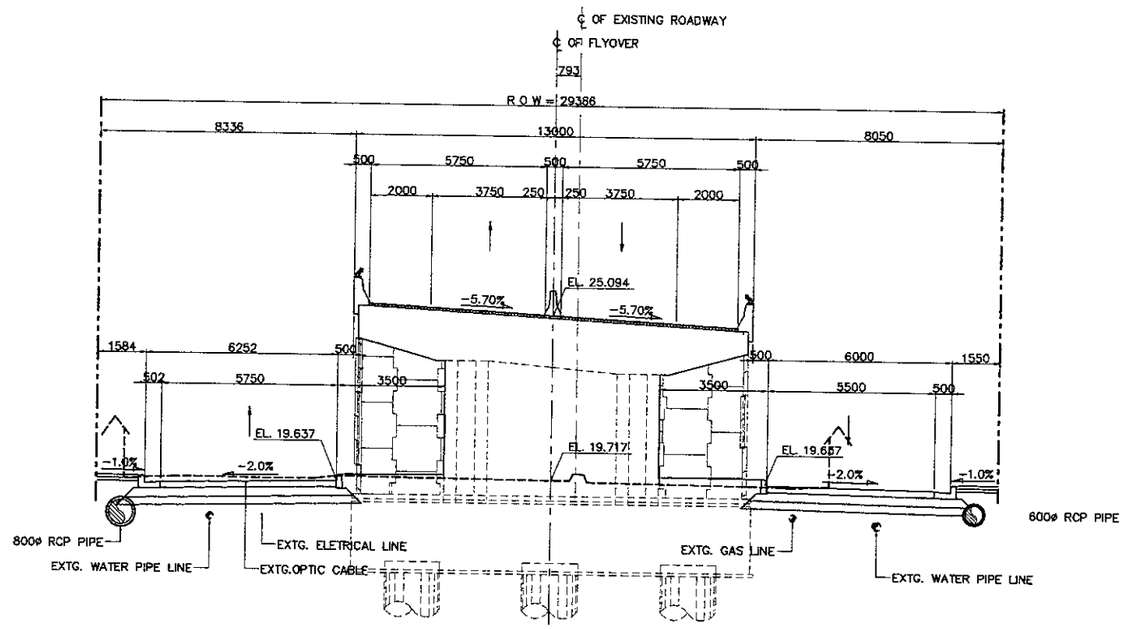
JICA JAPAN INTERNATIONAL COOPERATION AGENCY KRI KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY: Name R. UENO; Sign; Date	CHECKED BY: Name T. OKUMURA; Sign; Date	SUBMITTED BY: Name M. KIUCHI; Sign; Date	REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS APPROVED BY: Ir. HERRY VAZA M,Eng.Sc; NIP. : 110038400; Sign; Date	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 200 FULL SIZE A3	DRAWING TITLE : CROSS SECTION AT ABUTMENT AND PIER LOCATION (6 OF 6)	DRAWING NO : BRD-041 SHEET NO : 41 / 56

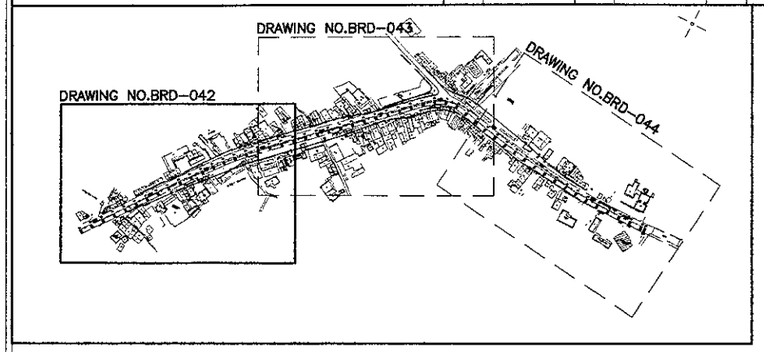


1 / - A2 SECTION (STA. 0 + 620.00)
SCALE 1:200

NOTES:

1. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED DURING CONSTRUCTION.
2. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
3. FOR LOCATION AND INVERT ELEVATIONS OF DRAINAGE SYSTEM (DITCH AND RCP) REFER TO DRAINAGE DRAWINGS.

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 1000 FULL SIZE A3	DRAWING TITLE : RIGHT-OF-WAY PLAN 1 OF 3	DRAWING NO : BRD-042 SHEET NO : 42 / 56
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date				



KEY PLAN

1 RIGHT-OF-WAY PLAN
SCALE 1:1000

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HIGHWAYS

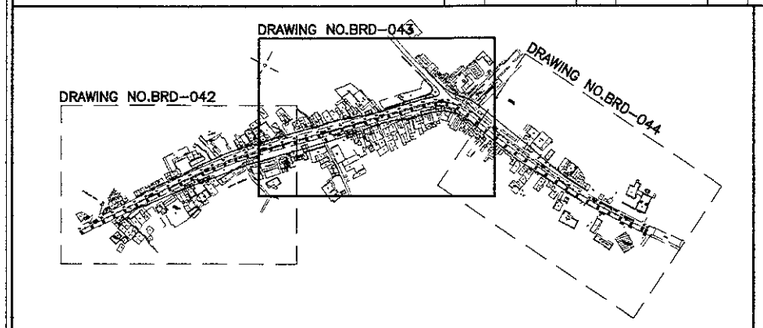
APPROVED BY	Ir. HERRY VAZA M,Eng.Sc	Sign	
	NIP. : 110038400	Date	

PROJECT AND LOCATION :
DETAILED DESIGN STUDY OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
BALARAJA FLYOVER - CONTRACT PACKAGE 1
(MERAK - BALARAJA)
BANTEN PROVINCE

SCALE : 1 : 1000
FULL SIZE A3

DRAWING TITLE :
RIGHT-OF-WAY PLAN
2 OF 3

DRAWING NO : BRD-043
SHEET NO : 43 / 56



KEY PLAN

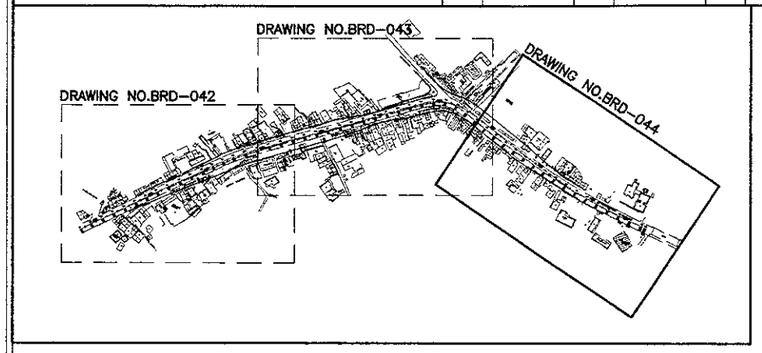
LEGEND :

0+540 EXISTING ALIGNMENT

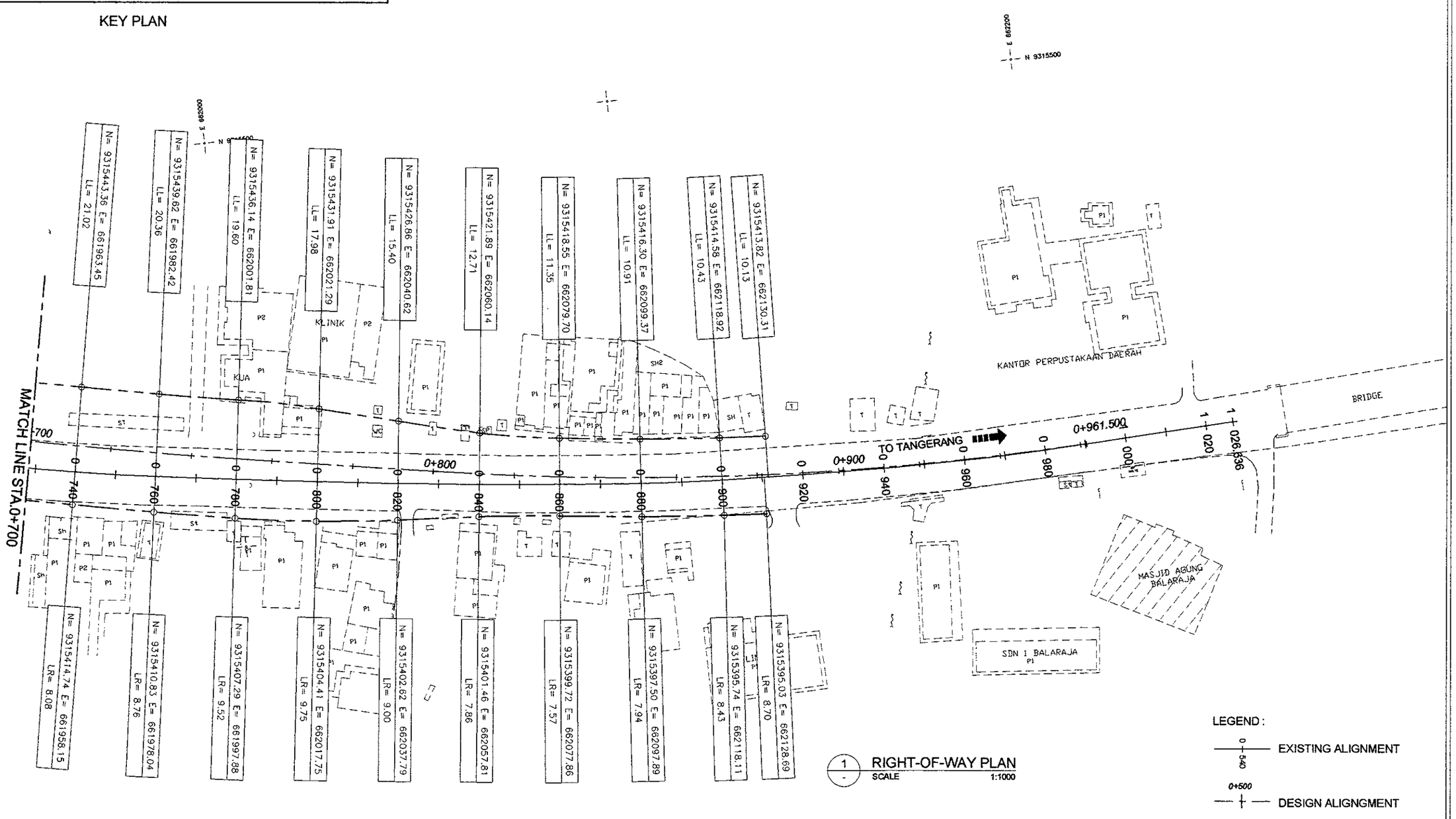
0+500 DESIGN ALIGNGMENT

1 - RIGHT-OF-WAY PLAN
SCALE 1:1000

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 1000 FULL SIZE A3	DRAWING TITLE : RIGHT-OF-WAY PLAN 3 OF 3	DRAWING NO : BRD-044 SHEET NO : 44 / 56
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY Ir. HERRY VAZA M,Eng,Sc NIP. : 110038400 Sign Date				



KEY PLAN



1 / - RIGHT-OF-WAY PLAN
SCALE 1:1000

JAPAN INTERNATIONAL COOPERATION AGENCY / KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY	CHECKED BY	SUBMITTED BY
	Name: R. UENO	Name: T. OKUMURA	Name: M. KIUCHI
	Sign:	Sign:	Sign:
	Date:	Date:	Date:

REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HIGHWAYS

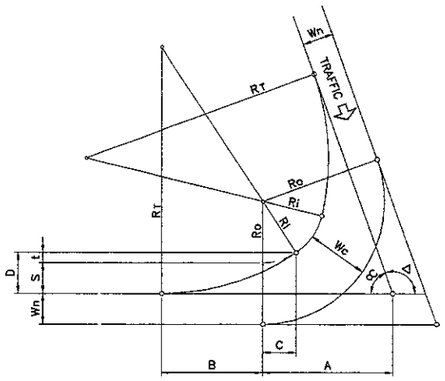
APPROVED BY: Ir. HERRY VAZA M,Eng.Sc (NIP. : 110038400) — Sign: — Date:

PROJECT AND LOCATION :
DETAILED DESIGN STUDY OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
BALARAJA FLYOVER - CONTRACT PACKAGE 1
(MERAK - BALARAJA)
BANTEN PROVINCE

SCALE : NTS (FULL SIZE A3)

DRAWING TITLE :
GEOMETRIC DESIGN STANDARD 1 OF 3

DRAWING NO : BRD-045
SHEET NO : 45 / 56



NOTES

- RELATIVE PATHS OF RIGHT TURNING VEHICLES ARE IMAGINARY ONLY; OVERALL, THESE WILL DETERMINE THE CONFIGURATION OF CHANNELI-ZATION ISLANDS IN INTERSECTION DESIGN.
- Ro AS DEFINED BY CONDITION OBTAINING AND Wc IN CONFORMANCE WITH DESIGN VEHICLES AND Ro.

(ADOPTED FROM JAPANESE STANDARDS)

AND/OR "GEOMETRIC JALAN PERKOTAAN" RSNI T-14-2004

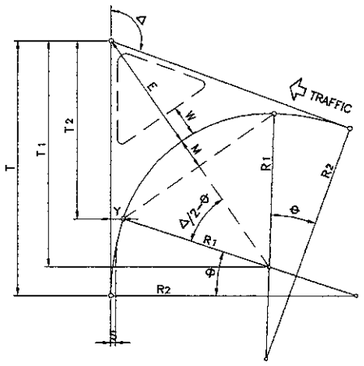
WHERE

- Wn = LANE WIDTH (NORMAL)
- Wc = LANE WIDTH (TURNING)
- Δ = INTERSECTION ANGLE
- Ro = OUTER RADIUS
- Ri = INNER RADIUS
- R_T = TRANSITION RADIUS
- αC = 180° − Δ

FORMULAS

- Ri = Ro−Wc
- R_T = nRi (n=3)
- S = Wc−Wn
- t = S/(n−1)
- A = (Ri+S) COT αC/2
- $B = \sqrt{2\,(R_T - R_i)\,S - S^2}$
- C = B/(n−1)
- D = S + t

1 - RIGHT TURN LANE/S ELEMENTS THREE CENTERED CURVE-SYMMETRICAL
NOT TO SCALE



WHERE

- Δ = INTERSECTION ANGLE
- R1 = INNER RADIUS
- R2 = TRANSITION RADIUS
- S = OFFSET OF INNER CIRCULAR CURVE FROM TANGENTS

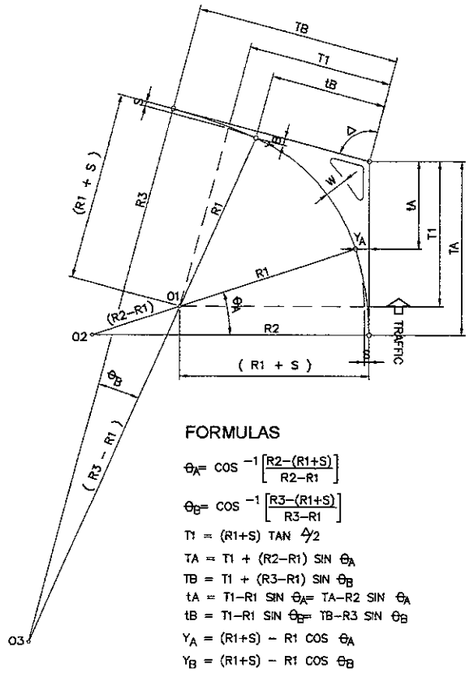
FORMULAS

- $T_1 = (R_1+S)\ \tan \Delta/2$
- $T = T_1 + (R_2-R_1)\ \sin\theta$
- $T_2 = T_1 - R_1\ \sin\theta$
- $Y = (R_1+S) - R_1 \cos\theta$
- $E = \frac{R_1+S}{\cos \Delta/2} - R_1$
- $M = R_1 - R_1 \cos\left(\frac{\Delta}{2}-\theta\right)$
- $\theta = \cos^{-1}\left(\frac{R_2-R_1-S}{R_2-R_1}\right)$

2 - LEFT TURN/S ELEMENTS THREE CENTERED CURVE-SYMMETRICAL
NOT TO SCALE

NOTES

- FORMULAS DERIVED BELOW ARE FOR FIELD LAYOUT PURPOSE (DRAWING LAYOUT BY GRAPHICAL SOLUTION ONLY.)
- DESIGN RADII (R1, R2 & R3) AND OFFSET S AS WELL AS LANE WIDTH W (WHERE CORNER ISLANDS ARE REQUIRED UNDER CONDITIONS OBTAINING)



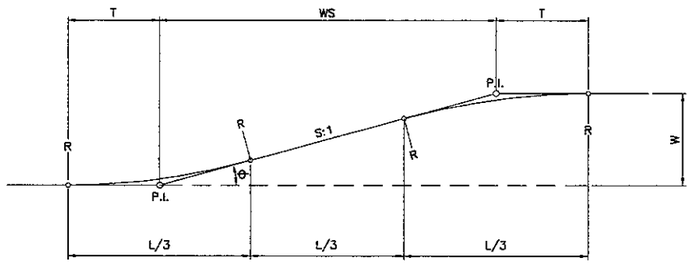
WHERE

- R1 = RADIUS OF INTERMEDIATE CIRCULAR ARC
- R2= RADIUS OF CIRCULAR ARC ON APPROACH LEG (1.5 x R1)
- R3= RADIUS OF CIRCULAR ARC ON DEPARTURE LEG (3 x R1)
- S = OFFSET OF INNER CIRCULAR CURVE FROM TANGENTS
- Δ = INTERSECTION ANGLE

FORMULAS

- $\theta_A = \cos^{-1}\left[\frac{R2-(R1+S)}{R2-R1}\right]$
- $\theta_B = \cos^{-1}\left[\frac{R3-(R1+S)}{R3-R1}\right]$
- $T1 = (R1+S)\ \tan \Delta/2$
- $TA = T1 + (R2-R1)\ \sin \theta_A$
- $TB = T1 + (R3-R1)\ \sin \theta_B$
- $tA = T1-R1\ \sin \theta_A = TA-R2\ \sin\ \theta_A$
- $tB = T1-R1\ \sin \theta_B = TB-R3\ \sin\ \theta_B$
- $Y_A = (R1+S) - R1\ \cos\ \theta_A$
- $Y_B = (R1+S) - R1\ \cos\ \theta_B$

3 - LEFT TURN/S ELEMENTS THREE CENTERED CURVE-ASYMMETRICAL
NOT TO SCALE



FORMULAS

- θ = TAN^{-1} 1/S (TAPER RATE S:1)
- $T = \frac{WS}{3\ \cos\theta + 1}$
- L/3 = T (COS θ+ 1)
- $R = \frac{T}{TAN\ \theta/2}$

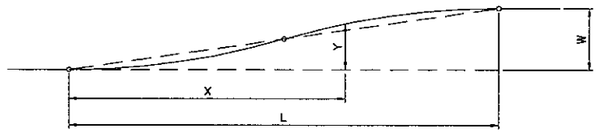
APPROX.

- T = L/6
- θ = TAN^{-1} W/4T

OPERATING SPEED	S VALUE
40 KPH	8
50 KPH	(10)
60 KPH	(12.5)
PARKING TURNOUT (ENTRANCE / EXIT)	2
BUS TURNOUT (DESIRABLE MIN)	4

(S VALUE SHOWN IN PARENTHESIS WERE INTERPOLATED FROM AASHTO)

4 - ROADWAY TAPERING - L/3 TAN SECTION (CIRCULAR CURVE ROUNDING)
NOT TO SCALE



FORMULAS

- L = CWS
  - (C=1 MINIMUM)
  - (C=2 DESIRABLE)
- Y = KW

WHERE

- L = LENGTH OF FLARE
- W = WIDENING (MAX. OFFSET)
- S = TAPER RATE (HOR: VER)
- X = DISTANCE ALONG BASELINE
- Y = OFFSET FROM BASELINE

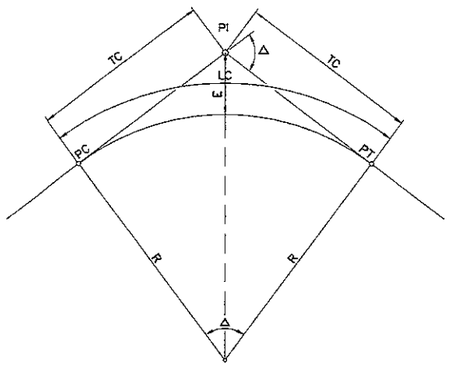
LAYOUT BY OFFSET

X / L	0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
K	0.000	0.005	0.020	0.045	0.080	0.125	0.180	0.245	0.320	0.405	0.500	0.595	0.680	0.755	0.820	0.875	0.920	0.955	0.980	0.995	1.000

5 - ROADWAY TAPERING - REVERSED PARABOLIC CURVE FLARES - SYMMETRICAL
NOT TO SCALE

JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI	
	Sign		Sign		Sign		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc (NIP. : 110038400) Sign / Date
	Date		Date		Date		

PROJECT AND LOCATION :	SCALE :	DRAWING TITLE :	DRAWING NO :
DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	NTS FULL SIZE A3	GEOMETRIC DESIGN STANDARD 2 OF 3	BRD-046 SHEET NO : 46 / 56



WHERE

PI = POINT OF INTERSECTION
Δ = INTERSECTION ANGLE
R = CURVE RADIUS
T = TANGENT LENGTH
LC = CURVE LENGTH
E = EXTERNAL DISTANCE
PC = BEGINNING OF CIRCULAR CURVE
PT = END OF CIRCULAR CURVE

FORMULAS

$T = R (\tan \Delta/2)$

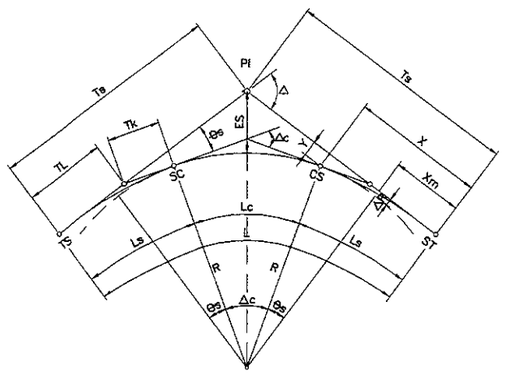
$LC = \frac{\pi R \Delta}{180}$

$E = T(\tan \Delta/4)$

1 - HORIZONTAL CURVE (CIRCULAR)
NOT TO SCALE

NOTE

NO HORIZONTAL CURVE IS REQUIRED WHEN
THE INTERSECTION ANGLE IS LESS THAN ONE DEGREE (1°)



WHERE

PI = POINT OF INTERSECTION
Δ = INTERSECTION ANGLE
R = CURVE RADIUS
Es = EXTERNAL DISTANCE
Ls = LENGTH OF SPIRAL
A = PARAMETER OF CLOTHOID
θs = SPIRAL ANGLE
X,Y = COORDINATES OF POINTS SC AND CS WITH RESPECT TO MAIN TANGENTS
ΔR = OFFSET BETWEEN CIRCULAR CURVE AND MAIN TANGENT ("THROW" OF SPIRAL)
Xm = DISTANCE FROM TS OR ST TO POINT OF "THROW"

Ts = TOTAL TANGENT DISTANCE
TL = LONG TANGENT OF SPIRAL
Tk = SHORT TANGENT OF SPIRAL
L = TOTAL LENGTH OF CURVE
Δc = CENTRAL ANGLE OF CIRCULAR CURVE
Lc = LENGTH OF CIRCULAR CURVE
TS = BEGINNING OF TRANSITION CURVE
SC = BEGINNING OF CIRCULAR CURVE
CS = END OF CIRCULAR CURVE
ST = END OF TRANSITION CURVE

2 - HORIZONTAL CURVE WITH TRANSITION (CLOTHOID SPIRAL)
NOT TO SCALE

FORMULAS:

$A^2 = R(Ls)$

$\theta s = Ls(D/40)$

$x = Ls\left(1 - \frac{Ls^2}{40R^2}\right)$

$y = \frac{Ls^2}{6R}\left(1 - \frac{Ls^2}{56R^2}\right)$

$\Delta R = y + R \cos \theta s - R$

$Xm = x - R \sin \theta s$

$T = (R+\Delta R)\tan \Delta/2$

$Ts = Xm + T$

$\Delta c = \Delta - 2\theta s$

$Lc = \pi R \Delta c/180$

$TL = x - (y/\tan \theta s)$

$Tk = \frac{y}{\sin \theta s}$

$Es = \left[\left(R + \frac{y}{4}\right)\sec \frac{\Delta}{2}\right] - R$

RAILWAY CROSSING

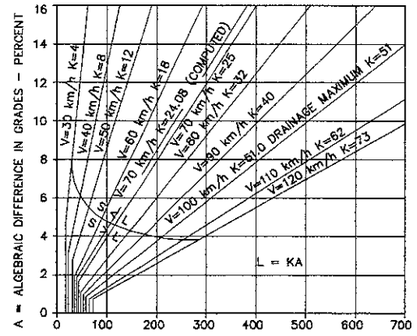
FORMULA

$L1 = 15.0 + 4(N-1)$

WHERE

L1 = MINIMUM LENGTH OF VISIBLE RAILWAY CROSSING
N = NO. OF RAILWAY TRACK

3 - DESIGN CONTROLS FOR VERTICAL CURVES
NOT TO SCALE



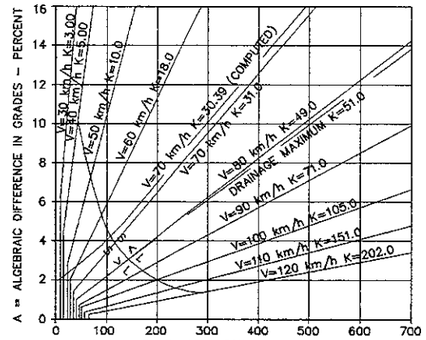
K = RATE OF VERTICAL CURVE
LENGTH OF VERTICAL CURVE (m) PER ALGEBRAIC DIFFERENCE OF INTERSECTING GRADES (%)

FORMULA

$L = \frac{AS^2}{120 + 3.53}$ $\qquad L = 25 - \left(\frac{120 + 3.5^2}{A}\right)$

WHEN S < L $\qquad$ WHEN S > L

S = STOPPING SIGN DISTANCE (m)
A = ALGEBRAIC DIFFERENCE IN GRADE (%)



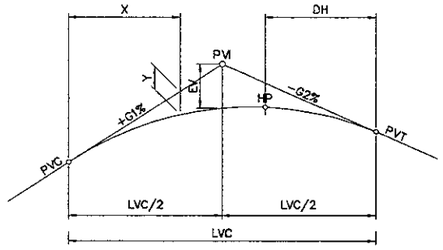
K = RATE OF VERTICAL CURVE
LENGTH OF VERTICAL CURVE (m) PER ALGEBRAIC DIFFERENCE OF INTERSECTING GRADES (%)

FORMULA

$L = \frac{AS^2}{65\,S}$ $\qquad L = 25 - \frac{65\,S}{A}$

WHEN

S = S < L : S > L



K = LVC / A.D

WHERE

PVI = VERTICAL POINT OF INTERSECTION
AD = ALGEBRAIC DIFFERENCE OF INTERSECTING GRADES
K = RATE OF VERTICAL CURVE
LVC = LENGTH OF VERTICAL CURVE
EV = VERTICAL OFFSET
PVC = VERTICAL POINT OF CURVATURE
PVT = VERTICAL POINT OF TANGENCY
G1, G2 = TANGENT GRADES IN PERCENT
MO = MIDDLE ORDINATE
X = DISTANCE FROM PVC TO PVT TO ANY POINT OF CURVE
Y = VERTICAL OFFSET AT SAID DISTANCE "X"
HP = HIGH POINT OF CURVE
DH = DISTANCE OF "HP" FROM CURVE END RECKONED FROM FLATTER GRADE

FOR SYMMETRICAL VERTICAL PARABOLIC CURVES

$EV = \frac{(G1-G2)}{100} \cdot \frac{L}{8}$

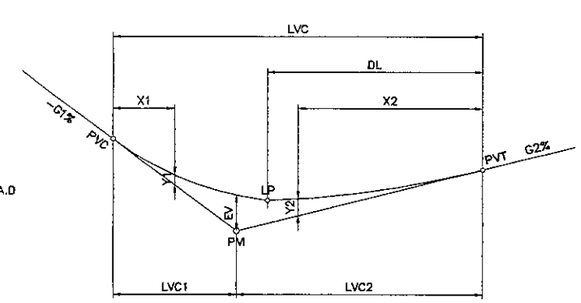
$Yx = \frac{(G1-G2)}{100} \cdot \frac{x^2}{2LVC}$

$DH = \frac{GLVC}{(G1-G2)}$

(WHERE G IS THE LESSER GRADE)

NOTES
1. SIMILARLY APPLIES TO LP (LOW POINT) OF SAG VERTICAL CURVES
2. NO VERTICAL CURVE IS REQUIRED WHERE THE ALGEBRAIC DIFFERENCE IN GRADE IS 0.50% OR LESS

4 - VERTICAL PARABOLIC CURVE (SYMMETRICAL)
NOT TO SCALE



WHERE :

LVC1 = SHORT SIDE OF VERTICAL CURVE LENGTH
LVC2 = LONG SIDE OF VERTICAL CURVE LENGTH
LP = LOW POINT OF CURVE
DL = DISTANCE OF LP FROM CURVE END RECKONED FROM FLATTER GRADE

ALL OTHER NOMENCLATURE SAME AS SYMMETRICAL PARABOLIC CURVE

FOR ASYMMETRICAL VERTICAL PARABOLIC CURVES

$EV = \frac{(G1-G2)}{100} \cdot \frac{L1\,L2}{2L}$ $\qquad Y2 = \frac{X2^2}{L2^2} \cdot EV$

$Y1 = \frac{X1^2}{L1^2} \cdot EV$

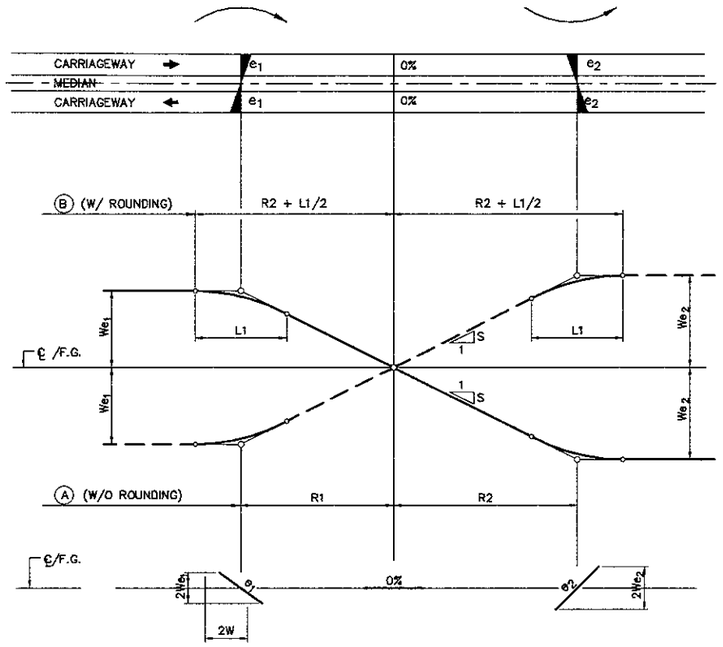
$DL = \frac{G2\,L2}{L1} \cdot K$

$K = \frac{L}{G1+G2}$

NOTES :
1. SIMILARLY APPLIES TO HP (HIGH POINT) OF CREST VERTICAL CURVES
2. NO VERTICAL CURVE IS REQUIRED WHERE THE ALGEBRAIC DIFFERENCE IN GRADE IS 0.50% OR LESS

5 - VERTICAL PARABOLIC CURVE (ASYMMETRICAL)
NOT TO SCALE

JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : NTS FULL SIZE A3	DRAWING TITLE : GEOMETRIC DESIGN STANDARD 3 OF 3	DRAWING NO : BRD-047 SHEET NO : 47 / 56
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M.Eng.Sc, NIP. : 110038400 — Sign — Date				



$R1 = \frac{We_1}{S}$

$R2 = \frac{We_2}{S}$

$L1 = \frac{Wnc}{S}$

WHERE

R1 = LENGTH OF SUPERELEV. RUNOFF (1st CURVE)
R2 = LENGTH OF SUPERELEV. RUNOFF (2nd CURVE)
L1 = LENGTH OF ROUNDING
ALL OTHER NOMENCLATURE THE SAME

BALARAJA FLYOVER PIER

STATION		SUPERELEVATION LEFT	SUPERELEVATION RIGHT
A1	0+069,16	−2	−2
P1	0+169,16	−2	−2
P2	0+190,33	−2	−2
P3	0+200,33	0	−2
P4	0+210,33	+2	−2
P5	0+300,62	+2	−2
P6	0+310,62	0	−2
P7	0+320,62	−2	−2
P8	0+550,00	−2	−2
P9	0+560,00	0	−2
P10	0+570,00	+2	−2
P11	0+605,00	+5,7	−5,7
P12	0+632,76	+5,7	−5,7
P13	0+655,76	+2	−2
P14	0+665,76	0	−2
P15	0+675,76	−2	−2
A2	0+961,50	−2	−2

S VALUE (INTERPOLATED FROM AASHTO)

DESIGN SPEED Km/h	40	50	60	70	80	90	100	110	120
100 S	0.70	0.65	0.60	0.55	0.50	0.48	0.45	0.42	0.40

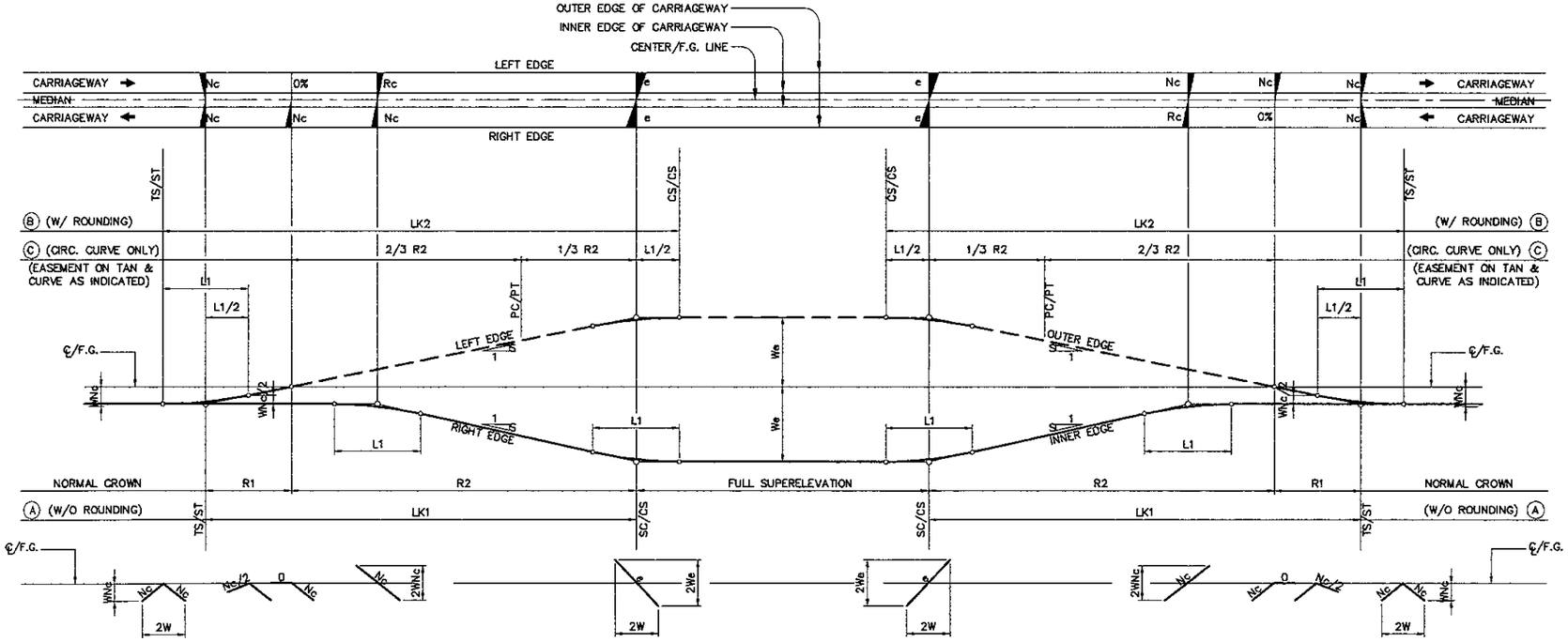
NOTES

1. RATE OF SUPERELEVATION "e" IS AS SHOWN IN TABLE.
2. ROUNDING "L1" IS OPTIONAL AND NECESSARY ONLY IF "S" IS GREATER THAN THAT SHOWN IN TABLE FOR "S" VALUE.
3. SIDEWALKS SHALL ALWAYS SLOPE TOWARDS THE TRAVELWAY.
4. SHOULDERS OF THE MAIN ROADS ALWAYS SLOPE AWAY FROM THE TRAVELWAY IRRESPECTIVE OF THE RATE OF SUPERELEVATION, "e".

WHERE

LK1 = MIN. LENGTH OF EASEMENT/CLOTHOID (W/O ROUNDING)
LK2 = MIN. LENGTH OF EASEMENT/CLOTHOID (W/ ROUNDING, L1)
R1 = SUPERELEVATION RUNOUT LENGTH (WITHIN CLOTHOID) *
R2 = SUPERELEVATION RUNOFF LENGTH
L1 = LENGTH OF ROUNDING
W = CARRIAGEWAY WIDTH = 7.00m (2 LANES EACH DIRECTION)
e = SUPERELEVATION
Nc = NORMAL CROWN SLOPE
S = RELATIVE SLOPE OF EDGES TO CENTERLINE

* OTHER AUTHORITIES PLACE R1 WITHIN THE TANGENT



$A^2 = R \times LK$
A = CLOTHOID PARAMETER

$R1 = \frac{WNc}{S}$

$R2 = \frac{We}{S}$

$L1 = \frac{Wnc}{S}$

$LK1 = R1+R2 = \frac{W}{S}(Nc+e)$ (A)

$LK2 = L1+LK1 = \frac{W}{S}(2Nc+e)$ (B)

1 - SUPERELEVATION TRANSITION FLYOVER
NOT TO SCALE

JAPAN INTERNATIONAL COOPERATION AGENCY / KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY	CHECKED BY	SUBMITTED BY
	Name: R. UENO	Name: T. OKUMURA	Name: M. KIUCHI
	Sign:	Sign:	Sign:
	Date:	Date:	Date:

REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HIGHWAYS

APPROVED BY: Ir. HERRY VAZA M,Eng.Sc (NIP. : 110038400) — Sign: — Date:

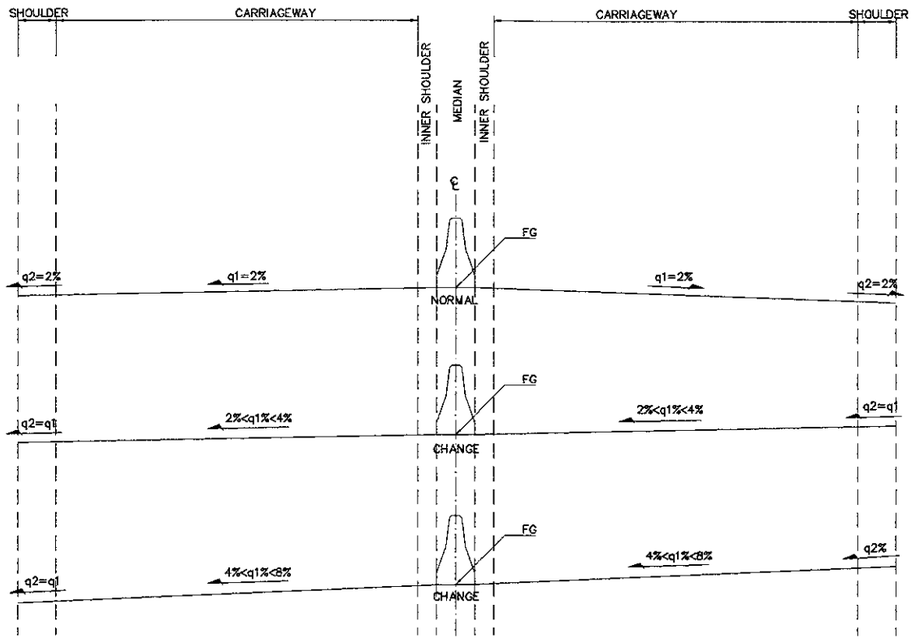
PROJECT AND LOCATION :
DETAILED DESIGN STUDY OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
BALARAJA FLYOVER - CONTRACT PACKAGE 1
(MERAK - BALARAJA)
BANTEN PROVINCE

SCALE : NTS — FULL SIZE A3

DRAWING TITLE : STANDARD ROADWAY SUPERELEVATION

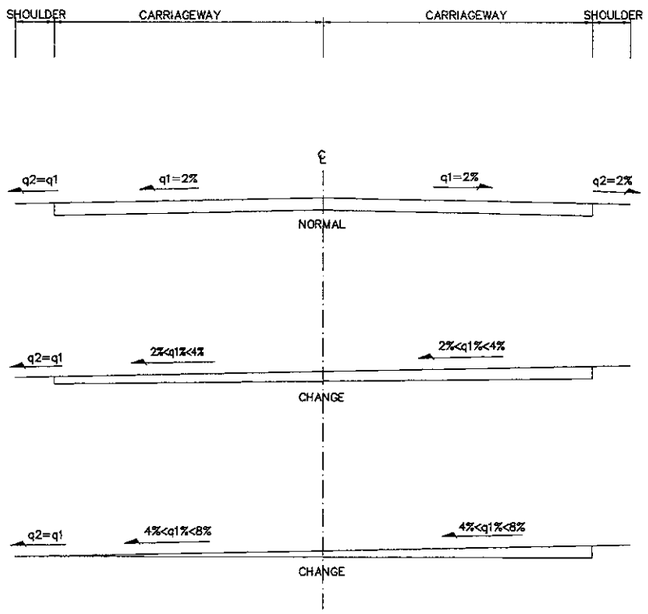
DRAWING NO : BRD-048

SHEET NO : 48 / 56



|q1|+|q2|<8%

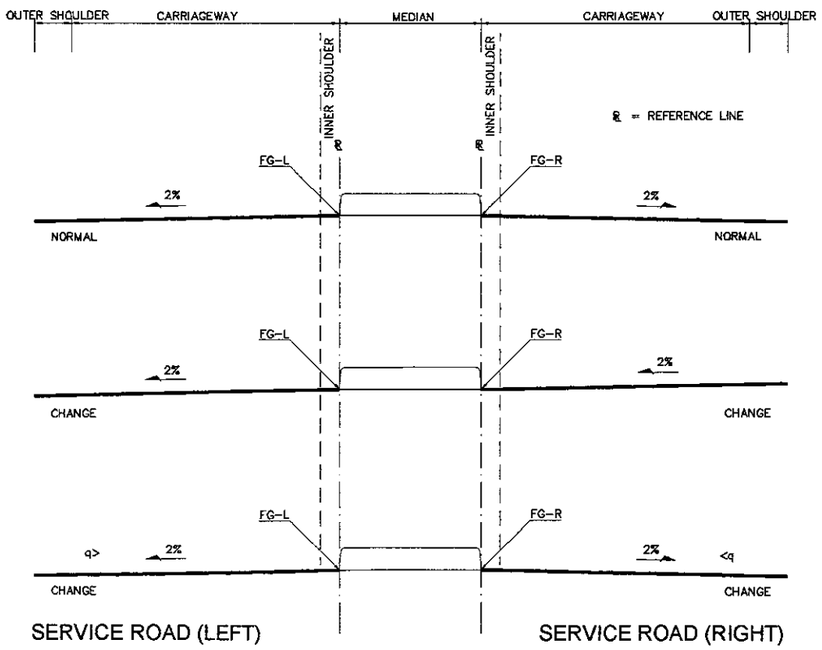
1 - MAIN ROAD / FLYOVER
NOT TO SCALE



2 - SUPERELEVATED (EXISTING 2-LANE, 2-WAY)
NOT TO SCALE

BALARAJA FLYOVER

STATION	SUPER ELEVATION	
	LEFT	RIGHT
0+220	2.000	-2.000
0+240	2.000	-2.000
0+260	2.000	-2.000
0+280	2.000	-2.000
0+300	2.000	-2.000
0+320	-1.876	-2.000
0+340	-2.000	-2.000
0+360	-2.000	-2.000
0+380	-2.000	-2.000
0+400	-2.000	-2.000
0+420	-2.000	-2.000
0+440	-2.000	-2.000
0+460	-2.000	-2.000
0+480	-2.000	-2.000
0+500	-2.000	-2.000
0+520	-2.000	-2.000
0+540	-2.000	-2.000
0+560	0.000	-2.000
0+580	3.057	-3.057



SERVICE ROAD (LEFT)

SERVICE ROAD (RIGHT)

R (m)	Vd = 40 km/hr: e (%)	L (m): 2 Lns	L (m): 4 Lns	Vd = 50 km/hr: e (%)	L (m): 2 Lns	L (m): 4 Lns	Vd = 60 km/hr: e (%)	L (m): 2 Lns	L (m): 4 Lns
1000	NC	0	0	RC	11	17	2,1	13	19
900	NC	0	0	RC	11	17	2,3	14	21
800	NC	0	0	RC	11	17	2,5	15	23
700	RC	10	15	2,1	12	17	2,8	17	25
600	RC	10	15	2,4	13	22	3,1	19	28
500	2,1	11	16	2,8	15	20	3,5	21	32
400	2,5	13	19	3,3	18	23	4,0	24	36
300	3,1	16	24	3,9	22	27	4,6	28	41
250	3,5	18	27	4,2	23	32	5	30	45
200	3,9	20	30	4,7	26	39	5,5	33	50
175	4,1	21	32	5,0	28	42	5,8	35	52
150	4,4	23	34	5,3	29	44	6,0	36	54
140	4,5	23	35	5,4	30	45	6,0	36	54
130	4,6	24	35	5,6	31	47	Rmin =		135
120	4,8	25	37	5,7	32	47			
110	5,0	26	39	5,8	32	48			
100	5,2	27	40	6,0	33	50			
90	5,4	28	42	6,0	33	50			
80	5,6	29	43	Rmin =		90			
70	5,8	30	45						
60	6,0	31	46						
	Rmin =		55						

WHERE :

e_{max} = 6%
R = RADIUS OF CURVE
Vd = DESIGN SPEED
e = RATE OF SUPERELEVATION
L = MINIMUM LENGHT OF RUNOFF (DOES NOT INCLUDE TANGET RUNOUT) AS DISCUSSED IN TANGENT TO CURVE TRANSITION SECTION
NC = NORMAL CROWN SECTION
RC = REMOVE CROWN SECTION, SUPERELEVATED AT NORMAL CROWN SLOPE

JAPAN INTERNATIONAL COOPERATION AGENCY / KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY	CHECKED BY	SUBMITTED BY
	Name: R. UENO	Name: T. OKUMURA	Name: M. KIUCHI
	Sign:	Sign:	Sign:
	Date:	Date:	Date:

REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HIGHWAYS

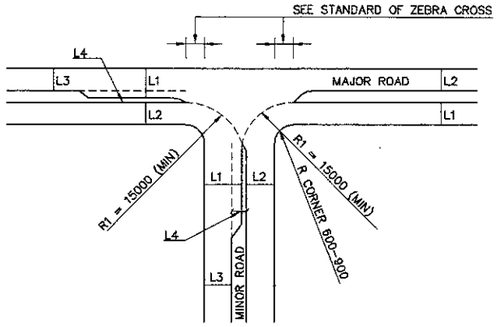
APPROVED BY: Ir. HERRY VAZA M,Eng.Sc (NIP. : 110038400) — Sign: — Date:

PROJECT AND LOCATION :
DETAILED DESIGN STUDY OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
BALARAJA FLYOVER - CONTRACT PACKAGE 1
(MERAK - BALARAJA)
BANTEN PROVINCE

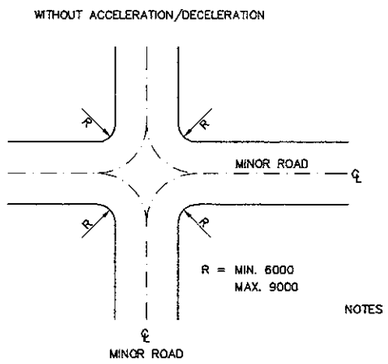
SCALE : NTS — FULL SIZE A3

DRAWING TITLE :
STANDARD THREE LEG & FOUR LEG OF INTERSECTION

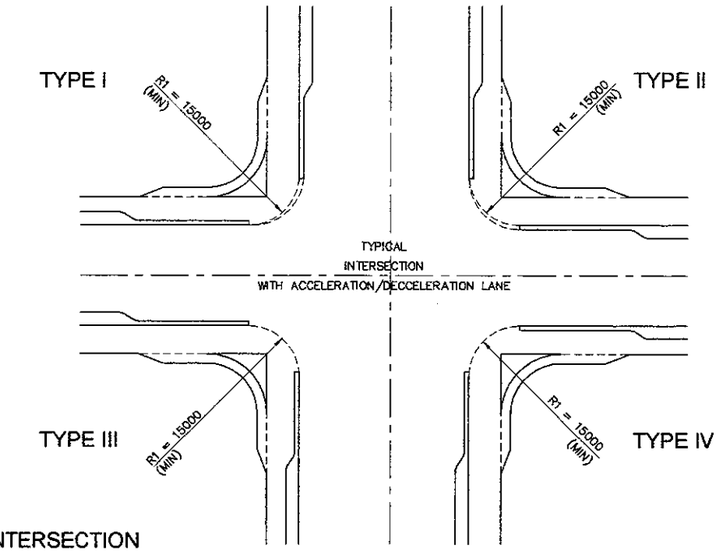
DRAWING NO : BRD-049
SHEET NO : 49 / 56



NOTES : – L1 (WITHOUT TRAFFIC LIGHT) BASED FROM CAPACITY OF INTERSECTION)
L1 (WITH TRAFFIC LIGHT) BASED FROM CAPACITY OF TRAFFIC LIGHT ANALYSIS
– MINIMUM ABSOLUTE WIDTH L4 = 2.75 M
OR : L4 = L1 – L3 > = 2.75 M

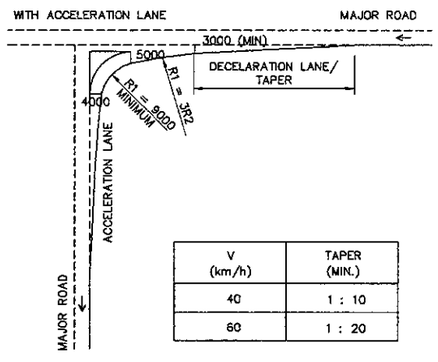


NOTES : – SEE STANDARD ROAD MARKING
– TAPER AND STORAGE NEEDED BASED ON TRAFFIC ANALYSIS



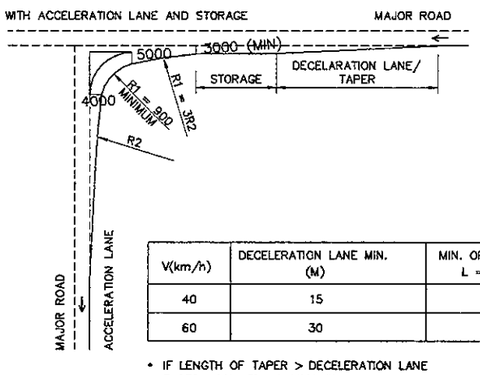
A. TYPICAL OF THREE LEGS INTERSECTION

1. DECELERATION WITHOUT STORAGE



V (km/h)	TAPER (MIN.)
40	1 : 10
60	1 : 20

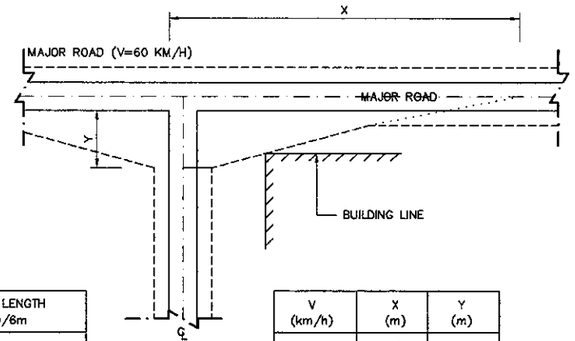
2. DECELERATION WITH STORAGE



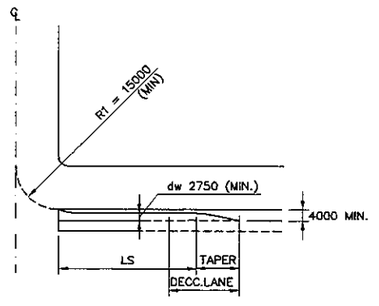
V(km/h)	DECELERATION LANE MIN. (M)	MIN. OF TAPER LENGTH L = V x dw/6m
40	15	20
60	30	30

* IF LENGTH OF TAPER > DECELERATION LANE
TAPER ASSUMED AS DECELERATION LANE

B. TYPICAL OF FOUR LEGS INTERSECTION

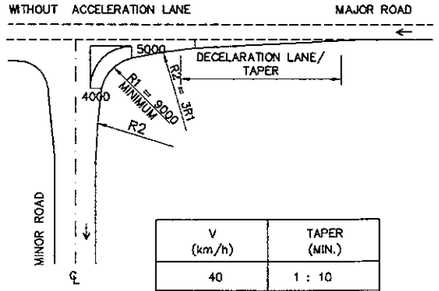


V (km/h)	X (m)	Y (m)
60	103	16
40	70	16



D. TYPICAL RIGHT TURN FROM MAJOR ROAD TO MINOR / MAJOR ROAD

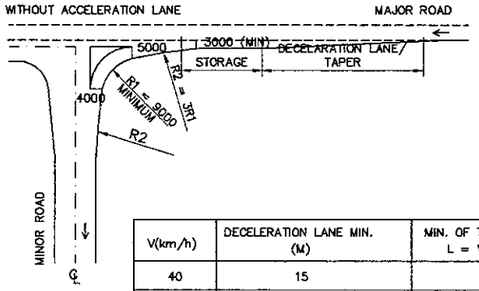
WITHOUT ACCELERATION LANE



V (km/h)	TAPER (MIN.)
40	1 : 10
60	1 : 20

– R MIN. CALCULATED BASED ON SINGLE UNIT TRUCK
– FOR SPECIAL DESIGN, SEE STANDARD OF GEOMETRIC DESIGN

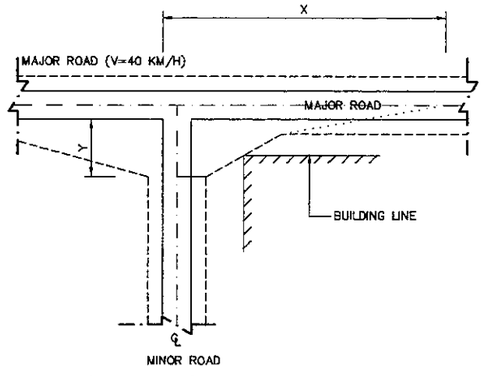
WITHOUT ACCELERATION LANE



V(km/h)	DECELERATION LANE MIN. (M)	MIN. OF TAPER LENGTH L = V x dw/6m
40	15	20
60	30	30

* IF LENGTH OF TAPER > DECELERATION LANE
TAPER BE ASSUMED AS DECELERATION LANE

E. LEFT TURN LINE



F. CLEARANCE SIGHT DISTANCE

V(km/h)	DECELERATION LANE MIN. (M)	MIN. OF TAPER LENGTH L = V x dw/6m
40	15	20
60	30	30

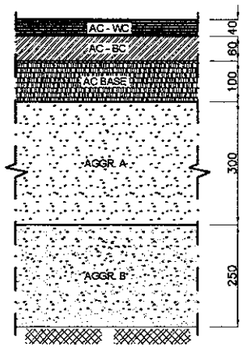
LENGTH OF STORAGE : LS = 2 x M x S WITHOUT TRAFFIC LIGHT
LS = 15 x N x S WITH TRAFFIC LIGHT

M – NUMBER OF MEANS OF RIGHT TURN VEHICLE/MINUTES
N – NUMBER OF MEANS OF LEFT TURN VEHICLE/CIRCLE
S – DISTANCE TWO VEHICLES (M)

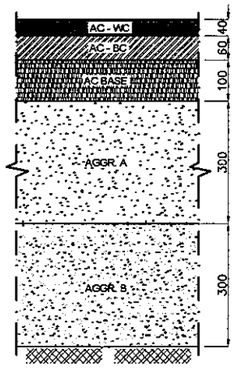
1 / - STANDARD THREE LEG & FOUR LEG INTERSECTION
NOT TO SCALE

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 150 FULL SIZE A3	DRAWING TITLE : STANDARD ASPHALT PAVEMENT	DRAWING NO : BRD-050 SHEET NO : 50 / 56
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc (NIP. : 110038400) Sign Date				

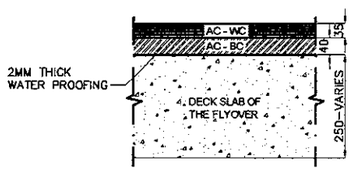
FLEXIBLE PAVEMENT



1 - SERVICE ROAD
SCALE 1:150

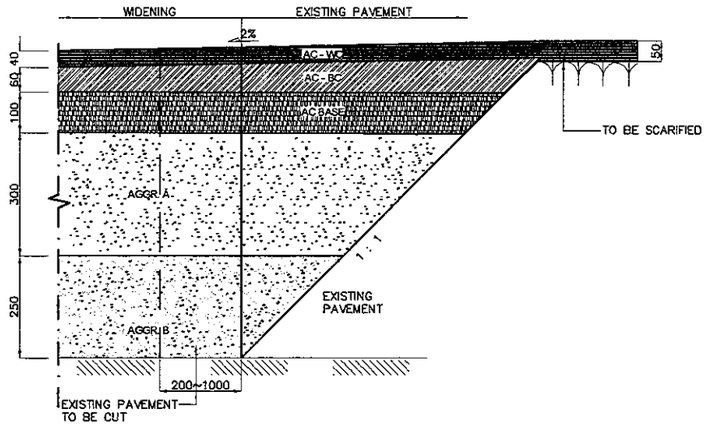


2 - ABUTMENT (APPROACH ROAD)
SCALE 1:150

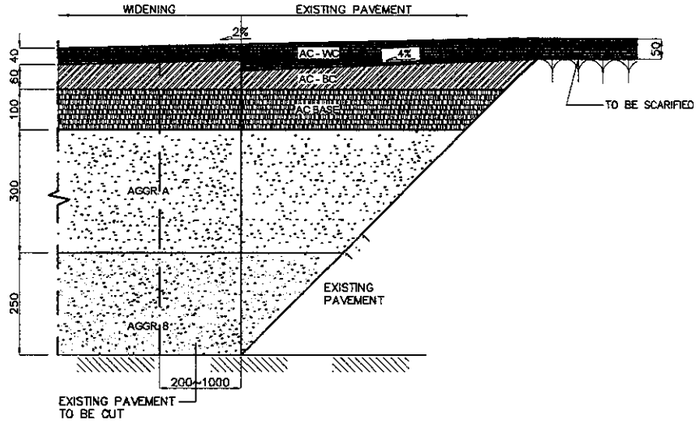


3 - VIADUCT
SCALE 1:150

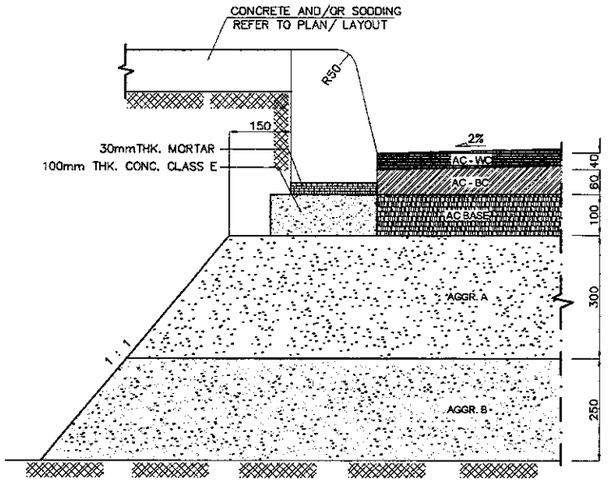
EXISTING & NEW PAVEMENT CONNECTION



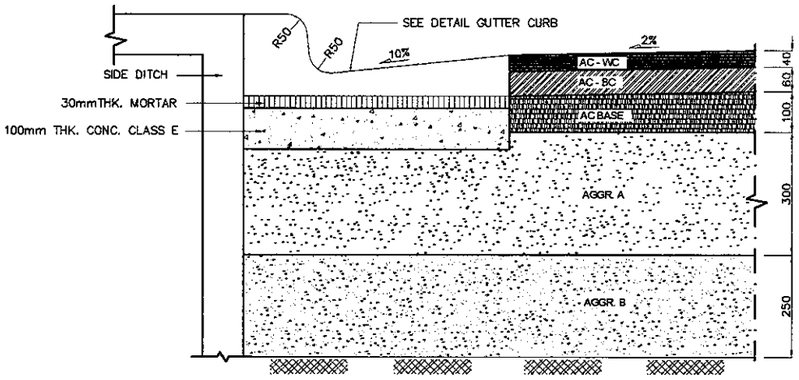
4 - WIDENING ≤ 2000mm
SCALE 1:150



5 - WIDENING > 2000mm
SCALE 1:150

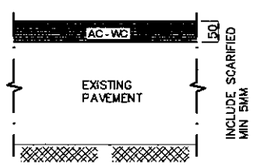


6 - MEDIAN CURB CONNECTION
SCALE 1:150

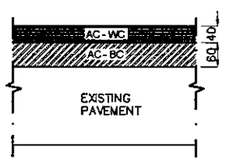


7 - CURB AND GUTTER CONNECTION
SCALE 1:150

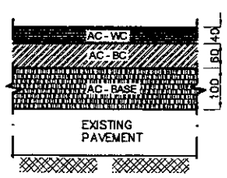
OVERLAY THICKNESS



8 - NORMAL OVERLAY
SCALE 1:150



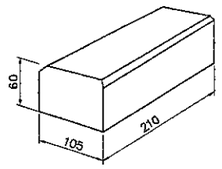
9 - OVERLAY THICKNESS < 50 > 100mm
SCALE 1:150



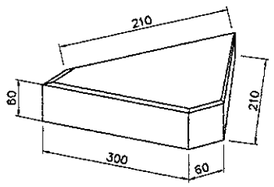
10 - OVERLAY THICKNESS > 100mm
SCALE 1:150

JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY: Name R. UENO; Sign; Date	CHECKED BY: Name T. OKUMURA; Sign; Date	SUBMITTED BY: Name M. KIUCHI; Sign; Date	REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS APPROVED BY: Ir. HERRY VAZA M,Eng.Sc; NIP. : 110038400; Sign; Date	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : NTS FULL SIZE A3	DRAWING TITLE : STANDARD COMBINATION CONCRETE CURB AND GUTTER	DRAWING NO : BRD-051 SHEET NO : 51 / 56

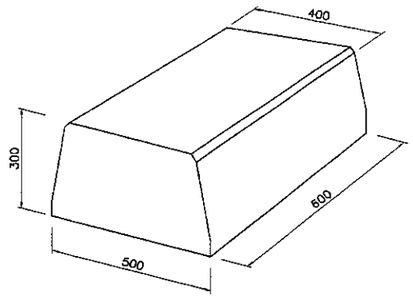
CONCRETE BLOCK



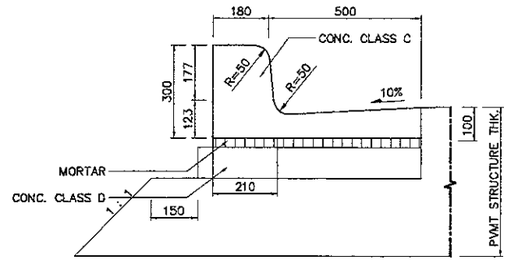
TYPE A



TYPE B

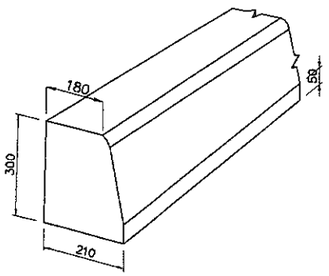


TYPE C

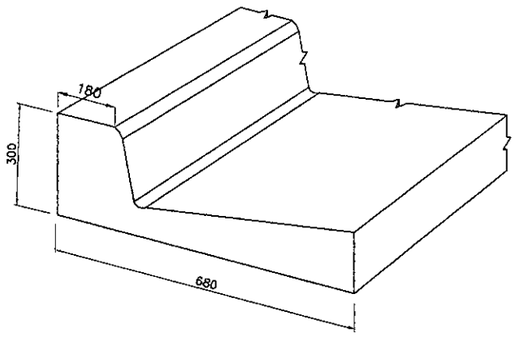


6 - COMBINATION CONCRETE CURB AND GUTTER
NOT TO SCALE

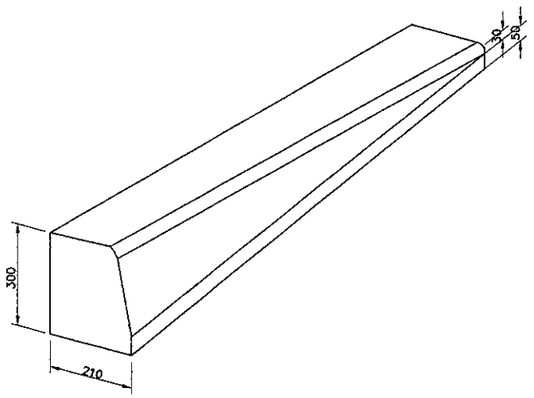
CONCRETE CURB



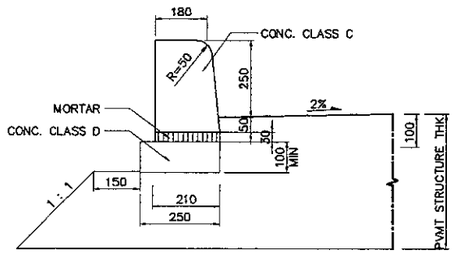
TYPE A



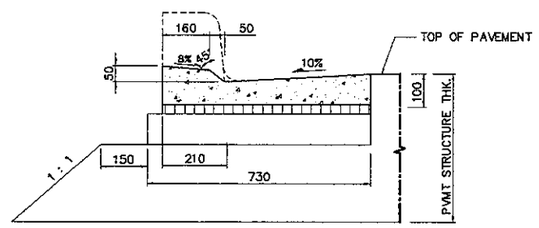
TYPE B



TYPE C



5 - CONCRETE CURB
NOT TO SCALE



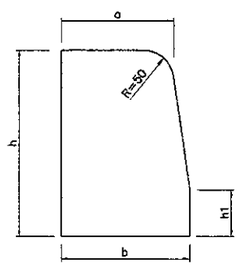
4 - CONCRETE DROP CURB AND GUTTER (MODIFIED)
NOT TO SCALE

TYPE	DIMENSION (MM)								REMARK
	a	a1	b	b1	h1	h2	h3	h	
A	180	–	210	–	50	–	–	300	CURB
B	180	500	210	–	75	225	100	300	GUTTER CURB

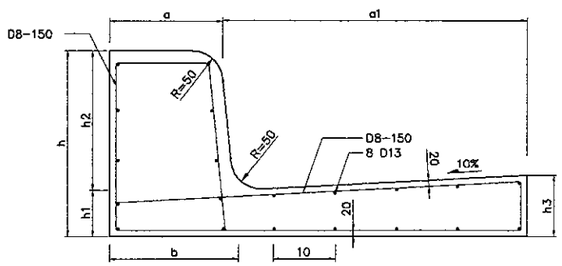
SPECIFICATION :

CONCRETE QUALITY K.300
- SHALL NOT BE PATCHED
- PERFORMED DAMAGED < 5%
- MINIMUM REINFORCED ø 6MM

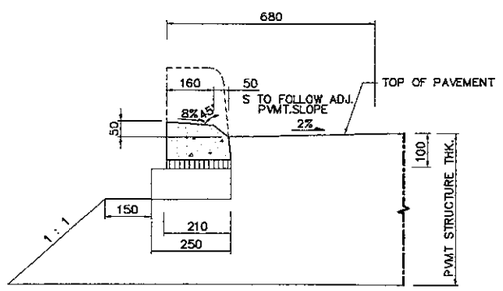
CONCRETE QUALITY K.150
- COST IN SITE
- NO REINFORCEMENT



1 - CONCRETE CURB
NOT TO SCALE

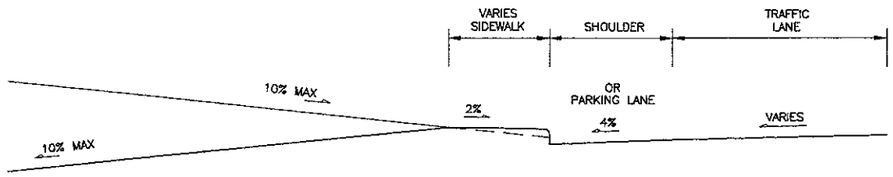


2 - REINFORCEMENT OF COMBINATION CONCRETE CURB AND GUTTER
NOT TO SCALE

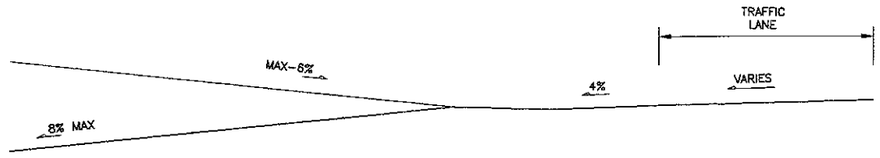


3 - CONCRETE DROP CURB (MEDIAN)
NOT TO SCALE

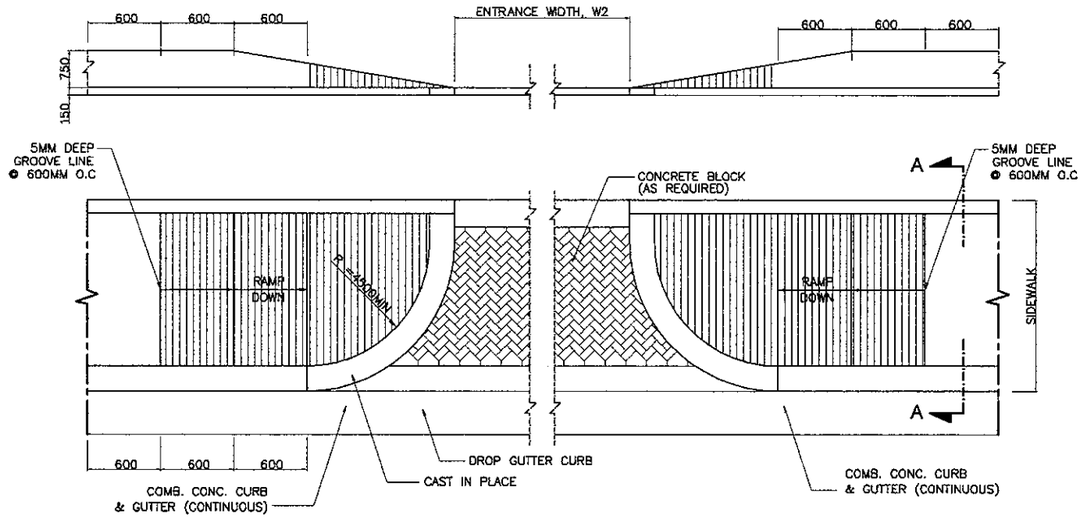
JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : AS SHOWN FULL SIZE A3	DRAWING TITLE : STANDARD PUBLIC AND PRIVATE ENTRANCE	DRAWING NO : BRD-052 SHEET NO : 52 / 56
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign / Date				



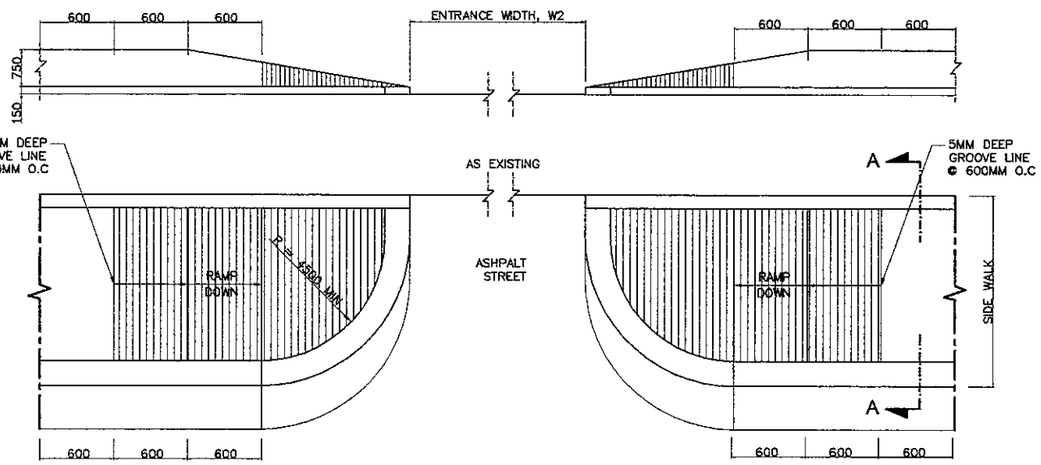
C - PRIVATE ENTRANCE PROFILE
NOT TO SCALE



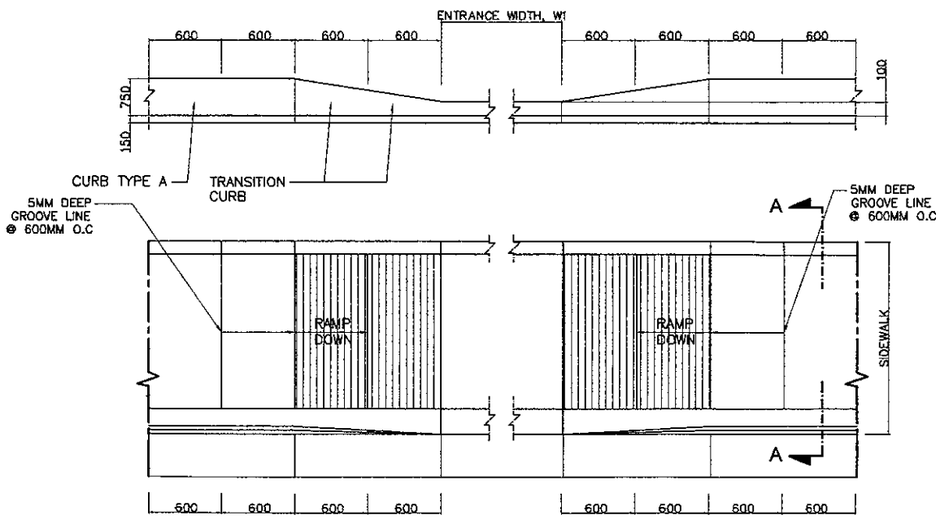
F - PUBLIC ENTRANCE PROFILE
NOT TO SCALE



B - PRIVATE DRIVEWAY ENTRANCE - URBAN
SCALE 1 : 50

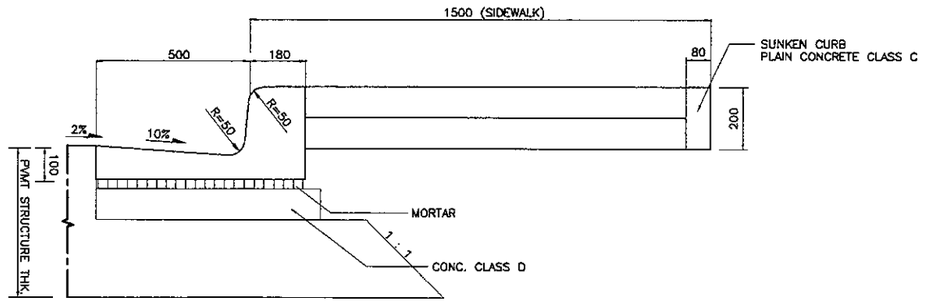


E - PUBLIC STREET / ALLEY ENTRANCE
SCALE 1 : 50



A - PRIVATE ENTRANCE - URBAN
SCALE 1 : 50

	SINGLE	DOUBLE
W_1	≤ 1600	≤ 3000
W_2	≤ 3000	≤ 9000

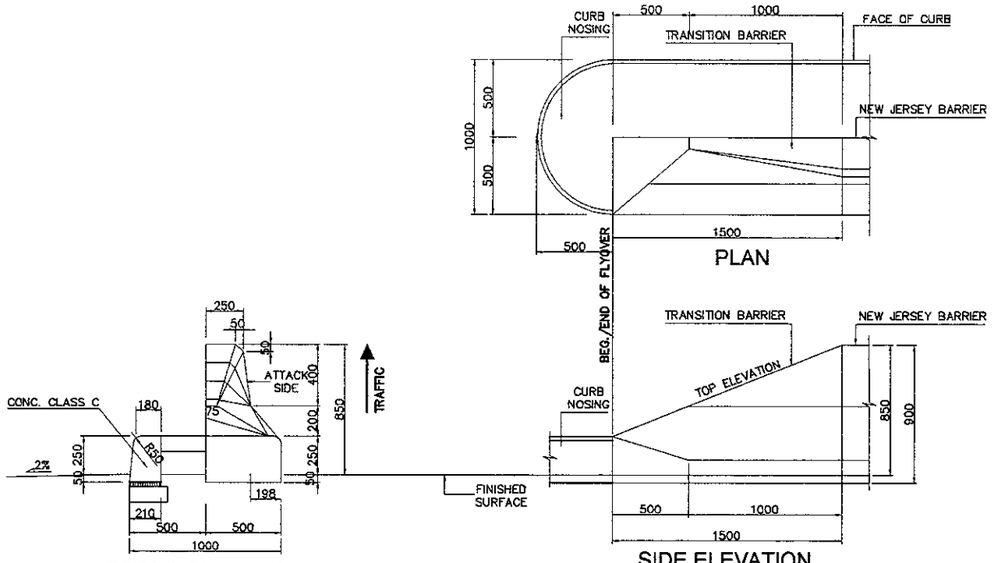


D - SECTION A-A
SCALE 1 : 20

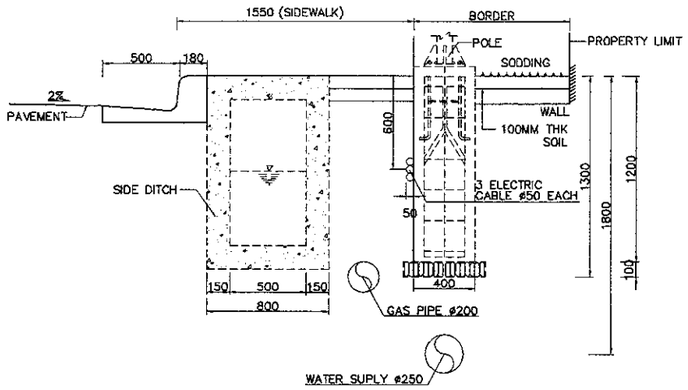
1 - STANDARD PUBLIC AND PRIVATE ACCESS
SCALE 1 : 100

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KEI KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI	
	Sign		Sign		Sign		
	Date		Date		Date		
	APPROVED BY	Ir. HERRY VAZA M.Eng.Sc			Sign		
		NIP. : 110038400			Date		

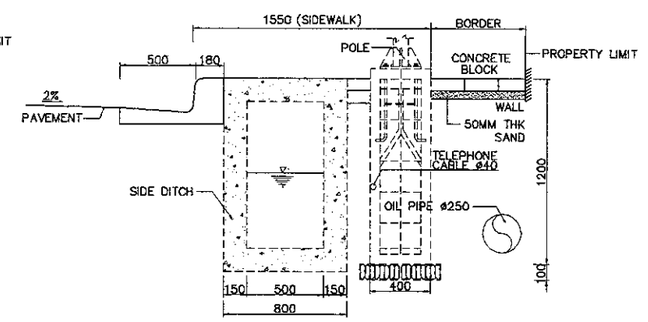
PROJECT AND LOCATION :	SCALE :	DRAWING TITLE :	DRAWING NO :
DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	AS SHOWN FULL SIZE A3	STANDARD CONCRETE BARRIER AND MEDIAN IN FILL DETAILS	BRD-053 SHEET NO : 53 / 56



1 - TRANSITION PARAPET
SCALE 1:40

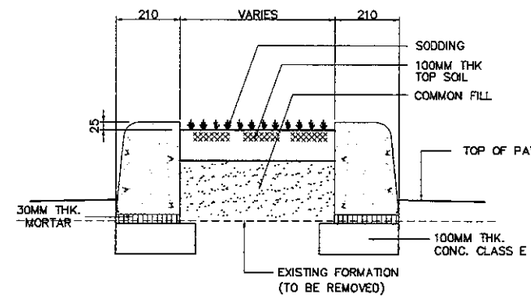


TYPE 1

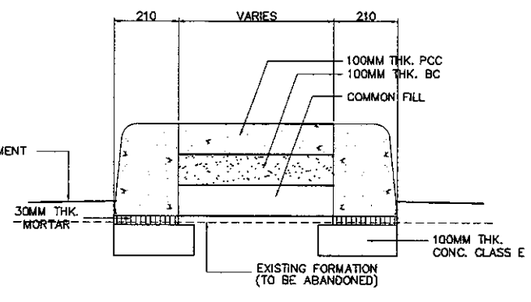


TYPE 2

3 - SIDEWALK TO BORDER INFILL DETAILS
SCALE 1:40

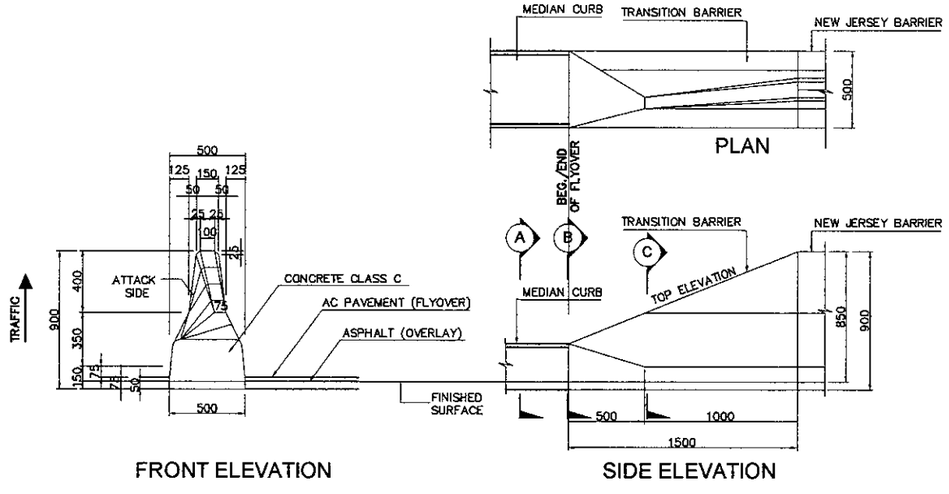


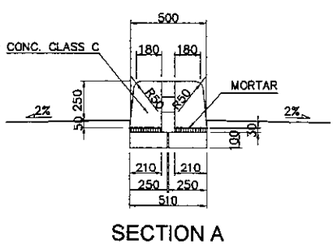
TYPE 1



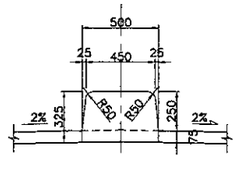
TYPE 2

5 - MEDIAN INFILL DETAILS
SCALE 1:20

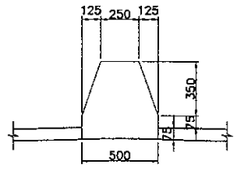




SECTION A



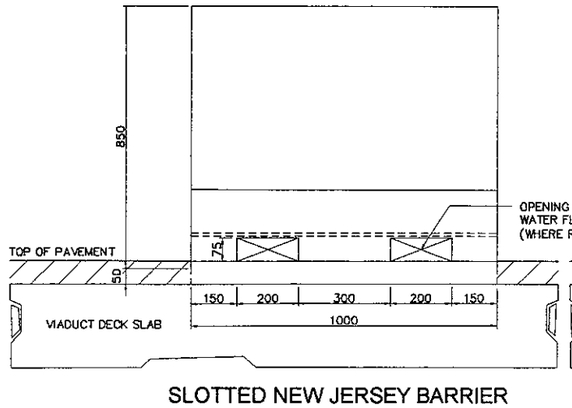
SECTION B

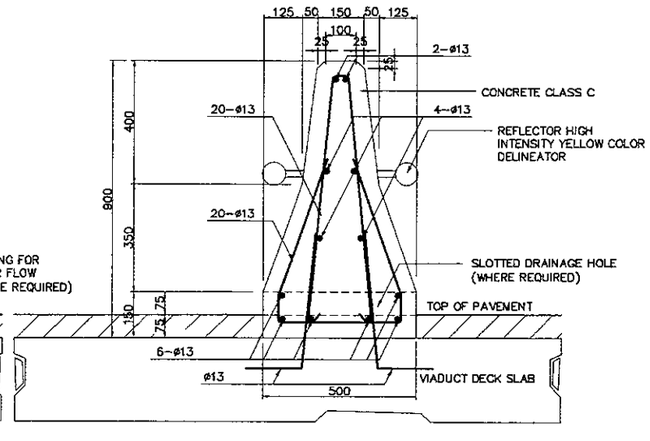


SECTION C

TRANSITION MEDIAN

2 - TRANSITION BARRIER
SCALE 1:40

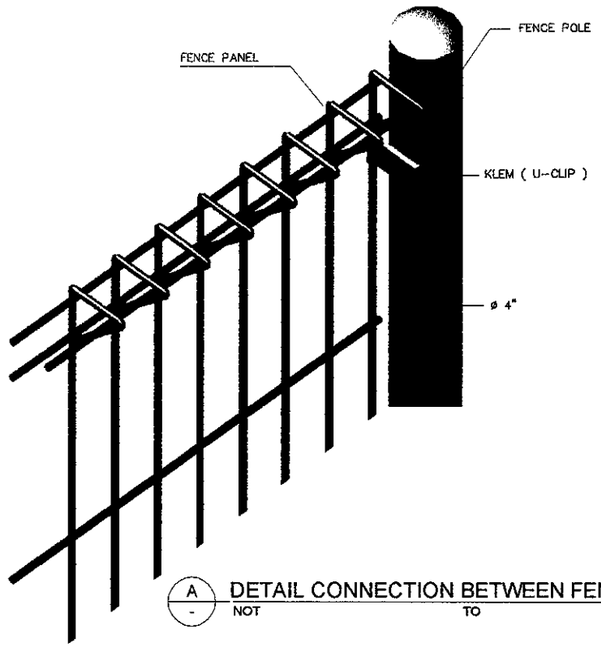




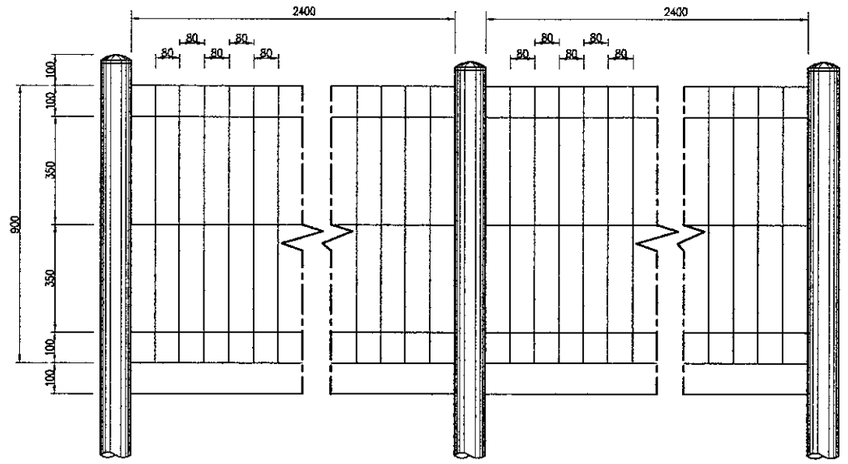
SLOTTED NEW JERSEY BARRIER

4 - NEW JERSEY BARRIER
SCALE 1:20

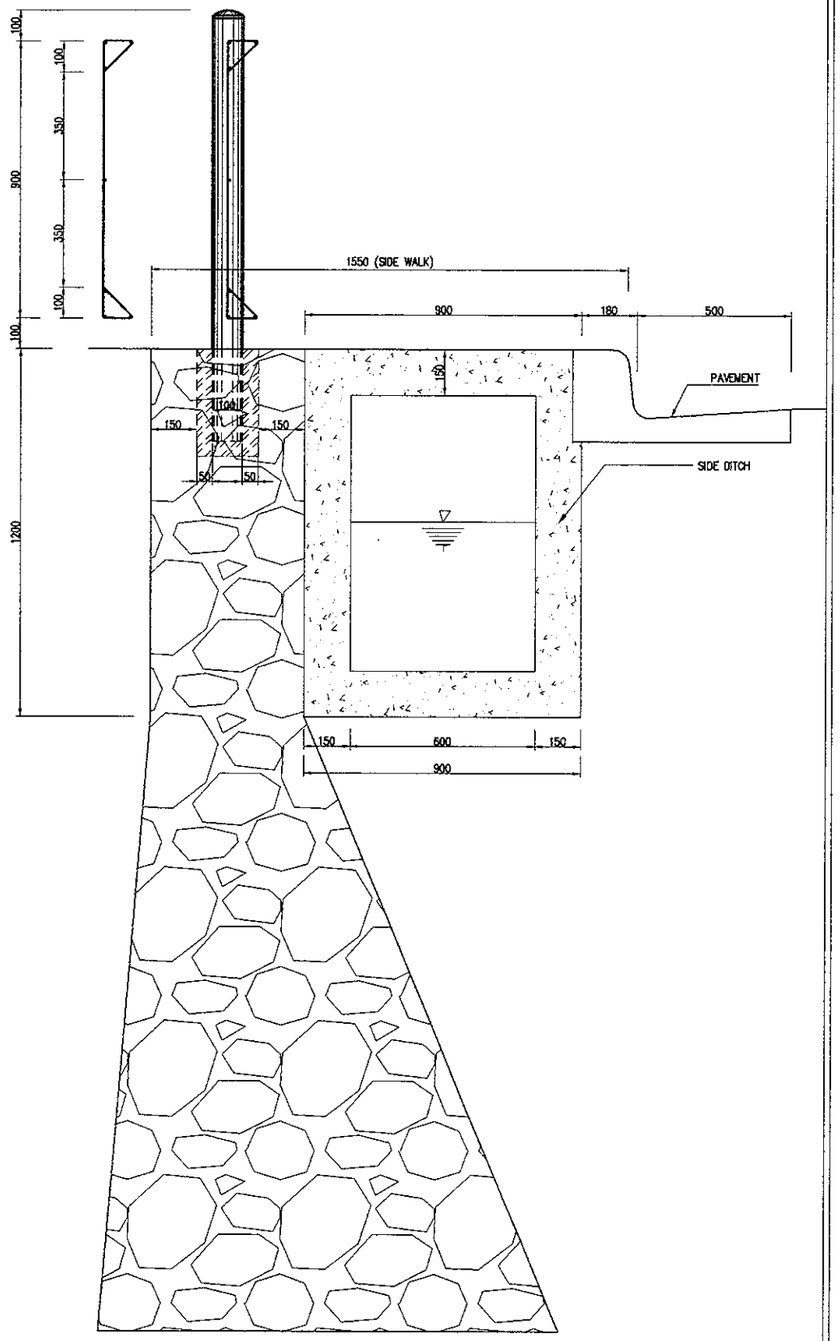
JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS		PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (BALARAJA FLYOVER & MERAK FLYOVER) BANTEN PROVINCE	SCALE : AS SHOWN FULL SIZE A3	DRAWING TITLE : STANDARD BRC FENCE AND STONE MASONRY RETAINING WALL	DRAWING NO : BRD-054 SHEET NO : 54 / 56
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY	Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400	Sign Date		



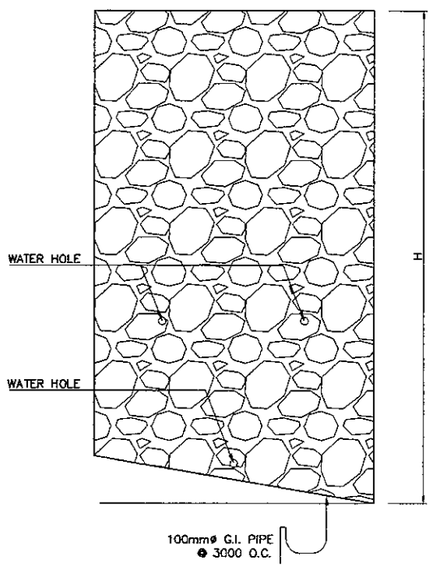
A - DETAIL CONNECTION BETWEEN FENCE AND POLE
NOT TO SCALE



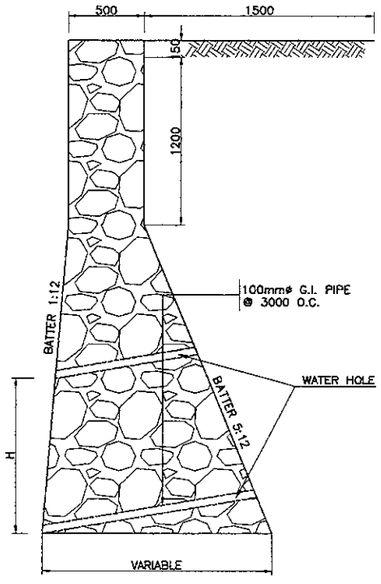
B - BRC FENCE
SCALE 1 : 20



E - DETAIL OF BRC FENCE FOUNDATION ON STONE MASONRY
SCALE 1 : 20

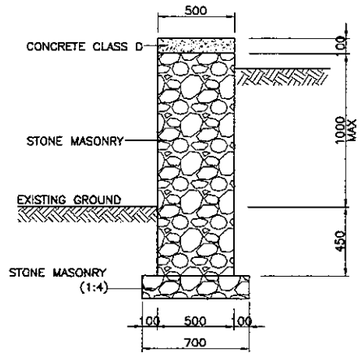


ELEVATION



SECTION

C - STONE MASONRY RETAINING WALL
SCALE 1 : 40



D - DWARF STONE WALL (DSW) FOR CUT AND FILL
SCALE 1 : 40

TABLE

HEIGHT IN METERS	QUANTITIES PER LINEAR M OF WALL IN CU. METER
0.90	0.15
1.20	0.23
1.50	0.31
1.90	0.38
2.10	0.46
2.40	0.54
2.70	0.69
3.00	0.77
3.30	0.92

TABLE

HEIGHT IN METERS	QUANTITIES PER LINEAR M OF WALL IN CU. METER
3.60	1.15
3.90	1.30
4.20	1.45
4.50	1.68
4.80	1.91
5.10	2.14
5.40	2.37
5.60	2.68
6.00	2.91

MIN. BULDGE 2.50 CMS., MAX. BULDGE 10 CMS.
FEATHERED TO WORKING LINE AT JOINTS TO
BE RAKED TO A DEPTH OF 2.50 TO 5 CMS.

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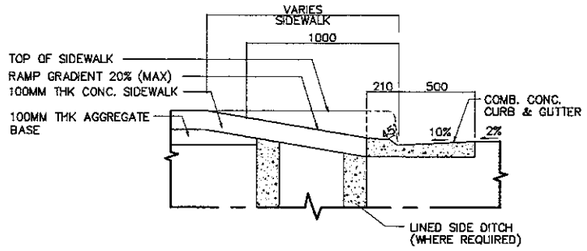
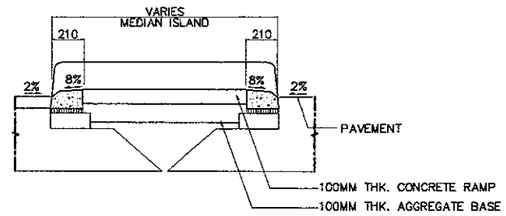
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400				

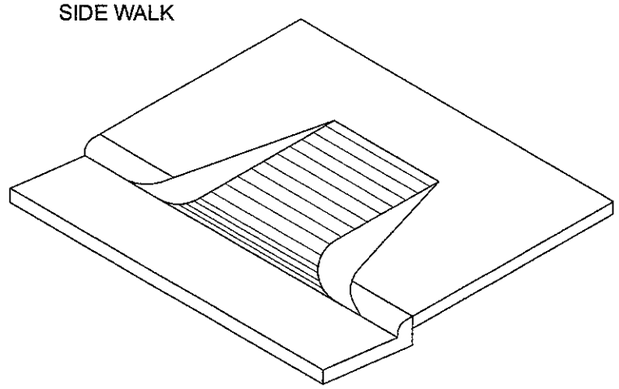


3 - SECTION 1-1
SCALE 1 : 20

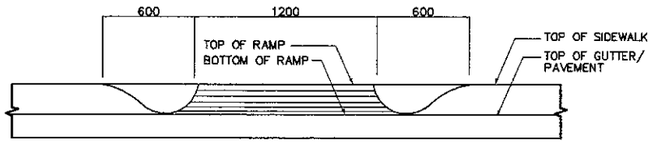


6 - SECTION 2-2
SCALE 1 : 20

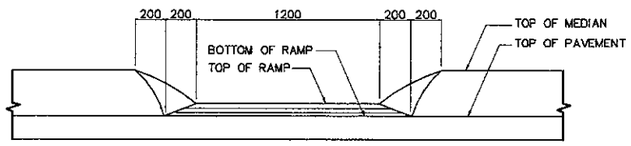
SIDE WALK



8 - ISOMETRIC
NOT TO SCALE

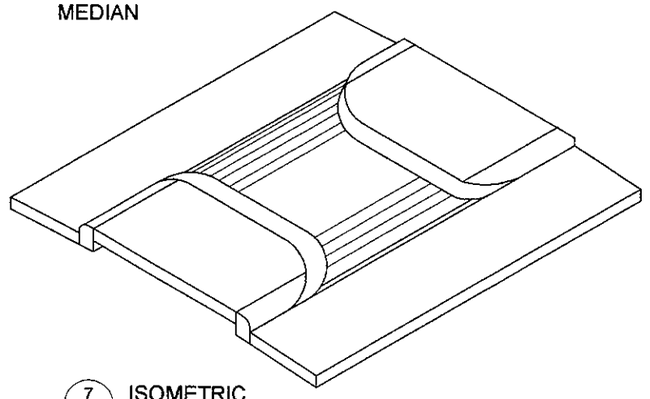


2 - ELEVATION
SCALE 1 : 20

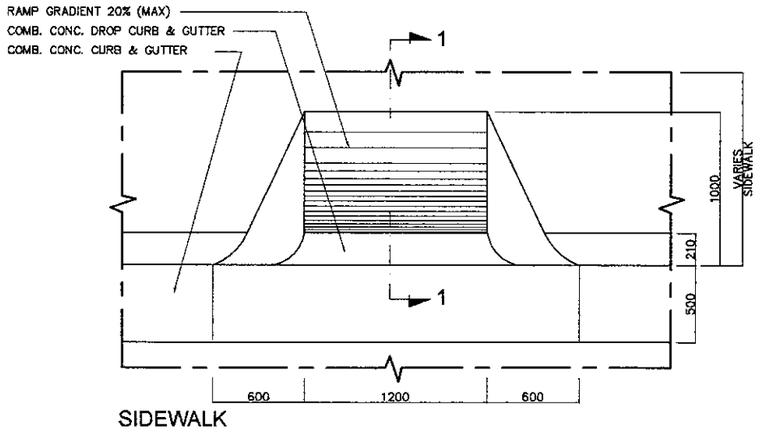


5 - ELEVATION
SCALE 1 : 20

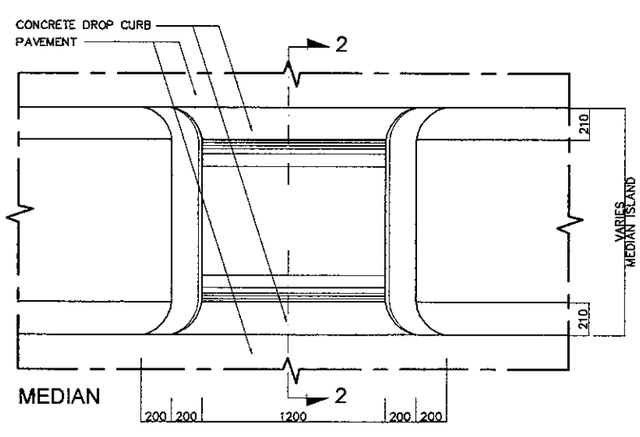
MEDIAN



7 - ISOMETRIC
NOT TO SCALE



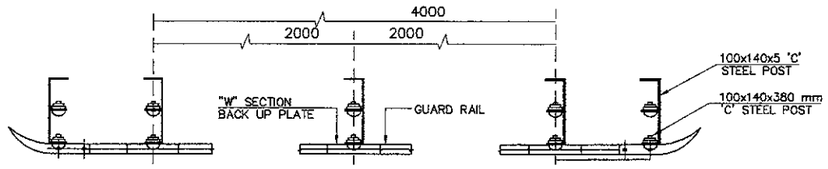
1 - PLAN
SCALE 1 : 20



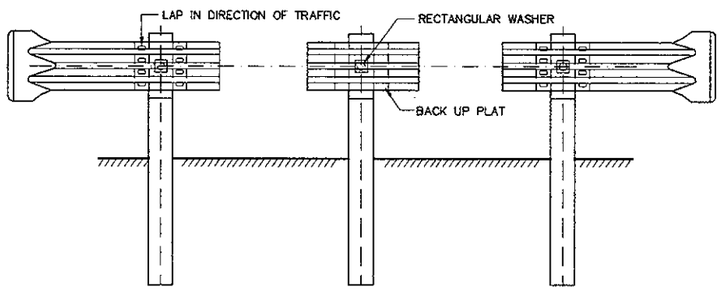
4 - PLAN
SCALE 1 : 20

A - STANDARD CURB-CUT RAMP (FOR PHYSICALLY HANDICAPPED)

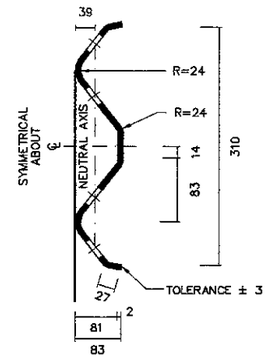
JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : AS SHOWN FULL SIZE A3	DRAWING TITLE : STANDARD COLUMN PROTECTION DETAILS	DRAWING NO : BRD-056 SHEET NO : 56 / 56
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI				
	Sign		Sign		Sign					
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date			



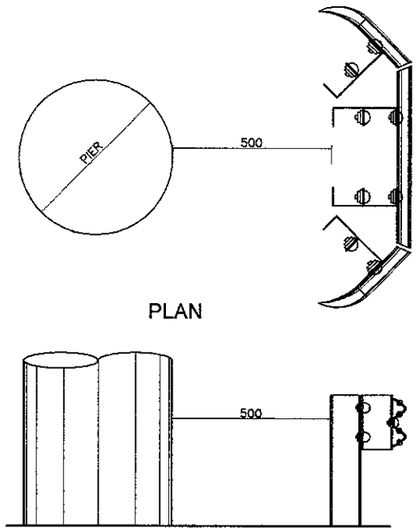
A PLAN
NOT TO SCALE

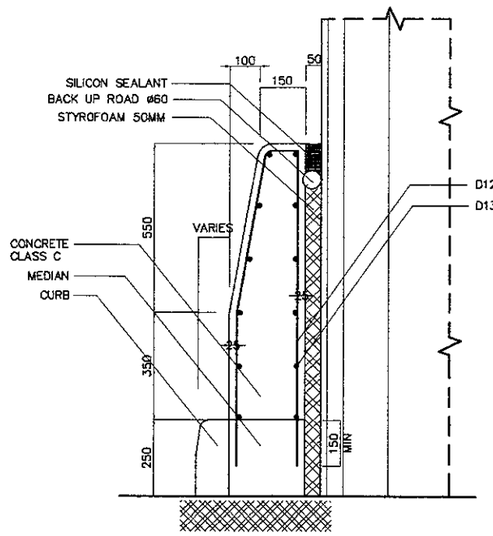


B FRONT ELEVATION
NOT TO SCALE

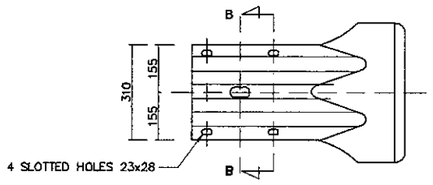


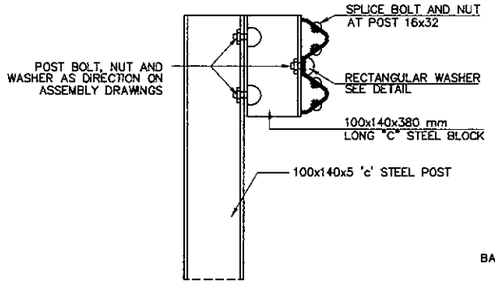
F ENLARGED SECTION A-A
(SECTION B-B, SIMILAR)
NOT TO SCALE



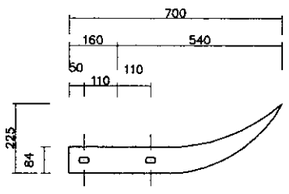


A DETAIL 1
SCALE 1:20



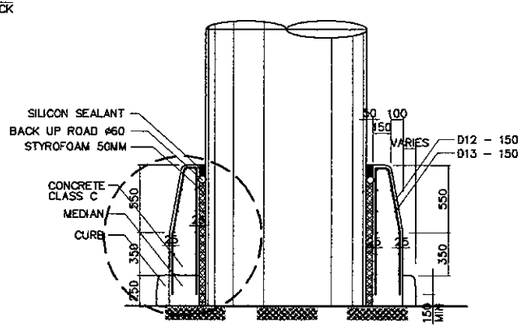


D RAIL WASHER
NOT TO SCALE

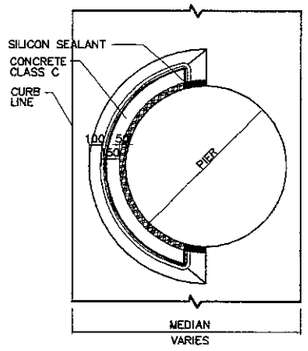


POST BOLTS AND HOLES		
HOLE DIA. (mm)	POST BOLTS AND NUTS (mm)	WASHER
18	16x45	RECT / PLATE

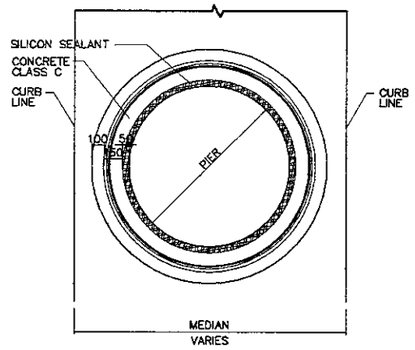
E DOWN STREAM END TREATMENT
NOT TO SCALE



SECTION



PLAN



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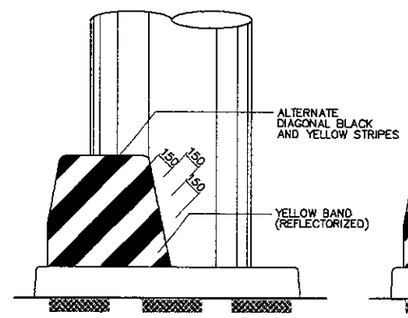
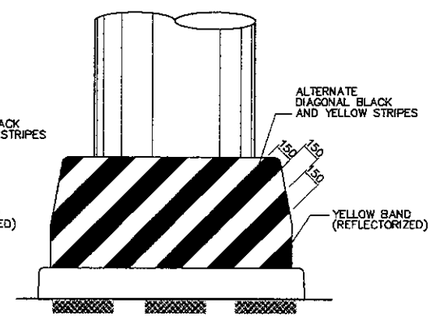


ELEVATION



ELEVATION

1 STEEL BEAM GUARD RAIL & RAIL DETAILS TYPE 2
NOT TO SCALE

2 CONCRETE COLUMN PROTECTION TYPE 1
SCALE 1:50

JAPAN INTERNATIONAL
COOPERATION AGENCY

DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

DRAINAGE

KATAHIRA & ENGINEERS INTERNATIONAL

JICA JAPAN INTERNATIONAL COOPERATION AGENCY / KEI KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY: Name R. UENO; Sign; Date	CHECKED BY: Name T. OKUMURA; Sign; Date	SUBMITTED BY: Name M. KIUCHI; Sign; Date	REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS; APPROVED BY Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400; Sign; Date	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE

SCALE :	DRAWING TITLE :	DRAWING NO :
N.T.S	DRAINAGE SCHEDULE AT GRADE	BDG-001
FULL SIZE A3		SHEET NO : 01 / 17

DRAINAGE SLOPE RIGHT

FROM MH	TO MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	SLOPE (%)	FINISHED AT MANHOLE.(m) UPSTREAM	FINISHED AT MANHOLE.(m) DOWNSTREAM	INVERT ELEV.(m) UPSTREAM	INVERT ELEV.(m) DOWNSTREAM
DRAINAGE SLOPE DMH-11 TO DMH-01								
DMH-11	DMH-10	U'DITCH DS 2	20	0.31	21.131	21.164	20.321	20.310
DMH-10	DMH-09	U'DITCH DS 2	20	0.56	21.164	21.087	20.310	20.202
DMH-09	DMH-08	U'DITCH DS 2	25	0.62	21.087	20.890	20.202	20.043
DMH-08	DMH-07	MSW-I	22	1.55	20.890	20.682	20.043	19.708
DMH-07	DMH-06	U'DITCH DS 2	12	1.88	20.682	20.508	19.708	19.480
DMH-06	DMH-05	U'DITCH DS 2	20	2.25	20.508	20.188	19.480	19.109
DMH-05	DMH-04	U'DITCH DS 2	20	1.63	20.188	19.611	19.109	18.721
DMH-04	DMH-03	U'DITCH DS 2	20	3.02	19.611	19.130	18.721	18.118
DMH-03	DMH-02	U'DITCH DS 2	20	1.28	19.130	18.950	18.118	17.840
DMH-02	DMH-01	U'DITCH DS 2	20	0.731	18.950	18.890	17.840	17.693
DMH-01	–	U'DITCH DS 2	8.7	0.731	18.890	–	17.693	–
DRAINAGE SLOPE DMH-11 TO DMH-45								
DMH-11	DMH-12	U'DITCH DS 2	20	0.31	21.131	21.081	20.321	20.262
DMH-12	DMH-13	U'DITCH DS 2	20	0.67	21.081	20.884	20.262	20.140
DMH-13	DMH-14	U'DITCH DS 2	18	0.70	20.884	20.724	20.140	19.976
DMH-14	DMH-15	U'DITCH DS 2	19	1.28	20.724	20.583	19.976	19.838
DMH-15	DMH-16	U'DITCH DS 2	23	0.72	20.583	20.354	19.838	19.674
DMH-16	DMH-17	U'DITCH DS 2	25	0.87	20.354	20.185	19.674	19.460
DMH-17	DMH-18	U'DITCH DS 2	17	0.69	20.185	20.136	19.460	19.347
DMH-18	DMH-19	U'DITCH DS 2	20	0.29	20.136	20.140	19.347	19.285
DMH-19	DMH-20	U'DITCH DS 2	20	0.40	20.140	20.125	19.285	19.207
DMH-20	DMH-21	U'DITCH DS 2	23	0.36	20.125	20.010	19.207	19.138
DMH-21	DMH-22	U'DITCH DS 2	20	0.33	20.010	19.935	19.138	19.073
DMH-22	DMH-23	U'DITCH DS 2	18	0.32	19.935	20.028	19.073	19.023
DMH-23	DMH-24	RCP ø600 (A)	20	0.32	20.028	20.262	19.023	18.959
DMH-24	DMH-25	RCP ø600 (A)	20	0.28	20.262	20.476	18.959	18.902
DMH-25	DMH-26	RCP ø600 (A)	20	0.26	20.476	20.658	18.902	18.850
DMH-26	DMH-27	RCP ø600 (A)	20	0.24	20.658	20.721	18.850	18.802
DMH-27	DMH-28	RCP ø600 (A)	20	0.25	20.721	20.573	18.802	18.729
DMH-28	DMH-29	RCP ø600 (A)	20	0.34	20.573	20.319	18.729	18.662
DMH-29	DMH-30	RCP ø600 (A)	17	0.68	20.319	19.975	18.662	18.621
DMH-30	DMH-31	RCP ø600 (A)	34	0.37	19.975	19.529	18.621	18.498
DMH-31	DMH-32	RCP ø600 (A)	29	0.42	19.529	19.484	18.498	18.376
DMH-32	DMH-33	RCP ø600 (A)	20	0.22	19.484	19.456	18.376	18.315
DMH-33	DMH-34	RCP ø600 (A)	20	0.28	19.456	19.494	18.315	18.259
DMH-34	DMH-35	RCP ø600 (A)	20	0.21	19.494	19.160	18.259	18.059
DMH-35	DMH-36	RCP ø600 (A)	20	2.13	19.160	18.278	18.059	17.288
DMH-36	DMH-37	U'DITCH DS 2	22	5.23	18.278	17.108	17.288	15.687
DMH-37	DMH-38	U'DITCH DS 2	18	1.97	17.108	16.320	15.687	15.357
DMH-38	DMH-39	U'DITCH DS 2	17	4.10	16.320	15.501	15.357	14.665
DMH-39	DMH-40	RCP ø600 (A)	8	6.39	15.501	15.087	14.665	14.199
DMH-40	DMH-41	U'DITCH DS 2	20	5.52	15.087	13.896	14.199	13.058
DMH-41	DMH-42	U'DITCH DS 2	20	5.76	13.896	12.790	13.058	11.913
DMH-42	DMH-43	U'DITCH DS 2	20	3.95	12.790	12.340	11.913	11.108
DMH-43	DMH-44	U'DITCH DS 2	22	1.43	12.340	12.292	11.108	10.781
DMH-44	DMH-45	RCP ø800 (A)	25	0.36	12.292	12.629	10.781	10.686
DMH-45	–	RCP ø800 (A)	13	0.44	12.629	–	10.686	–

NO. MANHOLE	TYPE OF MANHOLE	DIMENSION OF MANHOLE WIDTH	LENGTH	HEIGHT
DMH-11	TYPE I	1050	1370	960
DMH-10	TYPE I	1050	1370	1004
DMH-09	TYPE I	1050	1370	1035
DMH-08	TYPE I	1050	1370	997
DMH-07	TYPE I	1050	1370	1124
DMH-06	TYPE I	1050	1370	1178
DMH-05	TYPE I	1050	1370	1229
DMH-04	TYPE I	1050	1370	1040
DMH-03	TYPE I	1050	1370	1162
DMH-02	TYPE I	1050	1370	1260
DMH-01	TYPE I	1050	1370	1347
DMH-12	TYPE I	1050	1370	969
DMH-13	TYPE I	1050	1370	894
DMH-14	TYPE I	1050	1370	898
DMH-15	TYPE I	1050	1370	895
DMH-16	TYPE I	1050	1370	830
DMH-17	TYPE I	1050	1370	875
DMH-18	TYPE I	1050	1370	939
DMH-19	TYPE I	1050	1370	1005
DMH-20	TYPE I	1050	1370	1068
DMH-21	TYPE I	1050	1370	1022
DMH-22	TYPE I	1050	1370	1012
DMH-23	TYPE VI	1340	1370	1155
DMH-24	TYPE III	1340	1370	1453
DMH-25	TYPE III	1340	1370	1724
DMH-26	TYPE III	1340	1370	1958
DMH-27	TYPE III	1340	1370	2069
DMH-28	TYPE III	1340	1370	1994
DMH-29	TYPE III	1340	1370	1807
DMH-30	TYPE III	1340	1370	1504
DMH-31	TYPE III	1340	1370	1181
DMH-32	TYPE III	1340	1370	1258
DMH-33	TYPE III	1340	1370	1291
DMH-34	TYPE III	1340	1370	1385
DMH-35	TYPE III	1340	1370	1251
DMH-36	TYPE VI	1340	1370	1140
DMH-37	TYPE V	1050	1340	1571
DMH-38	TYPE I	1050	1370	1113
DMH-39	TYPE VI	1050	1370	986
DMH-40	TYPE VI	1050	1370	1038
DMH-41	TYPE I	1050	1370	988
DMH-42	TYPE I	1050	1370	1027
DMH-43	TYPE I	1050	1370	1382
DMH-44	TYPE VI	1588	1370	1661
DMH-45	TYPE III	1588	1588	2093

DRAINAGE SLOPE LEFT

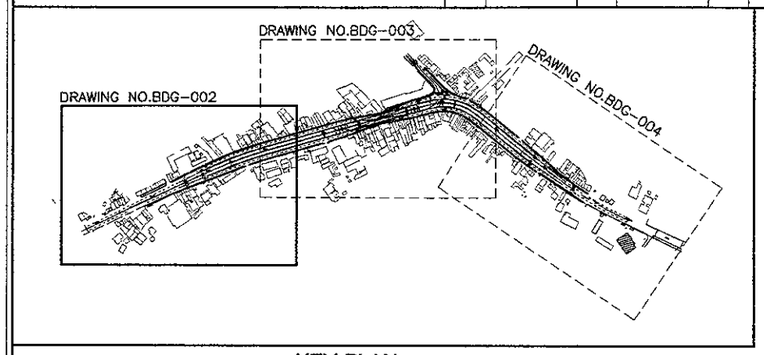
FROM MH	TO MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	SLOPE (%)	FINISHED AT MANHOLE.(m) UPSTREAM	FINISHED AT MANHOLE.(m) DOWNSTREAM	INVERT ELEV.(m) UPSTREAM	INVERT ELEV.(m) DOWNSTREAM
DRAINAGE SLOPE DMH-55 TO DMH-46								
DMH-55	DMH-54	U'DITCH DS 2	20	0.70	21.115	21.090	20.370	20.231
DMH-54	DMH-53	U'DITCH DS 2	23	0.58	21.090	20.910	20.231	20.094
DMH-53	DMH-52	MSW-I	9	0.57	20.910	20.850	20.094	20.044
DMH-52	DMH-51	U'DITCH DS 2	28	1.41	20.850	20.510	20.044	19.653
DMH-51	DMH-50	U'DITCH DS 2	20	1.83	20.510	20.120	19.653	19.287
DMH-50	DMH-49	U'DITCH DS 2	20	2.70	20.120	19.611	19.287	18.728
DMH-49	DMH-48	U'DITCH DS 2	20	2.79	19.611	19.130	18.728	18.186
DMH-48	DMH-47	U'DITCH DS 2	20	2.79	19.130	18.950	18.186	17.832
DMH-47	DMH-46	U'DITCH DS 2	20	2.79	18.950	18.890	17.832	17.510
DMH-46	–	U'DITCH DS 2	8.9	2.79	18.890	–	17.510	–
DRAINAGE SLOPE DMH-55 TO DMH-93								
DMH-55	DMH-56	U'DITCH DS 2	20	0.65	21.115	21.080	20.370	20.249
DMH-56	DMH-57	U'DITCH DS 2	14	0.50	21.080	21.090	20.249	20.177
DMH-57	DMH-58	MSW-I	23	0.48	21.090	20.900	20.177	20.068
DMH-58	DMH-59	U'DITCH DS 2	25	0.34	20.900	20.840	20.068	19.982
DMH-59	DMH-60	U'DITCH DS 2	18	0.23	20.840	20.740	19.982	19.941
DMH-60	DMH-61	U'DITCH DS 2	20	0.91	20.740	20.570	19.941	19.759
DMH-61	DMH-62	U'DITCH DS 2	20	1.09	20.570	20.350	19.759	19.540
DMH-62	DMH-63	U'DITCH DS 2	20	0.54	20.350	20.170	19.540	19.431
DMH-63	DMH-64	U'DITCH DS 2	20	0.62	20.170	20.100	19.431	19.308
DMH-64	DMH-65	U'DITCH DS 2	20	0.38	20.100	20.100	19.308	19.232
DMH-65	DMH-66	U'DITCH DS 2	22	0.41	20.100	20.100	19.232	19.140
DMH-66	DMH-67	U'DITCH DS 2	18	0.39	20.100	20.100	19.140	19.071
DMH-67	DMH-68	U'DITCH DS 2	24	0.32	20.100	20.269	19.071	18.996
DMH-68	DMH-69	U'DITCH DS 2	17	0.45	20.269	20.380	18.996	18.921
DMH-69	DMH-70	RCP ø800 (A)	20	0.24	20.380	20.520	18.921	18.872
DMH-70	DMH-71	RCP ø800 (A)	18	0.37	20.520	20.650	18.872	18.805
DMH-71	DMH-72	RCP ø800 (A)	22	0.38	20.650	20.790	18.805	18.723
DMH-72	DMH-73	RCP ø800 (A)	20	0.34	20.790	20.720	18.723	18.655
DMH-73	DMH-74	RCP ø800 (A)	20	0.40	20.720	20.390	18.655	18.573
DMH-74	DMH-75	RCP ø800 (A)	20	0.36	20.390	20.010	18.573	18.502
DMH-75	DMH-76	RCP ø800 (A)	20	0.94	20.010	19.700	18.502	18.313
DMH-76	DMH-77	RCP ø800 (A)	28	0.66	19.700	18.509	18.313	18.130
DMH-77	DMH-78	RCP ø800 (A)	9	0.29	18.509	19.520	18.130	18.130
DMH-78	DMH-79	RCP ø800 (A)	20	0.35	19.520	19.490	18.130	18.033
DMH-79	DMH-80	RCP ø800 (A)	20	0.26	19.490	19.470	18.033	17.980
DMH-80	DMH-81	RCP ø800 (A)	20	0.42	19.470	19.460	17.980	17.896
DMH-81	DMH-82	RCP ø800 (A)	20	0.27	19.460	19.440	17.896	17.842
DMH-82	DMH-83	RCP ø800 (A)	13	0.22	19.440	18.986	17.842	17.820
DMH-83	DMH-84	U'DITCH DS 2	20	3.17	18.986	18.180	17.820	17.173
DMH-84	DMH-85	U'DITCH DS 2	10	5.29	18.180	17.670	17.173	16.637
DMH-85	DMH-86	U'DITCH DS 2	10	5.58	17.670	17.120	16.637	15.091
DMH-86	DMH-87	U'DITCH DS 2	27	4.43	17.120	15.930	15.091	14.899
DMH-87	DMH-88	U'DITCH DS 2	19	5.42	15.930	14.900	14.899	13.865
DMH-88	DMH-89	U'DITCH DS 2	21	5.95	14.900	13.670	13.865	12.629
DMH-89	DMH-90	U'DITCH DS 2	20	4.82	13.670	12.630	12.629	11.675
DMH-90	DMH-91	U'DITCH DS 2	20	1.97	12.630	12.300	11.675	11.276
DMH-91	DMH-92	U'DITCH DS 2	20	1.57	12.300	12.340	11.276	10.965
DMH-92	DMH-93	RCP ø800 (A)	20	1.57	12.340	12.630	10.965	10.654
DMH-93	–	RCP ø800 (A)	16	0.65	12.630	–	10.654	–

NO. MANHOLE	TYPE OF MANHOLE	DIMENSION OF MANHOLE WIDTH	LENGTH	HEIGHT
DMH-55	TYPE I	1050	1370	895
DMH-54	TYPE I	1050	1370	1009
DMH-53	TYPE I	1050	1370	966
DMH-52	TYPE I	1050	1370	957
DMH-51	TYPE I	1050	1370	1007
DMH-50	TYPE I	1050	1370	983
DMH-49	TYPE I	1050	1370	1033
DMH-48	TYPE I	1050	1370	1094
DMH-47	TYPE I	1050	1370	1268
DMH-46	TYPE I	1050	1370	1530
DMH-56	TYPE I	1050	1370	981
DMH-57	TYPE I	1050	1370	1063
DMH-58	TYPE I	1050	1370	982
DMH-59	TYPE I	1050	1370	1008
DMH-60	TYPE I	1050	1370	949
DMH-61	TYPE I	1050	1370	961
DMH-62	TYPE I	1050	1370	960
DMH-63	TYPE I	1050	1370	889
DMH-64	TYPE I	1050	1370	942
DMH-65	TYPE I	1050	1370	1018
DMH-66	TYPE V	1050	1340	1110
DMH-67	TYPE I	1050	1370	1179
DMH-68	TYPE V	1050	1340	1423
DMH-69	TYPE VI	1588	1370	1609
DMH-70	TYPE III	1588	1370	1798
DMH-71	TYPE III	1588	1370	1995
DMH-72	TYPE III	1588	1370	2217
DMH-73	TYPE III	1588	1370	2215
DMH-74	TYPE III	1588	1340	1967
DMH-75	TYPE IV	1588	1370	1658
DMH-76	TYPE III	1588	1370	1537
DMH-77	TYPE IV	1588	1340	529
DMH-78	TYPE III	1588	1370	1540
DMH-79	TYPE III	1588	1370	1607
DMH-80	TYPE III	1588	1370	1640
DMH-81	TYPE III	1588	1370	1714
DMH-82	TYPE III	1588	1370	1748
DMH-83	TYPE VI	1588	1370	1316
DMH-84	TYPE I	1050	1370	1157
DMH-85	TYPE I	1050	1370	1183
DMH-86	TYPE V	1050	1640	2179
DMH-87	TYPE I	1050	1370	1181
DMH-88	TYPE I	1050	1370	1185
DMH-89	TYPE I	1050	1370	1191
DMH-90	TYPE I	1050	1370	1105
DMH-91	TYPE I	1050	1370	1174
DMH-92	TYPE VI	1588	1370	1525
DMH-93	TYPE III	1588	1370	2126

1 / – DRAINAGE SCHEDULE

SCALE N.T.S

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KEI KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION :	SCALE :	DRAWING TITLE :	DRAWING NO :
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI		DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	1 : 1000 FULL SIZE A3	DRAINAGE LAYOUT PLAN 1 OF 3	BDG-002 SHEET NO : 02 / 17
	Sign		Sign		Sign		APPROVED BY Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date				
	Date		Date		Date						



KEY PLAN

LEGEND

- : DRAINAGE MANHOLES
- : DRAINAGE LINE
- : NEW CULVERT
- : EXISTING DRAINAGE
- RCP : PIPE CULVERT, RCP-ø0.60 (A)-15.0 (DIAMETER, TYPE, LENGTH)
- DS : SIDE DRAIN, RCPø0.80(A)-15.0 (TYPE, LENGTH)

1 - DRAINAGE LAYOUT PLAN
SCALE 1:1000

JICA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HIGHWAYS

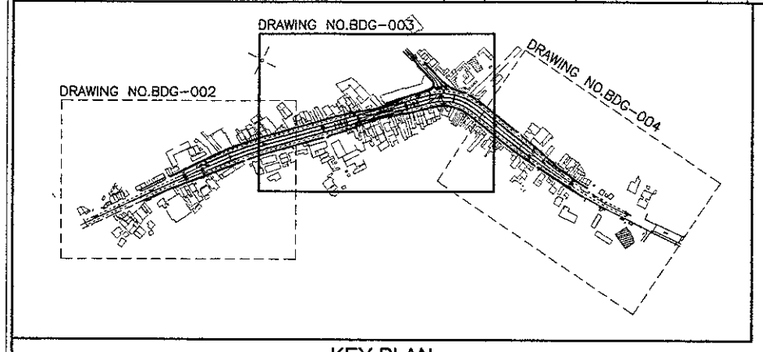
APPROVED BY	Ir. HERRY VAZA M,Eng.Sc	Sign	
	NIP. : 110038400	Date	

PROJECT AND LOCATION :
DETAILED DESIGN STUDY OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
BALARAJA FLYOVER - CONTRACT PACKAGE 1
(MERAK - BALARAJA)
BANTEN PROVINCE

SCALE : 1 : 1000
FULL SIZE A3

DRAWING TITLE :
DRAINAGE LAYOUT PLAN
2 OF 3

DRAWING NO : BDG-003
SHEET NO : 03 / 17



KEY PLAN

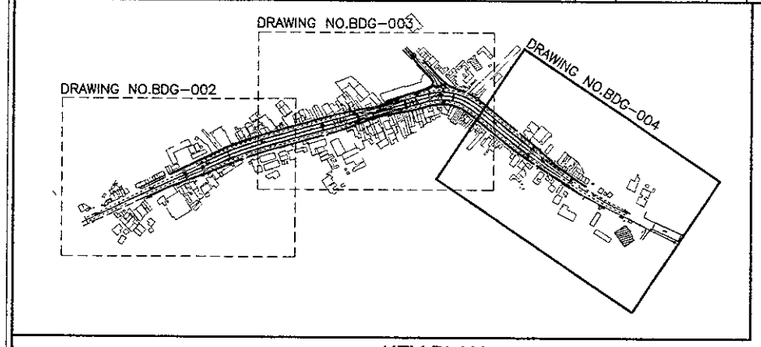
LEGEND

- : DRAINAGE MANHOLES
- : DRAINAGE LINE
- : NEW CULVERT
- : EXISTING DRAINAGE
- RCP : PIPE CULVERT, RCP-ø0.60 (A)-15.0 (DIAMETER, TYPE, LENGTH)
- DS : SIDE DRAIN, RCPø0.80(A)-15.0 (TYPE, LENGTH)

N 9315500
E 681800
N 9315300
E 681800
MATCH LINE STA.0+340
MATCH LINE STA.0+680
PASAR BALARAJA
PARKING AREA
GANG SMA1
KORAMIL
KANTOR DESA
BANK BRI
LAP.BADMINTON
AVON P3
BCA

1 DRAINAGE LAYOUT PLAN
SCALE 1:1000

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 1000 FULL SIZE A3	DRAWING TITLE : DRAINAGE LAYOUT PLAN 3 OF 3	DRAWING NO : BDG-004 SHEET NO : 04 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI				
	Sign		Sign		Sign					
	Date		Date		Date					
							APPROVED BY : Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400	Sign Date		



KEY PLAN

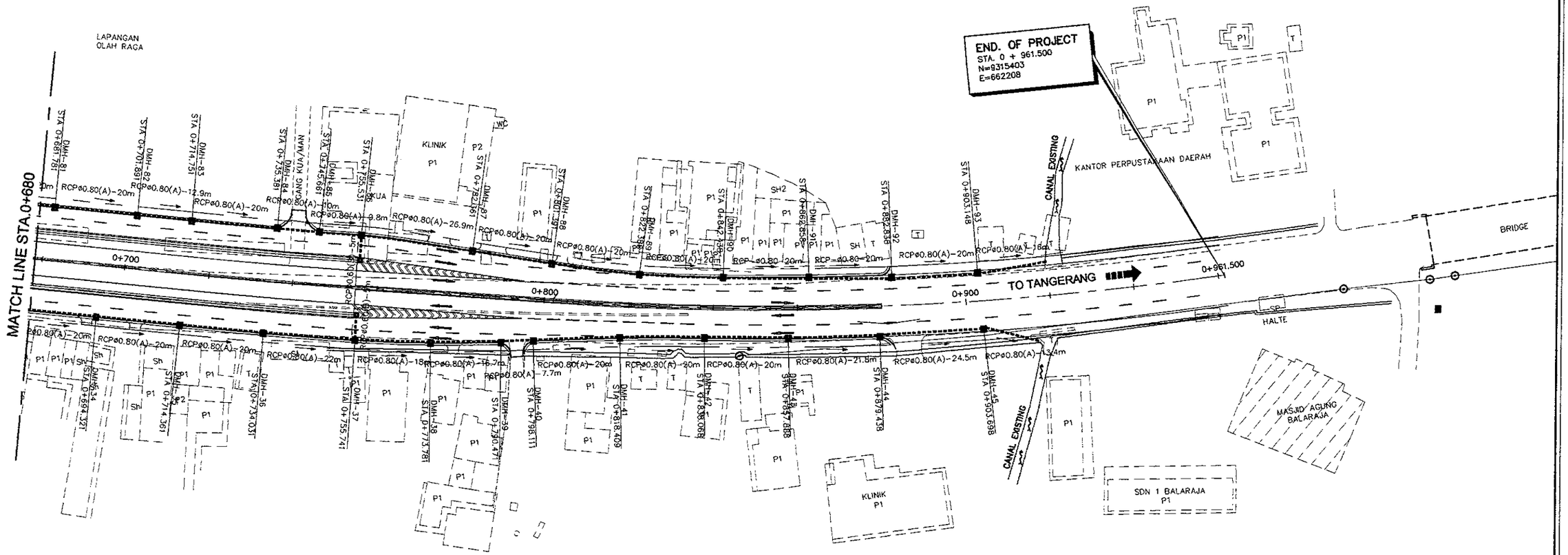
LEGEND

- : DRAINAGE MANHOLES
- : DRAINAGE LINE
- : NEW CULVERT
- : EXISTING DRAINAGE
- RCP : PIPE CULVERT, RCP-ø0.60 (A)-15.0 (DIAMETER, TYPE, LENGTH)
- DS : SIDE DRAIN, RCPø0.80(A)-15.0 (TYPE, LENGTH)

N

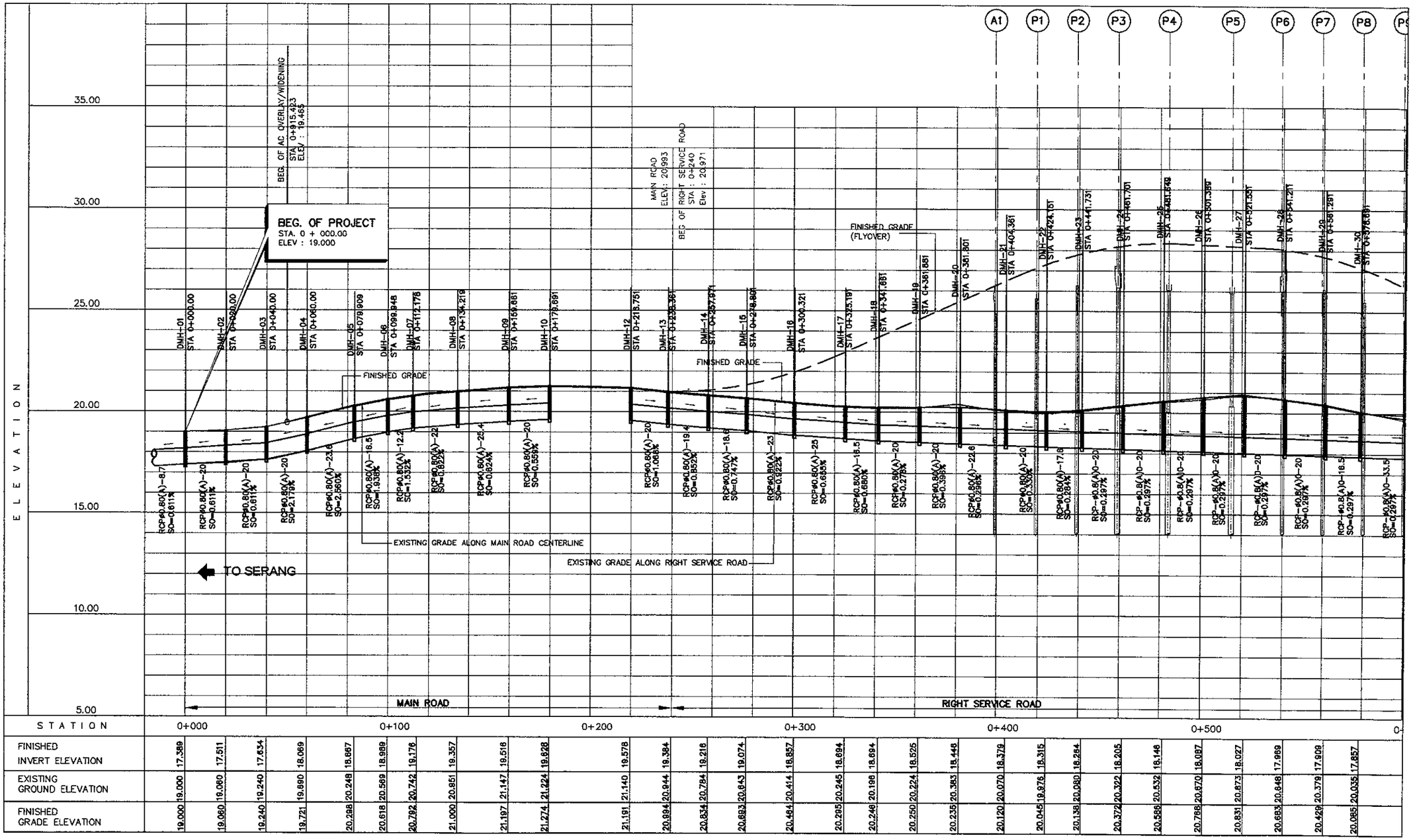
E 662200
N 9315500

E 662000
N 9315500



1 - DRAINAGE LAYOUT PLAN
SCALE 1:1000

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : H:1:2000 V:1:200 FULL SIZE A3	DRAWING TITLE : DRAINAGE PROFILE, RIGHT SERVICE ROAD 1 OF 2	DRAWING NO : BDG-005 SHEET NO : 05 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date				



STATION	0+000							0+100							0+200							0+300							0+400							0+500							0-
FINISHED INVERT ELEVATION	17.389	17.511	17.634	18.069		18.667	18.999	19.176	19.357	19.518	19.828		19.578	19.384	19.216	19.074	18.857	18.694	18.694	18.525	18.448	18.379	18.315	18.284	18.205	18.146	18.087	18.027	17.959	17.909													
EXISTING GROUND ELEVATION	19.000	19.060	19.240	19.880		20.248	20.569	20.742	20.851	21.147	21.224		21.140	20.944	20.784	20.643	20.414	20.245	20.198	20.224	20.383	20.070	19.976	20.080	20.322	20.532	20.670	20.873	20.648	20.379	20.429	20.035	17.857										
FINISHED GRADE ELEVATION	19.000	19.060	19.240	19.721		20.288	20.618	20.792	21.000	21.197	21.274		21.191	20.894	20.834	20.683	20.484	20.285	20.246	20.250	20.235	20.120	20.045	20.138	20.372	20.588	20.788	20.831	20.683	20.429	20.085												

1 / - DRAINAGE PROFILE, RIGHT SERVICE ROAD (1 OF 2)
SCALE H:1:2000 V:1:200

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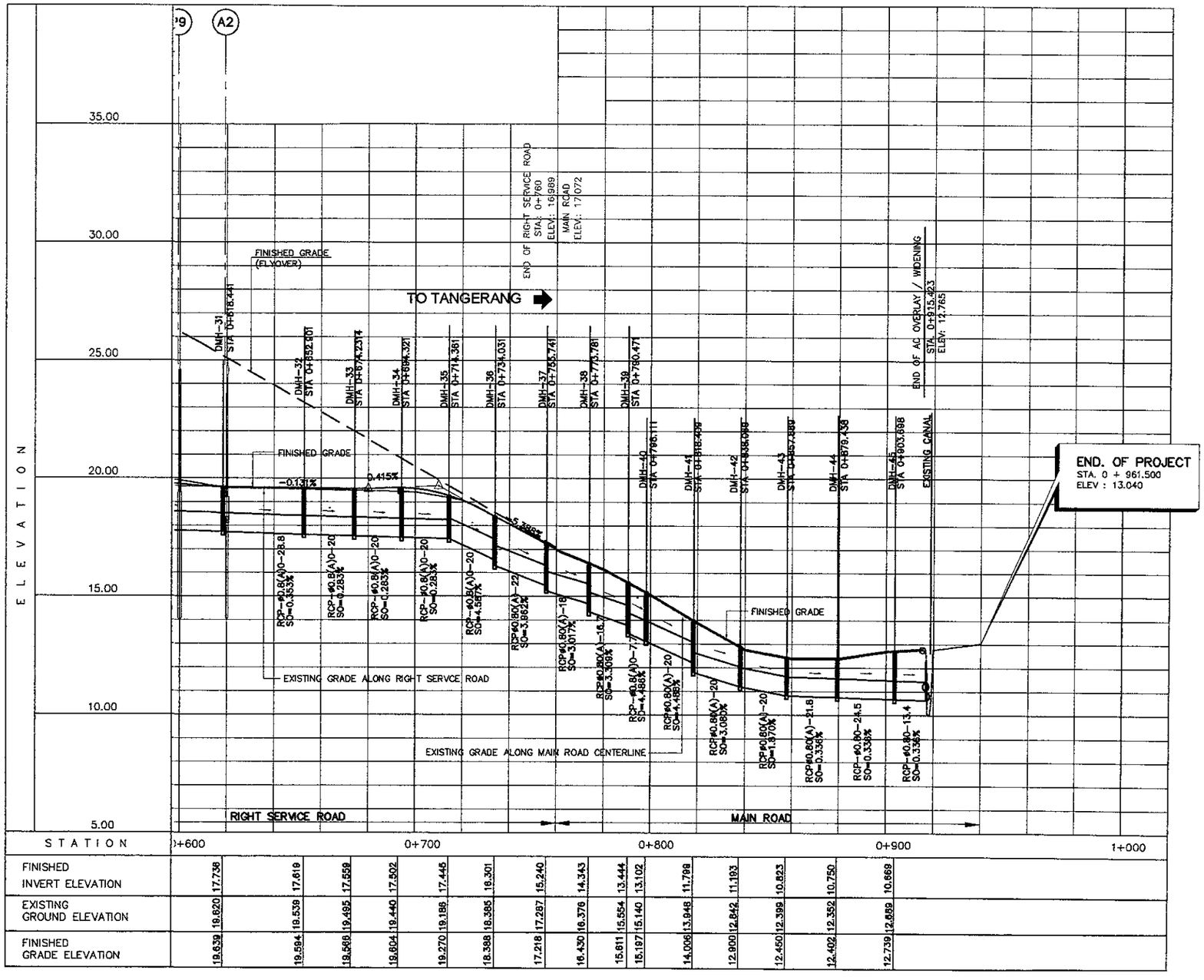
JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : H:1:2000 V:1:200 FULL SIZE A3	DRAWING TITLE : DRAINAGE PROFILE RIGHT SERVICE ROAD 2 OF 2	DRAWING NO : BDG-006 SHEET NO : 06 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign		APPROVED BY Ir. HERRY VAZA M.Eng.Sc	Sign			
	Date		Date		Date		NIP. : 110038400	Date			



STATION	0+600		0+700					0+800					0+900		1+000
FINISHED INVERT ELEVATION	17.738	17.619	17.559	17.502	17.445	18.301	15.240	14.343	13.444	13.102	11.799	11.193	10.823	10.750	10.669
EXISTING GROUND ELEVATION	19.620	19.539	19.495	19.440	19.186	18.385	17.287	16.378	15.554	15.140	13.948	12.842	12.399	12.352	12.689
FINISHED GRADE ELEVATION	19.639	19.594	19.588	19.604	19.270	18.388	17.218	16.430	15.611	15.197	14.006	12.900	12.450	12.402	12.739

1 / - DRAINAGE PROFILE, RIGHT SERVICE ROAD (2 OF 2)
SCALE H:1:2000 V:1:200

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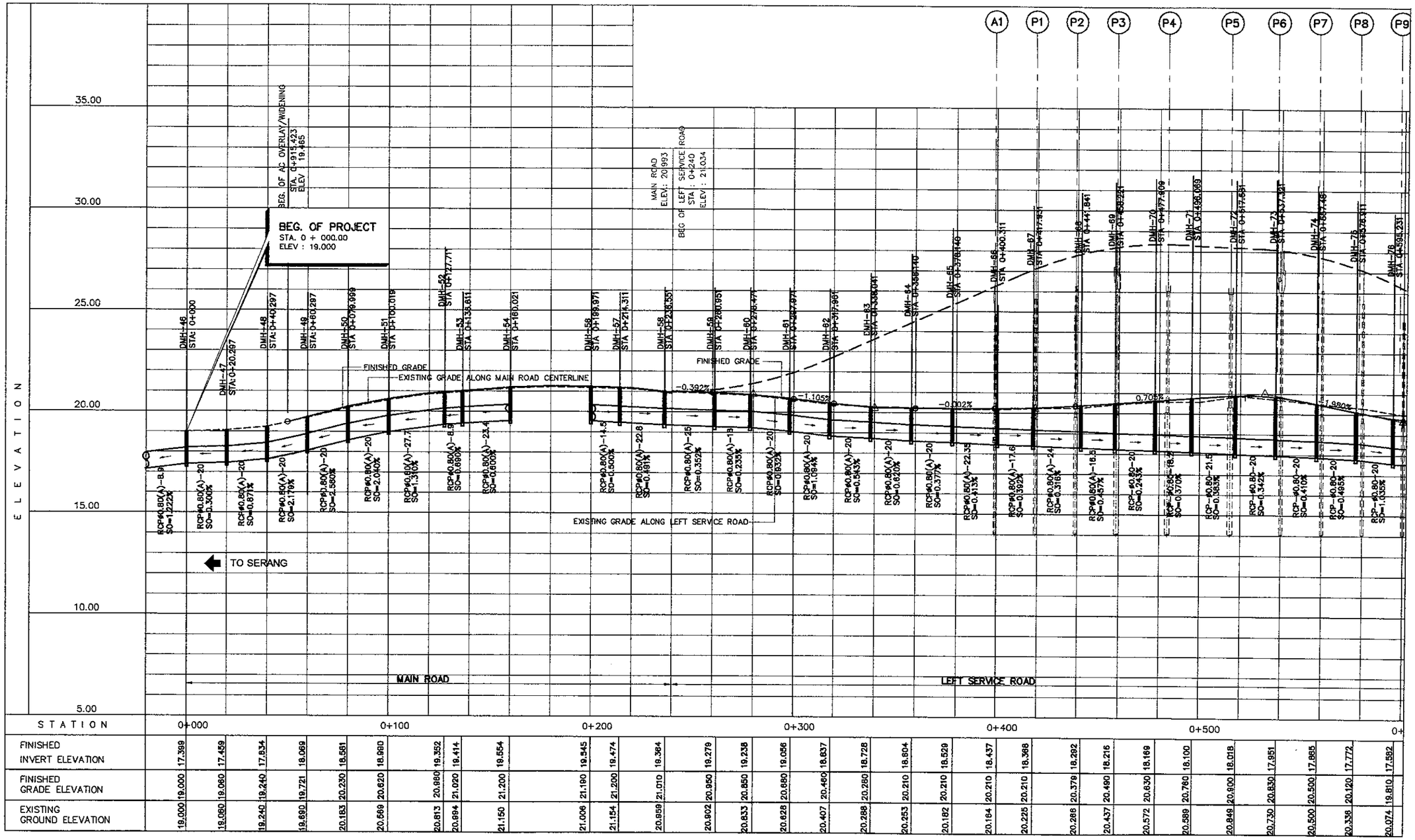
JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : H.:1:2000 V.:1:200 FULL SIZE A3	DRAWING TITLE : DRAINAGE PROFILE, LEFT SERVICE ROAD 1 OF 2	DRAWING NO : BDG-007 SHEET NO : 07 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc (NIP. : 110038400) Sign / Date				



STATION	0+000							0+100							0+200							0+300							0+400							0+500							0+
FINISHED INVERT ELEVATION	17.399	17.459	17.634	18.069	18.581	18.980	19.352	19.414	19.554	19.545	19.474	19.364	19.279	19.238	19.056	18.837	18.728	18.604	18.529	18.437	18.368	18.292	18.216	18.169	18.100	18.018	17.951	17.885	17.772	17.582												
FINISHED GRADE ELEVATION	19.000	19.060	19.240	19.721	20.230	20.620	20.880	21.020	21.200	21.190	21.200	21.010	20.950	20.850	20.680	20.480	20.280	20.210	20.210	20.210	20.210	20.379	20.490	20.630	20.780	20.900	20.830	20.500	20.120	19.810												
EXISTING GROUND ELEVATION	19.000	19.060	19.240	19.690	20.183	20.569	20.813	20.984	21.150	21.006	21.154	20.959	20.902	20.833	20.628	20.407	20.288	20.253	20.182	20.164	20.225	20.286	20.437	20.572	20.589	20.849	20.730	20.500	20.338	20.074												

1 / - DRAINAGE PROFILE, LEFT SERVICE ROAD (1 OF 2)
SCALE H:1:2000 V:1:200

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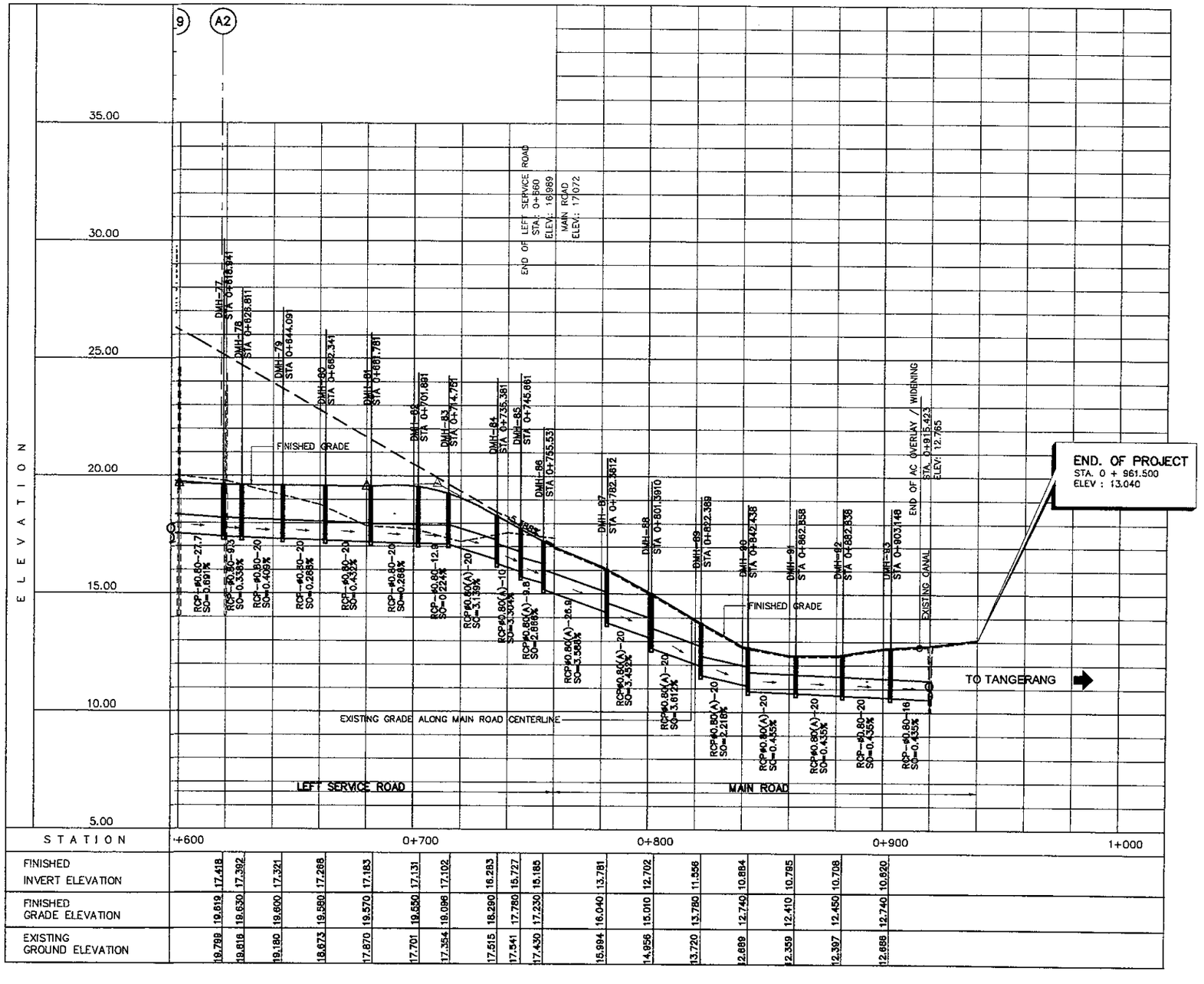
JICA JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : H.:1:2000 V.:1:200 FULL SIZE A3	DRAWING TITLE : DRAINAGE PROFILE, LEFT SERVICE ROAD 2 OF 2	DRAWING NO : BDG-008 SHEET NO : 08 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date				



STATION		0+600				0+700				0+800				0+900				1+000
FINISHED INVERT ELEVATION	17.418	17.392	17.321	17.268	17.183	17.131	17.102	16.283	15.727	15.185	13.781	12.702	11.556	10.864	10.785	10.708	10.820	
FINISHED GRADE ELEVATION	19.819	19.630	19.600	19.580	19.570	19.550	19.096	18.290	17.780	17.230	16.040	15.010	13.780	12.740	12.410	12.450	12.740	
EXISTING GROUND ELEVATION	19.798	19.816	19.180	18.673	17.870	17.701	17.354	17.515	17.541	17.430	15.994	14.956	13.720	12.689	12.359	12.397	12.688	

1 / - DRAINAGE PROFILE, LEFT SERVICE ROAD (2 OF 2)
SCALE H:1:2000 V:1:200

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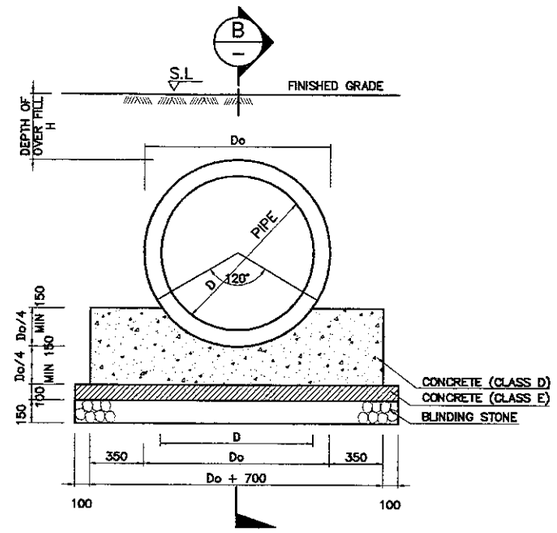
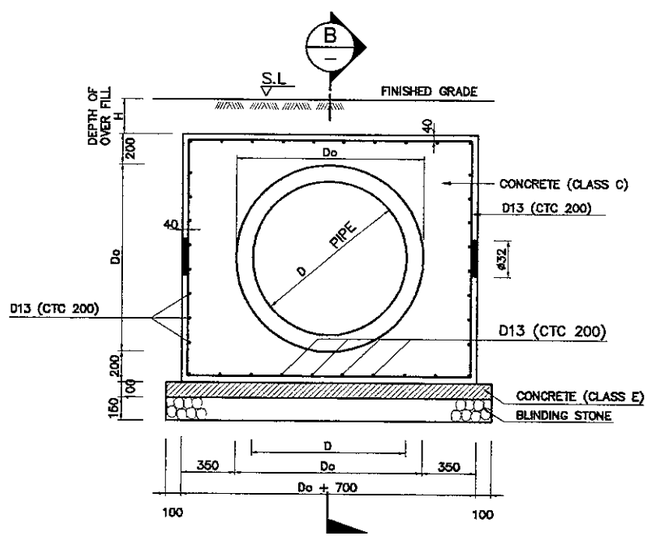
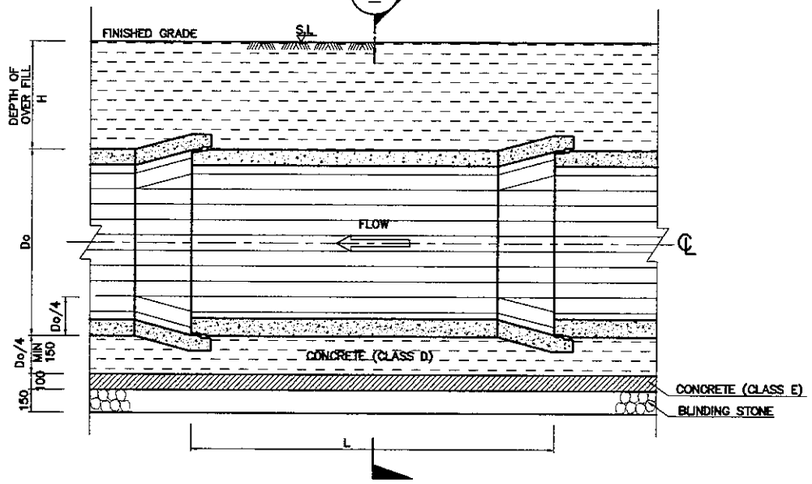
JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 20 FULL SIZE A3	DRAWING TITLE : STANDARD REINFORCEMENT CONCRETE PIPE CULVERT	DRAWING NO : BDG-009 SHEET NO : 09 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date				



1B SECTION A-A
SCALE 1:10

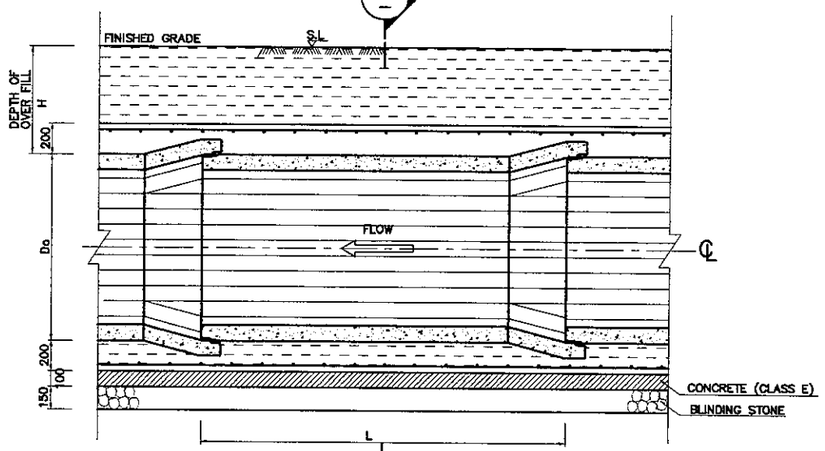


2B SECTION A-A
SCALE 1:10



1A SECTION B-B
SCALE 1:10

1 FOUNDATION (RCP TYPE - A)
SCALE 1:10



2A SECTION B-B
SCALE 1:10

2 FOUNDATION (RCP TYPE - B)
SCALE 1:10

PIPE DETAILS

DIA D	WALL THICKNESS T	Do	LENGTH L	WEIGHT W	RUBBER RING THICKNESS	REQUIRED STRENGTH	
						CRACKING	BREAKING
mm	mm	mm	mm	kg	mm	KN/m	KN/m
400	55	510	1250	281	12	35.19	58.65
600	70	740	1250/2500	519/985	12	43.07	73.00
800	84	988	2500	1690	15.5	58.40	102.50
1000	108	1216	2500	2638	15.5	75.00	138.00
1200	130	1460	2500	3805	16.5	80.00	160.00
1300	140	1580	2500	4444	18.5	94.20	171.25
1500	160	1820	2500	5858	20	102.20	175.00

DEPTH OF OVER FILL : H

DIMENSION : mm		
D	TYPE - A	TYPE - B
400	500 < H < 3000	300 < H ≤ 500 OR 3000 < H
600	500 < H < 3000	300 < H ≤ 500 OR 3000 < H
800	500 < H < 3000	300 < H ≤ 500 OR 3000 < H
1000	500 < H < 3000	300 < H ≤ 500 OR 3000 < H
1200	600 < H < 3000	300 < H ≤ 600 OR 3000 < H
1300	600 < H < 3000	300 < H ≤ 600 OR 3000 < H
1500	600 < H < 3000	300 < H ≤ 600 OR 3000 < H

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
2. TYPE OF FOUNDATION IS SHOWN ON THE DRAWING.
3. THE FOUNDATIONS OF TRANSVERSE PIPE CULVERTS SHALL BE TYPE – B IRRESPECTIVE OF PIPE DEPTH.
4. THE CRACKING LOAD MEANS THE LOAD AT WHICH A 0.05 mm WIDE CRACK DEVELOPES ON THE PIPE.
5. BREAKING LOAD MEANS THE MAXIMUM LOAD INDICATED BY THE TESTING MACHINE.
6. THE LOAD P DIVIDED BY THE EFFECTIVE LENGTH L OF PIPE IS GIVEN IN TERMS OF STRENGTH FOR EXTERNAL LOAD.

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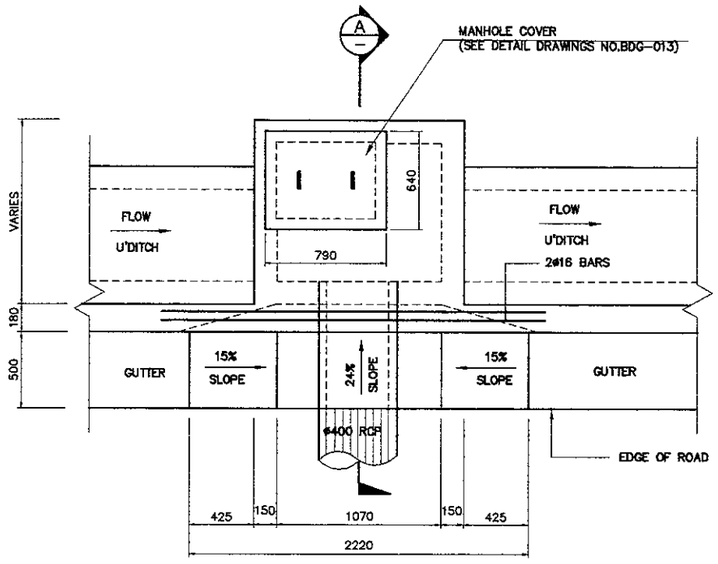
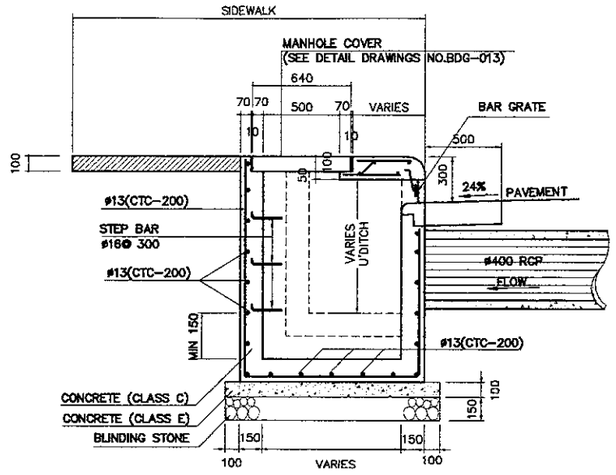
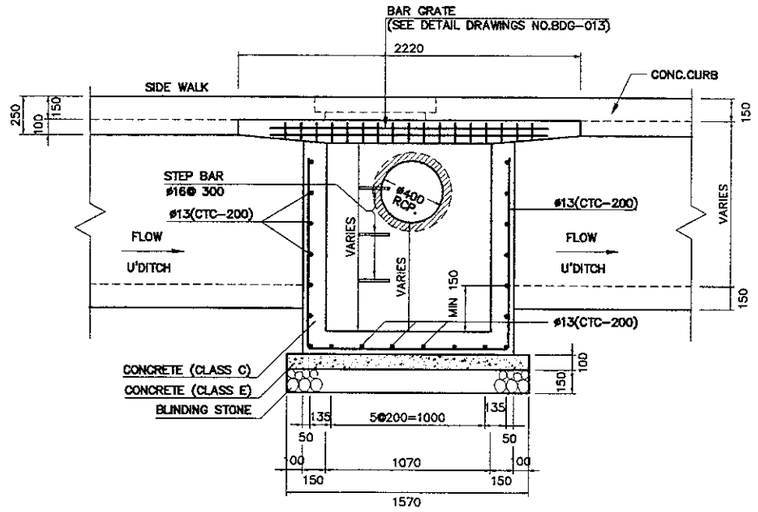
JICA JAPAN INTERNATIONAL COOPERATION AGENCY KEI KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 40 FULL SIZE A3	DRAWING TITLE : STANDARD CURB INLET AND MANHOLE (I, II) 1 OF 3	DRAWING NO : BDG-010 SHEET NO : 10 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400	Sign / Date			



2 PLAN
SCALE 1 : 40

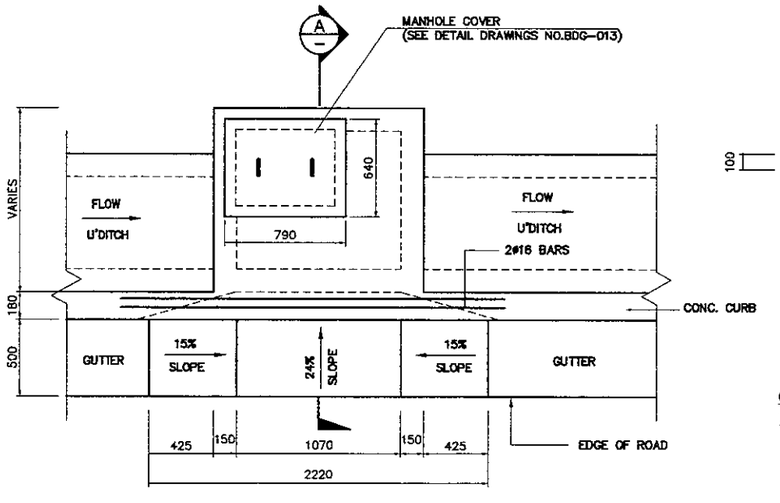


2A SECTION
SCALE 1 : 40

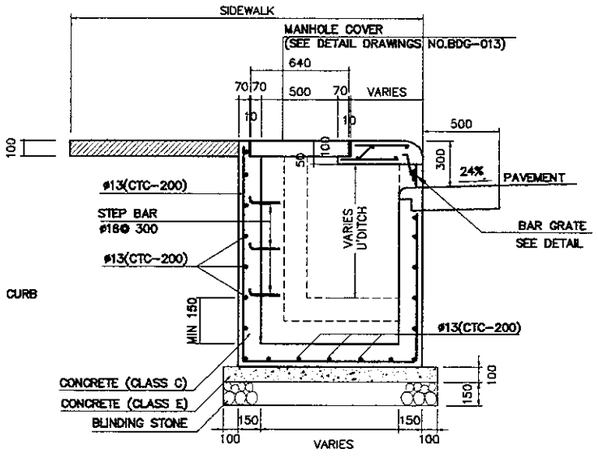


2B FRONT ELEVATION
SCALE 1 : 40

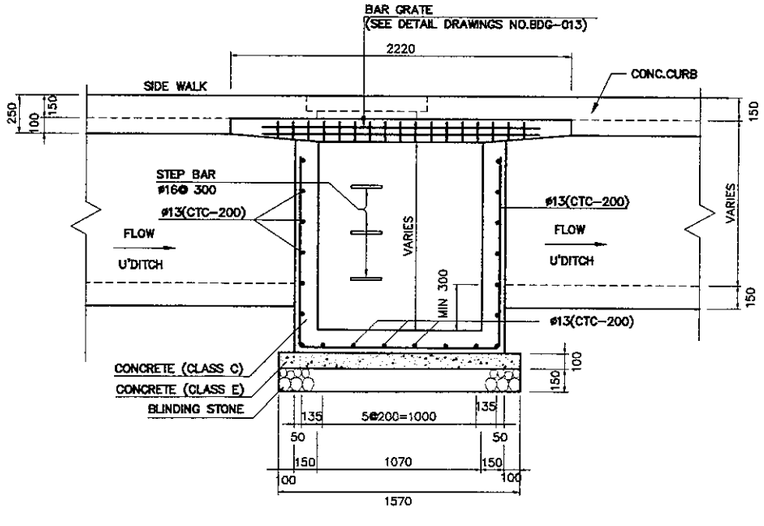
II MANHOLE TYPE - II



1 PLAN
SCALE 1 : 40



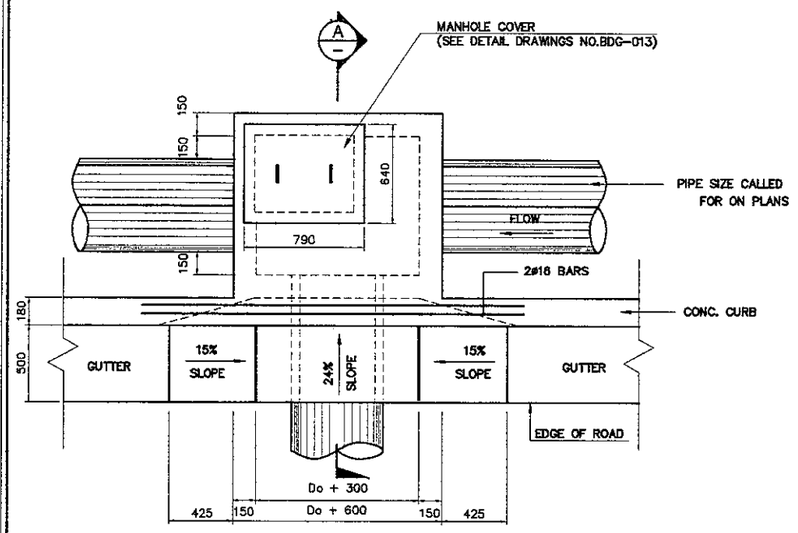
1A SECTION
SCALE 1 : 40



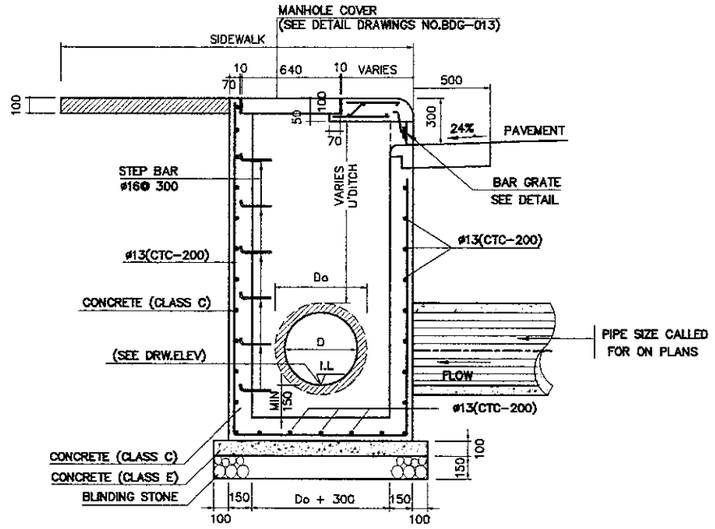
1B FRONT ELEVATION
SCALE 1 : 40

I MANHOLE TYPE - I

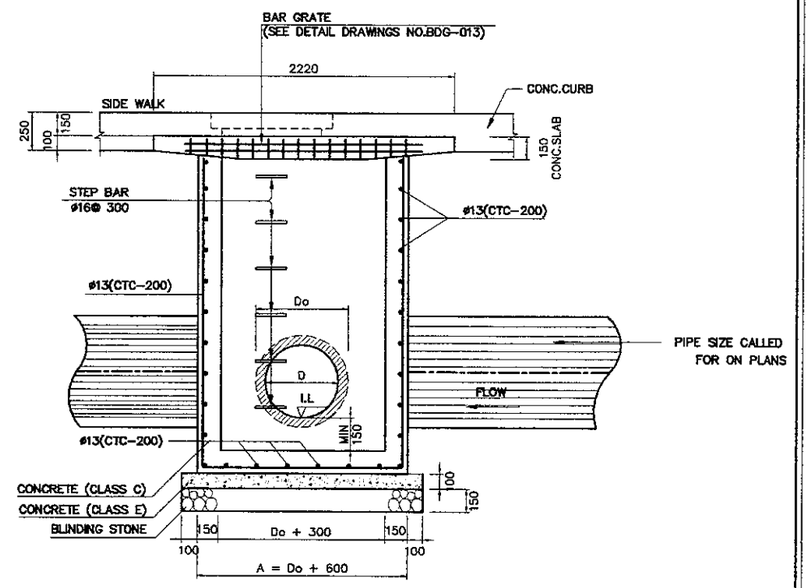
JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 40 FULL SIZE A3	DRAWING TITLE : STANDARD CURB INLET AND MANHOLE (III, IV) 2 OF 3	DRAWING NO : BDG-011 SHEET NO : 11 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY : Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400	Sign Date			



4 - PLAN
SCALE 1 : 40

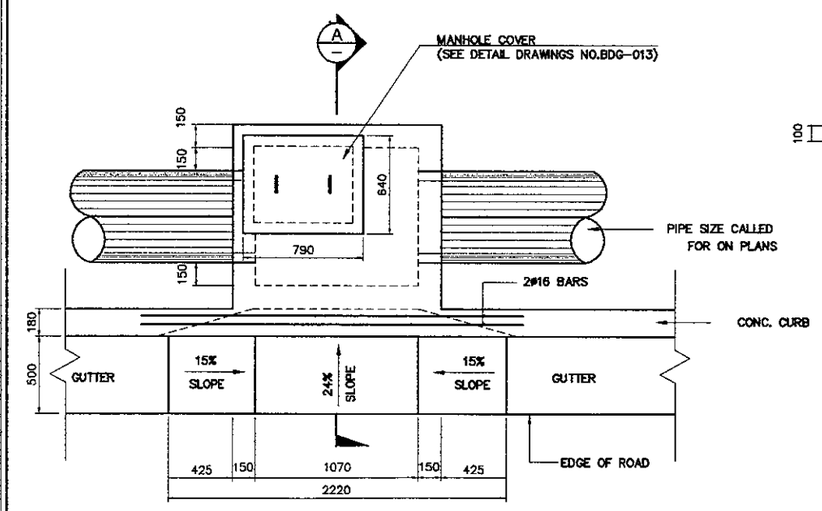


4A - SECTION
SCALE 1 : 40

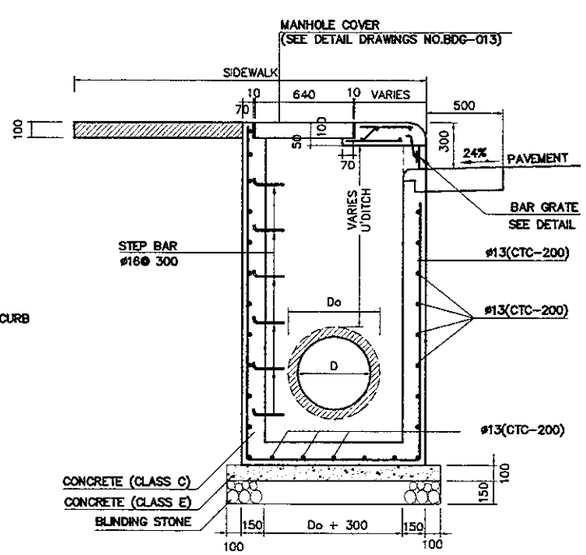


4B - FRONT ELEVATION
SCALE 1 : 40

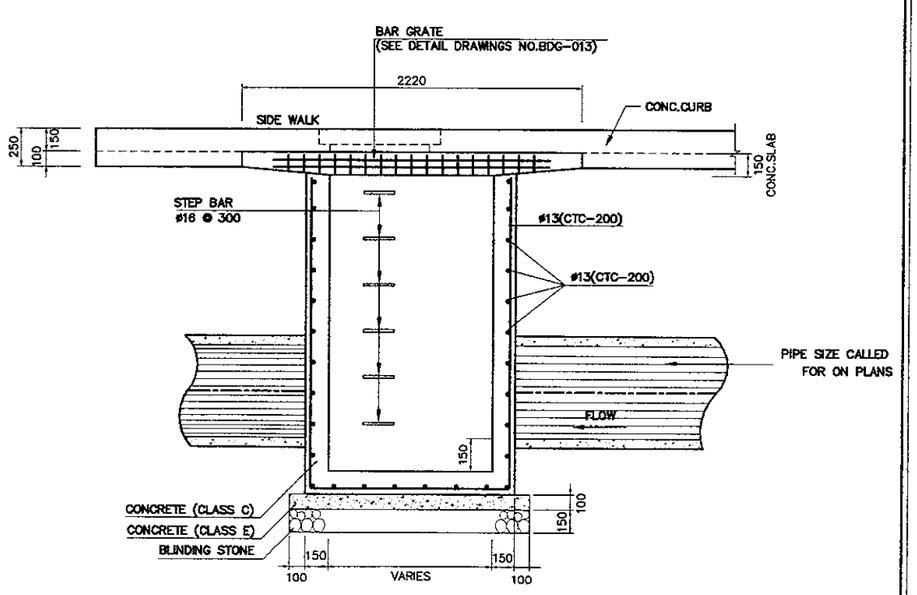
IV - MANHOLE TYPE - IV



3 - PLAN
SCALE 1 : 40



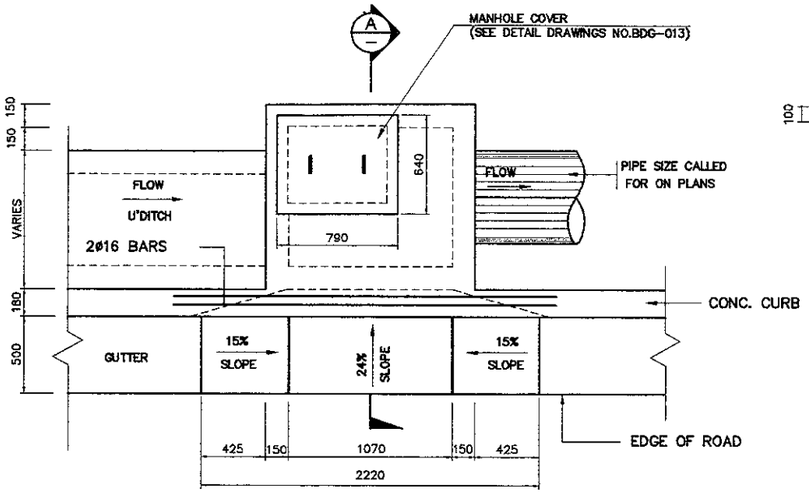
3A - SECTION
SCALE 1 : 40



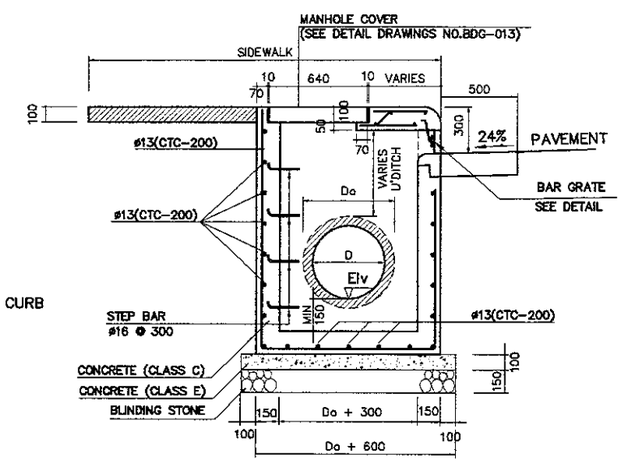
3B - FRONT ELEVATION
SCALE 1 : 40

III - MANHOLE TYPE - III

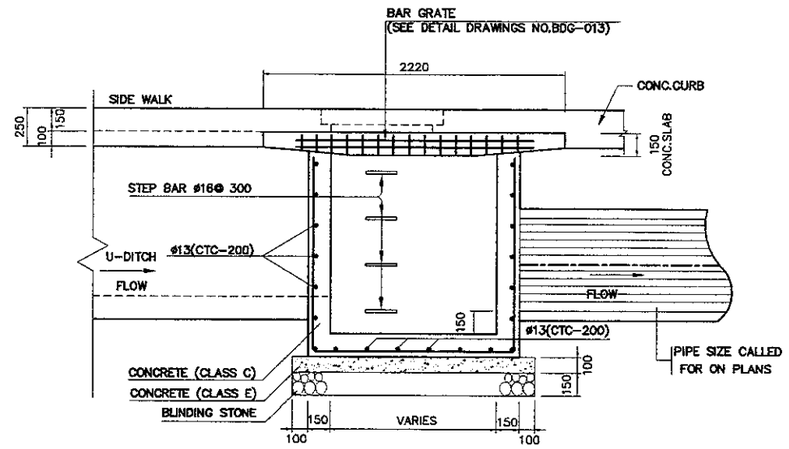
JICA JAPAN INTERNATIONAL COOPERATION AGENCY KEI KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 40 FULL SIZE A3	DRAWING TITLE : STANDARD CURB INLET AND MANHOLE (V, VI) 3 OF 3	DRAWING NO : BDG-012 SHEET NO : 12 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI				
	Sign		Sign		Sign					
	Date		Date		Date		APPROVED BY Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date			



6 - PLAN
SCALE 1 : 40

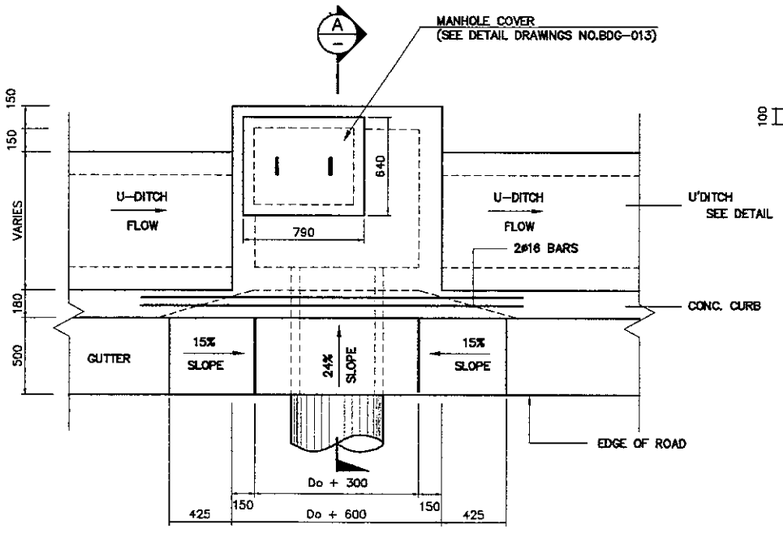


6A - SECTION
SCALE 1 : 40

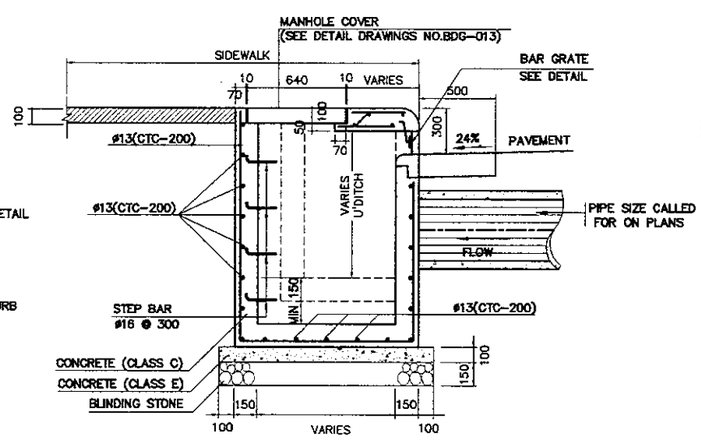


6B - FRONT ELEVATION
SCALE 1 : 40

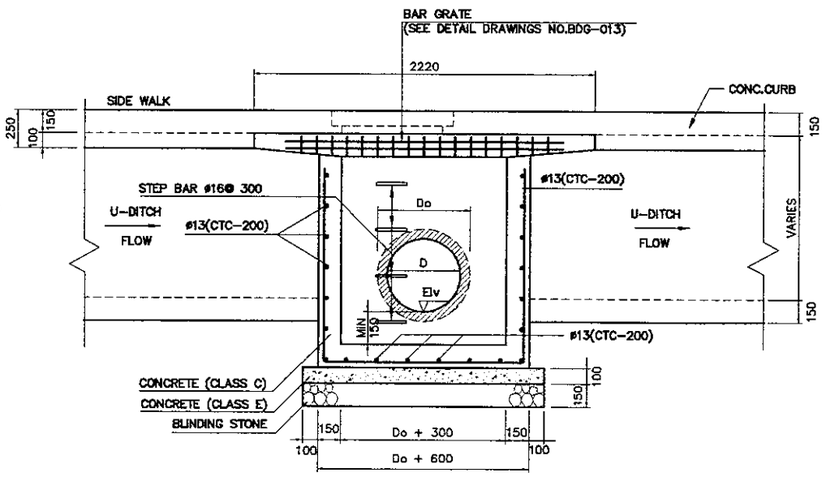
VI - MANHOLE TYPE - VI



5 - PLAN
SCALE 1 : 40



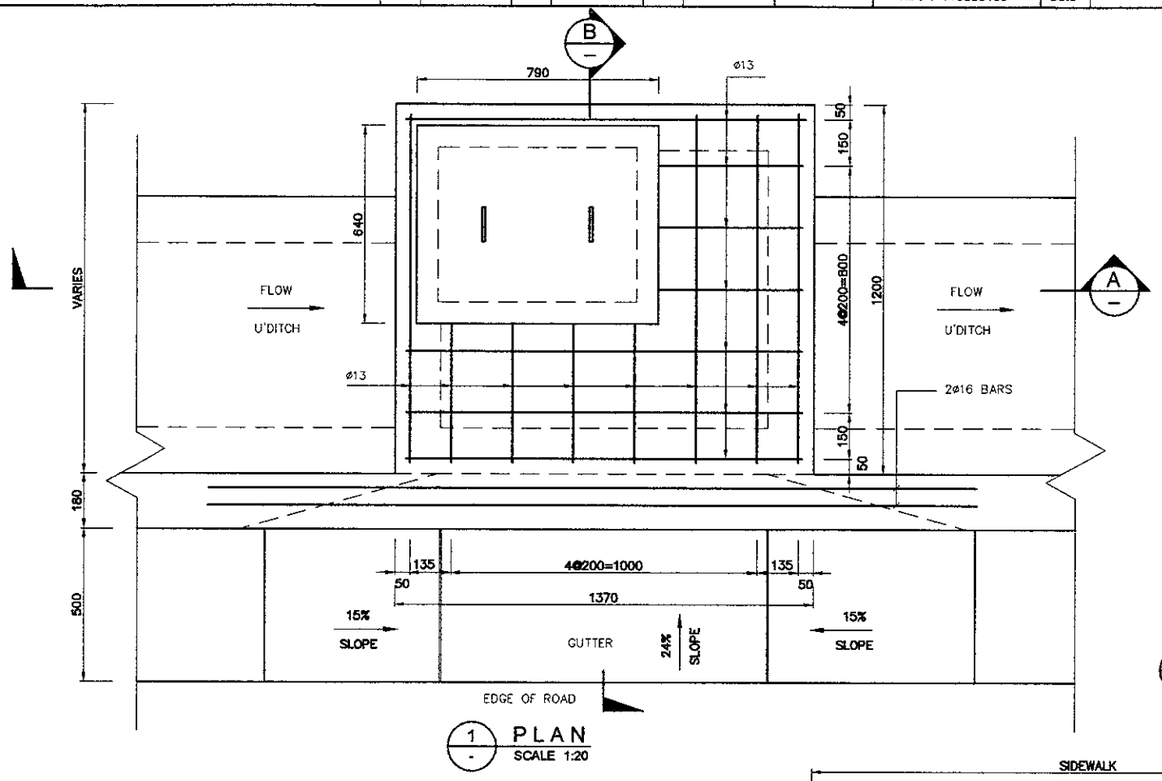
5A - SECTION
SCALE 1 : 40



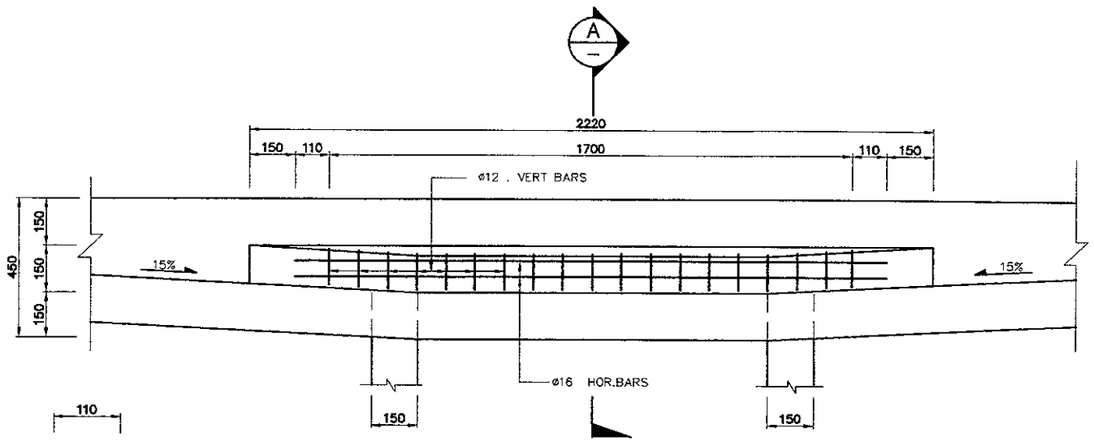
5B - FRONT ELEVATION
SCALE 1 : 40

V - MANHOLE TYPE - V

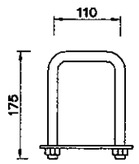
JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 20 1 : 10 FULL SIZE A3	DRAWING TITLE : DETAIL OF CURB INLET & COVER MANHOLE	DRAWING NO : BDG-013 SHEET NO : 13 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: ir. HERRY VAZA M,Eng.Sc, NIP. : 110038400				



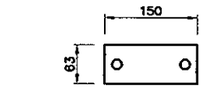
1 PLAN
SCALE 1:20



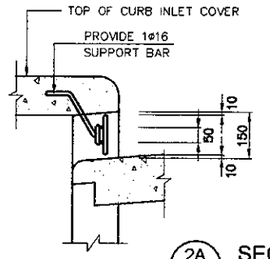
2 BAR GRATE VIEW
SCALE 1:20



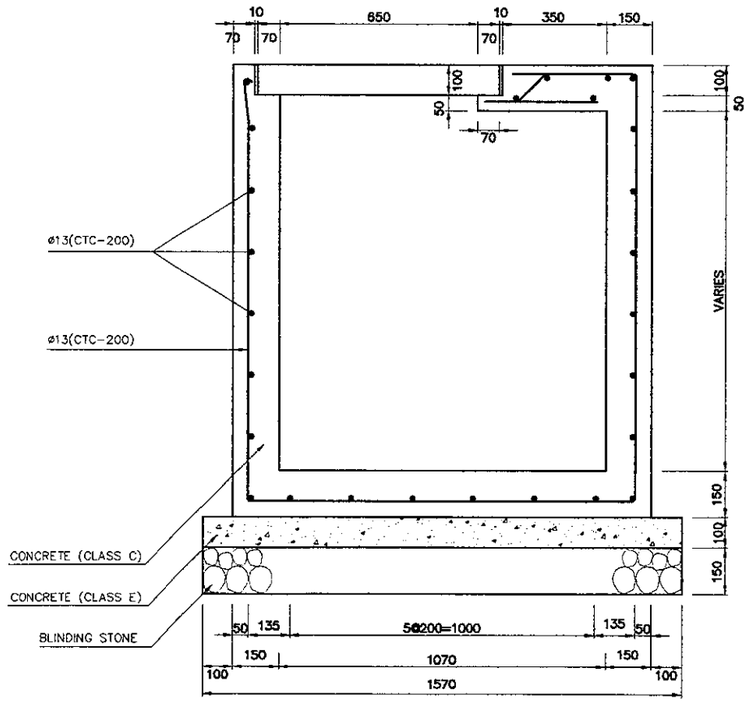
1 ELEVATION
SCALE 1:10



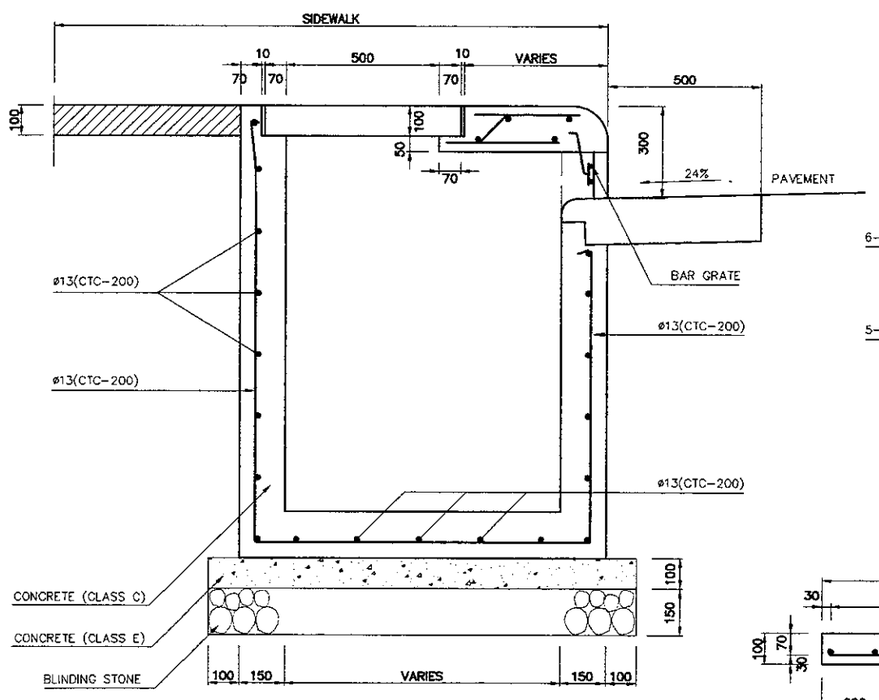
1 PLAN IRON DETAIL
SCALE 1:10



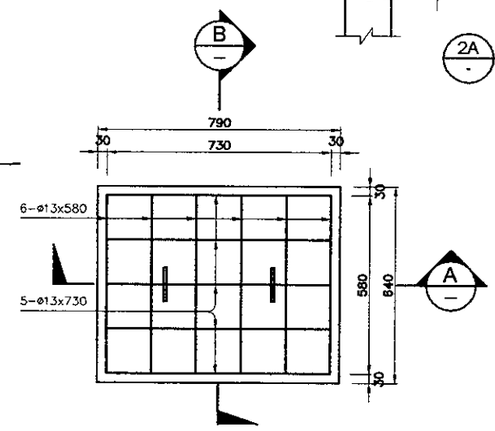
2A SECTION
SCALE 1:20



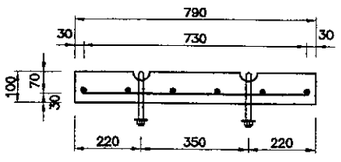
1A SECTION
SCALE 1:20



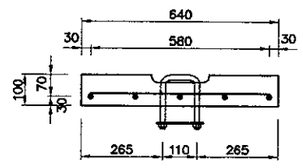
1B SECTION
SCALE 1:20



3 COVER VIEW
SCALE 1:20



3B SECTION
SCALE 1:20



3A SECTION
SCALE 1:20

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HIGHWAYS

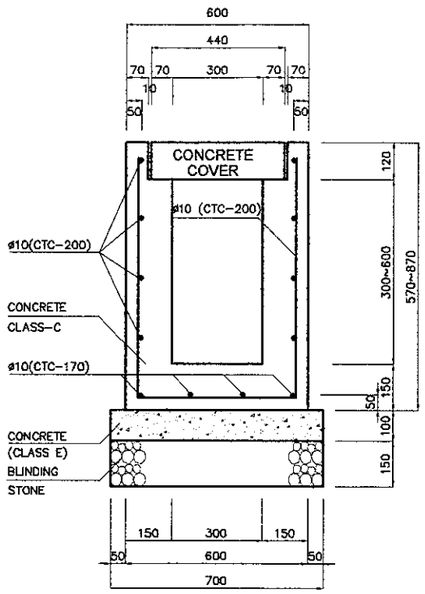
APPROVED BY | Ir. HERRY VAZA M,Eng,Sc | Sign |
NIP. : 110038400 | Date |

PROJECT AND LOCATION :
DETAILED DESIGN STUDY OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
BALARAJA FLYOVER - CONTRACT PACKAGE 1
(MERAK - BALARAJA)
BANTEN PROVINCE

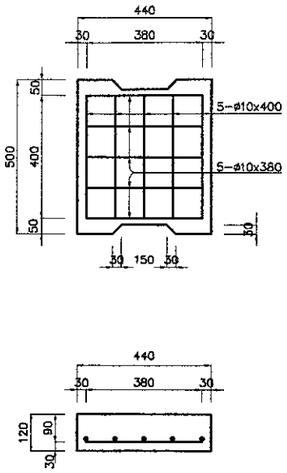
SCALE : 1 : 20
FULL SIZE A3

DRAWING TITLE :
DETAILS OF DRAINAGE DITCHES DS-1, DS-2, DS-3, DS-3A, DS-4 & DS-4A

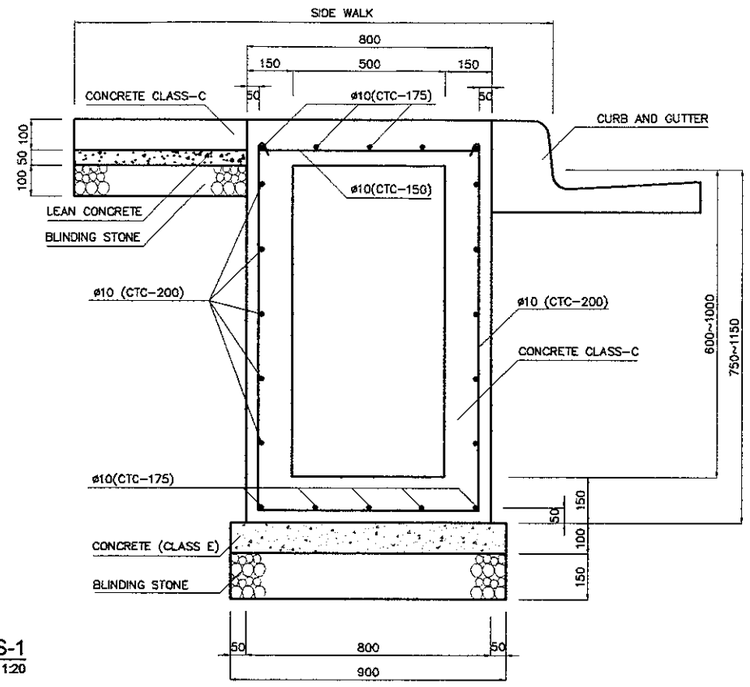
DRAWING NO : BDG-014
SHEET NO : 14 / 17



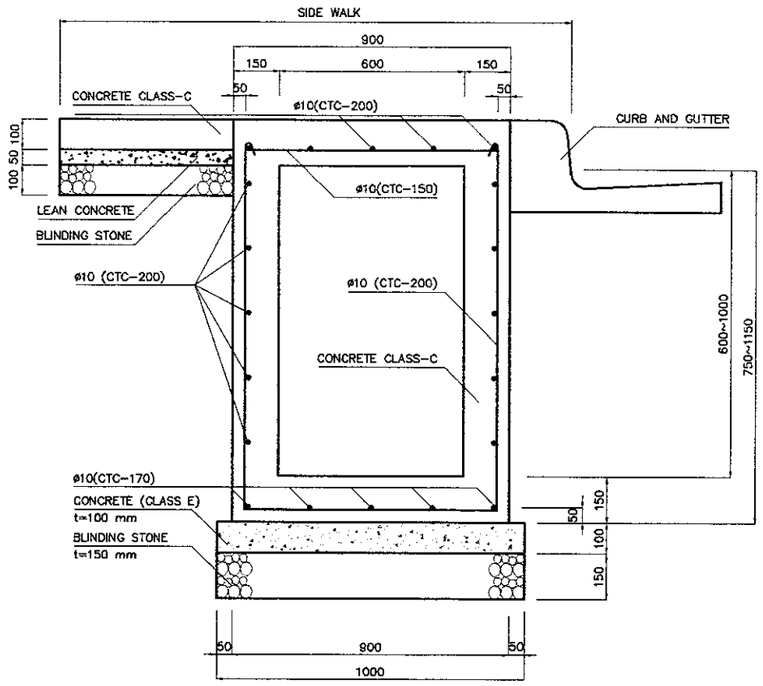
1 - DS - 1
SCALE 1:20



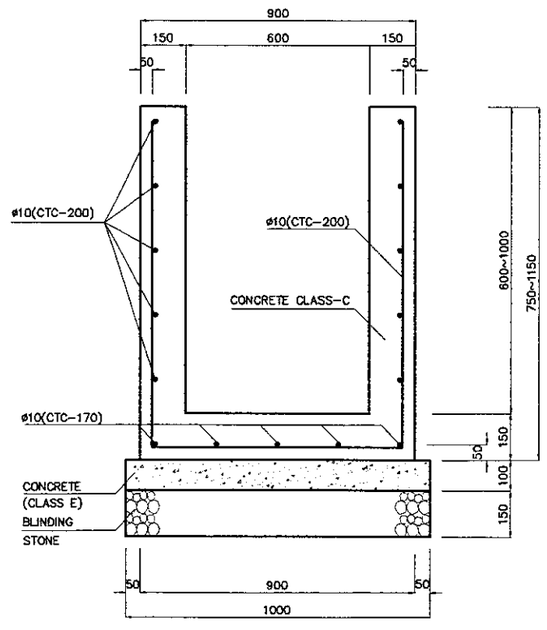
1A - CONCRETE COVER FOR DS-1
SCALE 1:20



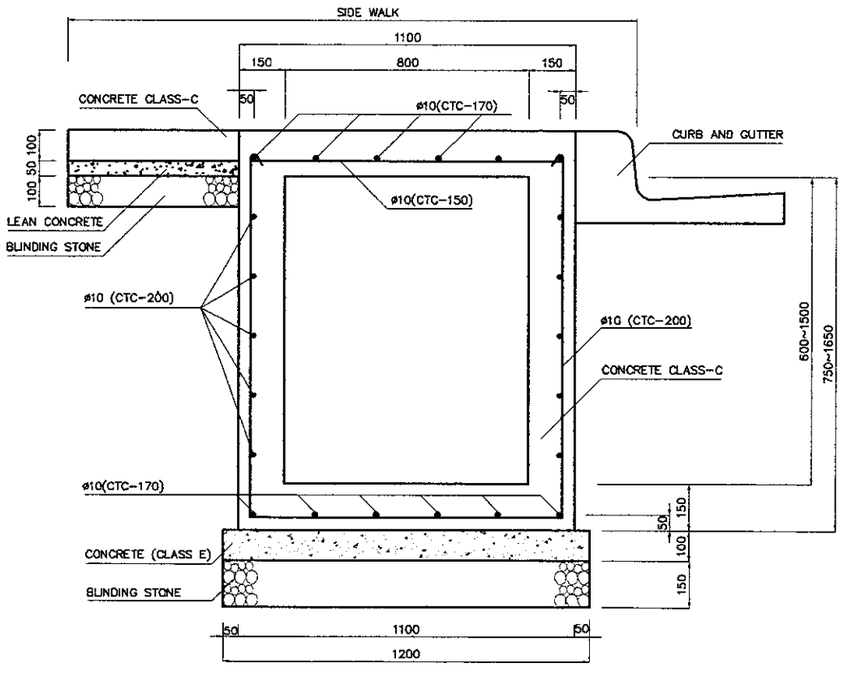
2 - DS - 2
SCALE 1:20



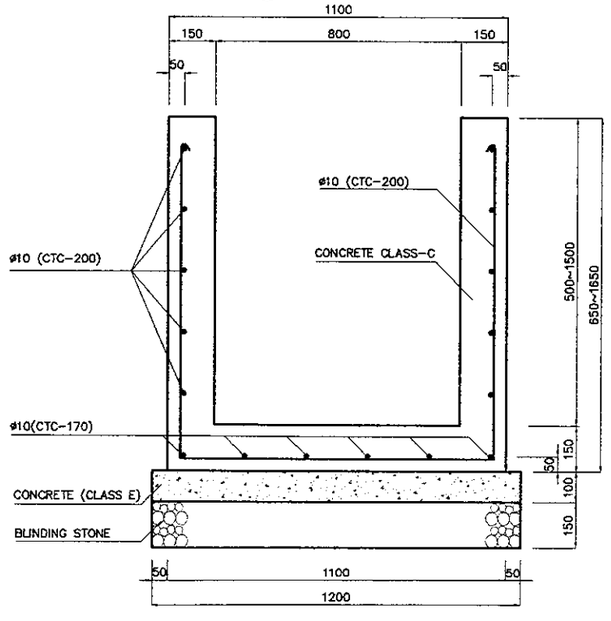
3 - DS - 3
SCALE 1:20



4 - DS - 3A
SCALE 1:20



5 - DS - 4
SCALE 1:20



6 - DS - 4A
SCALE 1:20

JAPAN INTERNATIONAL COOPERATION AGENCY / KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY	CHECKED BY	SUBMITTED BY
	Name: R. UENO	Name: T. OKUMURA	Name: M. KIUCHI
	Sign:	Sign:	Sign:
	Date:	Date:	Date:

REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HIGHWAYS

APPROVED BY: Ir. HERRY VAZA M,Eng.Sc (NIP. : 110038400) — Sign: — Date:

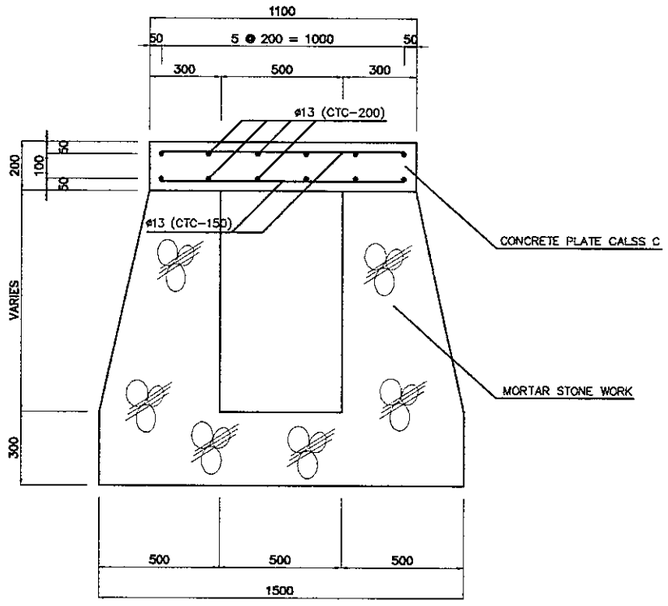
PROJECT AND LOCATION :
DETAILED DESIGN STUDY OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
BALARAJA FLYOVER - CONTRACT PACKAGE 1
(MERAK - BALARAJA)
BANTEN PROVINCE

SCALE : 1 : 25 — FULL SIZE A3

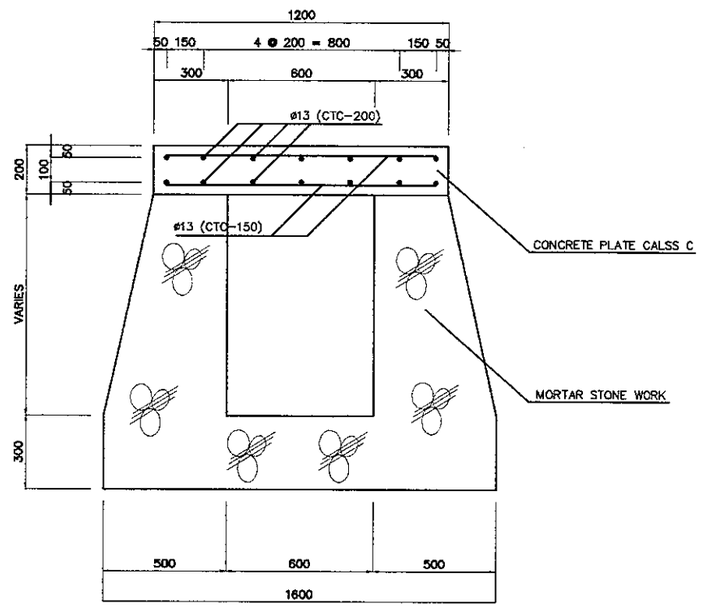
DRAWING TITLE :
DETAILS OF DRAINAGE MORTAL STONE WORK TYPE I, II,III & BOX CULVERT

DRAWING NO : BDG-015

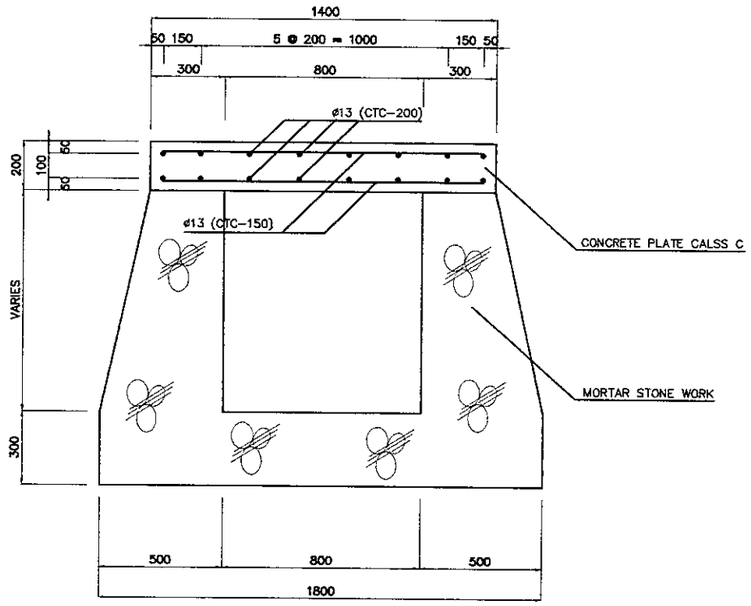
SHEET NO : 15 / 17



1 - MORTAR STONE WORK TYPE - I
SCALE 1:25



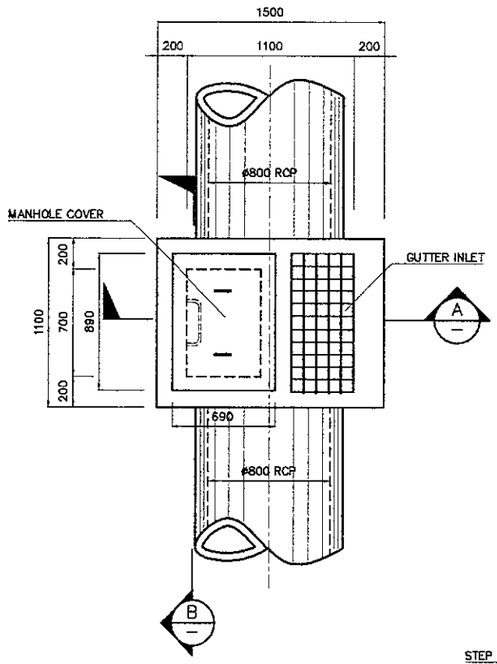
2 - MORTAR STONE WORK TYPE - II
SCALE 1:25



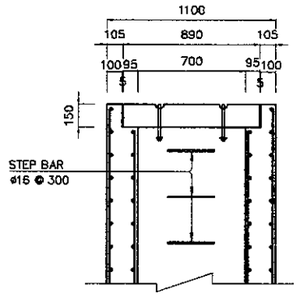
3 - MORTAR STONE WORK TYPE - III
SCALE 1:25

PRINTED: OCT. 19, 2006

JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 10 1 : 20 1 : 40 FULL SIZE A3	DRAWING TITLE : DRAINAGE DETAILS OF MANHOLE TYPE - IX & TYPE - X	DRAWING NO : BDG - 016 SHEET NO : 16 / 17
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI				
	Sign		Sign		Sign					
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400	Sign Date		

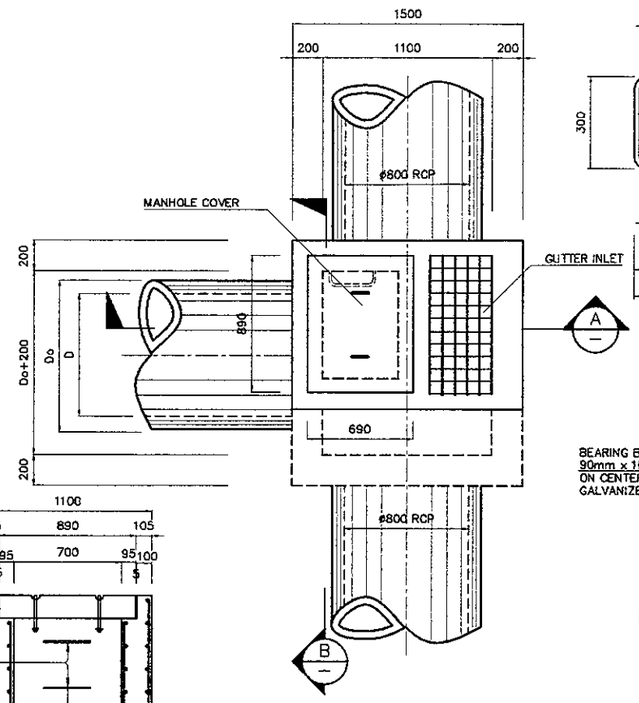


1 PLAN SCALE 1:40

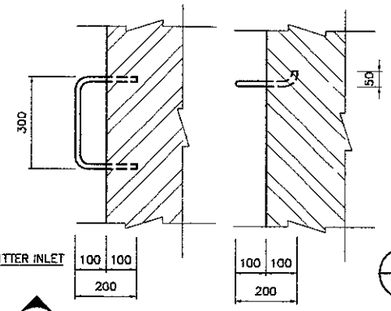


SECTION FOR MANHOLE TYPE IX

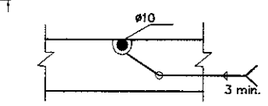
1B SCALE 1:40



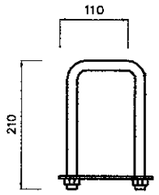
2 PLAN SCALE 1:40



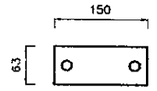
3 STEP DETAIL SCALE 1:20



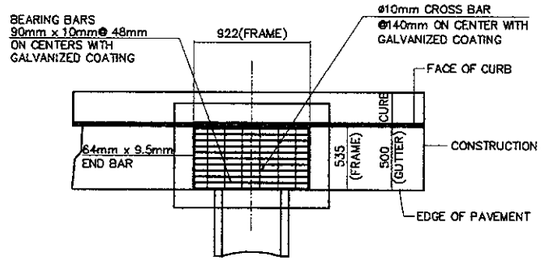
5 CROSS BAR DETAIL SCALE 1:20



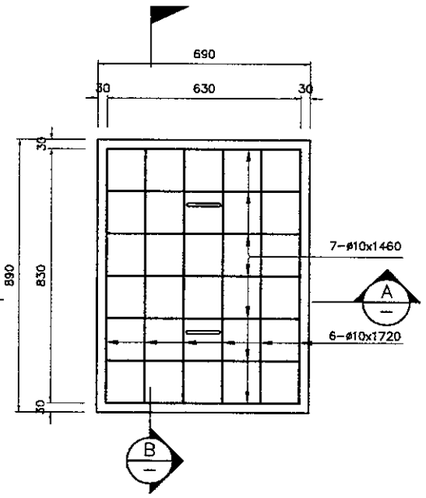
6 ELEVATION SCALE 1:10



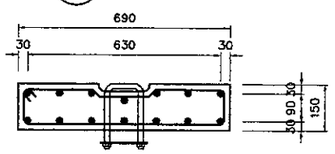
7 PLAN IRON DETAIL SCALE 1:10



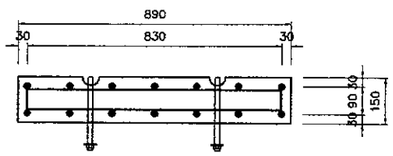
4 GUTTER INLET SCALE 1:40



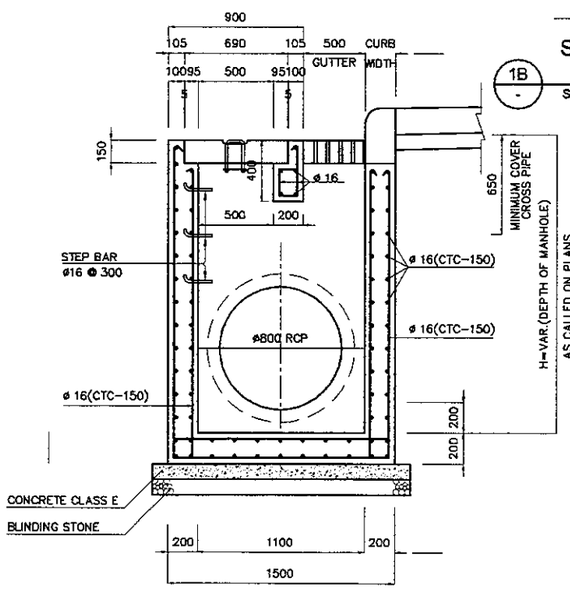
8 PLAN SCALE 1:20



8A SECTION SCALE 1:20

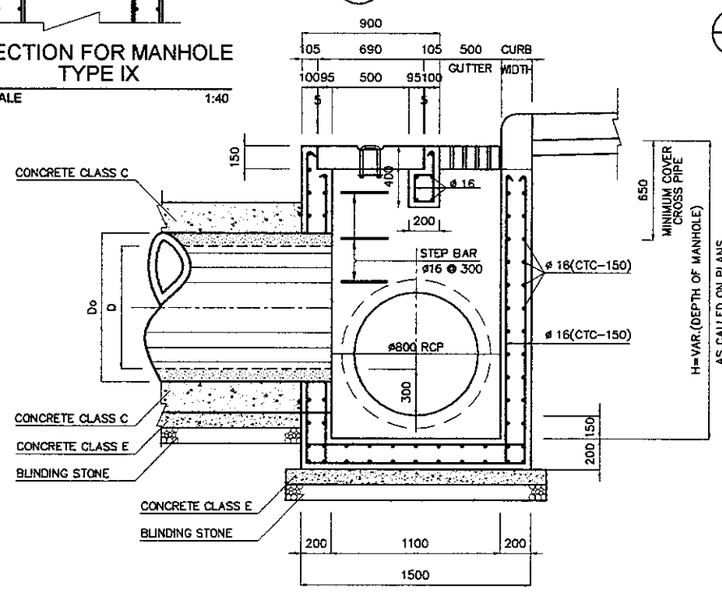


8B SECTION SCALE 1:20



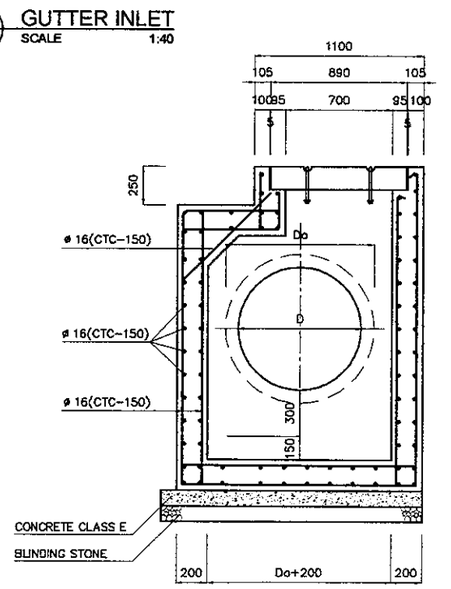
1A SECTION SCALE 1:40

GUTTER INLET MANHOLE DETAIL TYPE-IX



2A SECTION SCALE 1:40

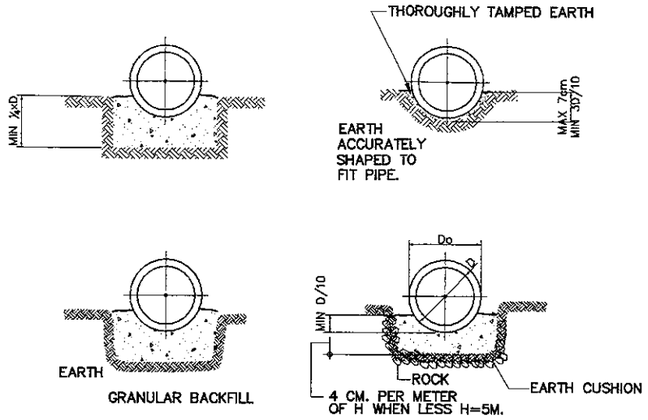
GUTTER INLET MANHOLE DETAIL TYPE-X



SECTION FOR MANHOLE TYPE X

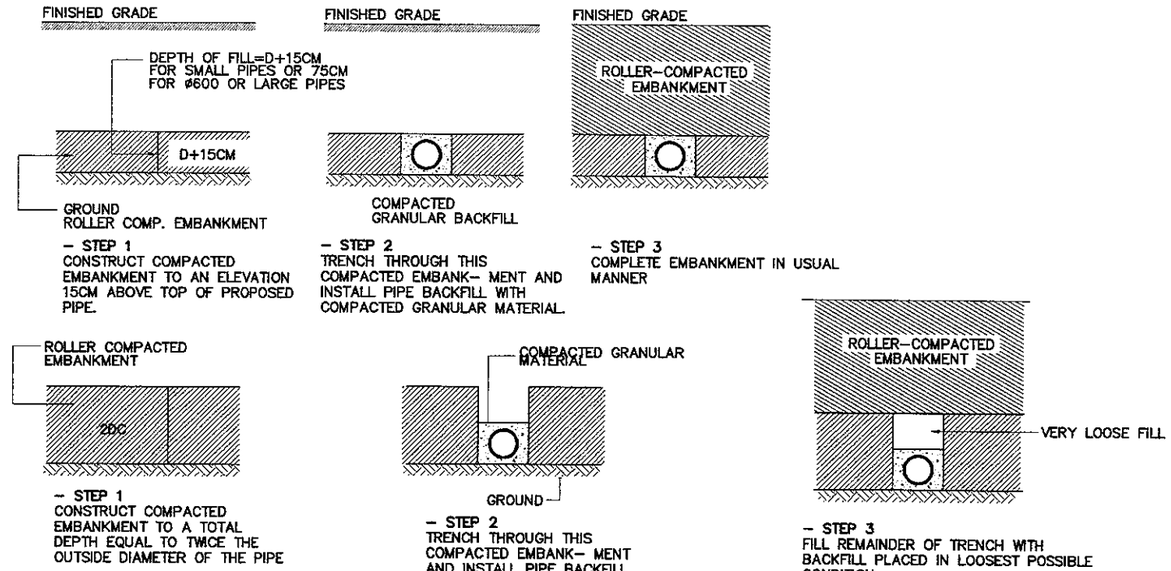
2B SCALE 1:40

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KEI KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS		PROJECT AND LOCATION :	SCALE :	DRAWING TITLE :	DRAWING NO :
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI			DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	1:20 N T S FULL SIZE A3	TRENCHING AND BEDDING DETAILS FOR CUT AREAS	BDG-017 SHEET NO : 17 / 17
	Sign		Sign		Sign		APPROVED BY	Ir. HERRY VAZA M,Eng.Sc NIP. : 11003840				
	Date		Date		Date			Sign Date				

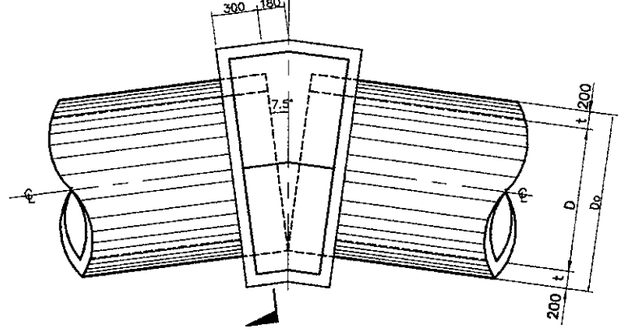


ORDINARY BEDDING

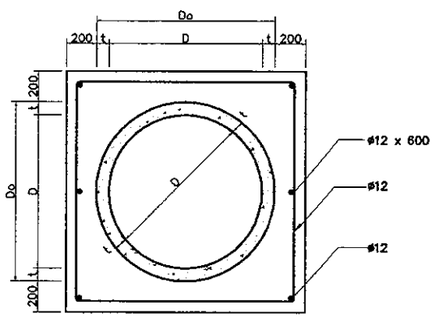
1 TYPICAL BEDDING FOR PROJECTING CONDUITS
SCALE NTS



2 METHODS OF PIPE INSTALLATION FOR FILL AREAS
SCALE NTS



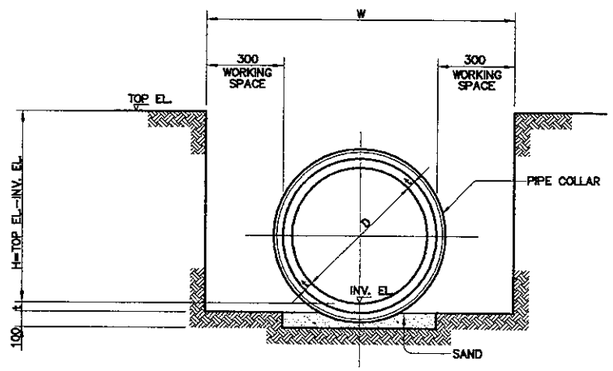
3 PLAN
SCALE 1:20



3A SECTION
SCALE 1:20

3 PIPE COLLAR AT BEND DETAILS
SCALE 1:20

STANDARD CONCRETE PIPE COLLAR		
PIPE DIAMETER (MM.)	CONCRETE (CU.M.)	REBARS (KG.)
460	0.493	8.5
610	0.656	10.0
760	0.842	11.0
910	1.056	12.5
1070	1.314	16.5
1220	1.586	19.0
1370	1.914	20.8
1520	2.241	22.5



4 FRONT VIEW
SCALE 1:20

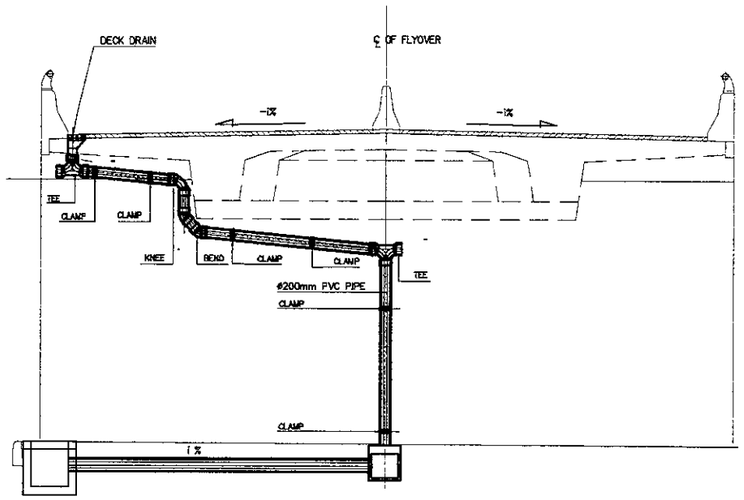
NOTES:

1. ALL DIMENSIONS SHOWN ON THIS PLAN ARE IN MILLIMETER UNITS OTHERWISE INDICATED.
2. D = INTERNAL DIAMETER.

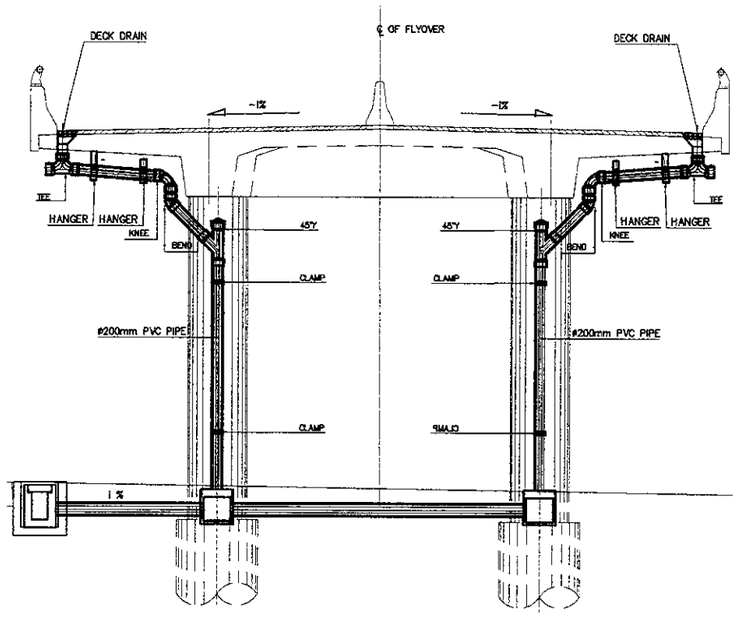
4 TRENCHING AND BEDDING DETAILS FOR CUT AREAS
SCALE 1:20

PRINTED: OCT. 19, 2006

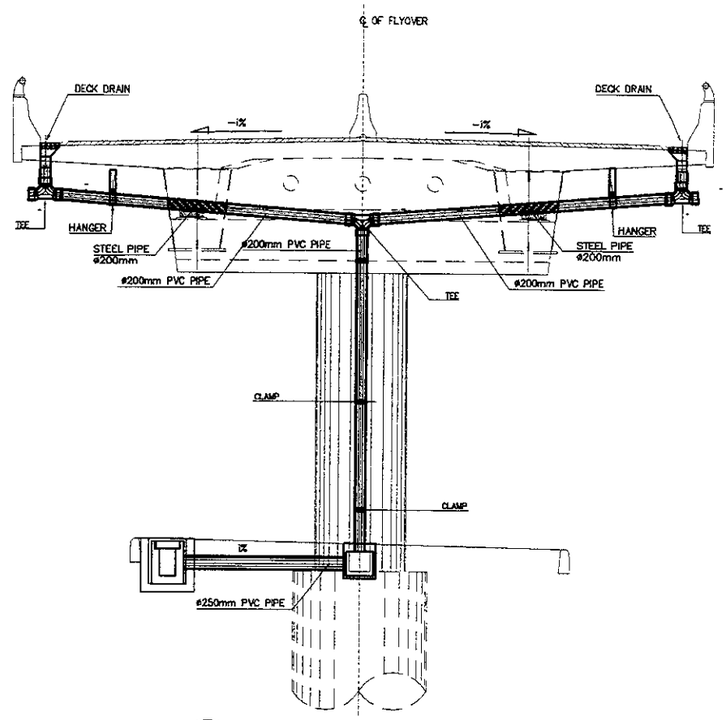
JICA JAPAN INTERNATIONAL COOPERATION AGENCY / KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY: Name R. UENO; Sign; Date	CHECKED BY: Name T. OKUMURA; Sign; Date	SUBMITTED BY: Name M. KIUCHI; Sign; Date	REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS; APPROVED BY ir. HERRY VAZA M,Eng.Sc; NIP. : 110038400; Sign; Date	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : NTS; FULL SIZE A3	DRAWING TITLE : DRAINAGE SCHEDULE AT FLYOVER	DRAWING NO : BDV-001; SHEET NO : 01 / 33



1 FRONT VIEW OF ABUTMENT
NTS



2 FRONT VIEW OF PC SECTION
NTS



3 FRONT VIEW OF STEEL SECTION
NTS

DRAINAGE SCHEDULE

BRIDGE TYPE	ABUTMENT/PIER NO	STATION LIMIT	LEFT SIDE: APPLIED HORIZONTAL DRAIN TYPE OF DRAIN	LEFT SIDE: APPLIED HORIZONTAL DRAIN LENGHT (m)	LEFT SIDE: DECK DRAIN TYPE II	RIGHT SIDE: DECK DRAIN TYPE II	RIGHT SIDE: APPLIED HORIZONTAL DRAIN LENGHT (m)	RIGHT SIDE: APPLIED HORIZONTAL DRAIN TYPE OF DRAIN	PIPE ø200mm (m)	ACCESSORIES: BEND (unit)	TEE (unit)	KNEE (unit)	45°Y (unit)	CLEAN OUT (unit)
PC	A1	0+399.00	NONE	NONE	1	1	NONE	NONE	13.9	4	3	2	0	2
	P1	0+419.00			1	1			13.9	2	2	2	2	2
	P2	0+439.00			1	1			15.2	2	2	2	2	2
STEEL	P3	0+459.00	SURFACE DOWN	25.00	1	1	25.00	SURFACE DOWN	16.9	0	3	0	0	2
	P4	0+484.00		NONE	NONE	NONE	NONE		0	0	0	0	0	0
	P5	0+515.00		31.00	1	1	31.00		16.3	0	3	0	0	2
	P6	0+540.00		25.00	1	1	25.00		14.1	2	2	2	2	2
PC	P7	0+560.00	NONE	NONE	NONE	1	NONE	NONE	6.4	1	1	1	1	1
	P8	0+580.00				1			6.8	1	1	1	1	1
	P9	0+600.00				1			6.1	1	1	1	1	1
	A2	0+620.00				1			7.6	2	2	1	0	1

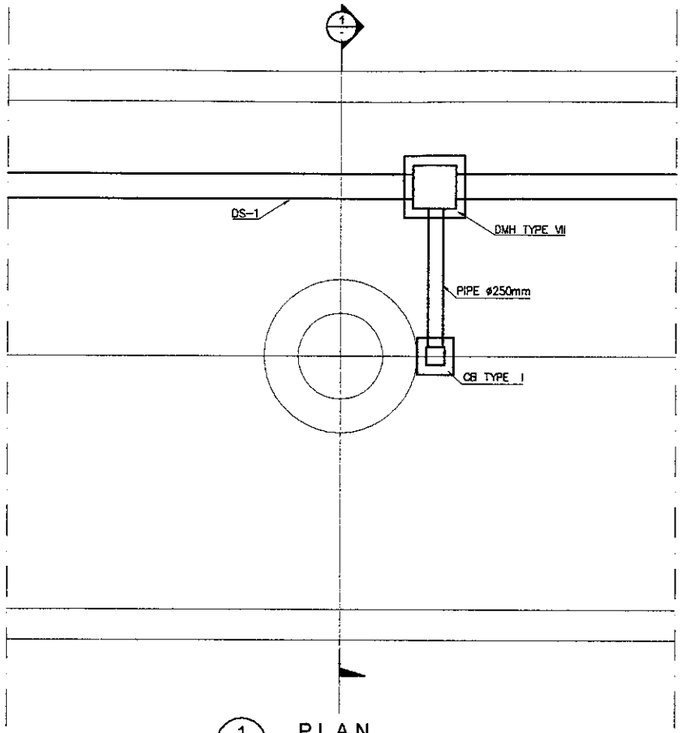
APPROACH 1

STA	DECK DRAIN TYPE II	POSITION: LEFT	POSITION: RIGHT	PIPE: SIZE (ø,mm)	PIPE: LENGHT (m)	ACCESSORIES: KNEE (unit)	ACCESSORIES: TEE 250X200 (unit)
0+259.00	DD-1R	NONE	1	200	0.10	2	0
0+279.00	DD-2R	NONE	1	200	0.54	1	1
0+299.00	DD-3R	NONE	1	200	1.19	1	1
0+319.00	DD-4R/DD-4L	1	1	200	3.54	2	0
0+339.00	DD-5R/DD-5L	1	1	200	5.65	2	0
0+359.00	DD-6R/DD-6R	1	1	200	7.55	2	0
0+379.00	DD-7R/DD-7L	1	1	200	9.34	2	0

APPROACH 2

STA	DECK DRAIN TYPE II	POSITION: LEFT	POSITION: RIGHT	PIPE: SIZE (ø,mm)	PIPE: LENGHT (m)	ACCESSORIES: KNEE (unit)	ACCESSORIES: TEE 250X200 (unit)
0+640.00	DD-7R	NONE	1	200	3.85	1	0
0+660.00	DD-6R	NONE	1	200	2.73	1	0
0+680.00	DD-5R/DD-5L	1	1	200	3.20	2	0
0+700.00	DD-4R/DD-4L	1	1	200	2.03	2	1
0+720.00	DD-3R/DD-3L	1	1	200	1.53	2	1
0+740.00	DD-2R/DD-2L	1	1	200	1.41	2	1

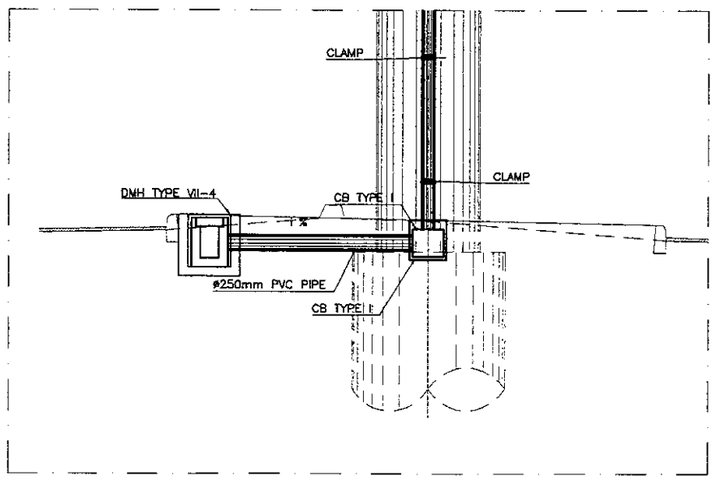
JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY: Name R. UENO; Sign; Date	CHECKED BY: Name T. OKUMURA; Sign; Date	SUBMITTED BY: Name M. KIUCHI; Sign; Date	REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS APPROVED BY: Ir. HERRY VAZA M,Eng.Sc; NIP. : 110038400; Sign; Date	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : NTS FULL SIZE A3	DRAWING TITLE : DRAINAGE SCHEDULE UNDER FLYOVER	DRAWING NO : BDV-002 SHEET NO : 02 / 33



1 - PLAN
NOT TO SCALE

DRAINAGE SCHEDULE

FROM MH	TO MH	LOCATION	LENGTH (m)	U'DITCH/PIPE SLOPE(%)	INVERT ELEV. (m) UPSTREAM	INVERT ELEV. (m) DOWNSTREAM	REMARKS
CB TYPE I-2	CB TYPE I-3	P1-P1	5.7	1.00	19.803	19.746	PIPE ø250
CB TYPE I-3	DMH TYPE VII-2	P1-P1	3	1.00	19.746	19.716	PIPE ø250
DMH TYPE VII-2	DMH TYPE VII-1	P1-A1	19.3	2.00	19.716	19.330	U'DITCH DS 1
DMH TYPE VII-1B	DMH TYPE VII-1A	A1-A1	6	0.50	19.484	19.452	U'DITCH DS 1
DMH TYPE VII-1A	DMH TYPE VII-1	A1-A1	6	2.00	19.452	19.330	U'DITCH DS 1
DMH TYPE VII-1	DMH-66	A1-A1	5	1.00	19.330	19.803	RCP ø600 (B)
CB TYPE I-8	CB TYPE I-9	P6-P6	5.6	1.00	20.439	20.383	PIPE ø250
CB TYPE I-9	DMH TYPE VII-6	P6-P6	1.7	1.00	20.383	20.366	PIPE ø250
DMH TYPE VII-6	DMH TYPE VII-5	P6-P5	24	2.00	20.366	19.886	U'DITCH DS 1
DMH TYPE VII-5	DMH TYPE VII-4	P5-P3	52.5	1.00	19.886	19.361	U'DITCH DS 1
CB TYPE I-7	DMH TYPE VII-5	P5-P5	1.6	3.00	19.934	19.886	PIPE ø250
DMH TYPE VII-4	DMH TYPE VII-3	P3-P2	19	1.00	19.361	19.171	U'DITCH DS 1
CB TYPE I-6	DMH TYPE VII-4	P3-P3	2.3	3.00	19.430	19.361	PIPE ø250
CB TYPE I-4	CB TYPE I-5	P2-P2	5.7	3.50	19.774	19.574	PIPE ø250
CB TYPE I-5	DMH TYPE VII-3	P2-P2	1.4	3.50	19.574	19.171	PIPE ø250
DMH TYPE VII-3	DMH-68	P2-P2	6	2.00	19.171	19.051	RCP ø600 (B)
CB TYPE I-10	DMH TYPE VII-7	P7-P7	8.8	2.00	19.983	19.807	PIPE ø250
DMH TYPE VII-7	DMH TYPE VII-8	P7-P8	18.5	3.00	19.807	19.252	U'DITCH DS 1
CB TYPE I-11	DMH TYPE VII-8	P8-P8	8.9	2.00	19.430	19.252	PIPE ø250
DMH TYPE VII-8	DMH-75	P8-P8	5	2.00	19.252	19.132	RCP ø600 (B)
CB TYPE I-12	DMH TYPE VII-9	P9-P9	2.5	2.00	19.477	19.427	PIPE ø250
DMH TYPE VII-9	DMH TYPE VII-10	P9-A2	19.4	3.00	19.427	18.845	U'DITCH DS 1
DMH TYPE VII-10	DMH TYPE VII-11	A2-A2	6	3.00	18.845	18.665	U'DITCH DS 1
DMH TYPE VII-11	DMH-77	A2-A2	5	2.00	18.665	18.545	RCP ø600 (B)



1 - SECTION 1-1
NOT TO SCALE

DRAINAGE ALONG APPROACH LEFT SIDE

FROM STA/MH	TO STA/MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	U'DITCH/PIPE SLOPE(%)
0+259.00	0+279.00	-	-	-
0+279.00	0+299.00	-	-	-
0+299.00	0+319.00	-	-	-
0+319.00	0+339.00	U'DITCH DS 5	20	0.30
0+339.00	0+359.00	U'DITCH DS 5	20	0.30
0+359.00	0+379.00	U'DITCH DS 5	20	0.30
0+379.00	DMH TYPE VII-1	U'DITCH DS 5	6.5	0.30

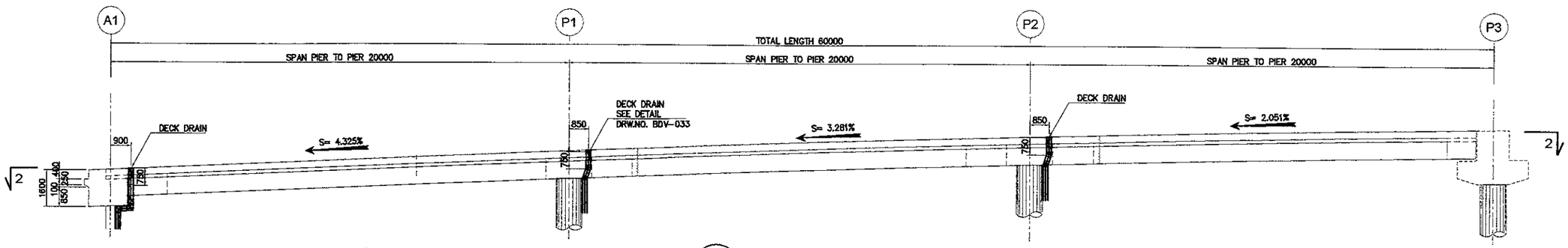
FROM STA/MH	TO STA/MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	U'DITCH/PIPE SLOPE(%)
0+640.00	0+660.00	-	-	-
0+660.00	0+680.00	-	-	-
0+680.00	0+700.00	U'DITCH DS 5	20	0.44
0+700.00	0+720.00	PIPE ø250	20	2.59
0+720.00	0+740.00	PIPE ø250	20	4.75
0+740.00	DMH VIII-2	PIPE ø250	20	5.06
DMH VIII-2	DMH-86	RCP ø600 (B)	5	0.50

DRAINAGE ALONG APPROACH RIGHT SIDE

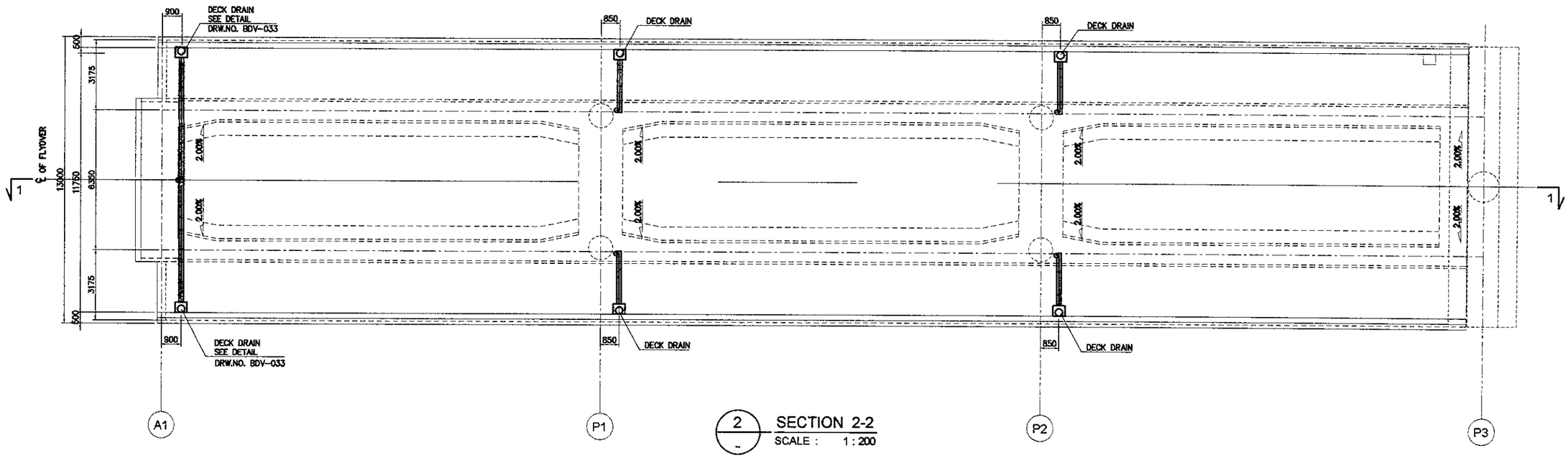
FROM STA/MH	TO STA/MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	U'DITCH/PIPE SLOPE(%)
0+259.00	0+279.00	PIPE ø250	20	0.47
0+279.00	0+299.00	PIPE ø250	20	0.47
0+299.00	0+319.00	U'DITCH DS 5	20	0.47
0+319.00	0+339.00	U'DITCH DS 5	20	0.47
0+339.00	0+359.00	U'DITCH DS 5	20	0.47
0+359.00	0+379.00	U'DITCH DS 5	20	0.47
0+379.00	DMH TYPE VII-1B	U'DITCH DS 5	6.5	0.47

FROM STA/MH	TO STA/MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	U'DITCH/PIPE SLOPE(%)
0+640.00	0+660.00	U'DITCH DS 5	20	0.3
0+660.00	0+680.00	U'DITCH DS 5	20	0.3
0+680.00	0+700.00	U'DITCH DS 5	20	0.3
0+700.00	0+720.00	PIPE ø250	20	4.82
0+720.00	0+740.00	PIPE ø250	20	4.82
0+740.00	DMH VIII-1	PIPE ø250	15	4.82
DMH VIII-1	DMH-37	RCP ø600 (B)	5	0.50

JICA JAPAN INTERNATIONAL COOPERATION AGENCY KEI KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY	Name	R. UENO	CHECKED BY	Name	T. OKUMURA	SUBMITTED BY	Name	M. KIUCHI	PROJECT AND LOCATION : DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT BALARAJA FLYOVER - CONTRACT PACKAGE 1 (MERAK - BALARAJA) BANTEN PROVINCE	SCALE : 1 : 200 FULL SIZE A3	DRAWING TITLE : DRAINAGE PLAN AND ELAVATION AT VIADUCT 1 OF 5	DRAWING NO : BDV-003
		Sign			Sign			Sign					SHEET NO : 03 / 33
		Date			Date			Date					
REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS	APPROVED BY	Ir. HERRY VAZA M,Eng.Sc		Sign							
		NIP. : 110038400		Date							



1 SECTION 1-1
SCALE : 1 : 200



2 SECTION 2-2
SCALE : 1 : 200

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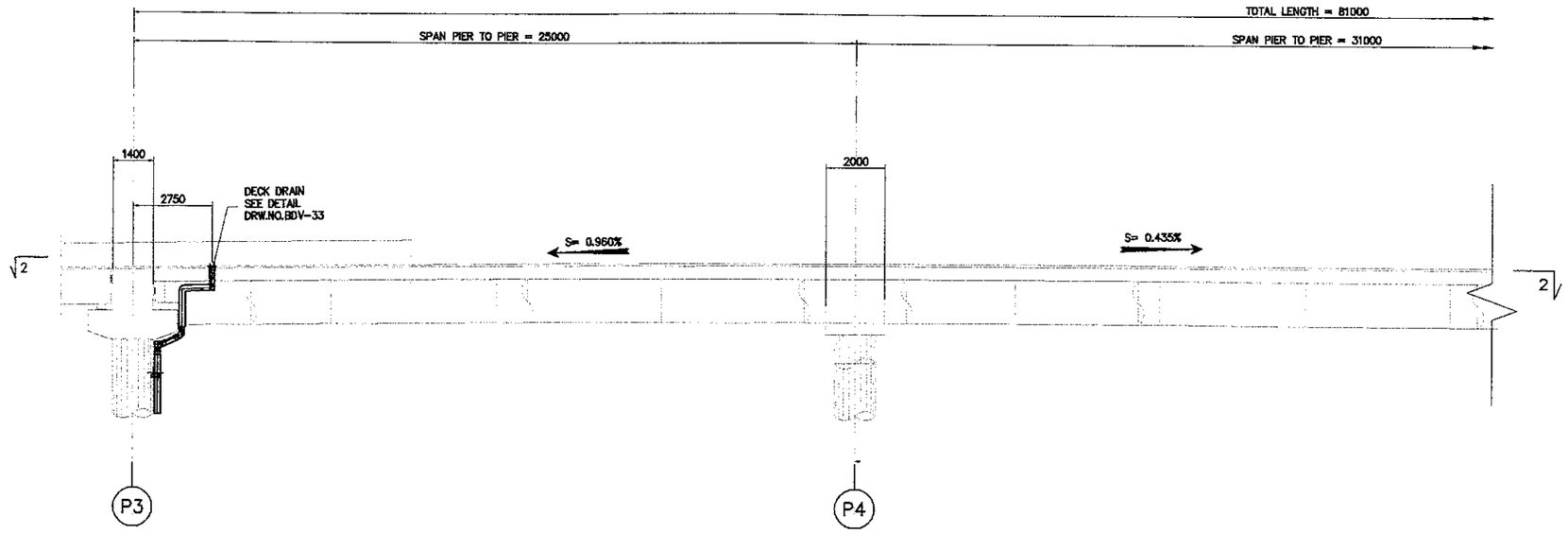
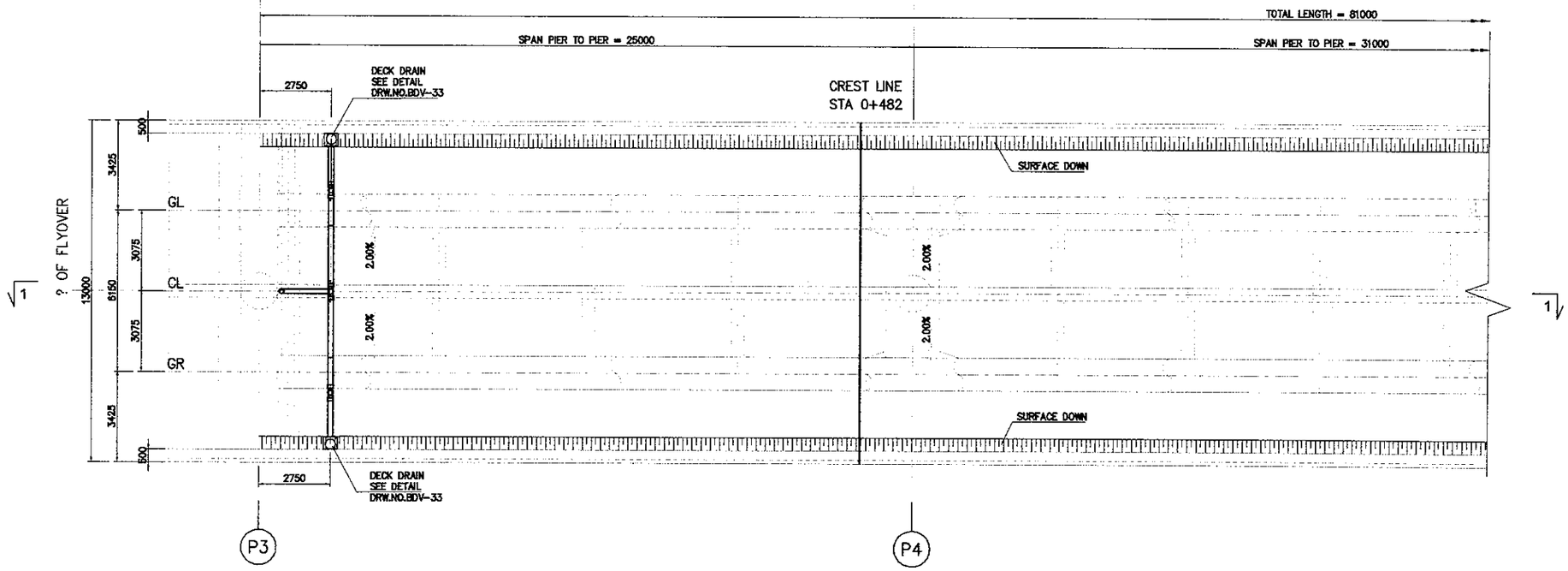
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY	Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400			
								Sign Date			



1 / - SECTION 1-1
SCALE 1 : 200



2 / - SECTION 2-2
SCALE 1 : 200

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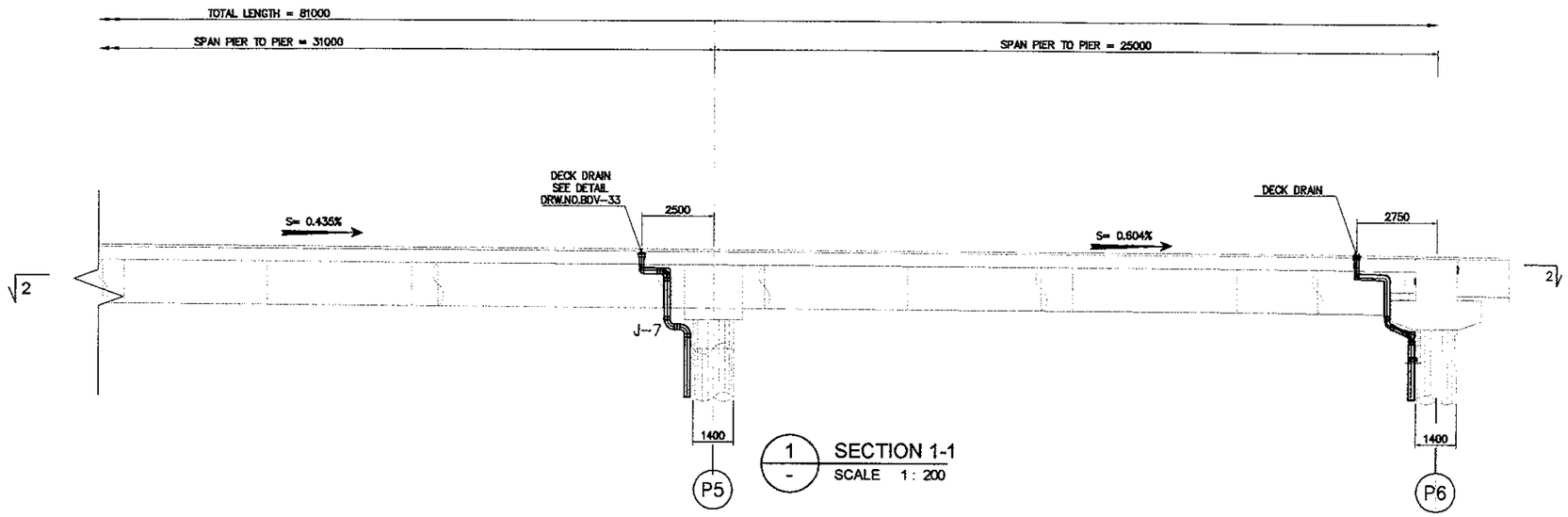
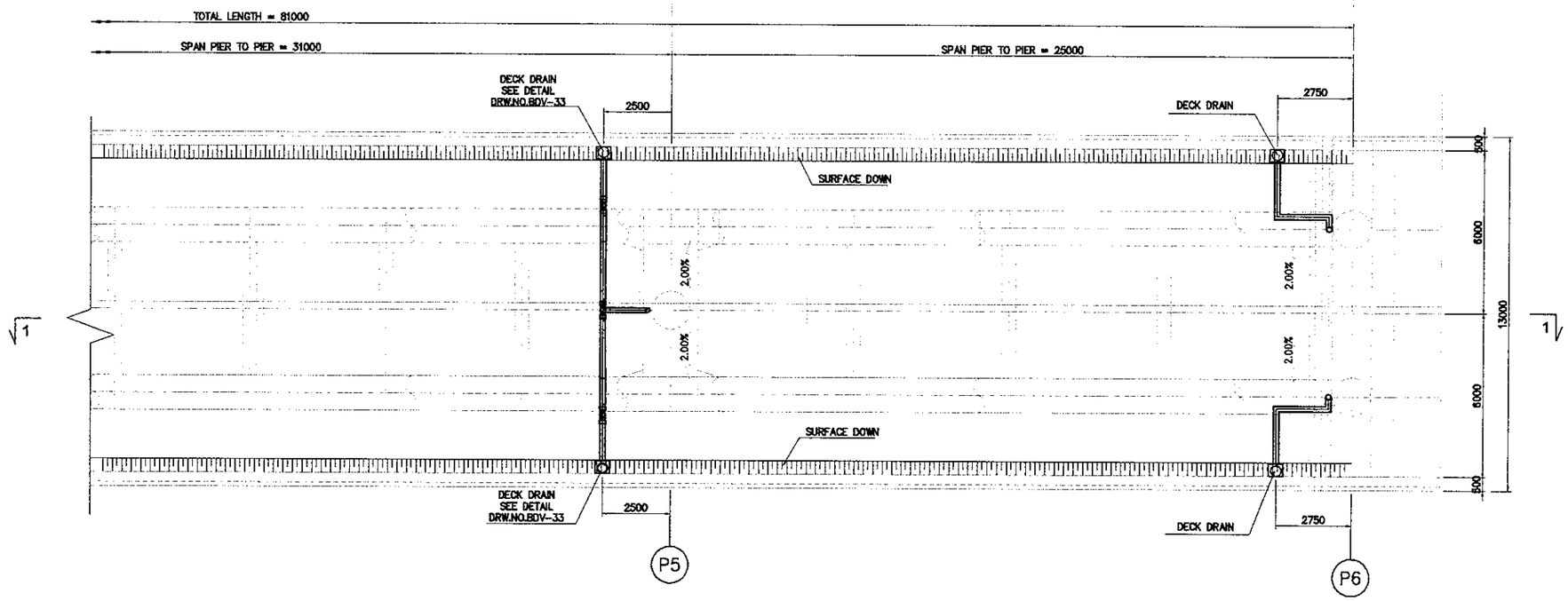
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY	Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400	Sign Date		



1 / - SECTION 1-1
SCALE 1 : 200



2 / - SECTION 2-2
SCALE 1 : 200

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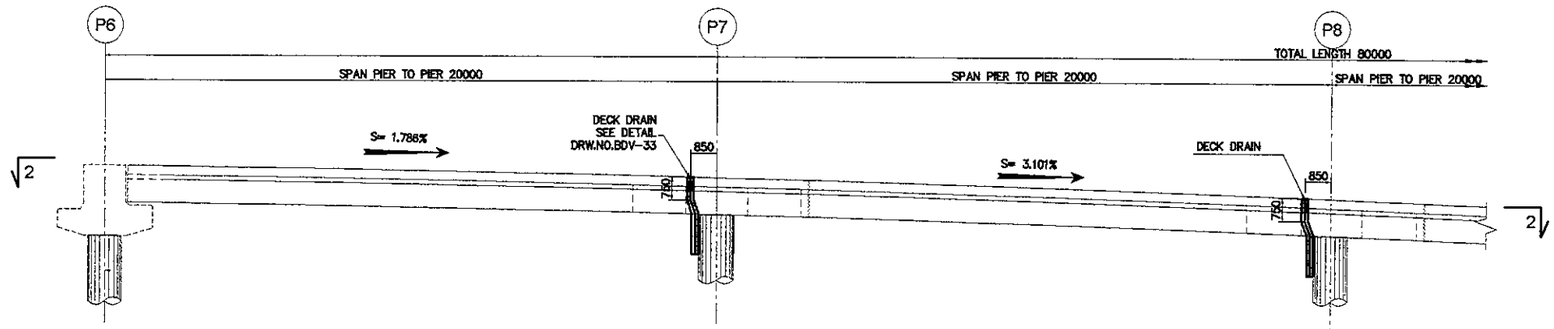
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY : Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date				



1 / - SECTION 1-1
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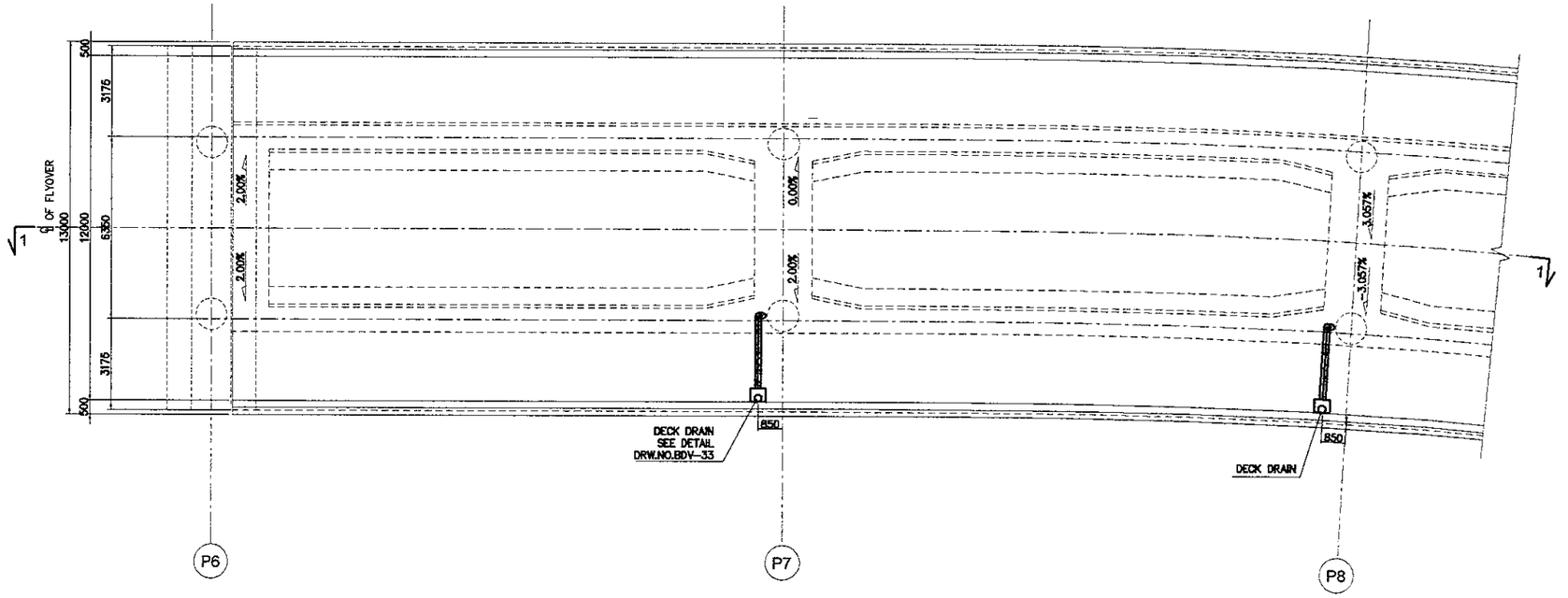

2 / - SECTION 2-2
SCALE : 1 : 200

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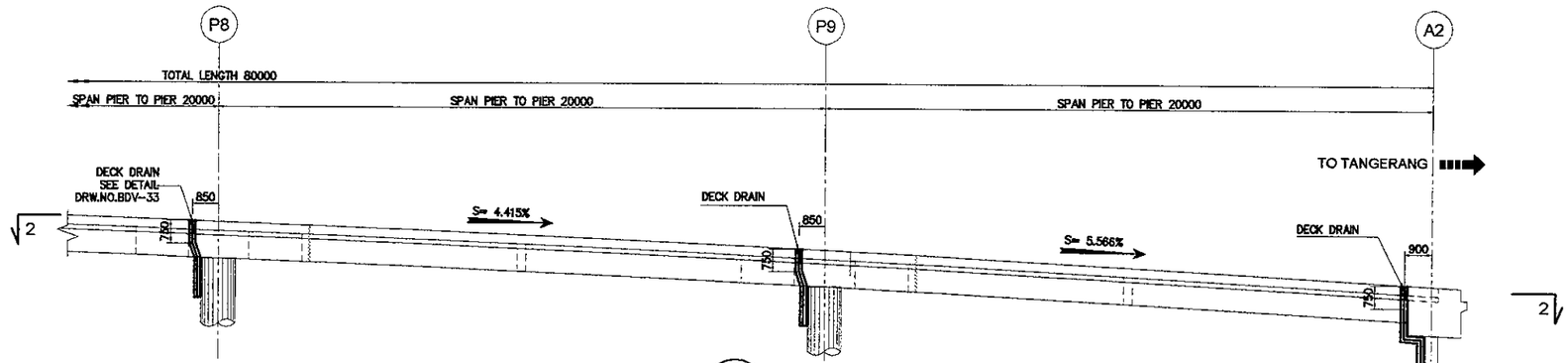
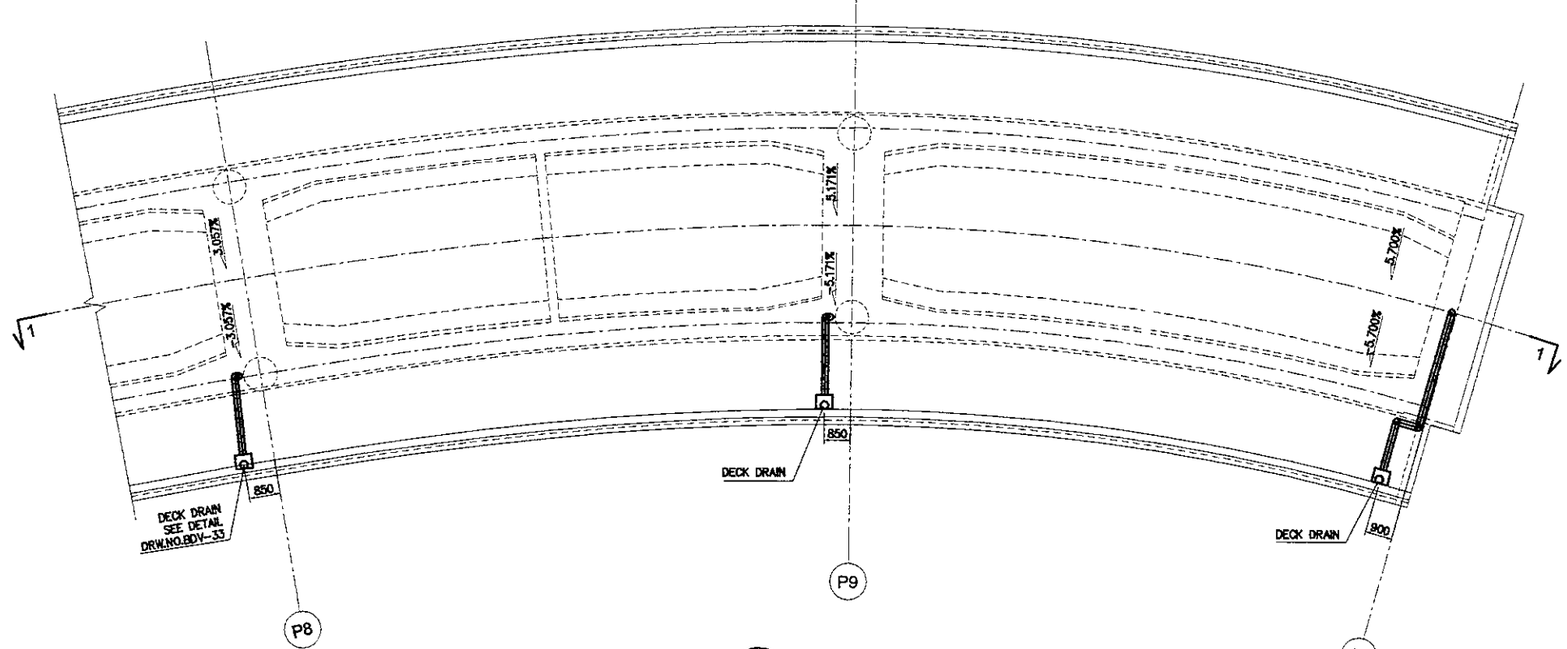
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date				



1 / - SECTION 1-1
SCALE : 1 : 200



2 / - SECTION 2-2
SCALE : 1 : 200

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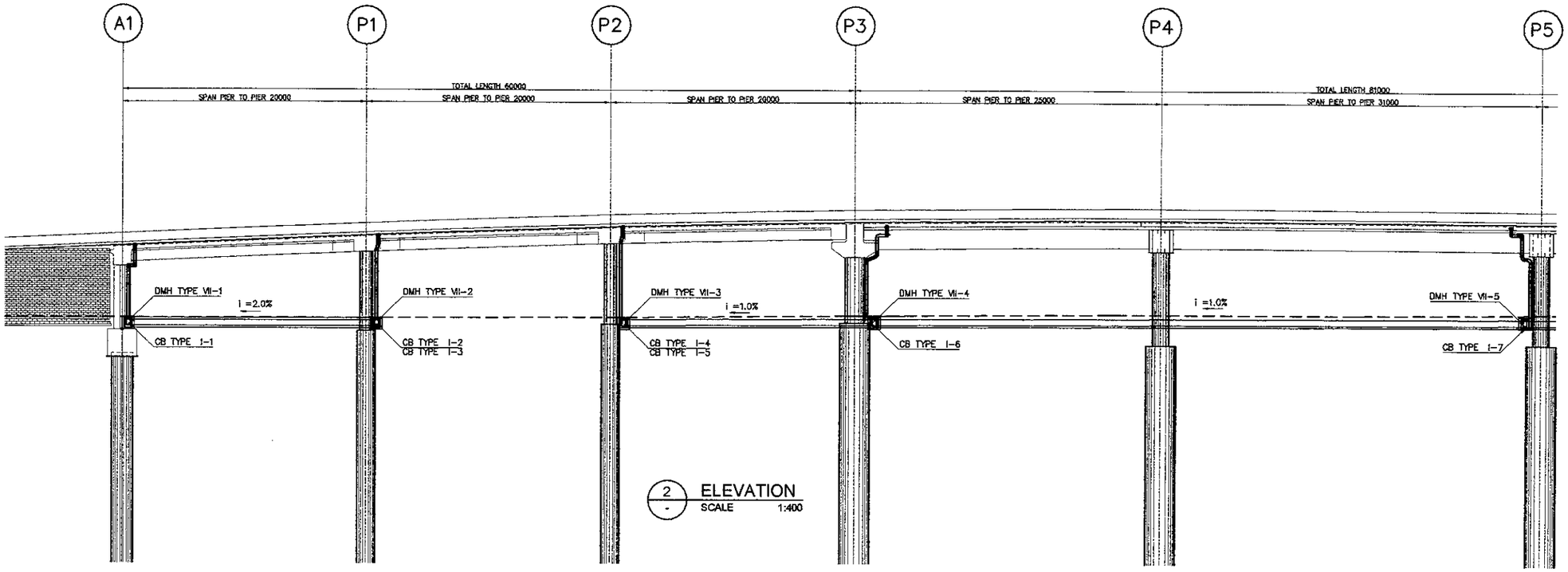
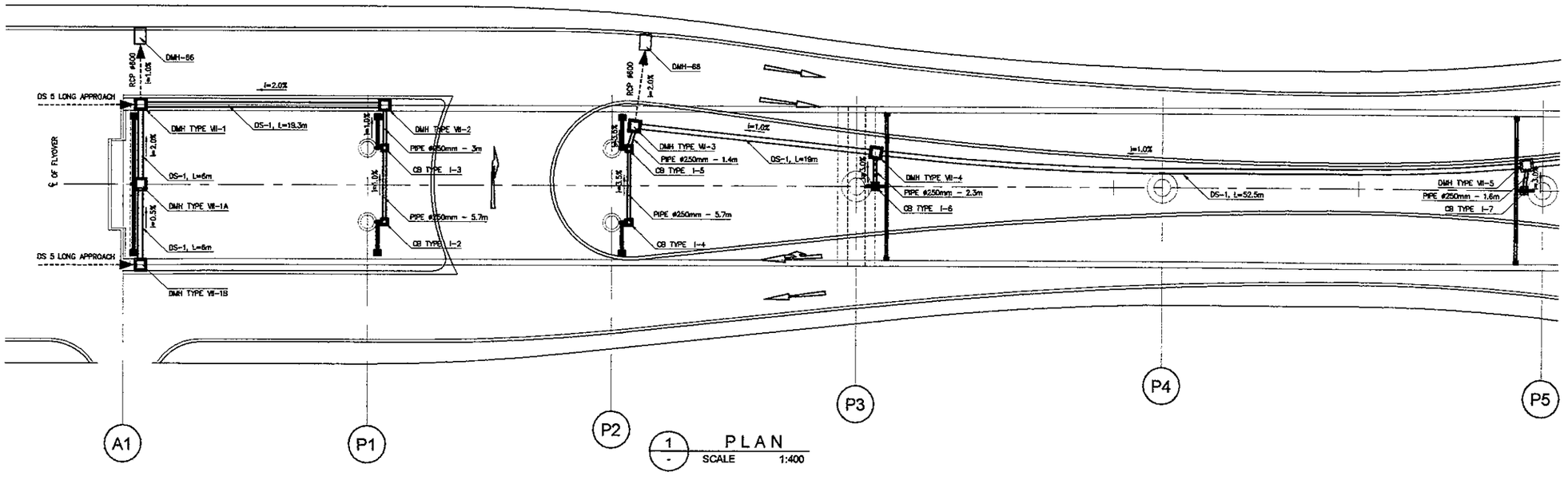
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign		APPROVED BY: ir. HERRY VAZA M,Eng.Sc NIP. : 110038400	Sign Date			
	Date		Date		Date						





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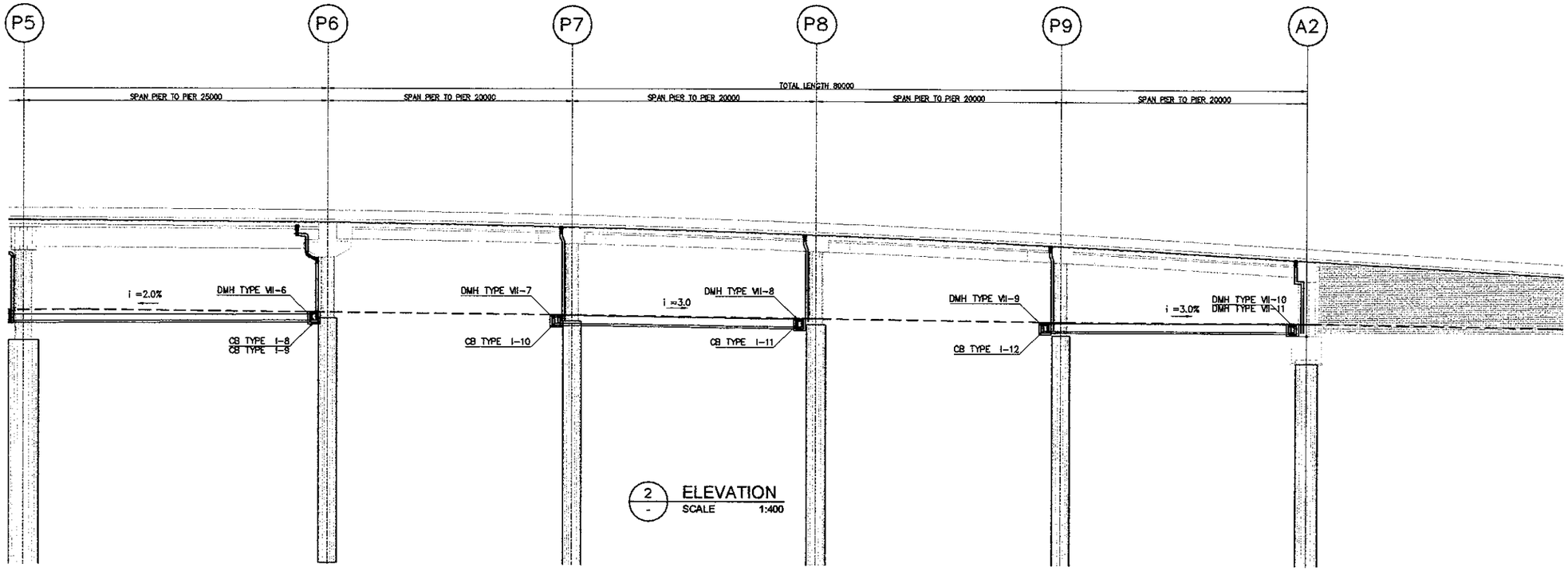
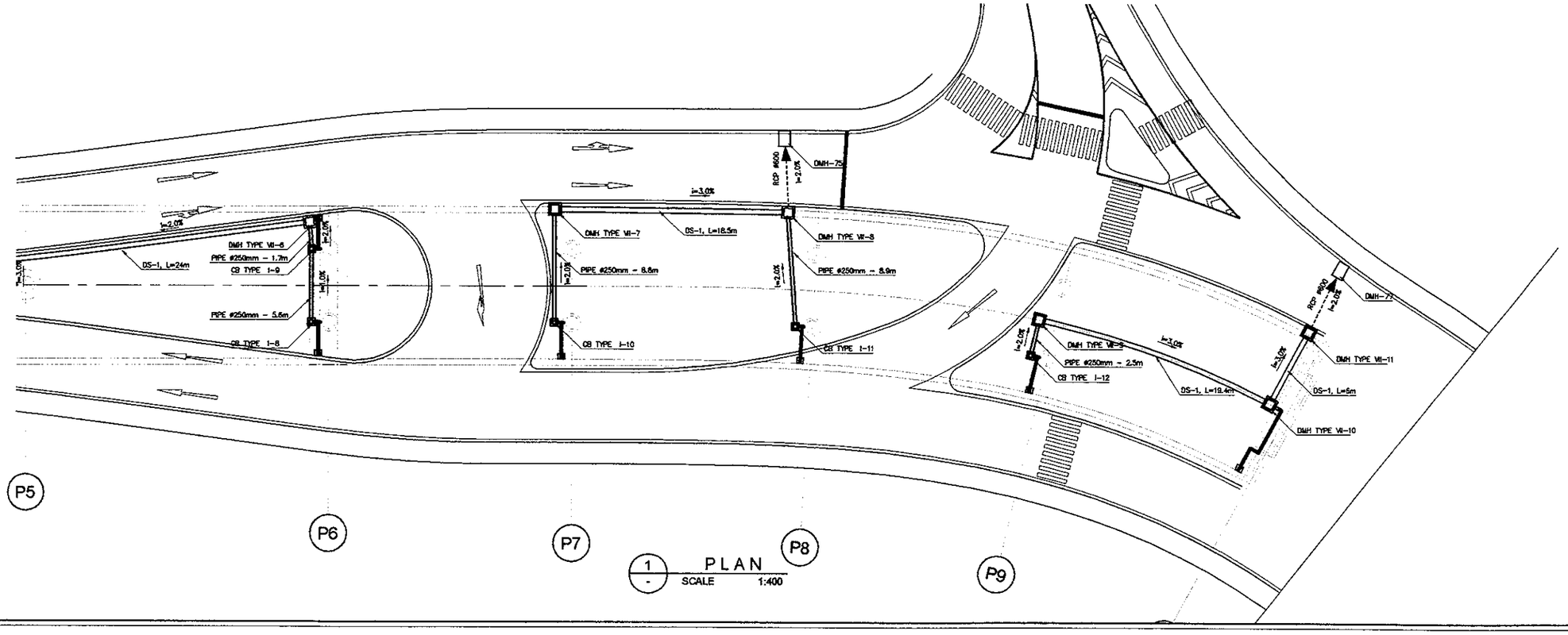
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date		APPROVED BY: ir. HERRY VAZA M,Eng.Sc NIP. : 110038400				



2 - ELEVATION
SCALE 1:400



1 - PLAN
SCALE 1:400

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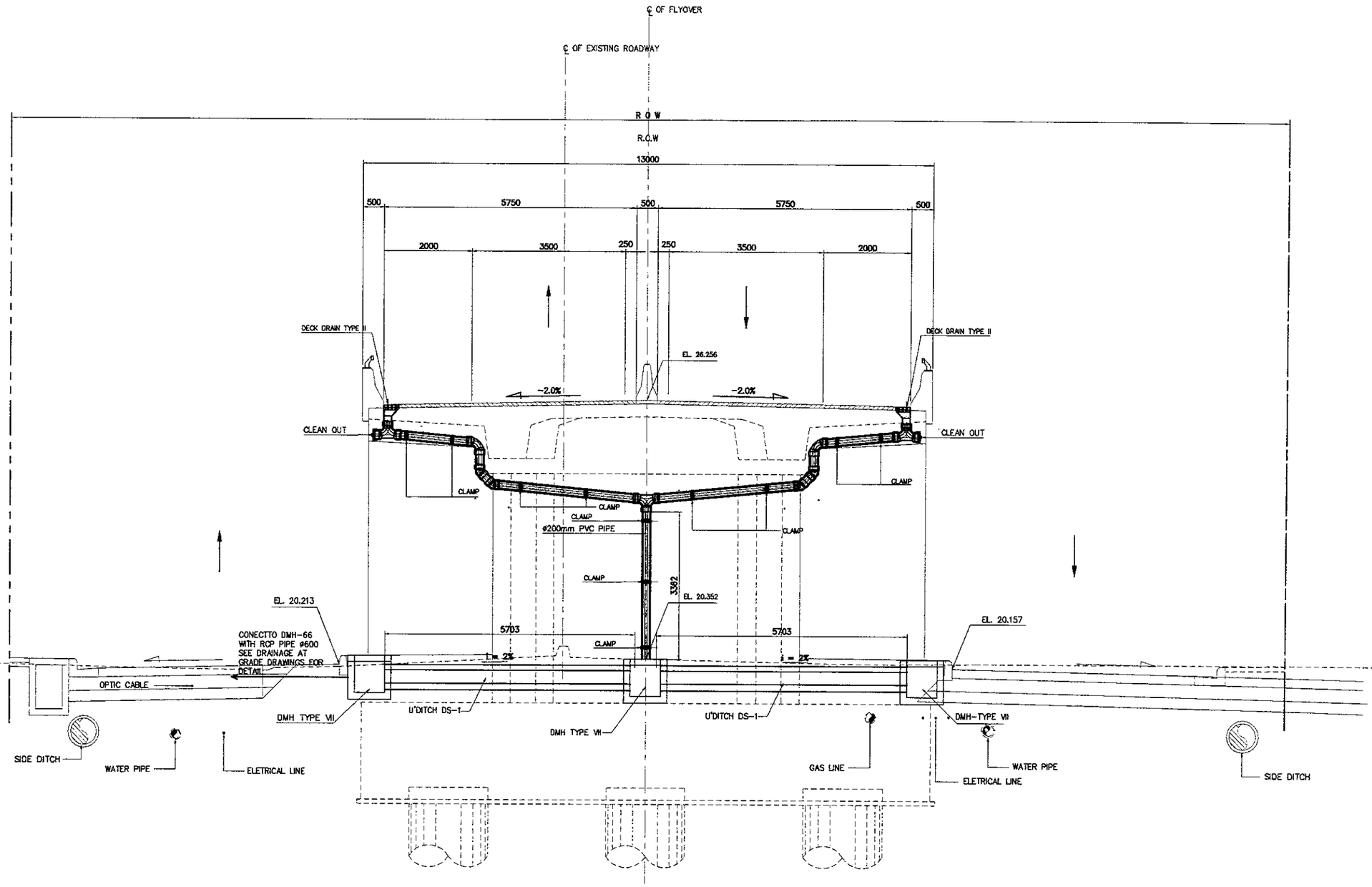
	Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI					
	Sign		Sign		Sign						
	Date		Date		Date						
							APPROVED BY: Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400 Sign Date				



1 / - A1 SECTION (STA. 0 + 399.00)
SCALE 1:100

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