No.

ROAD DEVELOPMENT AUTHORITY
MINISTRY OF HIGHWAYS AND ROAD DEVELOPMENT
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

THE DETAILED DESIGN STUDY
ON
THE OUTER CIRCULAR HIGHWAY
TO
THE CITY OF COLOMBO

FINAL REPORT
(FOR NORTHERN SECTION 1)

VOLUME VI – 2/3:
DRAWINGS - BRIDGES

9 of 10

February 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

Oriental Consultants Company Limited

Pacific Consultants International

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THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

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DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	1

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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

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GENERAL NOTES

1. DESIGN CRITERIA

- Geometric Design Standards of Roads (1998), RDA
- Bridge Design Manual (1997), RDA
- Standard Specifications for Construction and Bridges (1998), RDA
- Bridge Construction Manual (1997), RDA
- British Standard BS 5400, BS 5911, BS 8002, BS 8004, BS 8007, BS EN 10025
- Specifation of Highway Bridges (Japan Road Association,1996)
- Design Manuals for Roads and Bridges (British Highway Agency)
- A Design Manual for Small Bridges (Transport and Road Research Laboratory, UK)
- A Guide to Design Loadings for Buried Rigid Pipes (Transport and Road Research Laboratory, UK)

2. LOADS

– Permanent Loads	
Reinforced/Prestressed Concrete	: 25.0 kN/m3
Plain Concrete	: 23.5 kN/m3
Steel and Cast Steel	: 78.5 kN/m3
Bituminous Wearing Surfaces	: 23.0 kN/m3
Bridge Parapet	: 7.60 kN/m
Handrail for one side	: 0.50 kN/m
Compacted Soil	: 19.0 kN/m3
Loose Soil	: 16.0 kN/m3
– Live Load	: HA Loading, 30 Units HB Loading, HA Single Wheel Loading
– Pedestrian Load	: 3.0 kN/m2
– Basic Wind Load	: 39.4 m/s
– Temperature Range	: 25°C – 31°C
– Seismic Effect	: No Consideration
– Vessel Collision Force	: River Class III

3. MATERIALS

3–1 CONCRETE

1) Unless indicated otherwise, the characteristic cube strength of concrete (fcu) shall be as follows:

Concrete Class	fcu (MPa)	Typical Use
A	50	Cast–in–situ prestressed concrete box girder Precast prestressed concrete girder (PC I–Girder)
B	35	Crossbeam of PC I–Girder. Cast–in–place concrete deck slab, Precast reinforced concrete panel
C	30	Reinforced concrete pier (cantilever pier head, pier column and footing included) Reinforced concrete abutment (wing wall included) Reinforced concrete retaining wall, Box culvert
A'	40	For Kelani River Bridge, Viaduct 4, Ramps 1 & 2 (very severe condition). Crossbeam of PC I–Girder. Cast–in–place concrete deck slab, Precast reinforced concrete panel Reinforced concrete pier (cantilever pier head, pier column and footing included) Reinforced concrete abutment (wing wall included) Reinforced concrete retaining wall, Box culvert Cast–in–situ concrete pile Precast reinforced concrete pile Bridge parapet, Street lighting pole foundation
D–1	30	Cast–in–situ concrete pile
D–2	30	Precast reinforced concrete pile
D–3	30	Bridge parapet, Street lighting pole foundation
E	20	Approach Slab Pipe culvert bedding (Class A) Precast concrete curbs
F	15	Leveling concrete, Lean concrete

2) All exposed edges of concrete shall be chamfered 25*25 mm unless otherwise noted.
3) All construction joints are to be located as shown on the drawings or as approved by the Engineer.
4) Unless otherwise noted, concrete surface finish shall be as specified in the General Specifications.

3–2 REINFORCING BAR

1) Steel reinforcement shall be of Grade 460 (yield strength of 460 MPa), Type–2 deformed bar in accordance with Bs 4449:1997. Type deformed bar shall have the required ultimate anchorage bond stress in Table 15 of BS 5400–4:1990.
2) Scheduling,dimensioning,bending an cutting of steel reinforcement shall be in accordance with BS 4466:1989.
3) Minimun splice length shall be in accordance with BS 5400–4:1990.
4) Splices in adjacent bars shall be staggered except where noted on the Drawings. Splices other than those shown on the drawings may only be made with the approval of the Engineer.
5) Unless otherwise indicated on the drawings, the minimum cover to any reinforcement shall be as follows:

Bored Pile	: 75 mm
Pile Cap, Footing	: 50 mm
Pile Cap, Footing (bottom)	: 75 mm
Precast Pile, Abutment, Pier, Approach Slab	: 50 mm
Precast PC Girder	: 35 mm
Cast–in–situ Girder	: 40 mm
Retaining Wall, Box Culvert	: 50 mm

3–3. PRESTRESSING CABLE

1) Prestressing tendons to be used for the Project are specified as follows:

Utilization	Designation	Equivalent
Longitudinal Strand for PC I–Girder	12S 12.7	D12.7mm
	9S 12.7	D12.7mm
Strand for Cross Beam	1S 21.8	D21.8mm

2) Prestressing tendons 12.7mm shall be formed using 7–wire and 21.8mm using 19–wire low relaxation strands conforming to BS 4486 & 5896.
3) Properties of prestressing tendons are:
   Characteristic Strength : fpu=1,860 MPa
   Modulus of Elasticity : E = 200,000 MPa
4) Jacking force used is 70% of the characteristic strength (fpu).
5) Ducts for interval tendons shall be semi–grid galvanized sheating, unless otherwise noted, and shall be rigidly supported at not greater than 500 mm intervals.
6) Tendon profiles are specified to the center of sheating. Tendons are to be placed to smooth profiles passing through the specified points.
7) Anchorages shall be set at right angles to the tendon profiles. Each tendon shall be kept straight for a minimun length of 1,000 mm from anchorage face.
8) Grout points shall be provided at all crown points, sag points and anchorages.

3–4. STRUCTURAL STEEL

All structural steel shall conform to the requirements of BS or JRS as follows:

a. Structural steel ––– BS EN 10025, JIS 3106, JIS 3114
b. High Strength Friction Grip Bolts ––– BS 4395, BS 4604, JIS B 1186, JSS II 09–1996

4. WATERPROOFING

4–1 All reinforced concrete surfaces in contact with backfill shall be coated with coats of bituminous membrane.

4–2 The bridge deck shall be waterproof with parafor solo ponts or similar approved proprietary waterproofing system applied in accordance with manufacture's recommendation.

5. OTHERS

5–1 Unless otherwise noted on the Drawings, these notes are applicable to all structure drawings.

5–2 All coordinates and levels are given in meters. All dimension are given in millimeters unless otherwise noted on the drawings.

5–3 Levels are measured by National Level 1972 system (Sea Level datum at Hon Dau–Do Son).

5–4 Coordinates are measured by National Grid HN–72 with meridian of 106° 45'.

5–5 Where reference is made to proprietary component names, the Contractor may propose alternatives provided that they are equivalent and satisfy the requirements of the Specifications and Design Criteria.

6. CONSTRUCTION

6–1 BORED PILING WORKS

1) The dimension and minimum length of bored piles shall be as shown on the plans. Bottom of bored piles shall be embedded at least two (2) pile diameter into the bearing stratum and shall be approved by the engineer.
2) Suitable pile boring equipment shall be used to properly drill into the bearing stratum.
3) Bentonite slurry or other form of slurry to be used shall be able to properly hold in place the vertical soil surface in contact with the cast–in–place reinforced concrete shaft.
4) Shaft concreting shall be carried out using tremie pipe that will reach the bottom of the shaft. The tremie pipe shall always be embedded into the fresh concrete at least 2.0m as it goes up displacing the slurry.
5) For the pile terminating depth, bearing stratum shall be confirmed and approved by the engineer before the piling work.

6–2 Spread footings shall be as shown on the plans embedded into the bearing stratum with a minimum allowable bearing capacity (serviceability limit state) of 450kPa. Footing bottom shall be at least 1.00m below the bearing stratum. If actual footing levels change the height of the substructure, piers/abutments shall be redesigned.

7. FUTURE EXPANSION

- For future expansion the inner portion of the slab (500mm wide) shall be chipped off to expose slab reiforcement for the required lap splice with the new rebars. All existing slab rebars shall be carefully straightened–up without damaging the rebars.
- Prestressing steel wires for the diaphragms shall be connected by mechanical devices(coupler). Provisions of these couplers shall be anticipated at the sides of the exterior girders (inner portion only). These connection points by couplers shall be protected against corrosion as per requirement of prestressing supplier.

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No	REVISION	DATE

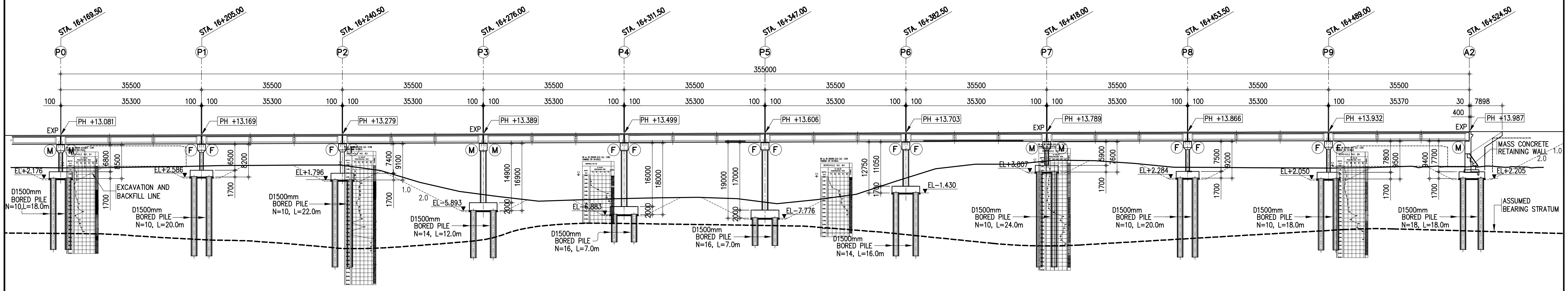
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

BRIDGE STRUCTURE
GENERAL NOTES FOR LONG SPAN BRIDGES

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K00

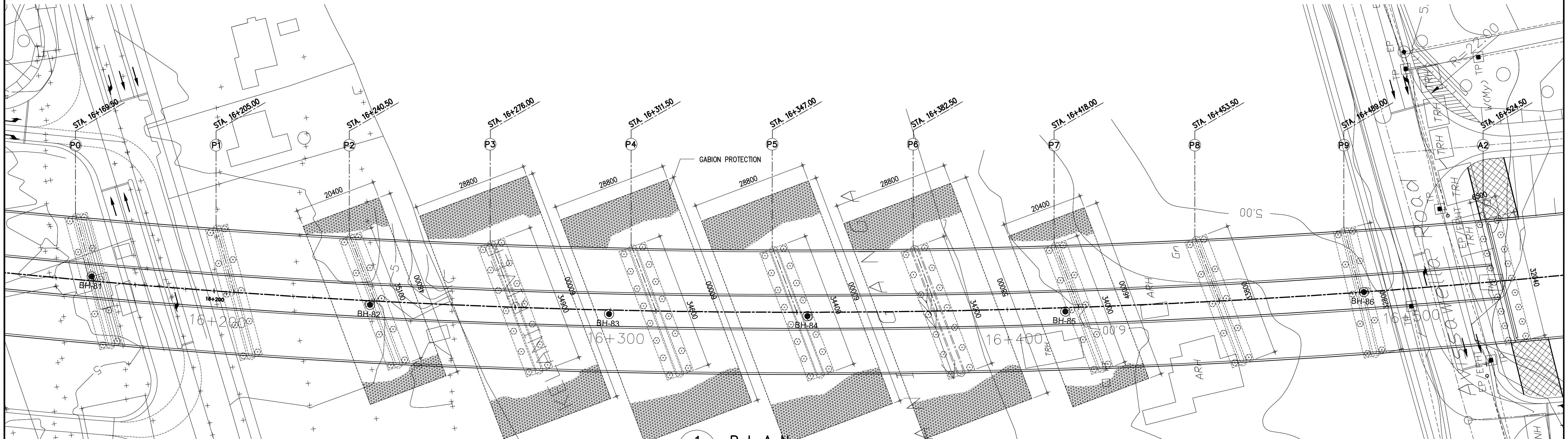
K01 HIGHWAY BRIDGE No.9(H9)-KELANI RIVER CROSSING BRIDGE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT



2 PROFILE
SCALE 1:500

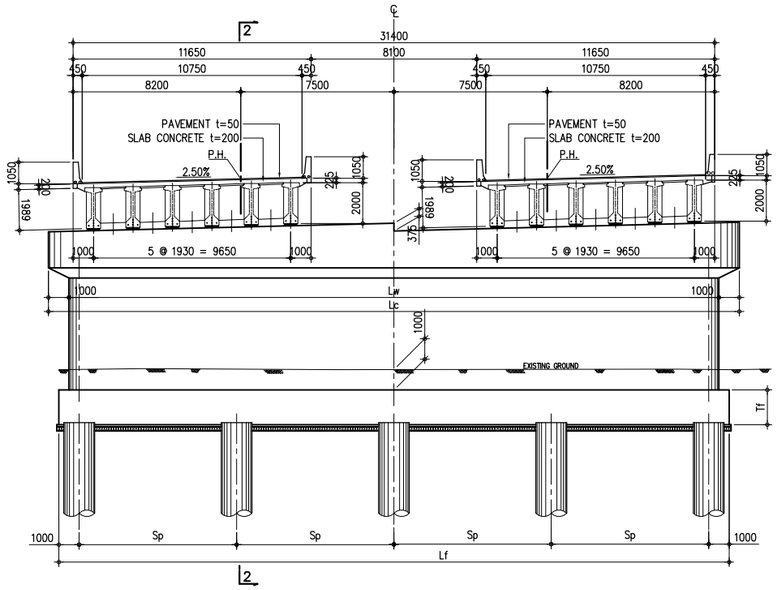
	16180	16200	16220	16240	16260	16280	16300	16320	16340	16360	16380	16400	16420	16440	16460	16480	16500	16520	16524.5
GRADE	0.310% L=1,200m																		
FINISHED ROAD LEVELS	13.091	13.153	13.215	13.277	13.339	13.401	13.463	13.525	13.585	13.642	13.696	13.747	13.794	13.838	13.879	13.916	13.950	13.981	13.783
EXISTING GROUND LEVELS	4.911	5.221	5.511	5.581	1.241	−2.389	−3.159	−2.659	−2.889	−3.139	1.531	5.811	6.791	6.000	4.971	4.861	4.931	5.149	
STATION (km)	16180	16200	16220	16240	16260	16280	16300	16320	16340	16360	16380	16400	16420	16440	16460	16480	16500	16520	16524.5
CURVE BAND	R=2000 L=991.683 m.																		
SUPERELEVATION	+2.5 % / −2.5 %																		



1 PLAN
SCALE 1:500

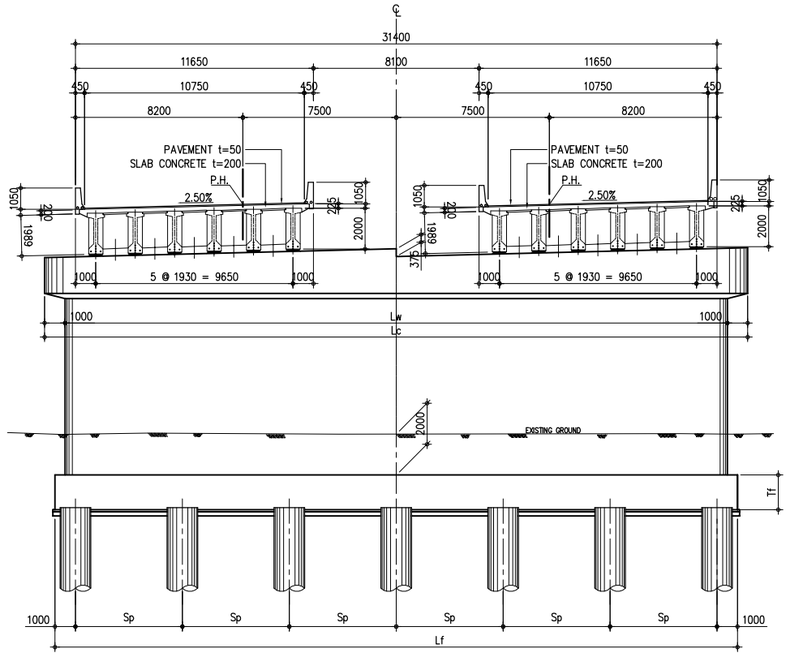
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY JAPAN ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL ORICONSUL	No / REVISION / DATE	COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1) HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIGE GENERAL VIEW - STA. 16+169.50-STA. 16+524.50

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-00-A



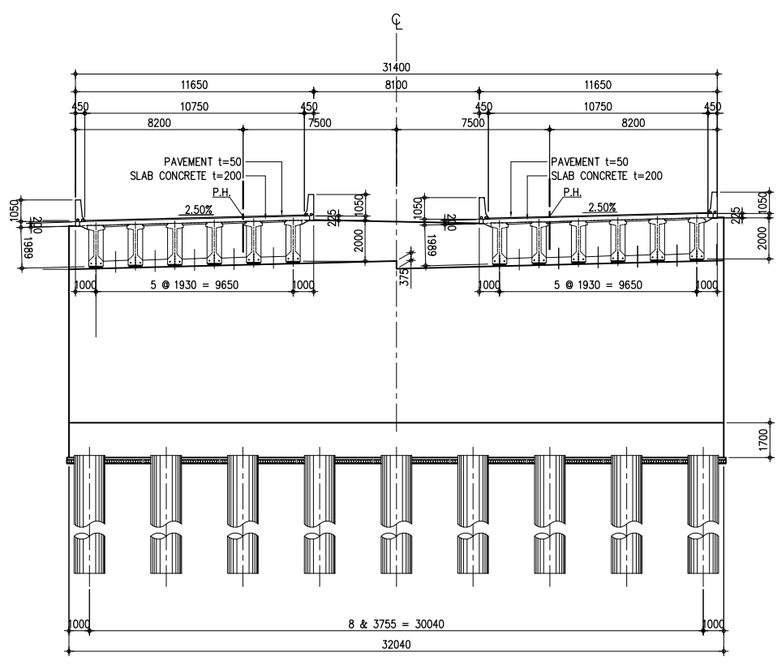
2 — TYPICAL CROSS SECTION OF PIER P0, P1, P2, P7, P8, & P9

SCALE 1:100



3 — TYPICAL CROSS SECTION OF PIER P3, P4, P5 & P6

SCALE 1:100



1 — CROSS SECTION OF ABUTMENT A2

SCALE 1:100

TABLE FOR P.H	
PIER NO.	P.H
P0	13.081
P1	13.169
P2	13.279
P3	13.389
P4	13.499
P5	13.606
P6	13.703
P7	13.789
P8	13.866
P9	13.932
ABUT–A2	13.987

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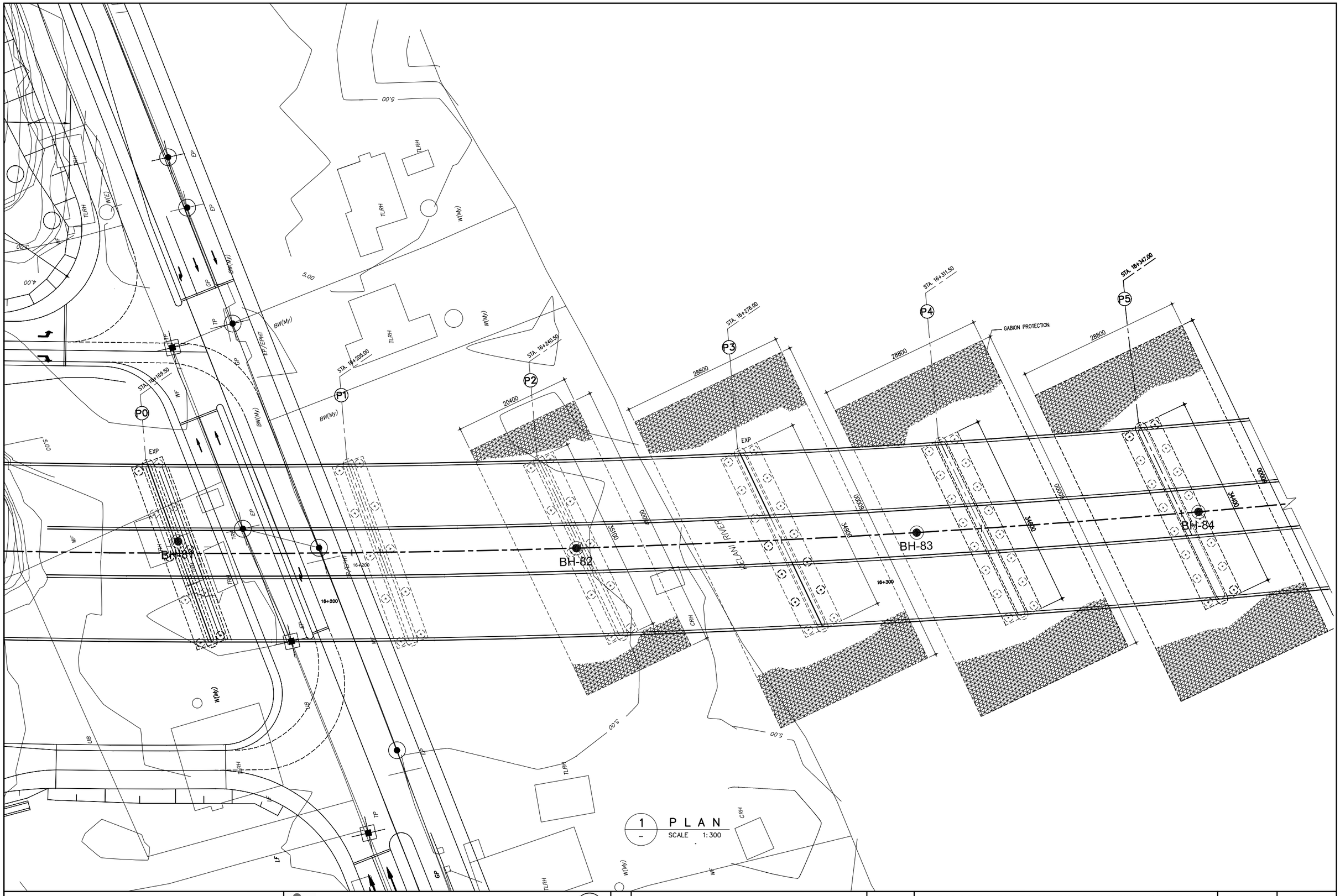
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIGE
TYPICAL CROSS SECTION OF ABUTMENT & PIER

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-00-B



1 PLAN
SCALE 1:300

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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Road Development Authority

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COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
GENERAL VIEW - STA. 16+169.50 - STA. 16+524.50

DESIGNED BY:	
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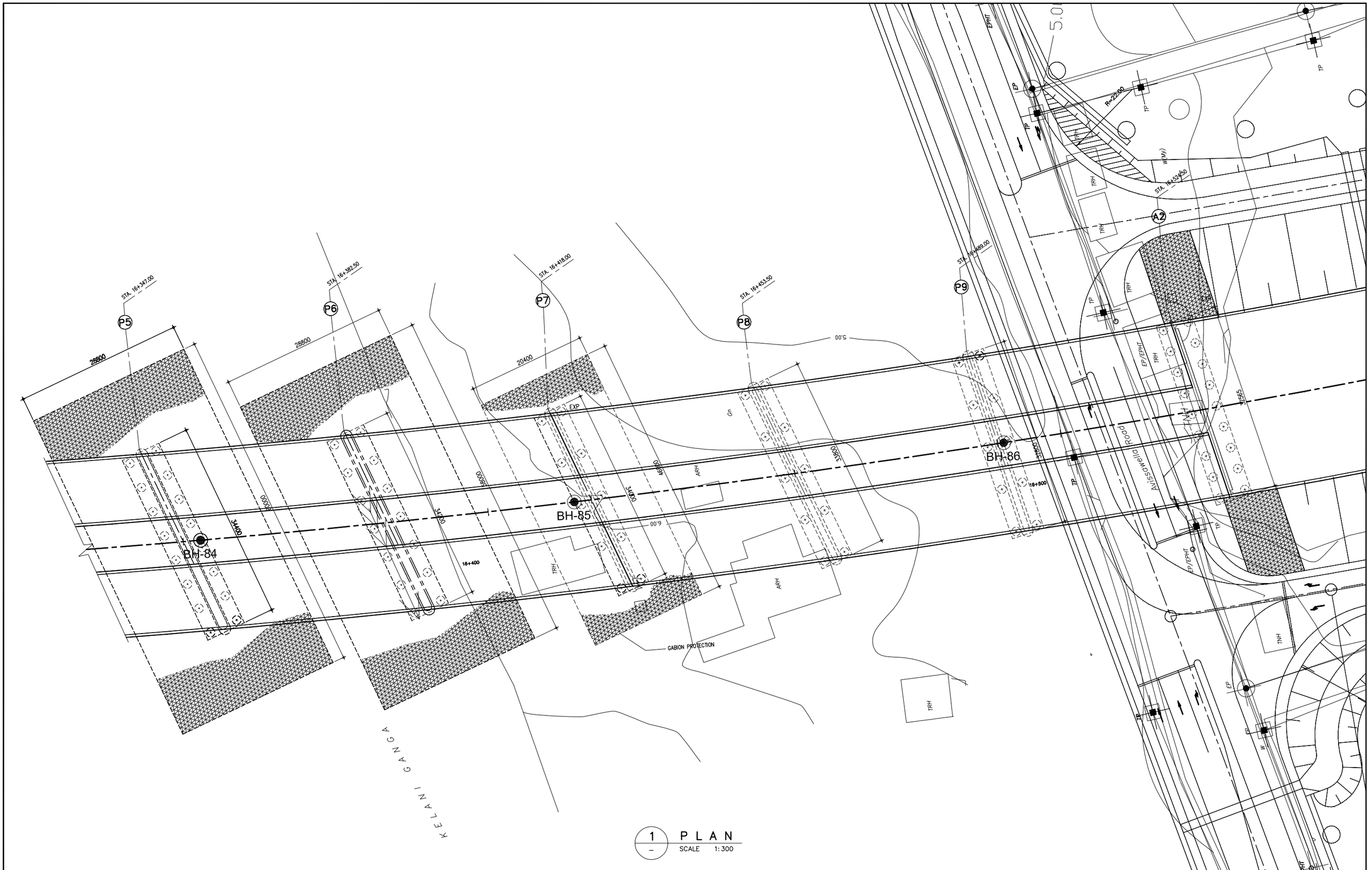
APPROVED BY:	
DWG. NO.	K01-00-C



1 – PLAN
SCALE 1:300

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIGE
GENERAL VIEW - STA. 16+169.50 - STA. 16+524.50

DESIGNED BY:	
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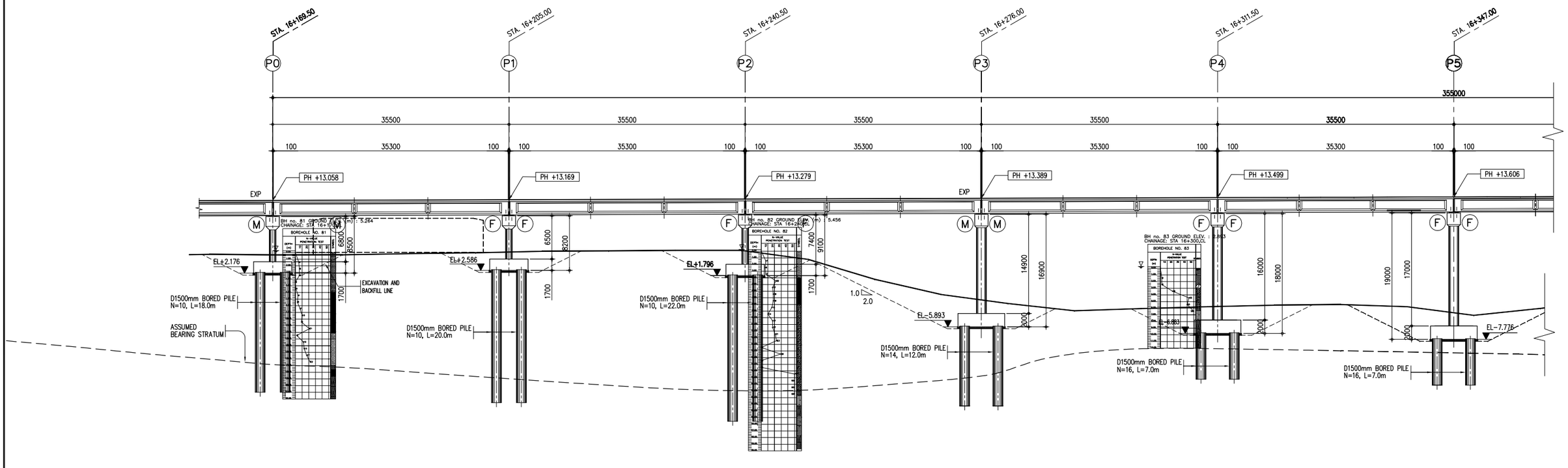

GRADE	0.310% L=1,200m									
FINISHED ROAD LEVELS	13.091	13.153	13.215	13.277	13.339	13.401	13.463	13.525	13.585	13.642
EXISTING GROUND LEVELS	4.911	5.221	5.511	5.581	1.241	−2.389	−3.159	−2.659	−2.889	−3.139
STATION (km)	16180	16200	16220	16240	16260	16280	16300	16320	16340	16360
CURVE BAND	R=2000 L=991.683 m.									
SUPERELEVATION	+2.5 %									
	−2.5 %									

1 / – PROFILE
SCALE 1: 300

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HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIGE
GENERAL VIEW - STA. 16+169.50 - STA. 16+524.50

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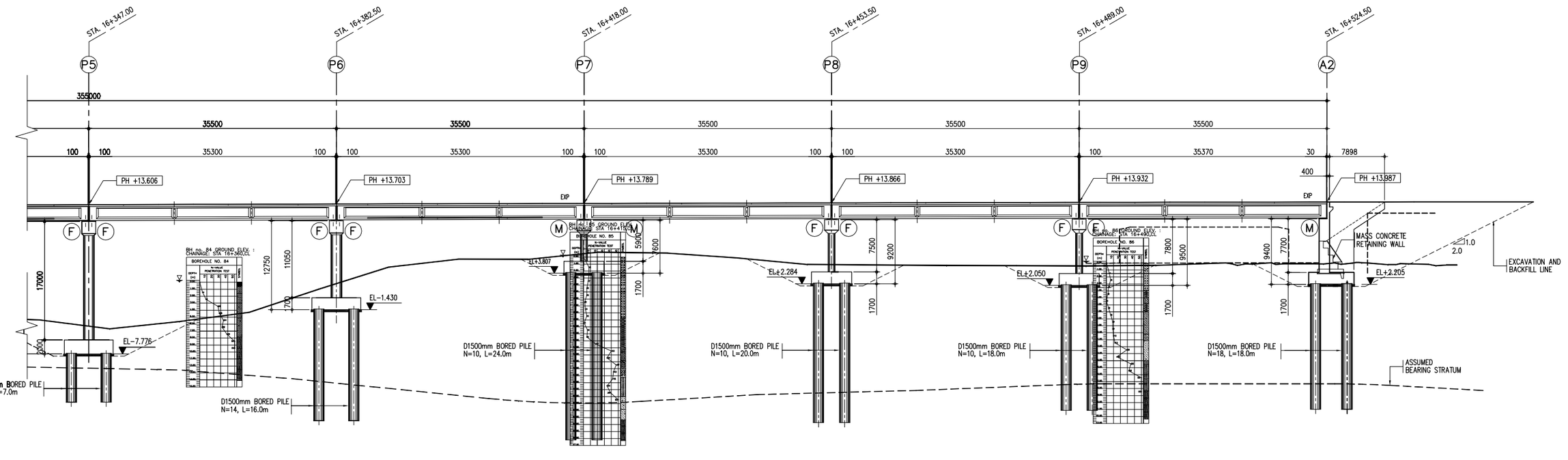

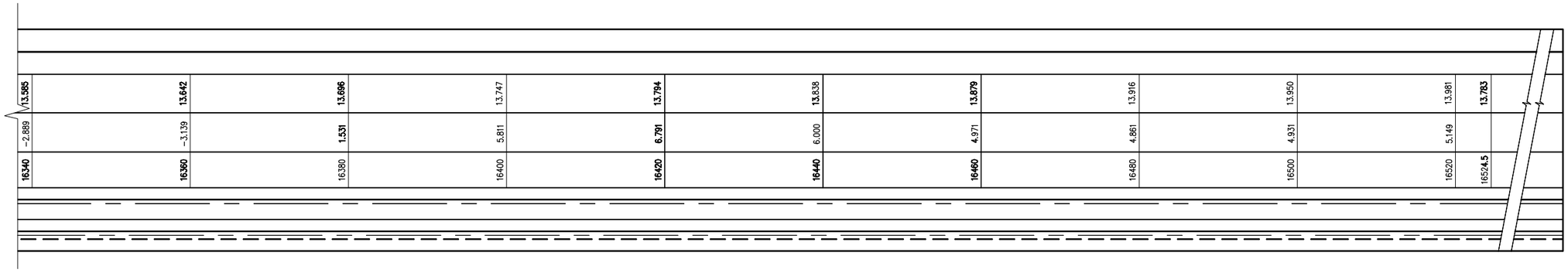

1 PROFILE
SCALE 1:300

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIGE GENERAL VIEW - STA. 16+169.50 - STA. 16+524.50

No	REVISION	DATE

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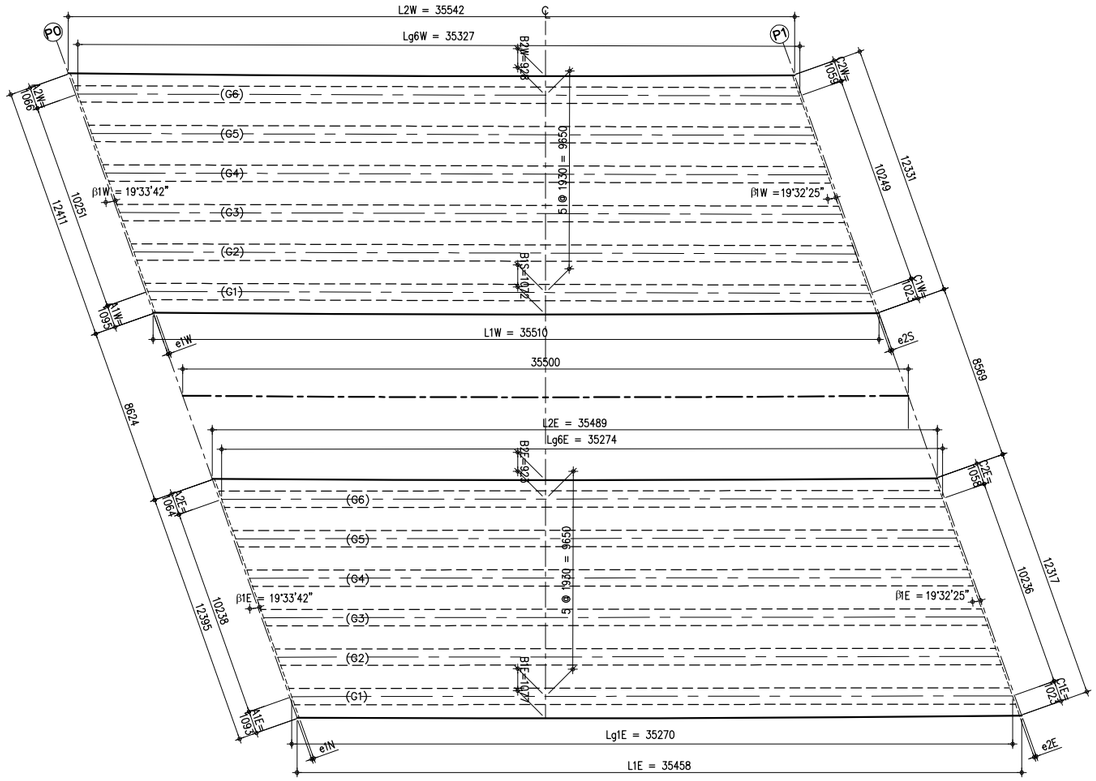
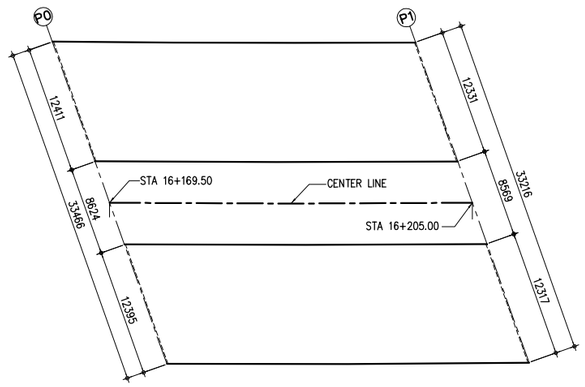


1 LAYOUT PLAN
– SCALE 1:150

	SOUTH BOUND
	P0~P1
Lo (m)	35.500
L1W (m)	35.510
L2W (m)	35.542
β1W (°)	19°33'42"
β2W (°)	19°32'25"
e1W/e2W (mm)	100/100
i1W (%)	2.5
i2W (%)	2.5
A1W/A2W (mm)	1095/1066
B1W/B2W(mm)	1072/928
C1W/C2W (mm)	1023/1059
Lg1W (m)	35.323
Lg2W (m)	35.323
Lg3W (m)	35.324
Lg4W (m)	34.077
Lg5W (m)	33.854
Lg6W (m)	33.632
SPAN LENGTH (m)	L=35.500
REMARKS	

	NORTH BOUND
	P0~P1
Lo (m)	35.500
L1E (m)	35.458
L2E (m)	35.489
β1E (°)	19°33'42"
β2E (°)	19°32'25"
e1E/e2E (mm)	100/100
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1093/1064
B1E/B2E (mm)	1077/923
C1E/C2E (mm)	1023/1058
Lg1E (m)	35.270
Lg2E (m)	35.271
Lg3E (m)	35.272
Lg4E (m)	35.272
Lg5E (m)	35.273
Lg6E (m)	35.274
SPAN LENGTH (m)	L=35.500
REMARKS	



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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Road Development Authority

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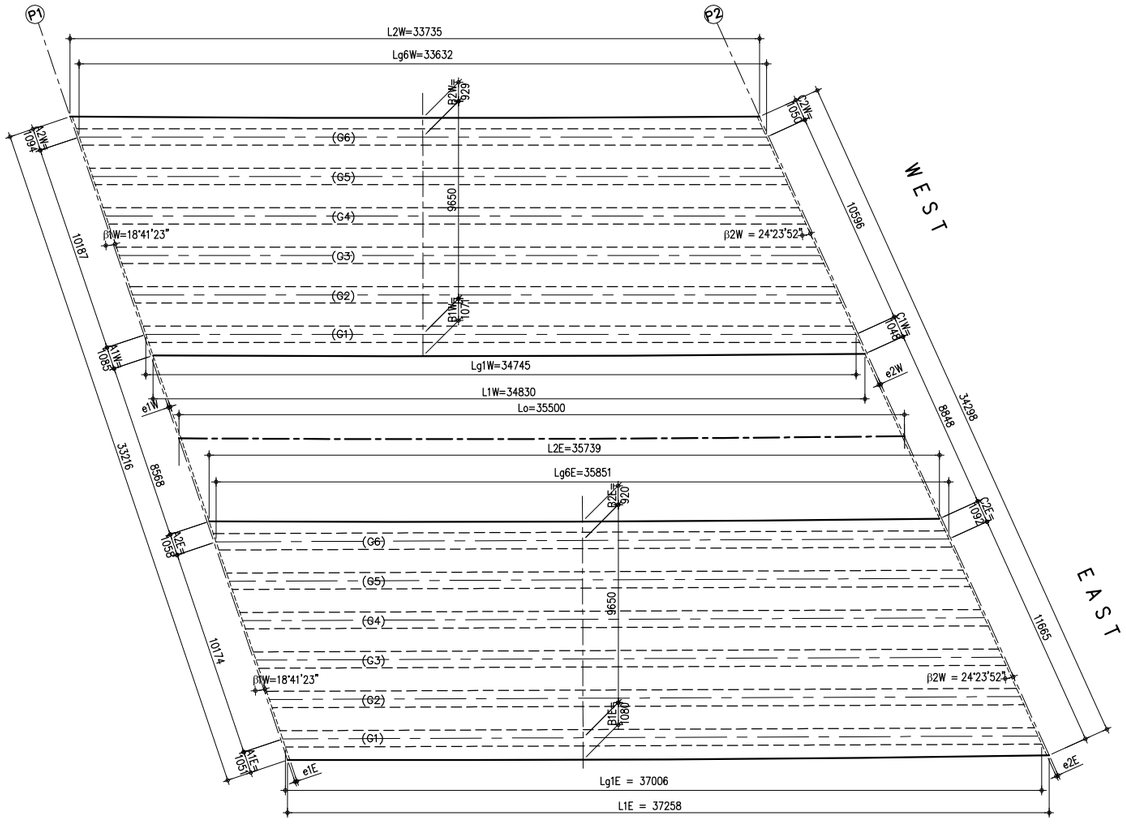
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
LAYOUT PLAN FOR PIER P0 TO P1

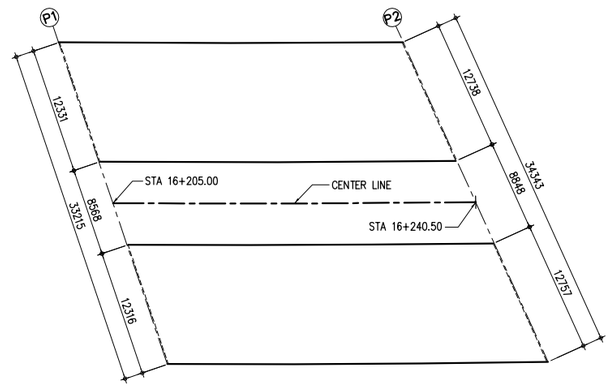
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-01



1 LAYOUT PLAN
– SCALE 1:150

	WEST BOUND
	P0~P1
Lo (m)	35.500
L1W (m)	34.830
L2W (m)	33.735
β1W (°)	18°41'23"
β2W (°)	23°43'21"
e1W/e2W (mm)	100/100
i1W (%)	2.5
i2W (%)	2.5
A1W/A2W (mm)	1085/1094
B1W/B2W(mm)	929/1071
C1W/C2W (mm)	1048/1050
Lg1W (m)	34.745
Lg2W (m)	34.522
Lg3W (m)	34.299
Lg4W (m)	34.077
Lg5W (m)	33.854
Lg6W (m)	33.632
SPAN LENGTH (m)	L=35.500
REMARKS	

	EAST BOUND
	P0~P1
Lo (m)	35.500
L1E (m)	37.258
L2E (m)	35.739
β1E (°)	18°41'23"
β2E (°)	23°43'21"
e1E/e2E (mm)	100/100
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1085/1058
B1E/B2E (mm)	1080/920
C1E/C2E (mm)	1088/1092
Lg1E (m)	36.960
Lg2E (m)	36.738
Lg3E (m)	36.517
Lg4E (m)	36.295
Lg5E (m)	36.073
Lg6E (m)	35.851
SPAN LENGTH (m)	L=35.500
REMARKS	



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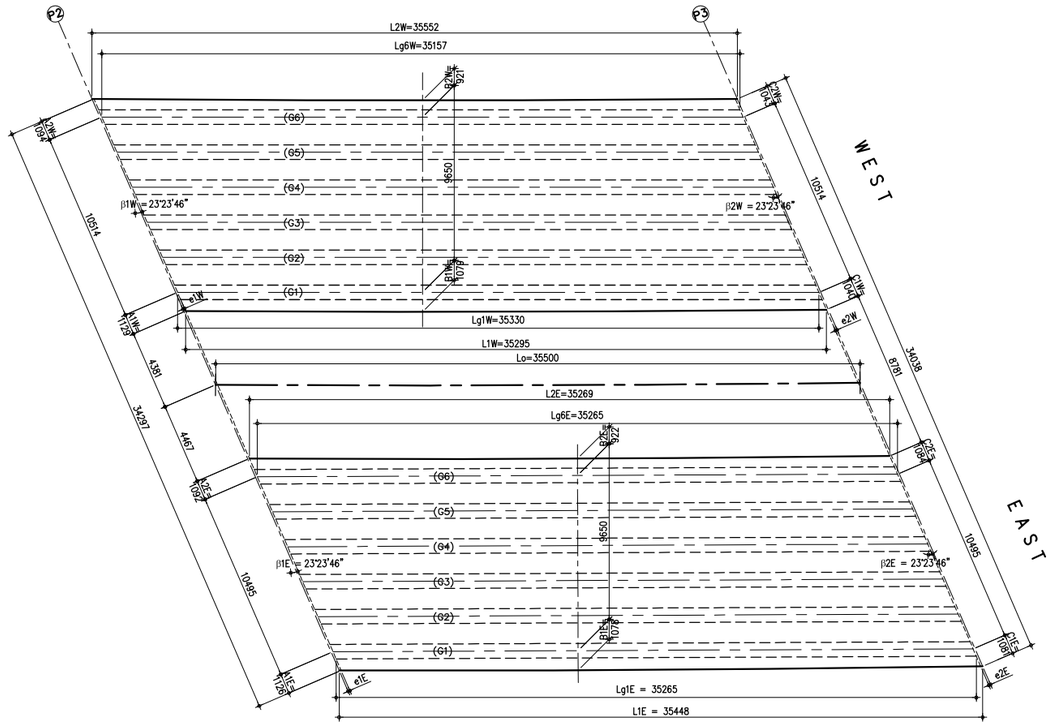
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
LAYOUT PLAN FOR PIER P1 TO P2

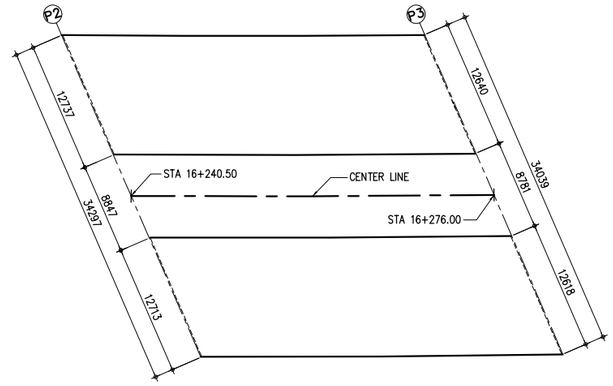
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-02



1 LAYOUT PLAN
SCALE 1:150

	WEST BOUND
	P2~P3
Lo (m)	35.500
L1W (m)	35.295
L2W (m)	35.552
β1W (°)	23°43'21"
β2W (°)	22°42'20"
e1W/e2W (mm)	100/100
i1W (%)	2.5
i2W (%)	2.5
A1W/A2W (mm)	1129/1094
B1W/B2W(mm)	1079/921
C1W/C2W (mm)	1040/1043
Lg1W (m)	35.330
Lg2W (m)	35.330
Lg3W (m)	35.330
Lg4W (m)	35.330
Lg5W (m)	35.330
Lg6W (m)	35.330
SPAN LENGTH (m)	L=35.500
REMARKS	

	EAST BOUND
	P2~P3
Lo (m)	35.500
L1E (m)	35.448
L2E (m)	35.269
β1E (°)	23°43'21"
β2E (°)	22°42'20"
e1E/e2E (mm)	100/100
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1126/1092
B1E/B2E (mm)	1078/922
C1E/C2E (mm)	1081/1084
Lg1E (m)	35.265
Lg2E (m)	35.266
Lg3E (m)	35.266
Lg4E (m)	35.266
Lg5E (m)	35.266
Lg6E (m)	35.266
SPAN LENGTH (m)	L=35.500
REMARKS	



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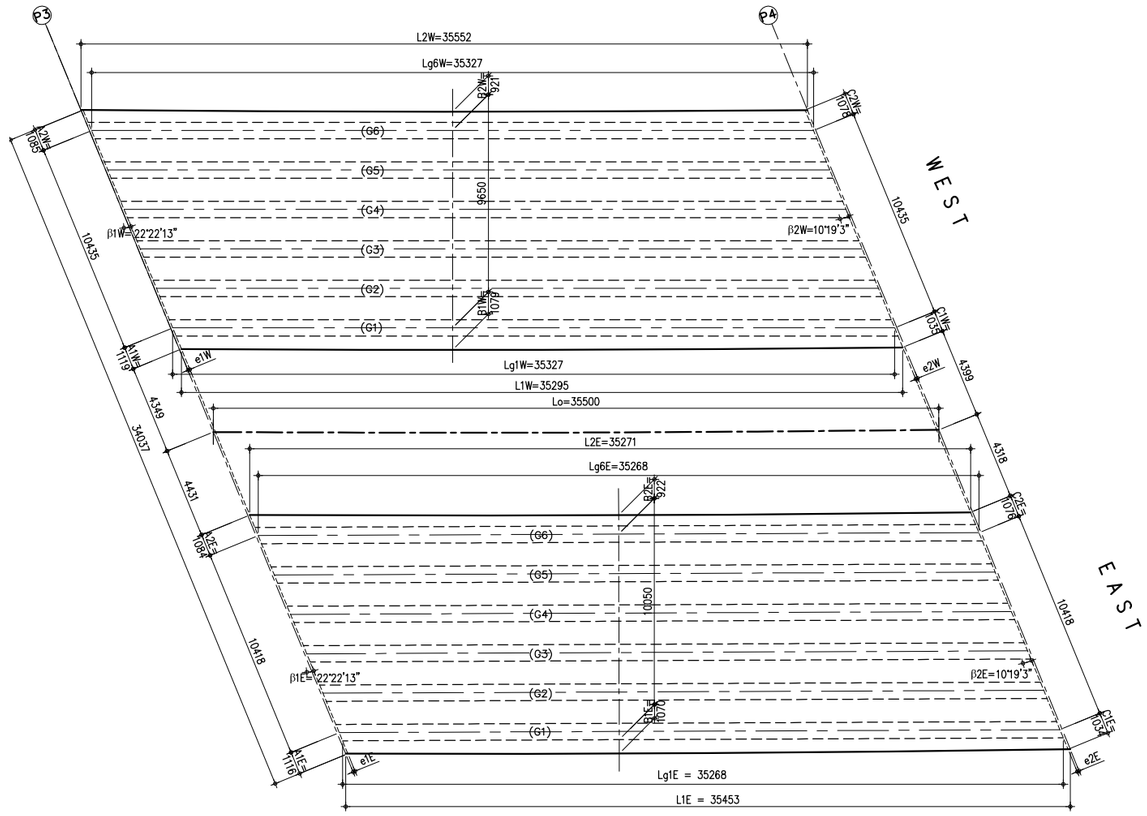
No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
LAYOUT PLAN FOR PIER P2~P3

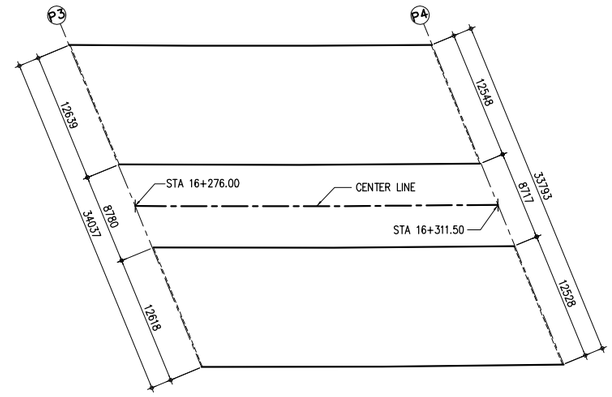
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-03



1 LAYOUT PLAN
SCALE 1:150

	WEST BOUND
	P3~P4
Lo (m)	35.500
L1W (m)	35.295
L2W (m)	35.552
β1W (°)	22°42'20"
β2W (°)	21°41'19"
e1W/e2W (mm)	100/100
i1W (%)	2.5
i2W (%)	2.5
A1W/A2W (mm)	1119/1085
B1W/B2W(mm)	1079/921
C1W/C2W (mm)	1035/1078
Lg1W (m)	35.327
Lg2W (m)	35.327
Lg3W (m)	35.327
Lg4W (m)	35.327
Lg5W (m)	35.327
Lg6W (m)	35.327
SPAN LENGTH (m)	L=35.500
REMARKS	

	EAST BOUND
	P3~P4
Lo (m)	35.500
L1E (m)	35.453
L2E (m)	35.271
β1E (°)	22°42'20"
β2E (°)	21°41'19"
e1E/e2E (mm)	100/100
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1116/1084
B1E/B2E (mm)	1070/922
C1E/C2E (mm)	1034/1076
Lg1E (m)	35.268
Lg2E (m)	35.269
Lg3E (m)	35.269
Lg4E (m)	35.269
Lg5E (m)	35.269
Lg6E (m)	35.269
SPAN LENGTH (m)	L=35.500
REMARKS	



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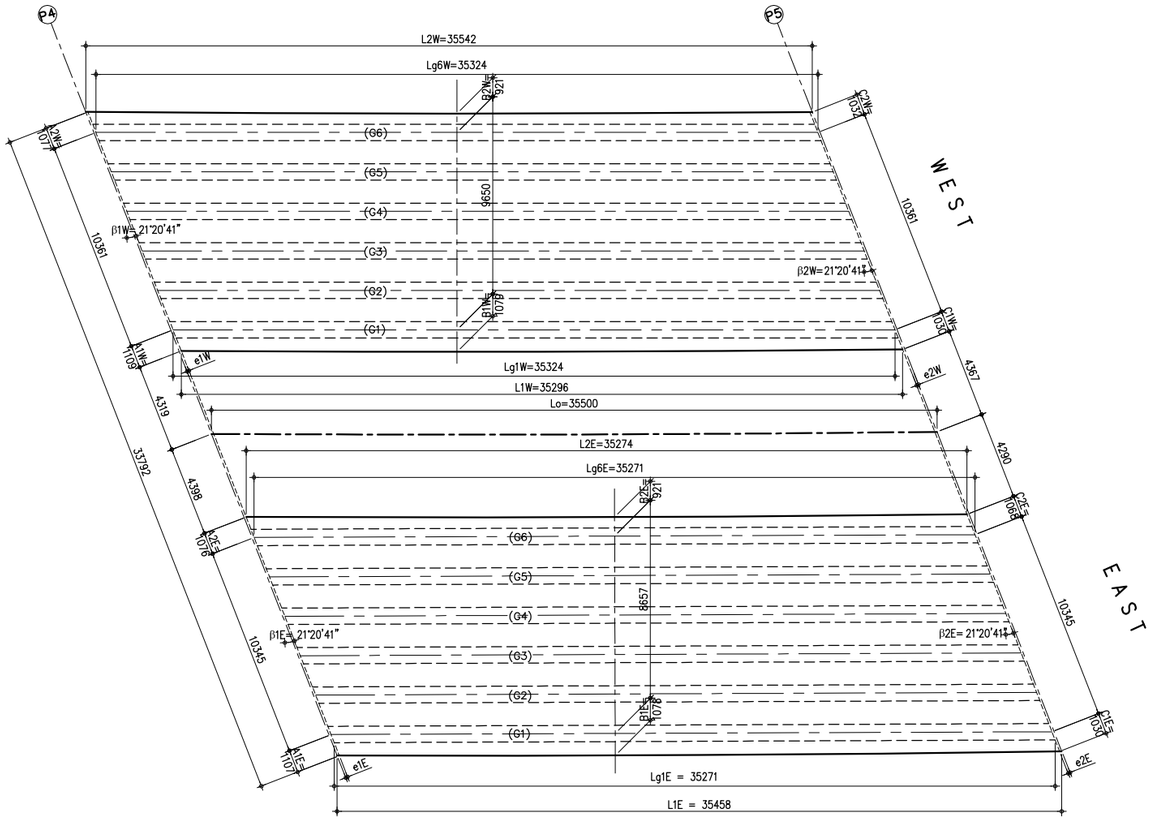
No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
LAYOUT PLAN FOR PIER P3~P4

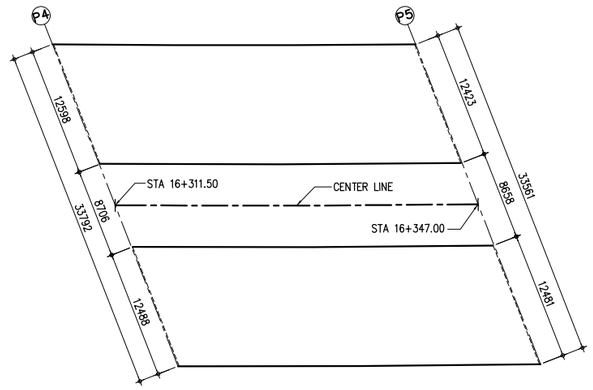
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-04



1 / – LAYOUT PLAN
SCALE 1:150

	WEST BOUND
	P4~P5
Lo (m)	35.500
L1W (m)	35.296
L2W (m)	35.542
β1W (°)	21°41'19"
β2W (°)	20°40'18"
e1W/e2W (mm)	100/100
i1W (%)	2.5
i2W (%)	2.5
A1W/A2W (mm)	1109/1077
B1W/B2W(mm)	1079/921
C1W/C2W (mm)	1030/1032
Lg1W (m)	35.324
Lg2W (m)	35.324
Lg3W (m)	35.324
Lg4W (m)	35.324
Lg5W (m)	35.324
Lg6W (m)	35.324
SPAN LENGTH (m)	L=35.500
REMARKS	

	EAST BOUND
	P4~P5
Lo (m)	35.500
L1E (m)	35.458
L2E (m)	35.274
β1E (°)	21°41'19"
β2E (°)	20°40'18"
e1E/e2E (mm)	100/100
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1107/1076
B1E/B2E (mm)	1078/921
C1E/C2E (mm)	1030/1068
Lg1E (m)	35.271
Lg2E (m)	35.272
Lg3E (m)	35.272
Lg4E (m)	35.272
Lg5E (m)	35.272
Lg6E (m)	35.272
SPAN LENGTH (m)	L=35.500
REMARKS	



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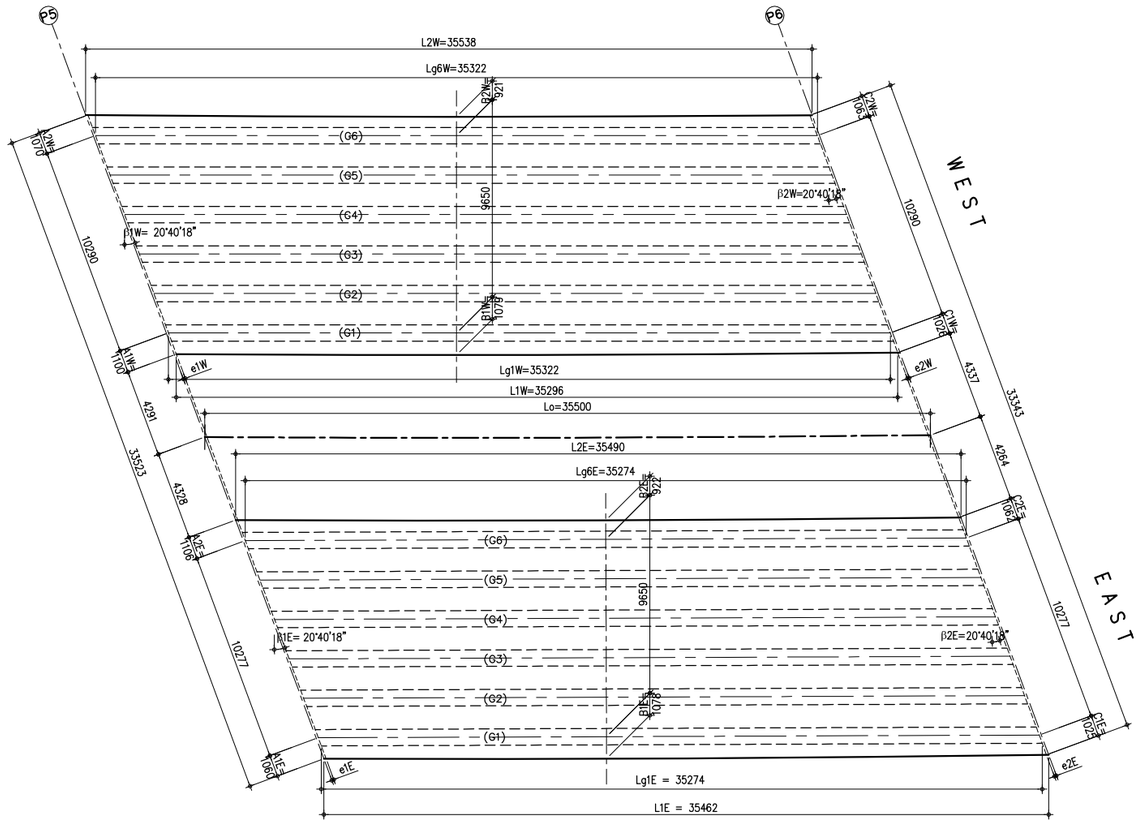
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
LAYOUT PLAN FOR PIER P4 TO P5

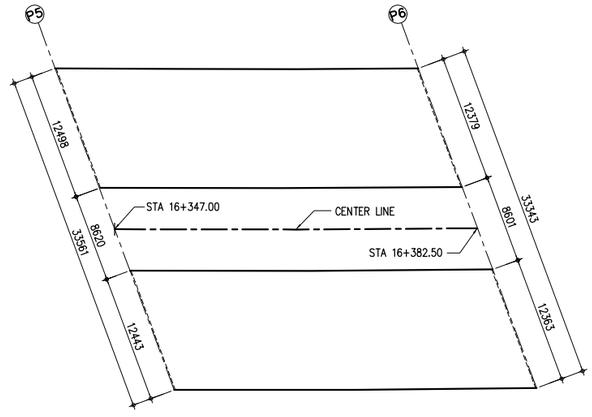
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-05



1 LAYOUT PLAN
SCALE 1:150

	WEST BOUND
	P5~P6
Lo (m)	35.500
L1W (m)	35.402
L2W (m)	35.538
β1W (°)	20°40'18"
β2W (°)	20°40'18"
e1W/e2W (mm)	100/100
i1W (%)	2.5
i2W (%)	2.5
A1W/A2W (mm)	1100/1070
B1W/B2W(mm)	1079/921
C1W/C2W (mm)	1026/1063
Lg1W (m)	35.322
Lg2W (m)	35.322
Lg3W (m)	35.322
Lg4W (m)	35.322
Lg5W (m)	35.322
Lg6W (m)	35.322
SPAN LENGTH (m)	L=35.500
REMARKS	

	EAST BOUND
	P5~P6
Lo (m)	35.500
L1E (m)	35.462
L2E (m)	35.490
β1E (°)	20°40'18"
β2E (°)	20°40'18"
e1E/e2E (mm)	100/100
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1060/1106
B1E/B2E (mm)	1078/922
C1E/C2E (mm)	1025/1062
Lg1E (m)	35.274
Lg2E (m)	35.275
Lg3E (m)	35.275
Lg4E (m)	35.275
Lg5E (m)	35.275
Lg6E (m)	35.275
SPAN LENGTH (m)	L=35.500
REMARKS	



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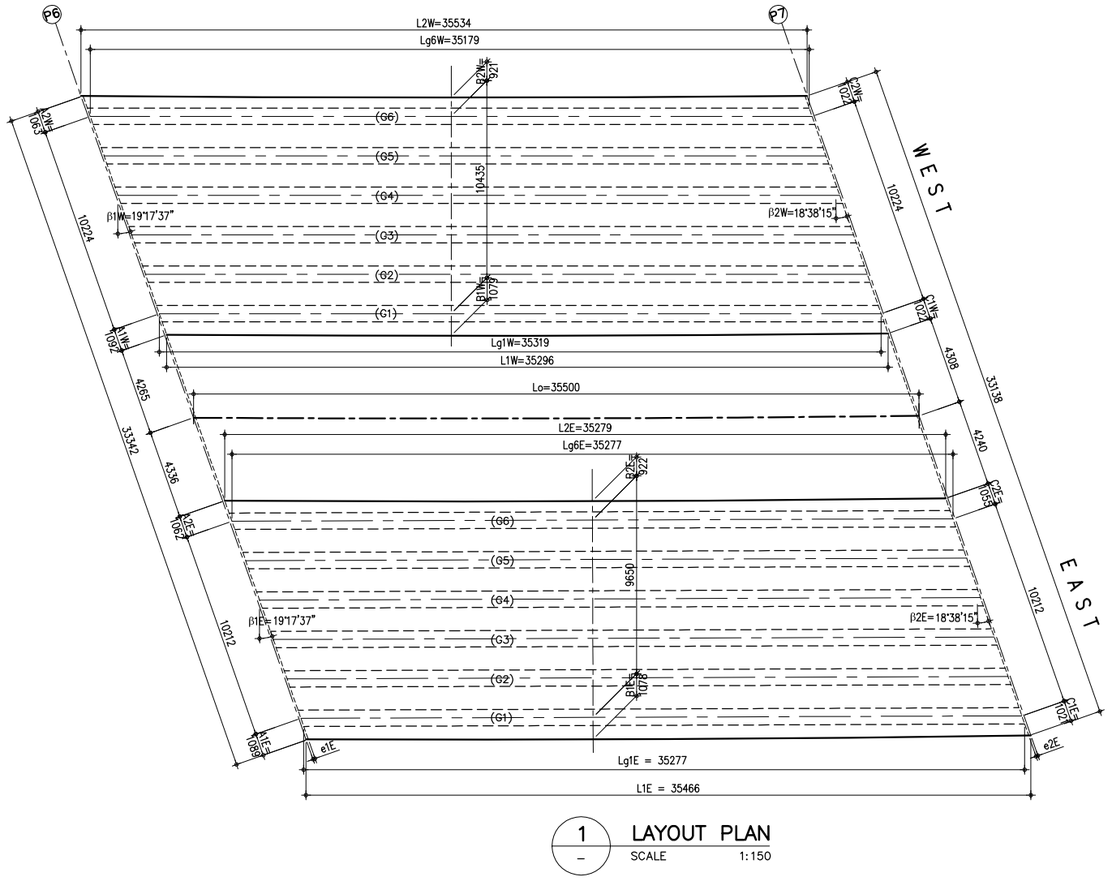
No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
LAYOUT PLAN FOR PIER P5 TO P6

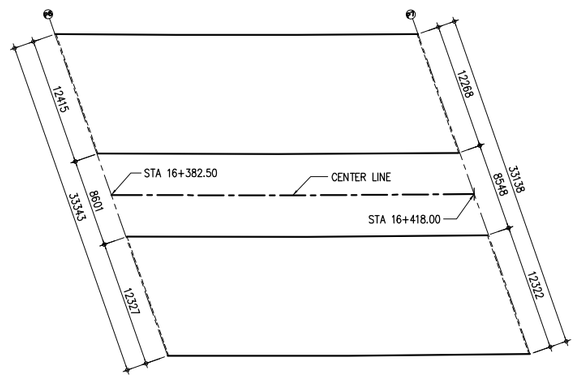
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-06



1 — LAYOUT PLAN
SCALE 1:150

	EAST BOUND
	P6~P7
Lo (m)	35.500
L1W (m)	35.296
L2W (m)	35.534
β1W (°)	19°17'37"
β2W (°)	18°38'15"
e1W/e2W (mm)	100/100
i1W (%)	2.5
i2W (%)	2.5
A1W/A2W (mm)	1092/1063
B1W/B2W(mm)	1079/921
C1W/C2W (mm)	1022/1022
Lg1W (m)	35.319
Lg2W (m)	35.319
Lg3W (m)	35.319
Lg4W (m)	35.319
Lg5W (m)	35.319
Lg6W (m)	35.319
SPAN LENGTH (m)	L=35.500
REMARKS	

	WEST BOUND
	P6~P7
Lo (m)	35.500
L1E (m)	35.466
L2E (m)	35.279
β1E (°)	19°17'37"
β2E (°)	18°38'15"
e1E/e2E (mm)	100/100
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1089/1062
B1E/B2E (mm)	1078/922
C1E/C2E (mm)	1021/1055
Lg1E (m)	35.277
Lg2E (m)	35.277
Lg3E (m)	35.277
Lg4E (m)	35.277
Lg5E (m)	35.277
Lg6E (m)	35.277
SPAN LENGTH (m)	L=35.500
REMARKS	



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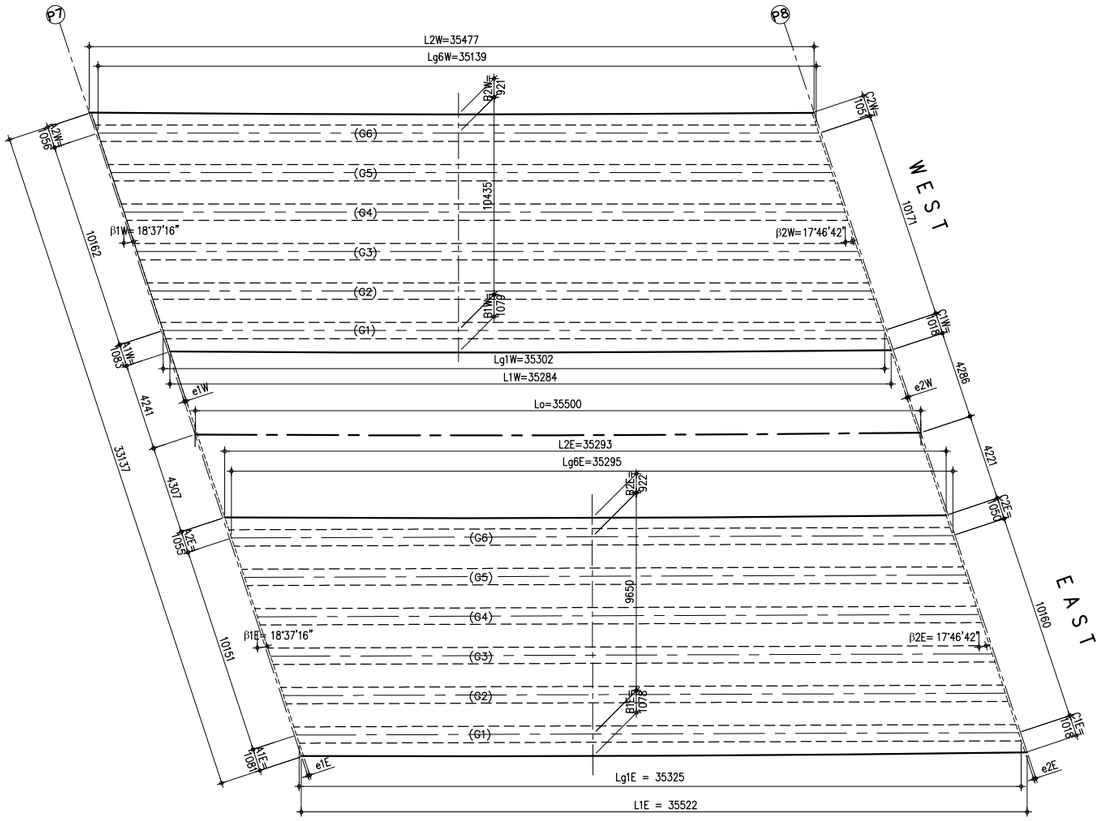
No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
LAYOUT PLAN PIER P6 TO P7

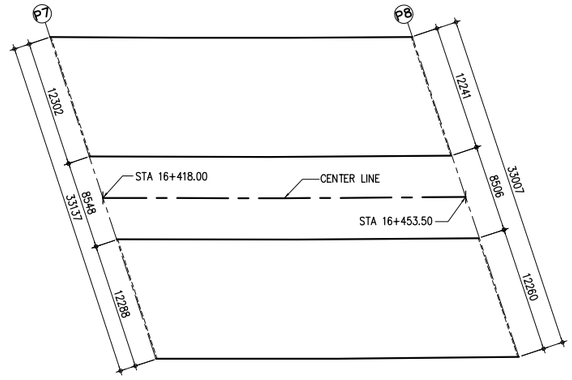
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-07



1 LAYOUT PLAN
SCALE 1:150

	WEST BOUND
	P7~P8
Lo (m)	35.500
L1W (m)	35.302
L2W (m)	35.477
β1W (°)	17°46'42"
β2W (°)	18°38'15"
e1W/e2W (mm)	100/100
i1W (%)	2.5
i2W (%)	2.5
A1W/A2W (mm)	1018/1051
B1W/B2W(mm)	1079/921
C1W/C2W (mm)	1018/1019
Lg1W (m)	35.284
Lg2W (m)	35.296
Lg3W (m)	35.290
Lg4W (m)	35.284
Lg5W (m)	35.278
Lg6W (m)	35.319
SPAN LENGTH (m)	L=35.500
REMARKS	

	EAST BOUND
	P7~P8
Lo (m)	35.500
L1E (m)	35.522
L2E (m)	35.293
β1E (°)	17°46'42"
β2E (°)	18°38'15"
e1E/e2E (mm)	100/100
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1081/1055
B1E/B2E (mm)	1078/922
C1E/C2E (mm)	1018/1050
Lg1E (m)	35.325
Lg2E (m)	35.318
Lg3E (m)	35.312
Lg4E (m)	35.307
Lg5E (m)	35.301
Lg6E (m)	35.295
SPAN LENGTH (m)	L=35.500
REMARKS	



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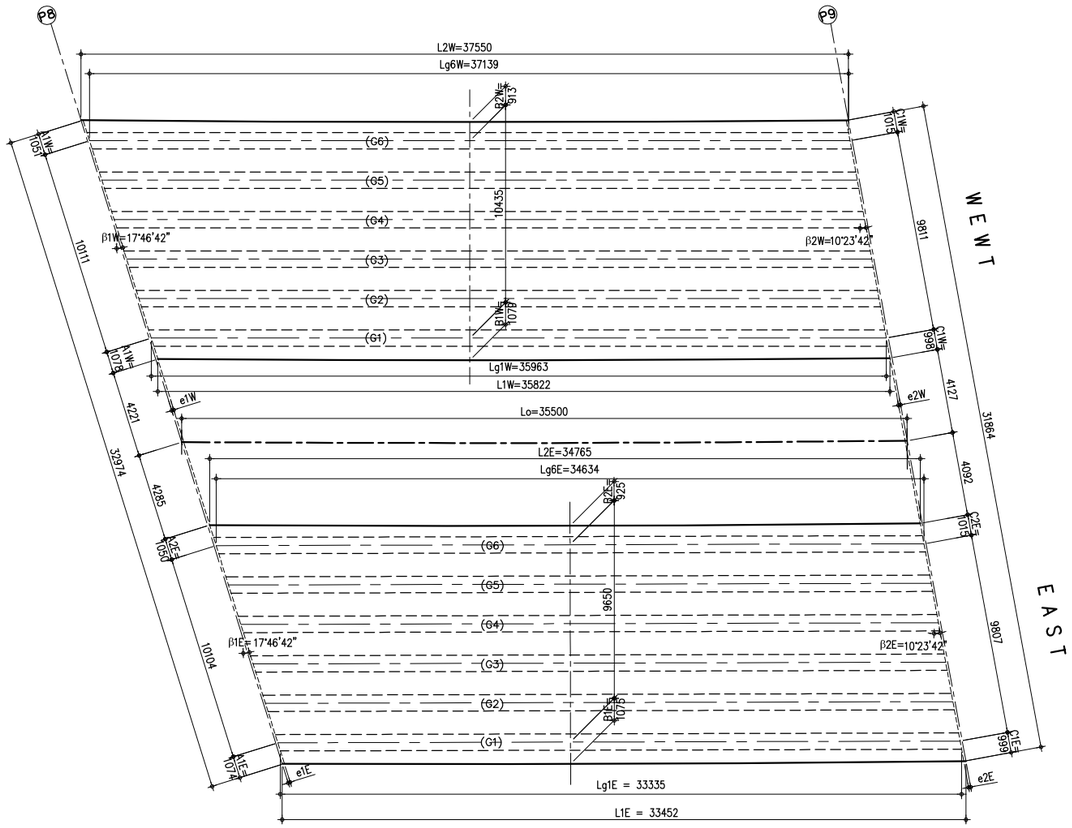
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
LAYOUT PLAN FOR PIER P7~P8

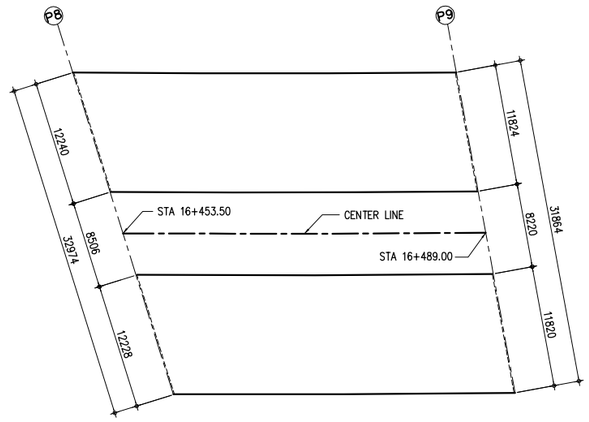
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-08



1 LAYOUT PLAN
SCALE 1:150

	WEST BOUND
	P8~P9
Lo (m)	35.500
L1W(m)	35.822
L2W(m)	37.550
β1W(°)	17°46'42"
β2W(°)	10°23'42"
e1S/e2W(mm)	100/100
i1W(%)	2.5
i2W(%)	2.5
A1S/A2W(mm)	1078/1051
B1S/B2W(mm)	1079/921
C1S/C2W(mm)	998/1015
Lg1W(m)	35.963
Lg2W(m)	36.213
Lg3W(m)	36.463
Lg4W(m)	36.713
Lg5W(m)	36.963
Lg6W(m)	37.213
SPAN LENGTH (m)	L=35.500
REMARKS	

	EAST BOUND
	P8~P9
Lo (m)	35.500
L1E (m)	33.452
L2E (m)	34.765
β1E (°)	17°46'42"
β2E (°)	10°23'42"
e1E/e2E (mm)	100/100
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1074/1050
B1E/B2E (mm)	1075/925
C1E/C2E (mm)	999/1015
Lg1E (m)	33.335
Lg2E (m)	33.636
Lg3E (m)	33.886
Lg4E (m)	34.135
Lg5E (m)	34.385
Lg6E (m)	34.634
SPAN LENGTH (m)	L=35.500
REMARKS	



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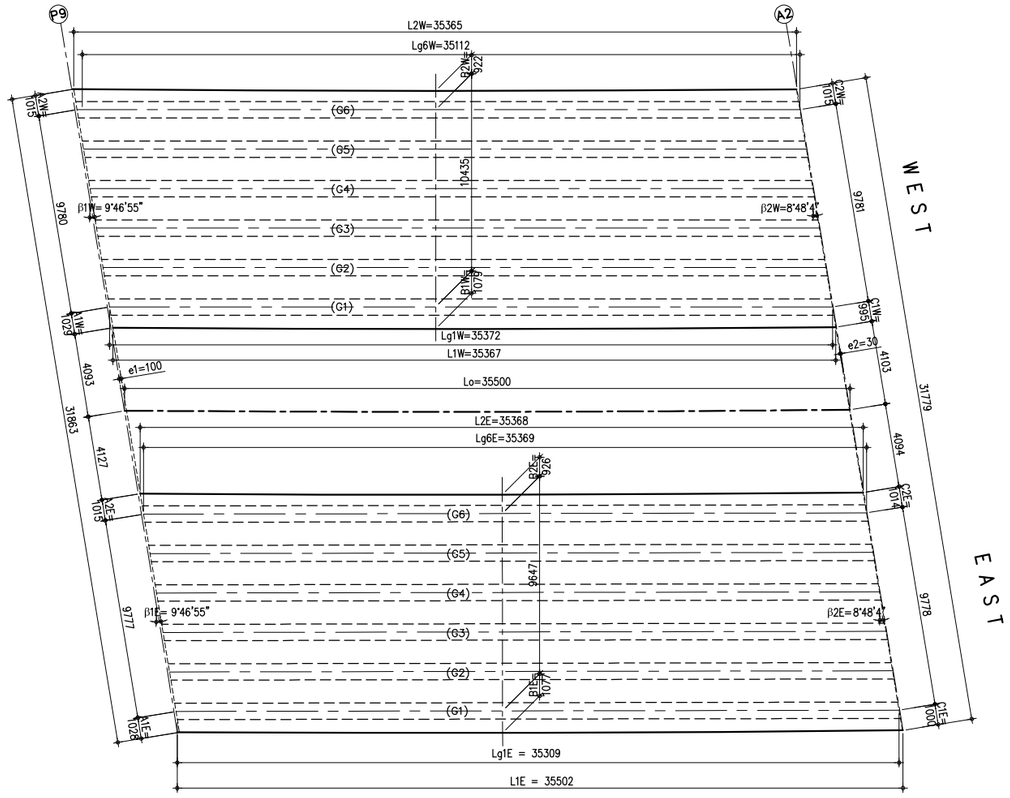
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
LAYOUT PLAN FOR PIER P8~P9

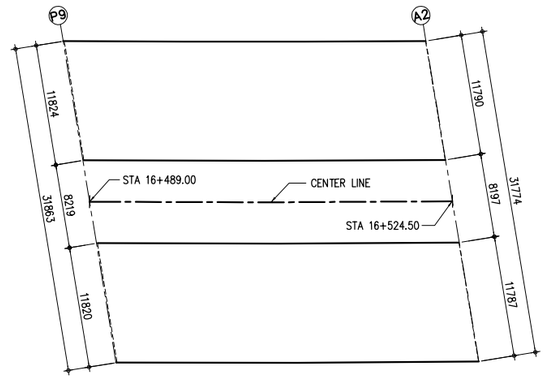
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-09



1 LAYOUT PLAN
– WCALE 1:150

	WEWT BOUED
	P9~A2
Lo (m)	35.500
L1W (m)	35.367
L2W (m)	37.365
β1W (°)	9'46'55"
β2W (°)	8'48'4"
e1W/e2W (mm)	100/30
i1W (%)	2.5
i2W (%)	2.5
A1W/A2W (mm)	1029/1015
B1W/B2W(mm)	1079/922
C1W/C2W (mm)	995/1015
Lg1W (m)	35.372
Lg2W (m)	35.371
Lg3W (m)	35.369
Lg4W (m)	35.368
Lg5W (m)	35.367
Lg6W (m)	35.366
SPAN LENGTH (m)	L=35.500
REMARKS	

	EAWT BOUED
	P9~A2
Lo (m)	35.500
L1E (m)	35.502
L2E (m)	35.368
β1E (°)	9'46'55"
β2E (°)	8'48'4"
e1E/e2E (mm)	100/30
i1E (%)	2.5
i2E (%)	2.5
A1E/A2E (mm)	1028/1015
B1E/B2E (mm)	1077/926
C1E/C2E (mm)	1000/1014
Lg1E (m)	35.309
Lg2E (m)	35.374
Lg3E (m)	35.373
Lg4E (m)	35.371
Lg5E (m)	35.370
Lg6E (m)	35.369
SPAN LENGTH (m)	L=35.500
REMARKS	



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

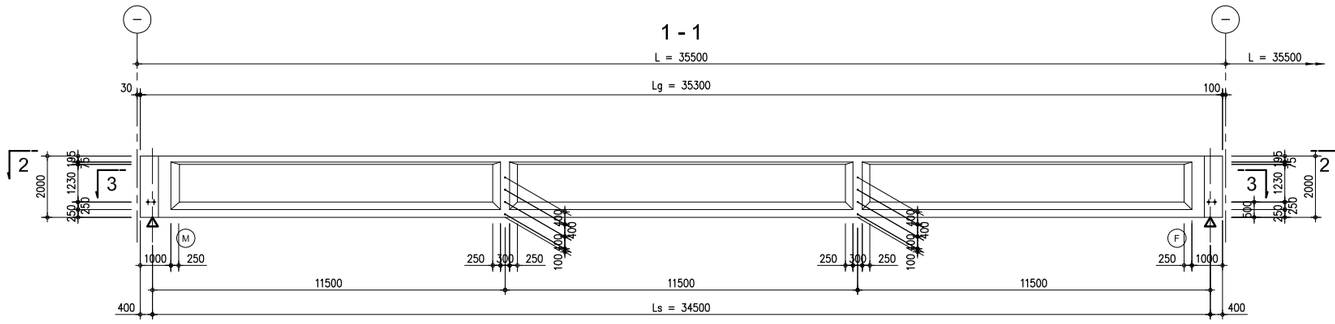
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

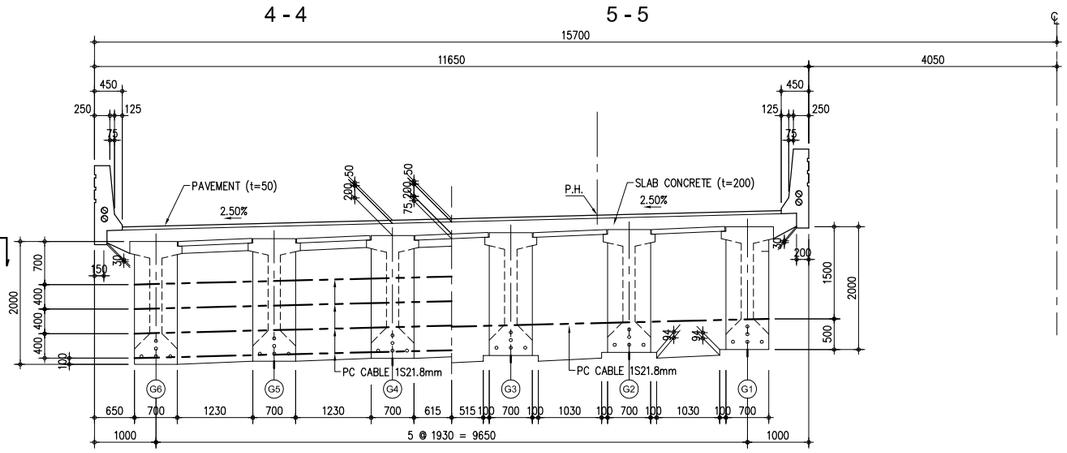
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE EO.9 (H9) - KELAEI RIVER CROWWIEG BRIDGE
LAYOUT PLAE FOR PIER P9 TO A2

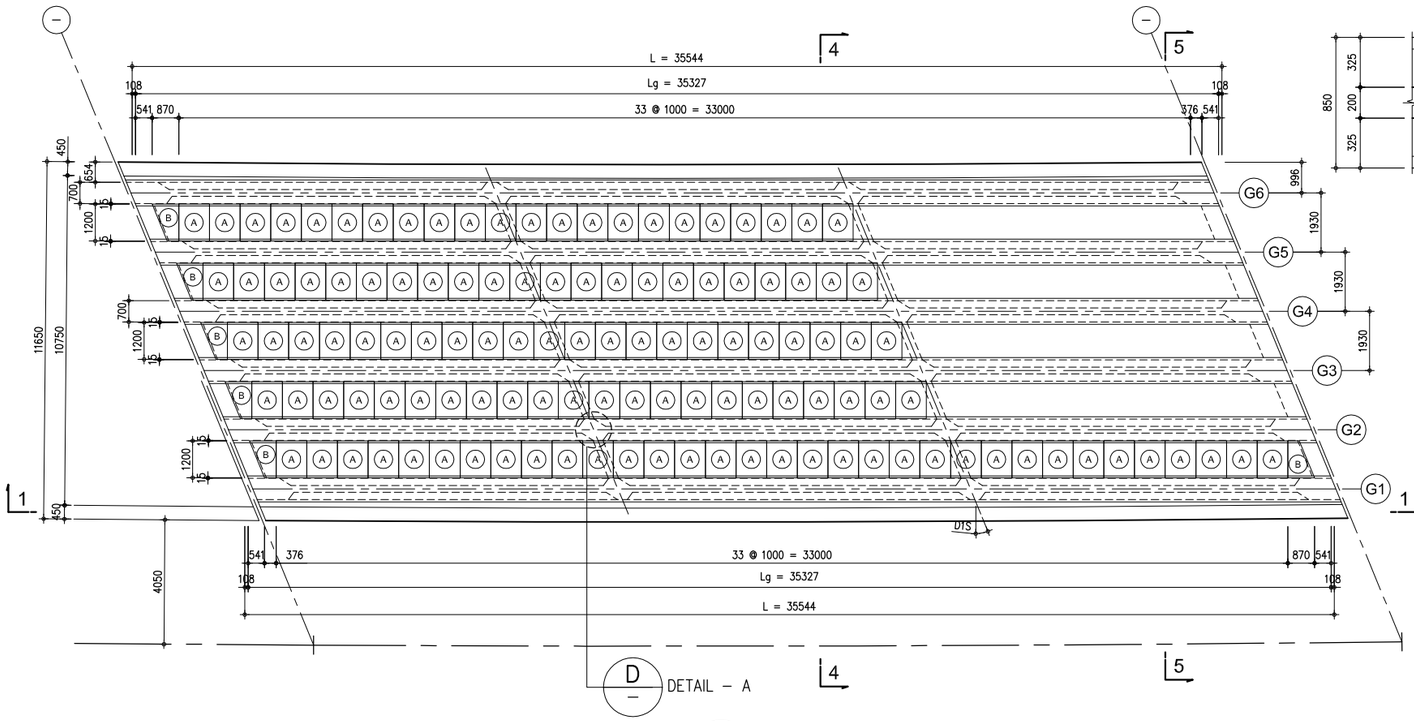
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-10



B SIDE VIEW
SCALE 1:100

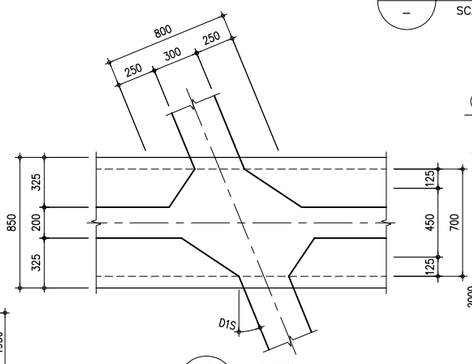


C CROSS SECTION (TYPICAL)
SCALE 1:50

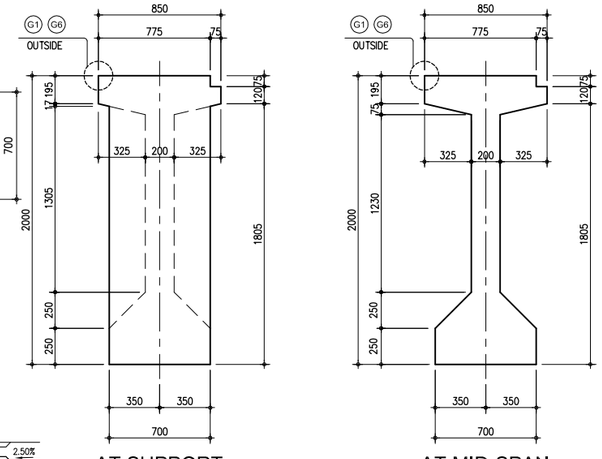


D DETAIL – A

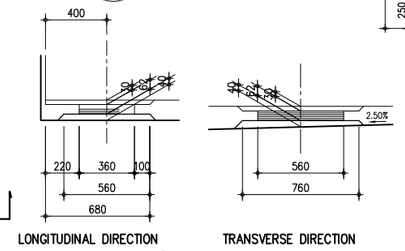
A TYPICAL PLAN
SCALE 1:100



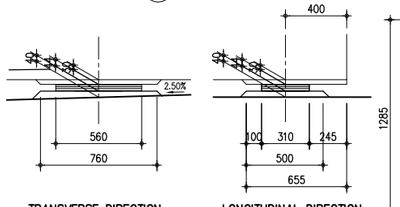
D DETAIL–A
SCALE 1:20



E GIRDER CROSS SECTION
SCALE 1:20

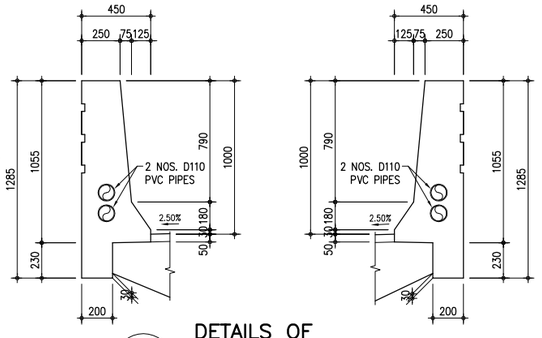


P3 MOVABLE



P4 FIXED

F BEARING DETAILS
SCALE 1:20



G DETAILS OF NEW JERSEY BARRIER
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

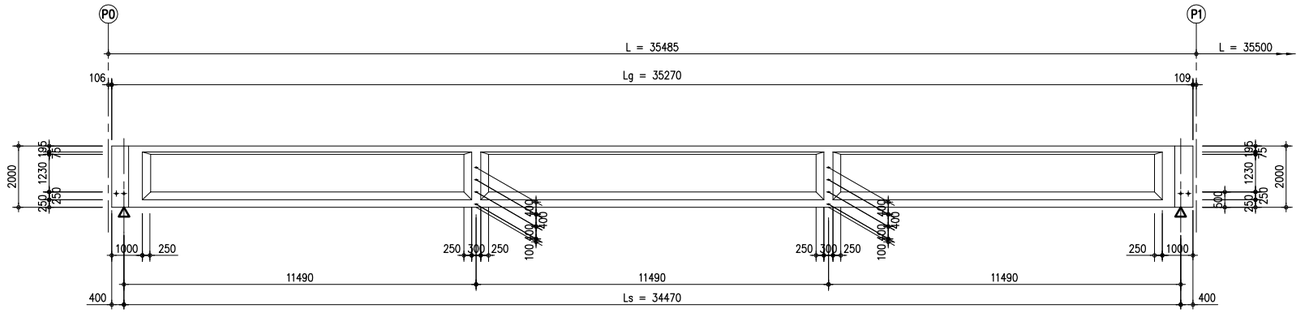
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

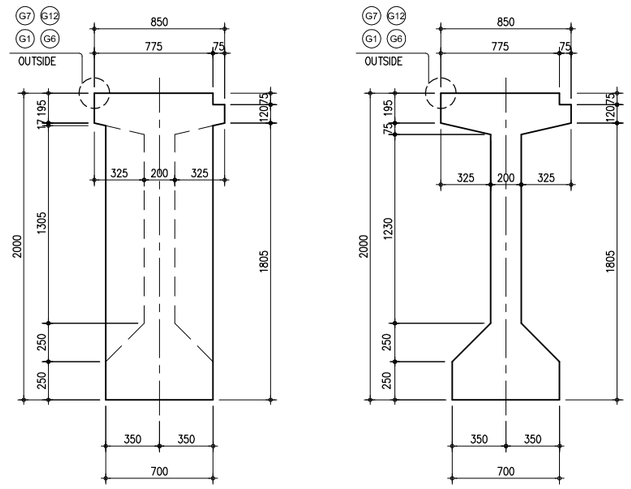
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
PCI GIRDER LAYOUT & DIMENSION DETAIL (TYPICAL)

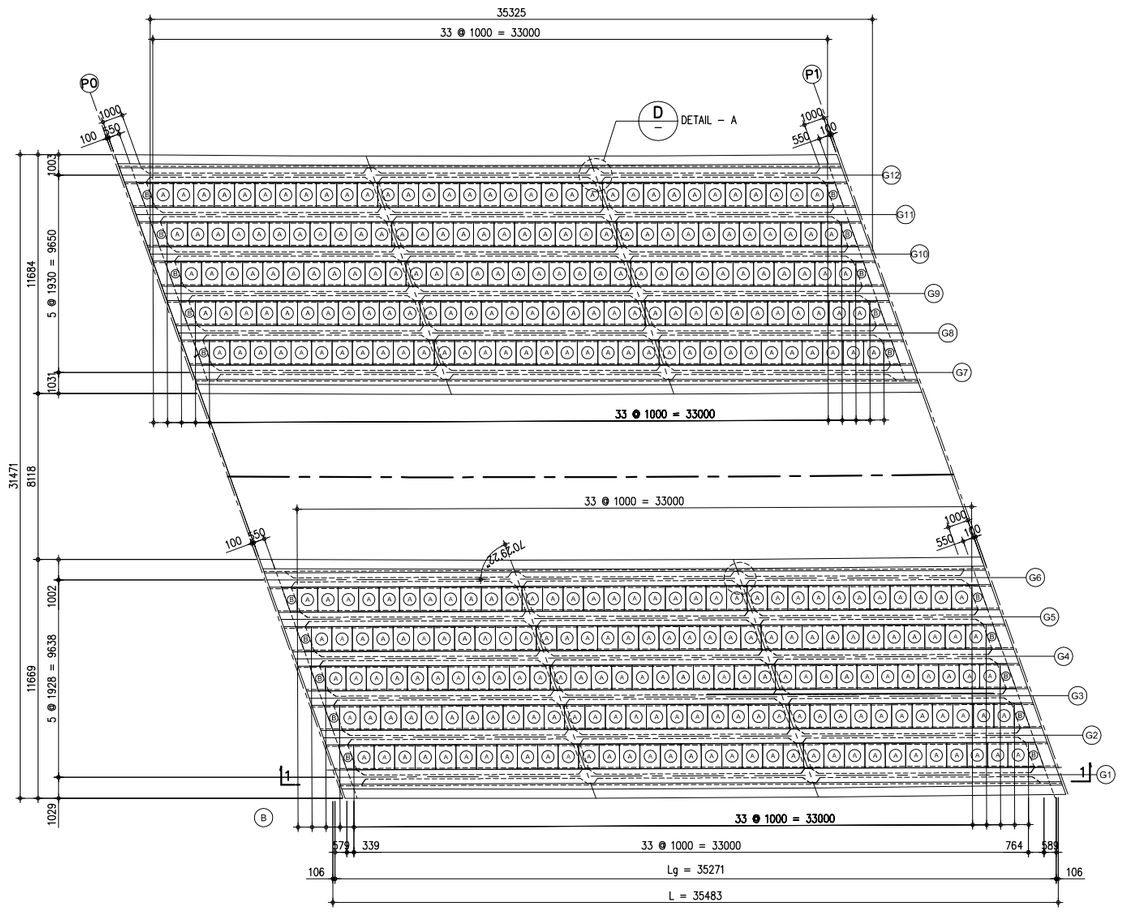
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-11



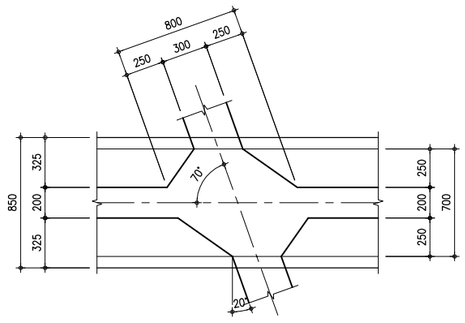
B — SIDE VIEW
SCALE 1:100



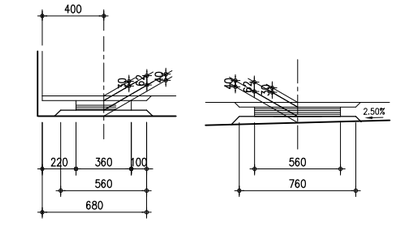
C — GIRDER CROSS SECTION
SCALE 1:20



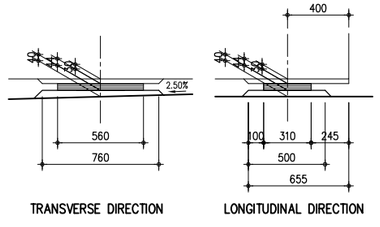
A — PRECAST PLATES LAYOUT
SCALE 1:150



D — DETAIL – A
SCALE 1:20



P0 MOVABLE



P1 FIXED

E — BEARING DETAILS
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

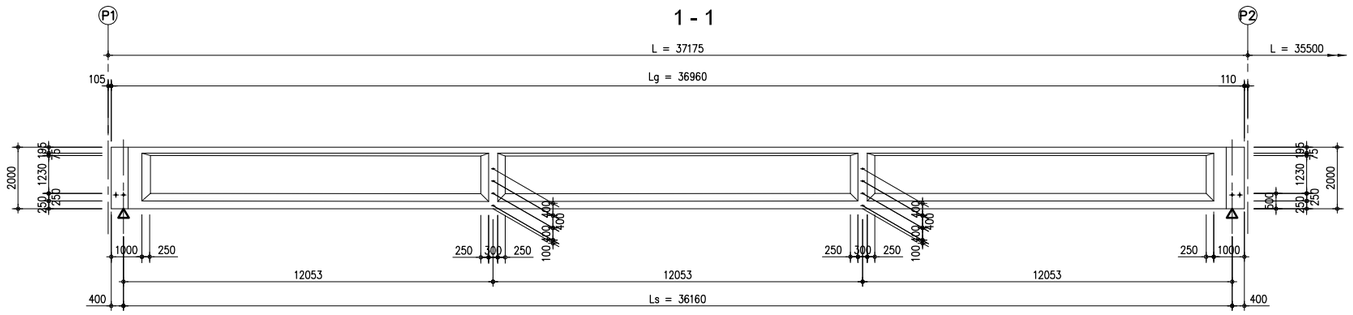
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

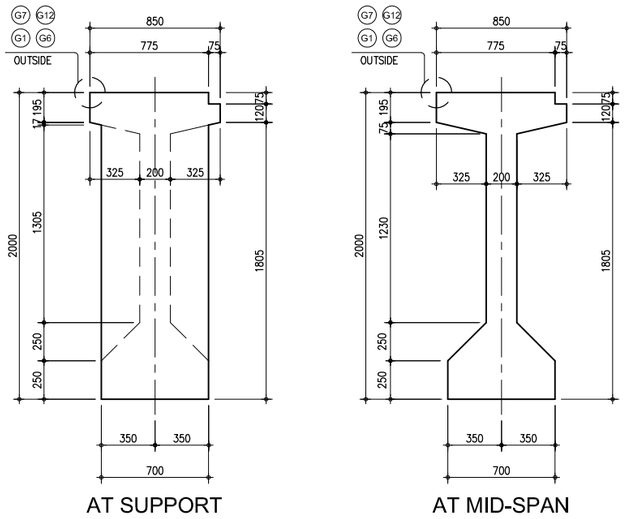
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P0 TO P1 (1/10)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-12

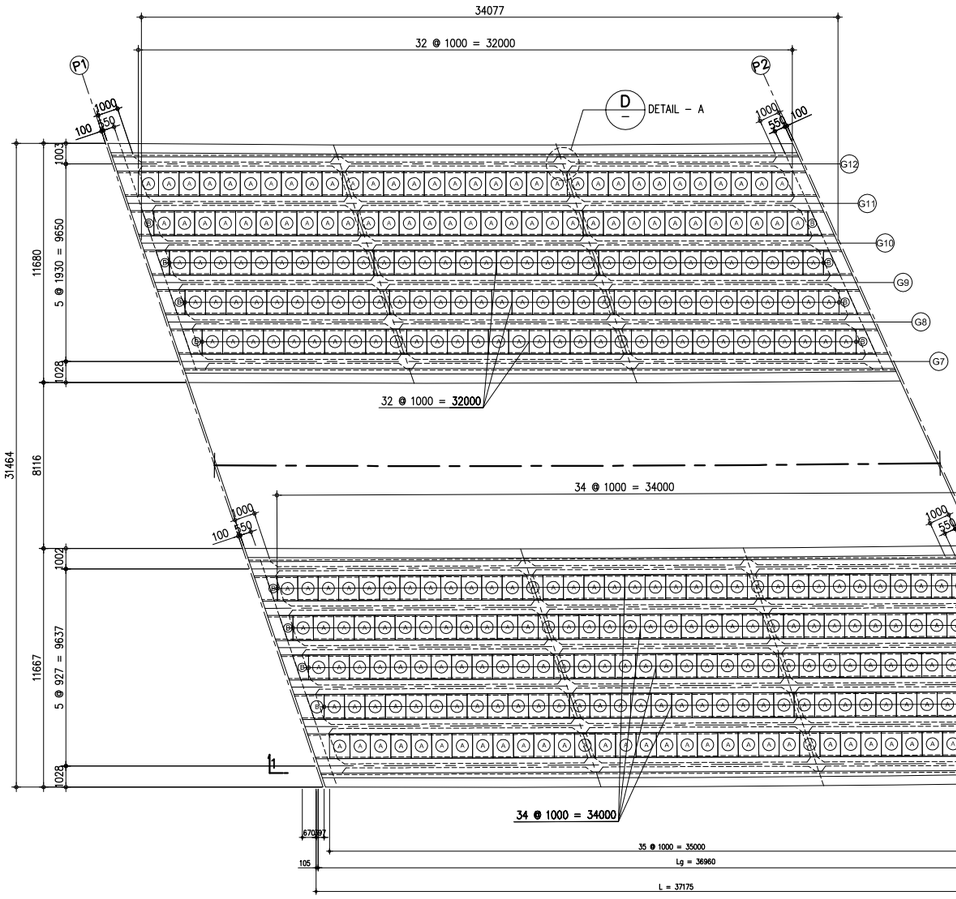


B — SIDE VIEW
SCALE 1:100

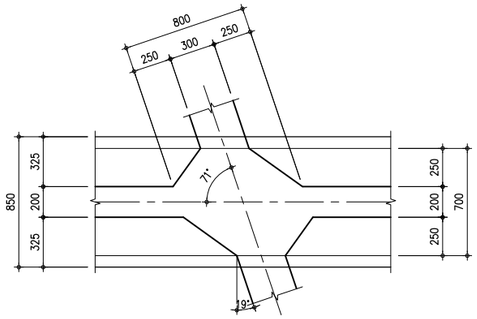


AT SUPPORT

AT MID-SPAN

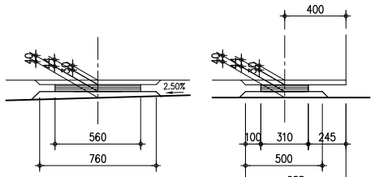


A — PRECAST PLATES LAYOUT
SCALE 1:150



D — DETAIL–A
SCALE 1:20

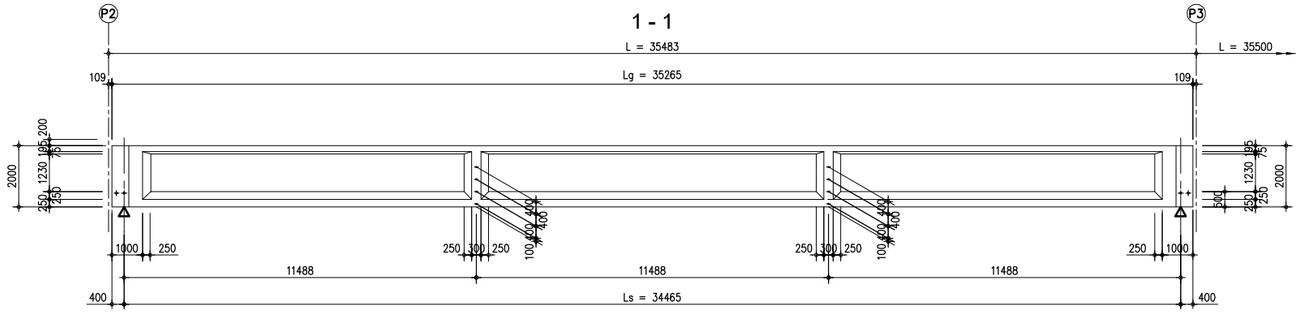
C — GIRDER CROSS SECTION
SCALE 1:20



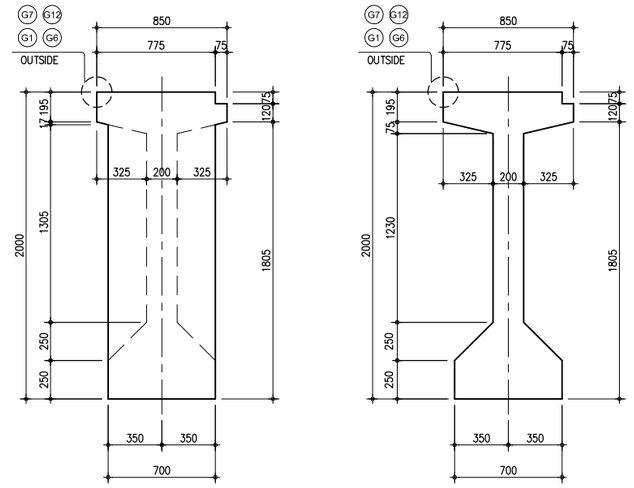
P1 P2 FIXED

E — BEARING DETAILS
SCALE 1:20

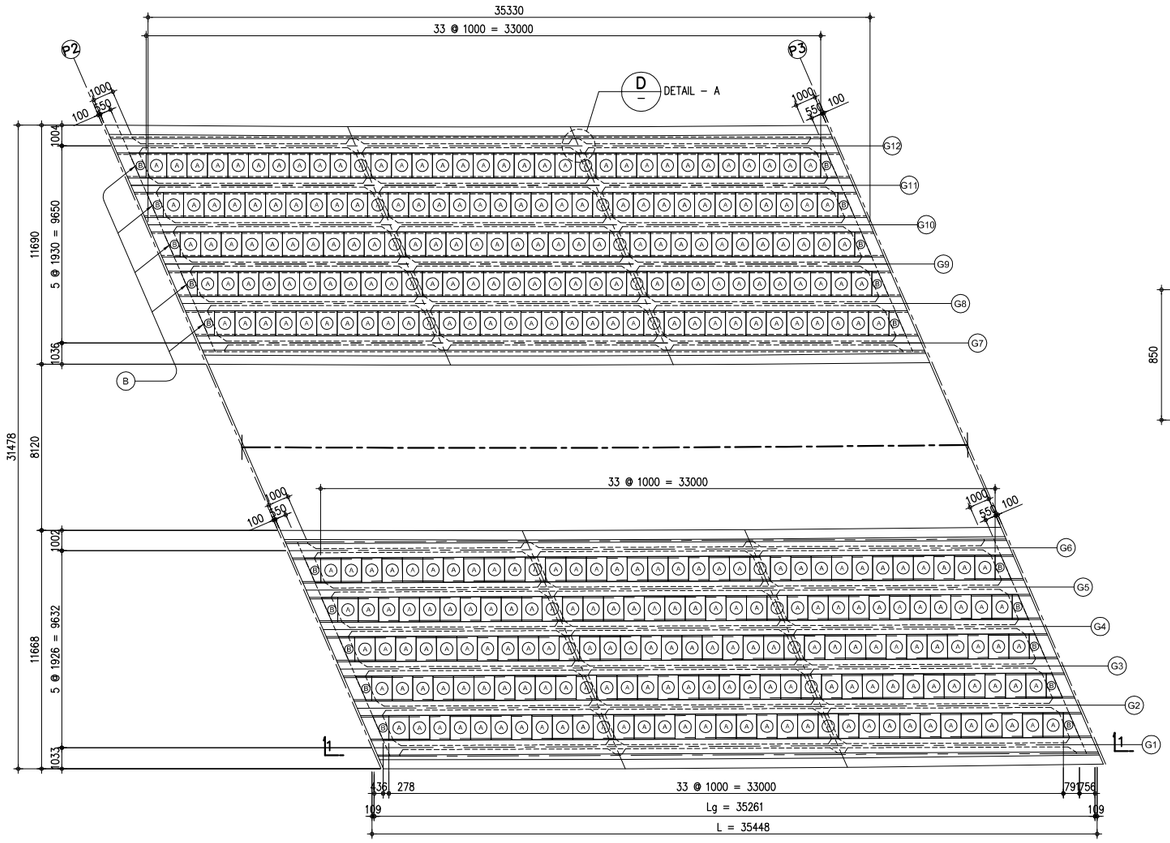
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT Road Development Authority	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No	REVISION	DATE	COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1) HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P1 TO P2 (2/10)	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO. K01-13



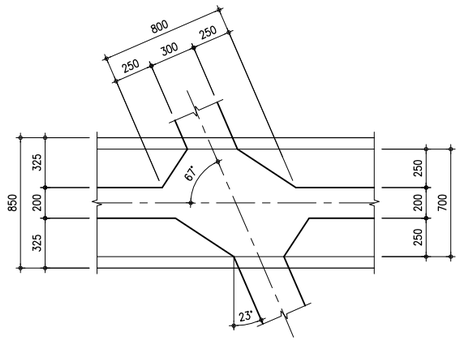
B — SIDE VIEW
SCALE 1:100



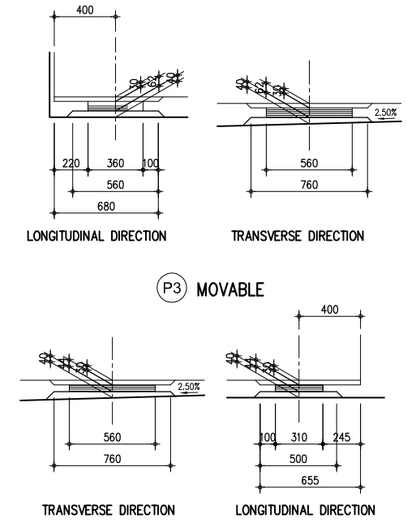
C — GIRDER CROSS SECTION
SCALE 1:20



A — PRECAST PLATES LAYOUT
SCALE 1:150

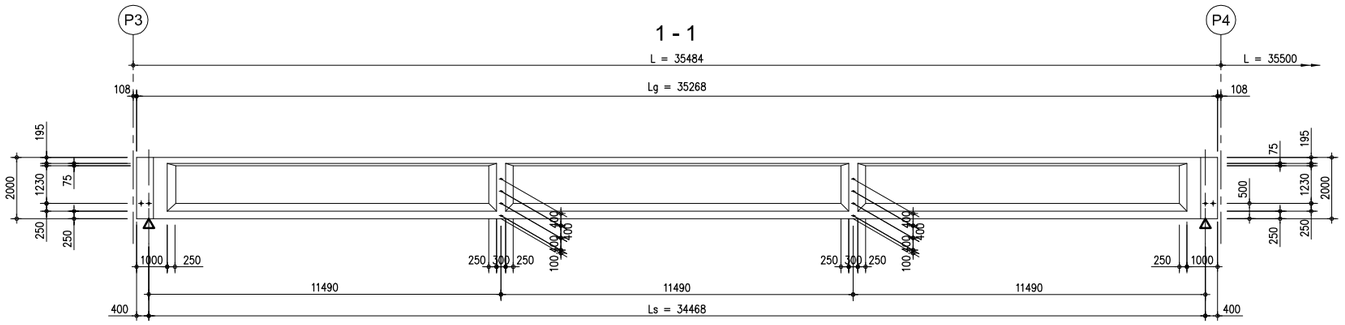


D — DETAIL – A
SCALE 1:20

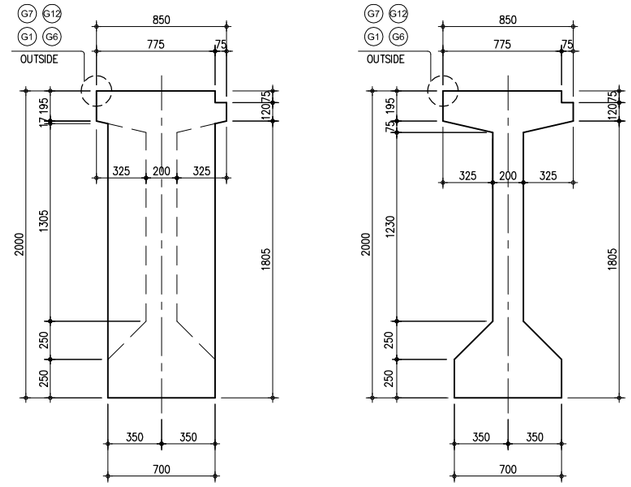


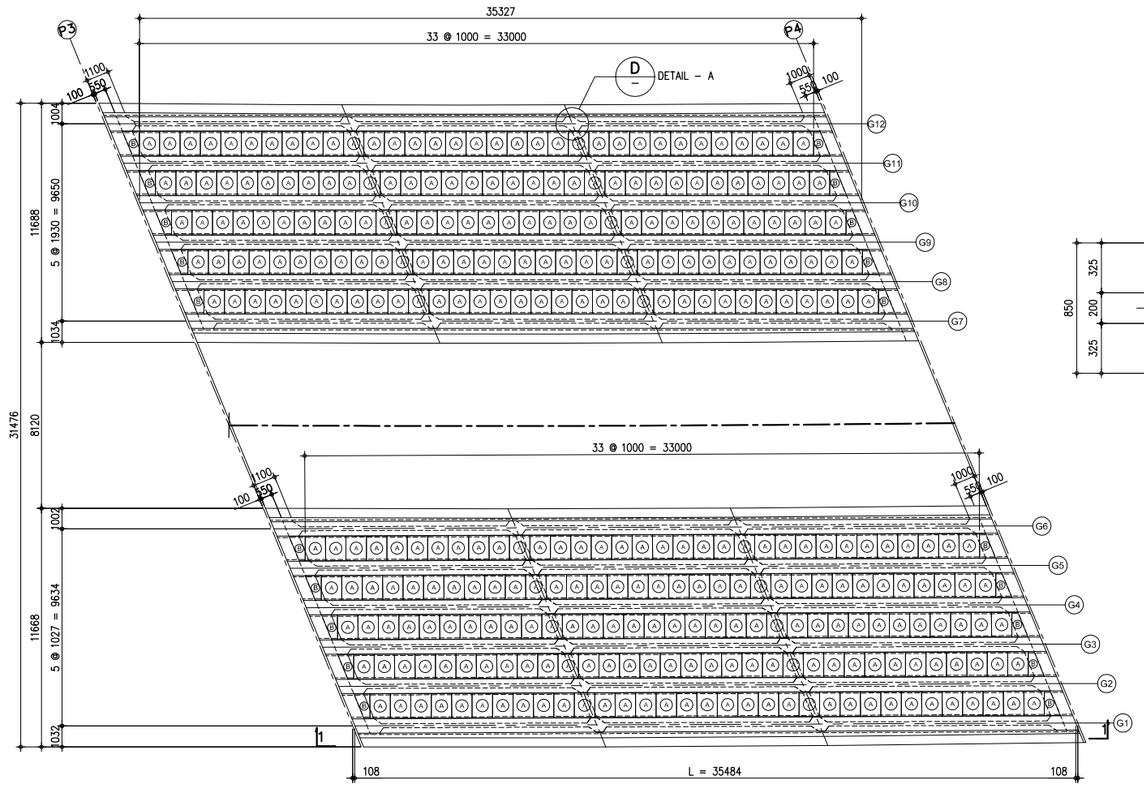
E — BEARING DETAILS
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT Road Development Authority	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No / REVISION / DATE	COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1) HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P2 TO P3 (3/10)	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO. K01-14

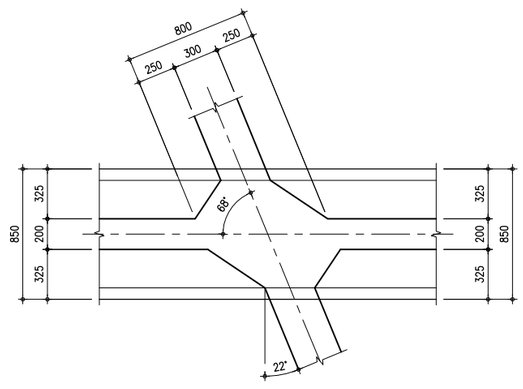


B — SIDE VIEW
SCALE 1:100



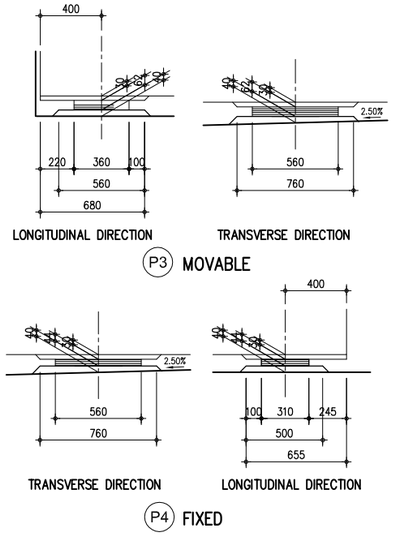


A — PRECAST PLATES LAYOUT
SCALE 1:150



D — DETAIL–A
SCALE 1:20

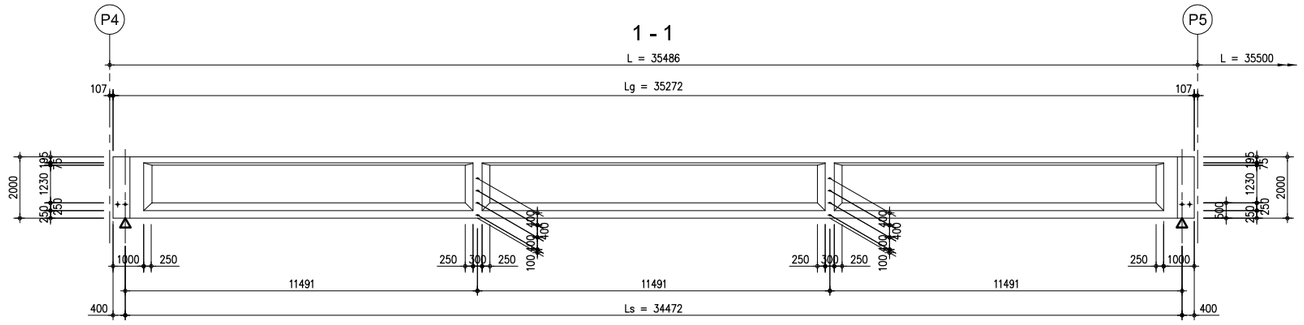
C — GIRDER CROSS SECTION
SCALE 1:20



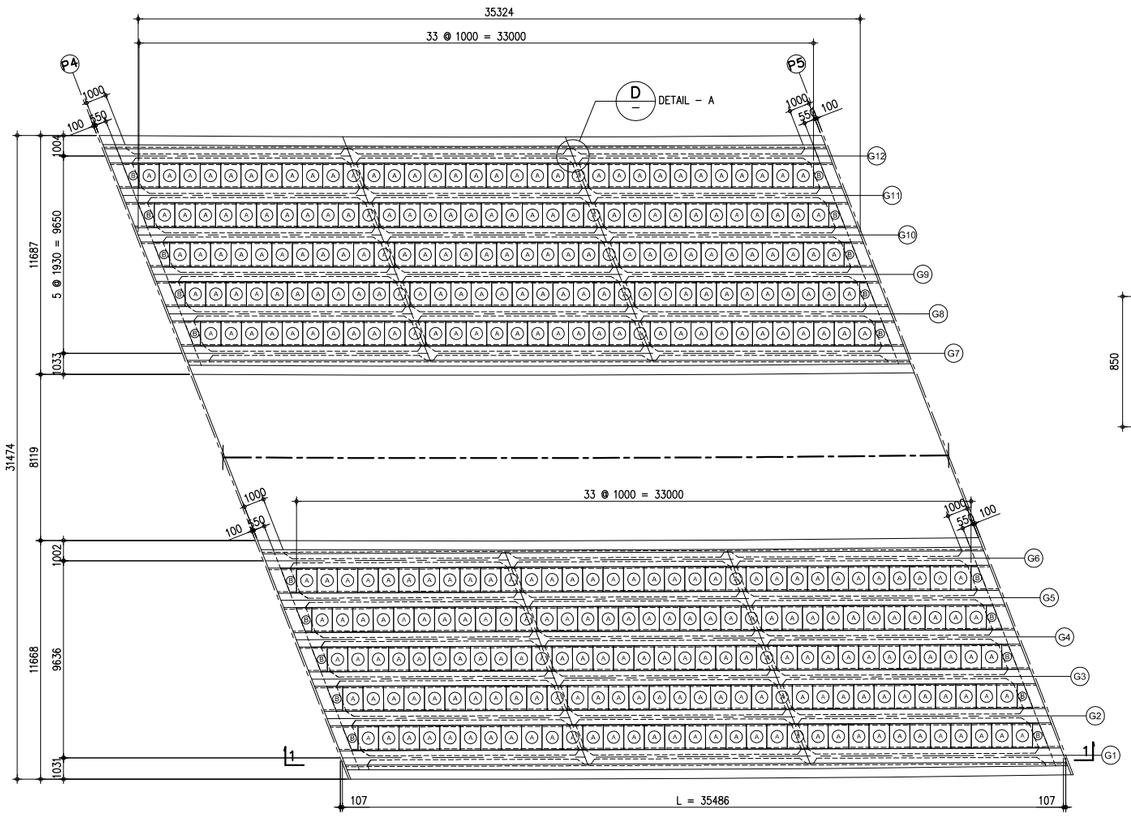
E — BEARING DETAILS
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)**	DESIGNED BY:
		HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P3 TO P4 (4/10)	CHECKED BY: APPROVED BY: DWG. NO. K01-15

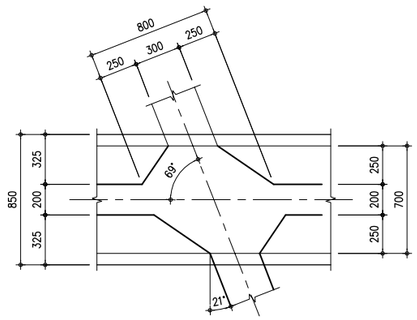
No	REVISION	DATE



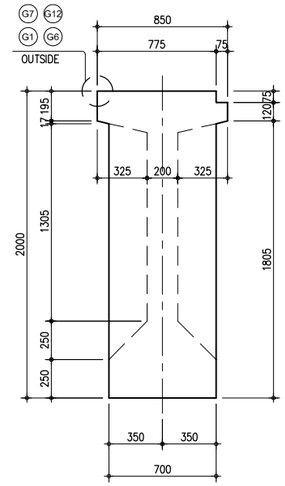
B — SIDE VIEW
SCALE 1:100



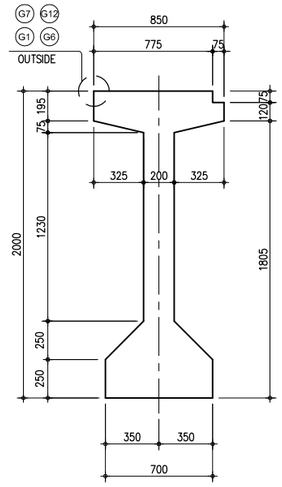
A — PRECAST PLATES LAYOUT
SCALE 1:150



D — DETAIL–A
SCALE 1:20

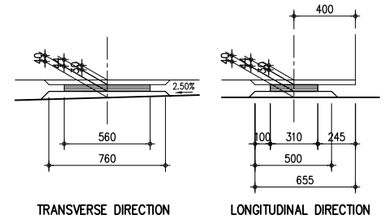


AT SUPPORT



AT MID-SPAN

C — GIRDER CROSS SECTION
SCALE 1:20

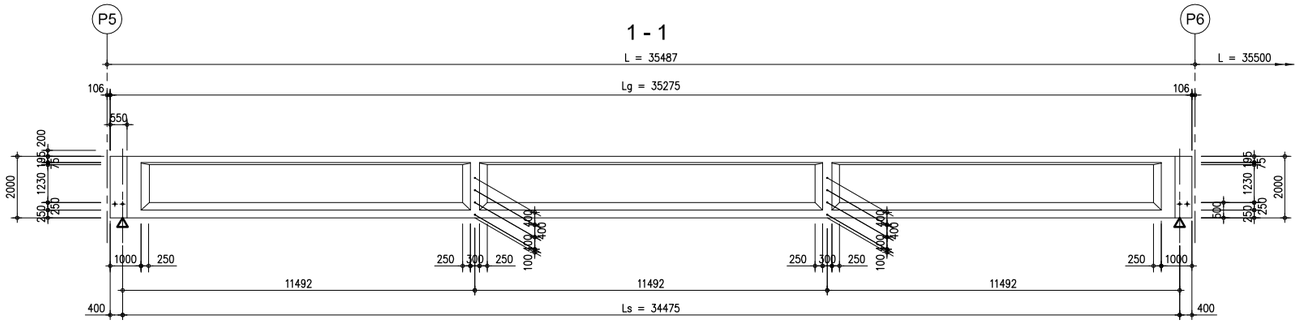


TRANSVERSE DIRECTION
LONGITUDINAL DIRECTION
P4 P5 FIXED

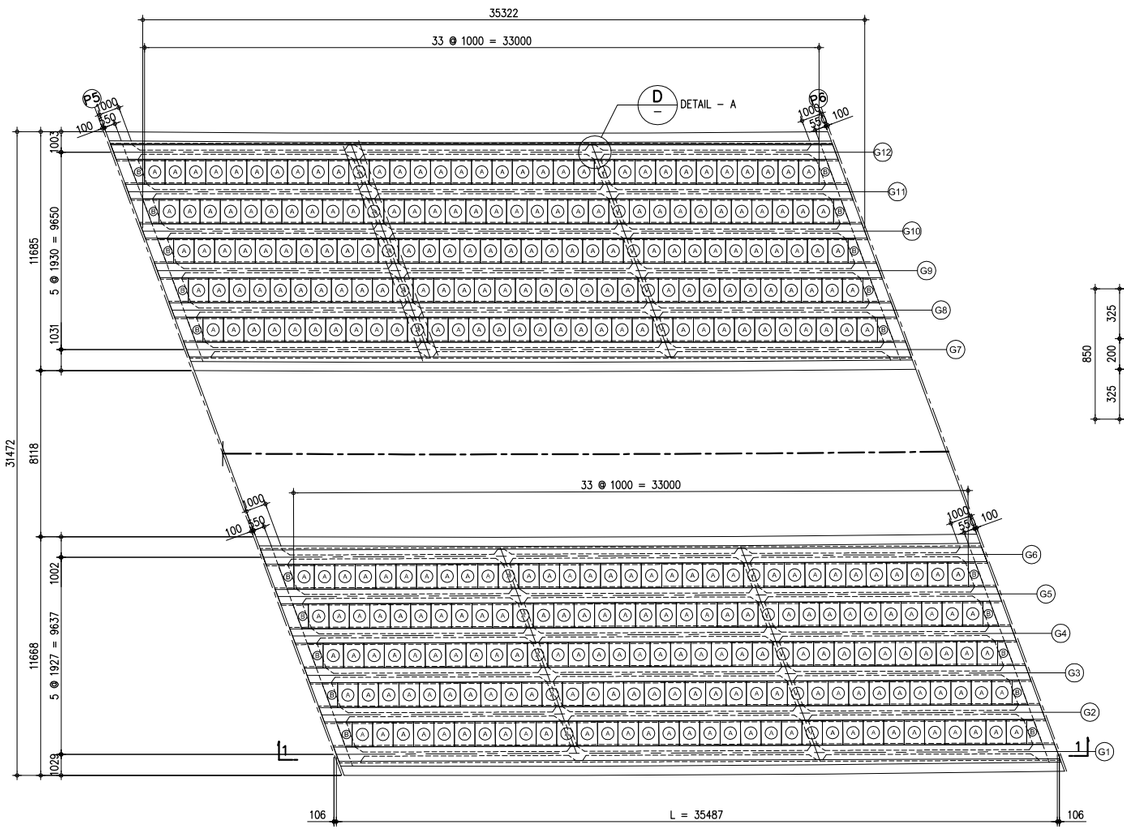
E — BEARING DETAILS
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED *in association with* PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)**	DESIGNED BY:
			CHECKED BY:
		HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P4 TO P5 (5/10)	APPROVED BY:
			DWG. NO. K01-16

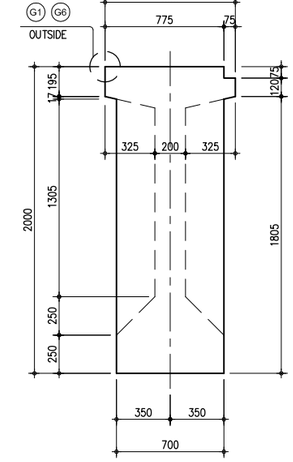
No	REVISION	DATE



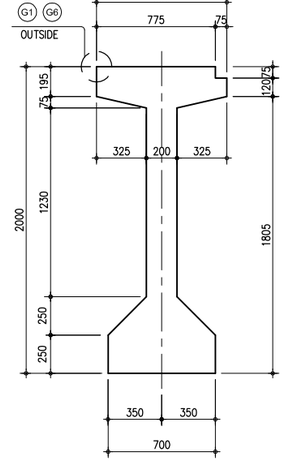
B — SIDE VIEW
SCALE 1:100



A — PRECAST PLATES LAYOUT
SCALE 1:150

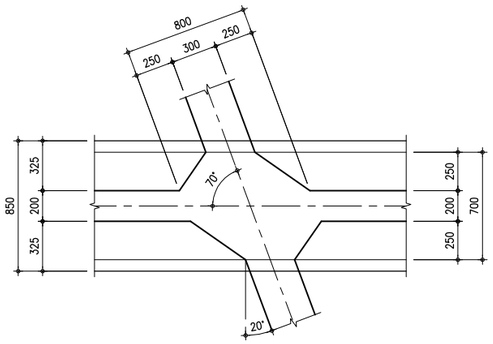


AT SUPPORT

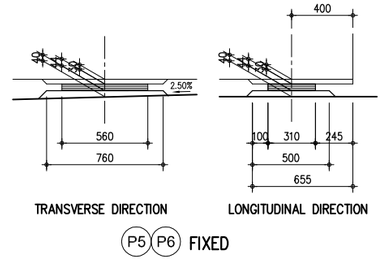


AT MID-SPAN

C — GIRDER CROSS SECTION
SCALE 1:20

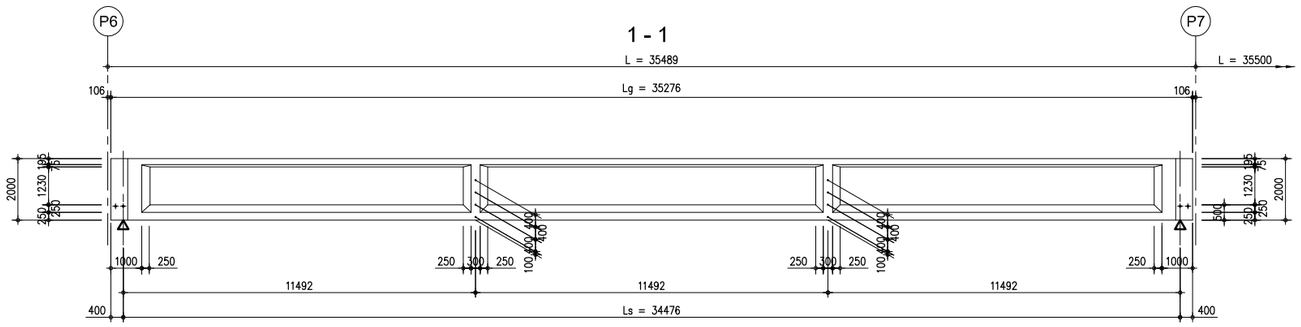


D — DETAIL–A
SCALE 1:20

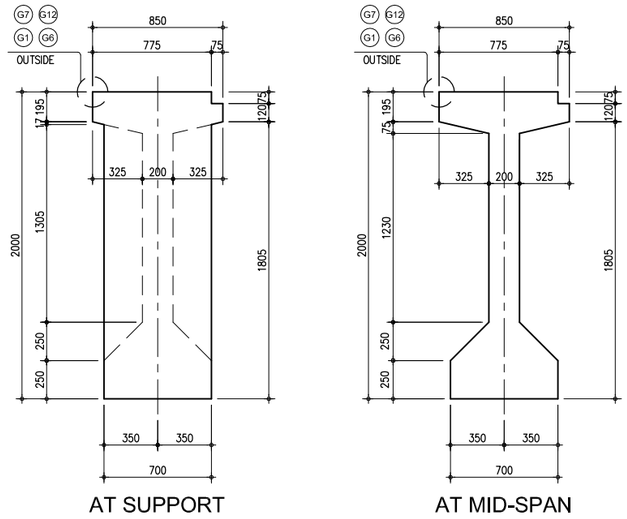


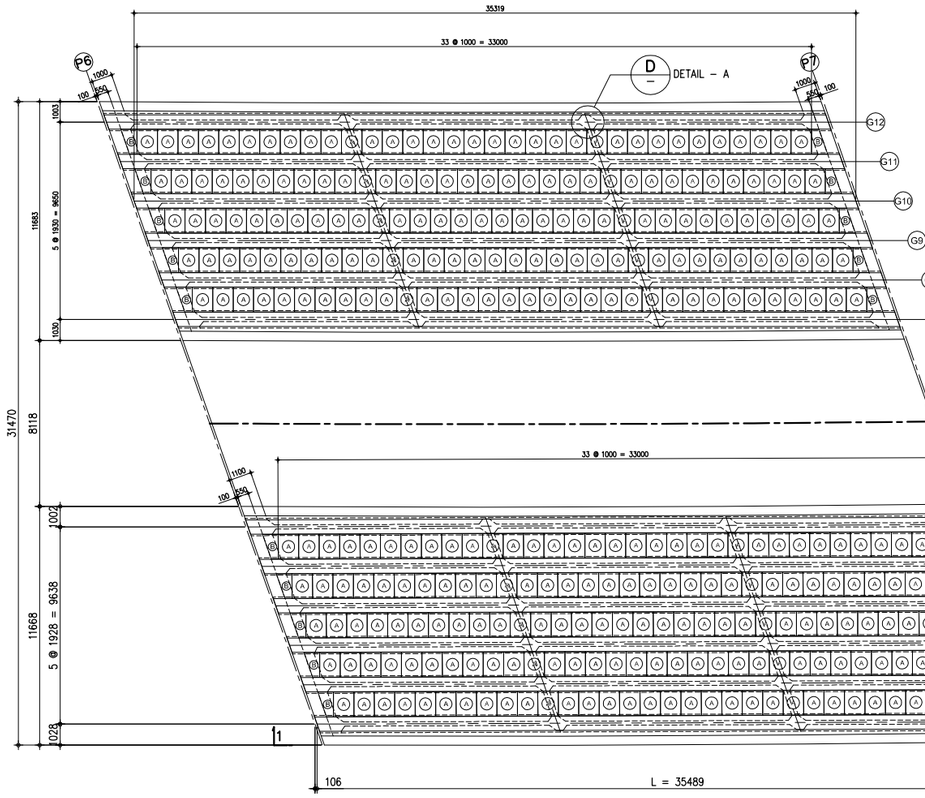
E — BEARING DETAILS
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT Road Development Authority	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL
No / REVISION / DATE	
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1)	DESIGNED BY: / CHECKED BY: / APPROVED BY:
HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P5 TO P6 (6/10)	DWG. NO. K01-17

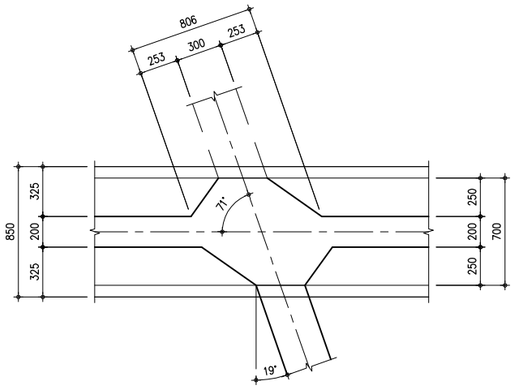


B — SIDE VIEW
SCALE 1:100



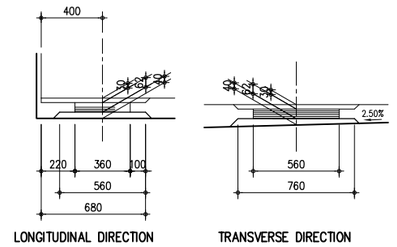


A — PRECAST PLATES LAYOUT
SCALE 1:150



D — DETAIL–A
SCALE 1:20

C — GIRDER CROSS SECTION
SCALE 1:20



E — BEARING DETAILS
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

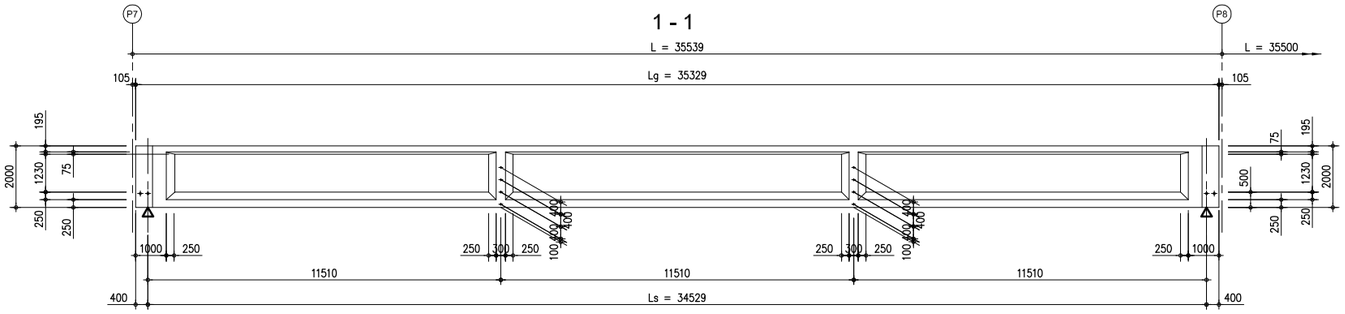
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

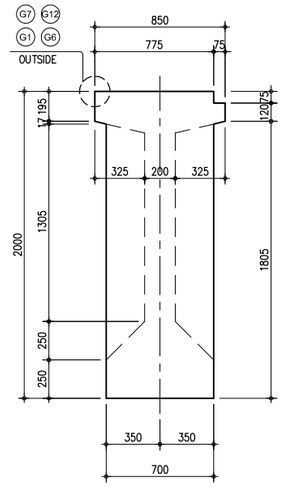
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P6 TO P7 (7/10)

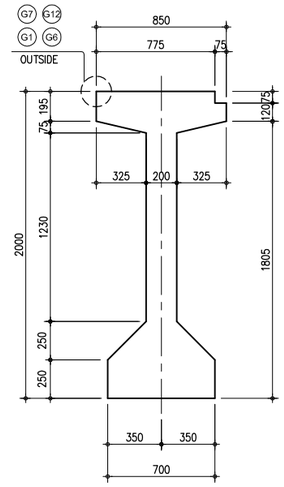
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-18



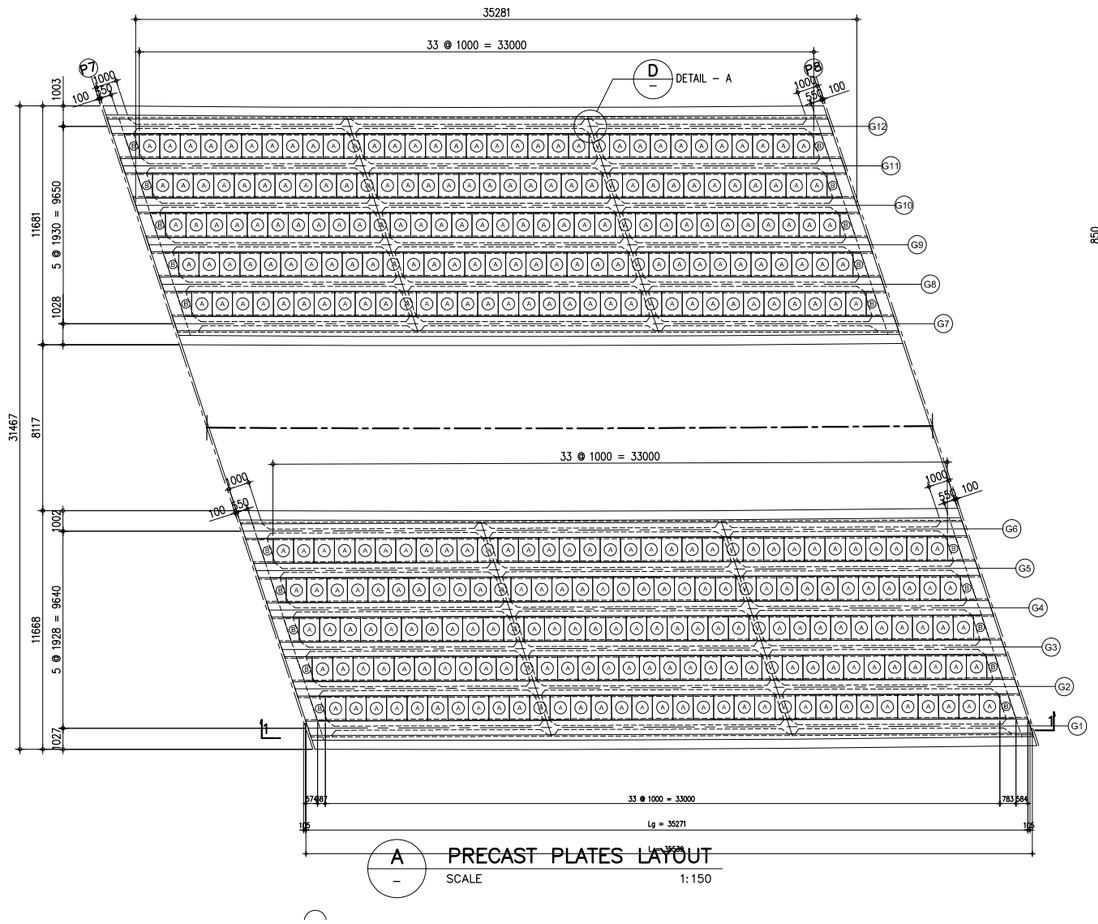
B — SIDE VIEW
SCALE 1:100



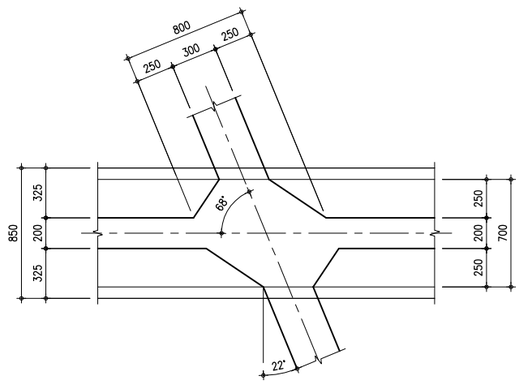
AT SUPPORT



AT MID-SPAN

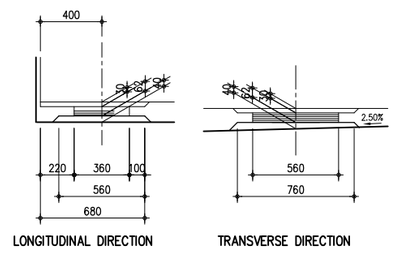


A — PRECAST PLATES LAYOUT
SCALE 1:150



D — DETAIL–A
SCALE 1:20

C — GIRDER CROSS SECTION
SCALE 1:20



E — BEARING DETAILS
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

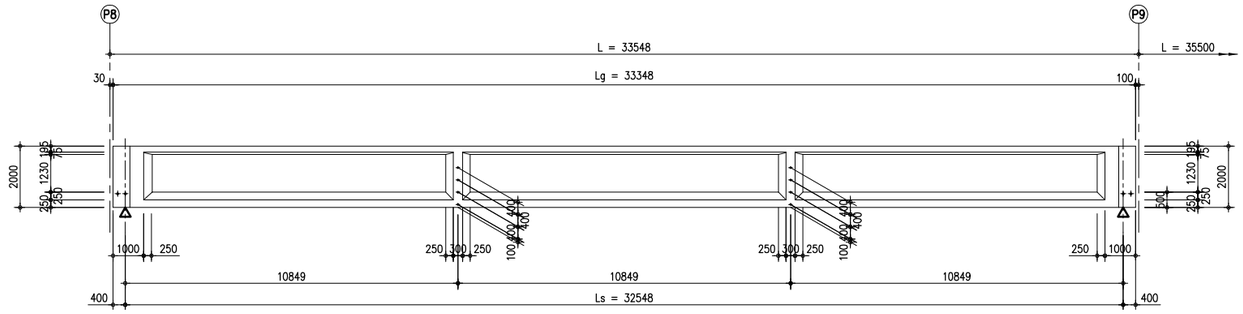
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

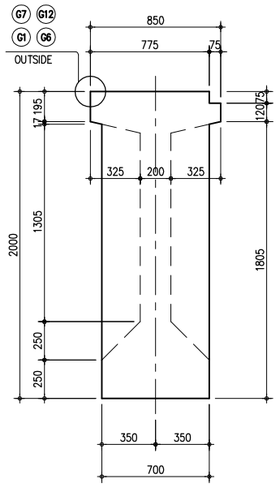
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P7 TO P8 (8/10)

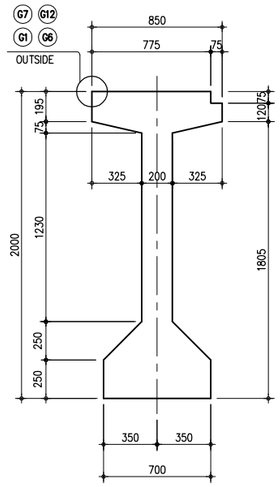
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-19



B — SIDE VIEW
SCALE 1:100

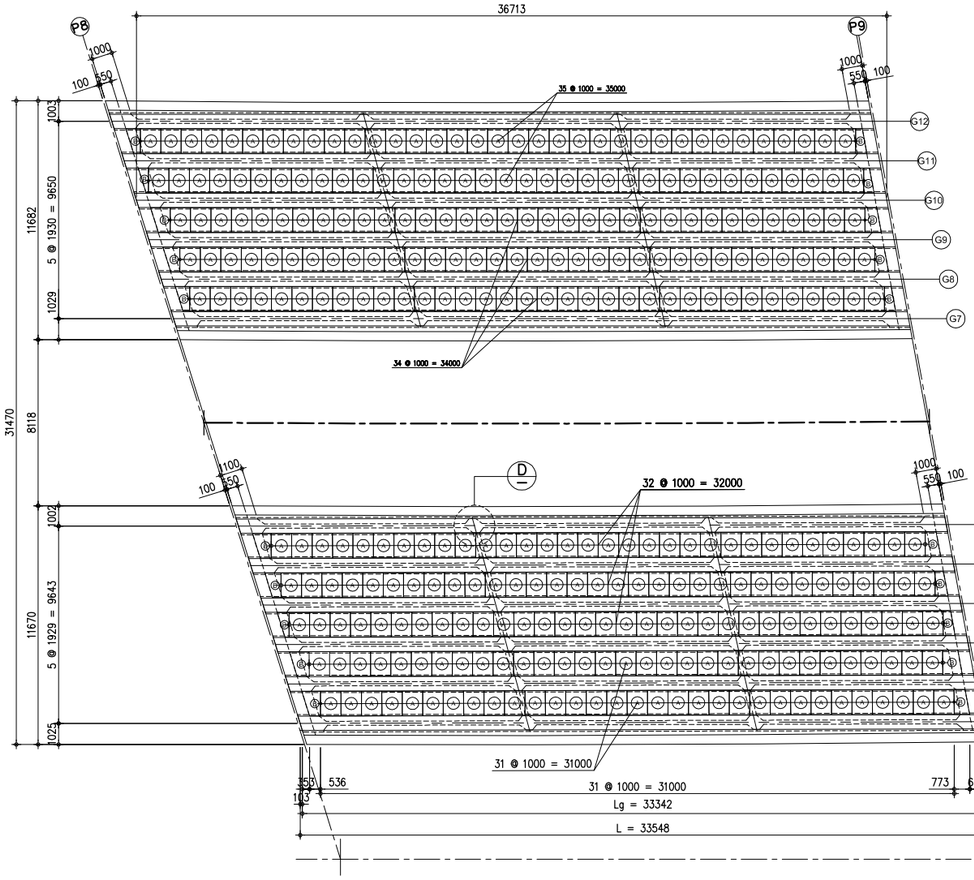


AT SUPPORT

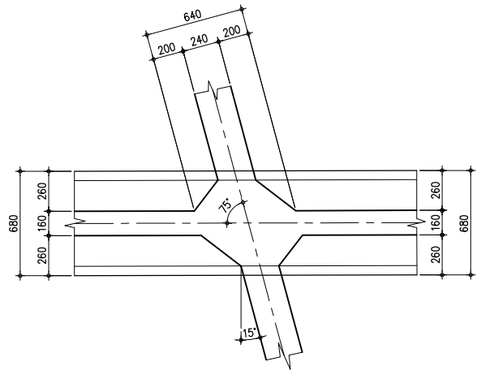


AT MID-SPAN

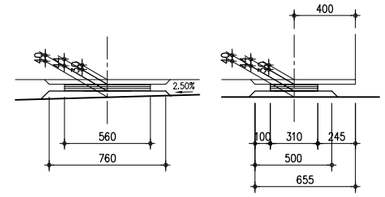
E — GIRDER CROSS SECTION
SCALE 1:20



A — PRECAST PLATES LAYOUT
SCALE 1:150



D — DETAIL – A
SCALE 1:20



TRANSVERSE DIRECTION LONGITUDINAL DIRECTION

P8 P9 FIXED

F — BEARING DETAILS
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

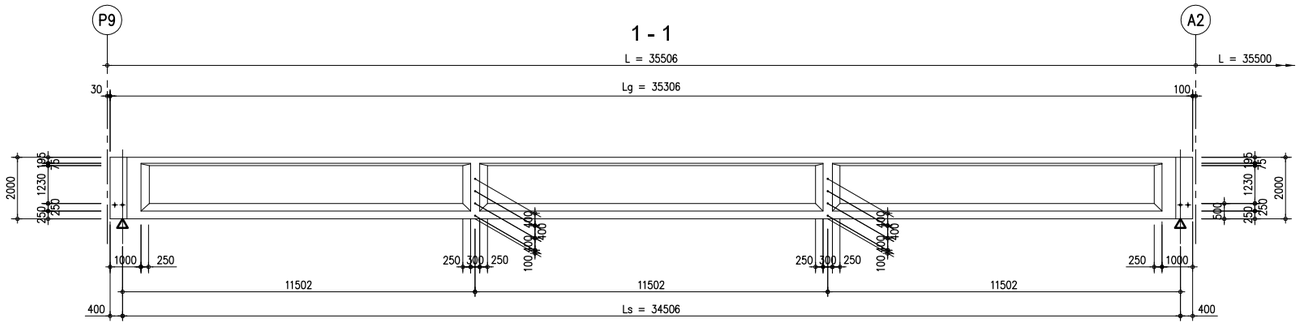
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

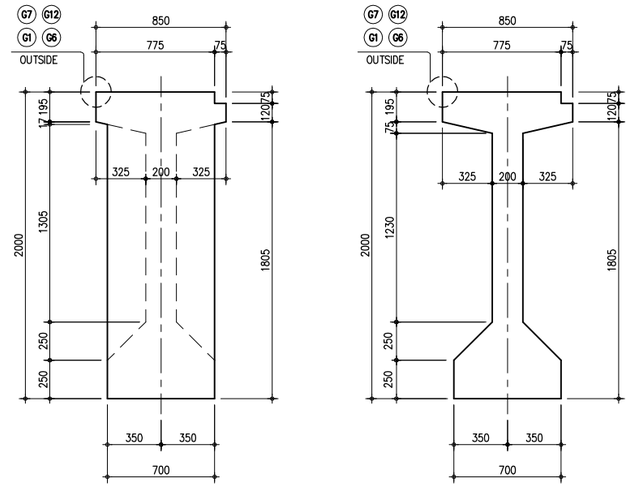
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P8 TO P9 (9/10)

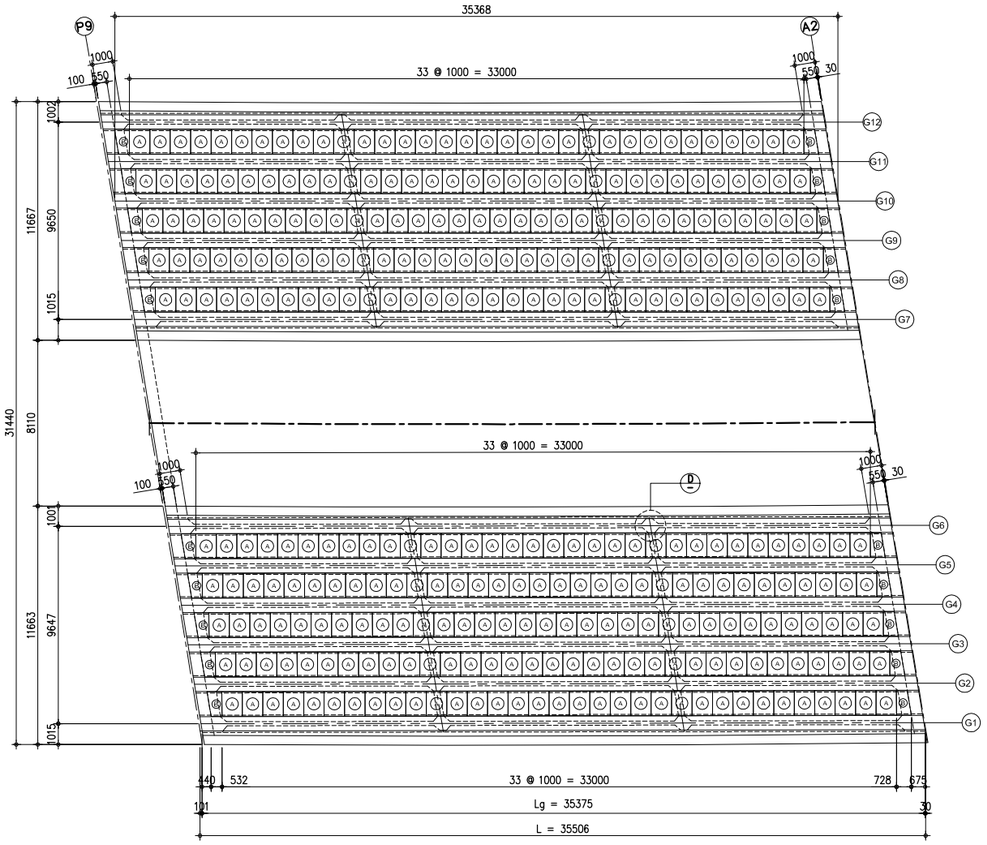
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-20



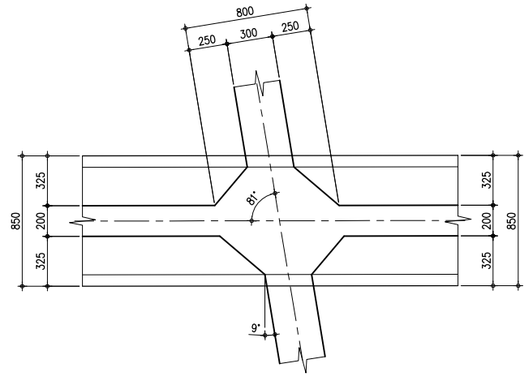
B — SIDE VIEW
SCALE 1:100



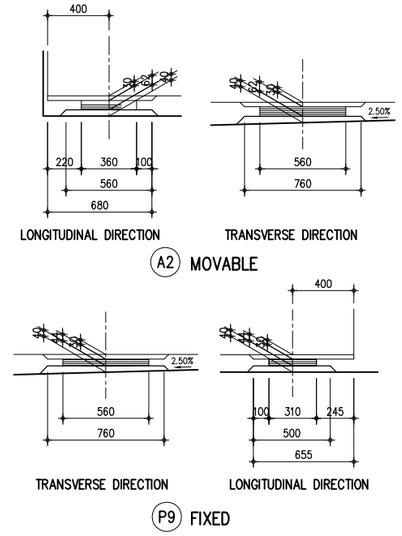
E — GIRDER CROSS SECTION
SCALE 1:20



A — PRECAST PLATES LAYOUT
SCALE 1:150



D — DETAIL – A
SCALE 1:20

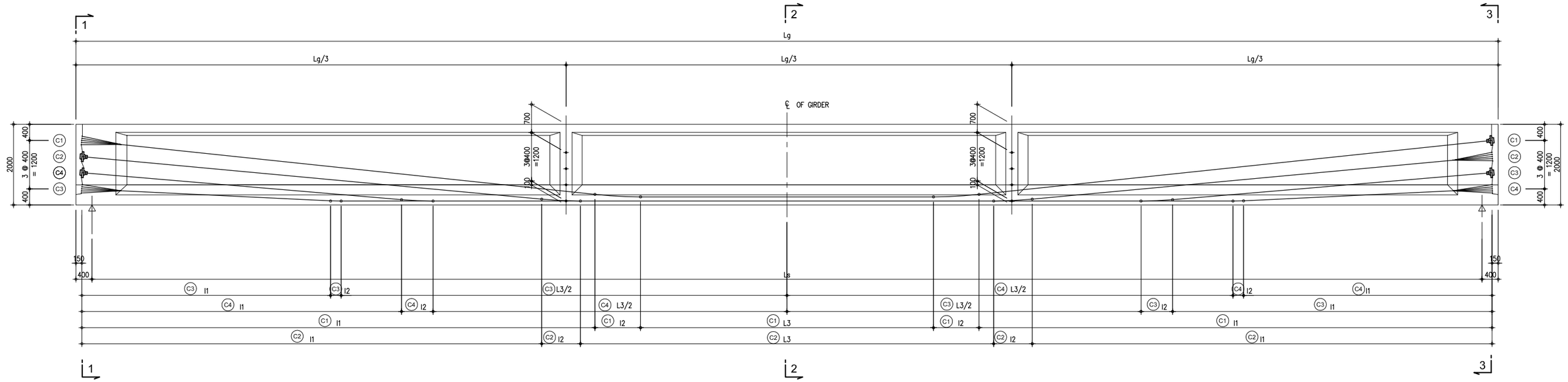


F — BEARING DETAILS
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT Road Development Authority	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1) HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE PCI GIRDER LAYOUT & DIMENSION DETAILS FOR PIER P9 TO A2 (10/10)

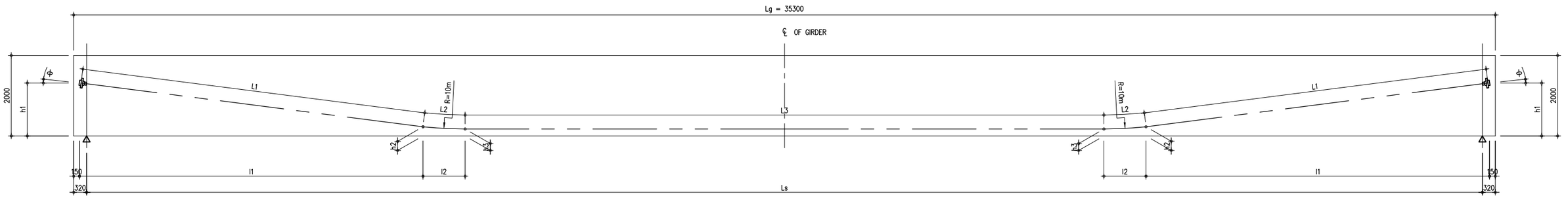
No	REVISION	DATE

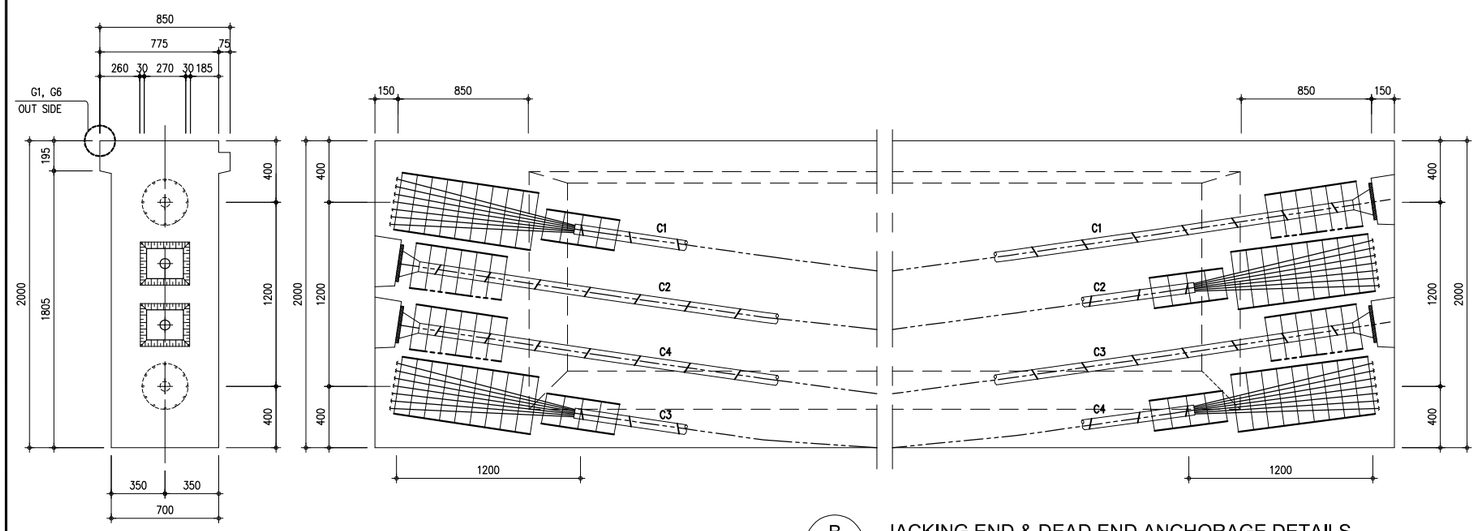
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-21



A — CABLE ARRANGEMENT

SCALE 1:50

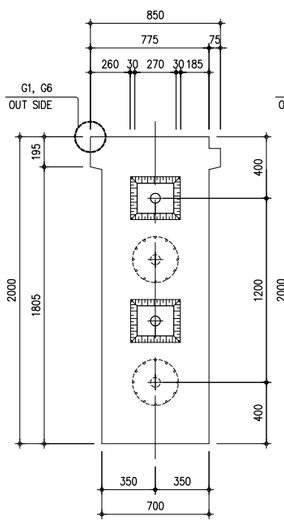




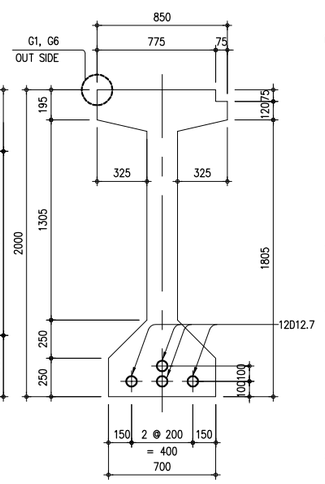
1 - 1

B — JACKING END & DEAD END ANCHORAGE DETAILS

SCALE 1:20



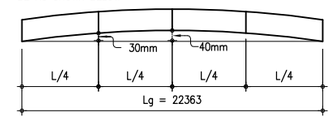
3 - 3



2 - 2

NOTES:

1. **PRESTRESSED CONCRETE:**
   - * CONCRETE CUBE STRENGTH, fcu = 50 MPa
   - * AT TRANSFER OF PRESTRESS, fci = 36 MPa
2. **PRESTRESSING STRANDS:**
   - * 1 – D12.7 IS A 7 – WIRE STRAND WITH NOMINAL TENSILE STRENGTH, fpu = 1860 MPa
   - * TOTAL NO. OF STRANDS = 4x12D12.7 =48D12.7
   - * JACKING STRESS, fpo = 1302 MPa
   - * TOTAL JACKING FORCE, Po = 4536 KN
   - * CABLE DUCT INSIDE DIAMETER (12–D12.7) = 65mm.
3. **REINFORCING STEEL :**
   - * ALL REINFORCING STEEL SHALL BE GRADE 460 WITH MINIMUM CHARACTERISTC STRENGTH, fy = 460 MPa
4. GIRDER PRE–CAMBER PRIOR TO STRESSING SHALL BE AS SHOWN BELOW



5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

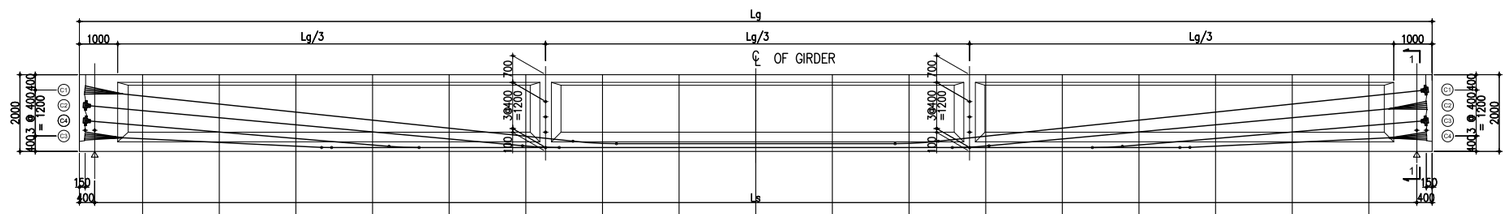
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

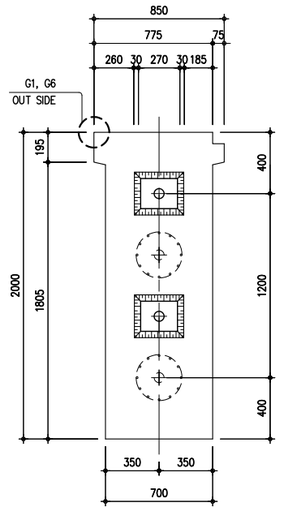
HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
PC CABLE ARRANGEMENT (1/3)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-22

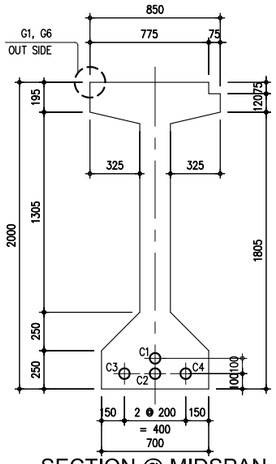


CABLE PROFILE (mm)			DISTANCE FROM ℄ (m)	16.00	14.00	12.00	10.00	8.00	6.00	4.00	2.00	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00		
P0 - P1	C1	DEAD END ▶		1441	1232	1022	812	602	392	206	200	200	200	206	392	602	812	1022	1232	1441	◀ JACKING END	C1
	C2	JACKING END ▶		1060	876	691	500	322	137	100	100	100	100	100	137	322	500	691	876	1060	◀ DEAD END	C2
	C3	DEAD END ▶		327	231	135	100	100	100	100	100	100	100	100	100	100	166	335	504	672	◀ JACKING END	C3
	C4	JACKING END ▶		672	504	335	166	100	100	100	100	100	100	100	100	100	100	135	231	327	◀ DEAD END	C4
P1 - P2	C1	DEAD END ▶		1507	1297	1087	877	668	458	248	200	200	200	248	458	668	877	1087	1297	1507	◀ JACKING END	C1
	C2	JACKING END ▶		1118	933	749	564	379	194	100	100	100	100	100	194	379	564	749	933	1118	◀ DEAD END	C2
	C3	DEAD END ▶		357	261	165	100	100	100	100	100	100	100	100	100	100	219	388	556	725	◀ JACKING END	C3
	C4	JACKING END ▶		725	556	388	219	100	100	100	100	100	100	100	100	100	100	165	261	357	◀ DEAD END	C4
P2 - P3	C1	DEAD END ▶		1441	1231	1021	812	602	392	206	200	200	200	206	392	602	812	1021	1231	1441	◀ JACKING END	C1
	C2	JACKING END ▶		1060	875	691	506	321	137	100	100	100	100	100	137	321	506	691	875	1060	◀ DEAD END	C2
	C3	DEAD END ▶		327	231	135	100	100	100	100	100	100	100	100	100	100	166	335	503	672	◀ JACKING END	C3
	C4	JACKING END ▶		672	503	355	166	100	100	100	100	100	100	100	100	100	100	135	231	327	◀ DEAD END	C4
P3 - P4	C1	DEAD END ▶		1441	1231	1022	812	602	392	206	200	200	200	206	392	602	812	1022	1231	1441	◀ JACKING END	C1
	C2	JACKING END ▶		1060	876	691	506	321	137	100	100	100	100	100	137	321	506	691	876	1060	◀ DEAD END	C2
	C3	DEAD END ▶		327	231	135	131	100	100	100	100	100	100	100	100	100	166	355	504	672	◀ JACKING END	C3
	C4	JACKING END ▶		672	504	355	166	100	100	100	100	100	100	100	100	100	131	135	231	327	◀ DEAD END	C4
P4 - P5	C1	DEAD END ▶		1441	1232	1022	812	602	392	206	200	200	200	206	392	602	812	1022	1232	1441	◀ JACKING END	C1
	C2	JACKING END ▶		1060	876	691	506	322	137	100	100	100	100	100	137	322	506	691	876	1060	◀ DEAD END	C2
	C3	DEAD END ▶		327	231	135	100	100	100	100	100	100	100	100	100	100	166	335	504	672	◀ JACKING END	C3
	C4	JACKING END ▶		672	504	355	166	100	100	100	100	100	100	100	100	100	100	135	231	327	◀ DEAD END	C4
P5 - P6	C1	DEAD END ▶		1441	1232	1022	812	602	392	206	200	200	200	206	392	602	812	1022	1232	1441	◀ JACKING END	C1
	C2	JACKING END ▶		1060	876	691	506	322	137	100	100	100	100	100	137	322	506	691	876	1060	◀ DEAD END	C2
	C3	DEAD END ▶		327	231	135	100	100	100	100	100	100	100	100	100	100	166	335	504	672	◀ JACKING END	C3
	C4	JACKING END ▶		672	504	355	166	100	100	100	100	100	100	100	100	100	100	135	231	327	◀ DEAD END	C4
P6 - P7	C1	DEAD END ▶		1442	1232	1022	812	602	393	206	200	200	200	206	393	602	812	1022	1232	1442	◀ JACKING END	C1
	C2	JACKING END ▶		1061	876	691	507	322	137	100	100	100	100	100	137	322	507	591	876	1061	◀ DEAD END	C2
	C3	DEAD END ▶		327	231	135	100	100	100	100	100	100	100	100	100	100	166	335	504	673	◀ JACKING END	C3
	C4	JACKING END ▶		673	504	355	166	100	100	100	100	100	100	100	100	100	100	135	231	327	◀ DEAD END	C4
P7 - P8	C1	DEAD END ▶		1443	1234	1024	814	604	394	207	200	200	200	207	394	604	814	1024	1234	1443	◀ JACKING END	C1
	C2	JACKING END ▶		1062	878	693	508	323	139	100	100	100	100	100	139	323	508	693	878	1062	◀ DEAD END	C2
	C3	DEAD END ▶		328	232	136	100	100	100	100	100	100	100	100	100	100	168	337	505	674	◀ JACKING END	C3
	C4	JACKING END ▶		674	505	337	168	100	100	100	100	100	100	100	100	100	100	136	232	328	◀ DEAD END	C4
P8 - P9	C1	DEAD END ▶		1369	1159	949	739	529	319	200	200	200	200	200	319	529	739	949	1159	1369	◀ JACKING END	C1
	C2	JACKING END ▶		996	812	627	442	257	101	100	100	100	100	100	101	257	442	627	812	996	◀ DEAD END	C2
	C3	DEAD END ▶		294	198	103	100	100	100	100	100	100	100	100	100	100	113	276	445	614	◀ JACKING END	C3
	C4	JACKING END ▶		614	445	276	113	100	100	100	100	100	100	100	100	100	100	103	198	294	◀ DEAD END	C4
P9 - A2	C1	DEAD END ▶		1439	1229	1019	810	600	390	205	200	200	200	205	390	600	810	1019	1229	1439	◀ JACKING END	C1
	C2	JACKING END ▶		1058	874	756	504	320	135	100	100	100	100	100	135	320	504	756	874	1058	◀ DEAD END	C2
	C3	DEAD END ▶		326	230	134	100	100	100	100	100	100	100	100	100	100	164	333	502	671	◀ JACKING END	C3
	C4	JACKING END ▶		671	502	333	164	100	100	100	100	100	100	100	100	100	100	134	230	326	◀ DEAD END	C4

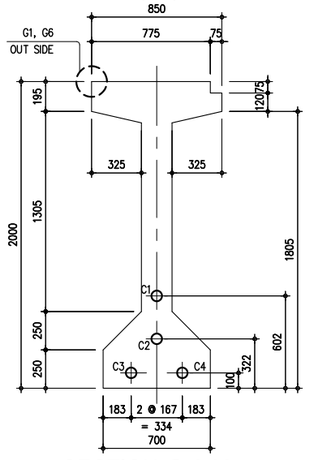
A — CABLE PROFILE
SCALE 1:80



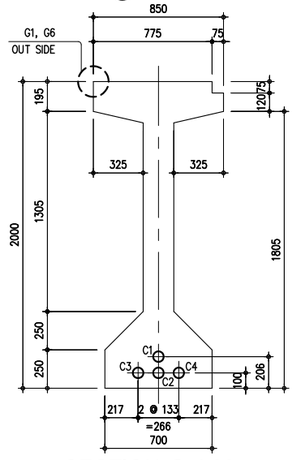
1 - 1



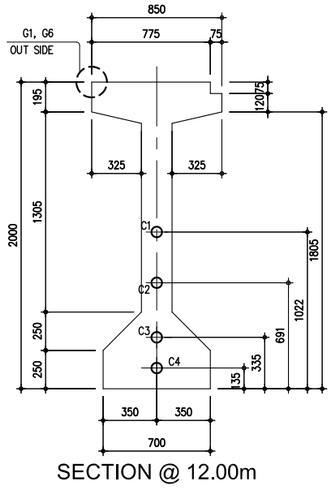
SECTION @ MIDSPAN



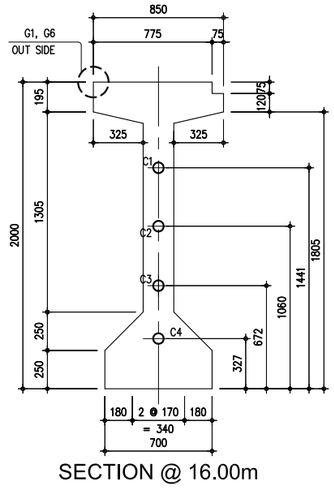
SECTION @ 8.00m



SECTION @ 4.00m



SECTION @ 12.00m



SECTION @ 16.00m

B — GIRDER CROSS SECTION
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

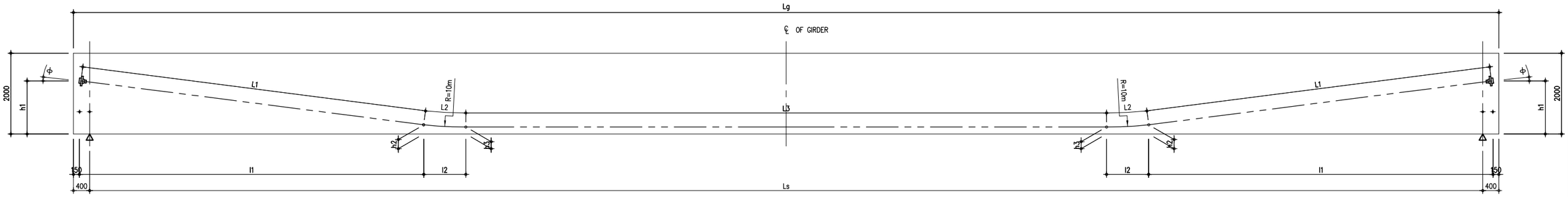
No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
PC CABLE ARRANGEMENT (2/3)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-23

SPAN	CABLE NO.	l1	l2	L1	L2	L3	$2\sum_{1}^{2}L + 3$	h1	h2	h3	θ = (degree)	TOTAL LENGTH	TOTAL WEIGHT
P0 - P1	C1	12733	1132	12803	1135	7295	35171	1600	244	180	6°5'	140.42 m	1,304.22 kg./1girder
	C2	11413	959	11462	960	10281	35125	1200	136	90	5°20'		
	C3	7931	785	7959	786	17594	35084	800	121	90	4°54'		
	C4	6170	262	6177	262	22161	35039	400	93	90	2°51'		
P1 - P2	C1	12733	1132	12803	1134	6047	33921	1600	244	180	6°5'	135.42 m	1,257.78 kg./1girder
	C2	11413	958	11462	960	9034	33878	1200	136	90	5°20'		
	C3	7931	785	7959	785	16346	33834	800	121	90	4°54'		
	C4	6170	262	6177	262	20913	33791	400	93	90	2°51'		
P2 - P3	C1	12733	1132	12803	1134	7300	35174	1600	244	180	6°5'	140.44 m	1,304.41 kg./1girder
	C2	11413	958	11462	960	10286	35130	1200	136	90	5°20'		
	C3	7931	785	7959	785	17599	35087	800	121	90	4°54'		
	C4	6170	262	6177	262	22166	35044	400	93	90	2°51'		
P3 - P4	C1	12733	1132	12803	1134	7297	36171	1600	244	180	6°5'	141.42 m	1,313.51 kg./1girder
	C2	11413	958	11462	960	10284	35128	1200	136	90	5°20'		
	C3	7931	785	7959	785	17596	35084	800	121	90	4°54'		
	C4	6170	262	6177	262	22163	35041	400	93	90	2°51'		
P4 - P5	C1	12733	1132	12803	1134	7294	35168	1600	244	180	6°5'	140.41 m	1,304.13 kg./1girder
	C2	11413	958	11462	960	10281	35125	1200	136	90	5°20'		
	C3	7931	785	7959	785	17593	35081	800	121	90	4°54'		
	C4	6170	262	6177	262	22160	35038	400	93	90	2°51'		
P5 - P6	C1	12733	1132	12803	1134	7294	35168	1600	244	180	6°5'	140.41 m	1,304.13 kg./1girder
	C2	11413	958	11462	960	10279	35123	1200	136	90	5°20'		
	C3	7931	785	7959	785	17591	35079	800	121	90	4°54'		
	C4	6170	262	6177	262	22158	35036	400	93	90	2°51'		
P6 - P7	C1	12733	1134	12803	1134	7289	35163	1600	244	180	6°5'	140.39 m	1,303.94 kg./1girder
	C2	11413	958	11462	960	10276	35120	1200	136	90	5°20'		
	C3	7931	785	7959	785	17588	35076	800	121	90	4°54'		
	C4	6170	262	6177	262	22155	35033	400	93	90	2°51'		
P7 - P8	C1	12733	1132	12802	1134	7254	35126	1600	244	180	6°5'	140.25 m	1,302.64 kg./1girder
	C2	11413	958	11462	960	10241	35085	1200	136	90	5°20'		
	C3	7931	785	7959	785	17553	35041	800	121	90	4°54'		
	C4	6170	262	6177	262	22120	34998	400	93	90	2°51'		
P8 - P9	C1	12733	1132	12803	1134	8683	36557	1600	244	180	6°5'	145.97 m	1,355.77 kg./1girder
	C2	11413	958	11462	960	11670	36514	1200	136	90	5°20'		
	C3	7931	785	7959	785	18982	36470	800	121	90	4°54'		
	C4	6170	262	6177	262	23549	36427	400	93	90	2°51'		
P9 - A2	C1	12733	1132	12803	1134	7338	35212	1600	244	180	6°5'	140.59 m	1,305.8 kg./1girder
	C2	11413	960	11462	960	10325	35169	1200	136	90	5°20'		
	C3	7931	785	7959	785	17637	35125	800	121	90	4°54'		
	C4	6170	262	6177	262	22204	35082	400	93	90	2°51'		



C — CABLE LAYOUT
SCALE 1:50

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

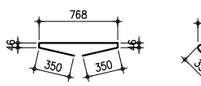
No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

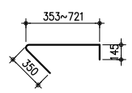
HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
PC CABLE ARRANGEMENT (3/3)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-24

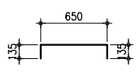
SPAN	Lg	Ls	QUANTITIES OF REINFORCEMENT (PCS.)																	
			G1	G1a	G2	G3	G4	G5	G6	G7	G8	G9	G9a	G10	G11	G12-1	G12-2	G13-1	G13-2	G14	G15
P0–P1	35325	34525	200	6	200	129	8	16	129	129	8	200	1	20	28	10	3	10	3	129	16
P1–P2	34077	33277	190	6	190	124	8	16	124	124	8	190	1	20	28	10	3	10	3	124	16
P2–P3	35330	34530	200	6	200	129	8	16	129	129	8	200	1	20	28	10	3	10	3	129	16
P3–P4	35327	34527	200	6	200	129	8	16	129	129	8	200	1	20	28	10	3	10	3	129	16
P4–P5	35324	34524	200	6	200	129	8	16	129	129	8	200	1	20	28	10	3	10	3	129	16
P5–P6	35322	34522	200	6	200	129	8	16	129	129	8	200	1	20	28	10	3	10	3	129	16
P6–P7	35319	34519	200	6	200	129	8	16	129	129	8	200	1	20	28	10	3	10	3	129	16
P7–P8	35284	34484	200	6	200	129	8	16	129	129	8	200	1	20	28	10	3	10	3	129	16
P8–P9	36713	35913	211	6	211	134	8	16	134	134	8	211	1	20	28	10	3	10	3	134	16
P9–A2	35368	34568	200	6	195	129	8	16	129	129	8	195	1	20	28	10	3	10	3	129	16



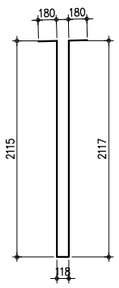
G1 D12 x 1560



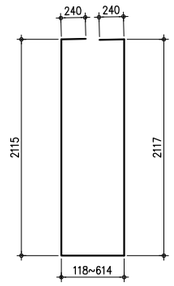
G1a D12 x 1032 (AVERAGE)



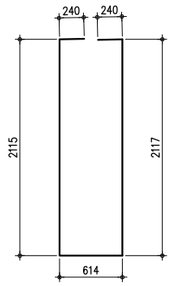
G2 D12 x 920



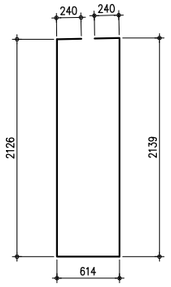
G3 D12 x 4710



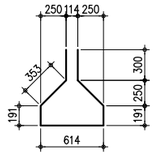
G4 D16 x 5078 (AVERAGE)



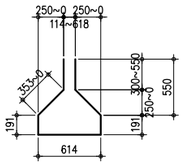
G5 D16 x 5326



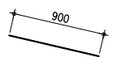
G6 D12 x 5359



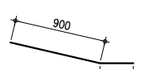
G7 D12 x 2302



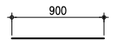
G8 D12 x 2199 (AVERAGE)



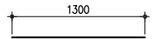
G9 D12 x 900 (G1,G6)



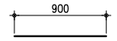
G9a D12 x 1226 (G1,G6)



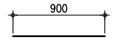
G10 D12 x 900 (G1,G6)



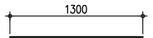
G11 D12 x 1300 (G2~G5)



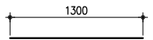
G12-1 D12 x 900 (G1,G6)



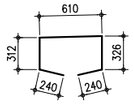
G12-2 D16 x 900 (G1,G6)



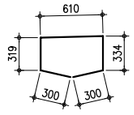
G13-1 D12 x 1300 (G2~G5)



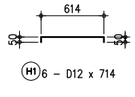
G13-2 D16 x 1300 (G2~G5)



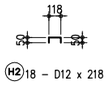
G14 D16 x 1728



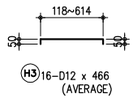
G15 D20 x 1863



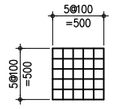
H1 6 – D12 x 714



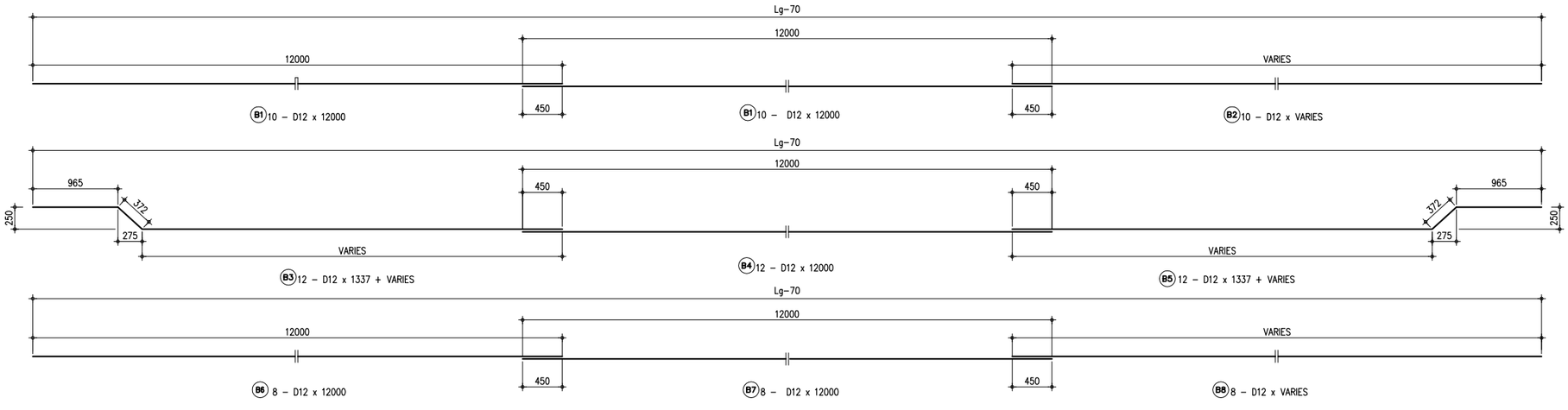
H2 18 – D12 x 218



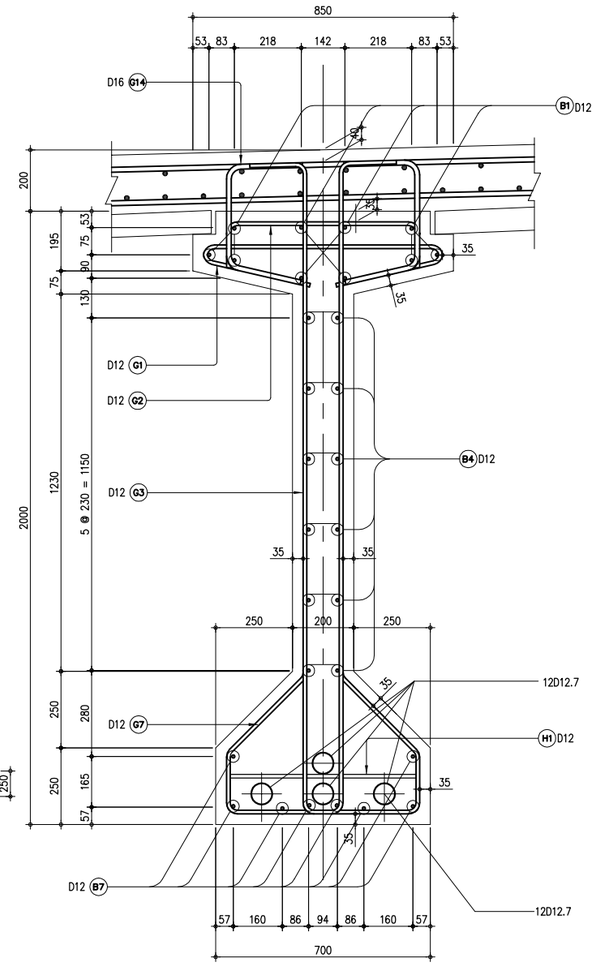
H3 16–D12 x 466 (AVERAGE)



H4 24 – D12 x 500



1 — REINFORCEMENT OF GIRDER
SCALE 1:30



1 — DETAIL OF GIRDER CENTER SCALE
SCALE 1:10

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

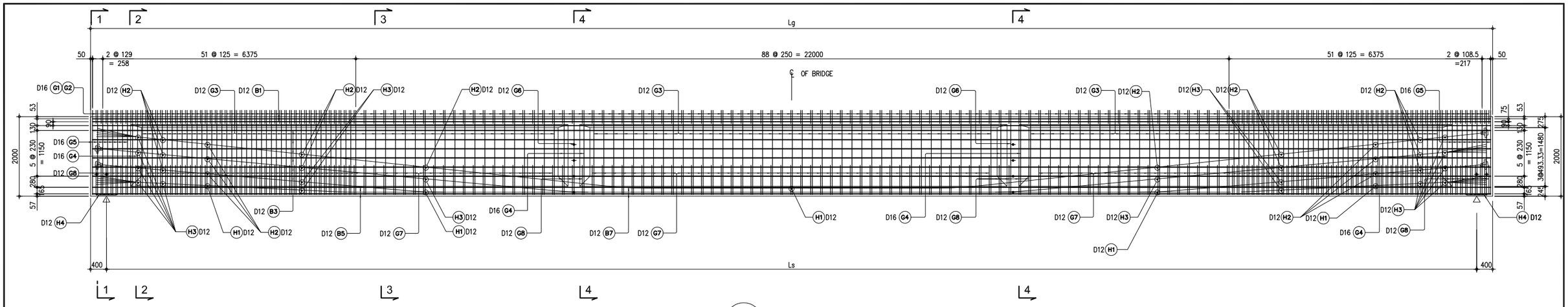
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

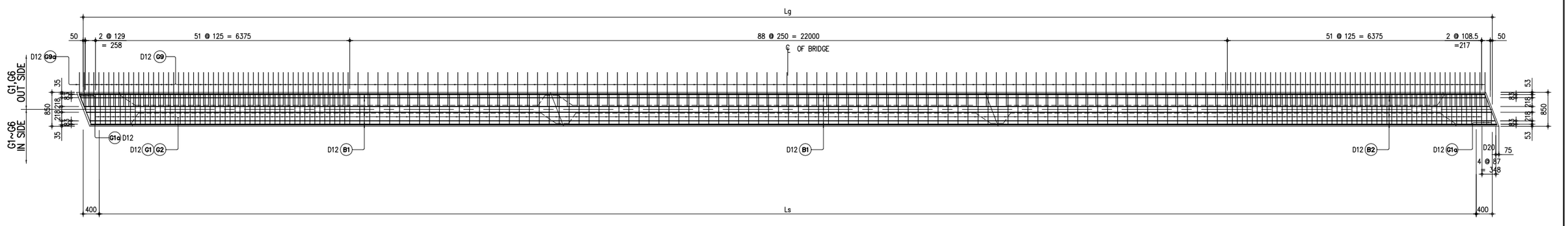
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT (1/2)

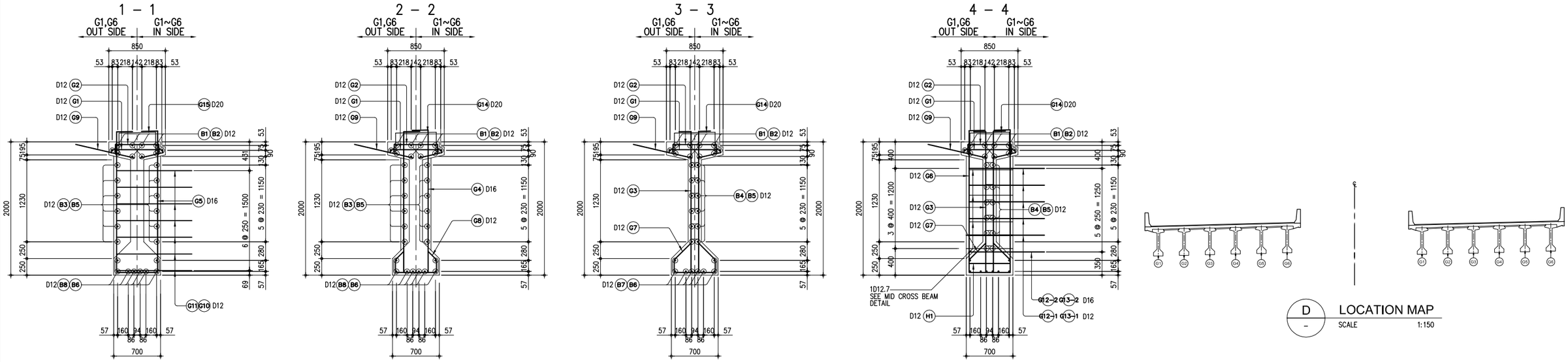
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-25



B SIDE VIEW
SCALE 1:50



A PLAN
SCALE 1:50



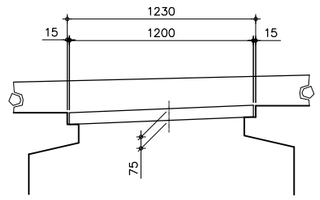
C GIRDER CROSS SECTION
SCALE 1:30

D LOCATION MAP
SCALE 1:150

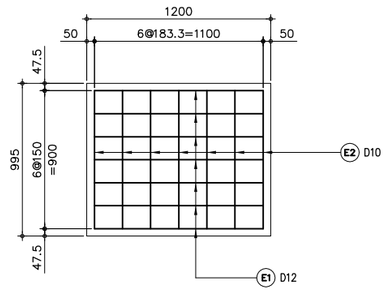
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT (2/2)

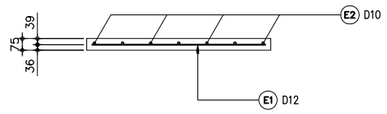
No	REVISION	DATE

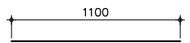
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-26



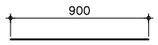
TYPE A





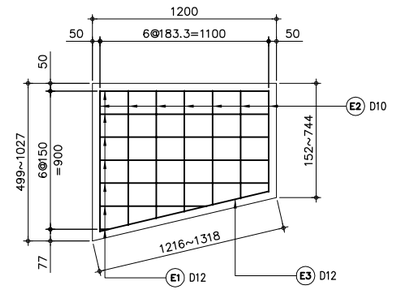


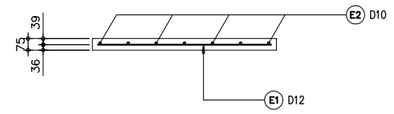
E1 7 – D12 x 1100

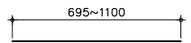


E2 7 – D10 x 900

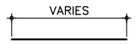
TYPE B



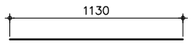




E1 D12 x VARIES



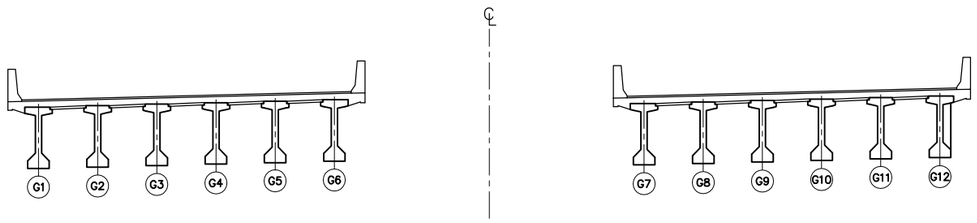
E2 7 – D10 x VARIES



E3 1 – D12 x 1130

A – DETAIL OF PRECAST PLATE

SCALE 1:20



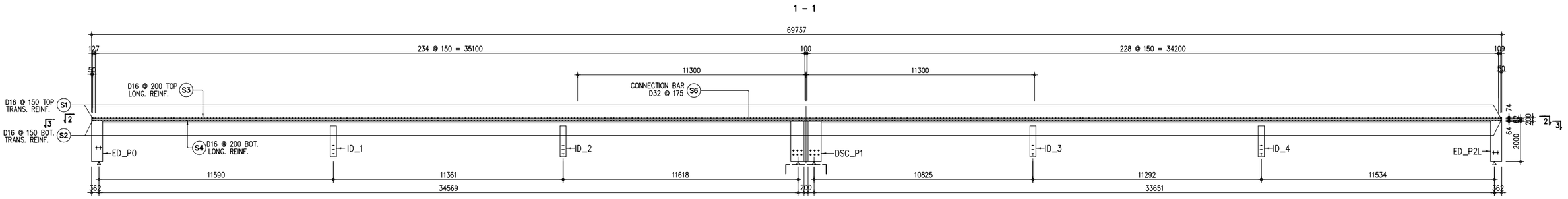
B – LOCATION MAP

SCALE 1:100

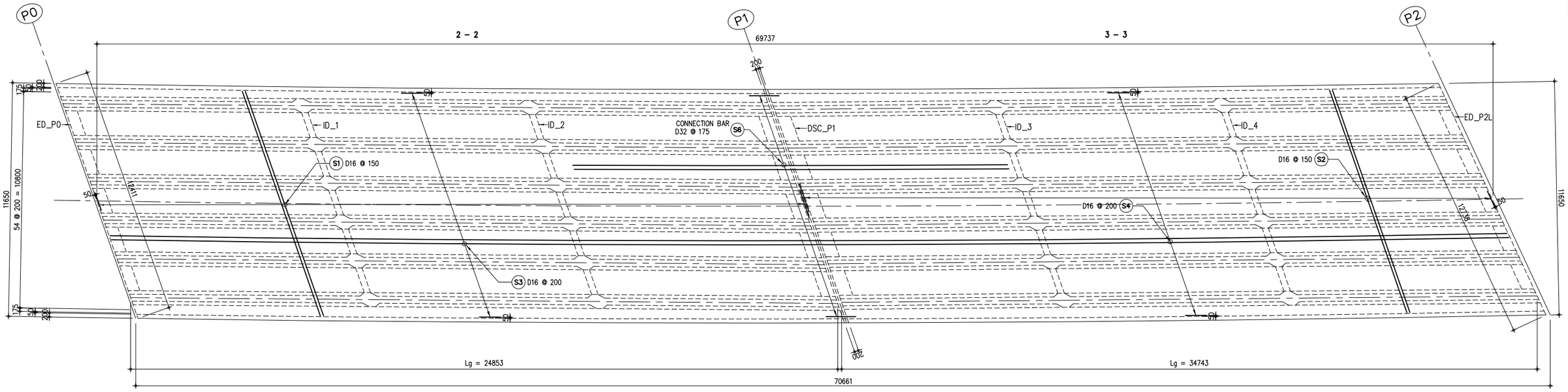
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1) HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE DETAILS OF PRECAST PLATE

No	REVISION	DATE

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-27



B – SIDE VIEW
SCALE 1:100



HALF SHOWING TOP BARS

HALF SHOWING BOTTOM BARS

A – PLAN
SCALE 1:100

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

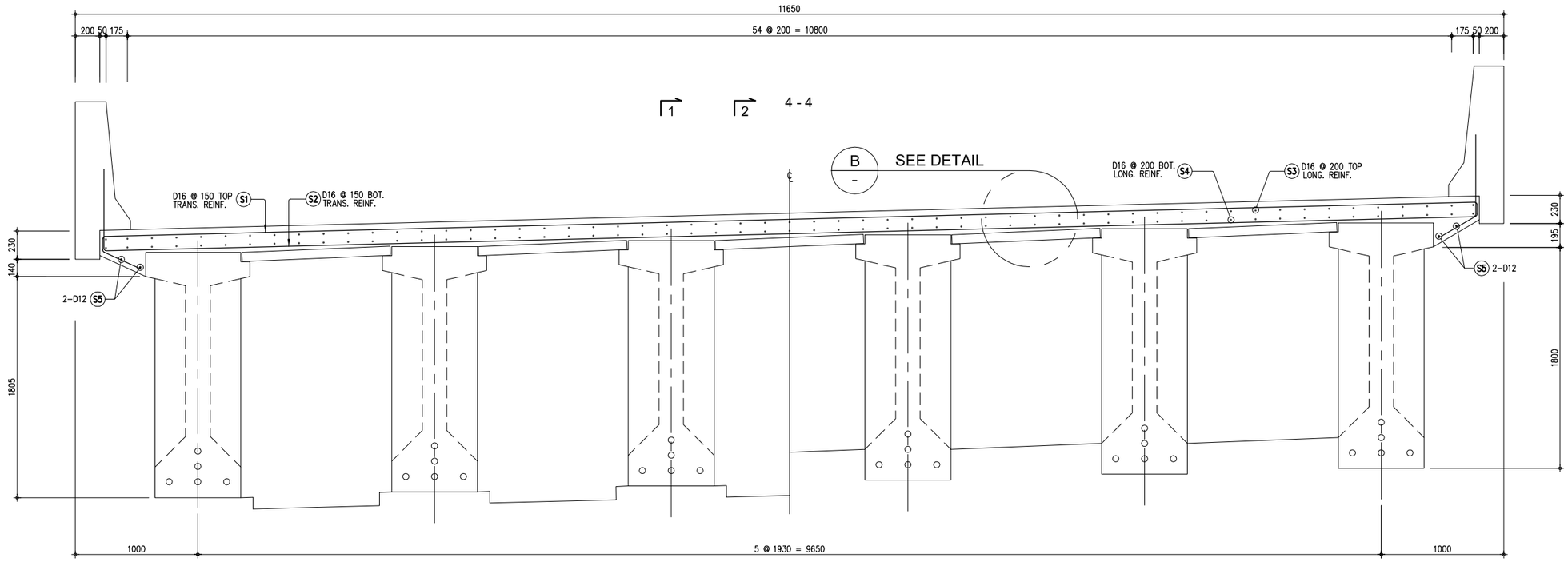
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

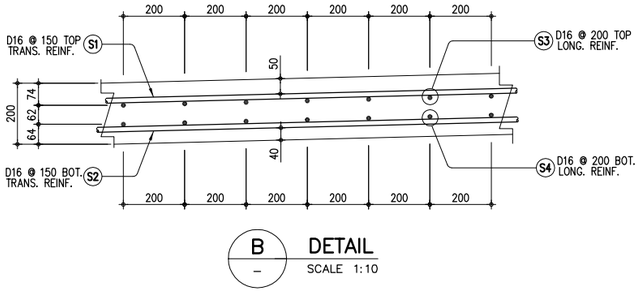
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT OF SLAB (1/10)

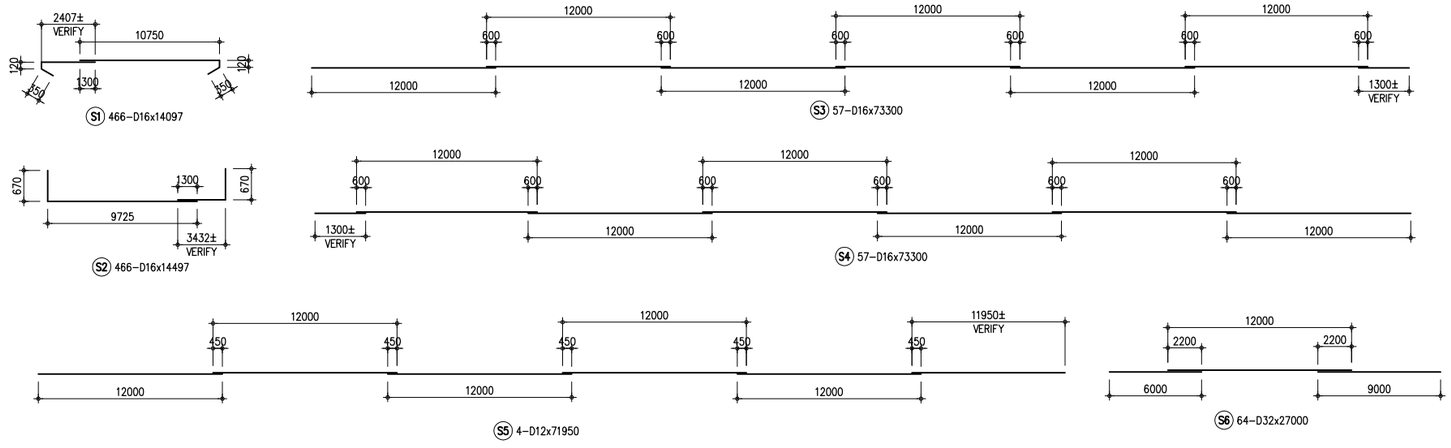
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-28



A — CROSS SECTION
SCALE 1:20



B — DETAIL
SCALE 1:10



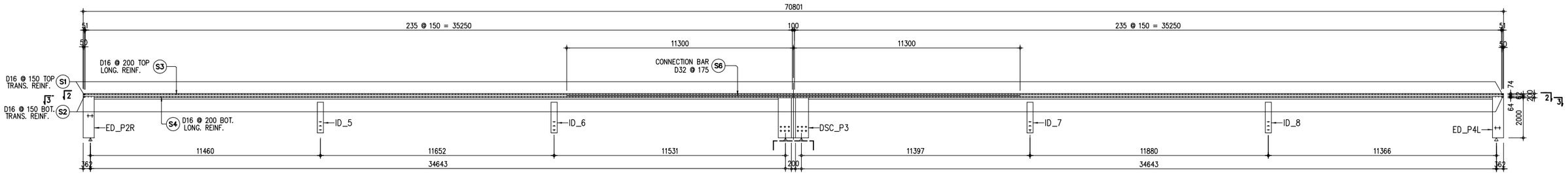
C — BAR BENDING LAYOUT
SCALE NTS

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT OF SLAB (2/10)

No	REVISION	DATE

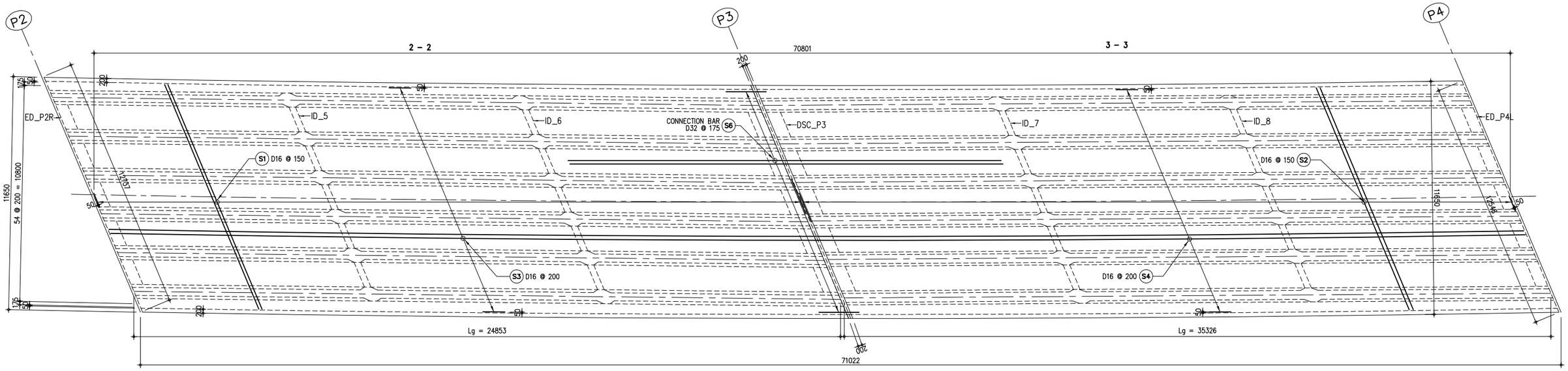
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-29

1 – 1



B – SIDE VIEW

SCALE 1:100



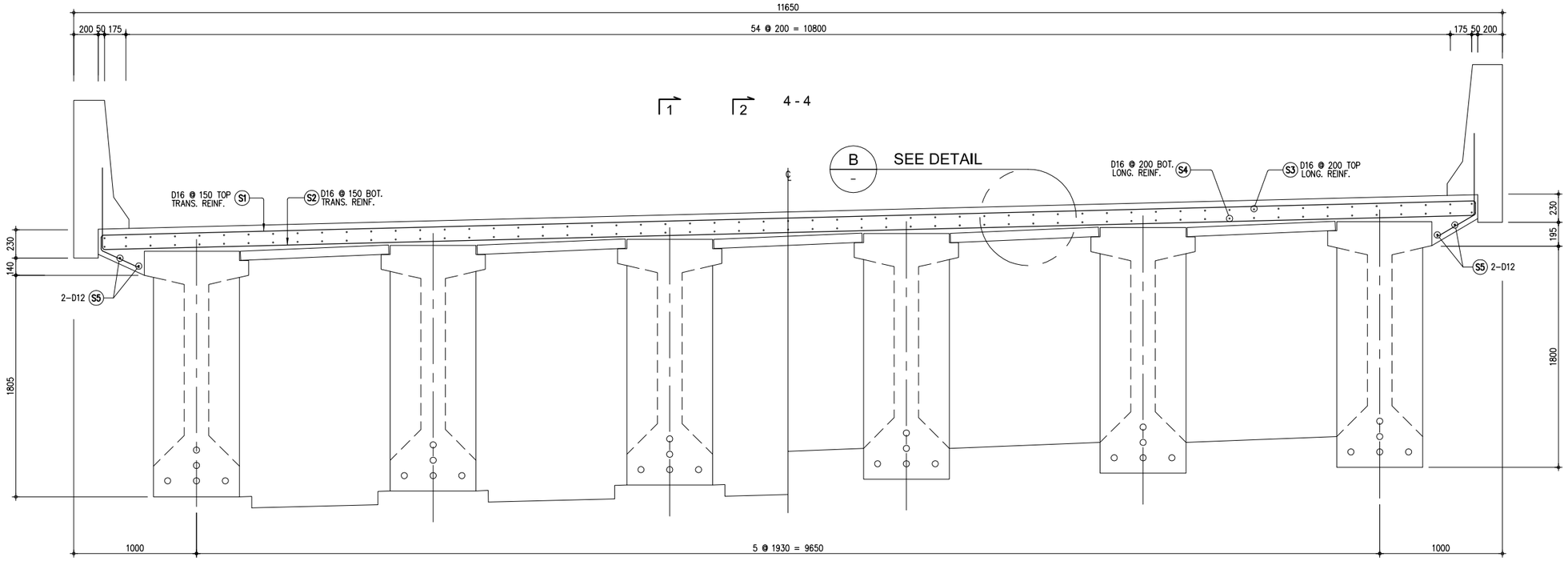
HALF SHOWING TOP BARS

HALF SHOWING BOTTOM BARS

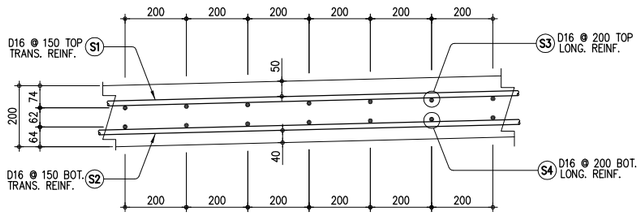
A – PLAN

SCALE 1:100

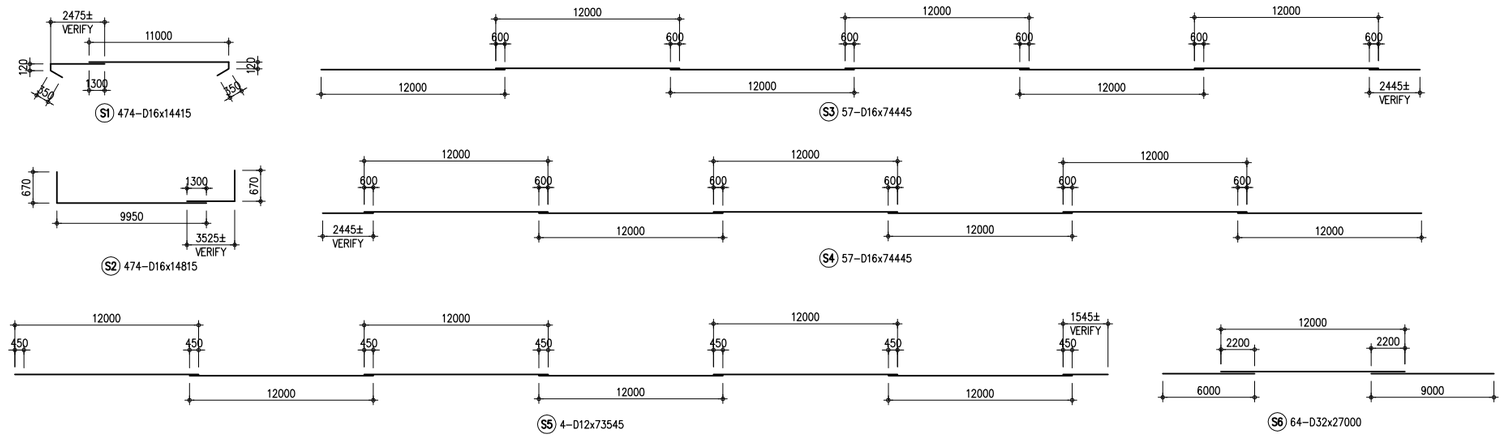
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)**
	No / REVISION / DATE	HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT OF SLAB (3/10)
		DESIGNED BY: / CHECKED BY: / APPROVED BY:
		DWG. NO. K01-30



A — CROSS SECTION
SCALE 1:20



B — DETAIL
SCALE 1:10



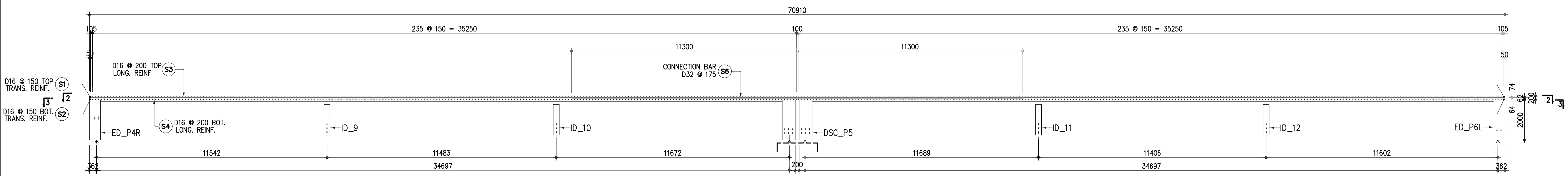
C — BAR BENDING LAYOUT
SCALE NTS

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT OF SLAB (4/10)

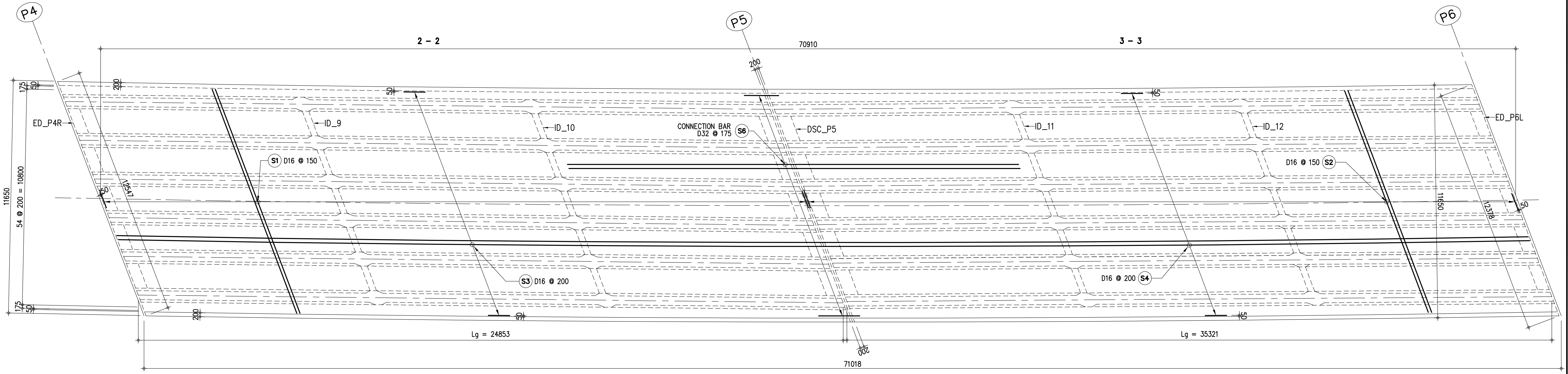
No	REVISION	DATE

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-31

1 – 1



B – SIDE VIEW SCALE 1:100



HALF SHOWING TOP BARS

HALF SHOWING BOTTOM BARS

A – PLAN SCALE 1:100

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

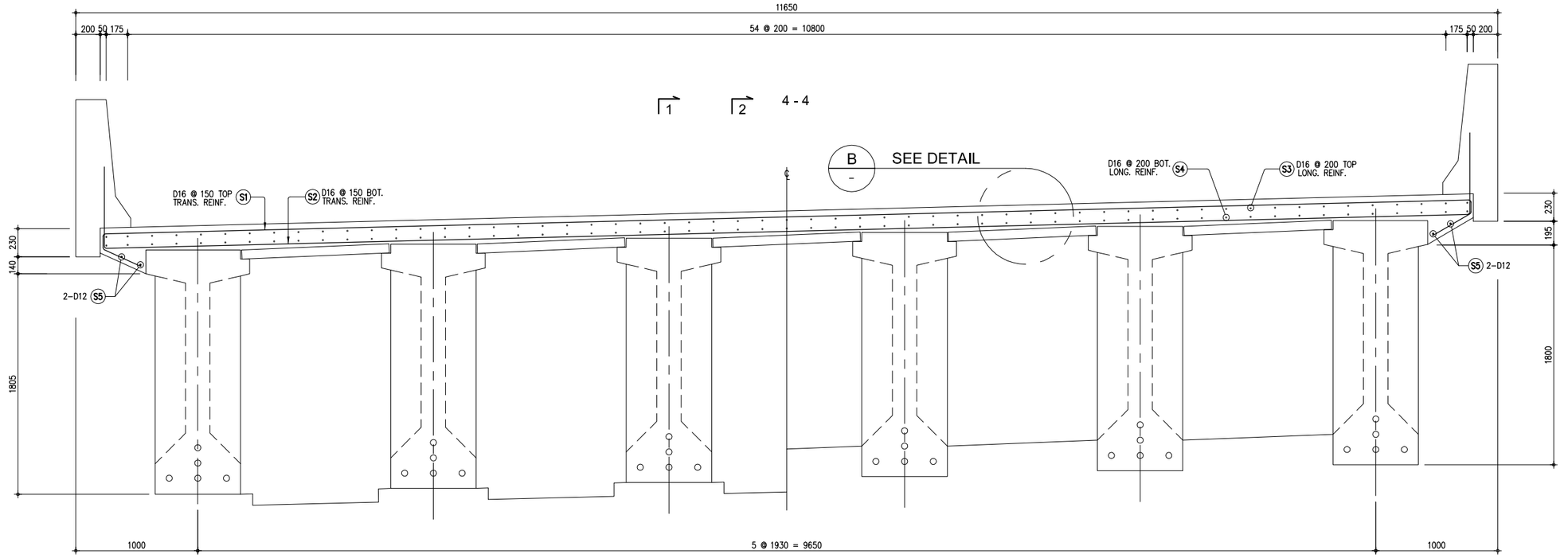
JAPAN INTERNATIONAL COOPERATION AGENCY
JAPAN
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL
ORICONSUL

No	REVISION	DATE

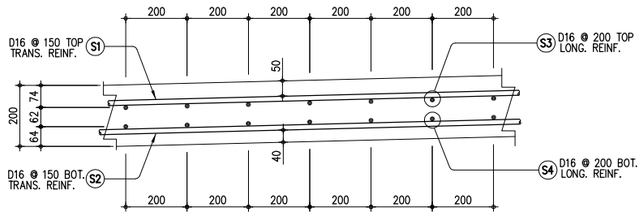
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT OF SLAB (5/10)

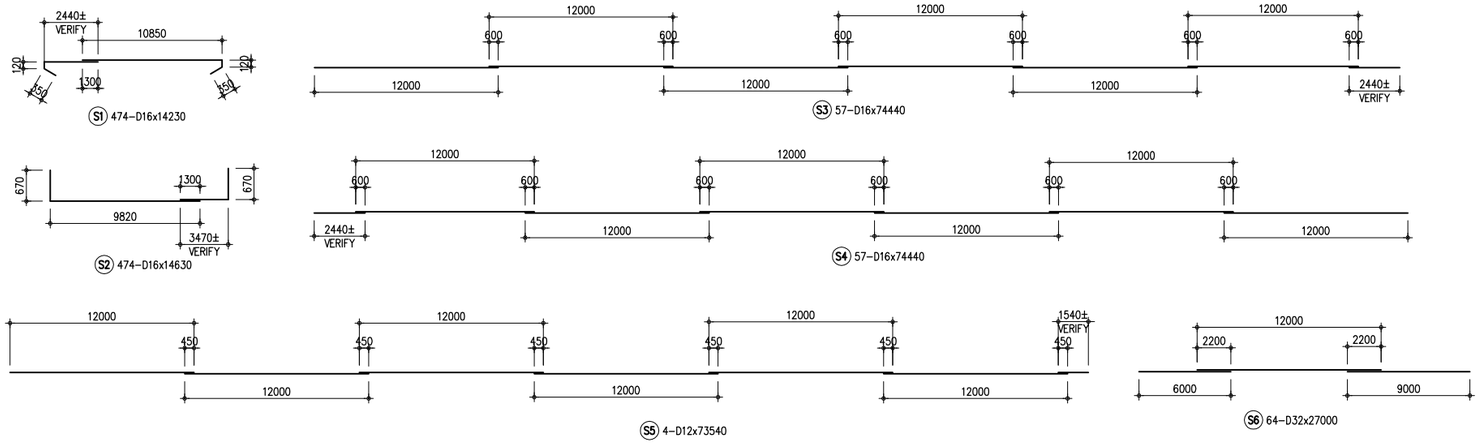
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-32



A – CROSS SECTION
SCALE 1:20



B – DETAIL
SCALE 1:10



C – BAR BENDING LAYOUT
SCALE NTS

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

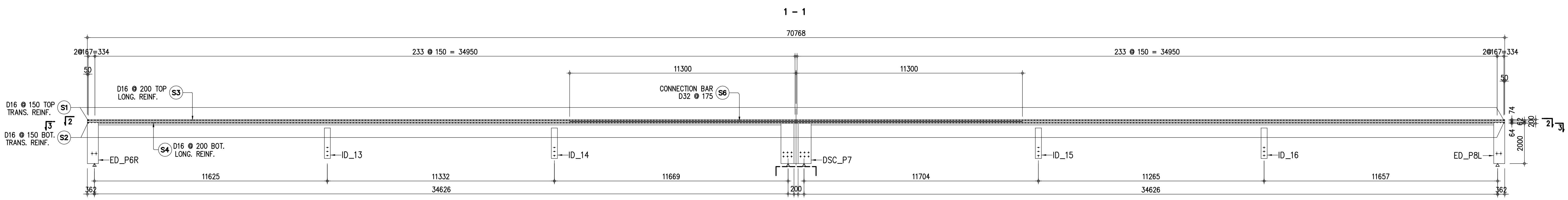
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

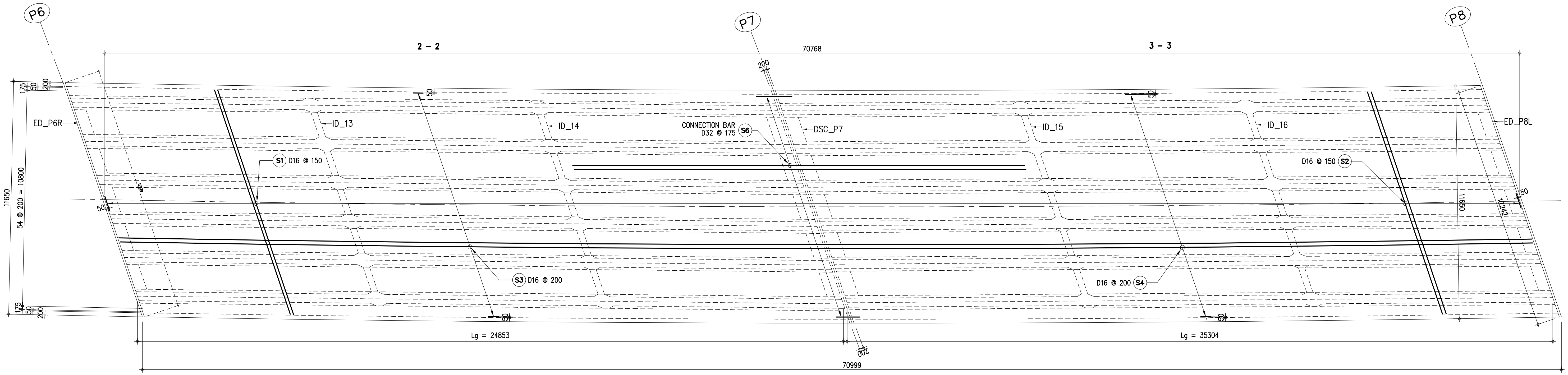
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT OF SLAB (6/10)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-33



B – SIDE VIEW
SCALE 1:100



HALF SHOWING TOP BARS

HALF SHOWING BOTTOM BARS

A – PLAN
SCALE 1:100

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

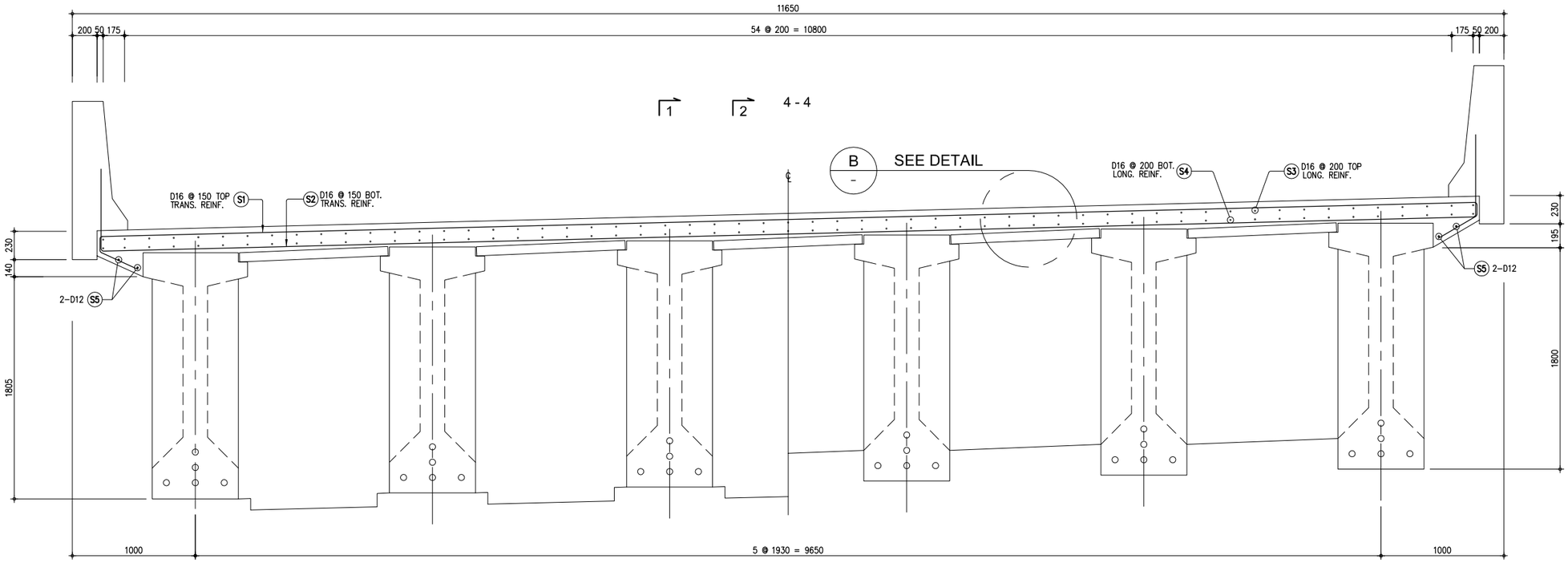
JAPAN INTERNATIONAL COOPERATION AGENCY
JAPAN
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL
ORICONSUL

No	REVISION	DATE

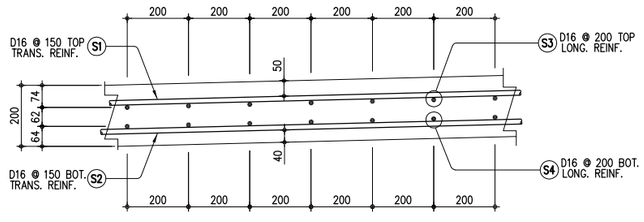
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT OF SLAB (7/10)

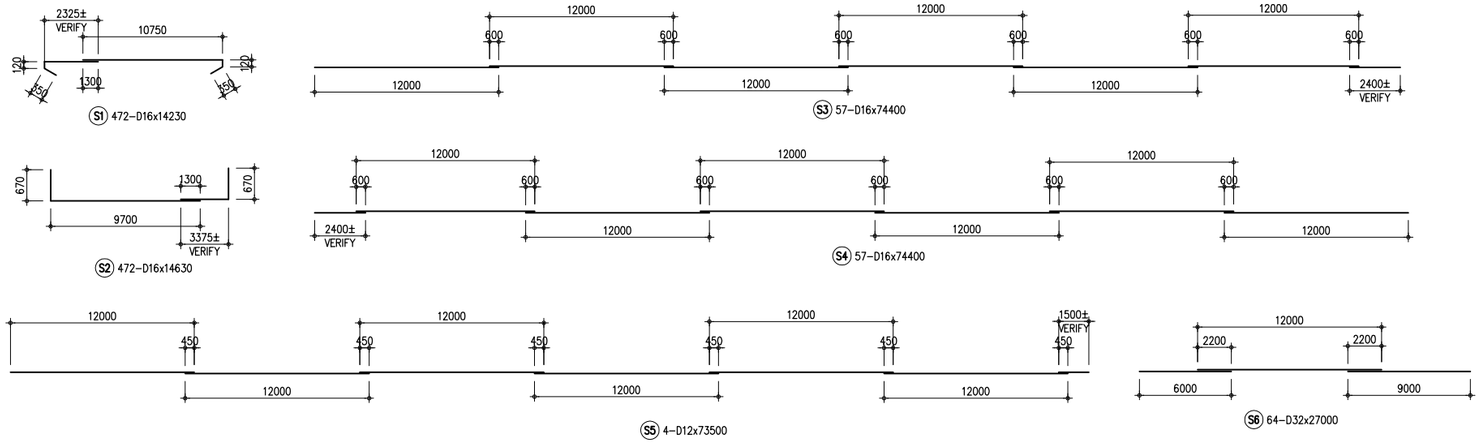
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-34



A
CROSS SECTION
SCALE 1:20



B
DETAIL
SCALE 1:10



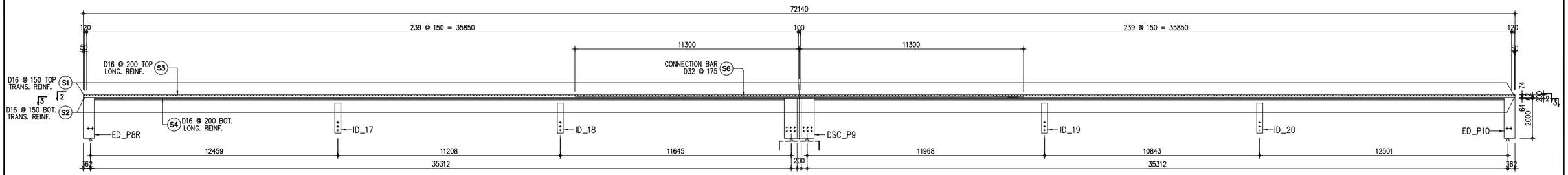
C
BAR BENDING LAYOUT
SCALE NTS

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT OF SLAB (8/10)

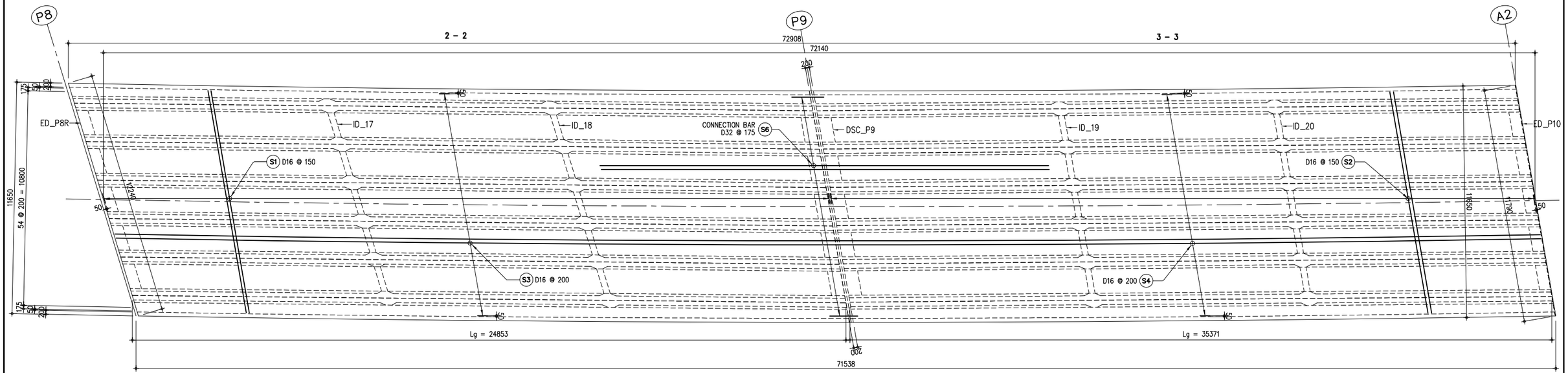
No	REVISION	DATE

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-35

1 – 1



B – SIDE VIEW
SCALE 1:100



HALF SHOWING TOP BARS

A – PLAN
SCALE 1:100

HALF SHOWING BOTTOM BARS

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

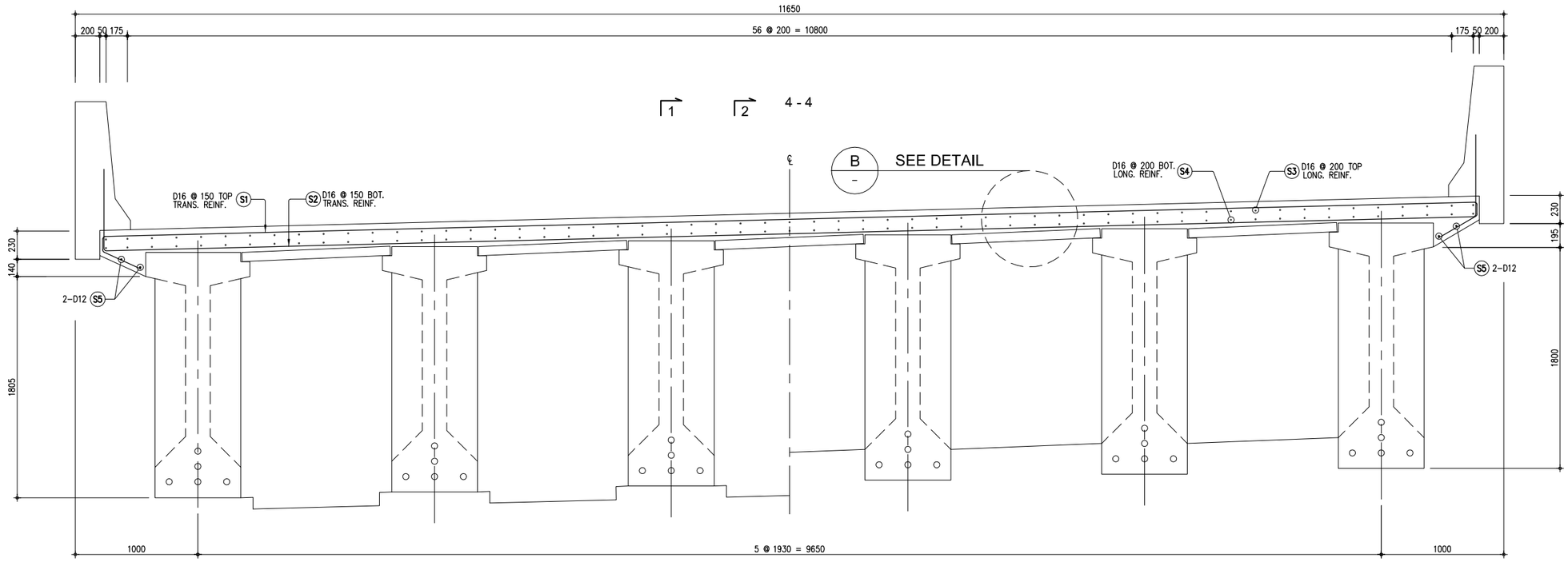
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

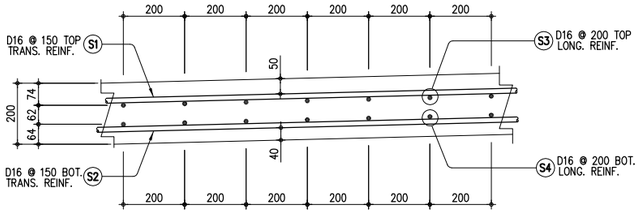
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT OF SLAB (9/10)

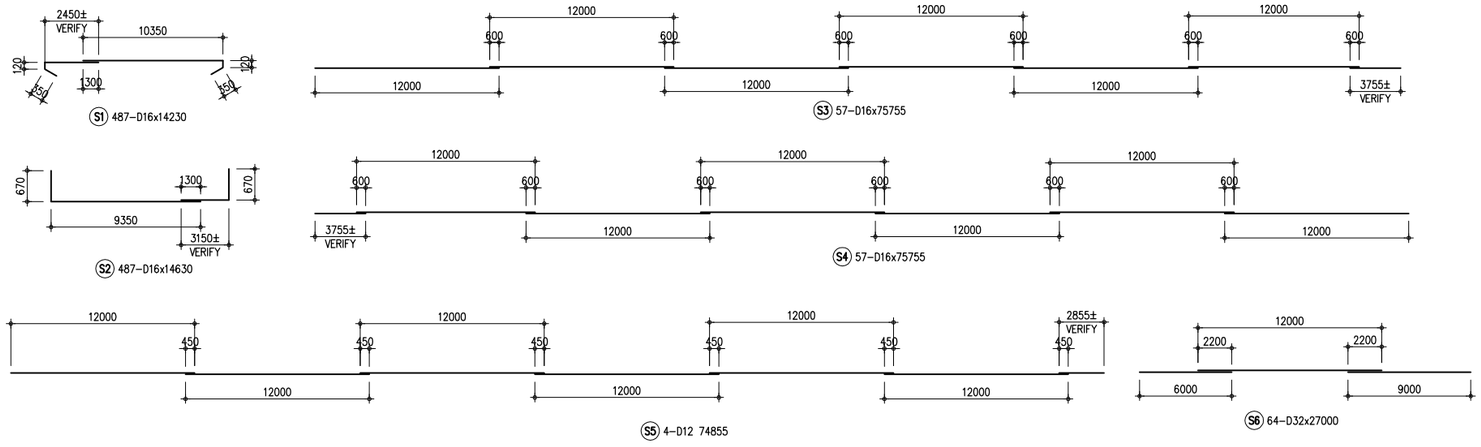
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-36



A
–
CROSS SECTION
SCALE 1:20



B
–
DETAIL
SCALE 1:10



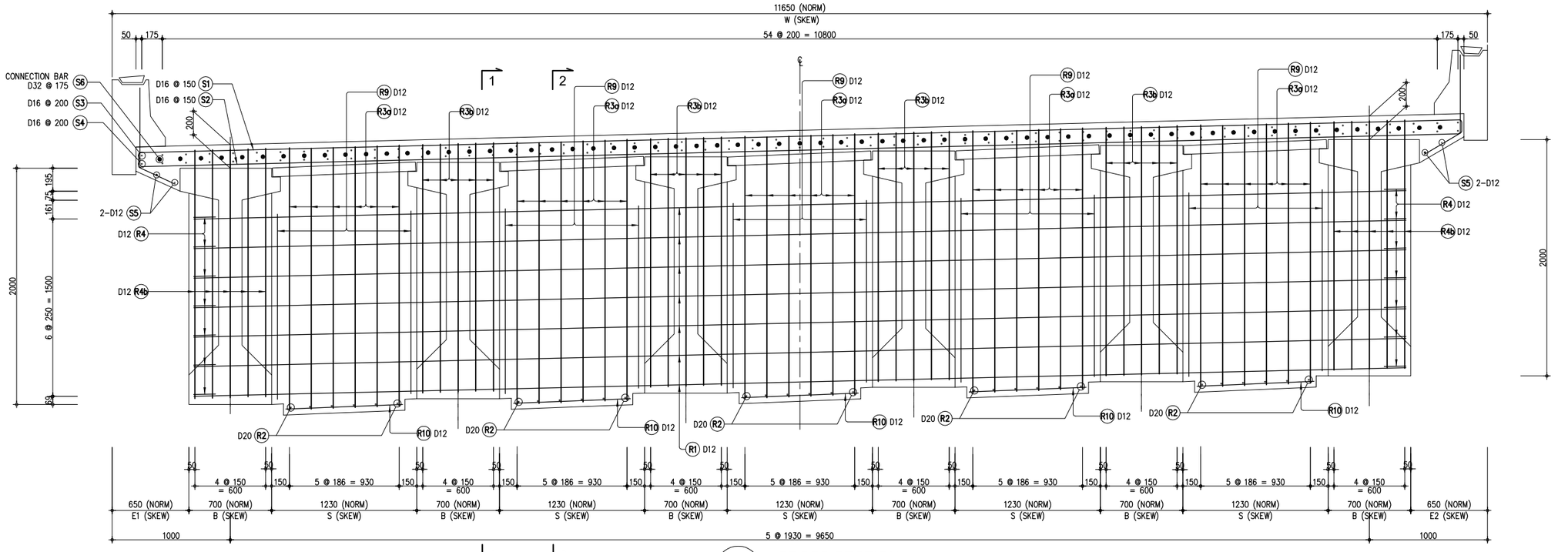
C
–
BAR BENDING LAYOUT
SCALE NTS

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT OF SLAB (10/10)

No	REVISION	DATE

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-37

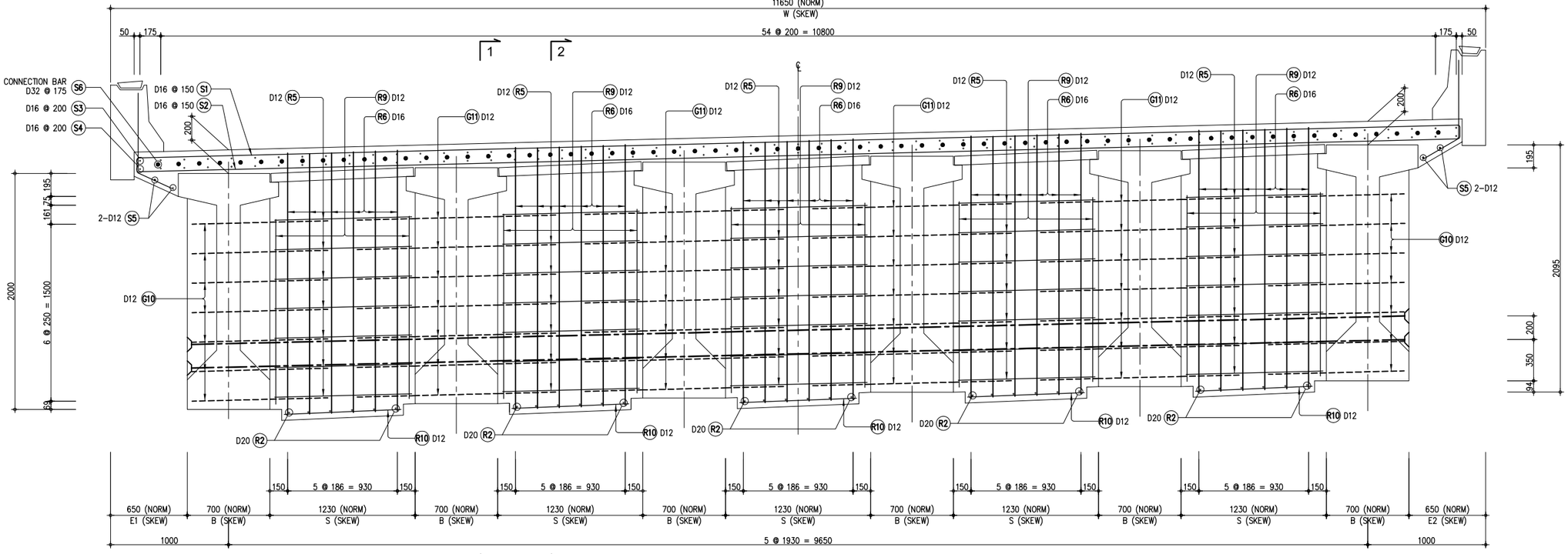
3 - 3



A1 — CROSS SECTION

SCALE 1:20

4 - 4



A2 — CROSS SECTION

SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

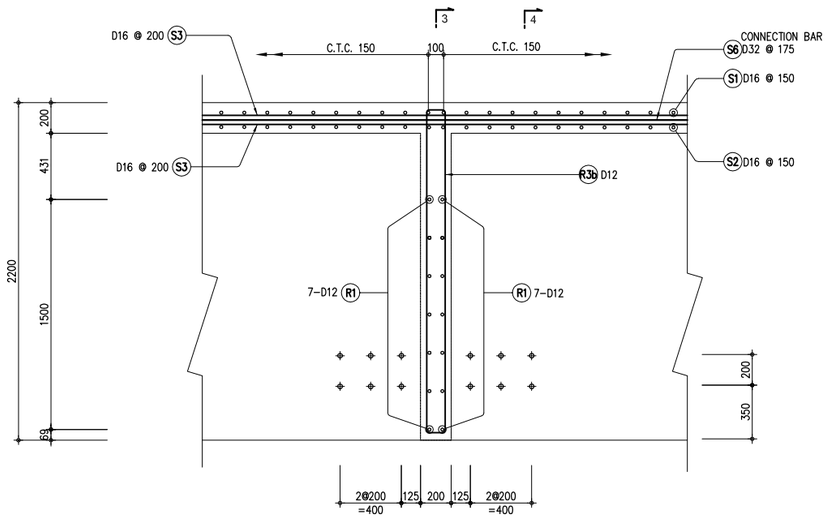
No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
SLAB CONNECTION DETAIL FOR PIER P1, P3, P5, P7 & P9 (1/2)

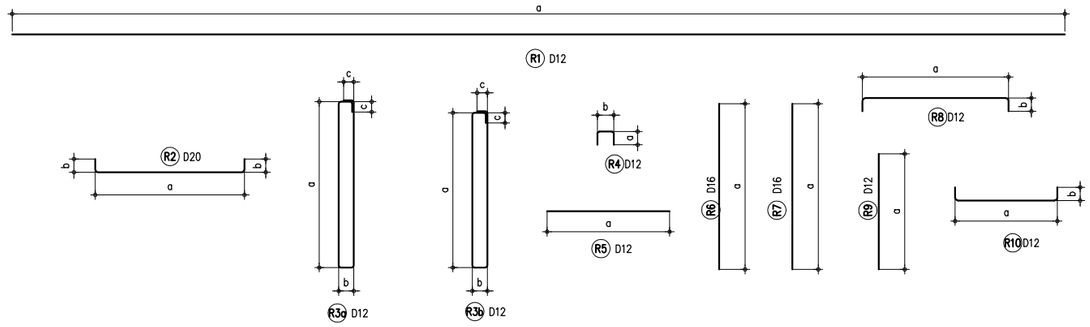
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-38

2 - 2



B SIDE VIEW

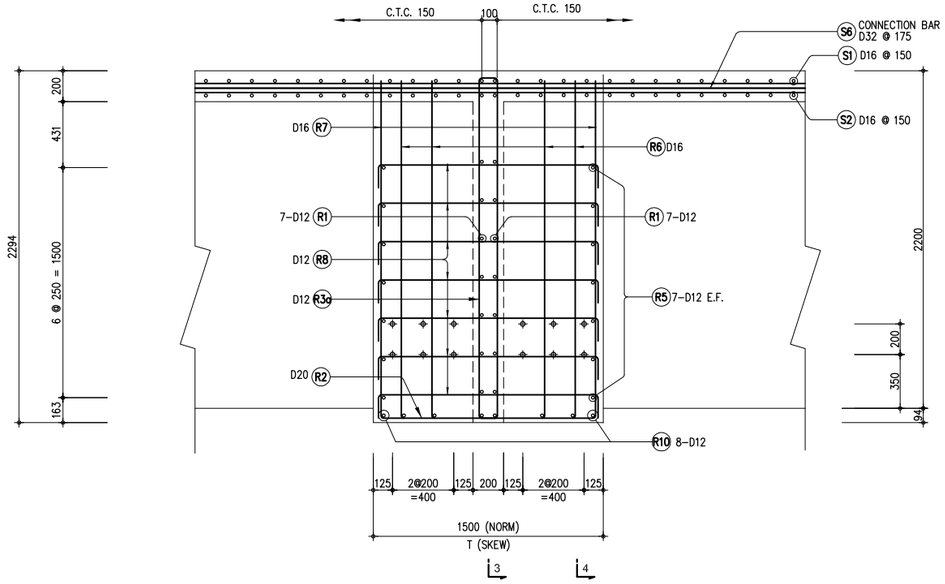
SCALE 1:20



D BAR BENDING LAYOUT

SCALE NTS

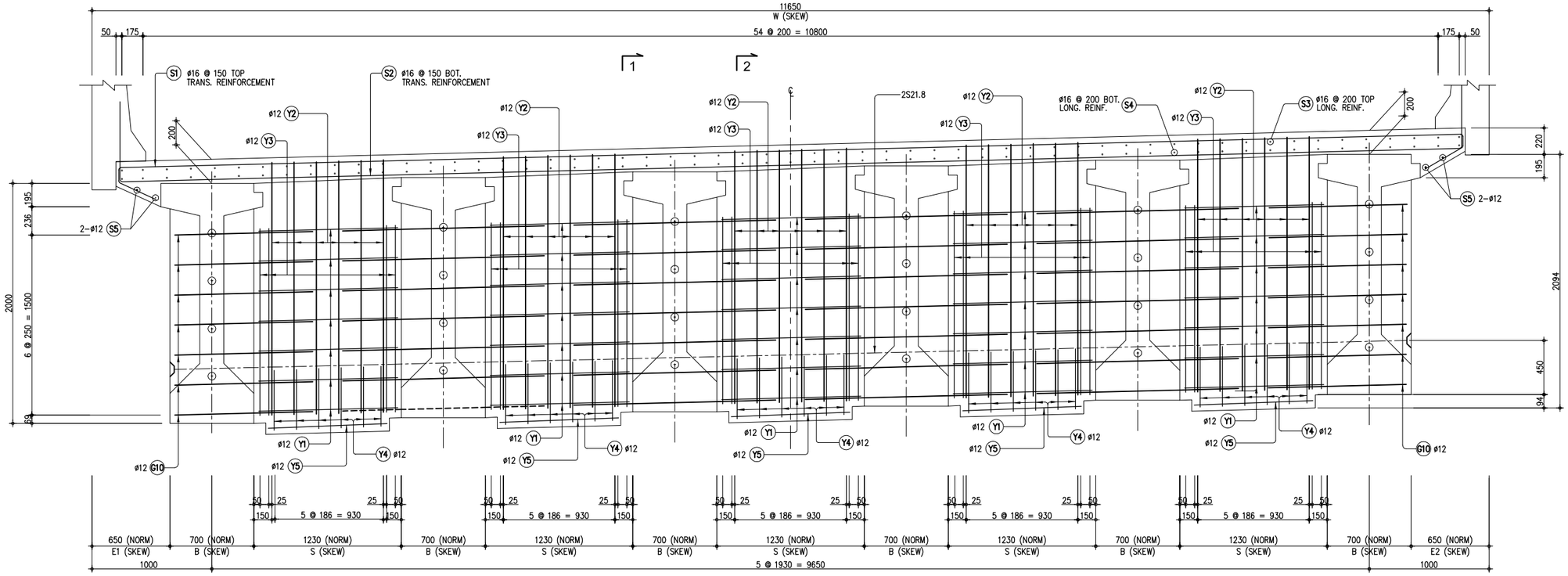
1 - 1



C SIDE VIEW

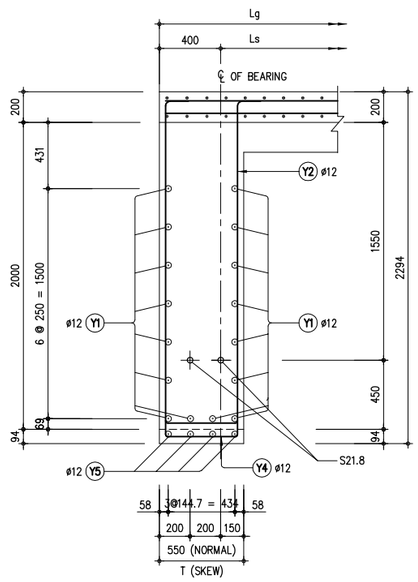
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No	REVISION	DATE	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE SLAB CONNECTION DETAIL FOR PIER P1, P3, P5, P7 & P9 (2/2)	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO. K01-39

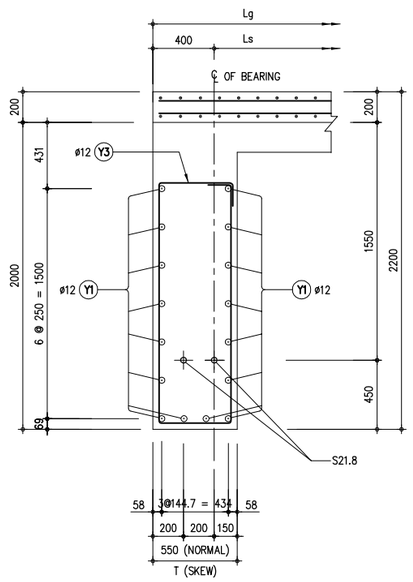


A2 — CROSS SECTION
SCALE 1:20

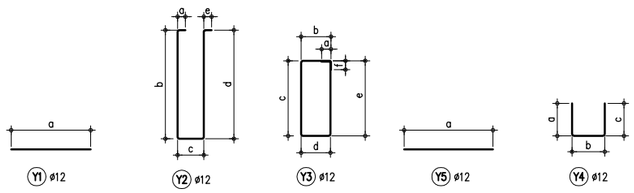
1 - 1



2 - 2



B — SIDE VIEW
SCALE 1:20



C — BAR BENDING LAYOUT
SCALE NTS

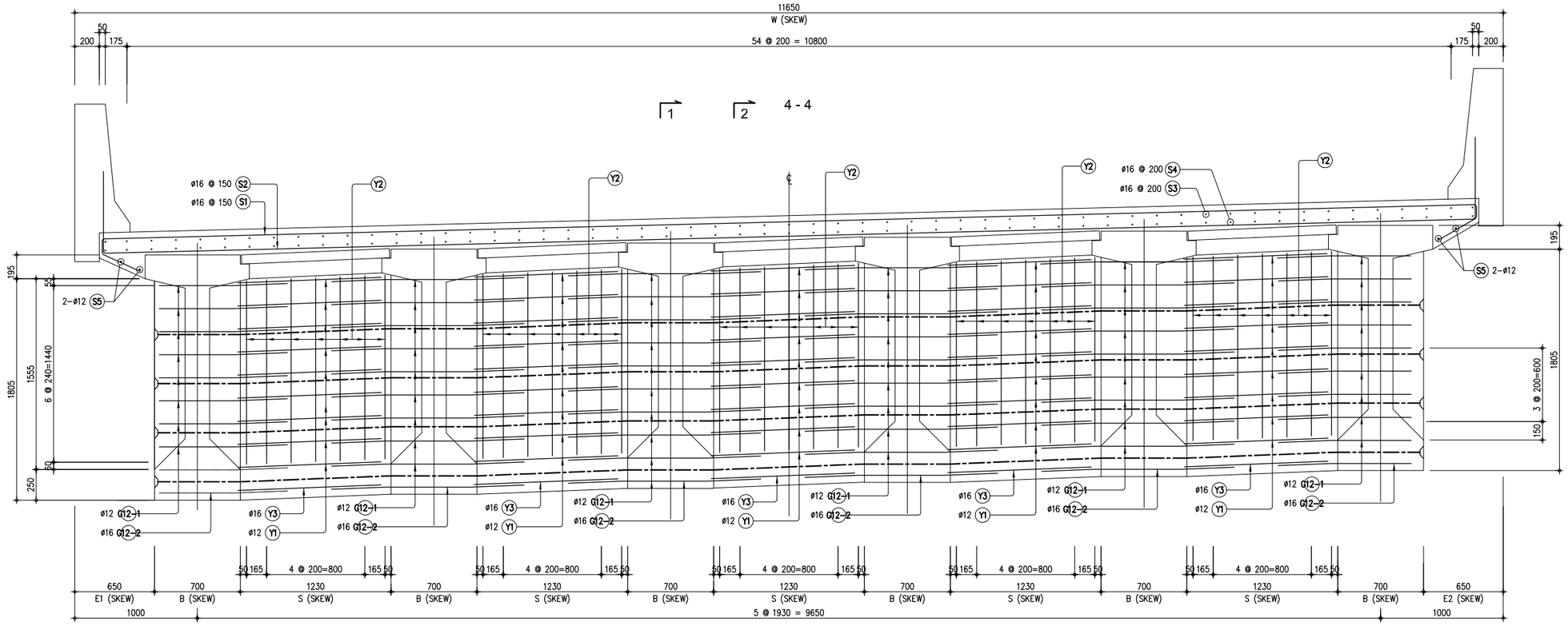
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

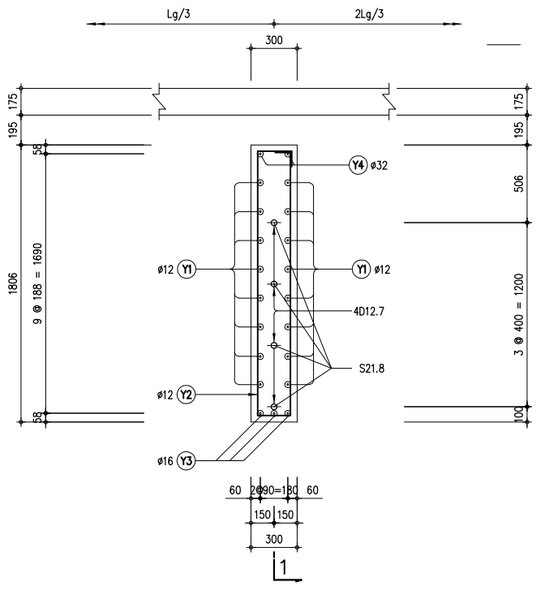
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT OF END CROSS BEAM PO TO A2

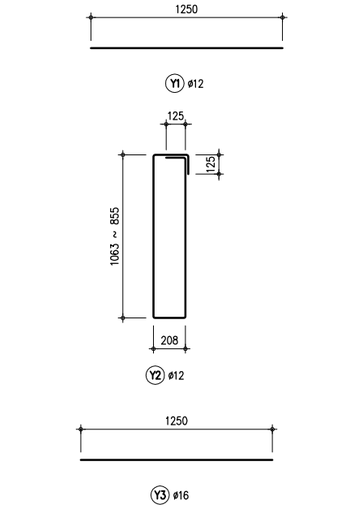
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-40



A — CROSS SECTION
SCALE 1:20



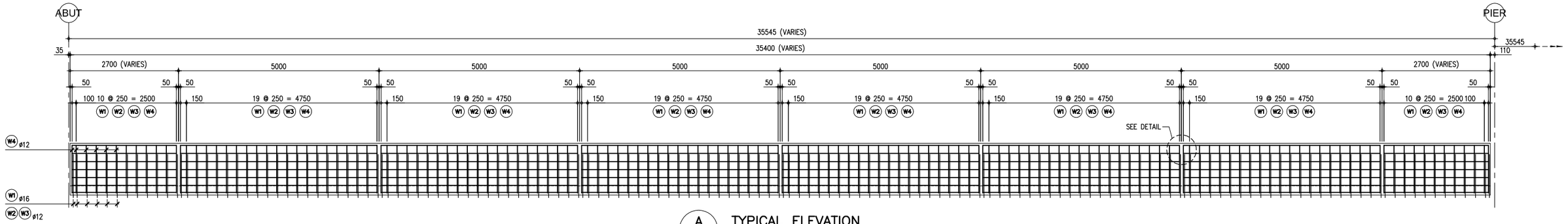
B — DETAIL
SCALE 1:10



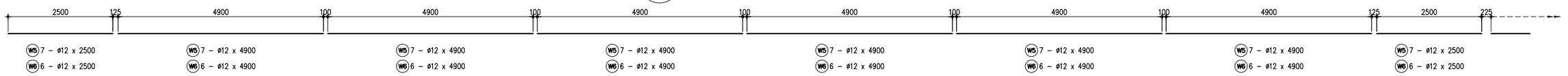
C — BAR BENDING LAYOUT
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT OF INTERMEDIATE CROSS BEAM P0_P1_ID1
No REVISION DATE		DESIGNED BY: / CHECKED BY: / APPROVED BY: / DWG. NO. K01-41

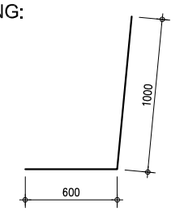
PARAPET REINFORCEMENT AT P0 TO A2



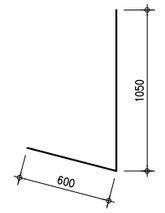
A — TYPICAL ELEVATION
SCALE 1:50



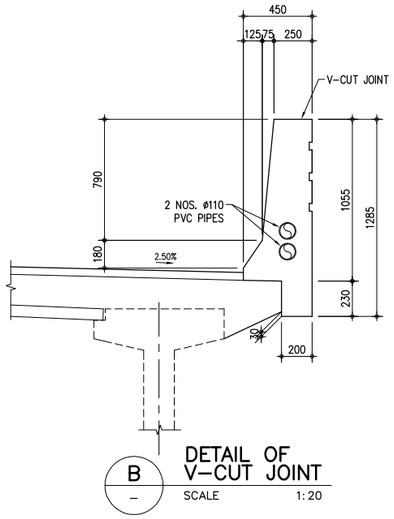
BAR BENDING:



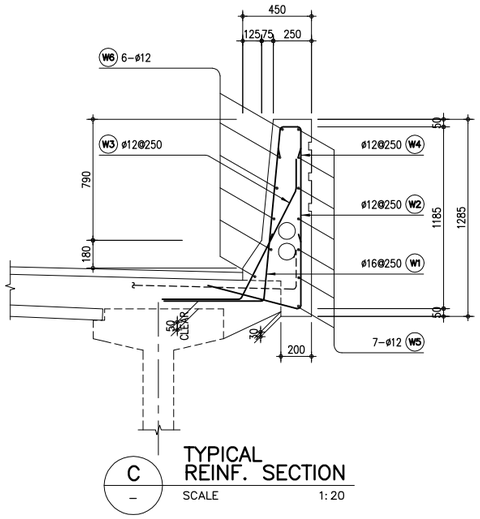
W1 150 – ø16@250 x 1600



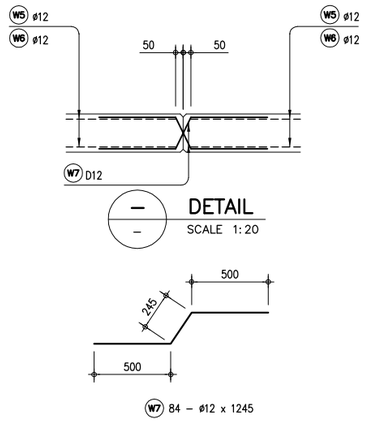
W2 150 – ø12@250 x 1650



B — DETAIL OF V-CUT JOINT
SCALE 1:20

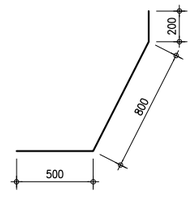


C — TYPICAL REINF. SECTION
SCALE 1:20

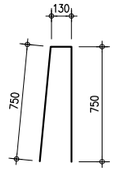


— DETAIL
SCALE 1:20

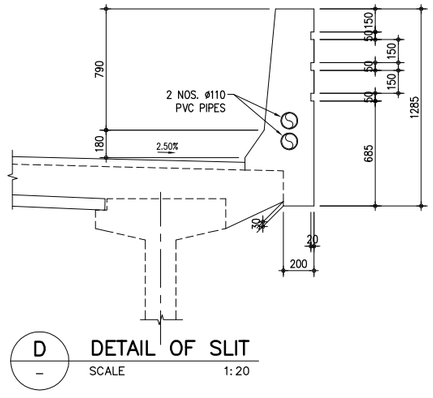
W7 84 – ø12 x 1245



W3 150 – ø12@250 x 1500



W4 150 – ø16 x 1635



D — DETAIL OF SLIT
SCALE 1:20

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
TYPICAL PARAPET REINFORCEMENT DETAIL (P0 TO A2)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-42

ESTIMATED QUANTITIES FOR END DIAPHRAGMS (CROSS BEAM)

REINFORCING BARS

LOCATION	BAR MARK	QTY. (pcs)	SIZE (mm)	BAR DIMENSIONS (mm) a	b	c	d	e	f	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)
ED_P0	Y1	80	12	1227						1227	98.16	0.888	87.17
	Y2	30	12	150	2094	504	2094	150		4992	149.76	0.888	132.99
	Y3	20	12	150	504	1536	504	1536	150	4380	87.60	0.888	77.79
	Y4	30	12	500	504	500				1504	45.12	0.888	40.07
	Y5	20	12	1027						1027	20.54	0.888	18.24
ED_P2L	Y1	80	12	1271						1271	101.68	0.888	90.29
	Y2	30	12	150	2094	524	2094	150		5012	150.36	0.888	133.52
	Y3	20	12	150	524	1536	524	1536	150	4420	88.40	0.888	78.50
	Y4	30	12	500	524	500				1524	45.72	0.888	40.60
	Y5	20	12	1071						1071	21.42	0.888	19.02
ED_P2R	Y1	80	12	1253						1253	100.24	0.888	89.01
	Y2	30	12	150	2094	519	2094	150		5007	150.21	0.888	133.39
	Y3	20	12	150	519	1536	519	1536	150	4410	88.20	0.888	78.32
	Y4	30	12	500	519	500				1519	45.57	0.888	40.47
	Y5	20	12	1053						1053	21.06	0.888	18.70
ED_P4L	Y1	80	12	1250						1250	100.00	0.888	88.80
	Y2	30	12	150	2094	515	2094	150		5003	150.09	0.888	133.28
	Y3	20	12	150	515	1536	515	1536	150	4402	88.04	0.888	78.18
	Y4	30	12	500	515	500				1515	45.45	0.888	40.36
	Y5	20	12	1050						1050	21.00	0.888	18.65
ED_P4R	Y1	80	12	1241						1241	99.28	0.888	88.16
	Y2	30	12	150	2094	511	2094	150		4999	149.97	0.888	133.17
	Y3	20	12	150	511	1536	511	1536	150	4394	87.88	0.888	78.04
	Y4	30	12	500	511	500				1511	45.33	0.888	40.25
	Y5	20	12	1041						1041	20.82	0.888	18.49
ED_P6L	Y1	80	12	1232						1232	98.56	0.888	87.52
	Y2	30	12	150	2094	506	2094	150		4994	149.82	0.888	133.04
	Y3	20	12	150	506	1536	506	1536	150	4384	87.68	0.888	77.86
	Y4	30	12	500	506	500				1506	45.18	0.888	40.12
	Y5	20	12	1032						1032	20.64	0.888	18.33
ED_P6R	Y1	80	12	1223						1223	97.84	0.888	86.88
	Y2	30	12	150	2094	503	2094	150		4991	149.73	0.888	132.96
	Y3	20	12	150	503	1536	503	1536	150	4378	87.56	0.888	77.75
	Y4	30	12	500	503	500				1503	45.09	0.888	40.04
	Y5	20	12	1023						1023	20.46	0.888	18.17
ED_P8L	Y1	80	12	1216						1216	97.28	0.888	86.38
	Y2	30	12	150	2094	500	2094	150		4988	149.64	0.888	132.88
	Y3	20	12	150	500	1536	500	1536	150	4372	87.44	0.888	77.65
	Y4	30	12	500	500	500				1500	45.00	0.888	39.96
	Y5	20	12	1016						1016	20.32	0.888	18.04
ED_P8R	Y1	80	12	1209						1209	96.72	0.888	85.89
	Y2	30	12	150	2094	496	2094	150		4984	149.52	0.888	132.77
	Y3	20	12	150	496	1536	496	1536	150	4364	87.28	0.888	77.50
	Y4	30	12	500	496	500				1496	44.88	0.888	39.85
	Y5	20	12	1009						1009	20.18	0.888	17.92
ED_A2	Y1	80	12	1197						1197	95.76	0.888	85.03
	Y2	30	12	150	2094	477	2094	150		4965	148.95	0.888	132.27
	Y3	20	12	150	477	1536	477	1536	150	4326	86.52	0.888	76.83
	Y4	30	12	500	477	500				1477	44.31	0.888	39.35
	Y5	20	12	967						967	19.94	0.888	17.17
											GRAND TOTAL		3,568.16

ESTIMATED QUANTITIES FOR INTERMEDIATE DIAPHRAMS (CROSS BEAM)

INTERMEDIATE DIAPHRAGMS	SKEW DIMENSIONS (mm) W	E1	E2	B	S	T	BAR MARK (mm)	BAR SIZE (mm)	QTY.	BAR DIMENSIONS (mm) a	b	c	d	e	f	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)
ID_1	12383	617	778	743	1306	319	Y1	12	90	1226						1226	110.340	0.888	97.98
							Y2	12	35	150	239	1478	239	1478	150	3734	130.690	0.888	116.05
							Y3	16	15	1226						1226	18.390	1.579	29.04
ID_2	12358	614	756	743	1306	319	Y1	12	90	1226						1226	110.340	0.888	97.98
							Y2	12	35	150	239	1478	239	1478	150	3734	130.690	0.888	116.05
							Y3	16	15	1226						1226	18.390	1.579	29.04
ID_3	12307	621	762	739	1298	317	Y1	12	90	1218						1218	109.620	0.888	97.34
							Y2	12	35	150	237	1478	237	1478	150	3730	130.550	0.888	115.93
							Y3	16	15	1218						1218	18.270	1.579	28.85
ID_4	12284	618	742	739	1298	317	Y1	12	90	1218						1218	109.620	0.888	97.34
							Y2	12	35	150	237	1478	237	1478	150	3730	130.550	0.888	115.93
							Y3	16	15	1218						1218	18.720	1.579	28.85
ID_5	12704	634	792	763	1340	327	Y1	12	90	1260						1260	113.400	0.888	100.70
							Y2	12	35	150	247	1478	247	1478	150	3750	131.250	0.888	116.55
							Y3	16	15	1260						1260	18.900	1.579	29.84
ID_6	12672	630	764	763	1340	327	Y1	12	90	1260						1260	113.400	0.888	100.70
							Y2	12	35	150	247	1478	247	1478	150	3750	131.250	0.888	116.55
							Y3	16	15	1260						1260	18.900	1.579	29.84
ID_7	12609	629	788	757	1330	324	Y1	12	90	1250						1250	112.500	0.888	99.90
							Y2	12	35	150	244	1478	244	1478	150	3744	131.040	0.888	116.36
							Y3	16	15	1250						1250	18.750	1.579	29.61
ID_8	12579	625	762	757	1330	324	Y1	12	90	1250						1250	112.500	0.888	99.90
							Y2	12	35	150	244	1478	244	1478	150	3744	131.040	0.888	116.36
							Y3	16	15	1250						1250	18.750	1.579	29.61
ID_9	12518	624	777	752	1321	322	Y1	12	90	1241						1241	111.690	0.888	99.18
							Y2	12	35	150	242	1478	242	1478	150	3740	130.900	0.888	116.24
							Y3	16	15	1241						1241	18.615	1.579	29.39
ID_10	12490	621	752	752	1321	322	Y1	12	90	1241						1241	111.690	0.888	99.18
							Y2	12	35	150	242	1478	242	1478	150	3740	130.900	0.888	116.24
							Y3	16	15	1241						1241	18.615	1.579	29.39
ID_11	12432	620	776	746	1312	320	Y1	12	90	1232						1232	110.880	0.888	98.46
							Y2	12	35	150	240	1478	240	1478	150	3736	130.760	0.888	116.11
							Y3	16	15	1232						1232	18.480	1.579	29.18
ID_12	12406	617	753	746	1312	320	Y1	12	90	1232						1232	110.880	0.888	98.46
							Y2	12	35	150	240	1478	240	1478	150	3736	130.760	0.888	116.11
							Y3	16	15	1232						1232	18.480	1.579	29.18
ID_13	12352	616	769	742	1303	317	Y1	12	90	1223						1223	110.070	0.888	97.74
							Y2	12	35	150	237	1478	237	1478	150	3730	130.550	0.888	115.93
							Y3	16	15	1223						1223	18.345	1.579	28.97
ID_14	12328	613	748	742	1303	317	Y1	12	90	1223						1223	110.070	0.888	97.74
							Y2	12	35	150	237	1478	237	1478	150	3730	130.550	0.888	115.93
							Y3	16	15	1223						1223	18.345	1.579	28.97
ID_15	12256	610	749	737	1295	316	Y1	12	90	1215						1215	109.350	0.888	97.10
							Y2	12	35	150	236	1478	236	1478	150	3728	130.480	0.888	115.87
							Y3	16	15	1215						1215	18.225	1.579	28.78
ID_16	12254	604	753	737	1295	316	Y1	12	90	1215						1215	109.350	0.888	97.10
							Y2	12	35	150	236	1478	236	1478	150	3728	130.480	0.888	115.87
							Y3	16	15	1215						1215	18.225	1.579	28.78
ID_17	12215	600	772	733	1289	314	Y1	12	90	1209						1209	108.810	0.888	96.62
							Y2	12	35	150	234	1478	234	1478	150	3724	130.340	0.888	115.74
							Y3	16	15	1209						1209	18.135	1.579	28.64
ID_18	12194	596	755	733	1289	314	Y1	12	90	1209						1209	108.810	0.888	96.62
							Y2	12	35	150	234	1478	234	1478	150	3724	130.340	0.888	115.74
							Y3	16	15	1209						1209	18.135	1.579	28.64
ID_19	11811	588	734	709	1247	304	Y1	12	90	1167						1167	105.030	0.888	93.27
							Y2	12	35	150	224	1478	224	1478	150	3704	129.640	0.888	115.12
							Y3	16	15	1167						1167	17.505	1.579	27.64
ID_20	11811	588	734	709	1247	304	Y1	12	90	1167						1167	105.030	0.888	93.27
							Y2	12	35	150	224	1478	224	1478	150	3704	129.640	0.888	115.12
							Y3	16	15	1167						1167	17.505	1.579	27.64
																	GRAND TOTAL		4,856.26

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
ESTIMATED QUANTITIES FOR END CROSS BEAM AND INTERMEDIATE CROSS BEAM

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-43

ESTIMATED QUANTITIES FOR SLAB

REINFORCING BARS

LOCATION	BAR MARK	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
SLAB - P0 to P1 to P2	S1	150	466	16	350	120	2407	10750	120	350		14097	6569.20	1.579	10,372.77	
	S2	150	466	16	670	9725	3432	670				14497	6755.60	1.579	10,667.10	
	S3	200	57	16	12000	12000	12000	12000	12000	12000	1300	73300	4178.10	1.579	6,597.22	
	S4	200	57	16	1300	12000	12000	12000	12000	12000	12000	73300	4178.10	1.579	6,597.22	
	S5	as shown	4	12	12000	12000	12000	12000	12000	11950		71950	287.80	0.888	255.57	
	S6	175	64	32	6000	12000	9000					27000	1728.00	6.313	10,908.86	
	A. TOTAL QUANTITY															**45,398.74**
SLAB - P2 to P3 to P4	S1	150	474	16	350	120	2475	11000	120	350		14415	6832.71	1.579	10,788.85	
	S2	150	474	16	670	9950	3525	670				14815	7022.31	1.579	11,088.23	
	S3	200	57	16	12000	12000	12000	12000	12000	12000	2445	74445	4243.37	1.579	6,700.27	
	S4	200	57	16	2445	12000	12000	12000	12000	12000	12000	74445	4243.37	1.579	6,700.27	
	S5	as shown	4	12	12000	12000	12000	12000	12000	12000	1545	73545	294.18	0.888	261.23	
	S6	175	64	32	6000	12000	9000					27000	1728.00	6.313	10,908.86	
	B. TOTAL QUANTITY															**46,447.72**
SLAB - P4 to P5 to P6	S1	150	474	16	350	120	2440	10850	120	350		14230	6745.02	1.579	10,650.39	
	S2	150	474	16	670	9820	3470	670				14630	6934.62	1.579	10,949.76	
	S3	200	57	16	12000	12000	12000	12000	12000	12000	2440	74440	4243.08	1.579	6,699.82	
	S4	200	57	16	2440	12000	12000	12000	12000	12000	12000	74440	4243.08	1.579	6,699.82	
	S5	as shown	4	12	12000	12000	12000	12000	12000	12000	1540	73540	294.16	0.888	261.21	
	S6	175	64	32	6000	12000	9000					27000	1728.00	6.313	10,908.86	
	C. TOTAL QUANTITY															**46,169.88**
SLAB - P6 to P7 to P8	S1	150	472	16	350	120	2325	10750	120	350		14015	6615.08	1.579	10,445.21	
	S2	150	472	16	670	9700	3375	670				14415	6803.88	1.579	10,743.33	
	S3	200	57	16	12000	12000	12000	12000	12000	12000	2400	74400	4240.80	1.579	6,696.22	
	S4	200	57	16	2400	12000	12000	12000	12000	12000	12000	74400	4240.80	1.579	6,696.22	
	S5	as shown	4	12	12000	12000	12000	12000	12000	12000	1500	73500	294.00	0.888	261.07	
	S6	175	64	32	6000	12000	9000					27000	1728.00	6.313	10,908.86	
	D. TOTAL QUANTITY															**45,750.92**
SLAB - P8 to P9 to A2	S1	150	487	16	350	120	2450	10350	120	350		13740	6691.38	1.579	10,565.69	
	S2	150	487	16	670	9350	3150	670				13840	6740.08	1.579	10,642.59	
	S3	200	57	16	12000	12000	12000	12000	12000	12000	3755	75755	4318.04	1.579	6,818.18	
	S4	200	57	16	3755	12000	12000	12000	12000	12000	12000	75755	4318.04	1.579	6,818.18	
	S5	as shown	4	12	12000	12000	12000	12000	12000	12000	2855	74855	299.42	0.888	265.88	
	S6	175	64	32	6000	12000	9000					27000	1728.00	6.313	10,908.86	
	E. TOTAL QUANTITY															**46,019.38**
	E. TOTAL QUANTITY															**229,786.63**
PARAPET	W1	250	150	16	600	1000						1600	240.000	1.579	378.96	
	W2	250	150	12	600	1050						1650	247.500	0.888	219.78	
	W3	250	150	12	500	800	200					1500	225.000	0.888	199.80	
	W4	250	150	16	750	130	750					1630	244.500	1.579	386.07	
	W5	as shown	14	12	2500							2500	35.000	0.888	31.08	
	W5a	as shown	42	12	4900							4900	205.800	0.888	182.75	
	W6	as shown	12	12	2500							2500	30.000	0.888	26.64	
	W6a	as shown	36	12	4900							4900	176.400	0.888	156.64	
	W7	as shown	84	12	500	245	500					1245	104.580	0.888	92.87	
	A. TOTAL QUANTITY PER PARAPET															**1,674.59**
	B. NUMBER OF SPANS x 2															**20**
	GRAND TOTAL QUANTITY FOR PARAPET															**33,491.72**

ESTIMATED QUANTITIES FOR THE DIAPHRAGMS SLAB CONNECTION

REINFORCING BARS

LOCATION	BAR MARK	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)
DSC_P1	R1	14	12	10908							10908	152.712	0.888	135.61
	R2	30	20	130	1429	130					1689	50.670	2.466	124.95
	R3a	30	12	100	148	2204	148	2204	100		4904	147.120	0.888	130.64
	R3b	30	12	100	148	2110	148	2110	100		4716	141.480	0.888	125.63
	R4	14	12	130	160	130					420	5.880	0.888	5.22
	R5	70	12	1226							1226	85.820	0.888	76.21
	R6	120	16	2204							2204	264.480	1.579	417.61
	R7	60	16	2204							2204	132.240	1.579	208.81
	R8	210	12	130	1509	130					1769	371.490	0.888	329.88
	R9	60	12	1536							1536	92.160	0.888	81.84
	R10	40	12	130	1026	130					1286	51.440	0.888	45.68
	A.TOTAL QUANTITY FOR PIER													**1,682.08**
DSC_P3	R1	14	12	11198							11198	156.772	0.888	139.21
	R2	30	20	130	1467	130					1727	51.810	2.466	127.76
	R3a	30	12	100	148	2204	148	2204	100		4904	147.120	0.888	130.64
	R3b	30	12	100	148	2110	148	2110	100		4716	141.480	0.888	125.63
	R4	14	12	130	160	130					420	5.880	0.888	5.22
	R5	70	12	1260							1260	88.200	0.888	78.32
	R6	120	16	2204							2204	264.480	1.579	417.61
	R7	60	16	2204							2204	132.240	1.579	208.81
	R8	210	12	130	1547	130					1807	379.470	0.888	336.97
	R9	60	12	1536							1536	92.160	0.888	81.84
	R10	40	12	130	1060	130					1320	52.800	0.888	46.89
	B.TOTAL QUANTITY FOR PIER													**1,698.90**
DSC_P5	R1	14	12	11037							11037	154.518	0.888	137.21
	R2	30	20	130	1444	130					1704	51.120	2.466	126.06
	R3a	30	12	100	148	2204	148	2204	100		4904	147.120	0.888	130.64
	R3b	30	12	100	148	2110	148	2110	100		4716	141.480	0.888	125.63
	R4	14	12	130	160	130					420	5.880	0.888	5.22
	R5	70	12	1241							1241	86.870	0.888	77.14
	R6	120	16	2204							2204	264.480	1.579	417.61
	R7	60	16	2204							2204	132.240	1.579	208.81
	R8	210	12	130	1524	130					1784	374.640	0.888	332.68
	R9	60	12	1536							1536	92.160	0.888	81.84
	R10	40	12	130	1041	130					1301	52.040	0.888	46.21
	C.TOTAL QUANTITY FOR PIER													**1,689.05**
DSC_P7	R1	14	12	10887							10887	152.418	0.888	135.35
	R2	30	20	130	1424	130					1684	50.520	2.466	124.58
	R3a	30	12	100	148	2204	148	2204	100		4904	147.120	0.888	130.64
	R3b	30	12	100	148	2110	148	2110	100		4716	141.480	0.888	125.63
	R4	14	12	130	160	130					420	5.880	0.888	5.22
	R5	70	12	1223							1223	85.610	0.888	76.02
	R6	120	16	2204							2204	264.480	1.579	417.61
	R7	60	16	2204							2204	132.240	1.579	208.81
	R8	210	12	130	1504	130					1764	370.440	0.888	328.95
	R9	60	12	1536							1536	92.160	0.888	81.84
	R10	40	12	130	1023	130					1283	51.320	0.888	45.57
	D.TOTAL QUANTITY FOR PIER													**1,680.22**
DSC_P9	R1	14	12	10447							10447	146.258	0.888	129.88
	R2	30	20	130	1362	130					1622	48.660	2.466	120.00
	R3a	30	12	100	148	2204	148	2204	100		4904	147.120	0.888	130.64
	R3b	30	12	100	148	2110	148	2110	100		4716	141.480	0.888	125.63
	R4	14	12	130	160	130					420	5.880	0.888	5.22
	R5	70	12	1171							1171	81.970	0.888	72.79
	R6	120	16	2204							2204	264.480	1.579	417.61
	R7	60	16	2204							2204	132.240	1.579	208.81
	R8	210	12	130	1442	130					1702	357.420	0.888	317.39
	R9	60	12	1536							1536	92.160	0.888	81.84
	R10	40	12	130	971	130					1231	49.240	0.888	43.73
	E.TOTAL QUANTITY FOR PIER													**1,653.54**
	GRAND TOTAL													**8,403.79**

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

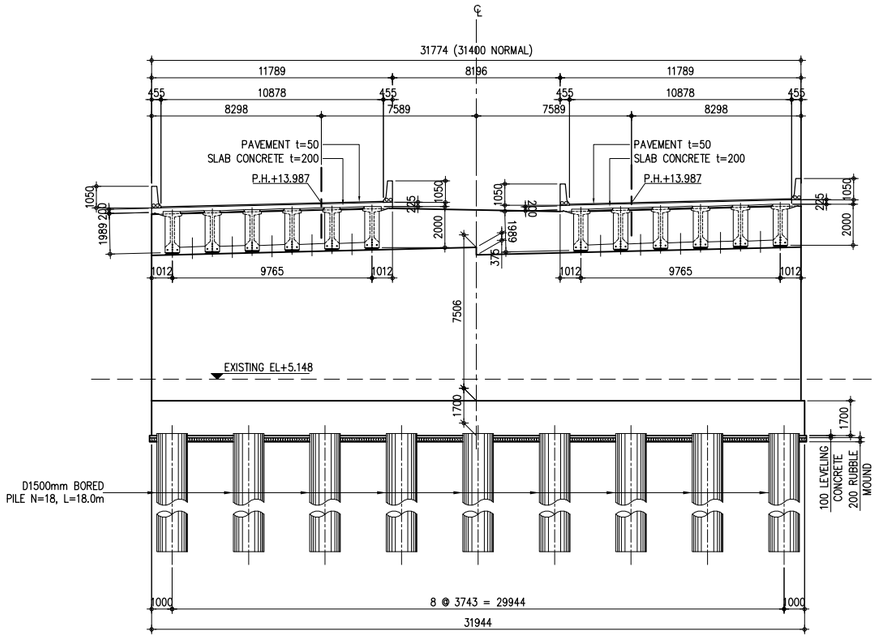
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
ESTIMATED QUANTITIES FOR SLAB AND SLAB CONNECTION

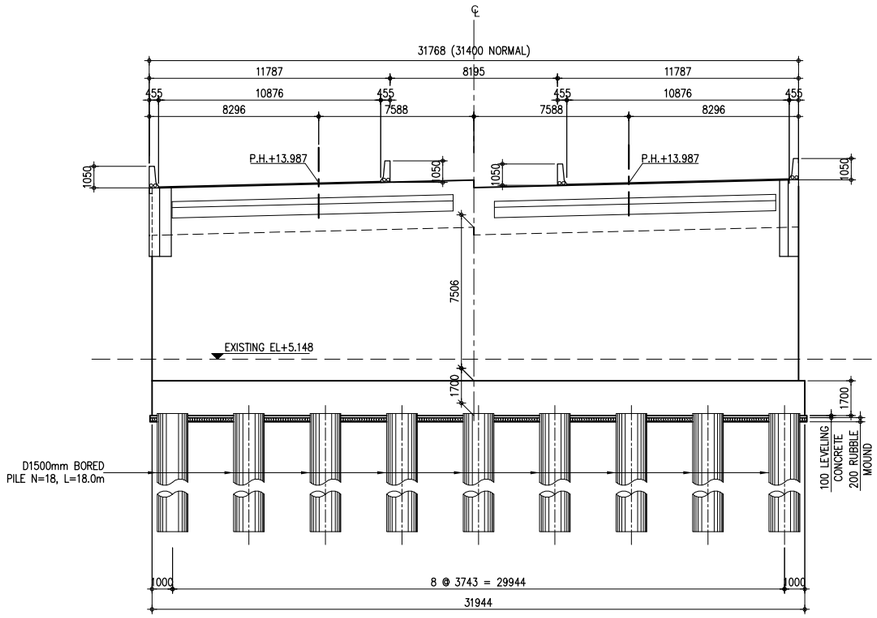
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-44

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIGE (SCALE 1:150)

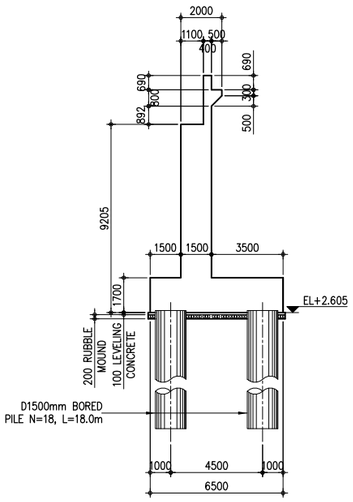
(DIMENSION DETAILS FOR ABUTMENT A2)



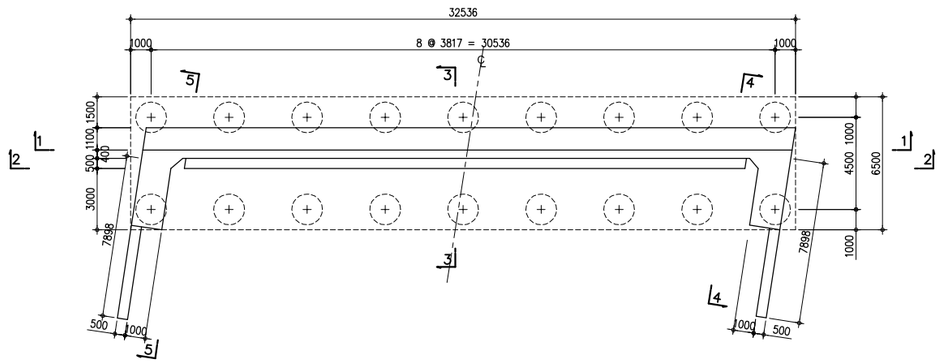
1 - 1

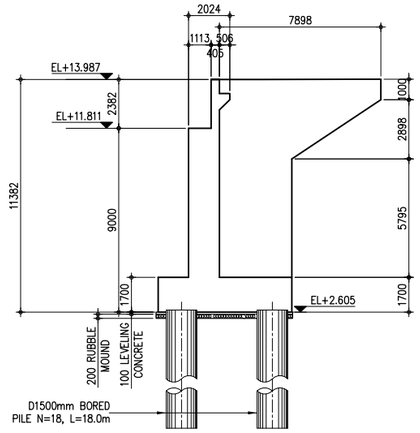


2 - 2

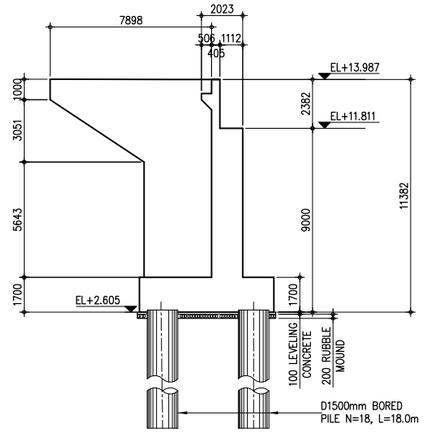


3 - 3





4 - 4

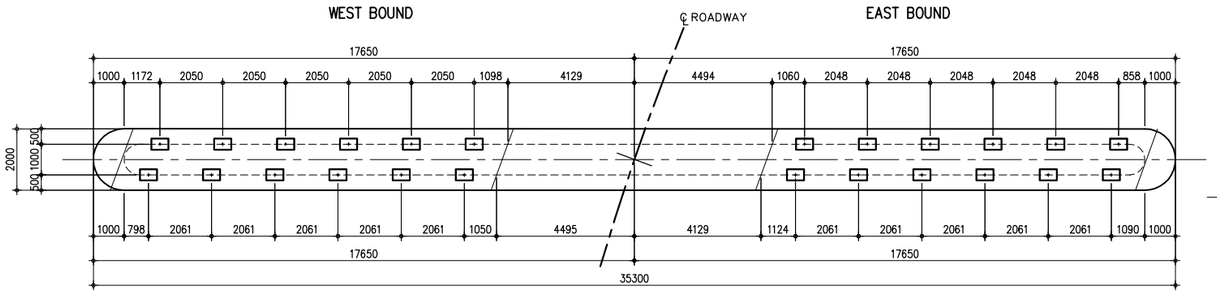


5 - 5

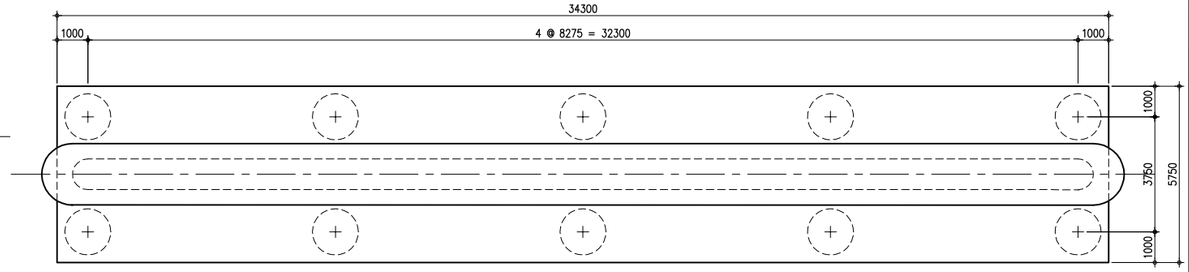
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1) HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIGE DIMENSION DETAILS FOR ABUTMENT A2

No	REVISION	DATE

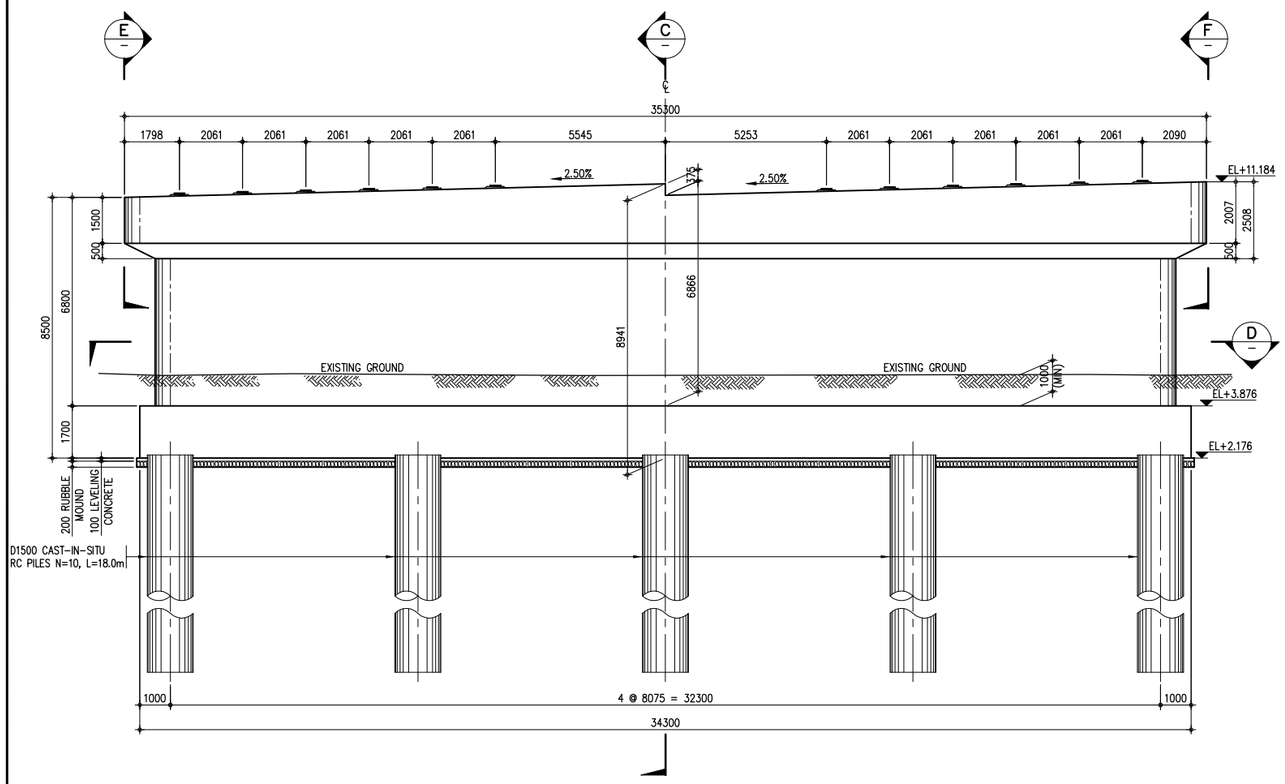
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-45



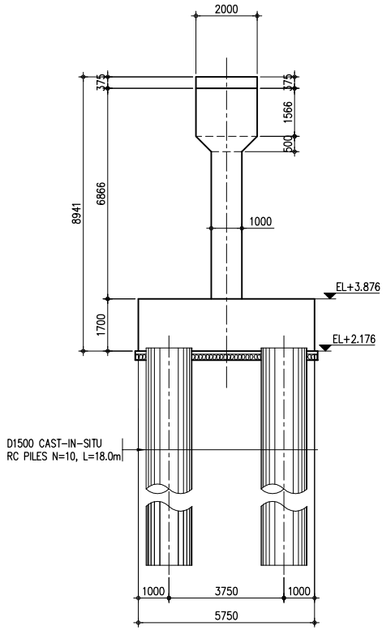
A — COPING PLAN OF PIER P0
SCALE 1:100



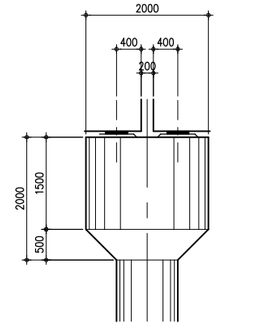
D — FOUNDATION PLAN
SCALE 1:100



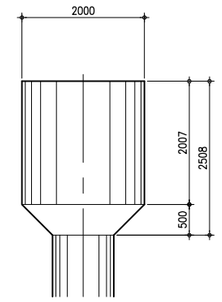
B — FRONT ELEVATION
SCALE 1:100



C — SECTION @ ROADWAY ℄
SCALE 1:100



E — S E C T I O N
SCALE 1:50



F — S E C T I O N
SCALE 1:50

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

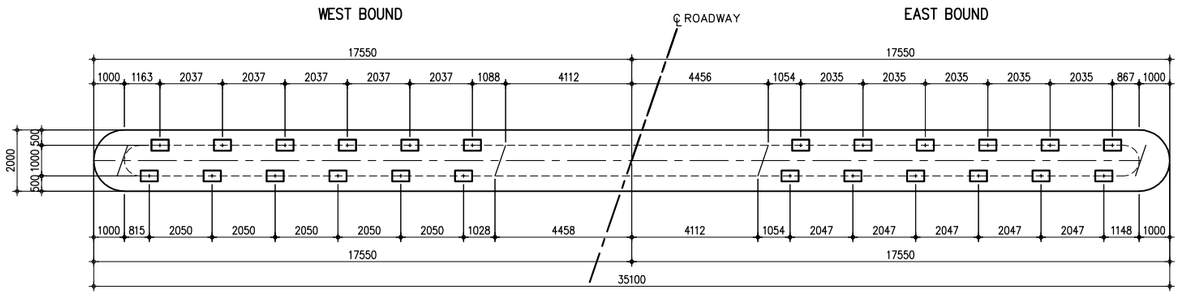
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

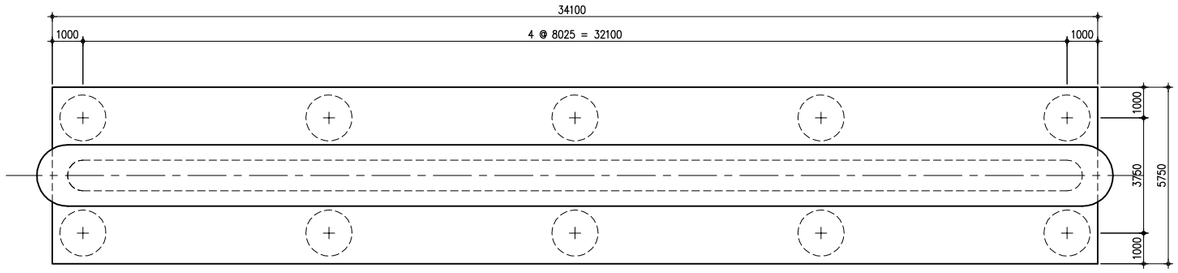
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
DIMENSION DETAIL OF PIER P0 (EAST-WEST BOUND)

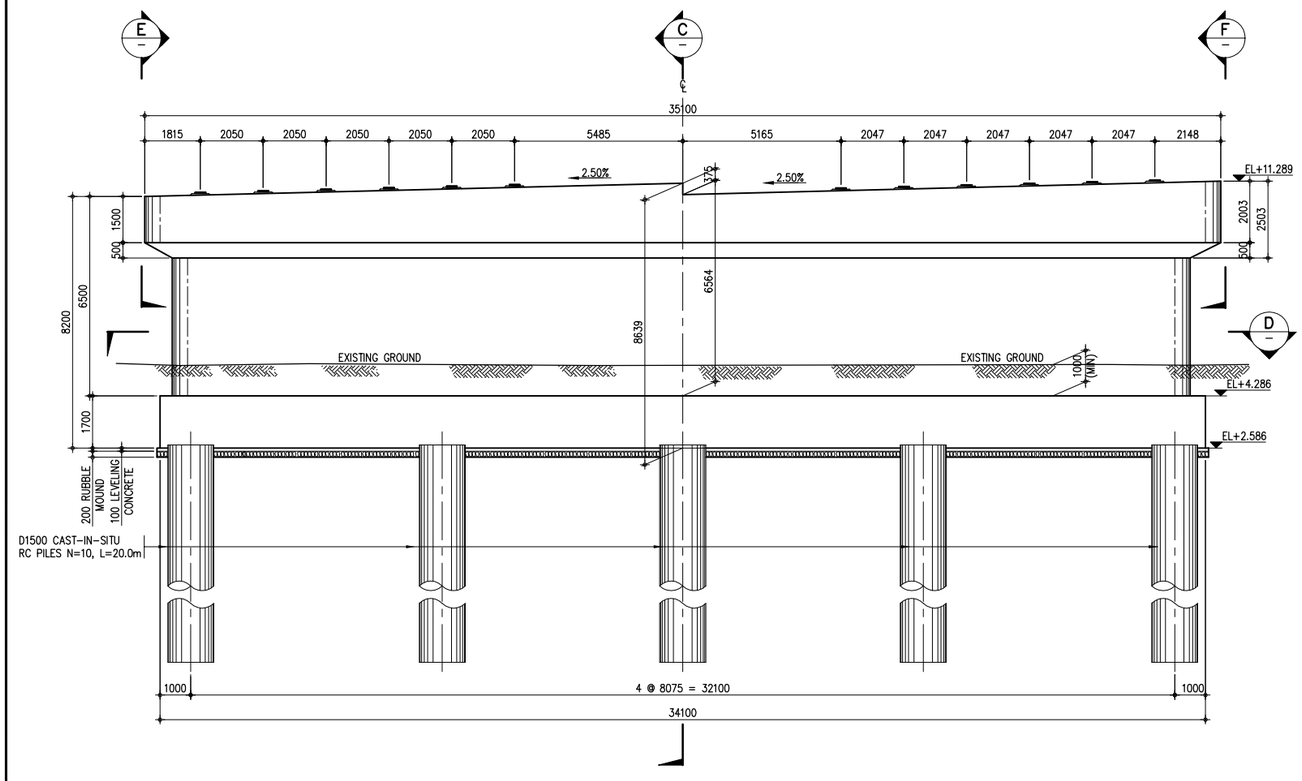
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-46



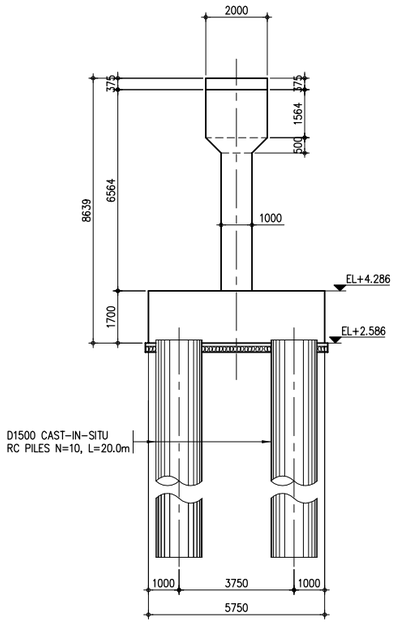
A — COPING PLAN OF PIER P1
SCALE 1:100



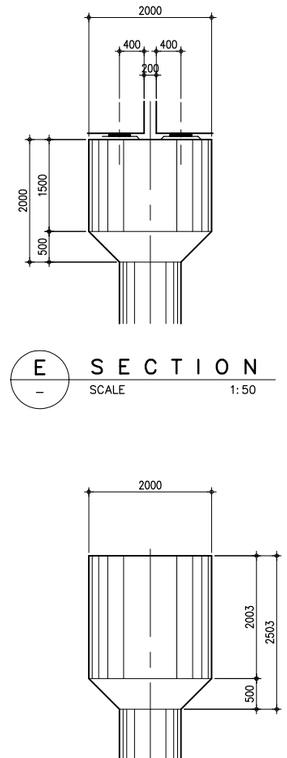
D — FOUNDATION PLAN
SCALE 1:100



B — FRONT ELEVATION
SCALE 1:100



C — SECTION @ ROADWAY ℄
SCALE 1:100



E — SECTION
SCALE 1:50

F — SECTION
SCALE 1:50

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

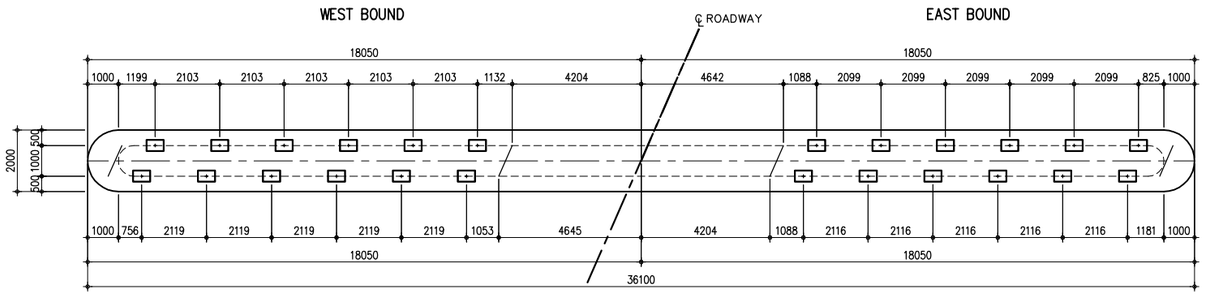
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
DIMENSION DETAIL OF PIER P1 (EAST-WEST BOUND)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-47



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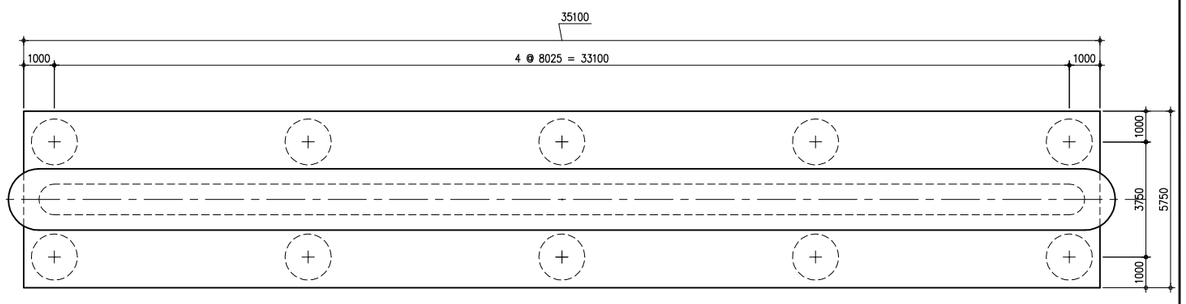
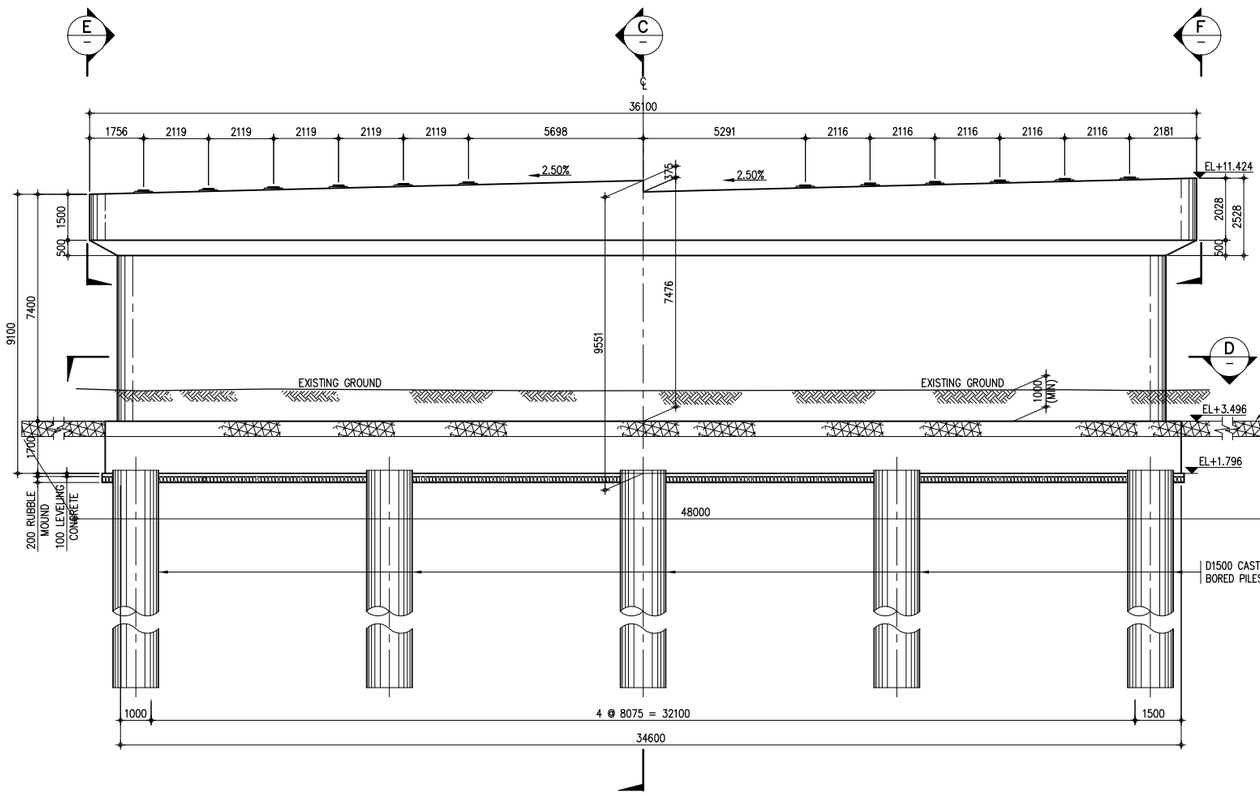
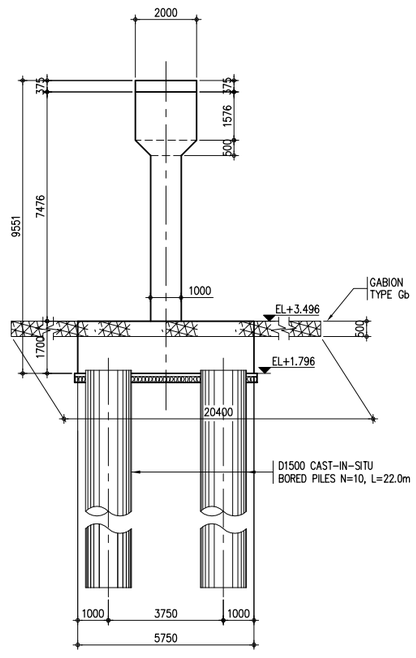
SCALE 1:100



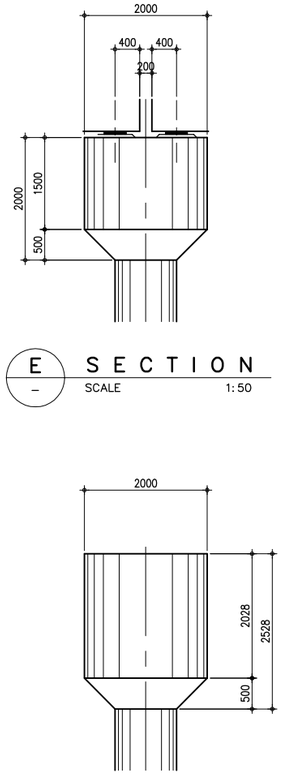
D FOUNDATION PLAN
SCALE 1:150



B FRONT ELEVATION
SCALE 1:100



C SECTION @ ROADWAY ℄
SCALE 1:100



E SECTION
SCALE 1:50

F SECTION
SCALE 1:50

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

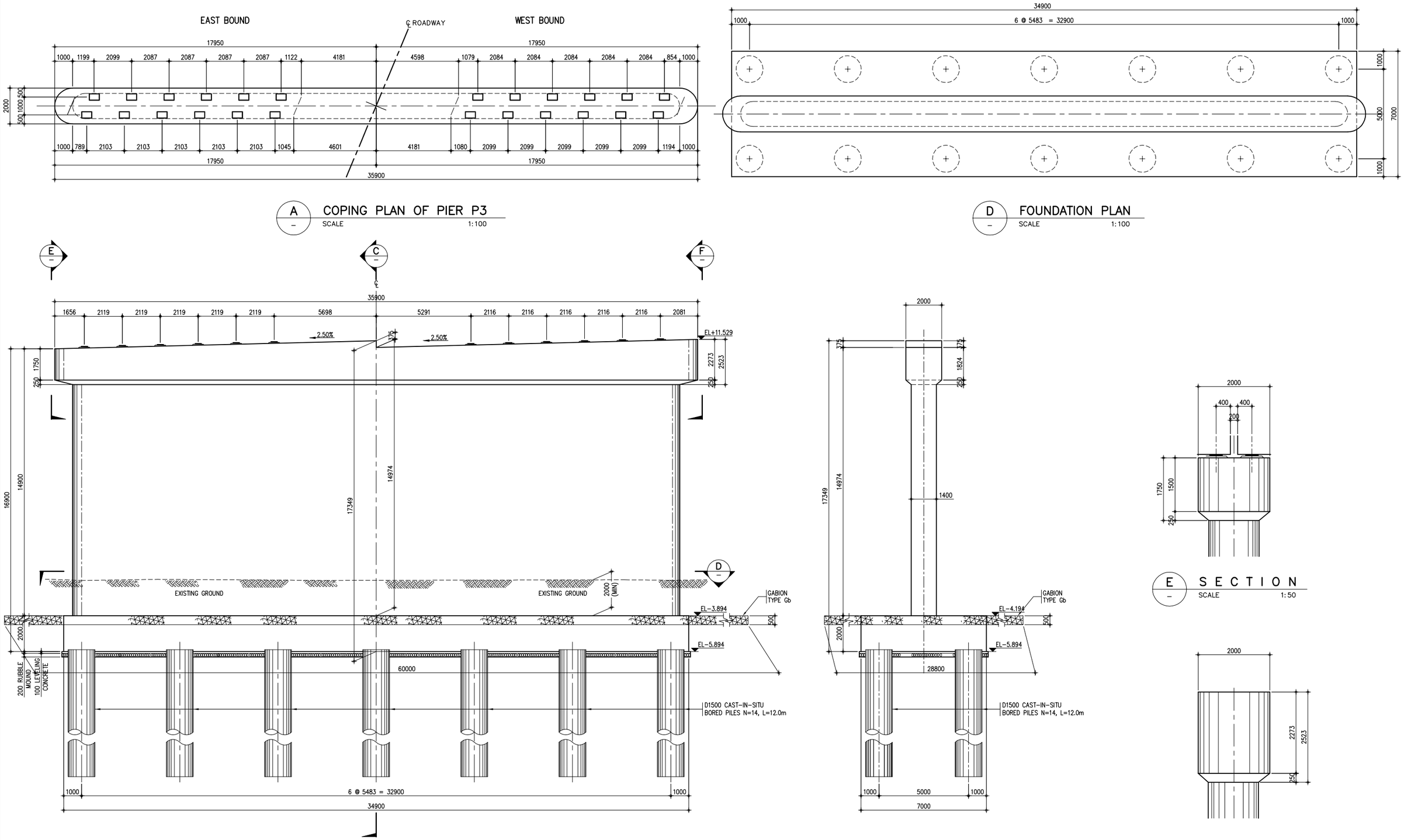
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

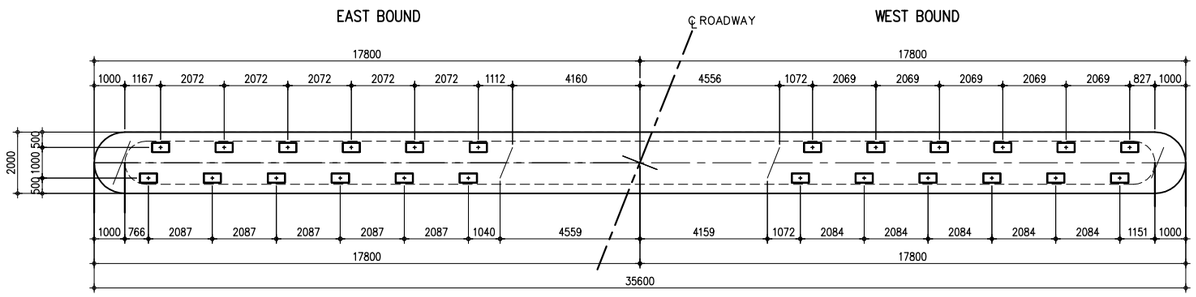
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
DIMENSION DETAIL OF PIER P2 (EAST- WEST BOUND)

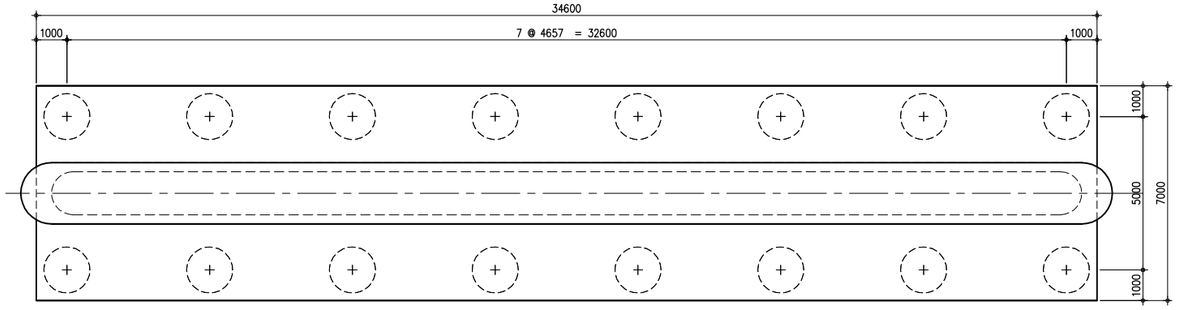
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-48



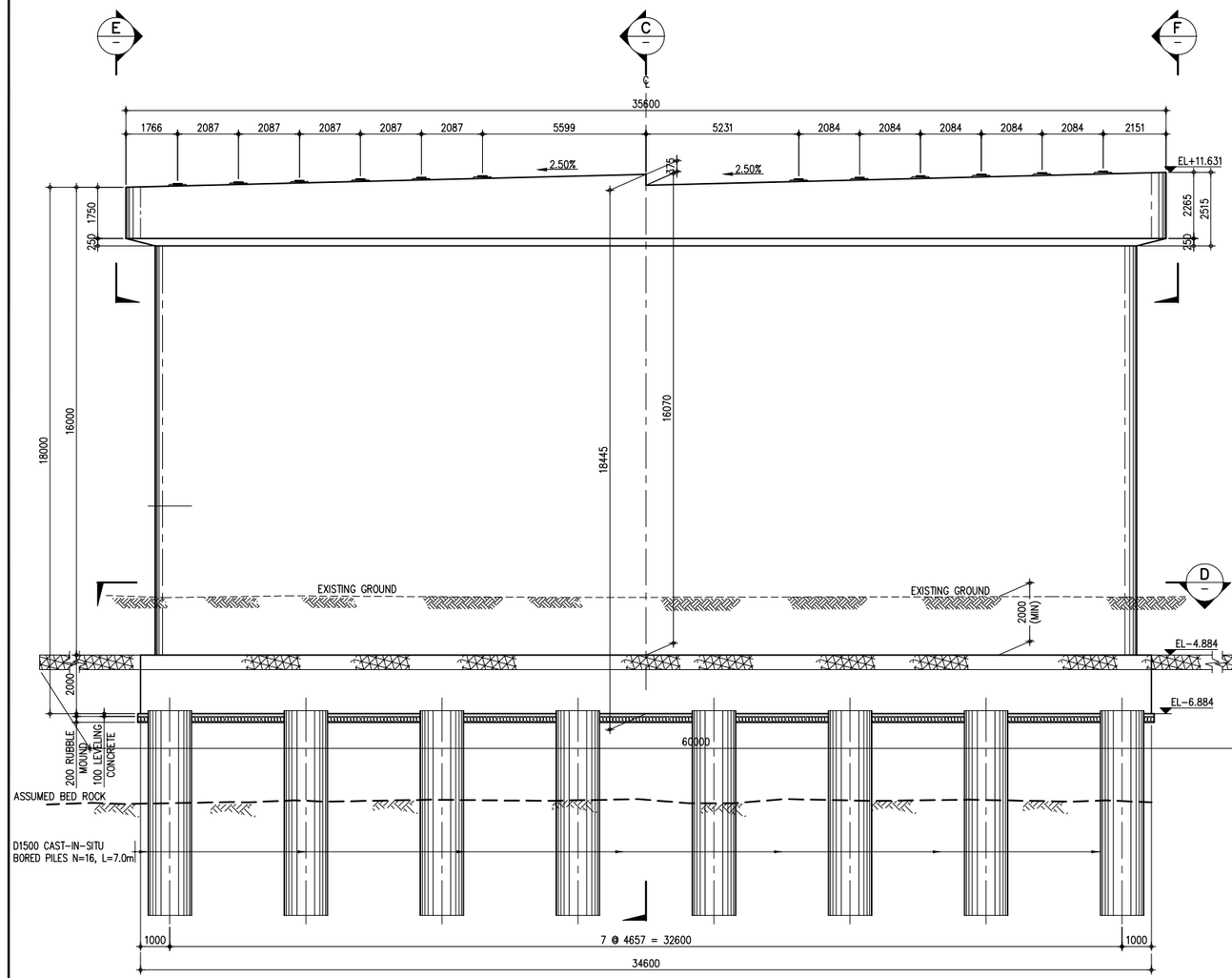
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No	REVISION	DATE	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIGE DIMENSION DETAIL OF PIER P3 (EAST-WEST BOUND)	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO. K01-49



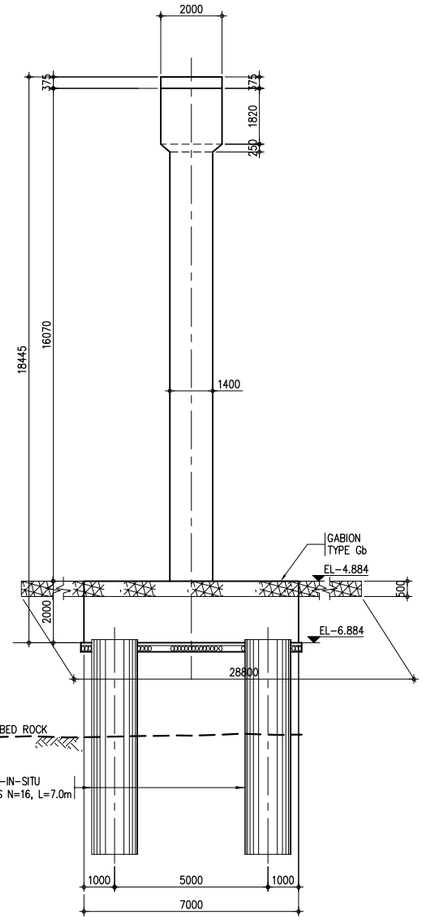
A COPING PLAN OF PIER P4
SCALE 1:100



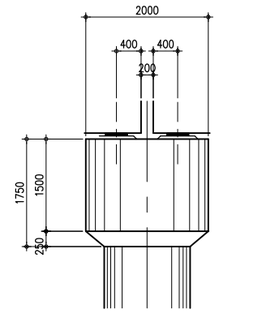
D FOUNDATION PLAN
SCALE 1:100



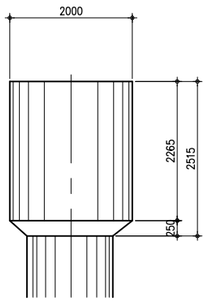
B FRONT ELEVATION
SCALE 1:100



C SECTION @ ROADWAY ℄
SCALE 1:100



E SECTION
SCALE 1:50



F SECTION
SCALE 1:50

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

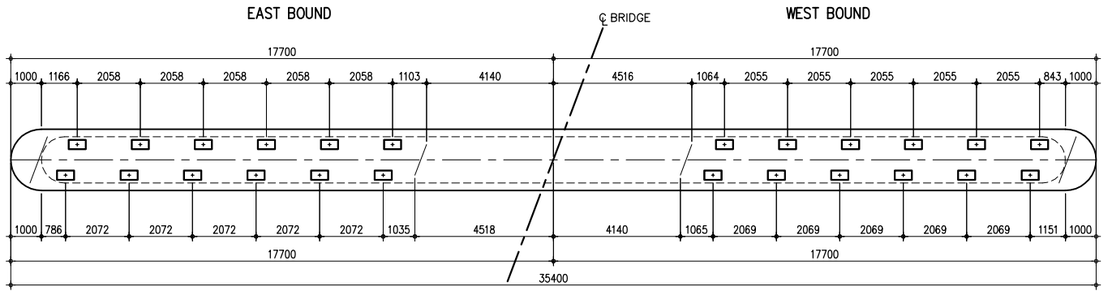
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

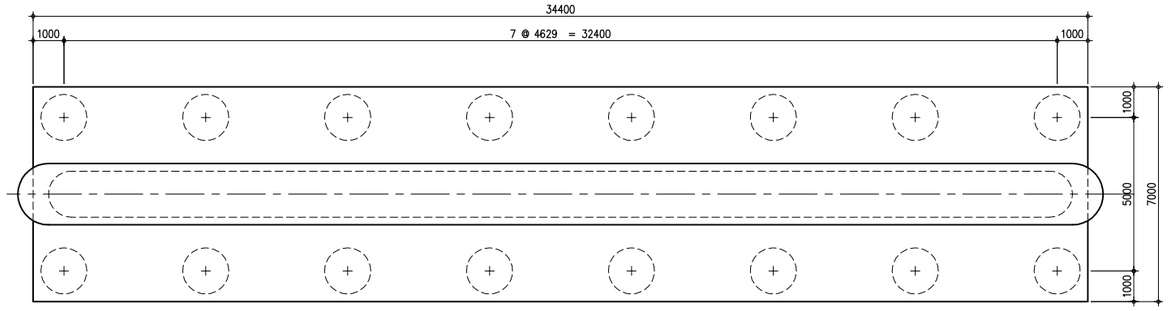
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
DIMENSION DETAIL OF PIER P4 (EAST-WEST BOUND)

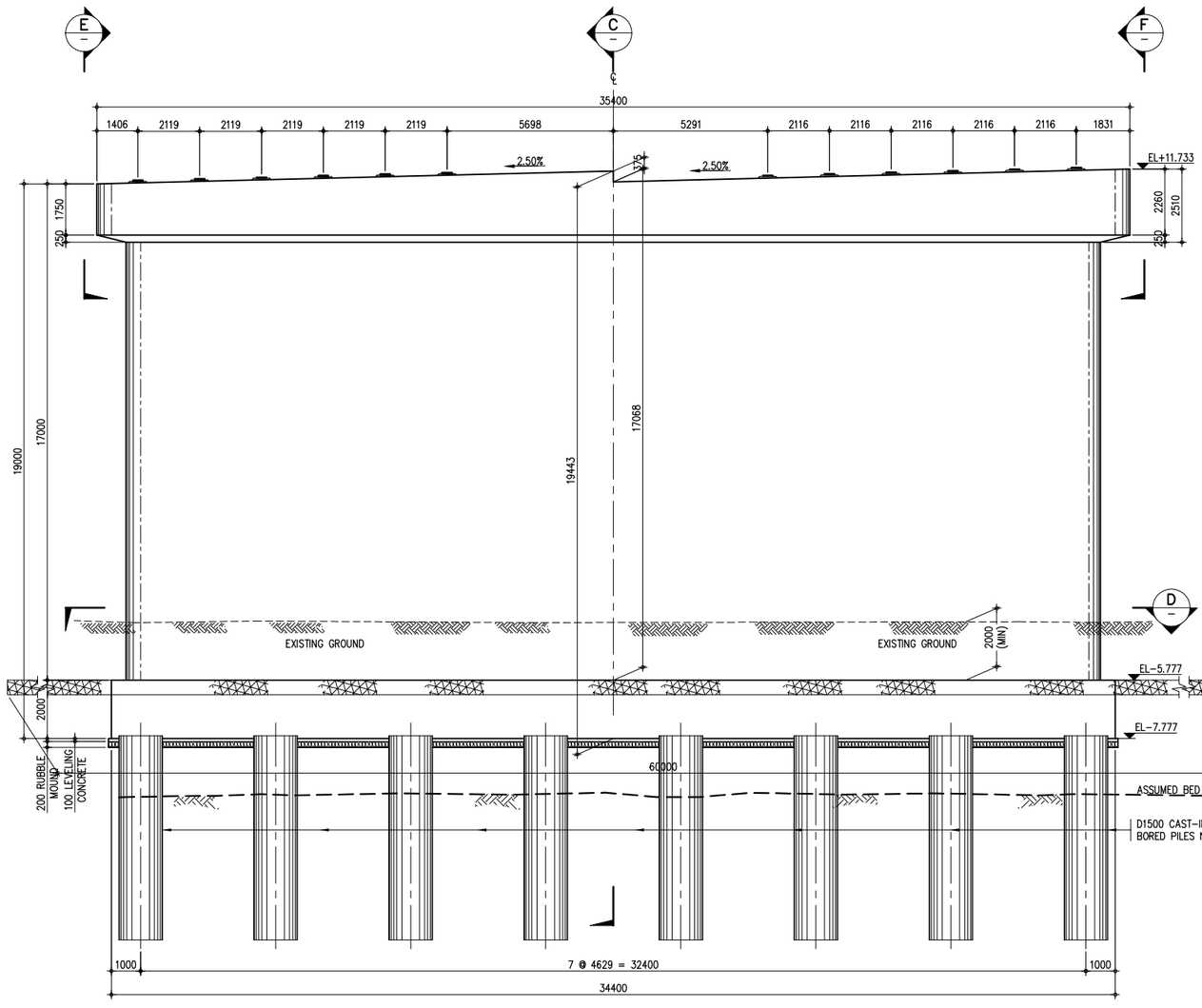
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-50



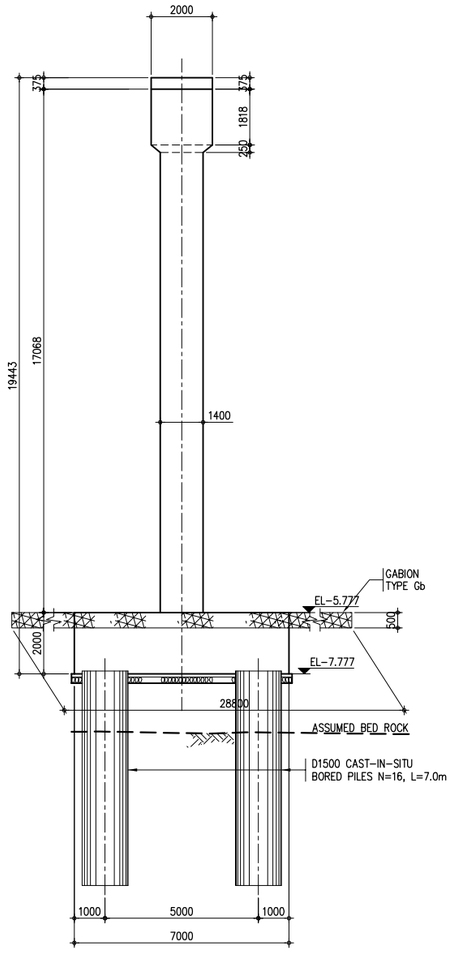
A COPING PLAN OF PIER P5
SCALE 1:100



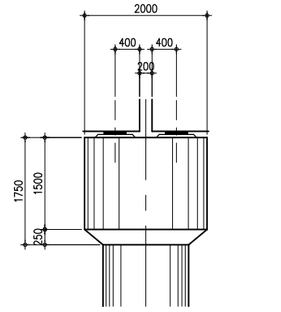
D FOUNDATION PLAN
SCALE 1:100



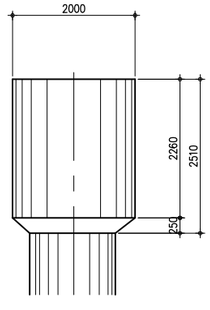
B FRONT ELEVATION
SCALE 1:100



C SECTION @ ROADWAY ℄
SCALE 1:100



E SECTION
SCALE 1:50



F SECTION
SCALE 1:50

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

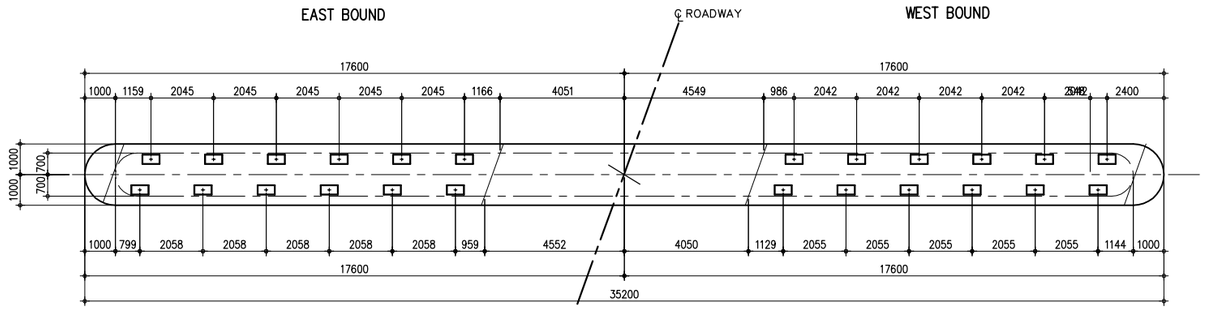
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

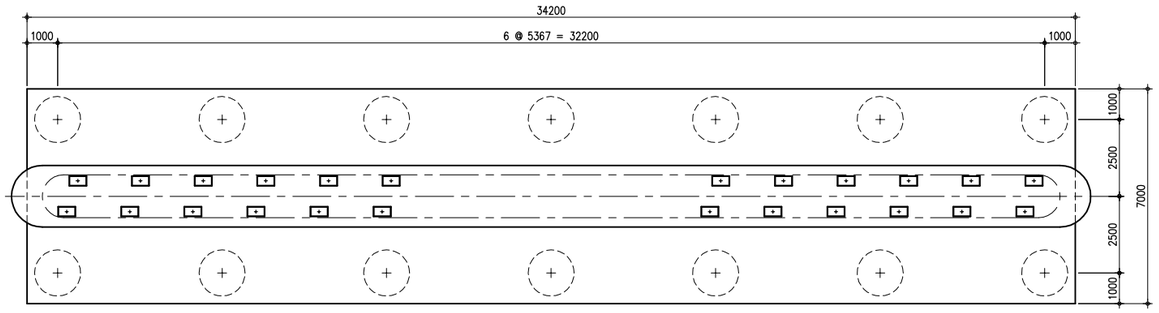
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
DIMENSION DETAIL OF PIER P5 (EAST-WEST BOUND)

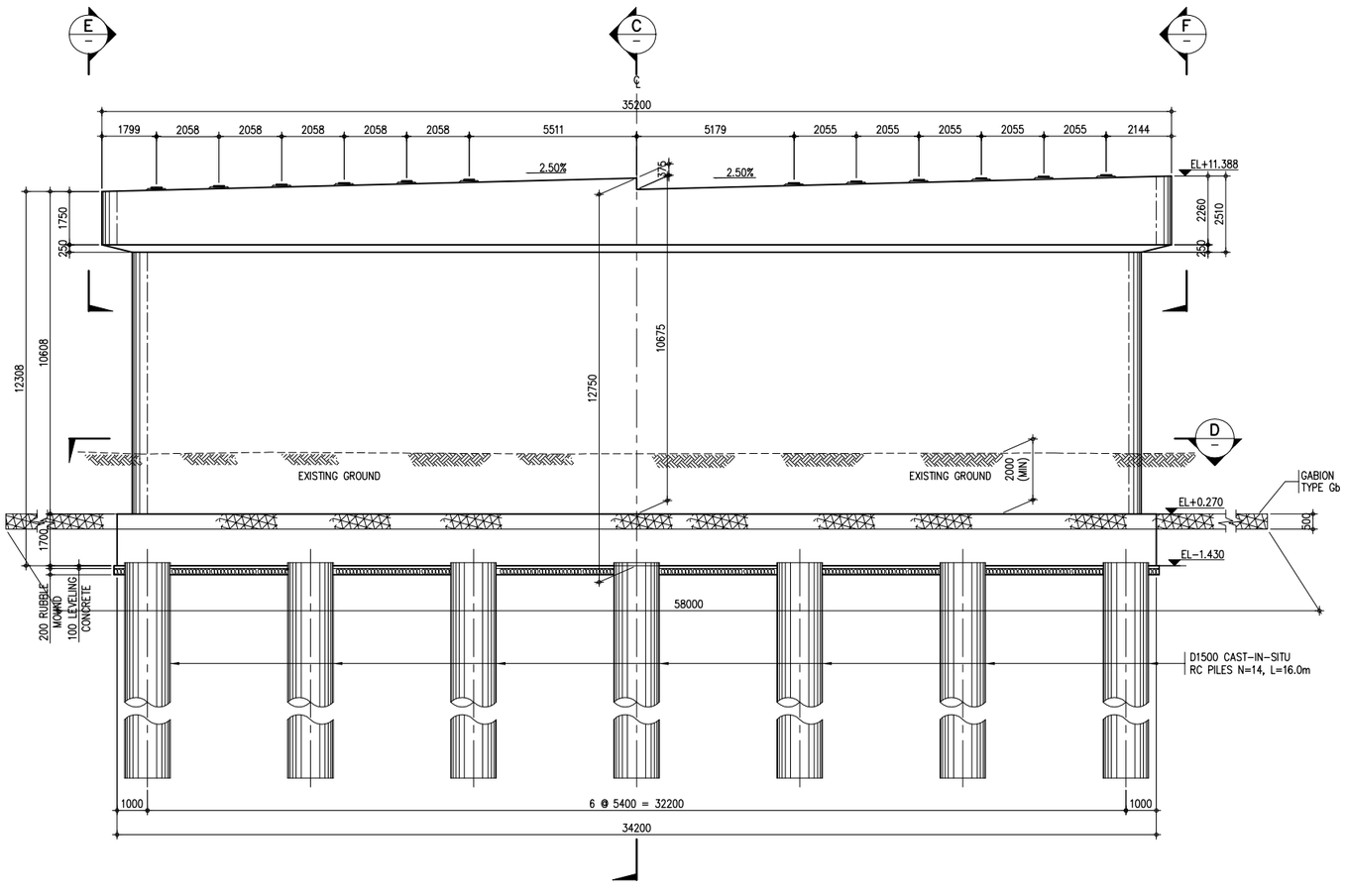
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-51



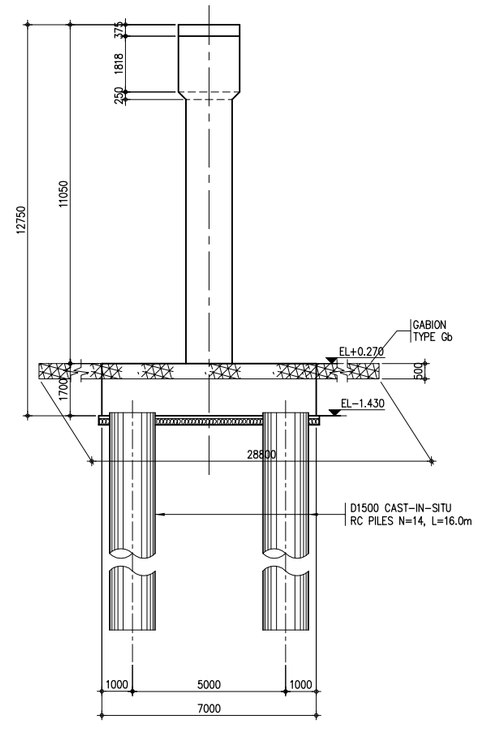
A — COPING PLAN OF PIER P6
SCALE 1:100



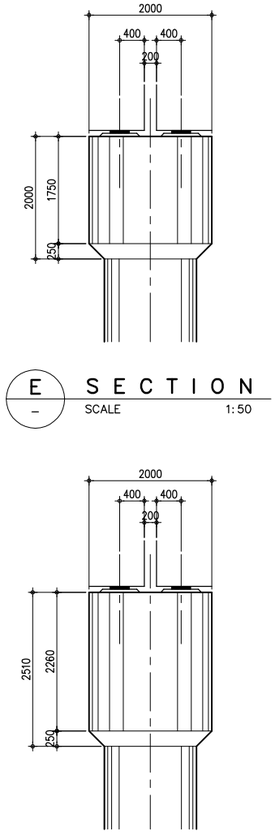
D — FOUNDATION PLAN
SCALE 1:100



B — FRONT ELEVATION
SCALE 1:100



C — SECTION @ ROADWAY ℄
SCALE 1:100



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

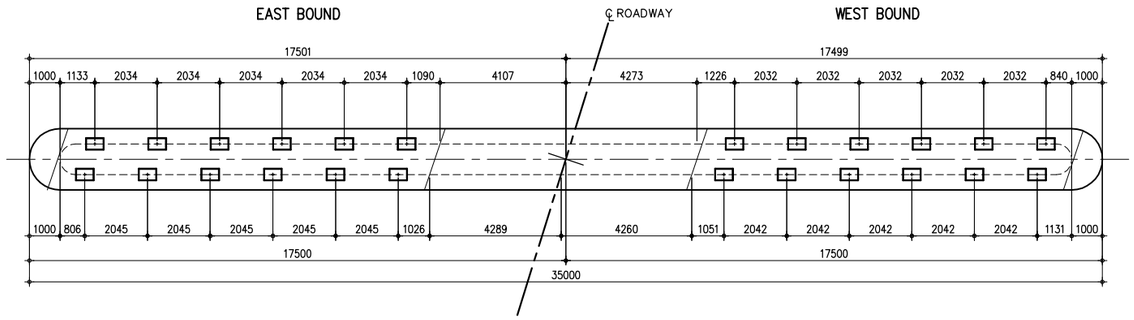
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

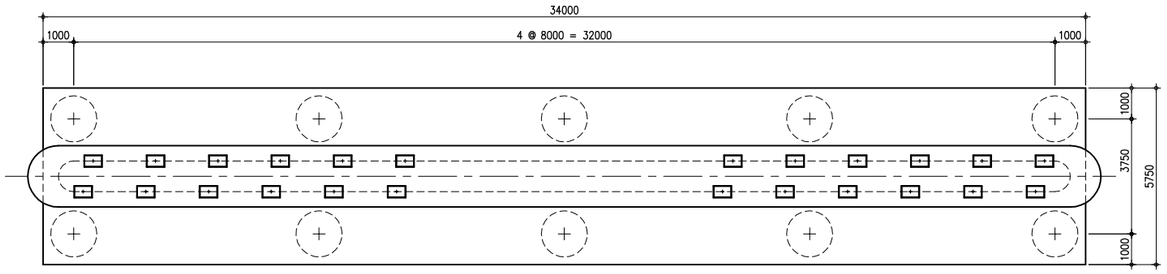
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
DIMENSION DETAIL OF PIER P6 (EAST & WEST BOUND)

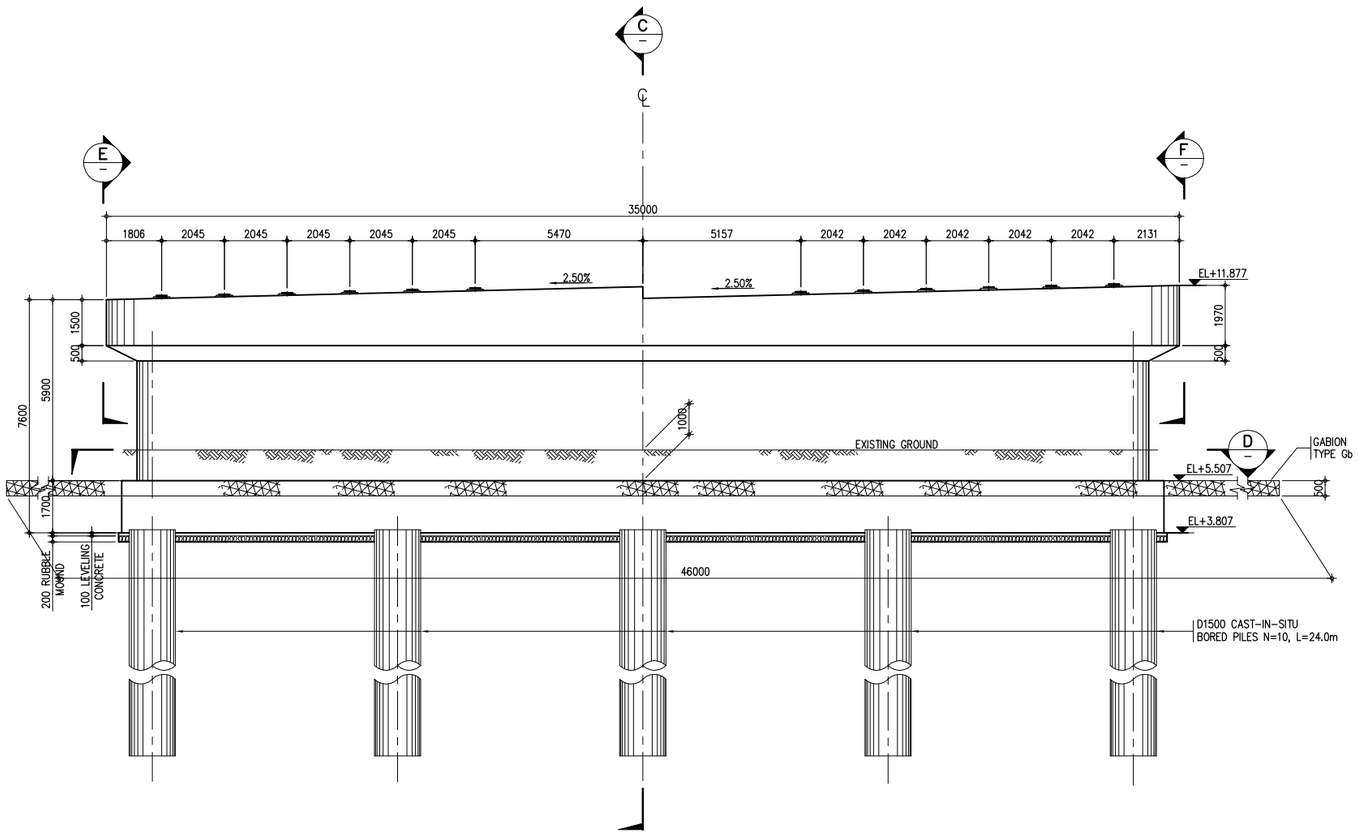
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-52



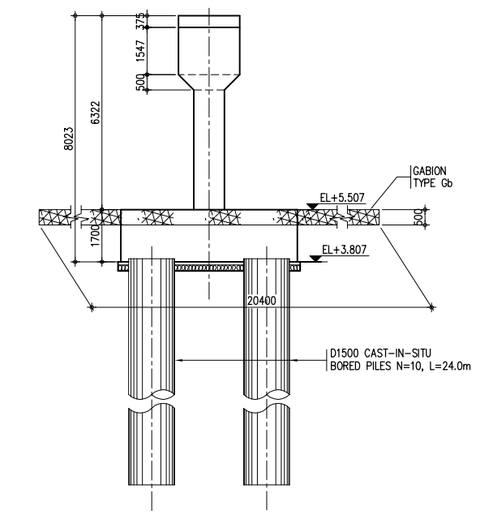
A COPING PLAN OF PIER P7
SCALE 1:100



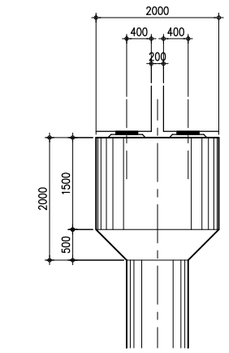
D FOUNDATION PLAN
SCALE 1:100



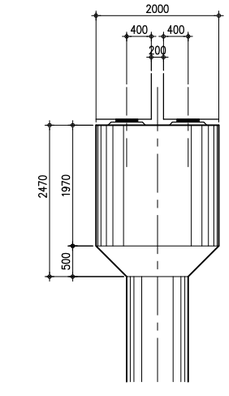
B FRONT ELEVATION
SCALE 1:100



C SECTION @ ROADWAY ℄
SCALE 1:100



E SECTION
SCALE 1:50



F SECTION
SCALE 1:50

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

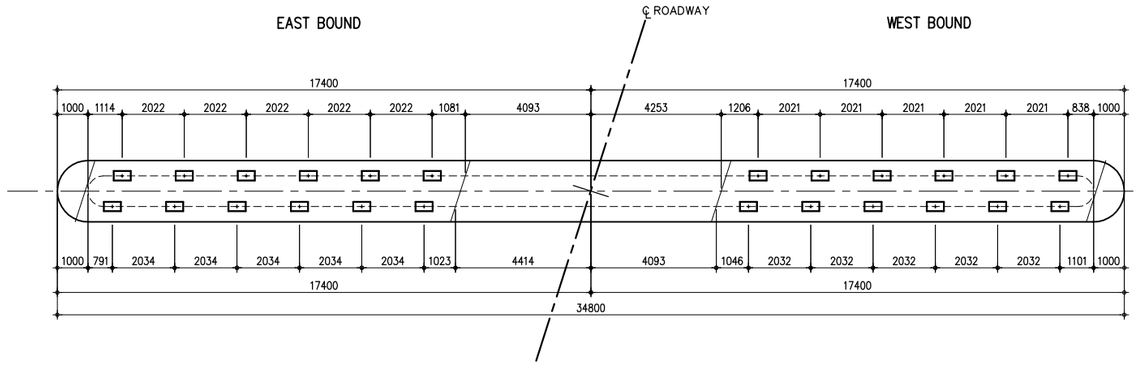
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

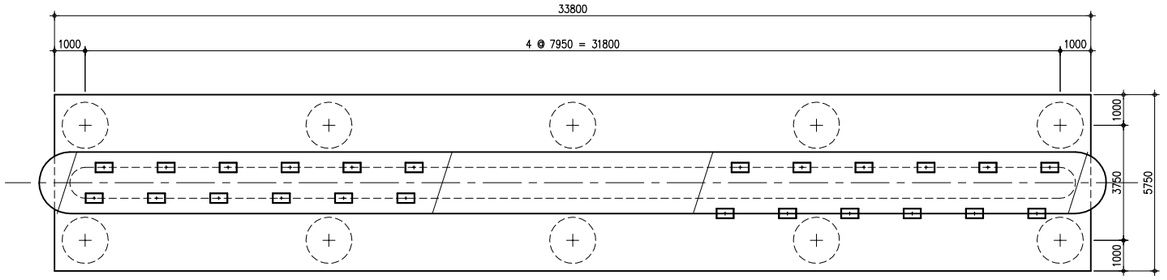
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
DIMENSION DETAIL OF PIER P7 (EAST & WEST BOUND)

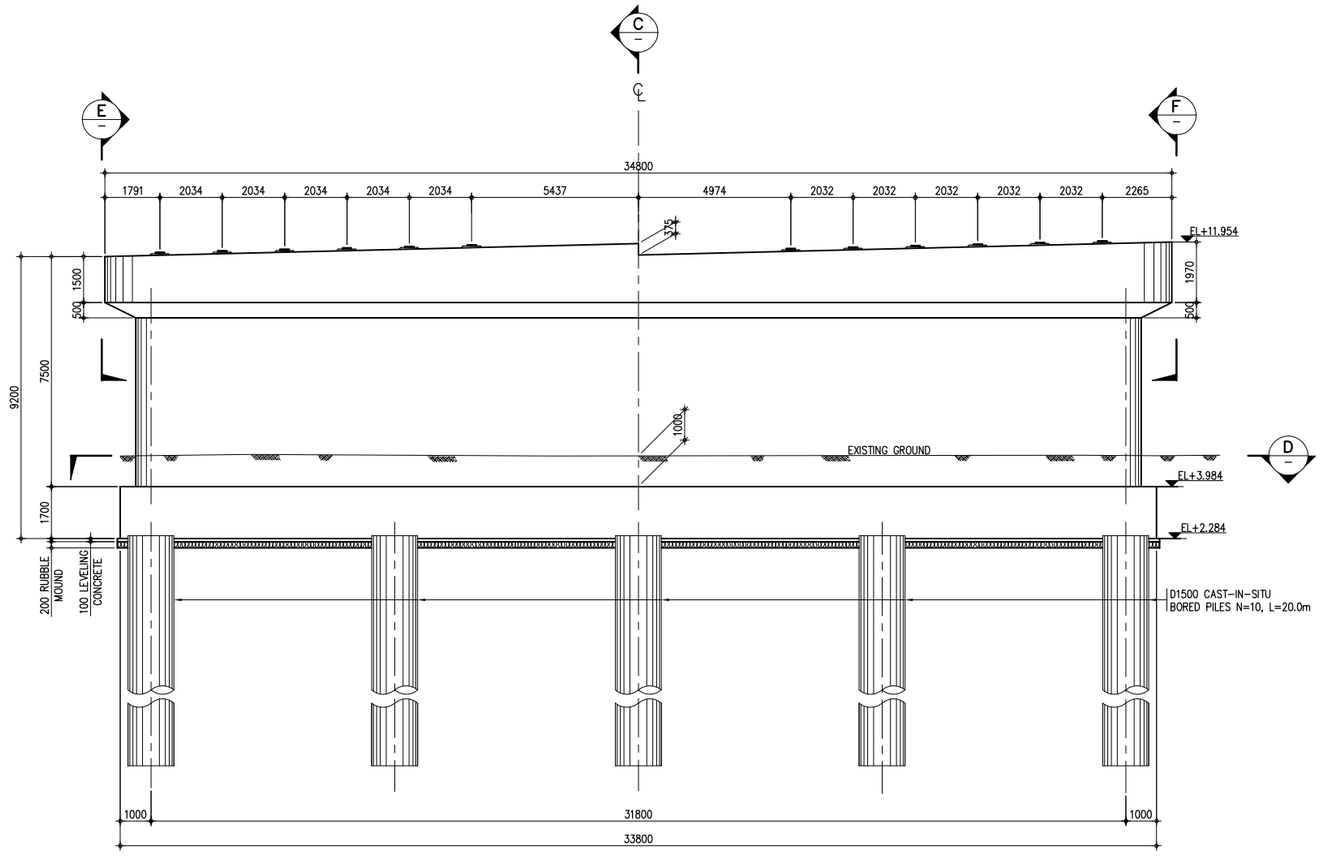
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-53



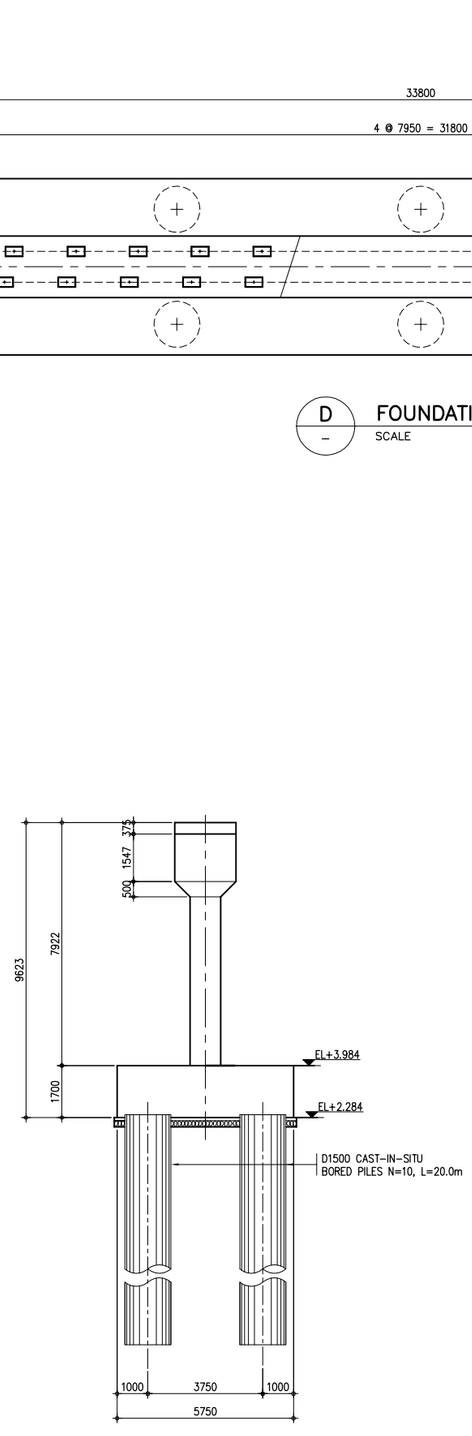
A COPING PLAN OF PIER P8
SCALE 1:100



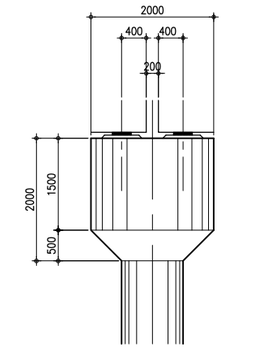
D FOUNDATION PLAN
SCALE 1:100



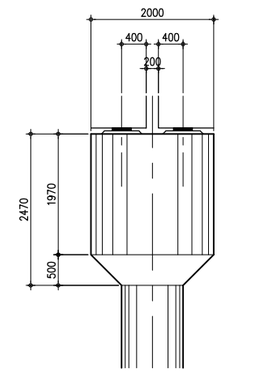
B FRONT ELEVATION
SCALE 1:100



C SECTION @ ROADWAY ℄
SCALE 1:100



E SECTION
SCALE 1:50



F SECTION
SCALE 1:50

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

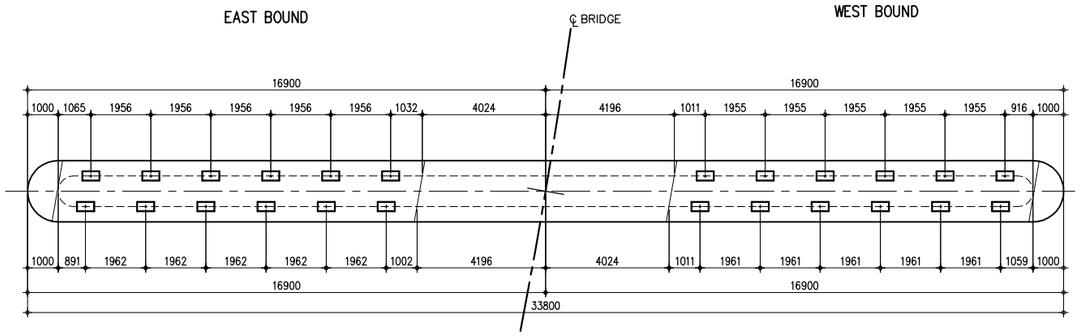
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

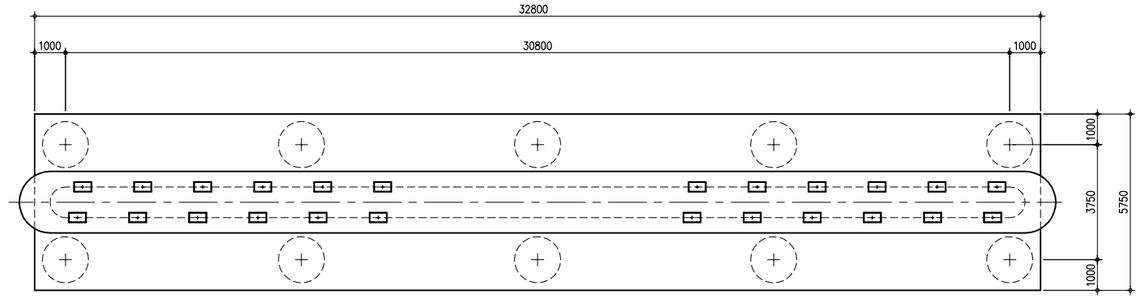
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
DIMENSION DETAIL OF PIER P8 (EAST & WEST BOUND)

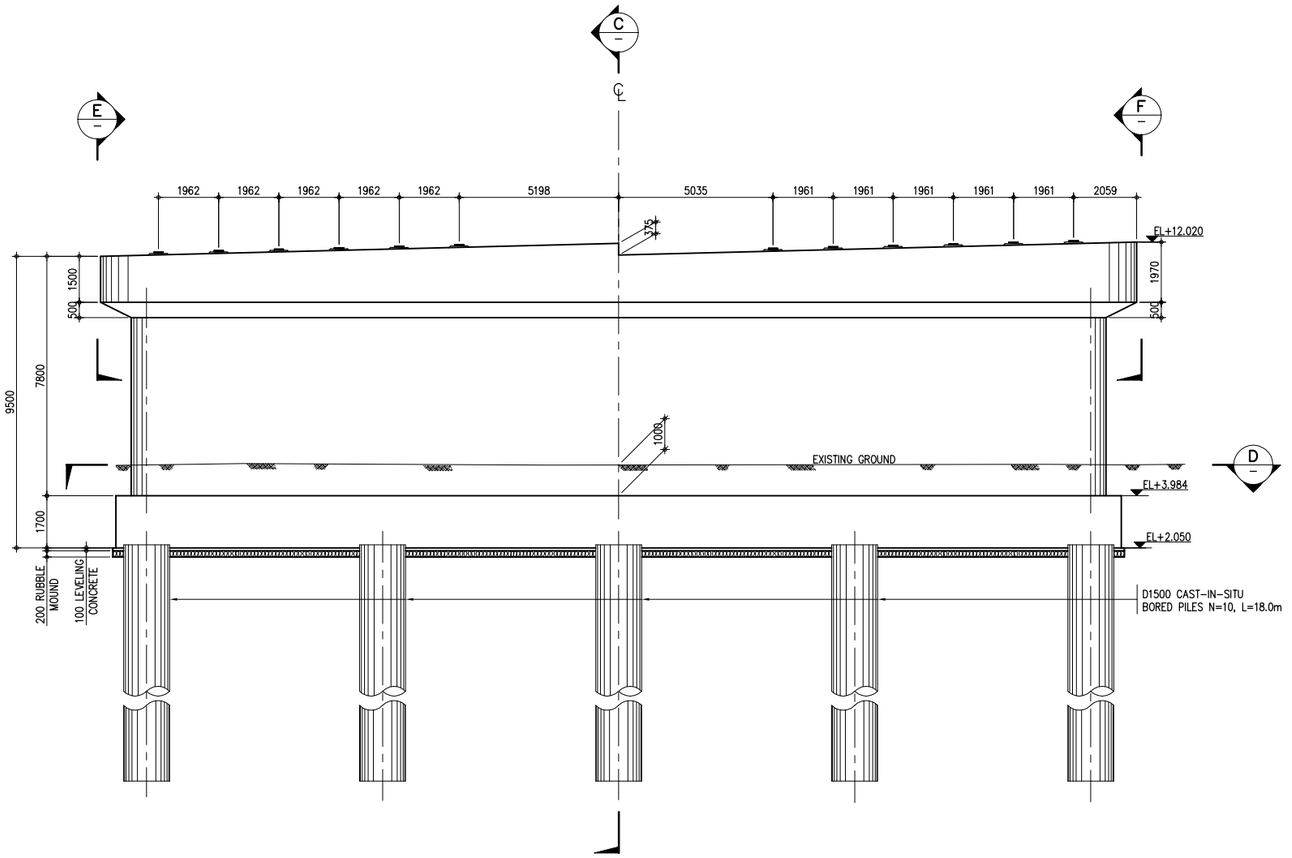
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-54



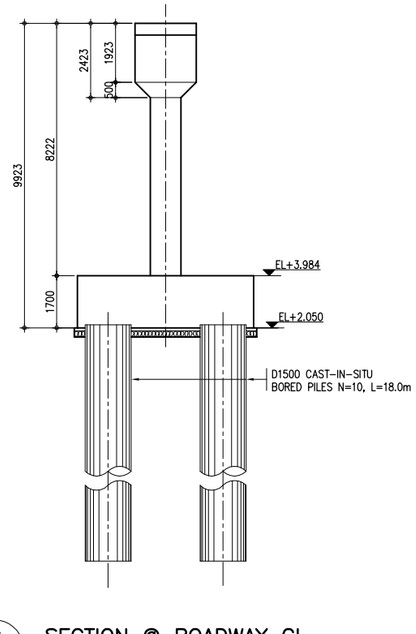
A — COPING PLAN OF PIER P9
SCALE 1:100



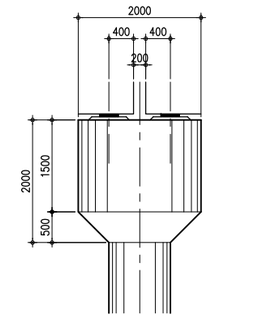
D — FOUNDATION PLAN
SCALE 1:100



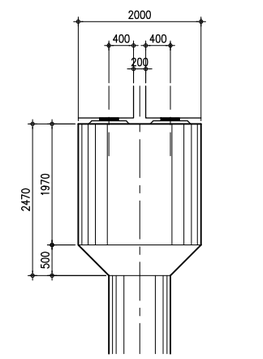
B — FRONT ELEVATION
SCALE 1:100



C — SECTION @ ROADWAY CL
SCALE 1:100



E — SECTION
SCALE 1:50



F — SECTION
SCALE 1:50

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

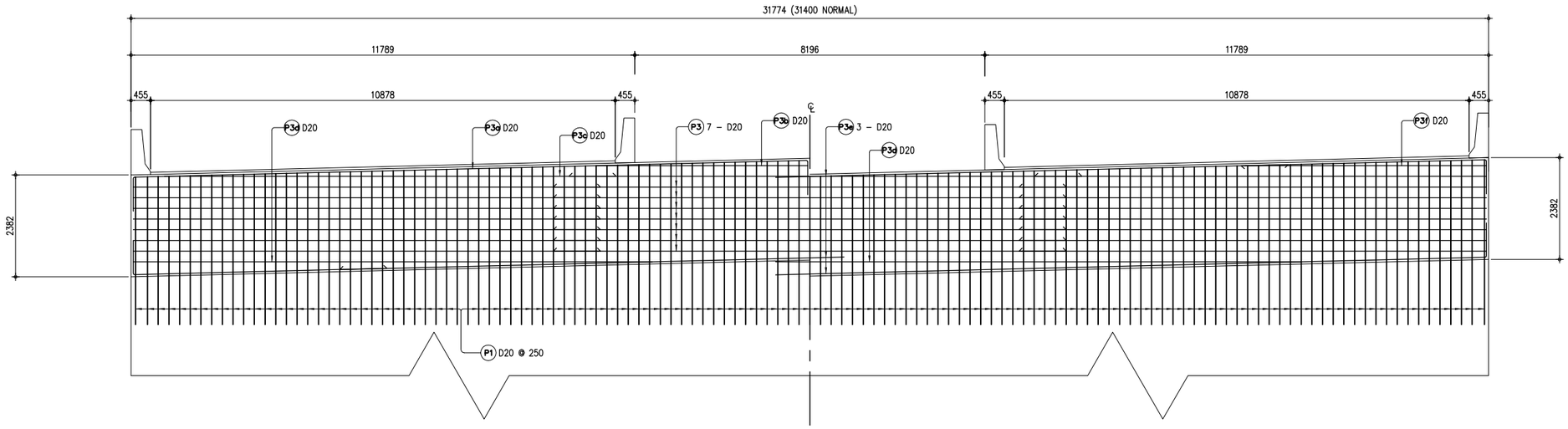
HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
DIMENSION DETAIL OF PIER P9 (EAST & WEST BOUND)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-55

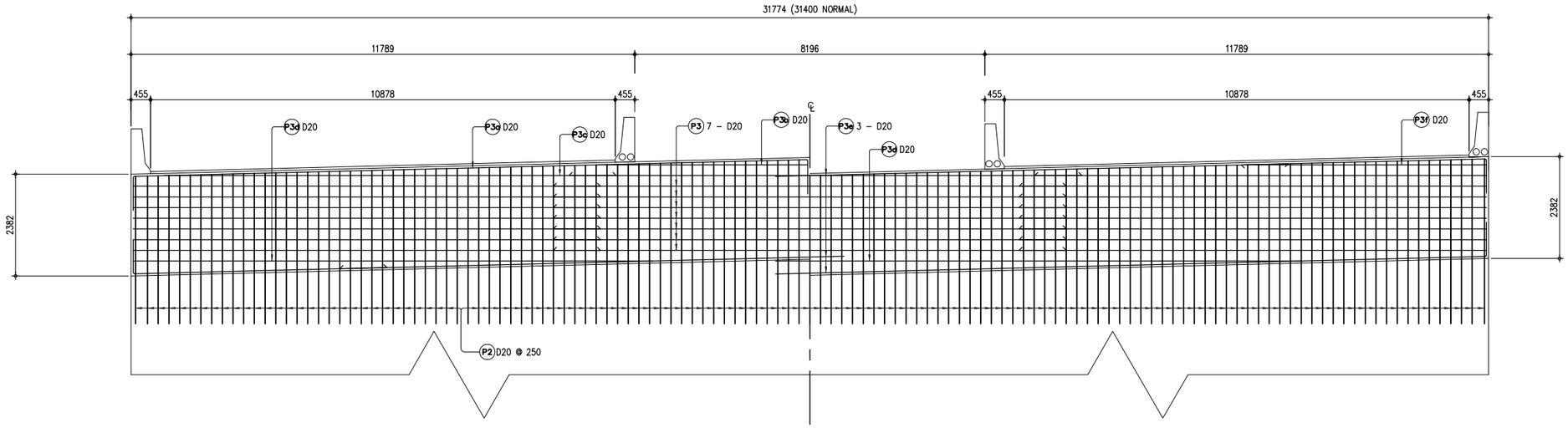
HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE (SCALE 1:60)

REINFORCEMENT OF A2 ABUTMENT (1)

1 - 1



2 - 2

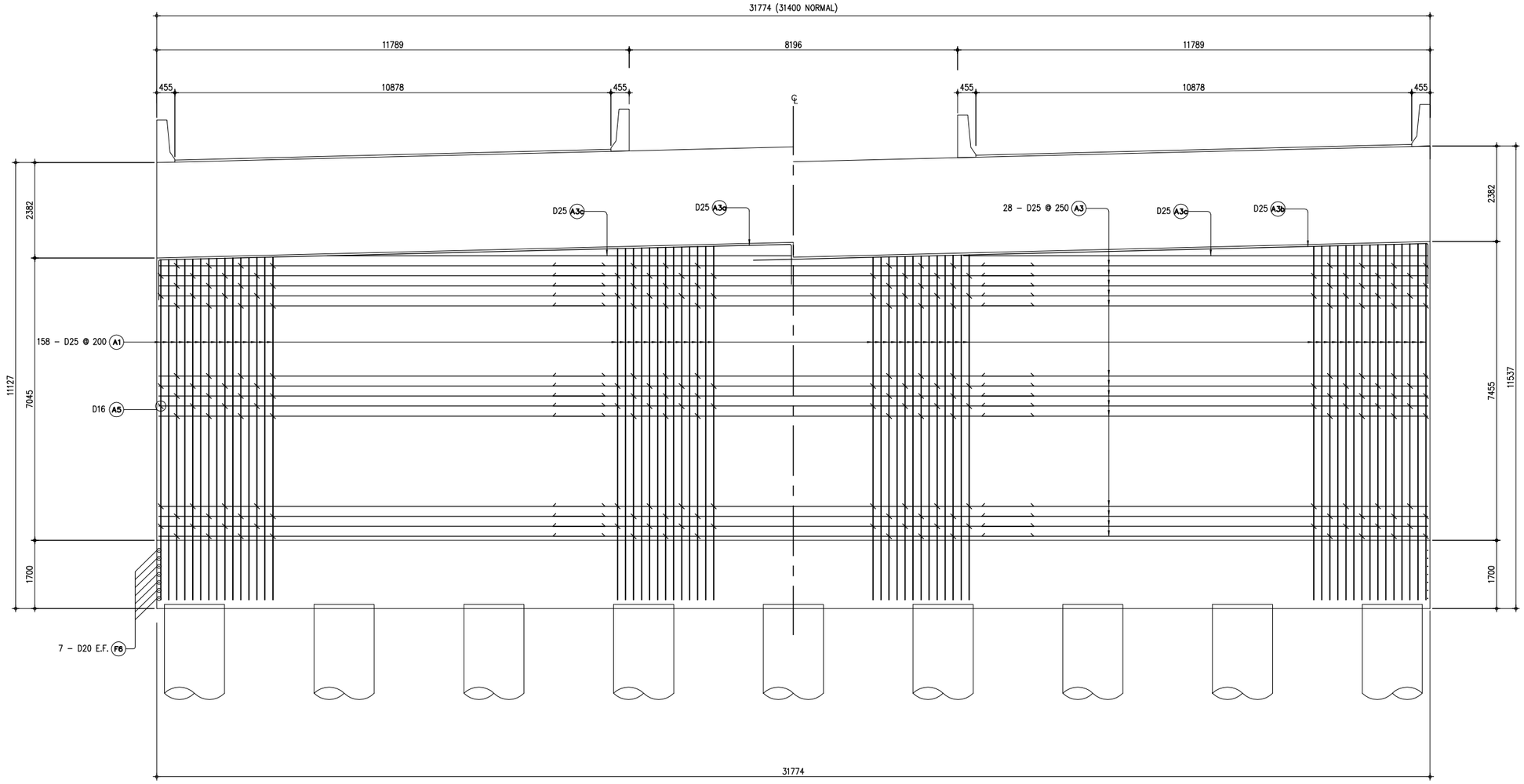


THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JICA JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No	REVISION	DATE	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT OF A2 ABUTMENT (1/7)	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO. K01-56

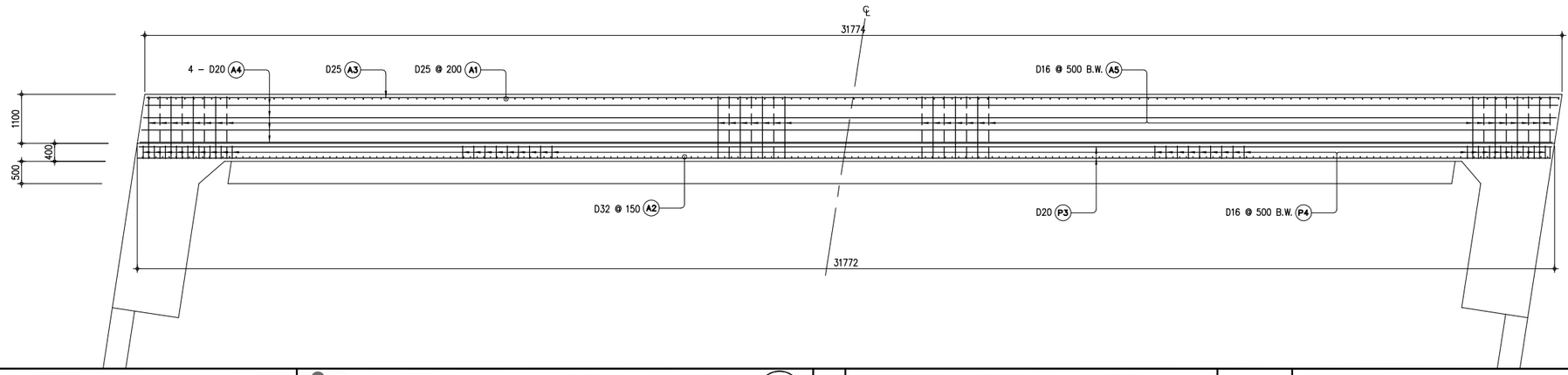
HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE (SCALE 1:60)

REINFORCEMENT OF A2 ABUTMENT (2)

3 - 3



6 - 6



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

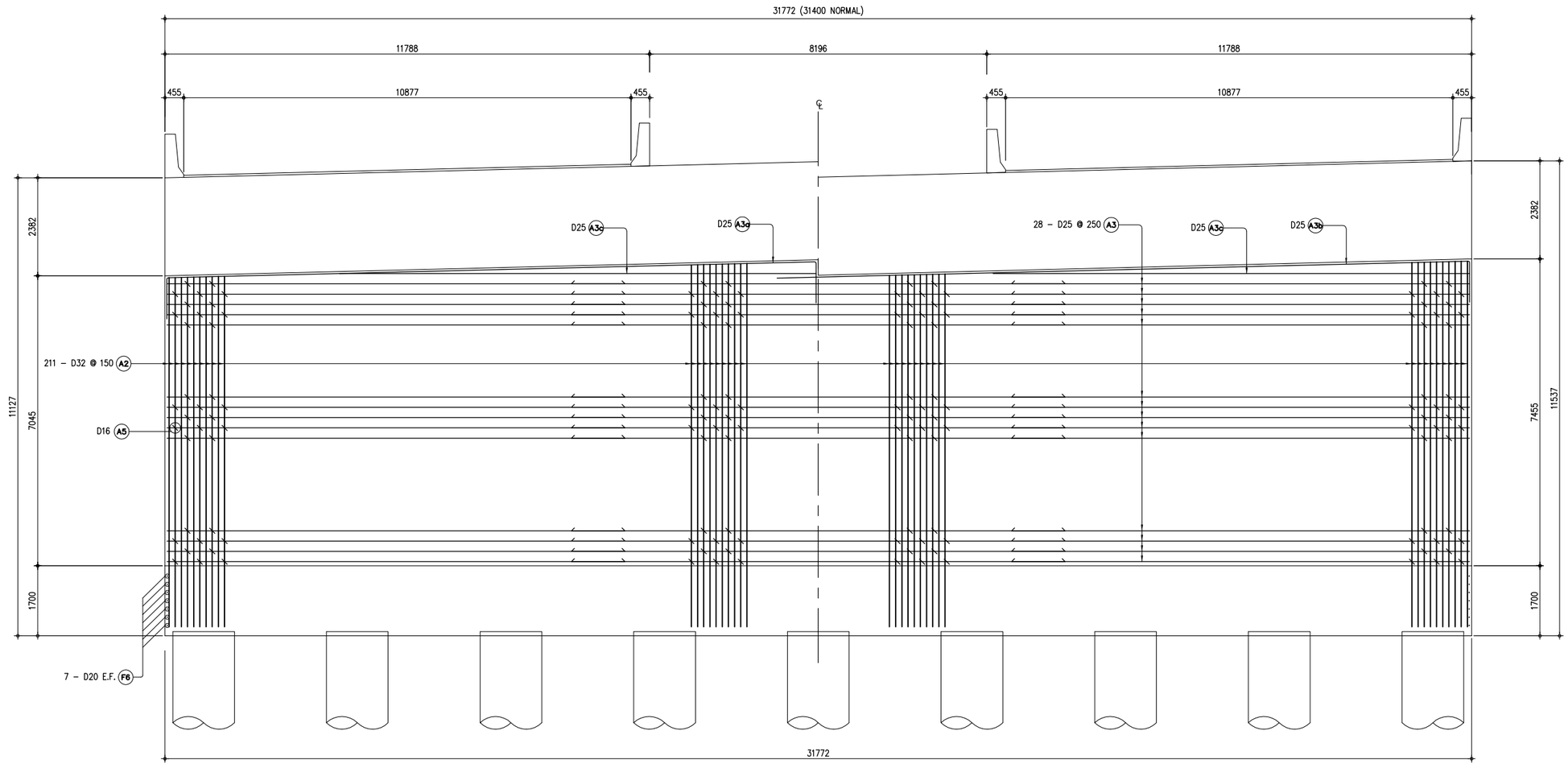
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT OF A2 ABUTMENT (2/7)

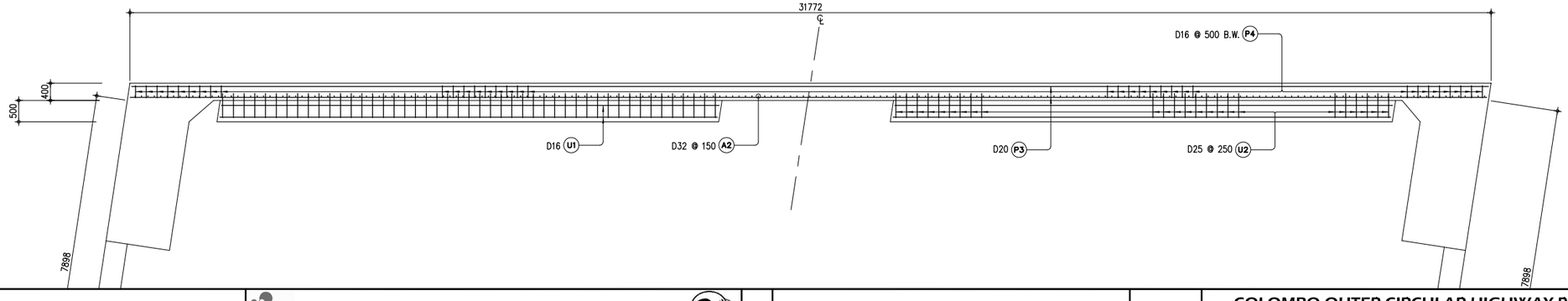
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-57

HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE (SCALE 1:60)

REINFORCEMENT OF A2 ABUTMENT (3)



5 - 5

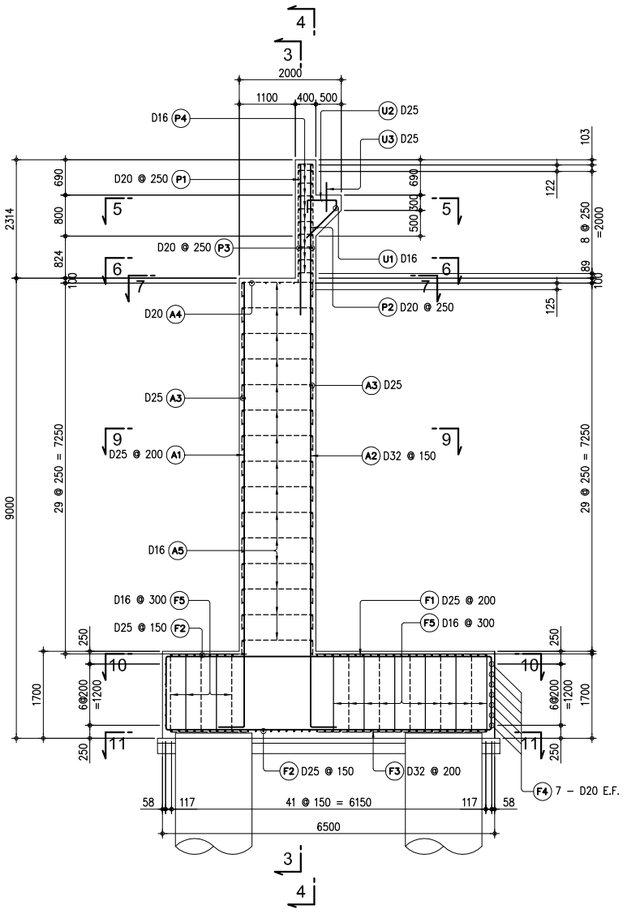


THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JICA JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No	REVISION	DATE	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT OF A2 ABUTMENT (3/7)	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO. K01-58

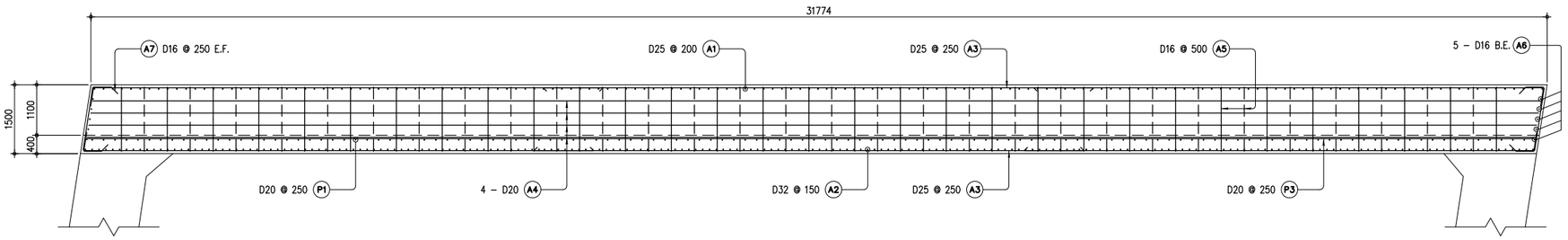
HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE (SCALE 1:60)

REINFORCEMENT OF A2 ABUTMENT (4)

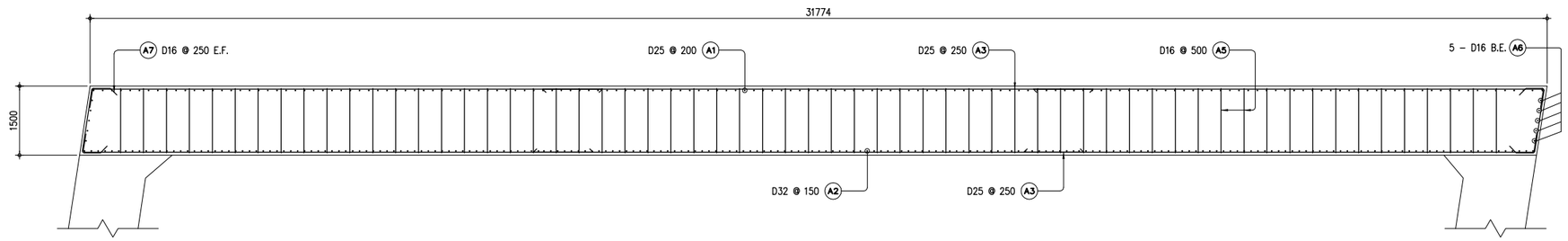
8 - 8



7 - 7



9 - 9



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

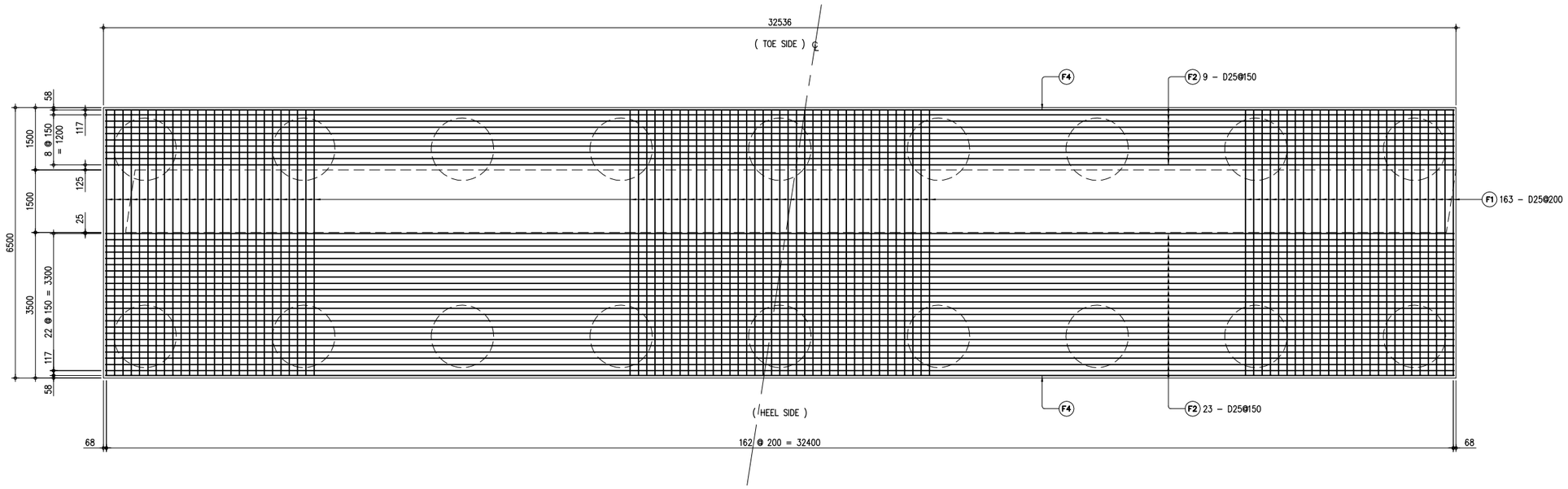
HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT OF A2 ABUTMENT (4/7)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-59

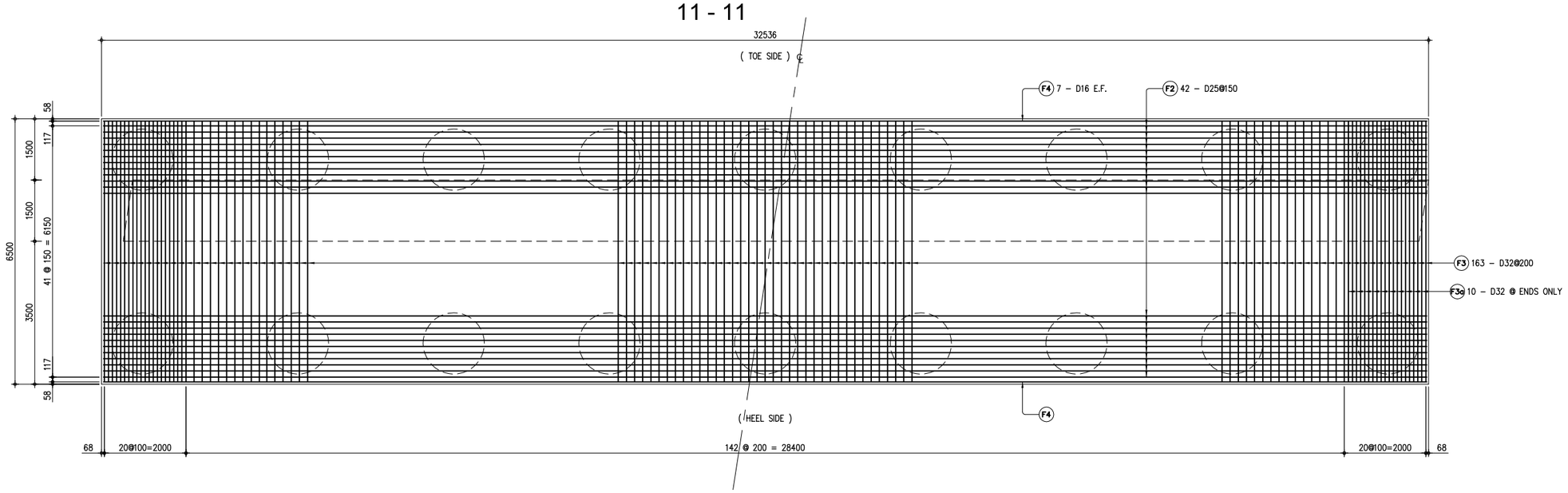
HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE (SCALE 1:60)

REINFORCEMENT OF A2 ABUTMENT (5)

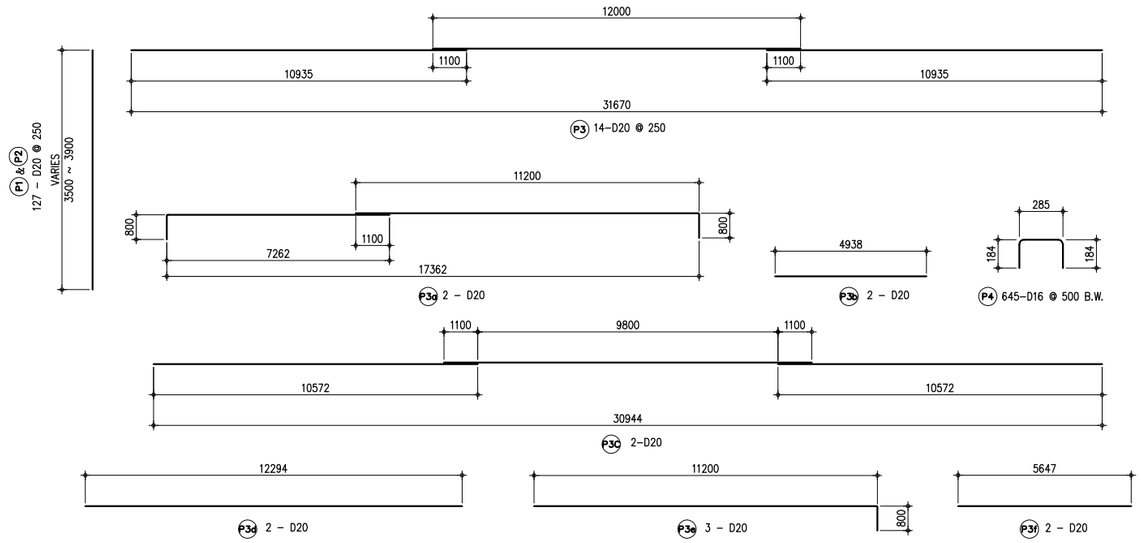
10 - 10

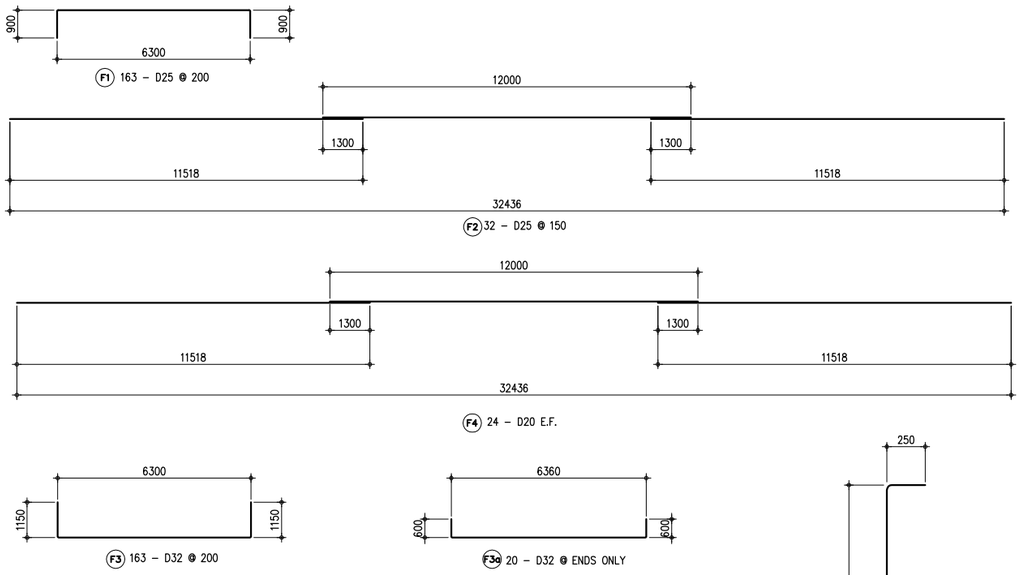


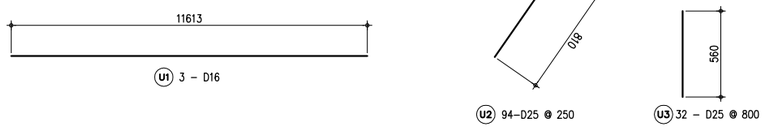
11 - 11

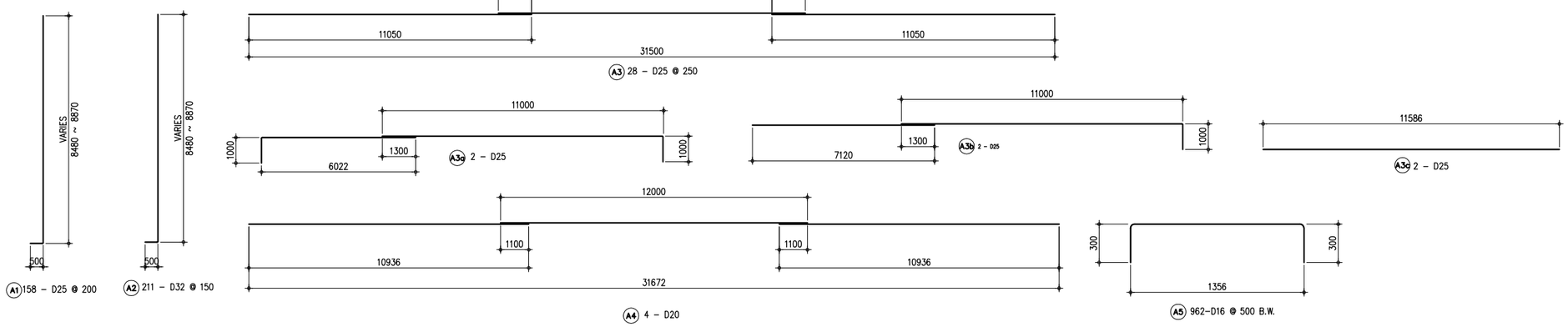


THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1)
	No / REVISION / DATE	HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT OF A2 ABUTMENT (5/7)
		DESIGNED BY: / CHECKED BY: / APPROVED BY: / DWG. NO. K01-60









THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)**	DESIGNED BY:
			CHECKED BY:
		HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE BAR BENDING DIAGRAM (6/7)	APPROVED BY:
			DWG. NO. K01-61

No	REVISION	DATE

ESTIMATED QUANTITIES FOR ABUTMENT A2 (7)

REINFORCING BARS

LOCATION	BAR MARK	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
BACKWALL	P1		127	20	3700							3700	469.90	2.466	1158.77	
	P2		127	20	3700							3700	469.90	2.466	1158.77	
	P3		14	20	10935	12000	10935					33870	474.18	2.466	1169.33	
	P3a		2	20	800	7262	11200	800				20062	40.12	2.466	98.95	
	P3b		2	20	4938							4938	9.88	2.466	24.35	
	P3c		2	20	10572	12000	10572					33144	66.29	2.466	163.47	
	P3d		2	20	12294							12294	24.59	2.466	60.63	
	P3e		3	20	11200	800						12000	36.00	2.466	88.78	
	P3f		2	20	5647							5647	11.29	2.466	27.85	
	P4		645	16	184	285	184					653	421.19	1.579	665.05	
	U1		3	16	11613							11613	34.84	1.579	55.01	
	U2		94	25	230	563	144	810				1747	164.22	3.854	632.90	
	U3		32	25	560							560	17.92	3.854	69.06	
	SUB-TOTAL QUANTITY FOR PARAPET															5,372.92
STEM	A1		158	25	500	8675						9175	1449.65	3.854	5586.95	
	A2		211	32	500	8675						9175	1935.93	6.313	12221.49	
	A3		56	25	11050	12000	11050					34100	1909.60	3.854	7359.60	
	A3a		2	25	1000	6022	11000	1000				19022	38.04	3.854	146.62	
	A3b		2	25	7120	11000	1000					19120	38.24	3.854	147.38	
	A3c		2	25	11586							11586	23.17	3.854	89.30	
	A4		4	20	10936	12000	10936					33872	135.49	2.466	334.11	
	A5		962	16	274	1356	274					1904	1831.65	1.579	2892.17	
	SUB-TOTAL QUANTITY FOR PARAPET															28,777.63
FOOTING	F1		163	25	600	6300	600					7500	1222.50	3.854	4711.52	
	F2		32	25	11518	12000	11518					35036	1121.15	3.854	4320.92	
	F3		163	32	600	6300	600					7500	1222.50	6.313	7717.64	
	F3a		20	32	600	6360	600					7560	151.20	6.313	954.53	
	F4		24	20	11518	12000	11518					35036	840.86	2.466	2073.57	
	F5		875	16	250	1492	250					1992	1743.00	1.579	2752.20	
	SUB-TOTAL QUANTITY FOR FOOTING															22,530.37
WINGWALL (X2)	W1		7	32	500	11500	3790	500				16290	114.03	6.313	719.87	
	W1a		11	32	500	9500	5790	500				16290	179.19	6.313	1131.23	
	W2		28	32	500	5200	500					6200	173.60	6.313	1095.94	
	W3		10	32	500	4050	1500					6050	60.50	6.313	381.94	
	W4		15	25	400	11600	2890	400				15290	229.35	3.854	883.91	
	W4a		15	25	400	9600	4890	400				15290	229.35	3.854	883.91	
	W5		4	20	300	8103	700					9103	36.41	2.466	89.79	
	W5a		11	20	300	6560	1000					7860	86.46	2.466	213.21	
	W5b		23	20	300	4400	1000					5700	131.10	2.466	323.29	
	W6		3	25	400	8103	700					9203	27.61	3.854	106.41	
	W7		4	32	500	8103	1200					9803	39.21	6.313	247.55	
	W8		19	16	250	350	1400	350	250			2600	49.40	1.579	78.00	
	W9		14	32	500	9500	4300	2000				16300	228.20	6.313	1440.63	
	W10		4	25	6000	400						6400	25.60	3.854	98.66	
	W11		17	16	700	2266	700	2266	100	100		6132	104.24	1.579	164.60	
	W12		38	16	250	350	1400	350	250			2600	98.80	1.579	156.01	
	W13		4	16	250	350	700	350	250			1900	7.60	1.579	12.00	
	W14		4	32	500	11500	3790	500				16290	65.16	6.313	411.36	
	W15		78	20	1300	1700						3000	234.00	2.466	577.04	
			10	32	500	5300						5800	58.00	6.313	366.15	
	SUB-TOTAL QUANTITY WINGWALL														9,381.50	
	NUMBER OF WINGWALL														2.00	
	TOTAL QUANTITY OF WINGWALLS															18,763.00
	GRAND TOTAL FOR SUBSTRUCTURE															75,443.92

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

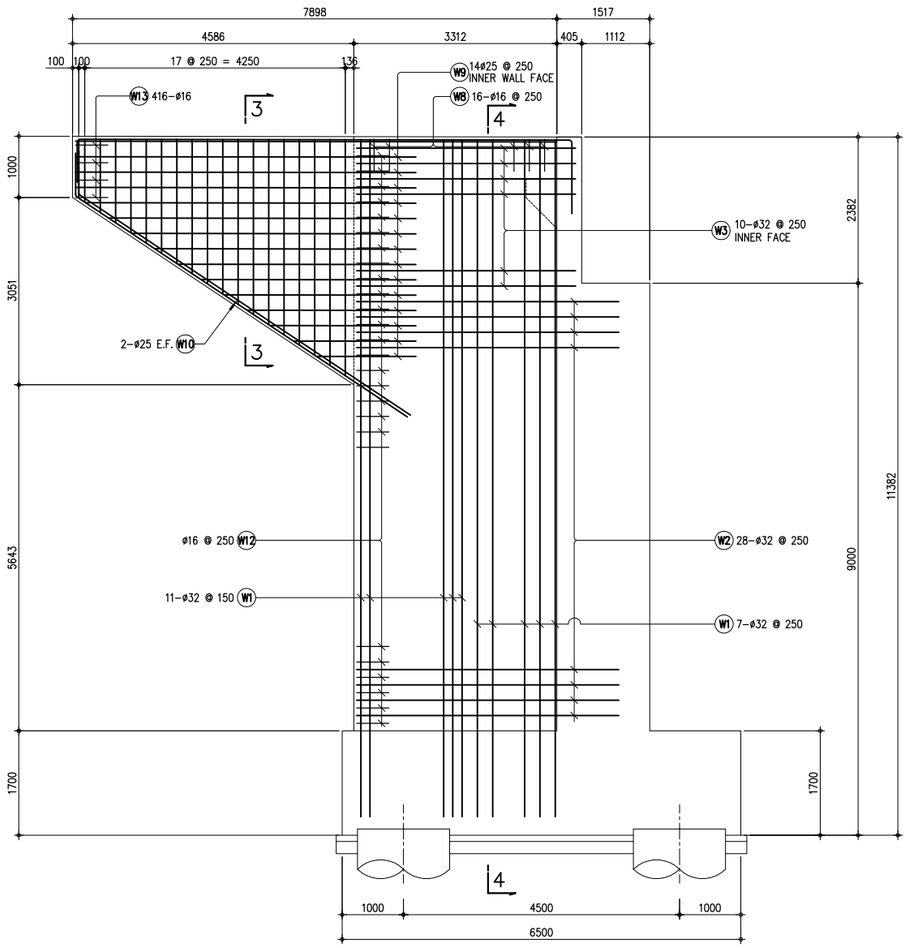
HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
ESTIMATED QUANTITIES FOR ABUTMENT A2 (7/7)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-62

HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIGE (SCALE 1:150)

REINFORCEMENT OF WINGWALL ABUTMENT A2 (1)

1 - 1



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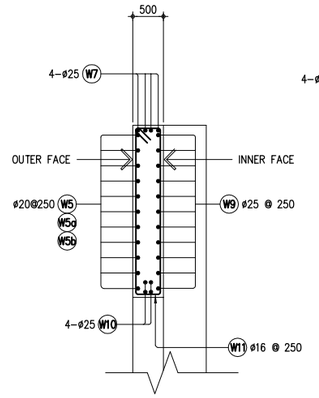

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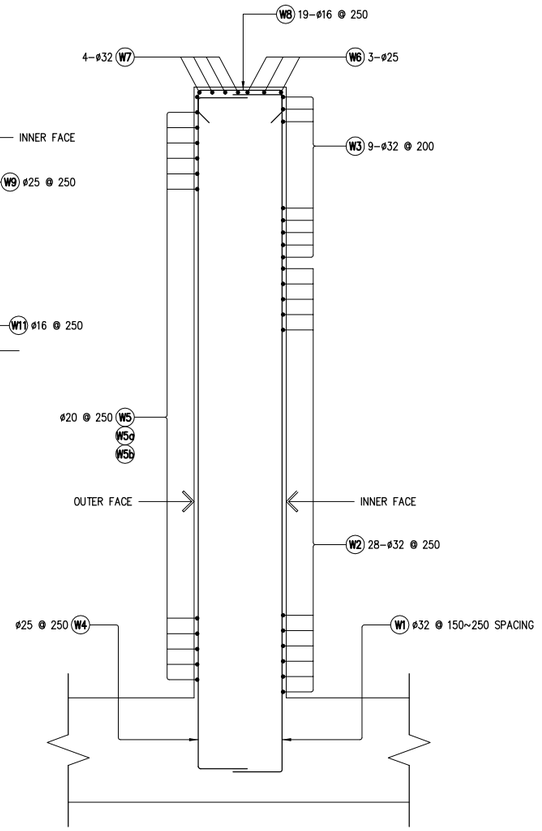
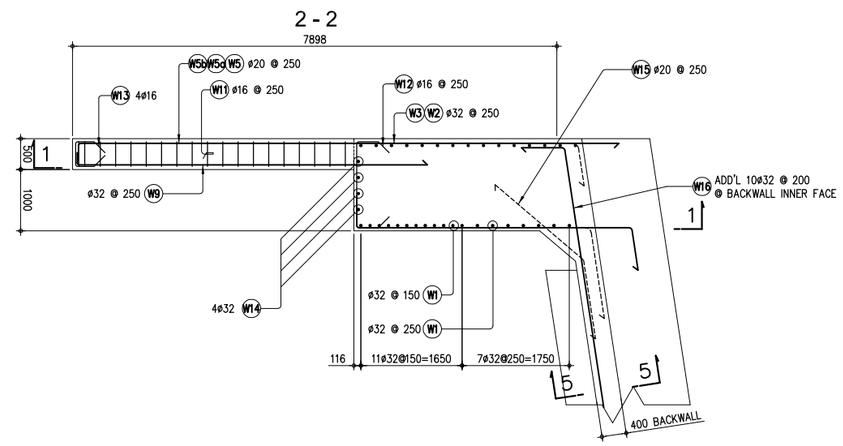
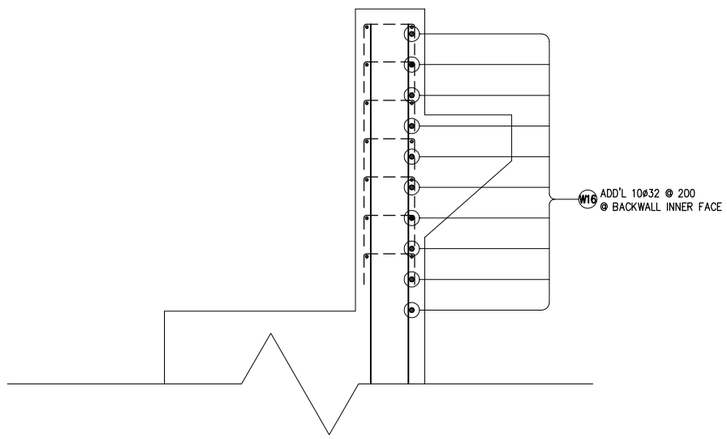


2 - 2





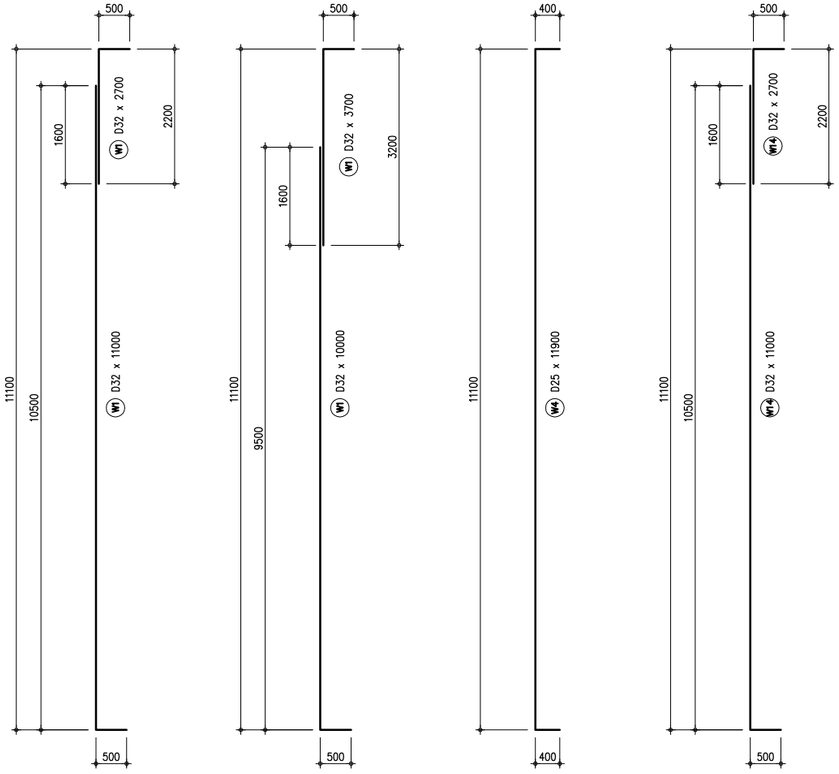
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT Road Development Authority	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	COLOMBO OUTER CIRCULAR HIGHWAY PROJECT (NORTHERN SECTION 1) HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIGE REINFORCEMENT OF WINGWALL ABUTMENT A2 (1/4)

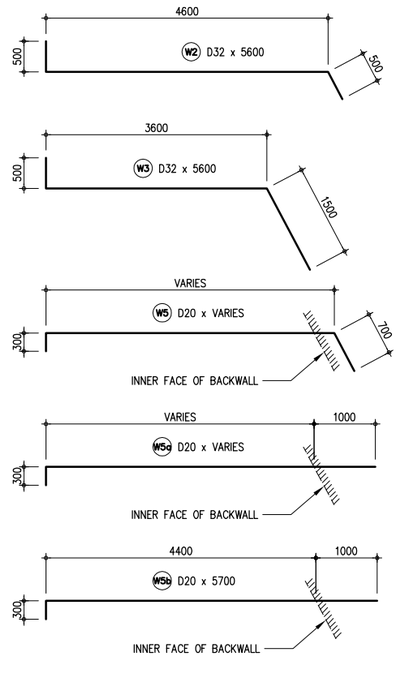
No	REVISION	DATE

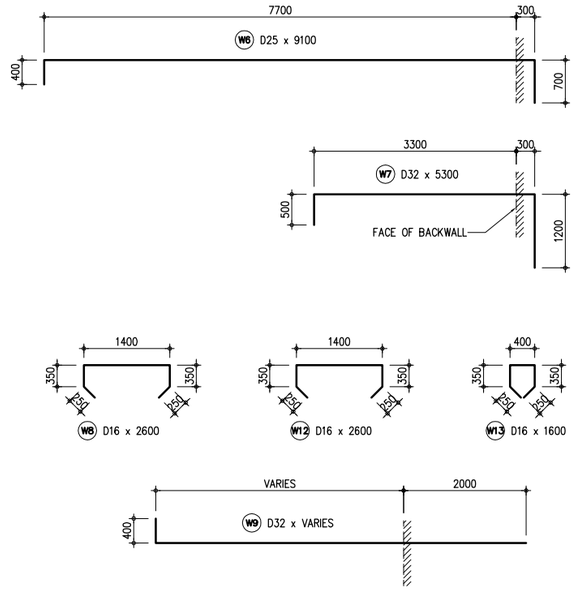
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-63

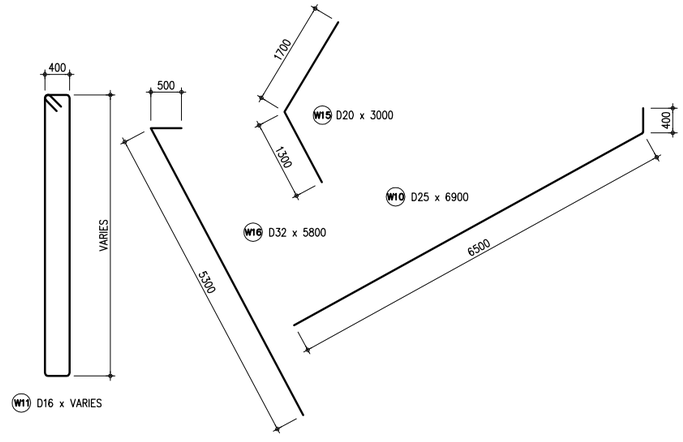
HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIGE (SCALE 1:150)

REINFORCEMENT OF WINGWALL ABUTMENT A2 (2)









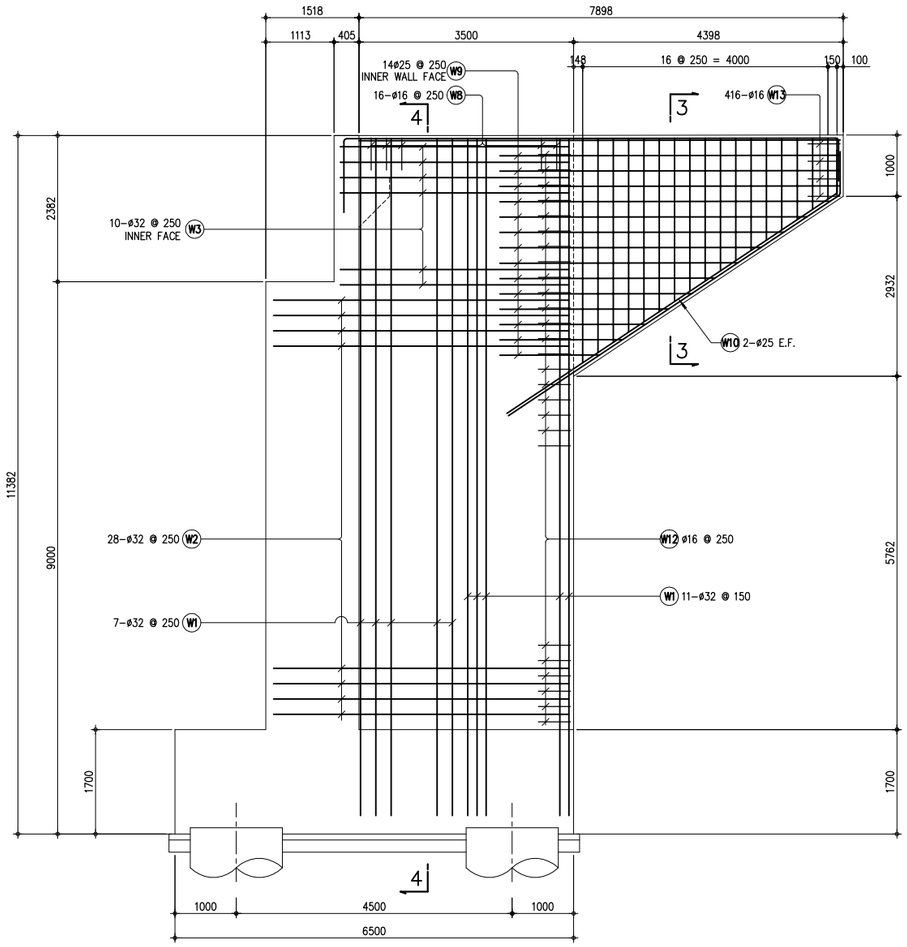
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)**	DESIGNED BY:
		HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIGE REINFORCEMENT OF WINGWALL ABUTMENT A2 (2/4)	CHECKED BY:
			APPROVED BY:
			DWG. NO. K01-64

No	REVISION	DATE

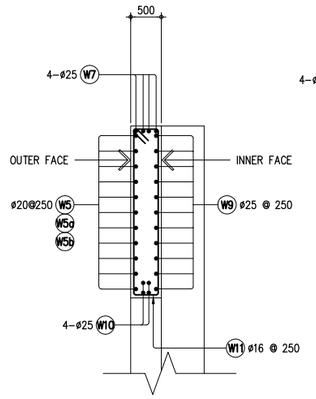
HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIGE (SCALE 1:150)

REINFORCEMENT OF WINGWALL ABUTMENT A2 (3)

1 - 1



3 - 3



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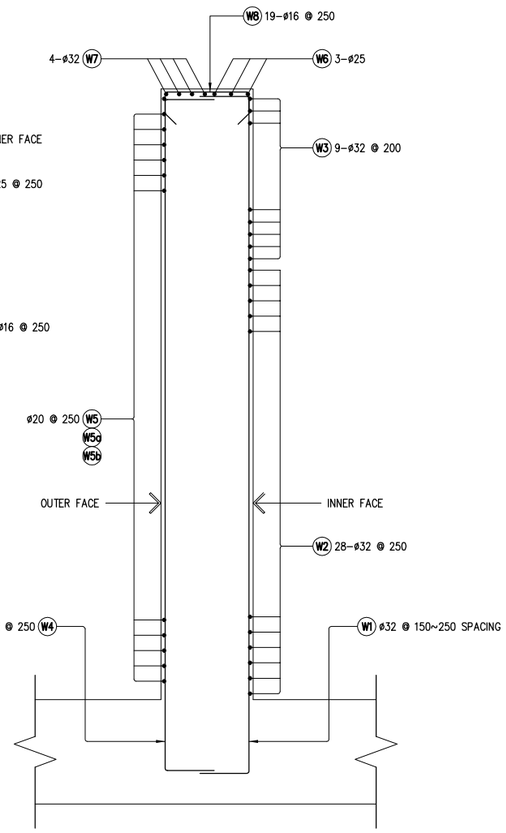
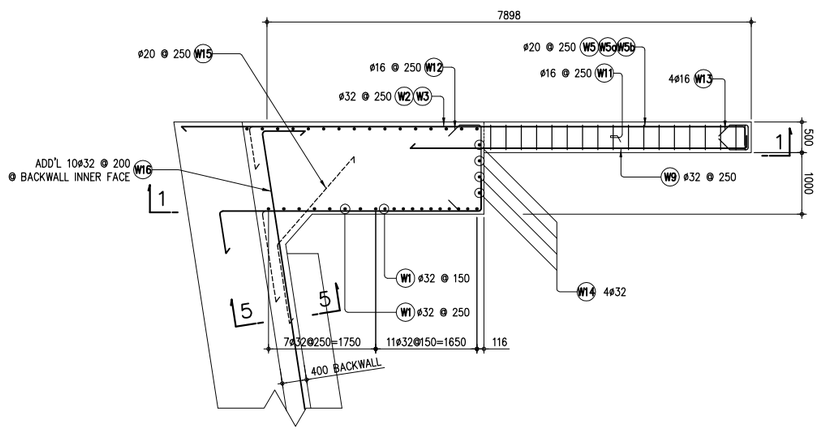
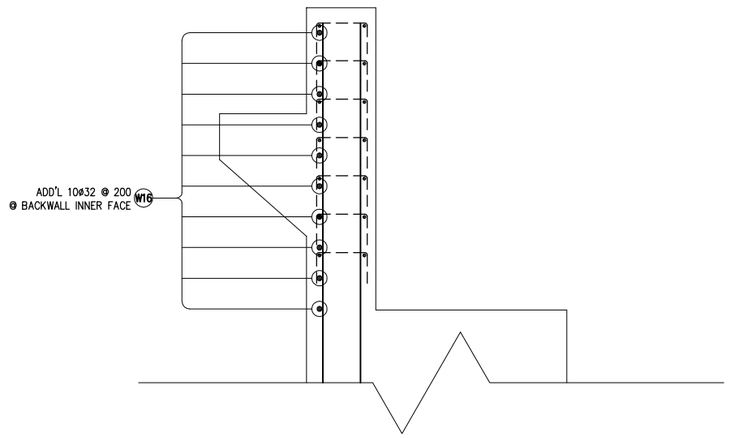


2 - 2



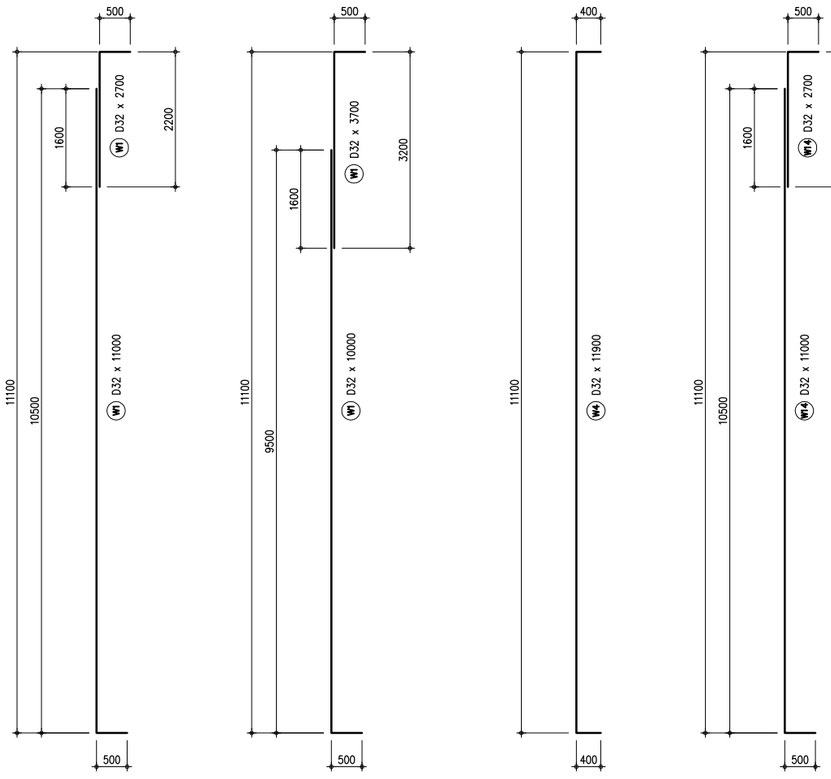


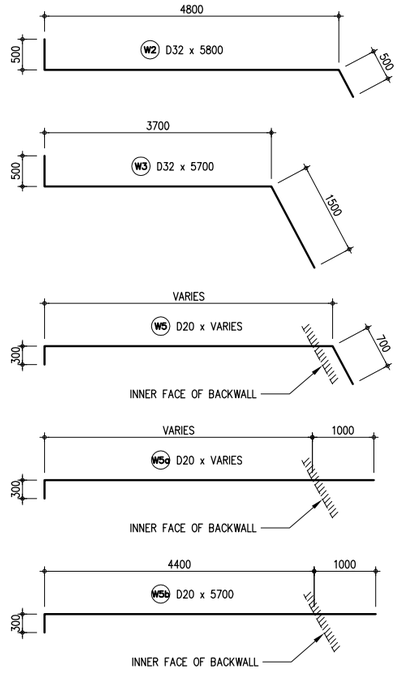
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)**	DESIGNED BY:
		HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIGE REINFORCEMENT OF WINGWALL ABUTMENT A2 (3/4)	CHECKED BY:
			APPROVED BY:
			DWG. NO. K01-65

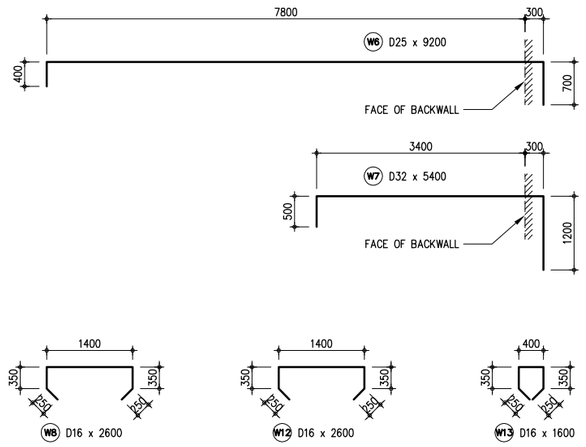
No	REVISION	DATE

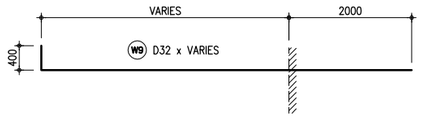
HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIGE (SCALE 1:150)

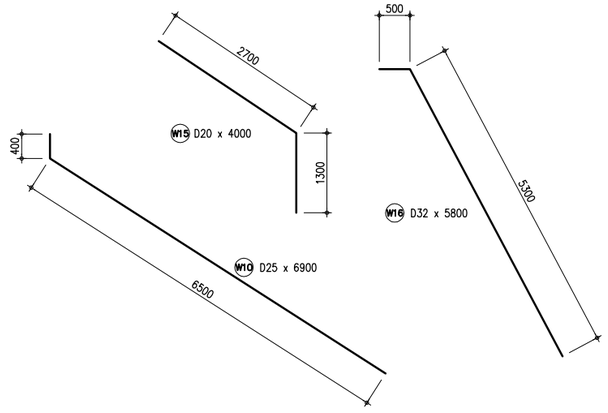
REINFORCEMENT OF WINGWALL ABUTMENT A2 (4)





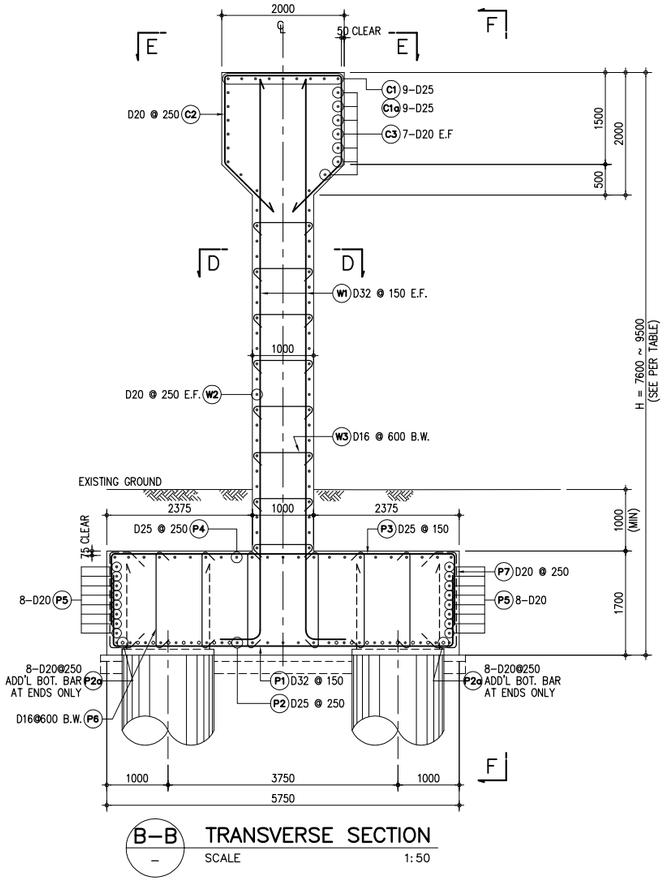






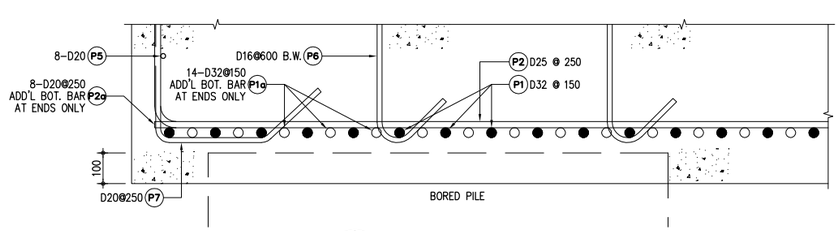
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JICA JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No / REVISION / DATE	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIGE REINFORCEMENT OF WINGWALL ABUTMENT A2 (4/4)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-66

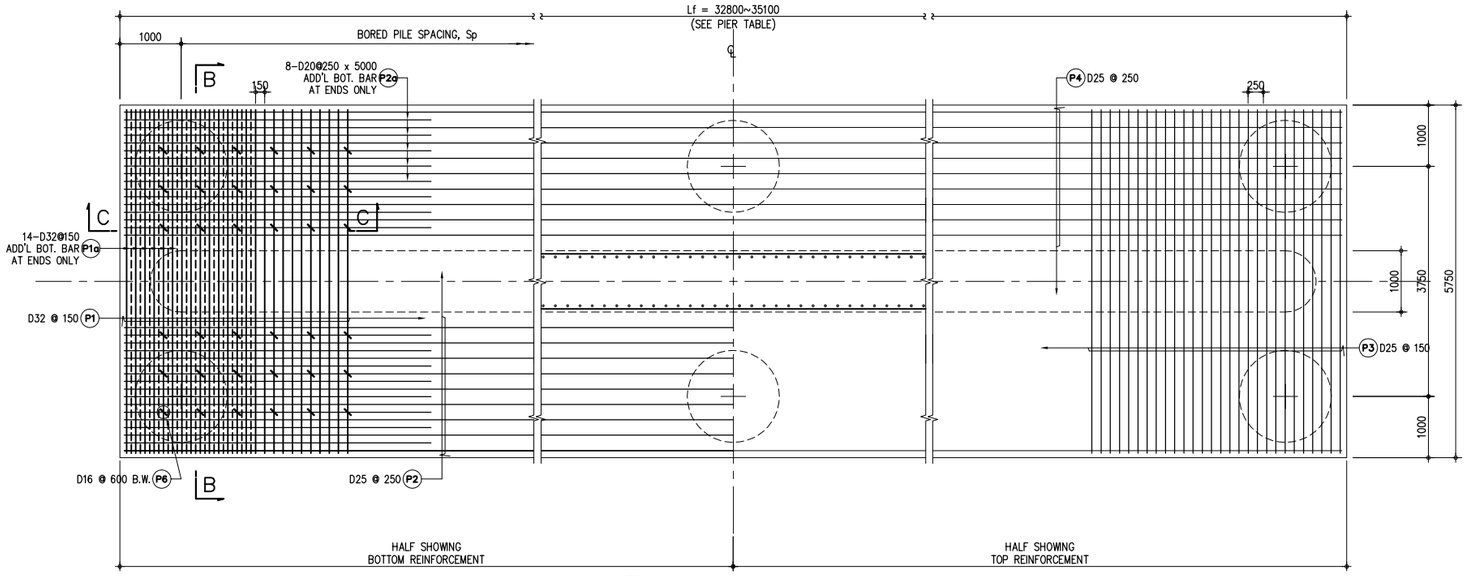


B–B TRANSVERSE SECTION
SCALE 1:50

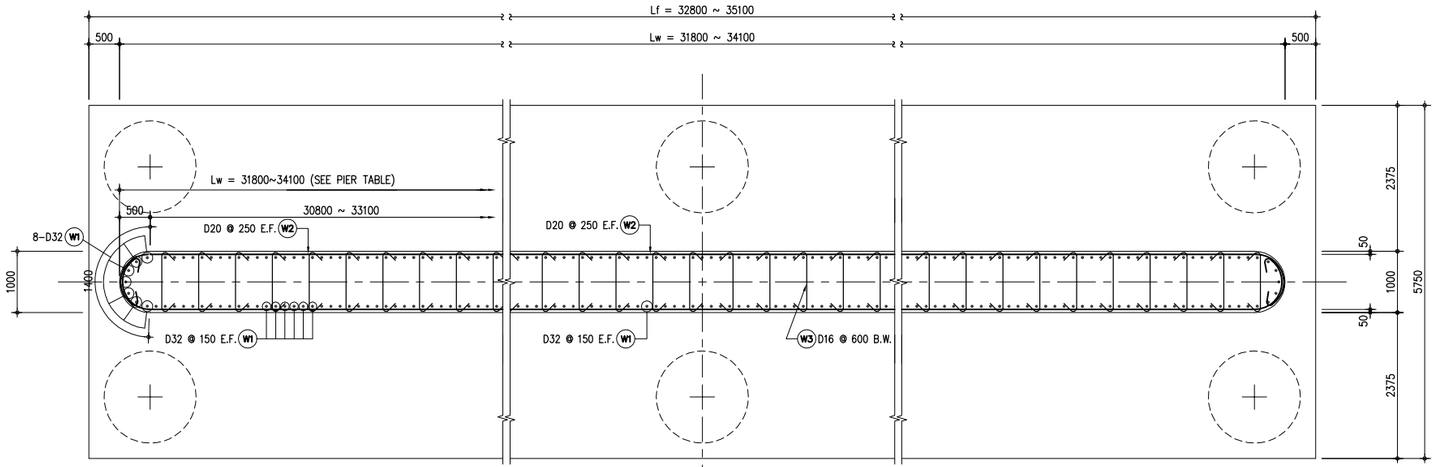
	H (mm)	Lw (mm)	Lc (mm)	Tw (mm)	Lf (mm)	Tf (mm)	Sp (mm)
P0	8,500	33300	35300	1,000	34300	1700	8075
P1	8,200	33100	35100	1,000	34100	1700	8025
P2	9,100	34100	36100	1,000	35100	1700	8275
P7	7,600	33000	35000	1,000	34000	1700	8000
P8	9,200	32800	34800	1,000	33800	1700	7950
P9	9,500	31800	33800	1,000	32800	1700	7700



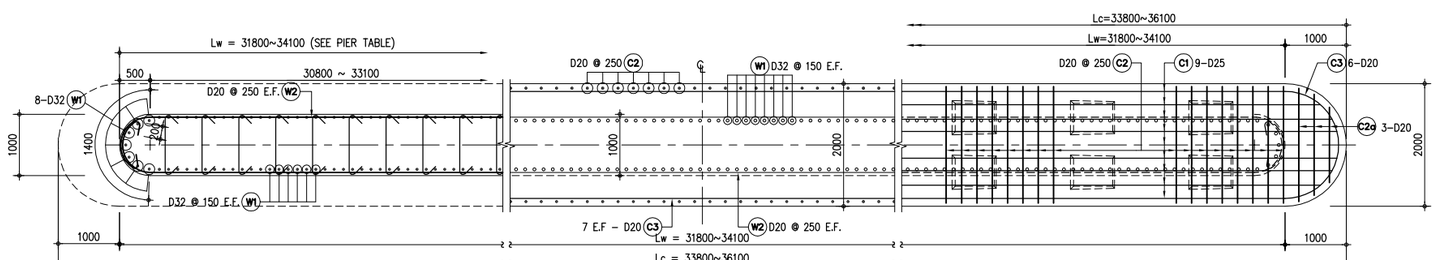
C–C DETAILED SECTION
SCALE 1:10



A REINFORCEMENT PLAN
SCALE 1:50

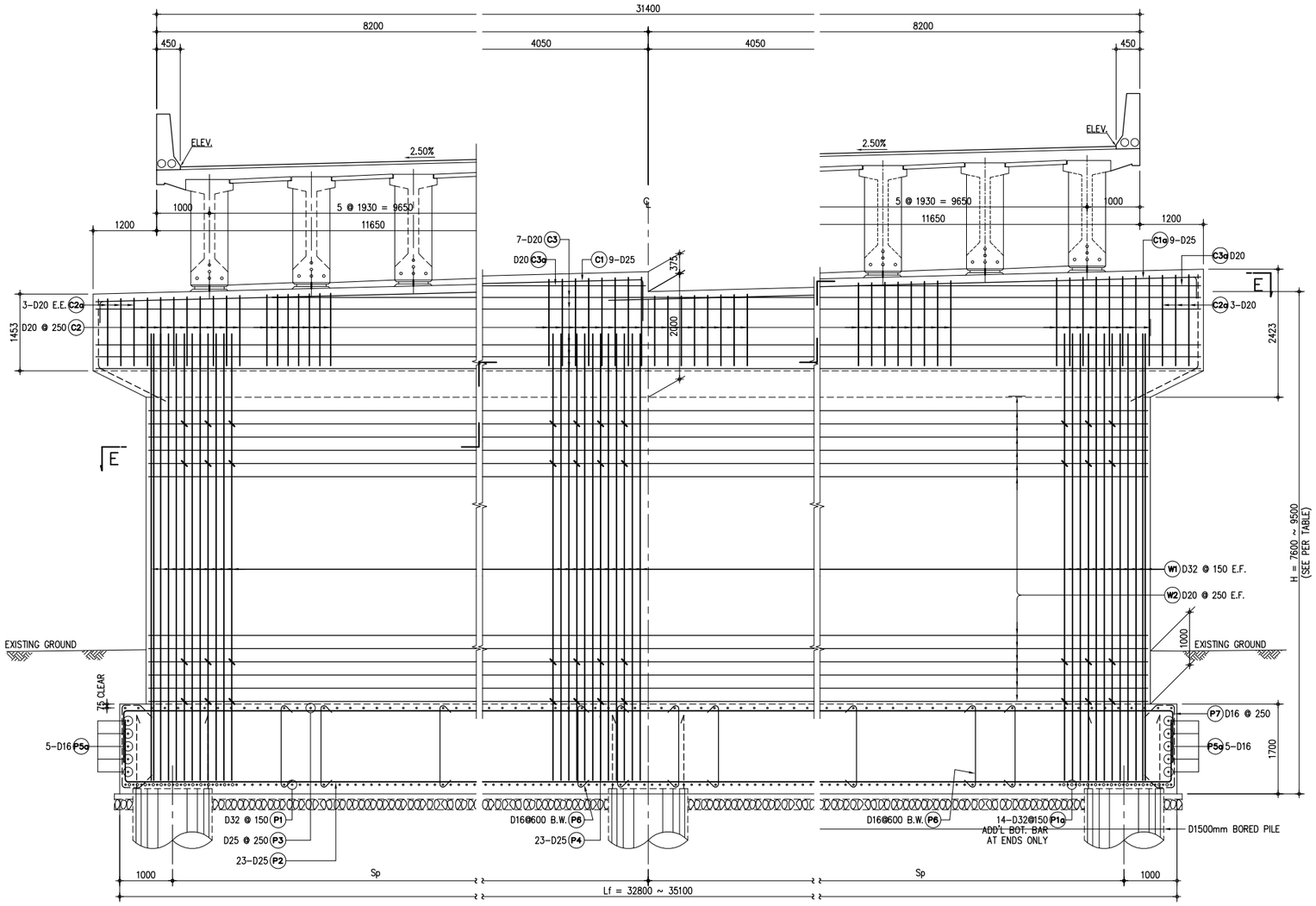


D–D SECTION
SCALE 1:50



E–E SECTION
SCALE 1:50

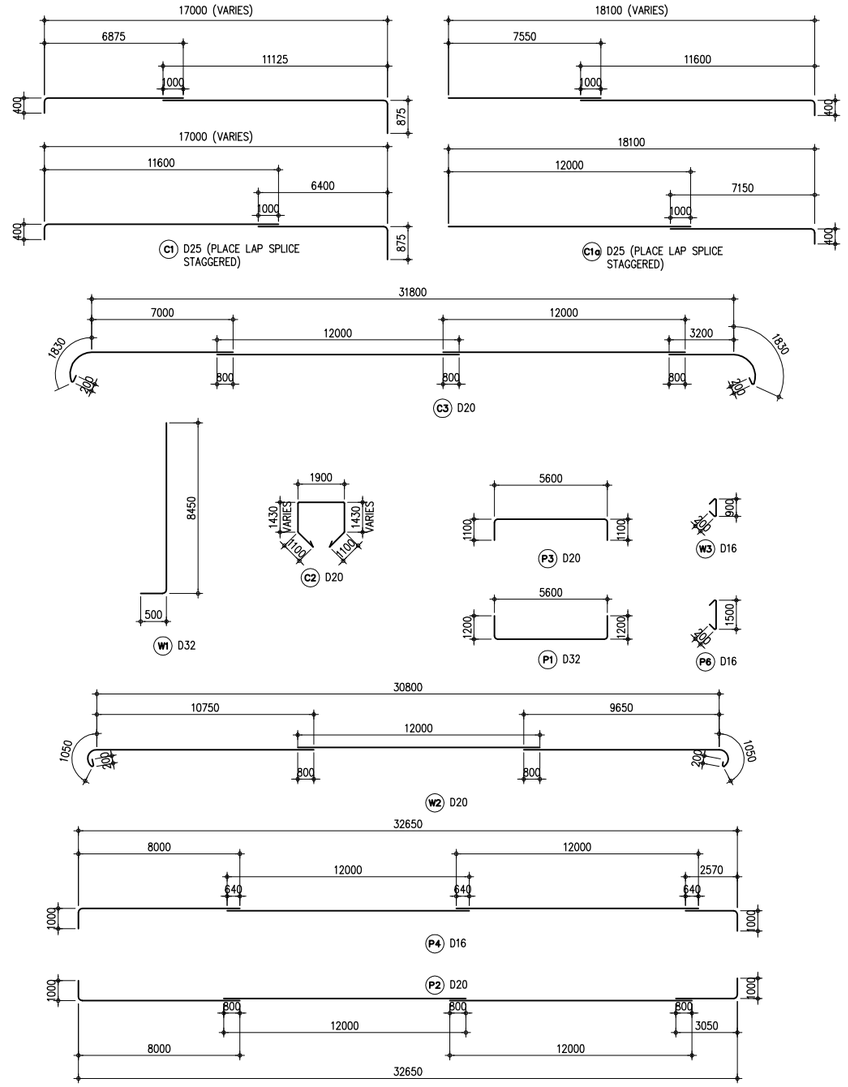
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No	REVISION	DATE	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT (PIER 0, 1, 2, 7, 8 AND 9) (1/2)	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO. K01-67



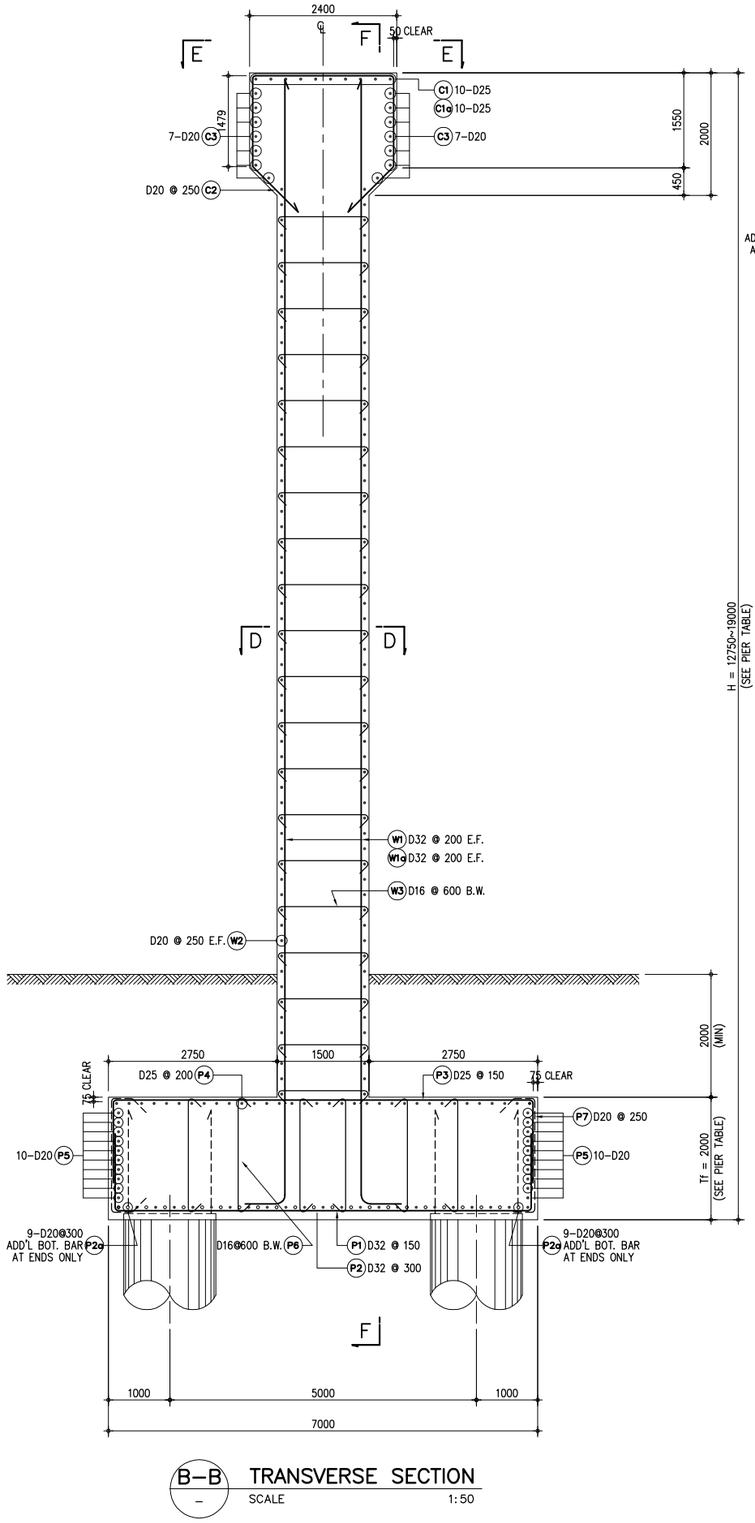
F–F SECTION

SCALE 1:50

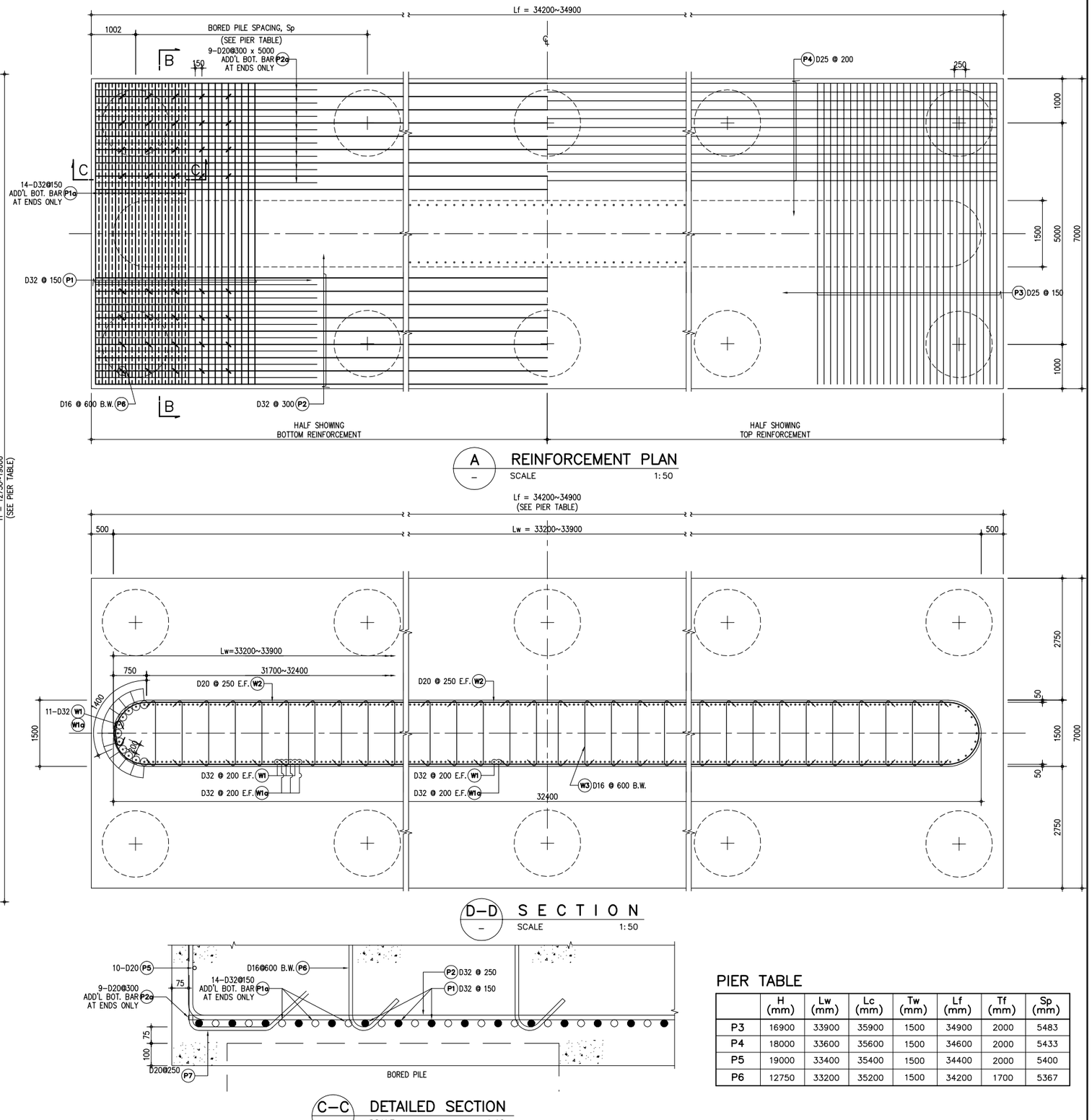
BAR BENDING DIAGRAM



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No	REVISION	DATE	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT (PIER 0, 1, 2, 7, 8 AND 9) (2/2)	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO. K01-68



B–B TRANSVERSE SECTION
SCALE 1:50



A REINFORCEMENT PLAN
SCALE 1:50

D–D SECTION
SCALE 1:50

C–C DETAILED SECTION
SCALE 1:10

PIER TABLE

	H (mm)	Lw (mm)	Lc (mm)	Tw (mm)	Lf (mm)	Tf (mm)	Sp (mm)
P3	16900	33900	35900	1500	34900	2000	5483
P4	18000	33600	35600	1500	34600	2000	5433
P5	19000	33400	35400	1500	34400	2000	5400
P6	12750	33200	35200	1500	34200	1700	5367

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

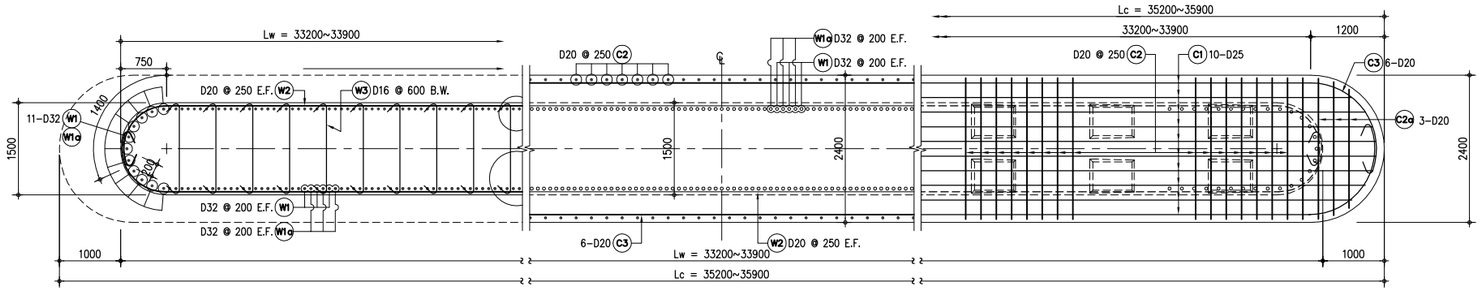
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

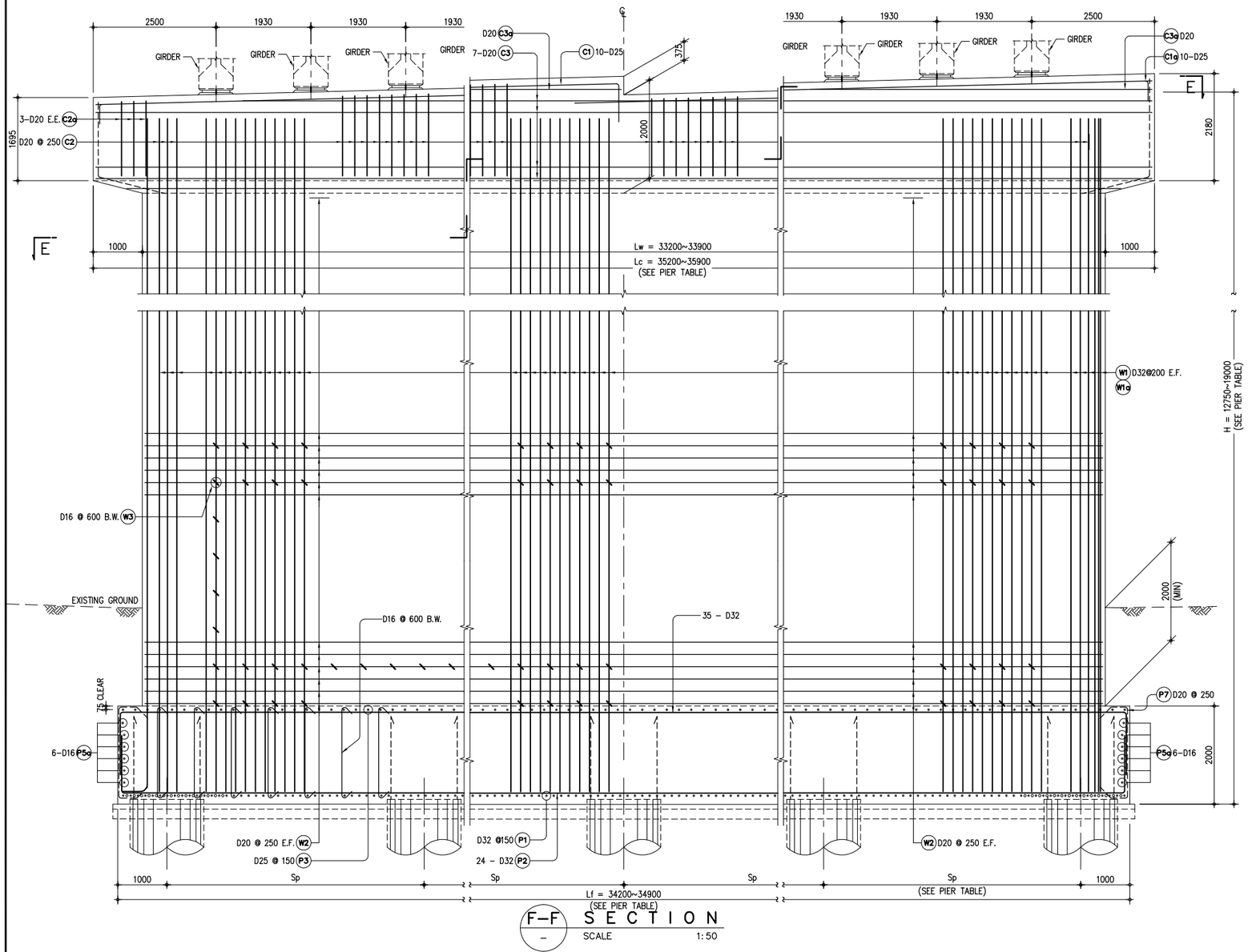
HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT DETAIL (PIER 3, 4, 5 & 6) (1/2)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-69



E–E SECTION

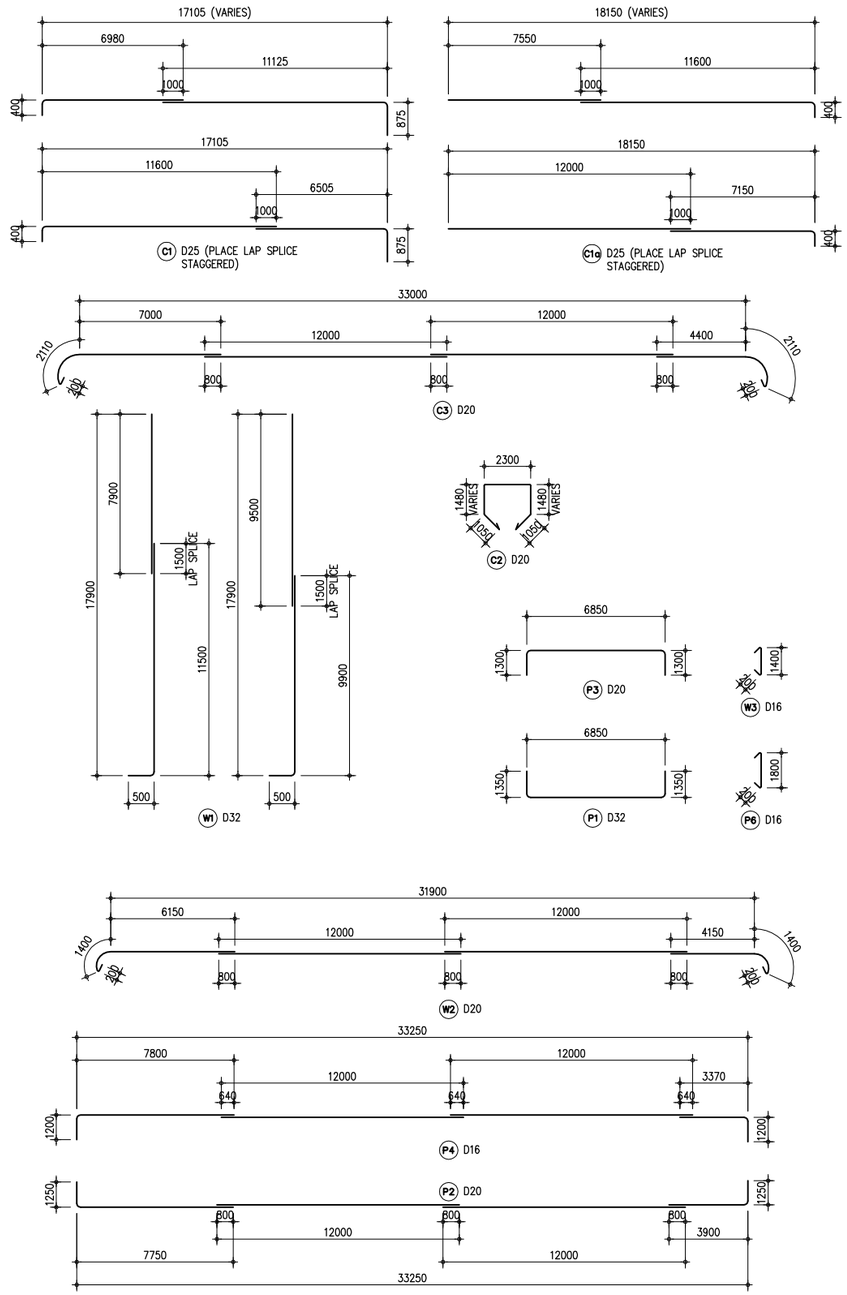
SCALE 1:50



F–F SECTION

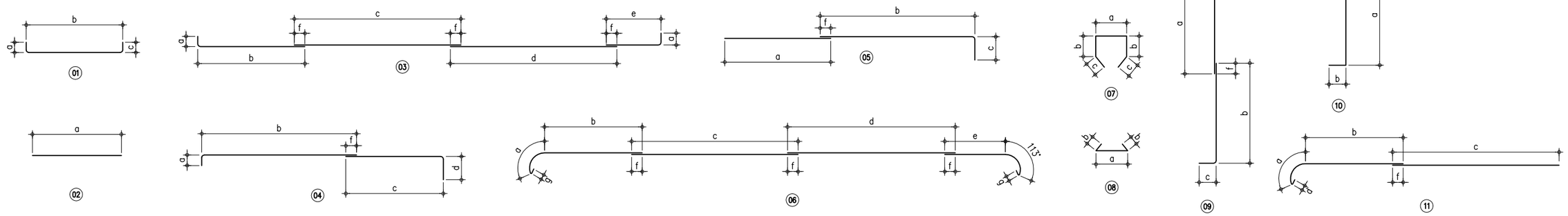
SCALE 1:50

BAR BENDING DIAGRAM



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JICA JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED *in association with* PACIFIC CONSULTANTS INTERNATIONAL	No	REVISION	DATE	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE REINFORCEMENT BAR ARRANGEMENT DETAIL (PIER 3, 4, 5 & 6) (2/2)	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO.	 K01-70

BAR BENDING DIAGRAM



ESTIMATED QUANTITIES FOR PIER 0

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		228	32	1200	5600	1200					8000	1824.00	6.313	11,514.91	
	P1a	02		28	32	5600							5600	156.80	6.313	989.88	
	P2	03		23	25	1000	8000	12000	12000	5150	1000		39150	900.45	3.854	3,470.33	
	P2a	02		32	20	5000							5000	160.00	2.466	394.56	
	P3	01		228	25	1100	5600	1100					7800	1778.40	3.854	6,853.95	
	P4	03		23	25	1040	7960	12000	12000	5310	1040		39350	905.05	3.854	3,488.06	
	P5	03		16	20	1040	7960	12000	12000	5310	1040		39350	629.60	2.466	1,552.59	
	P5a	01		10	16	1040	5600	1040					7680	76.80	1.579	121.27	
	P6	08		440	16	1450	200						1850	814.00	1.579	1,285.31	
	P7	07		318	20	1450	600	250					3150	1001.70	2.466	2,470.19	
												SUB-TOTAL QUANTITY FOR PILE CAP				32,141.06	335.28
WALL	W1	10		444	32	8200	500						8700	3862.80	6.313	24,385.86	
	W2	06		20	20	1080	7920	12000	12000	3380	1000	200	37860	757.20	2.466	1,867.26	
	W3	08		432	16	900	200						1300	561.60	1.579	886.77	
												SUB-TOTAL QUANTITY FOR STEM				27,139.88	158.81
COPING	C1	04		9	25	11600	7305	400	875		1250		20180	181.62	3.854	699.96	
	C1a	05		9	25	12000	7605	400			1250		20005	180.05	3.854	693.89	
	C2	07		134	20	1900	1590	1100					7280	975.52	2.466	2,405.63	
	C2a	07		6	20	1750	1590	1100					7130	42.78	2.466	105.50	
	C3	06		14	20	1830	7170	12000	12000	5130	1000	200	40360	565.04	2.466	1,393.39	
	C3a	11		6	20	1830	5650	12000	200		1000		19680	78.72	2.466	194.12	
												SUB-TOTAL QUANTITY FOR FOOTING				5,492.50	145.63
												GRAND TOTAL FOR SUBSTRUCTURE PIER – 0				64,773.43	639.72

ESTIMATED QUANTITIES FOR PIER 2

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		233	32	1200	5600	1200					8000	1864.00	6.313	11,767.43	
	P1a	02		28	32	5600							5600	156.80	6.313	989.88	
	P2	03		23	25	1000	8000	12000	12000	5950	1000		39950	918.85	3.854	3,541.25	
	P2a	02		32	20	5000							5000	160.00	2.466	394.56	
	P3	01		233	25	1100	5600	1100					7800	1817.40	3.854	7004.26	
	P4	03		23	25	1040	7960	12000	12000	6110	1040		40150	923.45	3.854	3,558.98	
	P5	03		16	20	1040	7960	12000	12000	6110	1040		40150	642.40	2.466	1,584.16	
	P5a	01		10	16	1040	5600	1040					7680	76.80	1.579	121.27	
	P6	08		448	16	1450	200						1850	828.80	1.579	1,308.68	
	P7	07		324	20	1450	600	250					3150	1020.60	2.466	2,516.80	
												SUB-TOTAL QUANTITY FOR PILE CAP				32,787.25	343.10
WALL	W1	10		456	32	8200	500						9300	4240.80	6.313	26,772.17	
	W2	06		23	20	1080	7920	12000	12000	4180	1000	200	38660	889.18	2.466	2,192.72	
	W3	08		560	16	900	200						1300	728.00	1.579	1,149.51	
												SUB-TOTAL QUANTITY FOR STEM				30,114.40	182.98
COPING	C1	04		09	25	11600	7705	400	875		1250		20580	185.22	3.854	713.84	
	C1a	05		09	25	12000	8005	400			1250		20405	183.65	3.854	707.77	
	C2	07		137	20	1900	1590	1100					7280	997.36	2.466	2,459.49	
	C2a	07		06	20	1750	1590	1100					7130	42.78	2.466	105.50	
	C3	06		14	20	1830	7170	12000	12000	5930	1000	200	41160	576.24	2.466	1,421.01	
	C3a	11		04	20	1830	6050	12000	200		1000		20080	80.32	2.466	198.07	
												SUB-TOTAL QUANTITY FOR FOOTING				5,407.60	148.93
												GRAND TOTAL FOR SUBSTRUCTURE PIER – 2				68,309.25	675.01

ESTIMATED QUANTITIES FOR PIER 1

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		226	32	1200	5600	1200					8000	1808.00	6.313	11,413.90	
	P1a	02		28	32	5600							5600	156.80	6.313	989.88	
	P2	03		23	25	1000	7450	12000	12000	5500	1000		38950	895.85	3.854	3,452.61	
	P2a	02		32	20	5000							5000	160.00	2.466	394.56	
	P3	01		226	25	1100	5600	1100					7800	1762.80	3.854	6,793.83	
	P4	03		23	25	1040	7760	12000	12000	5310	1040		39150	900.45	3.854	3,470.33	
	P5	03		16	20	1040	7760	12000	12000	5310	1040		39150	626.40	2.466	1,544.70	
	P5a	01		10	16	1040	5600	1040					7680	76.80	1.579	121.27	
	P6	08		440	16	1450	200						1850	814.00	1.579	1,285.31	
	P7	07		316	20	1450	600	250					3150	995.40	2.466	2,454.66	
												SUB-TOTAL QUANTITY FOR PILE CAP				31,921.05	144.81
WALL	W1	10		442	32	7900	500						8400	3712.80	6.313	23,438.91	
	W2	06		19	20	1080	7600	12000	12000	3500	1000	200	37660	715.54	2.466	1,764.52	
	W3	08		432	16	900	200						1300	561.60	1.579	886.77	
												SUB-TOTAL QUANTITY FOR STEM				26,090.19	147.98
COPING	C1	04		09	25	11600	7205	400	875		1250		20080	180.72	3.854	696.49	
	C1a	05		09	25	12000	7505	400			1250		19905	179.15	3.854	690.42	
	C2	07		133	20	1900	1590	1100					7280	968.24	2.466	2,387.68	
	C2a	07		06	20	1750	1590	1100					7130	42.78	2.466	105.50	
	C3	06		14	20	1830	7170	12000	12000	4930	1000	200	40160	562.24	2.466	1,386.48	
	C3a	11		04	20	1830	5550	12000	200		1000		19580	78.32	2.466	193.14	
												SUB-TOTAL QUANTITY FOR FOOTING				5,459.72	333.33
												GRAND TOTAL FOR SUBSTRUCTURE PIER – 1				63,470.96	626.12

ESTIMATED QUANTITIES FOR PIER 3

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		232	32	1350	6850	1350					9550	2215.60	6.313	13,987.08	
	P1a	02		28	32	6850							6850	191.80	6.313	1,210.83	
	P2	03		24	32	1250	6500	12000	12000	8000	1250		41000	984.00	6.313	6,211.99	
	P2a	02		36	20	5000							5000	180.00	2.466	443.88	
	P3	01		232	25	1300	6850	1300					9450	2129.40	3.854	8,449.51	
	P4	03		35	25	1200	7800	12000	12000	6550	1200		40750	1426.25	3.854	5,496.77	
	P5	03		20	20	1200	7800	12000	12000	6550	1200		40750	815.00	2.466	2,009.79	
	P5a	01		12	16	1200	6850	1200					9250	111.00	1.579	175.27	
	P6	08		560	16	1750	200						2150	1204.00	1.579	1,901.12	
	P7	07		332	20	1750	600	250					3450	1145.40	2.466	2,824.56	
												SUB-TOTAL QUANTITY FOR PILE CAP				42,710.80	488.60
WALL	W1	09		338	32	10000	8310	500			1600		18810	6357.78	6.313	40,136.67	
	W1a	09		334	32	6810	11500	500			1600		18810	6282.54	6.313	39,661.68	
	W2	06		53	20	1450	6000	12000	12000	5400	1000	200	38700	2051.10	2.466	5,058.01	
	W3	08		1188	16	1400	200						1800	2138.40	1.579	3376.53	
												SUB-TOTAL QUANTITY FOR STEM				88,232.89	649.77
COPING	C1	04		10	25	11600	7605	400	875		1250		20480	204.80	3.854	789.30	
	C1a	05		10	25	1200	7905	400			1250		20350	203.05	3.854	782.55	
	C2	07		134	20	2300	1765	1050					7930	1062.62	2.466	2,620.42	
	C2a	07		06	20	2150	1765	1050					7780	46.68	2.466	115.11	
	C3	06		14	20	2110	7000	12000	12000	5500	1000	200	41120	575.68	2.466	1419.63	
	C3a	11		04	20	2110	5750	12000	200		1000		20060	80.24	2.466	197.87	
												SUB-TOTAL QUANTITY FOR FOOTING				5,924.89	180.22
												GRAND TOTAL FOR SUBSTRUCTURE PIER – 3				136,868.57	1,318.59

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
ESTIMATED QUANTITIES FOR PIER 0,1, 2 AND 3

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-71

ESTIMATED QUANTITIES FOR PIER 4

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		230	32	1350	6850	1350					9550	2196.50	6.313	13,866.50	
	P1a	02		28	32	6850							6850	191.80	6.313	1,210.83	
	P2	03		24	32	1250	6200	12000	12000	8000	1250		40700	976.80	6.313	6,166.54	
	P2a	02		36	20	5000							5000	180.00	2.466	443.88	
	P3	01		230	25	1300	6850	1300					9450	2173.50	3.854	8,376.67	
	P4	03		35	25	1200	7800	12000	12000	6650	1200		40450	1415.75	3.854	5,456.30	
	P5	03		20	20	1200	7800	12000	12000	6650	1200		40450	809.00	2.466	1,994.99	
	P5a	01		12	16	1200	6850	1200					9250	111.00	1.579	175.27	
	P6	08		550	16	1750	200						2150	1182.50	1.579	1,867.17	
	P7	07		330	20	1750	600	250					3450	1138.50	2.466	2,807.54	
	SUB-TOTAL QUANTITY FOR PILE CAP															42,365.70	484.40
WALL	W1	09		336	32	10000	9410	500			1600		19910	6689.76	6.313	42,232.45	
	W1a	09		330	32	7910	11500	500			1600		19910	6570.30	6.313	41,478.30	
	W2	06		57	20	1450	6000	12000	12000	5100	1000	200	38400	2188.80	2.466	5,397.58	
	W3	08		1296	16	1400	200						1800	2332.80	1.579	3,683.49	
	SUB-TOTAL QUANTITY FOR STEM															92,791.83	711.27
COPING	C1	04		10	25	11600	7455	400	875		1250		20330	203.30	3.854	783.52	
	C1a	05		10	25	12000	7755	400			1250		20155	201.55	3.854	776.77	
	C2	07		133	20	2300	1765	1050					7930	1054.69	2.466	2600.87	
	C2a	07		06	20	2150	1765	1050					7780	46.68	2.466	115.11	
	C3	06		14	20	2110	7000	12000	12000	5200	1000	200	40820	571.48	2.466	1409.27	
	C3a	11		04	20	2110	5600	12000	200		1000		19910	79.64	2.466	196.39	
	SUB-TOTAL QUANTITY FOR FOOTING															5,881.93	178.71
	GRAND TOTAL FOR SUBSTRUCTURE PIER – 4															141,039.46	1,374.38

ESTIMATED QUANTITIES FOR PIER 5

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		228	32	1350	6850	1350					9550	2177.40	6.313	13745.93	
	P1a	02		28	32	6850							6850	191.80	6.313	1,210.83	
	P2	03		24	32	1250	6000	12000	12000	8000	1250		40500	972.00	6.313	6316.24	
	P2a	02		36	20	5000							5000	180.00	2.466	443.88	
	P3	01		228	25	1300	6850	1300					9450	2154.60	3.854	8303.83	
	P4	03		35	25	1200	7800	12000	12000	6050	1200		40250	1408.75	3.854	5429.32	
	P5	03		20	20	1200	7800	12000	12000	6050	1200		40250	805.00	2.466	1985.13	
	P5a	01		12	16	1200	6850	1200					9250	111.00	1.579	175.27	
	P6	08		550	16	1750	200						2150	1182.50	1.579	1867.17	
	P7	06		328	20	1750	600	250					3450	1131.60	2.466	2790.53	
	SUB-TOTAL QUANTITY FOR PILE CAP															42088.12	481.60
WALL	W1	09		334	32	10000	10410	500			1600		20910	6983.94	6.313	44089.61	
	W1a	09		328	32	8910	11500	500			1600		20910	6858.48	6.313	43297.58	
	W2	06		61	20	1450	6000	12000	12000	4900	1000	200	38200	2330.20	2.466	5746.27	
	W3	01		1350	16	1450	200						1800	2430.00	1.579	3836.97	
	SUB-TOTAL QUANTITY FOR STEM															96970.44	744.30
COPING	C1	04		10	25	11600	7355	400	875		1250		20230	202.30	3.854	779.66	
	C1a	05		10	25	12000	7655	400			1250		20055	200.55	3.854	772.92	
	C2	07		132	20	2300	1765	1050					7930	1046.76	2.466	2581.31	
	C2a	07		6	20	2150	1765	1050					7780	46..68	2.466	115.11	
	C3	06		14	20	2100	7000	12000	12000	5000	1000	200	40620	568.68	2.466	1402.36	
	C3a	11		4	20	2100	5500	122000	200		1000		19810	79.24	2.466	195.41	
	SUB-TOTAL QUANTITY FOR FOOTING															5846.78	177.71
	GRAND TOTAL FOR SUBSTRUCTURE PIER – 6															144905.34	1403.61

ESTIMATED QUANTITIES FOR PIER 6

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		227	32	1350	6850	1350					9550	2167.85	6.313	13,685.64	
	P1a	02		28	32	6850							6850	191.80	6.313	1,210.83	
	P2	03		24	32	1250	5800	12000	12000	8000	1250		40300	967.20	6.313	6,105.93	
	P2a	02		36	20	5000							5000	180.00	2.466	443.88	
	P3	01		227	25	1300	6850	1300					9450	2145.15	3.854	8,267.41	
	P4	03		35	25	1200	7800	12000	12000	5850	1200		40050	1401.75	3.854	5,402.34	
	P5	03		20	20	1200	7800	12000	12000	5850	1200		40050	801.00	2.466	1,975.27	
	P5a	01		12	16	1200	6850	1200					9250	111.00	1.579	175.27	
	P6	08		550	16	1750	200						2150	1182.50	1.579	1,867.17	
	P7	07		328	20	1750	600	250					3450	1131.60	2.466	2,790.53	
	SUB-TOTAL QUANTITY FOR PILECAP															41,924.26	406.98
WALL	W1	09		332	32	8000	6160	500			1600		14660	4867.12	6.313	30,726.13	
	W1a	09		326	32	4660	9500	500			1600		14660	4779.16	6.313	30,170.84	
	W2	06		37	20	1450	6000	12000	12000	4700	1000	200	38000	1406.00	2.466	3,467.20	
	W3	08		848	16	1400	200						1800	1526.40	1.579	2,410.19	
	SUB-TOTAL QUANTITY FOR PILECAP															66,774.35	446.35
COPING	C1	04		10	25	11600	7255	400	875		1250		20130	201.30	3.854	775.81	
	C1a	05		10	25	12000	7555	400			1250		19955	199.55	3.854	769.07	
	C2	07		132	20	2300	1765	1050					7930	1046.76	2.466	2,581.31	
	C2a	07		6	20	2150	1765	1050					7780	46.68	2.466	115.11	
	C3	06		14	20	2110	7000	12000	12000	4800	1000	200	40420	565.88	2.466	1,395.46	
	C3a	11		4	20	2110	5400	12000	200		1000		19710	78.84	2.466	194.42	
	SUB-TOTAL QUANTITY FOR PILECAP															5,831.18	176.70
	GRAND TOTAL FOR SUBSTRUCTURE PIER – 6															114,529.79	1030.03

ESTIMATED QUANTITIES FOR PIER 7

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		226	32	1200	5600	1200					8000	1808.00	6.313	11,413.90	
	P1a	02		28	32	5600							5600	156.80	6.313	989.88	
	P2	03		23	25	1000	7450	12000	12000	5500	1000		38950	895.85	3.854	3,452.61	
	P2a	02		32	20	5000							5000	160.00	2.466	394.56	
	P3	01		226	25	1100	5600	1100					7800	1762.80	3.854	6,793.83	
	P4	03		23	25	1040	7660	12000	12000	5310	1040		39050	898.15	3.854	3,461.47	
	P5	03		16	20	1040	7660	12000	12000	5310	1040		39050	624.80	2.466	1,540.76	
	P5a	01		10	16	1040	5600	1040					7680	76.80	1.579	121.27	
	P6	08		432	16	1450	200						1850	799.20	1.579	1,261.94	
	P7	07		316	20	1450	600	250					3150	995.40	2.466	2,454.66	
	SUB-TOTAL QUANTITY FOR PILE CAP															31,884.87	332.35
WALL	W1	10		440	32	7300	500						7800	3432.00	6.313	21,666.22	
	W2	06		17	20	1080	7500	12000	12000	3500	1000	200	37560	638.52	2.466	1,574.59	
	W3	08		378	16	900	200						1300	491.40	1.579	775.92	
	SUB-TOTAL QUANTITY FOR PILECAP															24,016.73	127.86
COPING	C1	04		9	25	11600	7155	400	875		1250		20030	180.27	3.854	694.76	
	C1a	05		9	25	12000	7455	400			1250		19855	178.70	3.854	688.69	
	C2	07		132	20	1900	1590	1100					7280	960.96	2.466	2,369.73	
	C2a	07		6	20	1750	1590	1100					7130	42.78	2.466	105.50	
	C3	06		14	20	1830	7170	12000	12000	4830	1000	200	40060	560.84	2.466	1,383.03	
	C3a	11		4	20	1830	5500	12000	200		1000		19530	78.12	2.466	192.64	
	SUB-TOTAL QUANTITY FOR PILECAP															5,434.35	144.39
	GRAND TOTAL FOR SUBSTRUCTURE PIER – 7															61,335.94	604.60

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
ESTIMATED QUANTITIES FOR PIER 4,5, 6 AND 7

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-72

ESTIMATED QUANTITIES FOR PIER 8

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		224	32	1200	5600	1200					8000	1792.00	6.313	11,312.90	
	P1a	02		28	32	5600							5600	156.80	6.313	989.88	
	P2	03		23	25	1000	7150	12000	12000	5500	1000		38650	888.95	3.854	3,426.01	
	P2a	02		32	20	5000							5000	160.00	2.466	394.56	
	P3	01		224	25	1100	5600	1100					7800	1747.20	3.854	6,733.71	
	P4	03		23	25	1040	7460	12000	12000	5310	1040		38850	893.55	3.854	3,443.74	
	P5	03		16	20	1040	7460	12000	12000	5310	1040		38850	621.60	2.466	1,532.87	
	P5a	01		10	16	1040	5600	1040					7680	76.80	1.579	121.27	
	P6	08		432	16	1450	200						1850	799.20	1.579	1,261.94	
	P7	07		314	20	1450	600	250					3150	989.10	2.466	2,439.12	
	SUB-TOTAL QUANTITY FOR PILE CAP															31,655.99	330.40
WALL	W1	10		438	32	8900	500						9400	4117.20	6.313	25,991.88	
	W2	06		23	20	1080	7300	12000	12000	3500	1000	200	37360	859.28	2.466	2,118.98	
	W3	08		530	16	900	200						1300	689.00	1.579	1087.93	
	SUB-TOTAL QUANTITY FOR PILECAP															29,198.80	179.22
COPING	C1	04		9	25	11600	7055	400	875		1250		19930	179.37	3.854	691.29	
	C1a	05		9	25	12000	7355	400			1250		19755	177.80	3.854	685.22	
	C2	07		132	20	1900	1590	1100					7280	960.96	2.466	2,369.73	
	C2a	07		6	20	1750	1590	1100					7130	42.78	2.466	105.50	
	C3	06		14	20	1830	7170	12000	12000	4630	1000	200	39860	558.04	2.466	1,376.13	
	C3a	11		4	20	1830	5400	12000	200		1000		19430	77.72	2.466	191.66	
	SUB-TOTAL QUANTITY FOR PILECAP															5,419.52	143.57
GRAND TOTAL FOR SUBSTRUCTURE PIER – 8																66,274.31	653.19

ESTIMATED QUANTITIES FOR PIER 9

REINFORCING BARS

LOCATION	BAR MARK	BAR SHAPE	SPACING	QTY. (pcs)	SIZE (mm)	DIMENSION mm (OUT TO OUT) a	b	c	d	e	f	g	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
PILE CAP	P1	01		218	32	1200	5600	1200					8000	1744.00	6.313	11,009.87	
	P1a	02		28	32	5600							5600	156.80	6.313	989.88	
	P2	03		23	25	1000	6500	12000	12000	5150	1000		37650	865.95	3.854	3,337.37	
	P2a	02		32	20	5000							5000	160.00	2.466	394.56	
	P3	01		218	25	1100	5600	1100					7800	1700.40	3.854	6,553.34	
	P4	03		23	25	1040	6460	12000	12000	5310	1040		37850	870.55	3.854	3,355.10	
	P5	03		16	20	1040	6460	12000	12000	5310	1040		37850	605.60	2.466	1,493.41	
	P5a	01		10	16	1040	5600	1040					7680	76.80	1.579	121.27	
	P6	08		416	16	1450	200						1850	769.60	1.579	1,215.20	
	P7	07		306	20	1450	600	250					3150	963.90	2.466	2,376.98	
	SUB-TOTAL QUANTITY FOR PILE CAP															**30,846.98**	320.62
WALL	W1	10		424	32	9200	500						9700	4112.80	6.313	25,964.11	
	W2	06		24	20	1080	6300	12000	12000	3550	1000	200	36360	872.64	2.466	2,151.93	
	W3	08		520	16	900	200						1300	676.00	1.579	1,067.40	
	SUB-TOTAL QUANTITY FOR STEM															**29,183.44**	183.19
COPING	C1	04		9	25	11600	6555	400	875		1250		19430	174.87	3.854	673.95	
	C1a	05		9	25	12000	6855	400			1250		19255	173.30	3.854	667.88	
	C2	07		128	20	1900	1590	1100					7280	913.84	2.466	2,297.92	
	C2a	07		6	20	1750	1590	1100					7130	42.78	2.466	105.50	
	C3	06		14	20	1830	7170	12000	12000	3630	1000	200	38860	544.04	2.466	1,341.60	
	C3a	11		4	20	1830	4900	12000	200		1000		18930	75.72	2.466	186.73	
	SUB-TOTAL QUANTITY FOR FOOTING															**5,273.57**	139.44
GRAND TOTAL FOR SUBSTRUCTURE PIER – 0																**65,303.99**	643.25

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

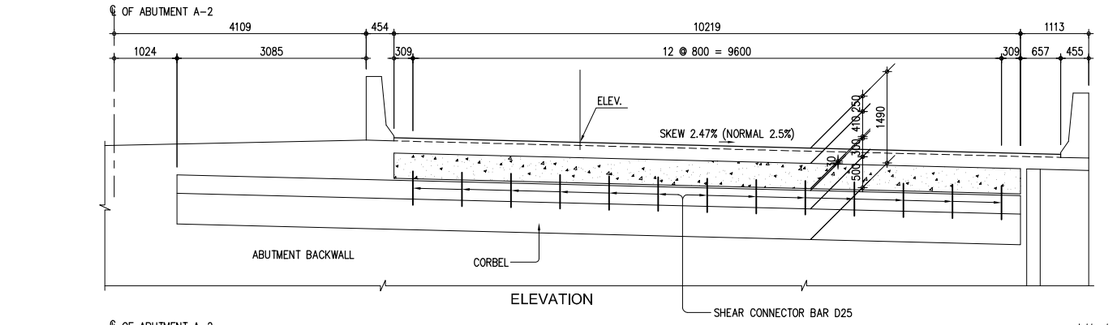
No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

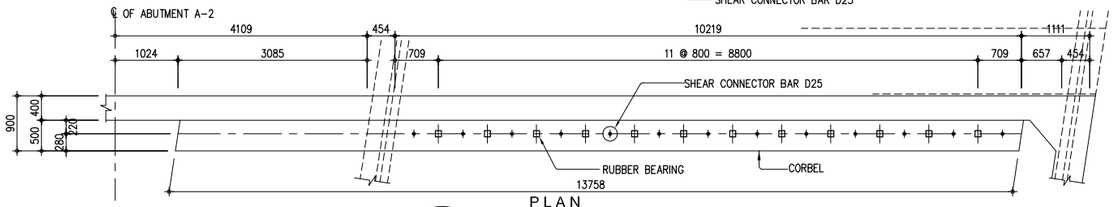
HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
ESTIMATED QUANTITIES FOR PIER 8 AND 9

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-73

REINFORCEMENT OF APPROACH SLAB AT ABUTMENT A-2



ELEVATION



PLAN

3 – CORBEL
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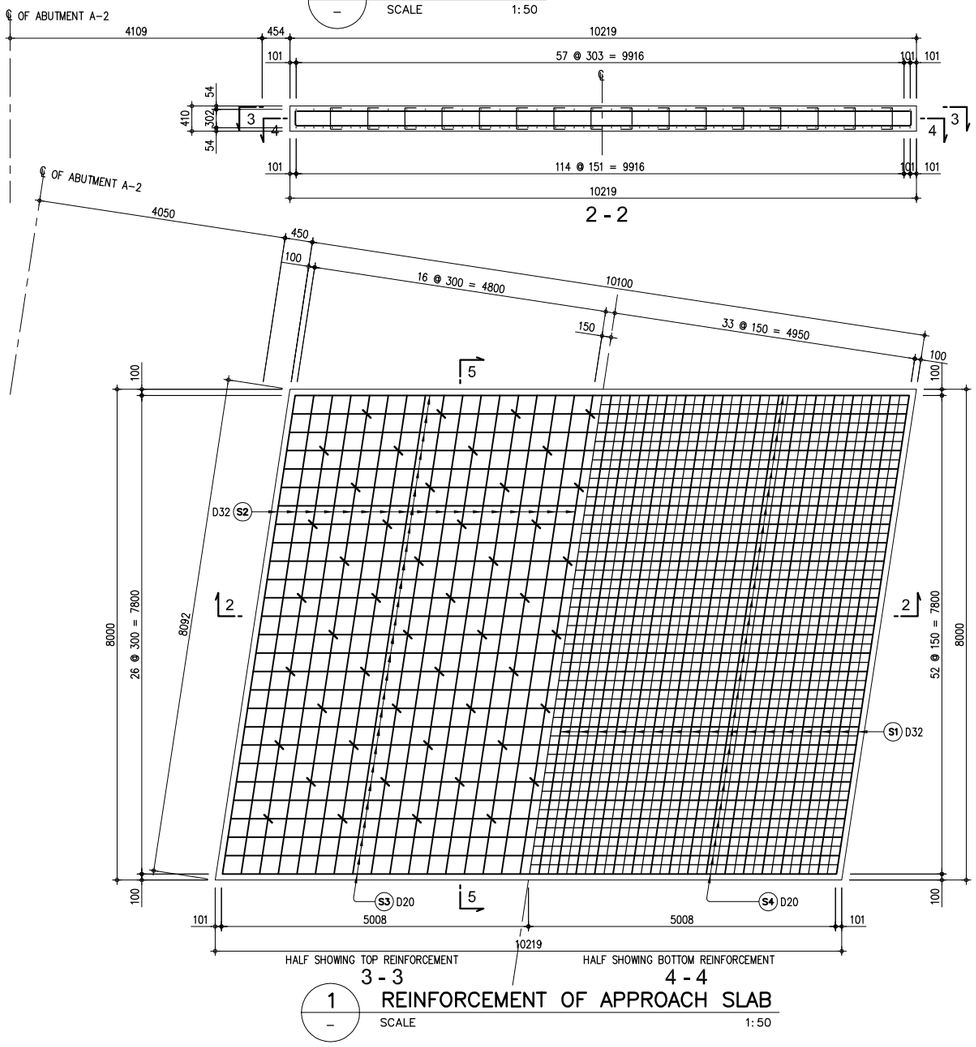
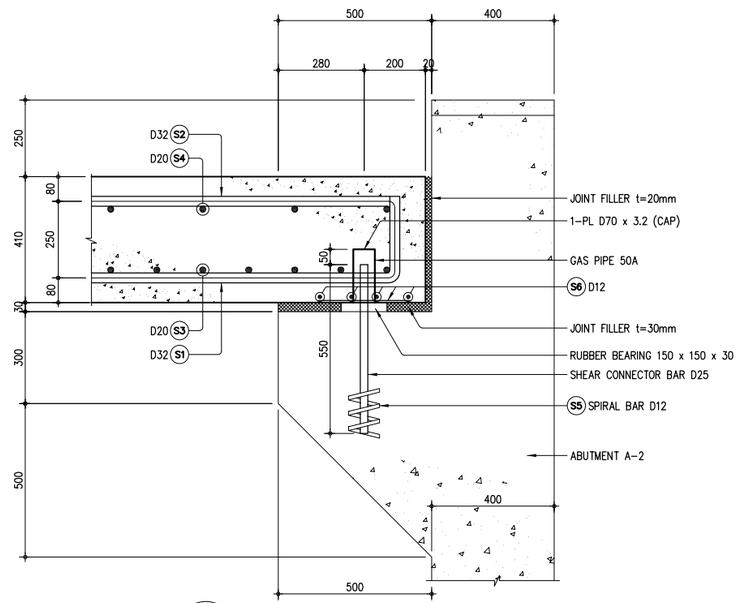


1 – REINFORCEMENT OF APPROACH SLAB
SCALE 1:50



2 – TYPICAL SECTION
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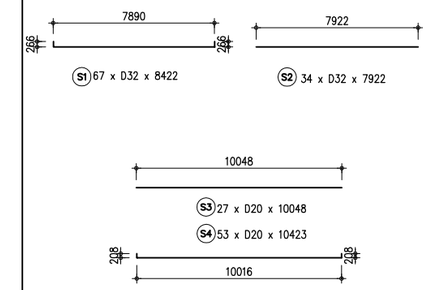
BAR BENDING DIAGRAM



REINFORCING BARS

BAR BENDING	BAR MARK	BAR SHAPE	QTY.	SIZE	DIMENSIONS a	b	c	LENGTH PER BAR (mm)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)
A, B, C, D	S1	A	67	D32	7890	266	–	8422	564.27	6.314	3,562.83
	S2	B	34	D32	7922	–	–	7922	269.35	6.314	1,700.66
	S3	B	27	D20	10048	–	–	10048	271.30	2.466	669.02
	S4	A	53	D20	10016	208	–	10432	552.90	2.466	1,363.44
	S5	C	13	D12	955	–	–	955	12.42	0.888	11.02
	S6	D	26	D12	1370	–	–	1370	35.62	0.888	31.63
	S7	A	98	D12	305	180	180	665	65.17	0.888	57.87
										D32	5,263.49
										D20	2,032.46
										D12	100.52
										TOTAL	**7,396.47**
	SGP	50A	–	–	–	–	–	–	–	–	GAS PIPE
	PL	G	–	–	–	–	–	–	–	–	CAP

CONCRETE
FORM
BEARING (T=30mm)
JOINT FILLER (T–20mm)
JOINT FILLER (T–30mm)

NOTE: QUANTITIES ARE FOR (1) ONE APPROACH ONLY.

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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Road Development Authority

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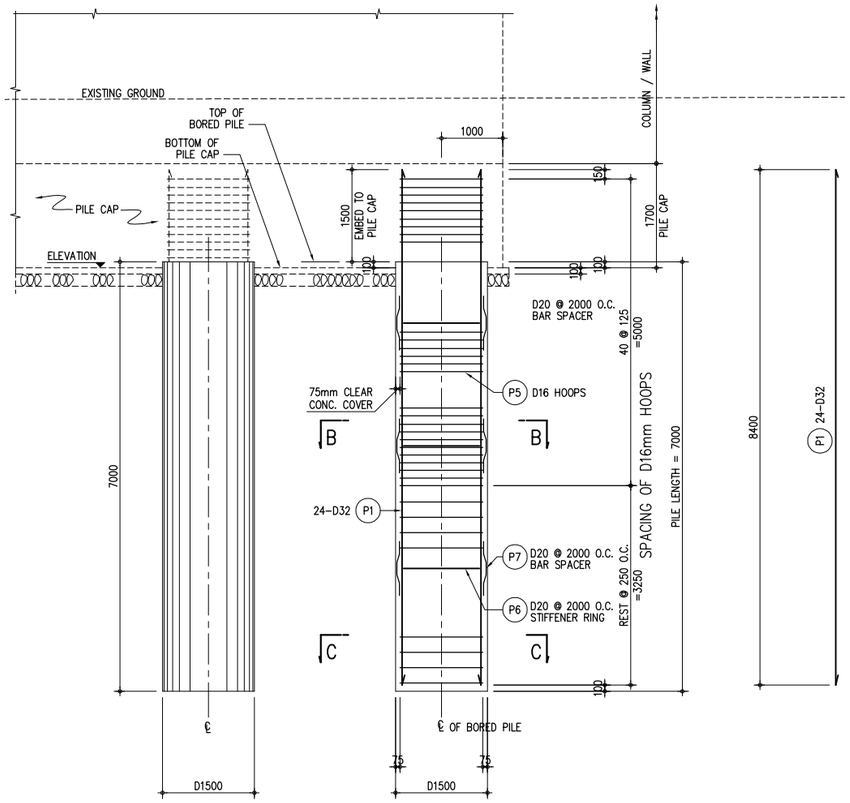
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

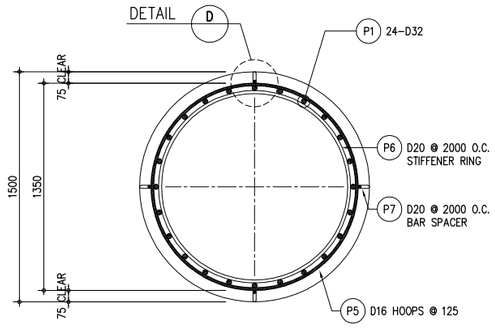
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE
REINFORCEMENT BAR ARRANGEMENT OF APPROACH SLAB

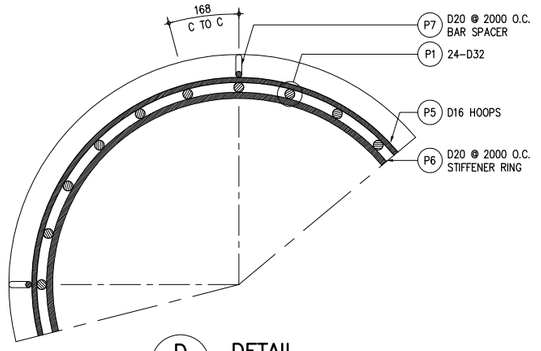
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-74



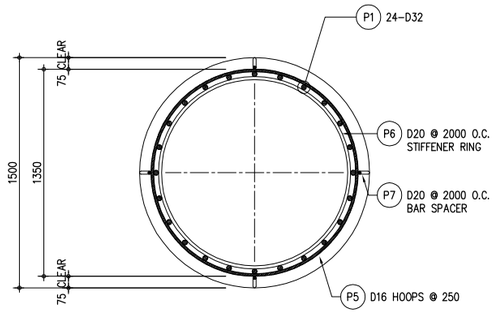
A TRANSVERSE ELEVATION
SCALE 1:50



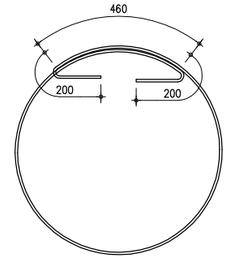
B SECTION
SCALE 1:20



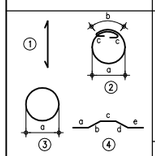
D DETAIL
SCALE 1:10



C SECTION
SCALE 1:20



E HOOPS SPLICE DETAIL
SCALE NONE

REINFORCING BARS																CONCRETE
BAR BENDING	LOCATION	BAR MARK	BAR SHAPE	SPACING (mm)	QTY	SIZE	DIMENSION (mm) a	b	c	d	e	LENGTH PER BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	VOLUME (m^3)
	BORED PILE	P1	1	168	24	D32	8400	–	–	–	–	8.4	201.6	6.313	1272.70	12.37
		P2	1		0	D32	–	–	–	–	–	0	0	6.313	0.0	
		P3	1		0	D32	–	–	–	–	–	0	0	6.313	0.0	
		P4	1		0	D32	–	–	–	–	–	0	0	6.313	0.0	
		P5	2	125/250	49	D16	1350	460	200	–	–	5.10	249.9	1.579	394.6	
		P6	3	2000	3	D20	1254	800	–	–	–	4.74	14.22	2.466	35.07	
		P7	4	2000	28	D20	200	140	200	140	200	0.88	10.56	2.466	26.04	
															1728.41	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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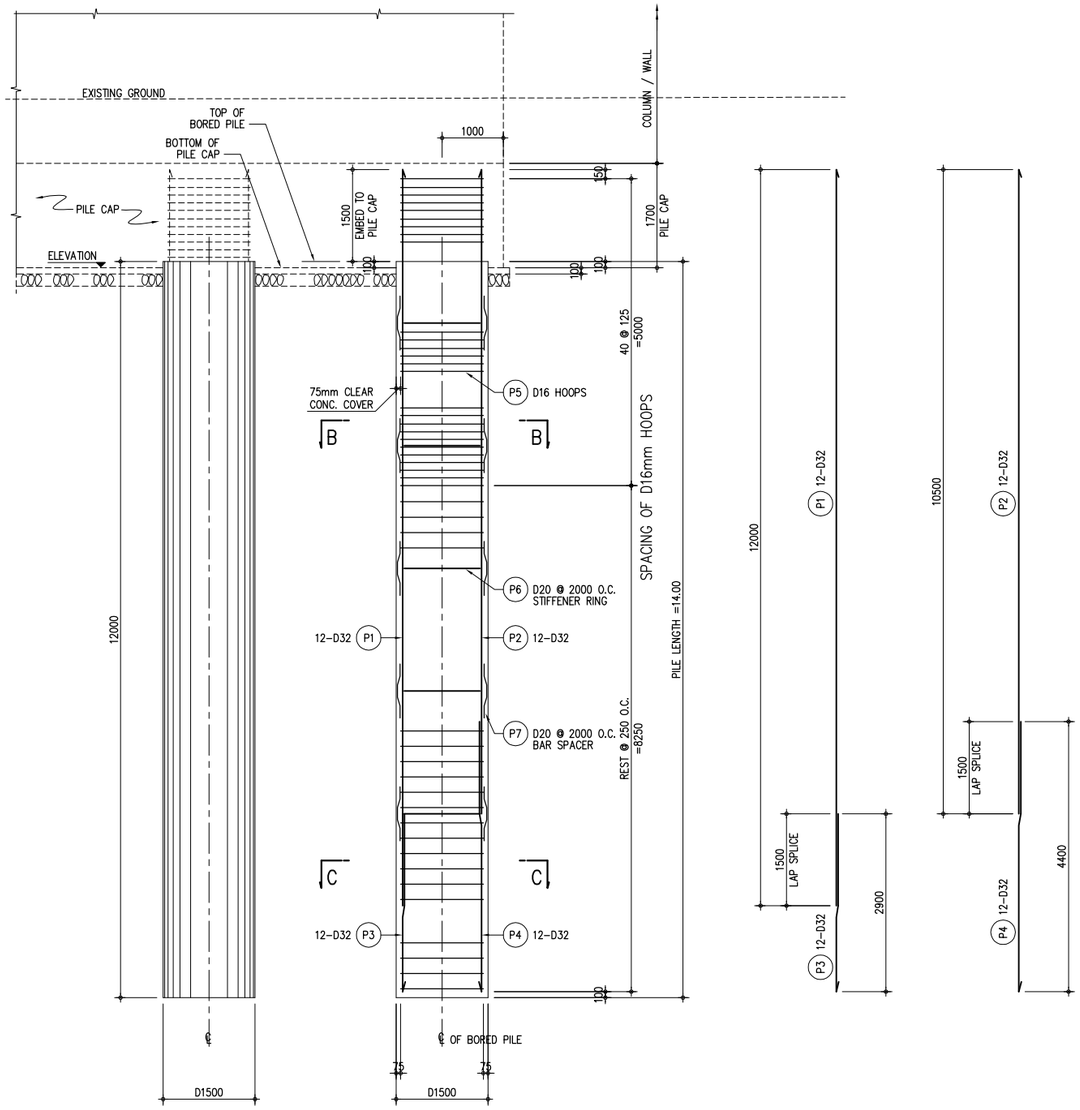
ORICONSUL
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

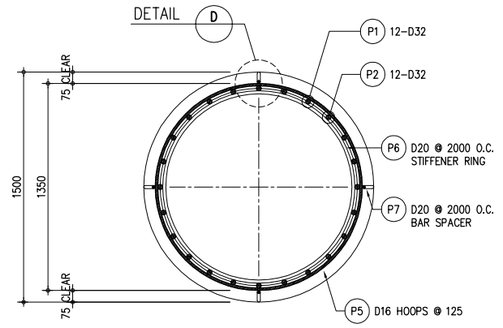
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE
D1500mm BORED PILE REBAR DETAILS (L=7.00m)

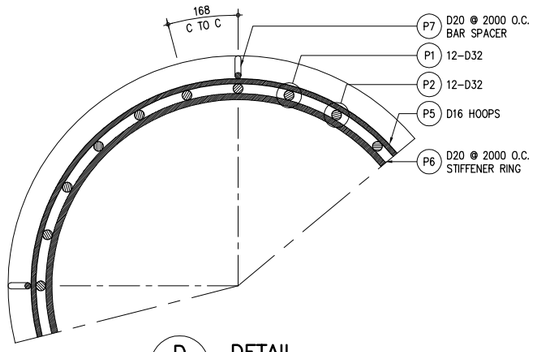
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-75



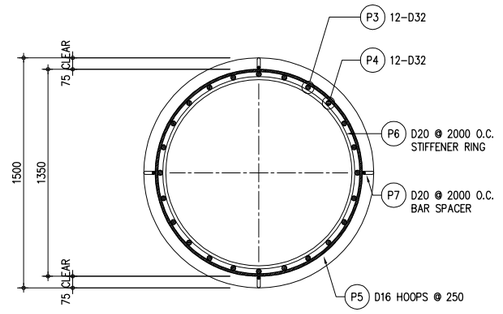
A TRANSVERSE ELEVATION
SCALE 1:50



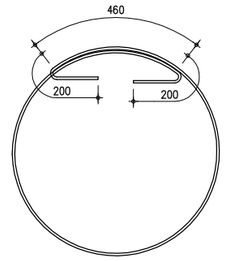
B SECTION
SCALE 1:20



D DETAIL
SCALE 1:10



C SECTION
SCALE 1:20



E HOOPS SPLICE DETAIL
SCALE NONE

REINFORCING BARS																CONCRETE
BAR BENDING	LOCATION	BAR MARK	BAR SHAPE	SPACING (mm)	QTY	SIZE	DIMENSION (mm) a	b	c	d	e	LENGTH PER BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	VOLUME (m^3)
① ② ③ ④	BORED PILE	P1	1	168	12	D32	12000	–	–	–	–	12.00	144.00	6.313	909.07	21.21
		P2	1	168	12	D32	10500	–	–	–	–	10.50	126.00	6.313	795.44	
		P3	1	168	12	D32	2900	–	–	–	–	2.90	34.80	6.313	219.69	
		P4	1	168	12	D32	4400	–	–	–	–	4.40	52.80	6.313	333.33	
		P5	2	125/250	82	D16	1350	460	200	–	–	5.10	418.20	1.579	660.34	
		P6	3	2000	6	D20	1254	800	–	–	–	4.74	28.49	2.466	70.13	
		P7	4	2000	24	D20	200	140	200	140	200	0.88	21.12	2.466	52.08	
															3,040.08	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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JAPAN INTERNATIONAL COOPERATION AGENCY
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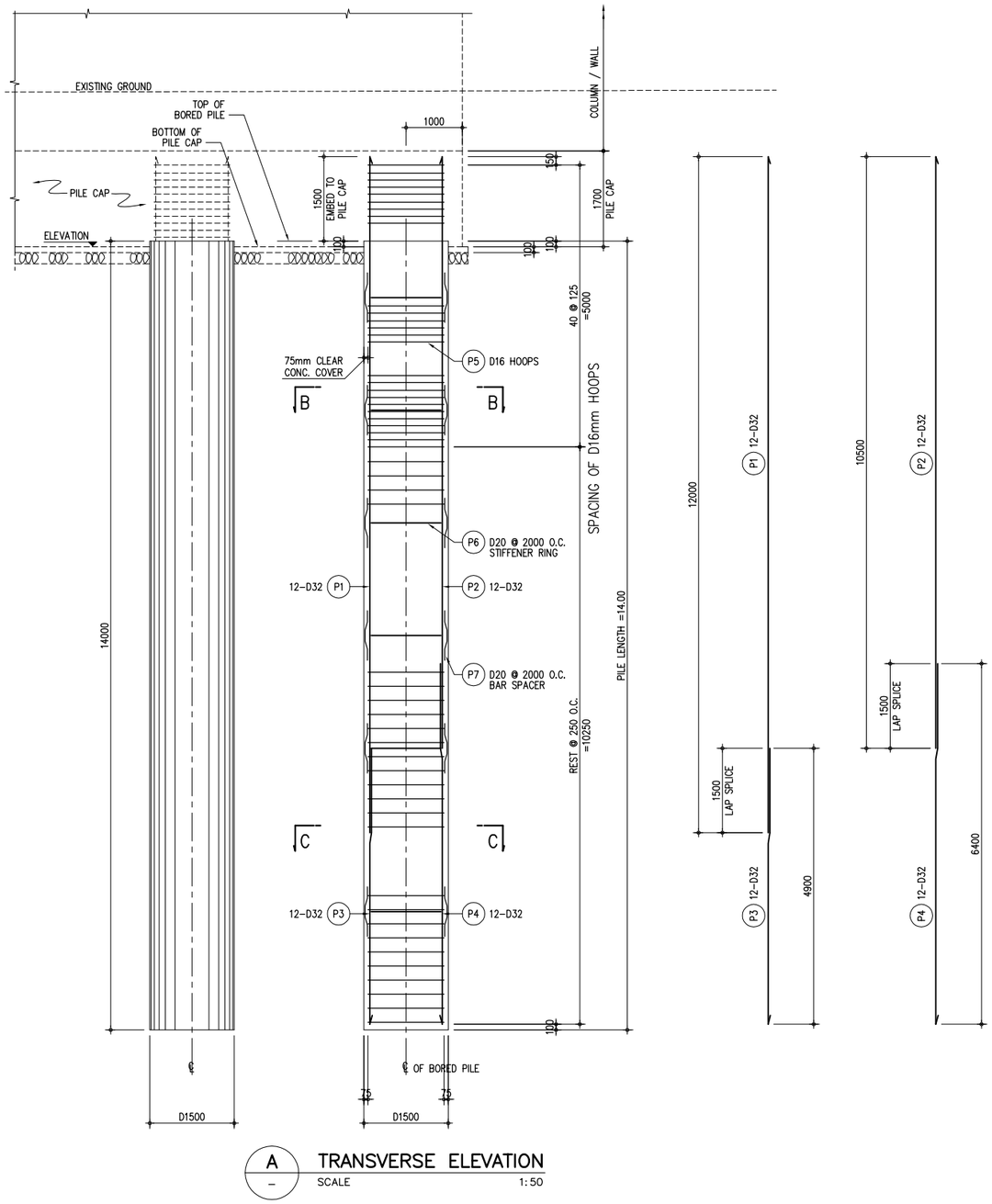
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

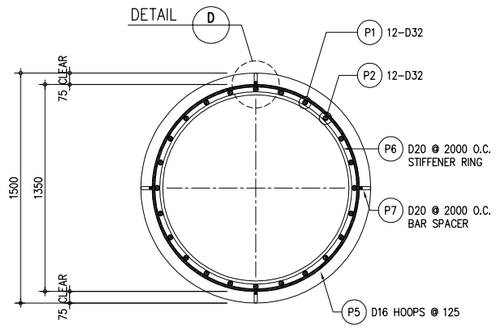
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE
D1500mm BORED PILE REBAR DETAILS (L=12.00m)

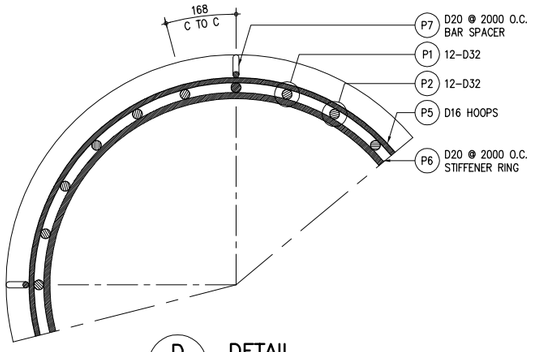
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-76



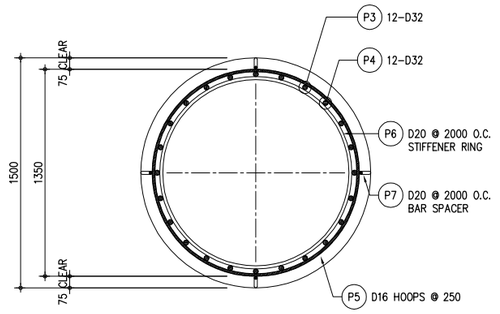
A TRANSVERSE ELEVATION
– SCALE 1:50



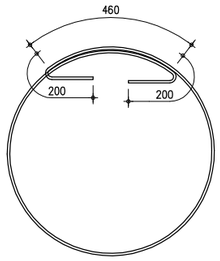
B SECTION
– SCALE 1:20



D DETAIL
– SCALE 1:10



C SECTION
– SCALE 1:20



E HOOPS SPLICE DETAIL
– SCALE NONE

REINFORCING BARS

BAR BENDING	LOCATION	BAR MARK	BAR SHAPE	SPACING (mm)	QTY	SIZE	DIMENSION (mm) a	b	c	d	e	LENGTH PER BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
① ② ③ ④	BORED PILE	P1	1	168	12	D32	12000	–	–	–	–	12.00	144.00	6.313	909.07	24.74
		P2	1	168	12	D32	10500	–	–	–	–	10.50	126.00	6.313	795.44	
		P3	1	168	12	D32	4900	–	–	–	–	4.90	58.80	6.313	371.20	
		P4	1	168	12	D32	6400	–	–	–	–	6.40	76.80	6.313	484.84	
		P5	2	125/250	82	D16	1350	460	200	–	–	5.10	418.20	1.579	660.34	
		P6	3	2000	7	D20	1254	800	–	–	–	4.74	33.18	2.466	81.82	
		P7	4	2000	28	D20	200	140	200	140	200	0.88	24.64	2.466	60.76	
															3,363.47	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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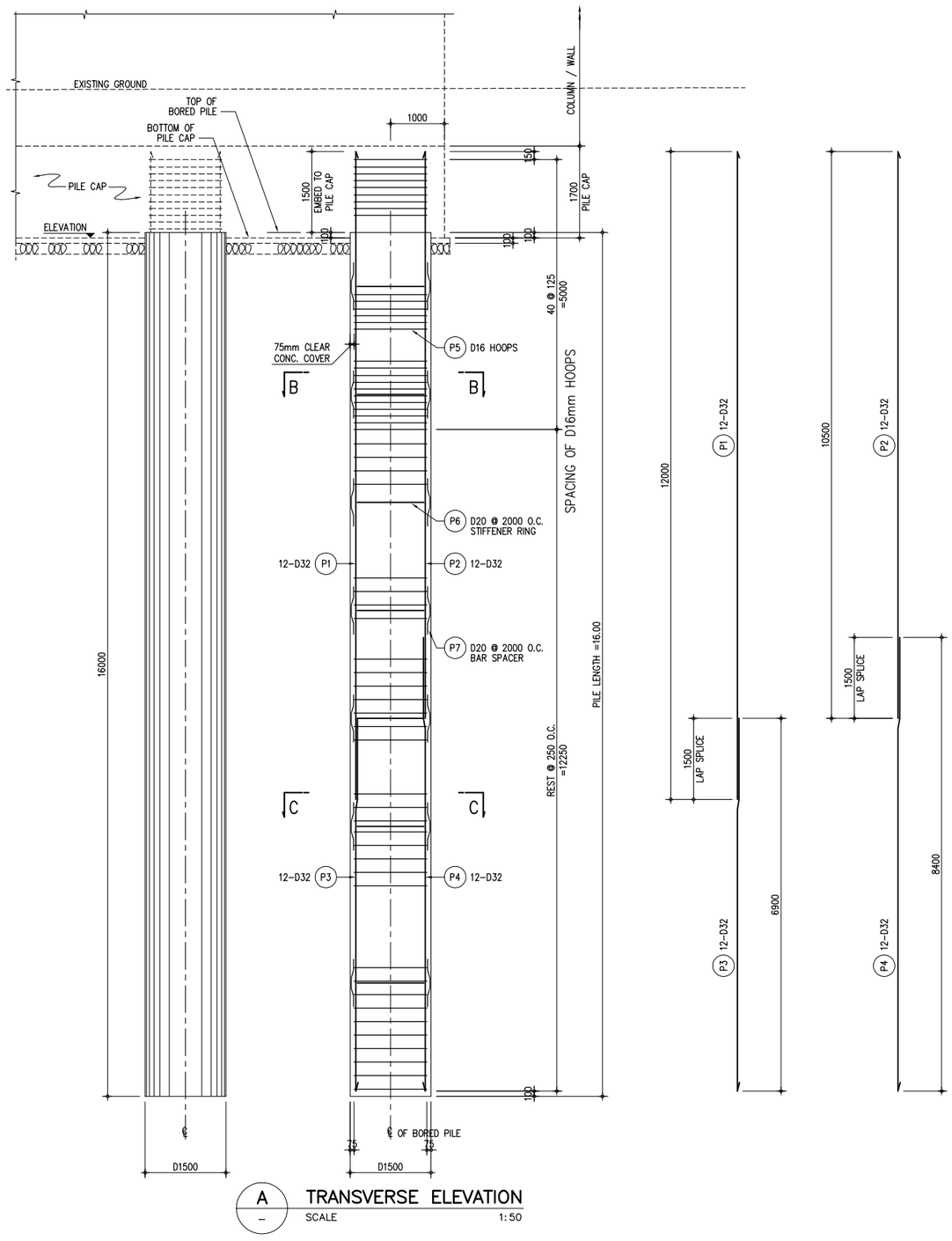
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

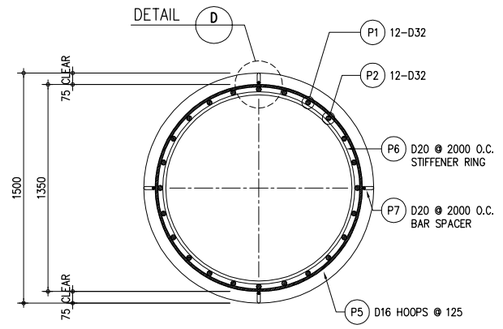
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE
D1500mm BORED PILE REBAR DETAILS (L=14.00m)

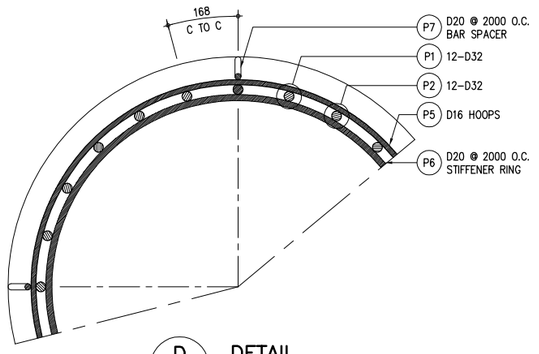
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-77



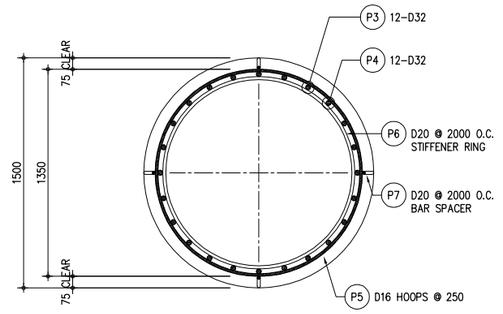
A — TRANSVERSE ELEVATION
SCALE 1:50



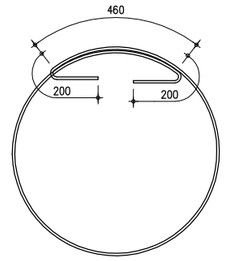
B — SECTION
SCALE 1:20



D — DETAIL
SCALE 1:10

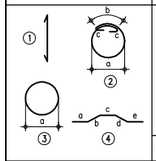


C — SECTION
SCALE 1:20



E — HOOPS SPLICE DETAIL
SCALE NONE

REINFORCING BARS

BAR BENDING	LOCATION	BAR MARK	BAR SHAPE	SPACING (mm)	QTY	SIZE	DIMENSION (mm) a	b	c	d	e	LENGTH PER BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
	BORED PILE	P1	1	168	12	D32	12000	–	–	–	–	12.00	144.00	6.313	909.07	28.27
		P2	1	168	12	D32	10500	–	–	–	–	10.50	126.00	6.313	795.44	
		P3	1	168	12	D32	8000	–	–	–	–	6.90	82.80	6.313	522.72	
		P4	1	168	12	D32	9500	–	–	–	–	8.40	100.80	6.313	636.35	
		P5	2	125/250	90	D16	1350	460	200	–	–	5.10	459.00	1.579	724.76	
		P6	3	2000	8	D20	1254	800	–	–	–	4.74	37.92	2.466	93.51	
		P7	4	2000	32	D20	200	140	200	140	200	0.88	28.16	2.466	69.44	
															3,751.29	

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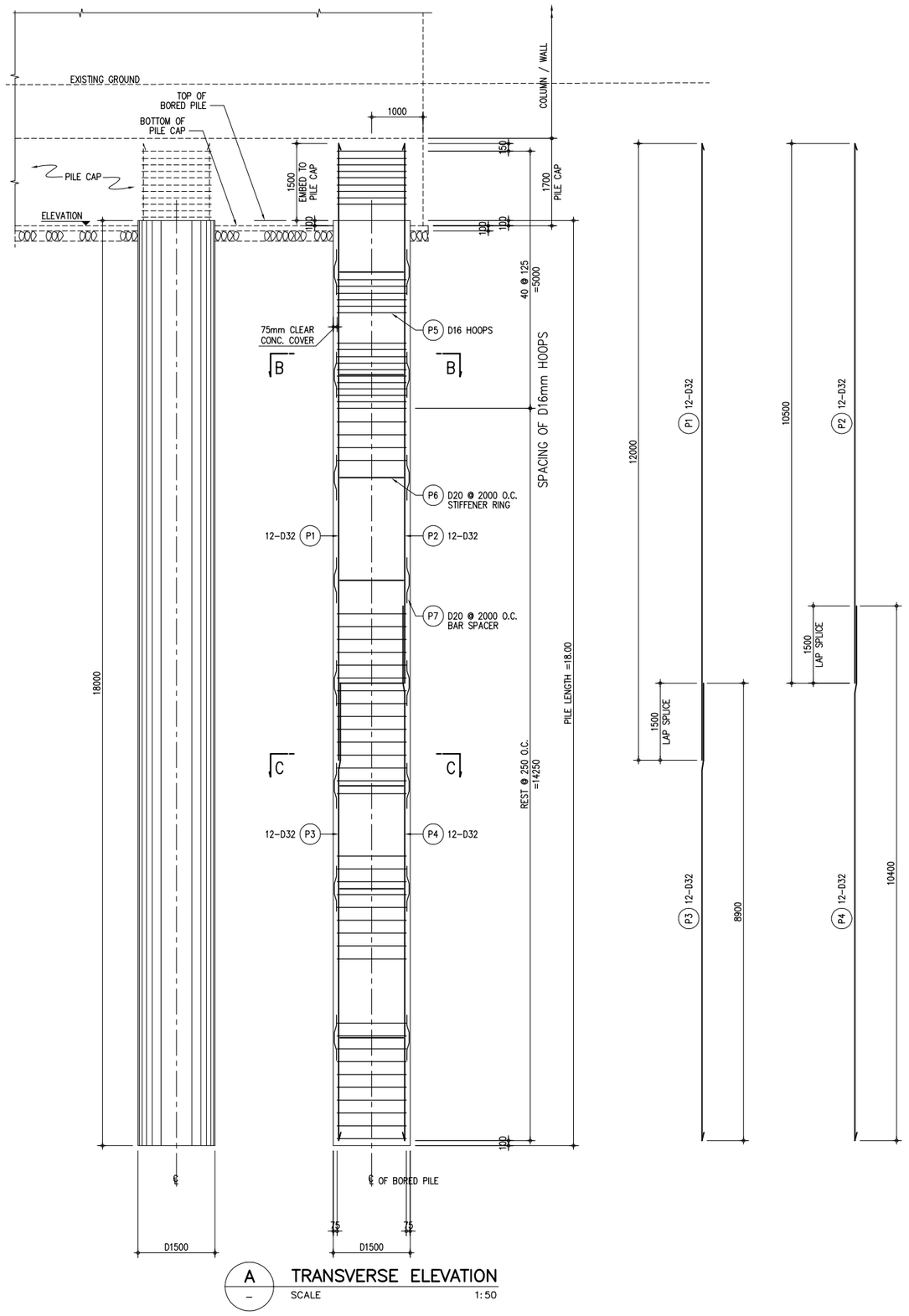
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

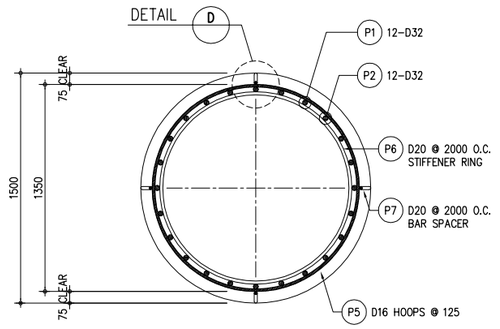
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
D1500mm BORED PILE REBAR DETAILS (L=16.00m)

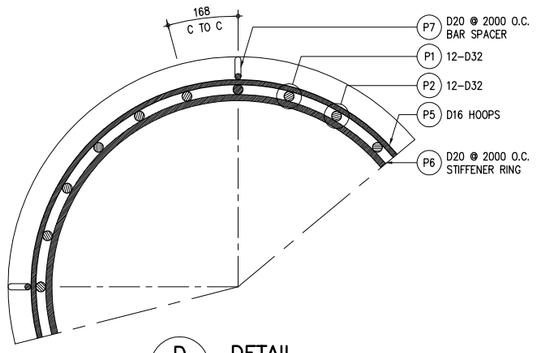
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-78



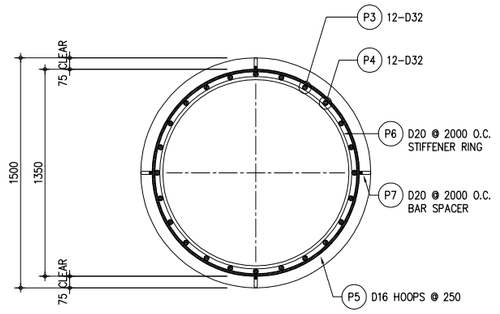
A TRANSVERSE ELEVATION
SCALE 1:50



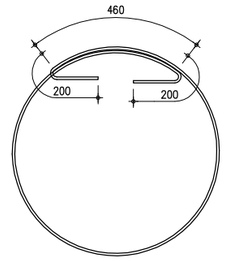
B SECTION
SCALE 1:20



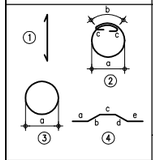
D DETAIL
SCALE 1:10



C SECTION
SCALE 1:20



E HOOPS SPLICE DETAIL
SCALE NONE

REINFORCING BARS															CONCRETE
BAR BENDING	LOCATION	BAR MARK	BAR SHAPE	SPACING (mm)	QTY	SIZE	DIMENSION (mm) a	b	c	d	e	LENGTH PER BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	VOLUME (m^3)
	BORED PILE	P1	1	168	12	D32	12000	–	–	–	–	12.00	144.00	6.313	909.07	31.81
		P2	1	168	12	D32	10500	–	–	–	–	10.50	126.00	6.313	795.44	
		P3	1	168	12	D32	8900	–	–	–	–	8.90	106.80	6.313	674.23	
		P4	1	168	12	D32	10400	–	–	–	–	10.40	124.80	6.313	787.86	
		P5	2	125/250	98	D16	1350	460	200	–	–	5.10	499.80	1.579	789.18	
		P6	3	2000	9	D20	1254	800	–	–	–	4.40	42.66	2.466	105.20	
		P7	4	2000	36	D20	200	140	200	140	200	0.88	31.68	2.466	78.12	
															4,139.10	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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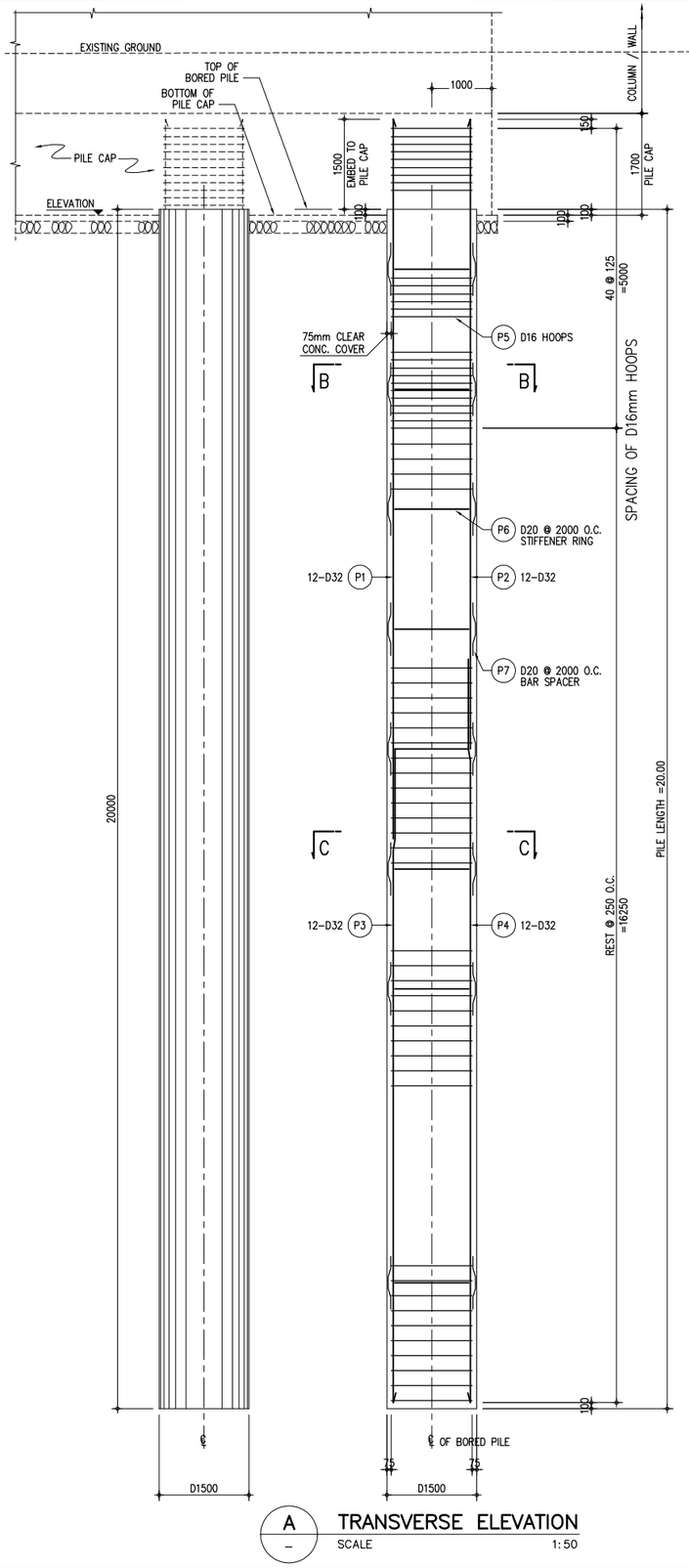
JICA JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

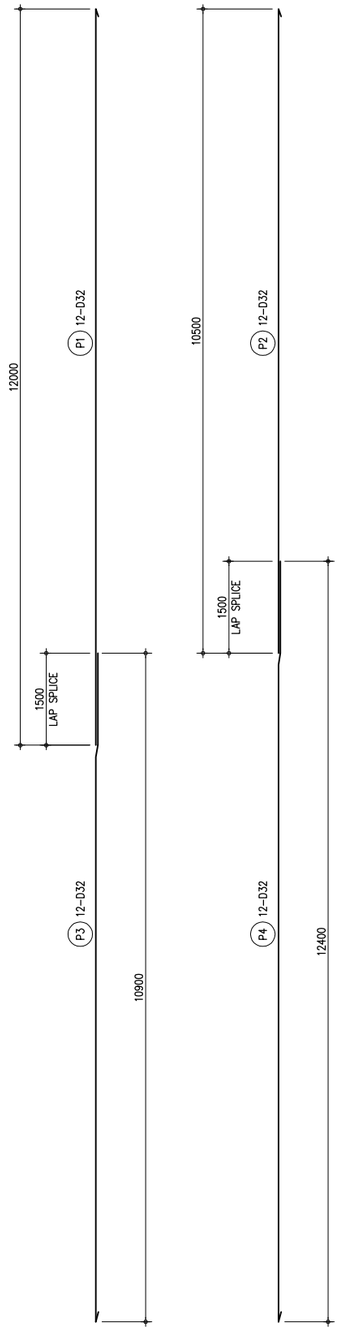
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

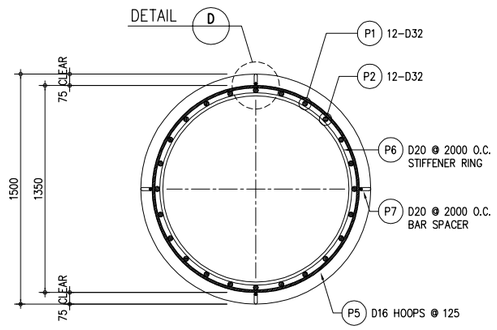
HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
D1500mm BORED PILE REBAR DETAILS (L=18.00m)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-79

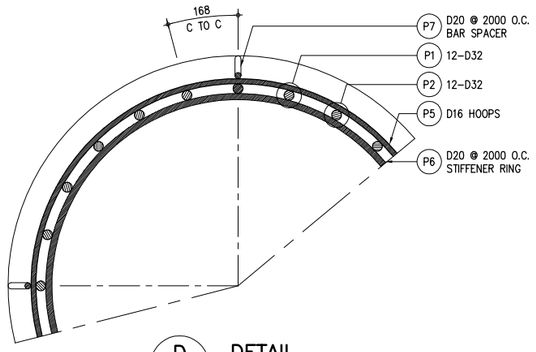


A TRANSVERSE ELEVATION
SCALE 1:50

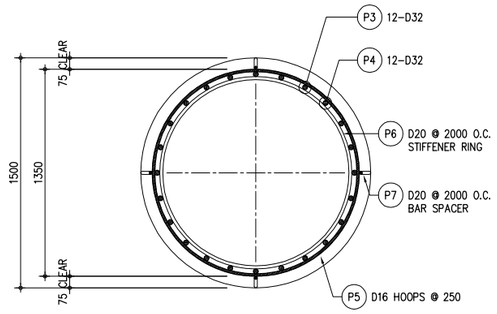




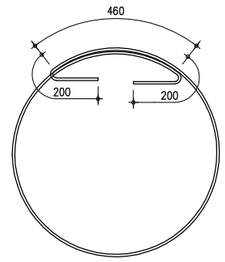
B SECTION
SCALE 1:20



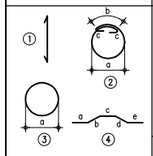
D DETAIL
SCALE 1:10



C SECTION
SCALE 1:20



E HOOPS SPLICE DETAIL
SCALE NONE

REINFORCING BARS																CONCRETE
BAR BENDING	LOCATION	BAR MARK	BAR SHAPE	SPACING (mm)	QTY	SIZE	DIMENSION (mm) a	b	c	d	e	LENGTH PER BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	VOLUME (m^3)
	BORED PILE	P1	1	168	12	D32	12000	–	–	–	–	12.00	144.00	6.313	909.07	35.34
		P2	1	168	12	D32	10900	–	–	–	–	10.90	130.80	6.313	825.74	
		P3	1	168	12	D32	10900	–	–	–	–	10.90	130.80	6.313	825.74	
		P4	1	168	12	D32	12000	–	–	–	–	12.00	144.00	6.313	909.07	
		P5	2	125/250	106	D16	1350	460	200	–	–	5.10	540.60	1.579	853.61	
		P6	3	2000	10	D20	1254	800	–	–	–	4.74	47.40	2.466	116.89	
		P7	4	2000	40	D20	200	140	200	140	200	0.88	35.20	2.466	86.80	
															4,526.92	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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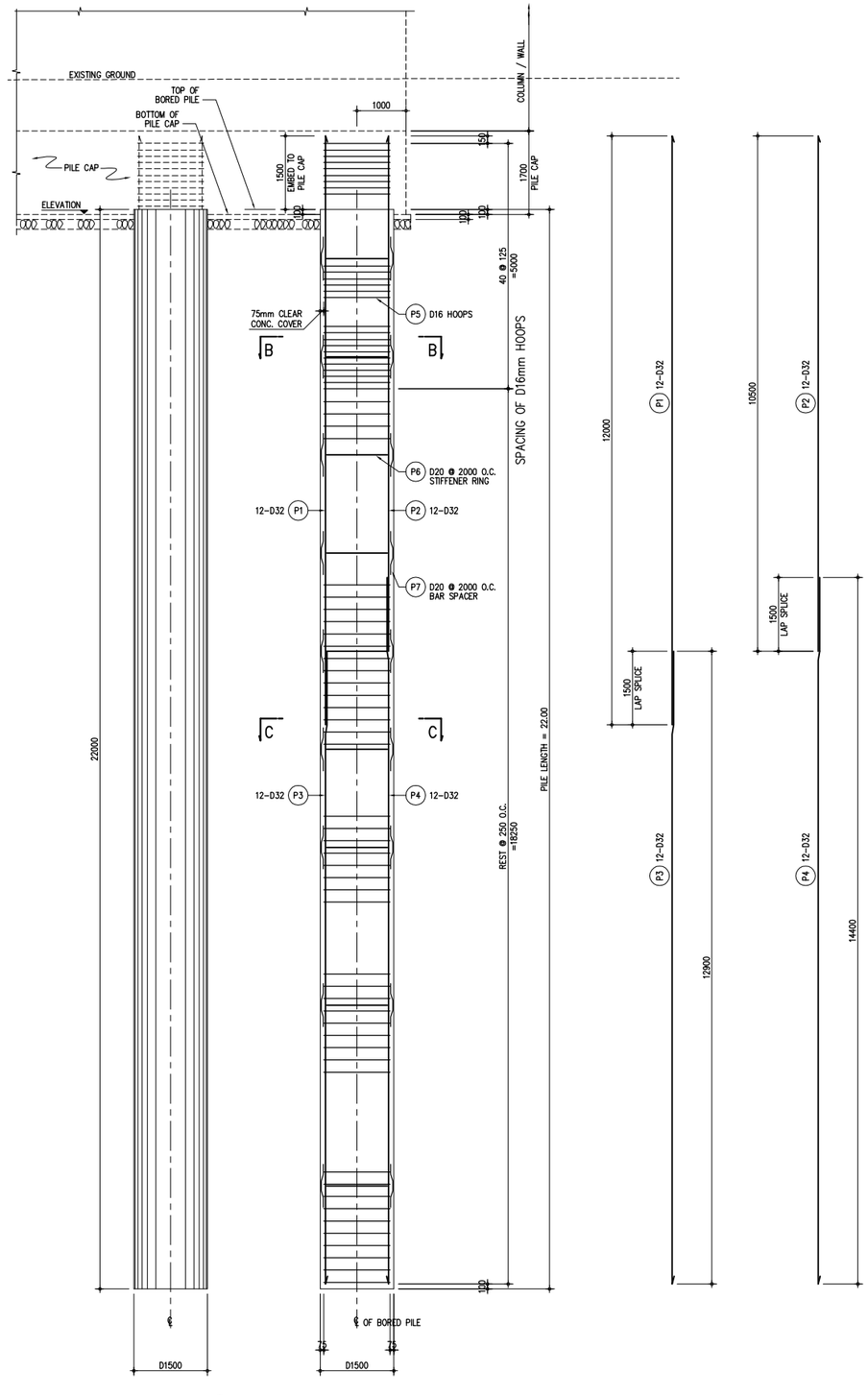
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

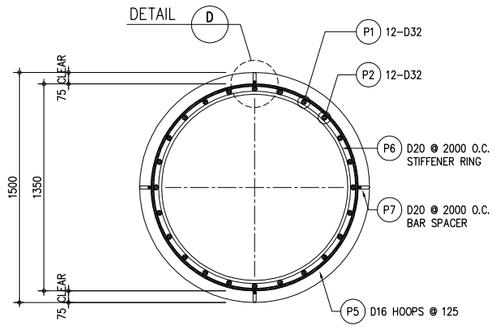
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
D1500mm BORED PILE REBAR DETAILS (L=20.00m)

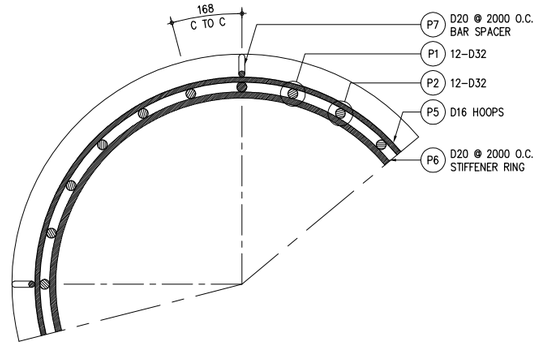
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-80



A TRANSVERSE ELEVATION
SCALE 1:60



B SECTION
SCALE 1:20



D DETAIL
SCALE 1:10

C SECTION
SCALE 1:20

E HOOPS SPLICE DETAIL
SCALE NONE

REINFORCING BARS

BAR BENDING	LOCATION	BAR MARK	BAR SHAPE	SPACING (mm)	QTY	SIZE	DIMENSION (mm) a	b	c	d	e	LENGTH PER BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	CONCRETE VOLUME (m^3)
① ② ③ ④	BORED PILE	P1	1	168	12	D32	7200	–	–	–	–	7.20	86.40	6.313	545.44	38.87
		P2	1	168	12	D32	7950	–	–	–	–	7.95	95.40	6.313	602.26	
		P3	1	168	12	D32	12000	–	–	–	–	12.00	144.00	6.313	909.07	
		P4	1	168	12	D32	10500	–	–	–	–	10.50	126.00	6.313	795.44	
		P5	2	125/250	114	D16	1350	460	200	–	–	5.10	581.40	1.579	918.03	
		P6	3	2000	11	D20	1254	800	–	–	–	4.40	52.14	2.466	128.58	
		P7	4	2000	44	D20	200	140	200	140	200	0.88	38.72	2.466	95.48	
															3,994.30	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
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Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
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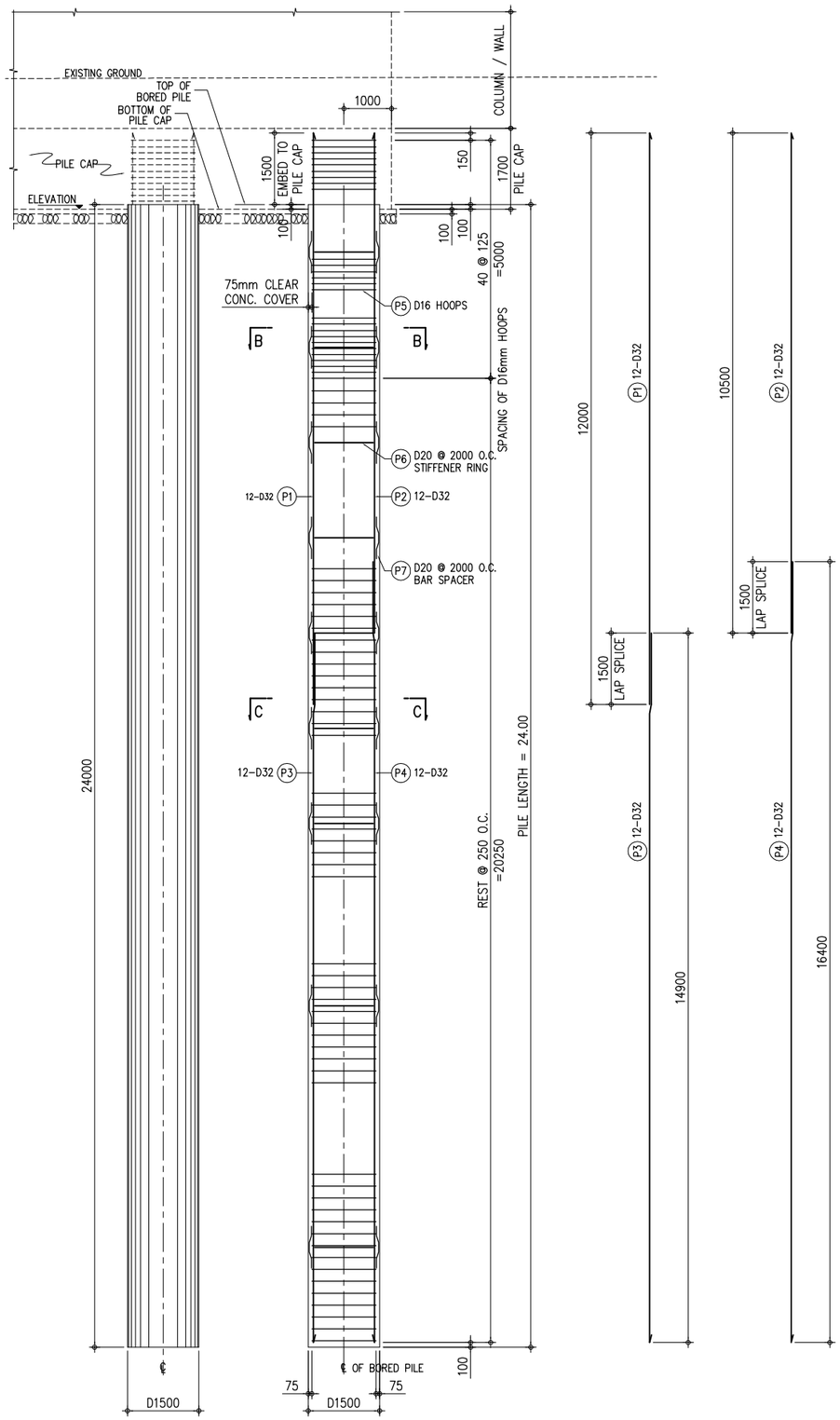
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

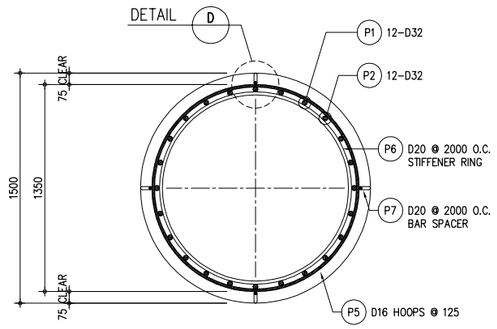
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
D1500mm BORED PILE REBAR DETAILS (L=22.00m)

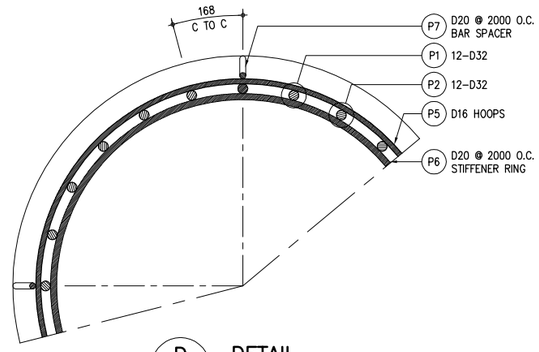
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-81



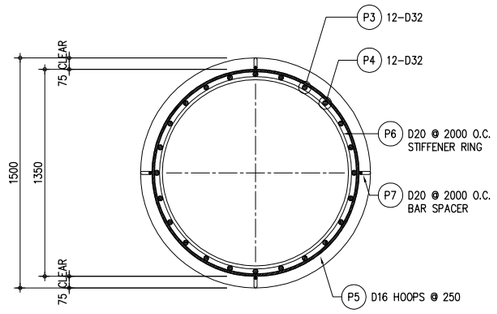
A TRANSVERSE ELEVATION
SCALE 1:60



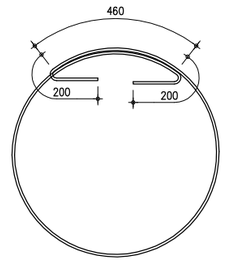
B SECTION
SCALE 1:20



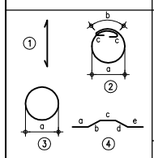
D DETAIL
SCALE 1:10



C SECTION
SCALE 1:20



E HOOPS SPLICE DETAIL
SCALE NONE

REINFORCING BARS																CONCRETE
BAR BENDING	LOCATION	BAR MARK	BAR SHAPE	SPACING (mm)	QTY	SIZE	DIMENSION (mm) a	b	c	d	e	LENGTH PER BAR (m)	TOTAL LENGTH (m)	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	VOLUME (m^3)
	BORED PILE	P1	1	168	12	D32	8200	–	–	–	–	8.20	98.40	6.313	621.20	42.41
		P2	1	168	12	D32	8950	–	–	–	–	8.95	107.40	6.313	678.02	
		P3	1	168	12	D32	12000	–	–	–	–	12.00	144.00	6.313	909.07	
		P4	1	168	12	D32	10500	–	–	–	–	10.50	126.00	6.313	795.44	
		P5	2	125/250	122	D16	1350	460	200	–	–	5.10	622.20	1.579	982.45	
		P6	3	2000	12	D20	1254	800	–	–	–	4.40	56.88	2.466	140.27	
		P7	4	2000	48	D20	200	140	200	140	200	0.88	42.24	2.466	104.16	
															4,230.61	

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

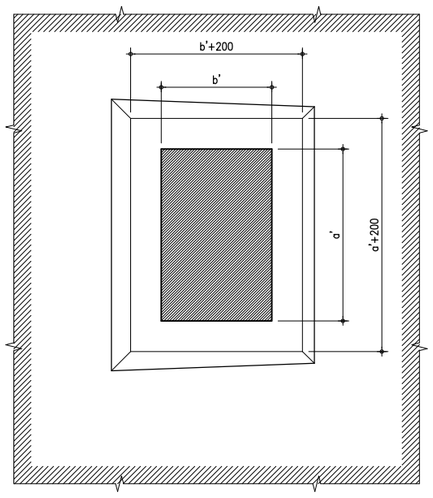
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO.9 (H9) - KELANI RIVER CROSSING BRIDGE
D1500mm BORED PILE REBAR DETAILS (L=24.00m)

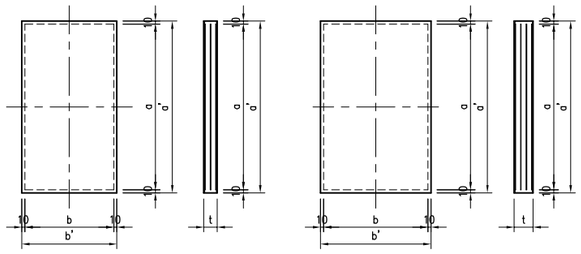
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-82

DIMENSIONS OF BEARING PAD

TYPE	Dimensions a' x b' x t (mm)	Chloroprene Layers		Reinforcement Plate				Surface Layer
		Thickness of Layer	Number of Layers	Transversal Width	Longitudinal Width	Thickness & Number		Thickness & Number
		te (mm)	ne	a (mm)	b (mm)	t1x n (mm)	t2 x n (mm)	ts x n (mm)
Fix	560 x 310 x 44	16	2	540	290	2 x 3	-	3 x 2
Move	560 x 360 x 68	16	3	540	340	2 x 4	-	3 x 2

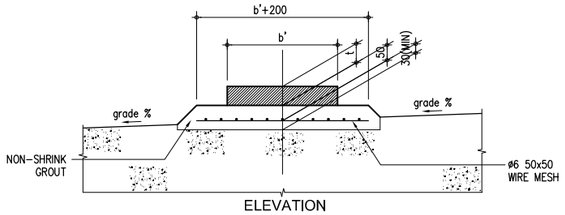


PLAN



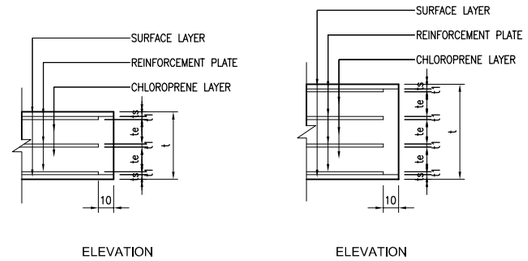
ELASTOMERIC MATERIAL (POLY-CHLOROPRENE)

ITEM		UNIT	REQUIRED VALUE	TEST METHOD
Static Shearing Elasticity Modulus		kgf/cm2	10 ± 1	JIS K6254
Hardness		-	A60 ± 5	JIS K6253
Elongation		%	440 or more	JIS K6251
Tensile Strength		Kg/cm2	150 or more	JIS K6251
Fatigue Test	Strength Changing Ration for 25 % Elongation	%	between -10 and +100	JIS K6257 (100°C x 70 hrs)
	Elongation Ratio	%	-50 or more	
Ratio of Compressive Permanent Strain		%	35 or less	JIS K6262 (100°C x 22hrs)
Ozone Deterioration		-	No crack to be observed by naked eye	JIS K6259
Moisture Absorption (Mass Change Ratio Due to Water)		%	10 or less	JIS K6258
Low Temperature Resistance		Degree	-30°C or less	JIS K6260
Resistance to Stripping		kgf/cm	7 or more	JIS K6256



ELEVATION

1 / - BEARING PAD SCALE 1:10



ELEVATION ELEVATION

A / - 2 LAYERS TYPE SCALE NTS

B / - 3 LAYERS TYPE SCALE NTS

REINFORCEMENT PLATE (STEEL PLATE)

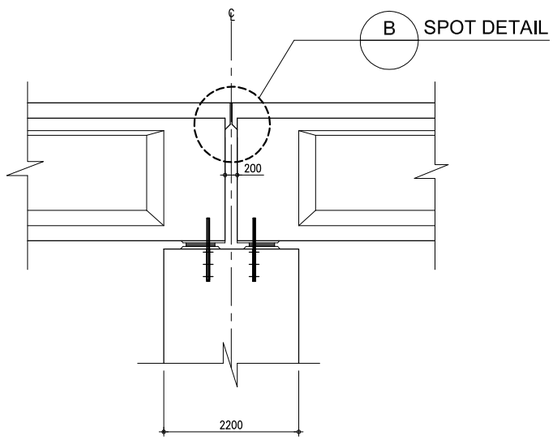
ITEM	UNIT	REQUIRED VALUE	TEST METHOD
Ultimate Strength	N/mm2	400 or more	JIS G3101
Elongation	%	21 or more	
Yield Strength	N/mm2	245 or more	

Note: All Elastomeric Bearing Pads shall be designed in accordance with Japan Road Association Standard or other equivalent Standard

LOCATIONS OF ELASTOMERIC BEARING PADS

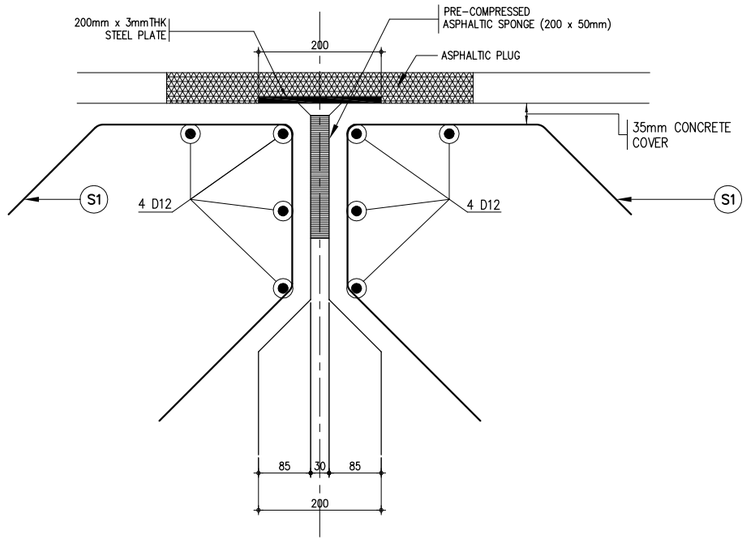
BRIDGE NO.			HB 09 (KELANI)										Total Number
BRIDGE TYPE			PC-I										
LOCATION			P0	P1	P2	P3	P4	P5	P6	P7	P8	P9	A2	
SUPPORT CONDITION			M	F	F	M	F	F	F	M	F	F	M	
ELASTOMERIC BEARING PAD	FIX	560 x 310 x 44		24	24		24	24	24		24	24		168
	MOVE	560 x 360 x 68	12			12				12			12	48

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JICA JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	No	REVISION	DATE	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)** HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE DETAILS OF ELASTOMERIC BEARING SHOE	DESIGNED BY: CHECKED BY: APPROVED BY: DWG. NO. K01-83

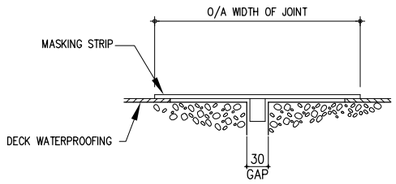


A ELEVATION
– SCALE 1:50

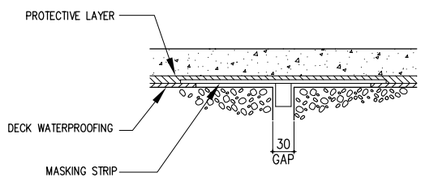
B SPOT DETAIL



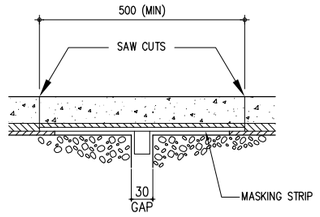
B DETAIL
– SCALE 1:5



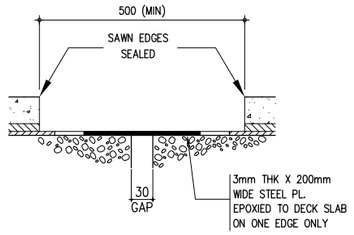
1. EXPANSION GAP COVERED WITH MASKING STRIP (HARDBOARD OR PLYWOOD) WITH WOOD FILLET ENGAGING IN EXPANSION GAP WITH SUFFICIENT CLEARANCE TO ALLOW FOR THERMAL MOVEMENTS.



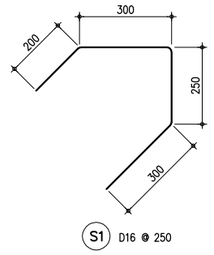
2. SURFACING LAID OVER JOINT.



3. SAW CUT EACH SIDE OF MASKING STRIP.

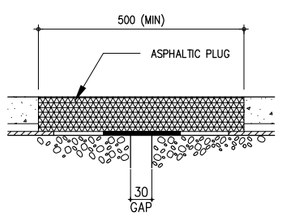


4. SURFACING AND MASKING STRIP REMOVED AND EXPOSED CONCRETE PREPARED AND CLEANED. SAWN EDGES PRIMED WITH WATERPROOF SEALER.



S1 D16 @ 250

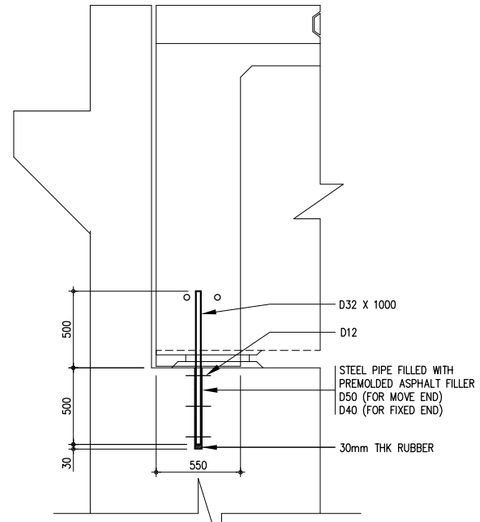
BAR BENDING DIAGRAM



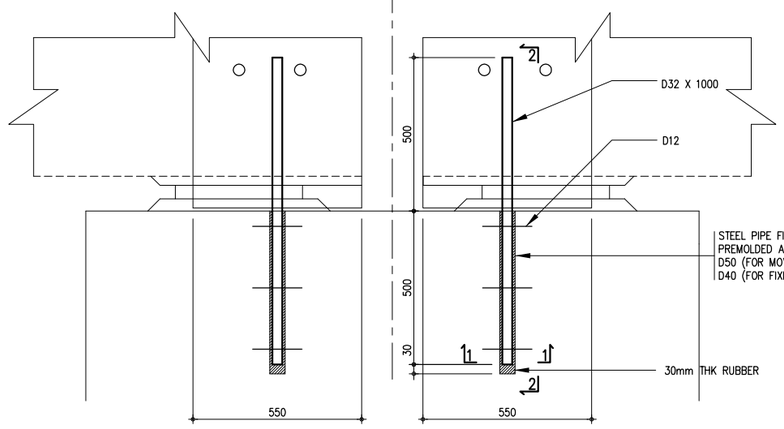
5. FOR A BONDED SYSTEM THE JOINT MATERIAL CAN NOW BE INSTALLED.

C TYPICAL INSTALLATION PROCEDURE
– SCALE N T S

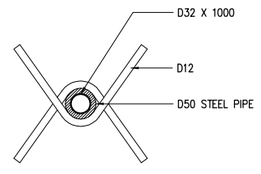
1 DETAIL OF EXPANSION JOINT
– SCALE AS SHOWN



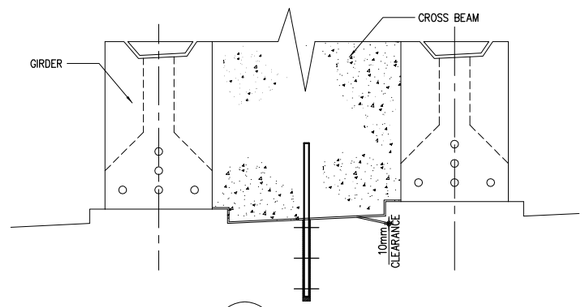
D MOVED END (ABUTMENT)
– SCALE 1:20



E FIXED END (PIER)
– SCALE 1:10



F SECTION 1-1
– SCALE 1:5



G SECTION 2-2
– SCALE 1:20

2 ANCHORAGE DETAIL TYPICAL (MOVED AND FIXED)
– SCALE AS SHOWN

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

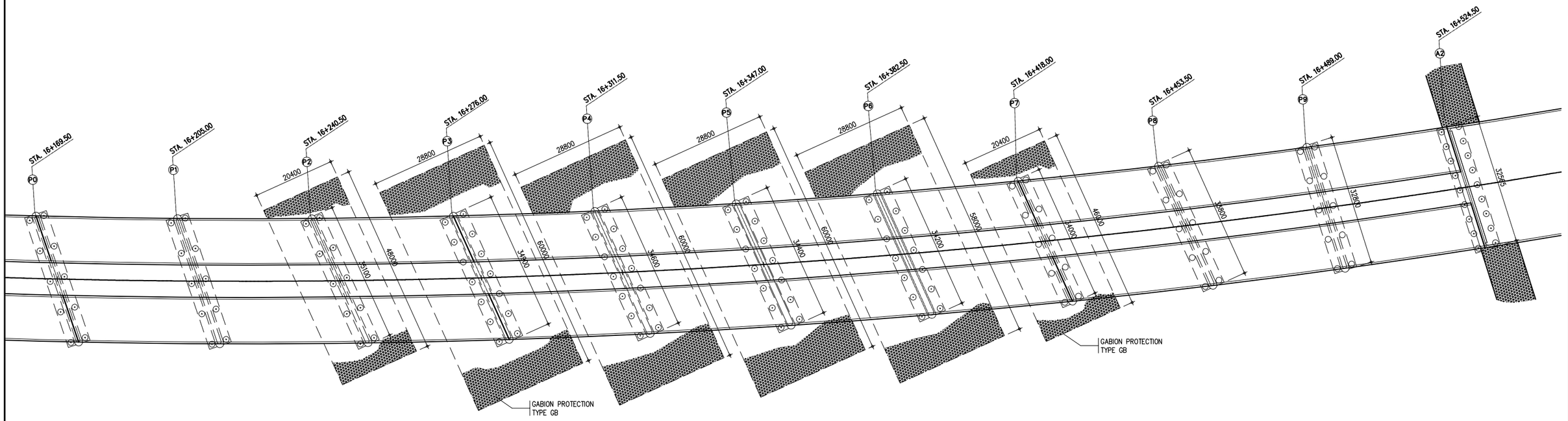
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIGE
DETAILS OF EXPANSION JOINT / ANCHORAGE DETAIL TYPICAL (MOVED AND END)

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-84

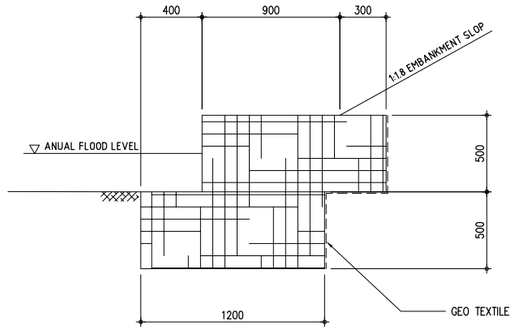


1 — PLAN (KELANI RIVER CROSSING BRIDGE)
SCALE 1:500

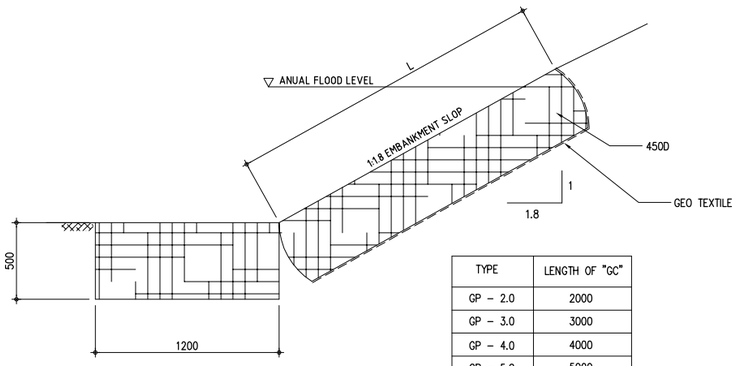
A — GABIONS BOX (TYPE "GB")
SCALE N T S

TYPE	Q
GCa	450
GCb	600

B — GABIONS CYLINDER (TYPE "GC–L")
SCALE N T S



TYPE "GPa"



TYPE "GPb–L"

TYPE	LENGTH OF "GC"
GP – 2.0	2000
GP – 3.0	3000
GP – 4.0	4000
GP – 5.0	5000
GP – 6.0	6000
GP – 7.0	7000

C — GABIONS PROTECTION
SCALE N T S

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

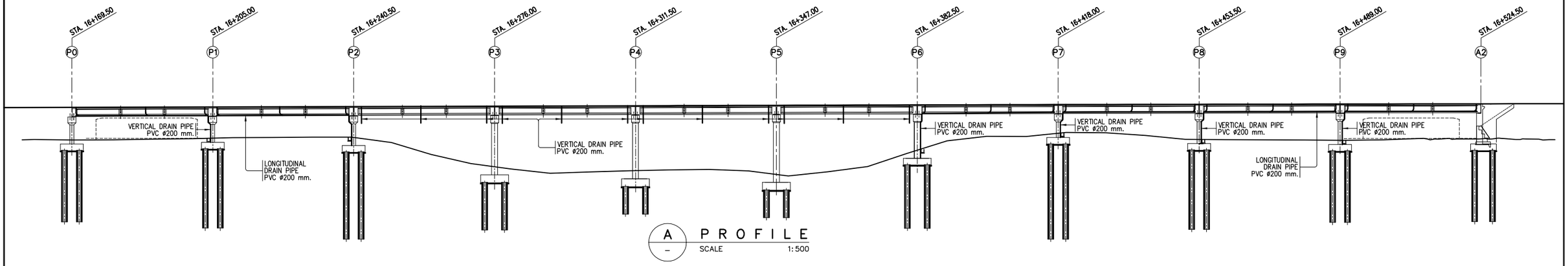
JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

No	REVISION	DATE

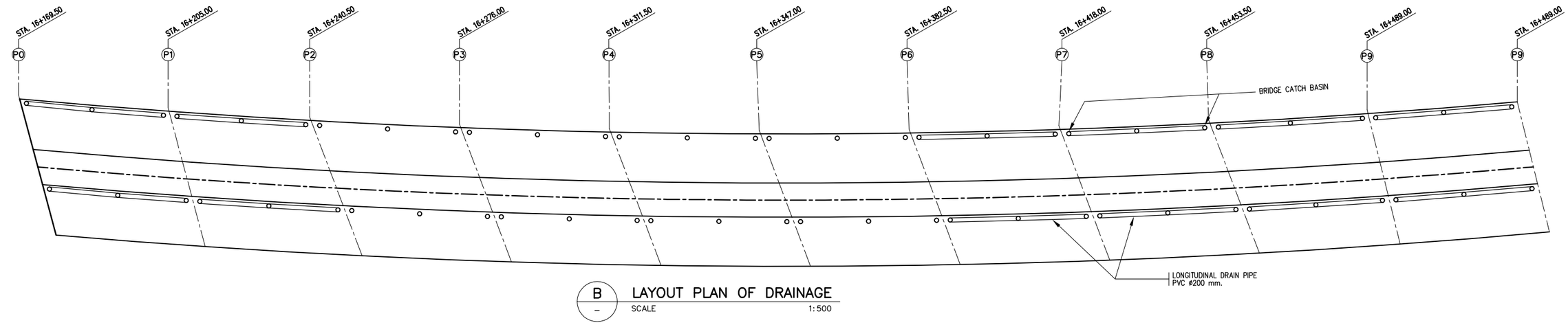
COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE
TYPE OF GABIONS

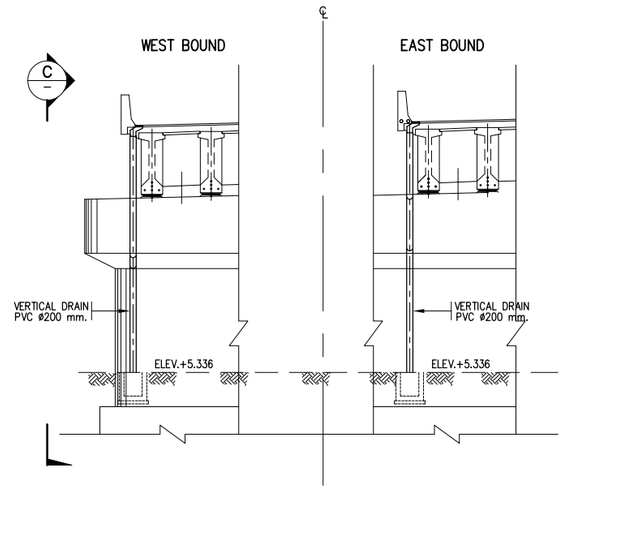
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-85



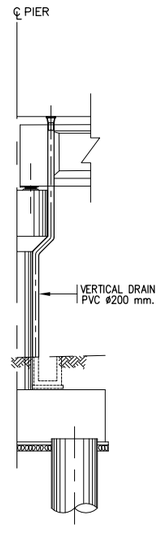
A — PROFILE
SCALE 1:500



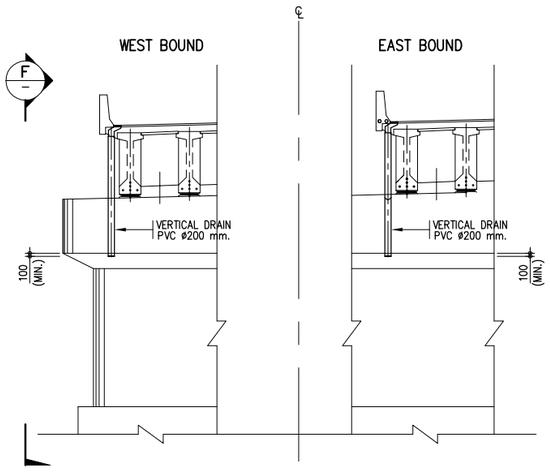
B — LAYOUT PLAN OF DRAINAGE
SCALE 1:500



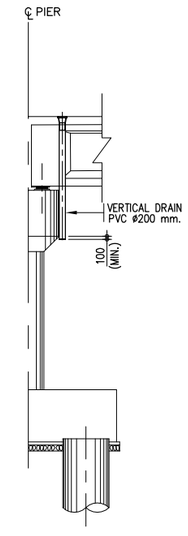
C — FRONT ELEVATION OF PIER P0, P1, P6, P7, P8, & P9
SCALE 1:100



D — SECTION C
SCALE 1:100



E — FRONT ELEVATION BETWEEN P2 AND P6
SCALE 1:100



F — SECTION F
SCALE 1:100

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT
Road Development Authority

JAPAN INTERNATIONAL COOPERATION AGENCY
ORIENTAL CONSULTANTS COMPANY LIMITED
in association with
PACIFIC CONSULTANTS INTERNATIONAL

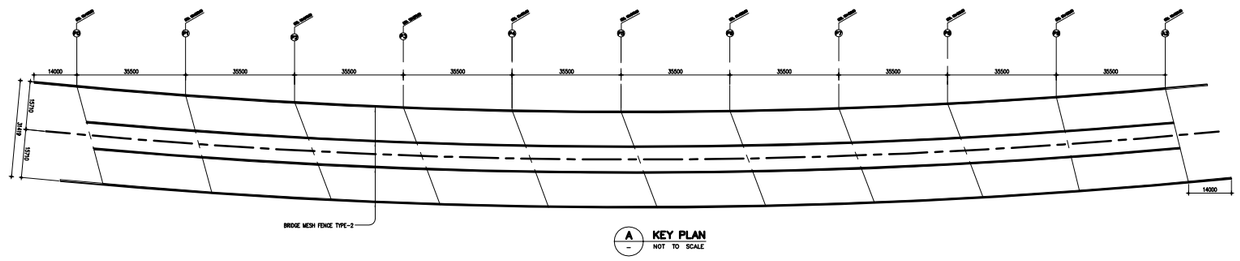
No	REVISION	DATE

COLOMBO OUTER CIRCULAR HIGHWAY PROJECT
(NORTHERN SECTION 1)

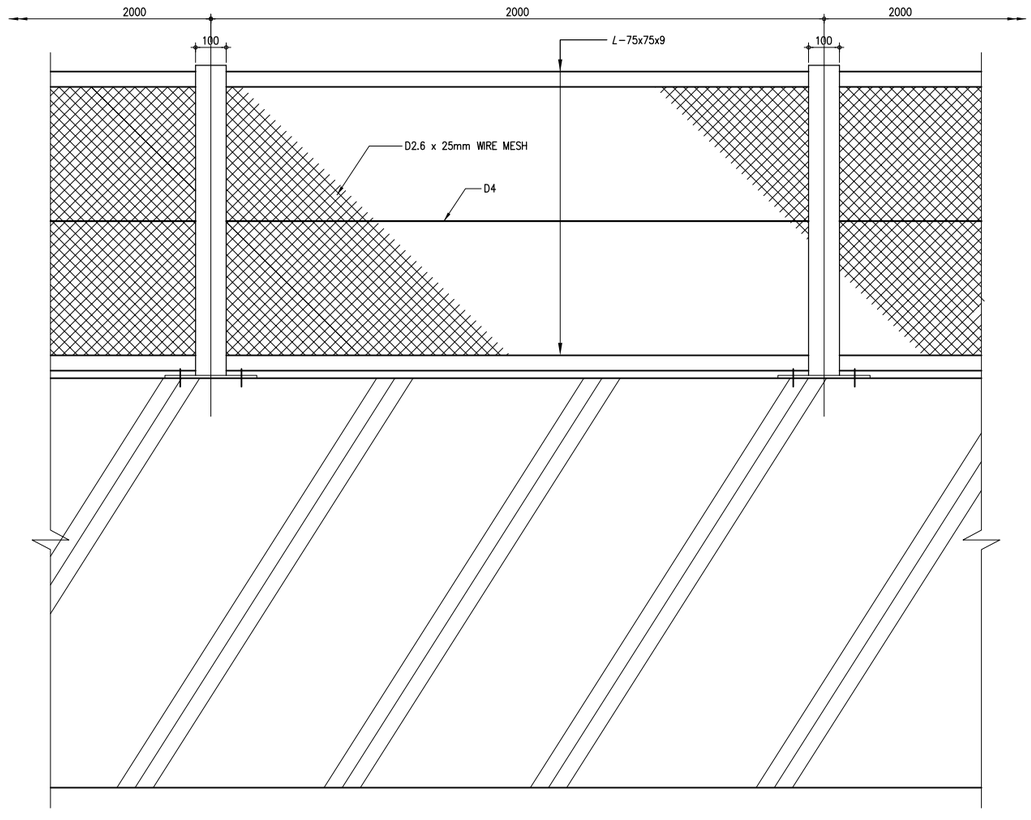
HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIGE
LAYOUT PLAN OF DRAINAGE

DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	
DWG. NO.	K01-86

BRIDGE MESH FENCE
TYPE-2

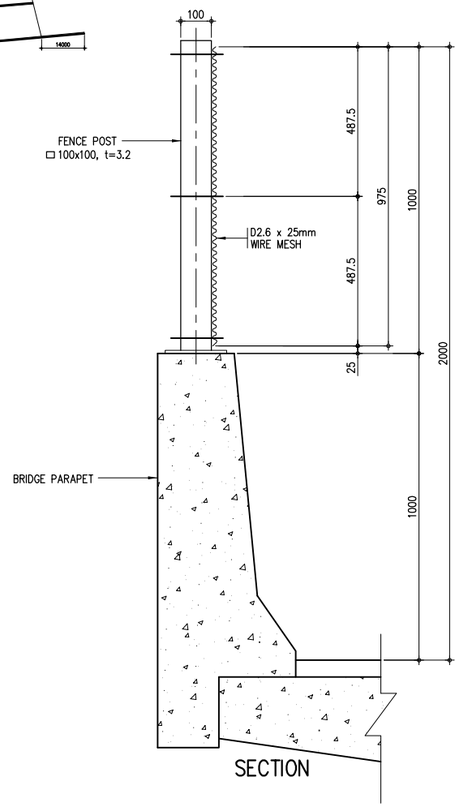


A – KEY PLAN
NOT TO SCALE

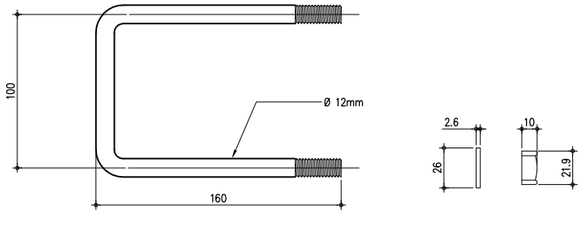


SIDE VIEW

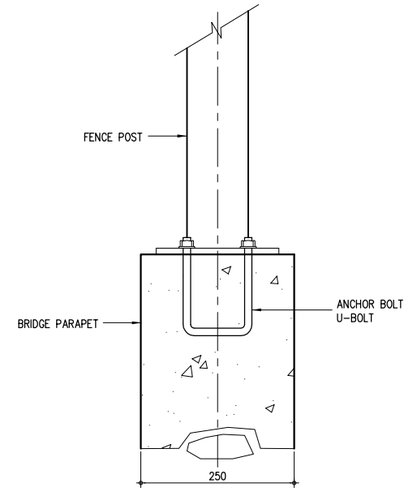
B – DETAIL OF HIGHWAY FENCE
SCALE 1:10



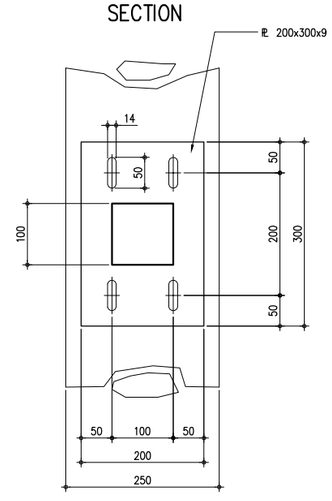
SECTION



D – U-BOLT DETAIL
SCALE 1:2



SECTION



P L A N

C – ANCHORAGE DETAIL
SCALE 1:5

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF HIGHWAYS & ROAD DEVELOPMENT **Road Development Authority**	JICA JAPAN INTERNATIONAL COOPERATION AGENCY ORIENTAL CONSULTANTS COMPANY LIMITED in association with PACIFIC CONSULTANTS INTERNATIONAL	**COLOMBO OUTER CIRCULAR HIGHWAY PROJECT** **(NORTHERN SECTION 1)**
	No / REVISION / DATE	HIGHWAY BRIDGE NO. 9 (H9) - KELANI RIVER CROSSING BRIDGE BRIGDE MESH FENCE (TYPE 2)
		DESIGNED BY: / CHECKED BY: / APPROVED BY: DWG. NO. K01-87