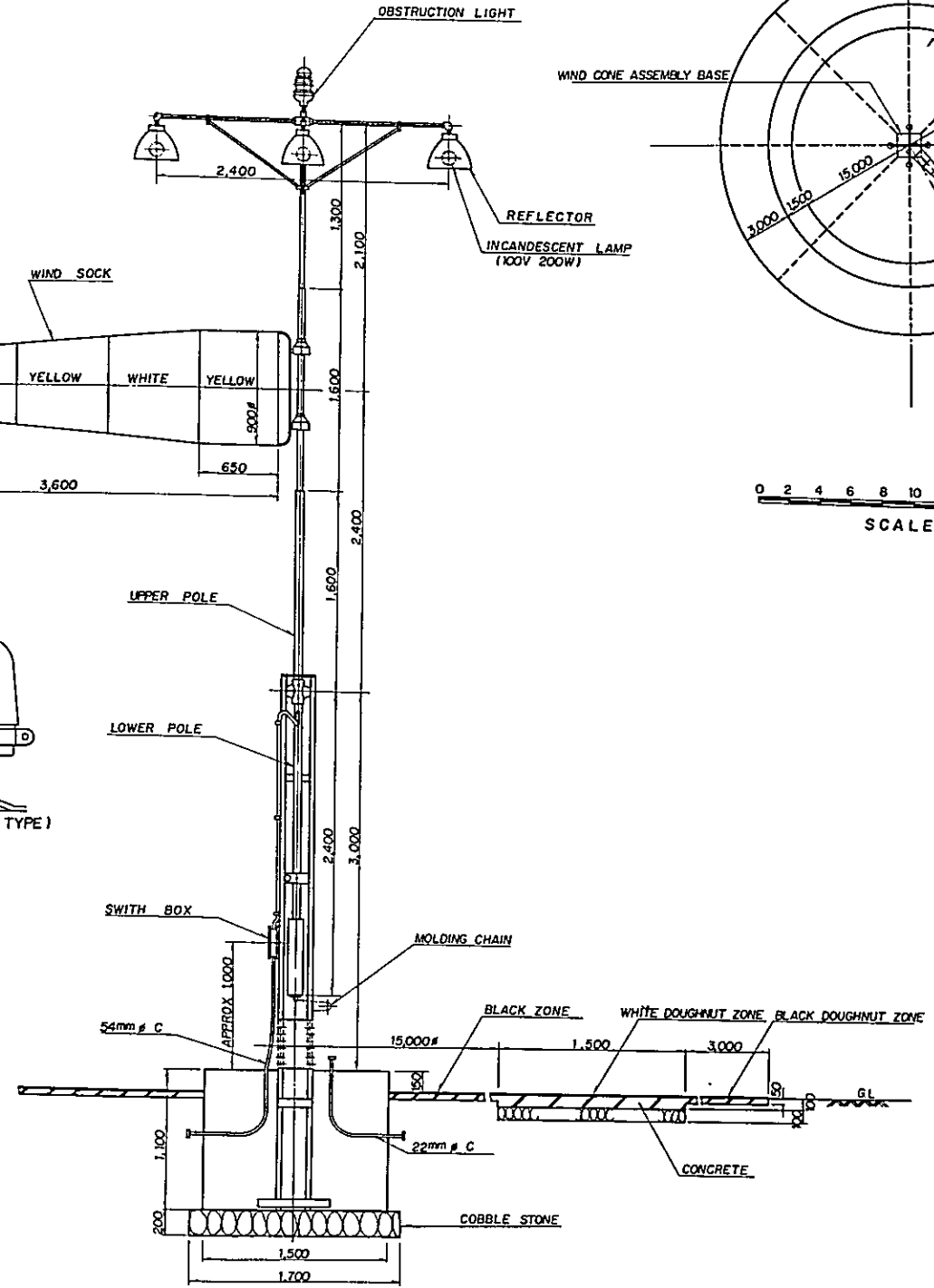


MERKER LIGHT BASE

SCALE
0 10 20 30 40 50^{CM}



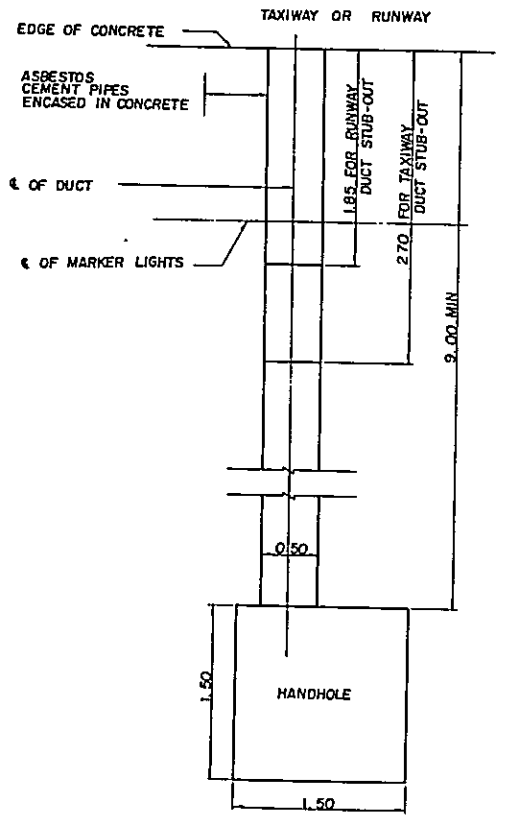
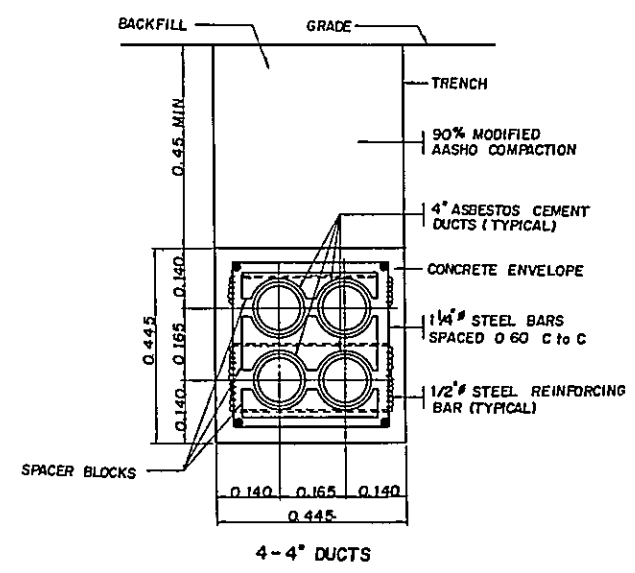
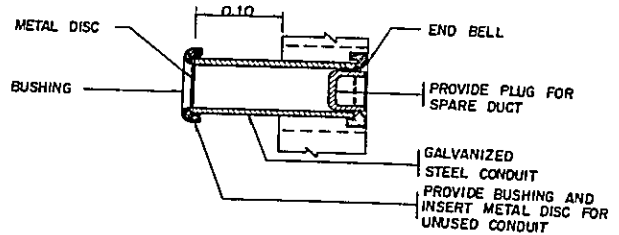
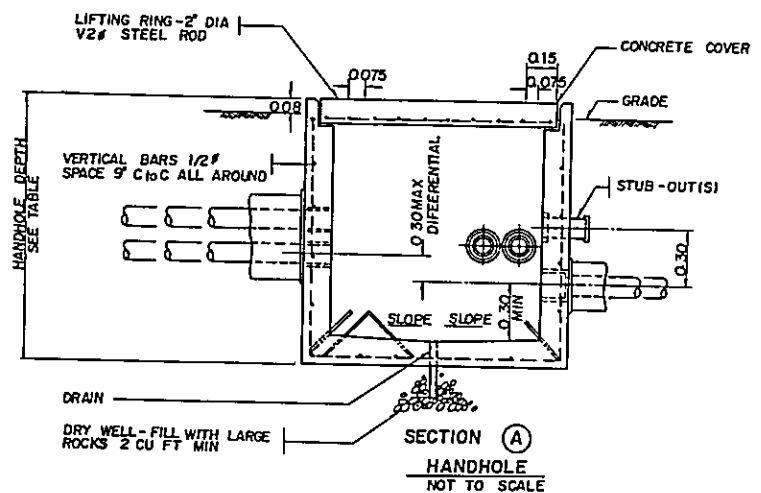
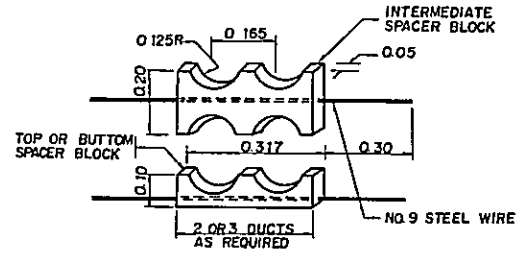
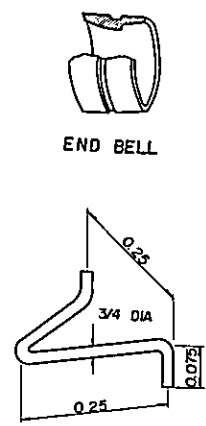
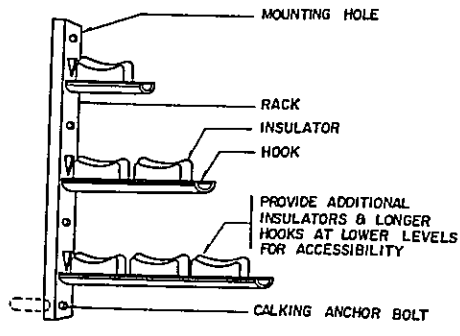
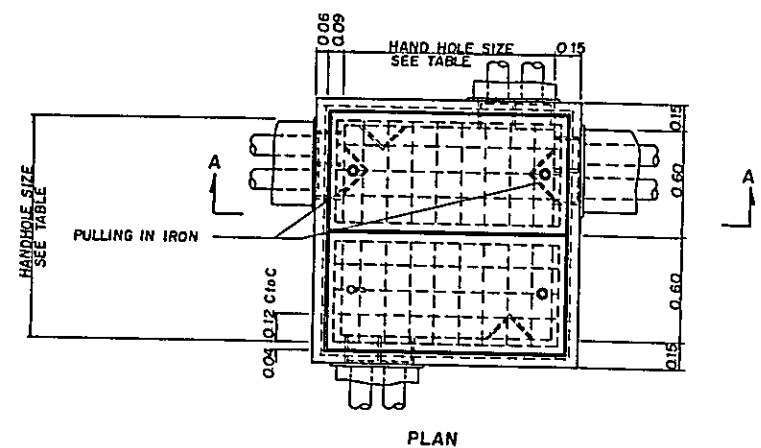
FIXTURE (M-1 TYPE)



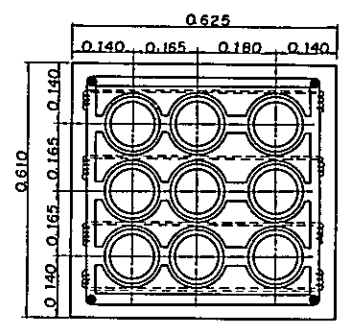
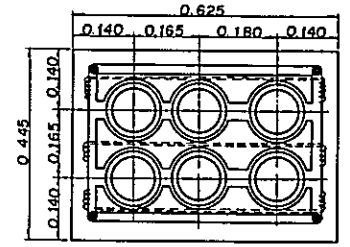
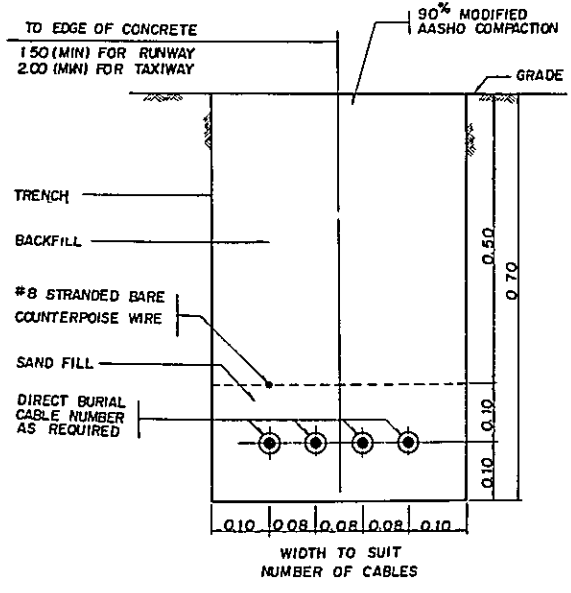
WIND CONE

SCALE
0 0.5 1 1.5 2^M

ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
DETAILS OF RUNWAY LIGHT AND WIND CONE	
PREPARED	APPROVED
CHECKED	DATE
	APR 1969
NIPPON KOEI CO., LTD	Scale AS Shown Sheet 41 of 44



HANDHOLE DIMEN. TABLE		
HANDHOLE NO.	DEPTH	SIZE
1	1.80	1.50
2	1.80	1.50
3	1.80	1.50
4	1.50	1.20
5	1.80	1.50
6	1.80	1.50
7	1.80	1.50
8	1.50	1.20
9	1.80	1.50
10	1.80	1.50
11	1.50	1.20
12	1.80	1.50
13	1.80	1.50



UNDERGROUND DUCT SECTIONS
NOT TO SCALE

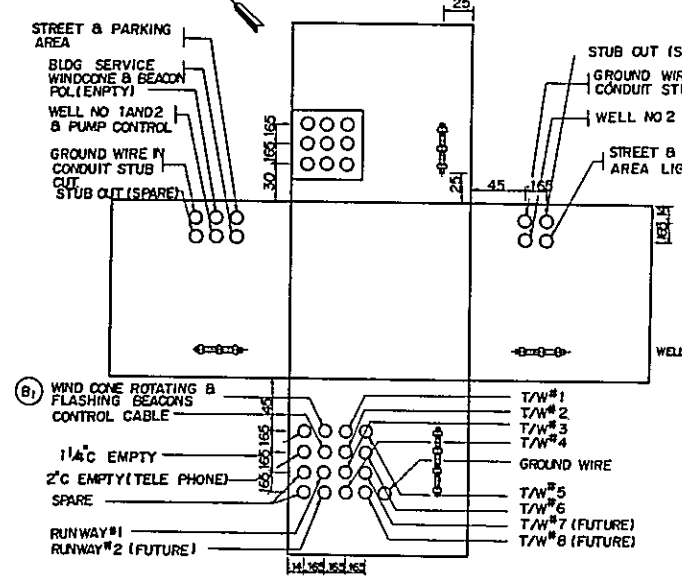
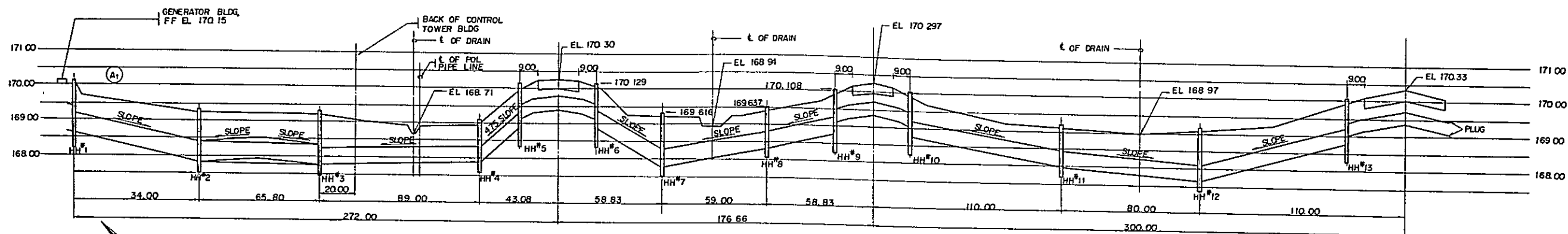
ROYAL GOVERNMENT OF LAOS
VIENTIANE AIRPORT EXTENSION PROJECT
(WATTAY)

EXITING UNDERGROUND
CONSTRUCTION DETAILS

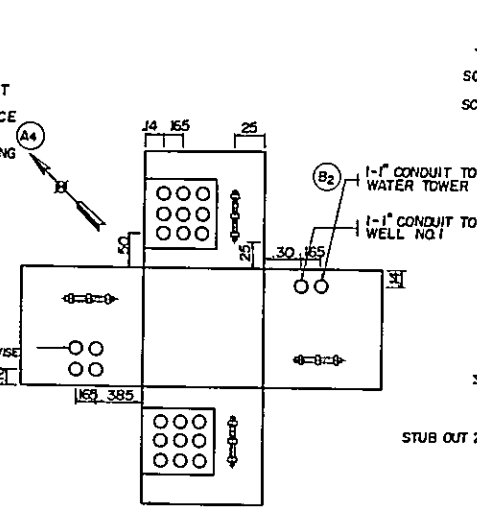
PREPARED: *Titato* CHECKED: *Titato* SUBMITTED: *Titato* APPROVED: *Titato*

DATE: APR 1969

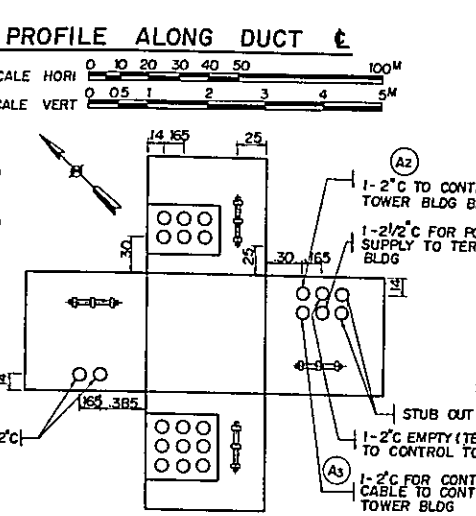
NIIPPON KOEI CO., LTD. Sheets AS Shown Sheet 42 of 44



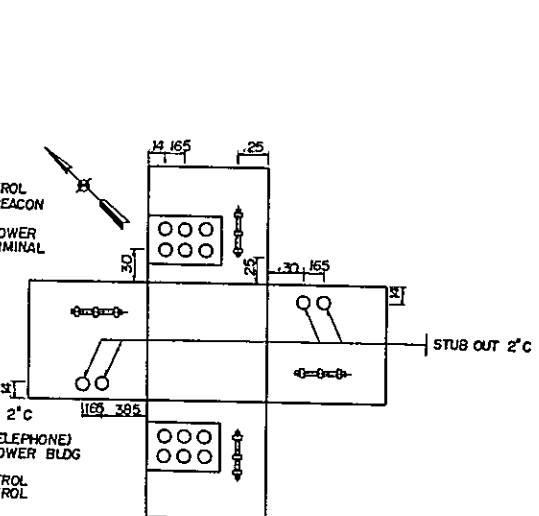
HANDHOLE NO 1



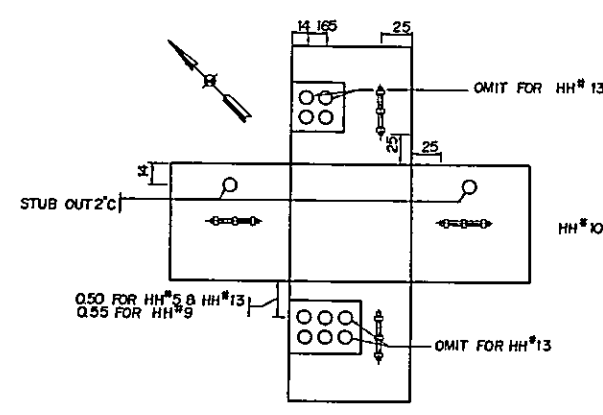
HANDHOLE NO. 2



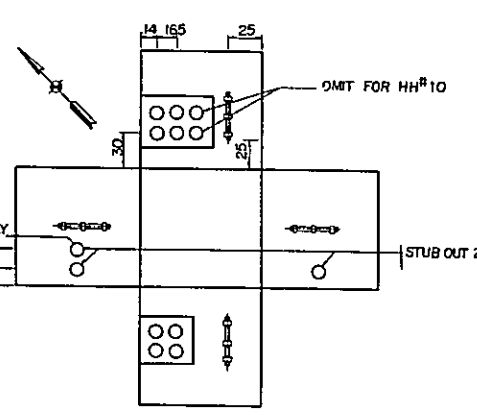
HANDHOLE NO. 3



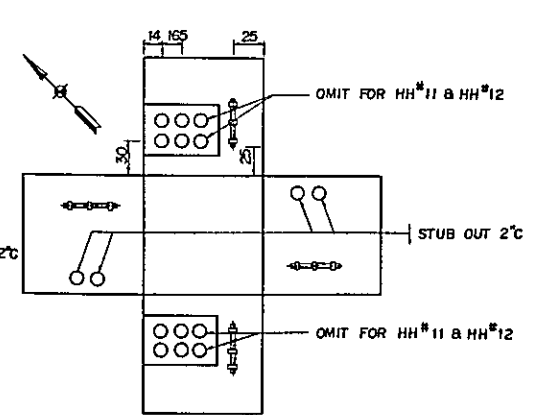
HANDHOLE NO. 4



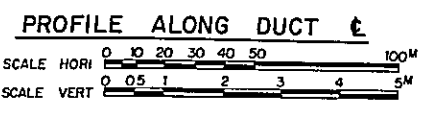
HANDHOLE NOS 5, 9 & 13



HANDHOLE NOS 6 & 10



HANDHOLE NOS 7, 8, 11 & 12



ROYAL GOVERNMENT OF LAOS	
VIENTIANE AIRPORT EXTENSION PROJECT (WATTAY)	
EXISTING DUCT AND HANDHOLE	
PREPARED	SUBMITTED
CHECKED	APPROVED
DATE APR 1969	
Scale AS SHOWN	
Sheet 43 of 44	

WORK ITEM		QUANTITY		DESCRIPTION	NOV.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	REMARKS	
		FIRST	STAGE											
PREPARATORY WORKS	CAMP FACILITIES				FIRST STAGE CONSTRUCTION		SECOND STAGE CONSTRUCTION							
	BATCHER PLANT			28 ^{cf} x 2 - 1		██████████								
RUNWAY & OVERRUN	EARTH WORKS	STRIPPING OF TOP SOIL		52,300 m ³		██████████								
		REMOVAL OF SOFT CLAY		32,500 m ³		██████████								
		SAND EMBANKMENT		32,000 m ³	REPLACEMENT WITH SAND		██████████							
		EXCAVATION AND EMBANKMENT		110,500 m ³			██████████							
		EXCAVATION TO BE REJECTED		7,100 m ³			██████████							
	BASE COURSE FOR PAVEMENTS AND SHOULDERS		20,000 m ²	30cm THICK		-----		██████████						
	CONCRETE PAVEMENTS		13,700 m	R/W 28cm 25cm THICK O/R 15cm THICK				██████████	██████████					
	SHOULDER SODDING AND GRADED AREA SEEDING		4,500 m ²							██████████	██████████			
PAINT MARKING		0 m ²									=====			
DRAINAGE WORKS	EARTH WORKS	EXCAVATION		1,600 m ³		██████████								
		BACKFILLING		690 m ³	COBBLE STONE SAND & GRAVEL		██████████	██████████						
	CONCRETE, BOX CULVERT		500 m ³	R.C 10m x 10m x 150 - 2			██████████							
HOLDING APRON & APRON (IMPROVEMENT)	EARTH WORKS	STRIPPING OF TOP SOILS		0 m ³					██████████					
		EXCAVATION AND EMBANKMENT		0 m ³					██████████					
	BASE COURSE FOR PAVEMENTS AND SHOULDERS		0 m ²	30cm THICK					██████████					
	CONCRETE PAVEMENTS		0 m ³	28cm THICK							██████████			
	SHOULDER SODDING AND GRADED AREA SEEDING		0 m ² 0 m ²									=====		
ELECTRICAL INSTALLATION	LIGHTING FACILITIES, RUNWAY						██████████	██████████						
	LIGHTING FACILITIES, WINDCONE						██████████							
	IMPROVED POWER SOURCE						██████████					=====		
SHIFTING OF EXISTING FENCE						-----					=====			

1st 2nd
R/W 300m 700m
O/R 0 120m

ROYAL GOVERNMENT OF LAOS
VIENTIANE AIRPORT EXTENSION PROJECT
(WATTAY)

**CONSTRUCTION
TIME SCHEDULE**

PREPARED: *[Signature]* SUBMITTED: *[Signature]*
CHECKED: *[Signature]* APPROVED: *[Signature]*

DATE: APR. 1969

NIPPON KOEI CO., LTD Scale AS Shown
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