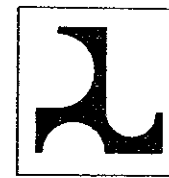




JAPAN INTERNATIONAL
COOPERATION AGENCY



DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

DRAINAGE

 KATAHIRA & ENGINEERS INTERNATIONAL

DRAINAGE SLOPE RIGHT

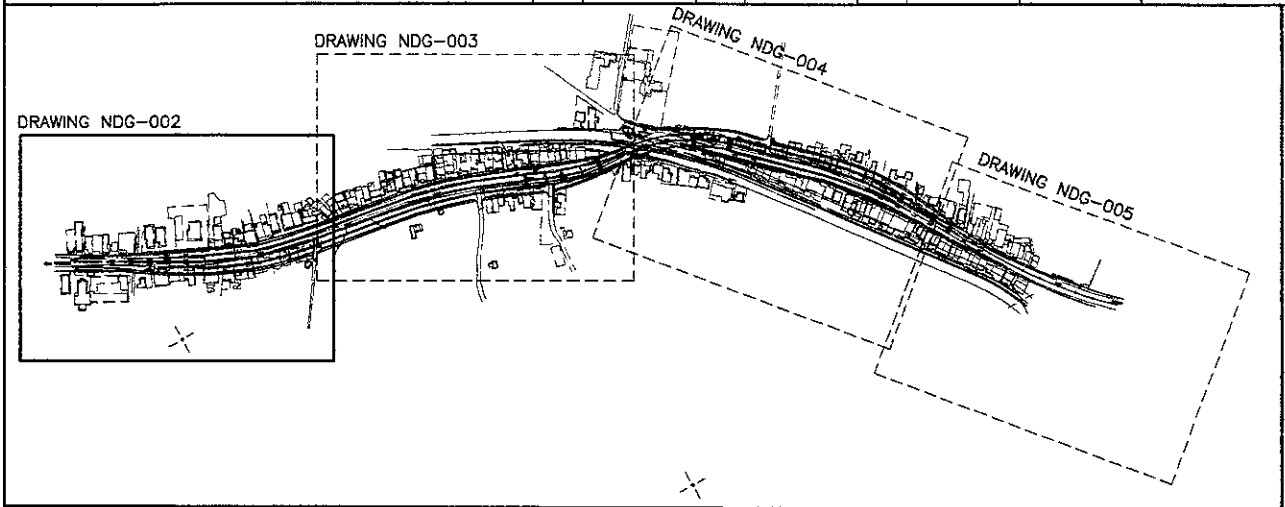
FROM MH	TO MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	SLOPE (%)	FINISHED AT MANHOLE (m)		INVERT ELEV. (m)	
					UPSTREAM	DOWNSTREAM	UPSTREAM	DOWNSTREAM
DRAINAGE SLOPE DMH-01A TO DMH-01C								
DMH-01A	DMH-01B	U'DITCH DS 3	20	0.44	848.910	848.930	848.130	848.043
DMH-01B	DMH-01C	U'DITCH DS 3	20	0.39	848.930	848.980	848.043	847.964
DMH-01C	-	U'DITCH DS 3	19	0.55	848.980	-	847.964	-
DRAINAGE SLOPE DMH-06 TO DMH-02								
DMH-06	DMH-05	RCP #800 (A)	20	0.52	849.050	849.070	847.560	847.454
DMH-05	DMH-04	RCP #800 (A)	20	0.38	849.070	849.030	847.454	847.380
DMH-04	DMH-03	RCP #800 (A)	20	0.31	849.030	849.020	847.380	847.317
DMH-03	DMH-02	RCP #800 (A)	20	0.36	849.020	849.000	847.317	847.248
DMH-02	-	RCP #800 (A)	13	0.36	849.000	-	847.248	-
DRAINAGE SLOPE DMH-13 TO DMH-07								
DMH-13	DMH-12	U'DITCH DS 3	17.5	1.87	851.758	851.387	850.953	850.515
DMH-12	DMH-11	MSW-II	14	1.94	851.387	851.000	850.515	850.184
DMH-11	DMH-10	U'DITCH DS 3	18.5	2.00	851.000	850.373	850.184	850.525
DMH-10	DMH-09	U'DITCH DS 3	20	2.55	850.373	849.744	849.525	848.433
DMH-09	DMH-08	RCP #800 (A)	20	2.99	849.744	849.343	848.433	847.845
DMH-08	DMH-07	RCP #800 (A)	20	1.15	849.343	849.130	847.845	847.609
DMH-07	DMH-51	RCP #800 (B)	13.5	1.00	849.130	848.120	847.609	847.350
DRAINAGE SLOPE DMH-28B TO DMH-14								
EXISTING	DMH-28B	U'DITCH DS 3A	12.5	1.44	-	861.152	-	860.202
DMH-28B	DMH-28A	U'DITCH DS 3	13	3.53	861.152	860.659	860.202	859.764
DMH-28A	DMH-28	U'DITCH DS 3	20	3.53	860.659	859.920	859.764	859.079
DMH-28	DMH-27	U'DITCH DS 3	20	1.73	859.920	859.530	859.079	858.732
DMH-27	DMH-26	U'DITCH DS 3	20	1.12	859.530	859.310	858.732	858.511
DMH-26	DMH-25	U'DITCH DS 3	18.6	1.22	859.310	859.080	858.511	858.284
DMH-25	DMH-24	MSW-II	12	1.78	859.080	858.841	858.284	859.035
DMH-24	DMH-23	U'DITCH DS 3	29.4	2.29	859.841	859.181	859.035	858.363
DMH-23	DMH-22	U'DITCH DS 3	20	2.89	859.181	858.844	858.363	857.785
DMH-22	DMH-21	U'DITCH DS 3	14	2.89	858.844	858.207	857.785	857.372
DMH-21	DMH-20	MSW-II	13	3.41	858.207	857.763	857.372	856.727
DMH-20	DMH-19	U'DITCH DS 3	33.5	3.89	857.763	856.511	856.727	854.971
DMH-19	DMH-18	RCP #800 (A)	20	3.89	856.511	855.661	854.971	853.802
DMH-18	DMH-17	RCP #800 (A)	20	3.09	855.661	854.681	853.802	852.735
DMH-17	DMH-16	RCP #800 (A)	20	3.77	854.681	853.596	852.735	851.927
DMH-16	DMH-15	RCP #800 (A)	20	4.83	853.596	852.755	851.927	850.971
DMH-15	DMH-14	RCP #800 (A)	20	2.68	852.755	852.132	850.971	850.428
DMH-14	DMH-56	RCP #800 (B)	16	1.00	852.132	850.820	850.428	849.150
DRAINAGE SLOPE DMH-45 TO DMH-29								
DMH-45	DMH-44	U'DITCH DS 3	23	2.53	869.085	868.580	868.283	867.789
DMH-44	DMH-43	U'DITCH DS 3	20	2.10	868.580	868.240	867.789	867.425
DMH-43	DMH-42	U'DITCH DS 3	20	1.81	868.240	867.950	867.425	867.071
DMH-42	DMH-41	U'DITCH DS 3	20	1.78	867.950	867.030	867.071	866.237
DMH-41	DMH-40	U'DITCH DS 3	20	4.18	867.030	866.590	866.237	865.769
DMH-40	DMH-39	U'DITCH DS 3	20	2.41	866.590	866.220	865.769	865.428
DMH-39	DMH-38	U'DITCH DS 3	20	1.63	866.220	865.870	865.428	865.094
DMH-38	DMH-37	U'DITCH DS 3	20	1.69	865.870	865.580	865.094	864.747
DMH-37	DMH-36	U'DITCH DS 3	20	1.71	865.580	865.240	864.747	864.405
DMH-36	DMH-35	U'DITCH DS 3	20	1.2	865.240	864.840	864.405	863.951
DMH-35	DMH-34	U'DITCH DS 3	20	2.27	864.840	864.200	863.951	863.343
DMH-34	DMH-33	U'DITCH DS 3	20	3.03	864.200	863.560	863.343	862.749
DMH-33	DMH-32	U'DITCH DS 3	12.7	2.96	863.560	863.190	862.749	862.368
DMH-32	DMH-31	U'DITCH DS 3	20	3.01	863.190	862.650	862.368	861.839
DMH-31	DMH-30	U'DITCH DS 3	18	2.60	862.650	862.151	861.839	861.360
DMH-30	DMH-29	U'DITCH DS 3	16.5	2.65	862.151	861.870	861.360	861.200
DMH-29	DMH-74	RCP #800 (B)	12.7	1.00	861.870	861.870	861.200	861.075

NO. MANHOLE	TYPE OF MANHOLE	DIMENSION OF MANHOLE		
		WIDTH	LENGTH	HEIGHT
DMH-01A	TYPE I	1050	1370	930
DMH-01B	TYPE I	1050	1370	1037
DMH-01C	TYPE I	1050	1370	1166
DMH-06	TYPE III	1588	1370	1640
DMH-05	TYPE IV	1588	1340	1786
DMH-04	TYPE III	1588	1370	1800
DMH-03	TYPE III	1588	1370	1853
DMH-02	TYPE III	1588	1370	1902
DMH-13	TYPE I	1050	1370	955
DMH-12	TYPE I	1050	1370	1022
DMH-11	TYPE I	1050	1370	966
DMH-10	TYPE I	1050	1370	998
DMH-09	TYPE I	1050	1370	1481
DMH-08	TYPE I	1050	1370	1648
DMH-07	TYPE V	1050	1588	1671
DMH-28B	TYPE I	1050	1370	1100
DMH-28A	TYPE I	1050	1370	1045
DMH-28	TYPE I	1050	1370	991
DMH-27	TYPE I	1050	1370	948
DMH-26	TYPE I	1050	1370	949
DMH-25	TYPE I	1050	1370	946
DMH-24	TYPE I	1050	1370	856
DMH-23	TYPE I	1050	1370	968
DMH-22	TYPE I	1050	1370	1009
DMH-21	TYPE I	1050	1370	985
DMH-20	TYPE I	1050	1370	1186
DMH-19	TYPE I	1050	1370	1890
DMH-18	TYPE I	1050	1370	2130
DMH-17	TYPE I	1050	1370	2096
DMH-16	TYPE I	1050	1370	1819
DMH-15	TYPE I	1050	1370	1934
DMH-14	TYPE V	1050	1588	1854
DMH-45	TYPE I	1050	1370	932
DMH-44	TYPE I	1050	1370	941
DMH-43	TYPE I	1050	1370	965
DMH-42	TYPE I	1050	1370	1029
DMH-41	TYPE I	1050	1370	943
DMH-40	TYPE I	1050	1370	971
DMH-39	TYPE I	1050	1370	944
DMH-38	TYPE I	1050	1370	926
DMH-37	TYPE I	1050	1370	963
DMH-36	TYPE I	1050	1370	985
DMH-35	TYPE I	1050	1370	1039
DMH-34	TYPE I	1050	1370	1007
DMH-33	TYPE I	1050	1370	961
DMH-32	TYPE I	1050	1370	972
DMH-31	TYPE I	1050	1370	961
DMH-30	TYPE I	1050	1370	941
DMH-29	TYPE V	1050	1588	970

DRAINAGE SLOPE LEFT

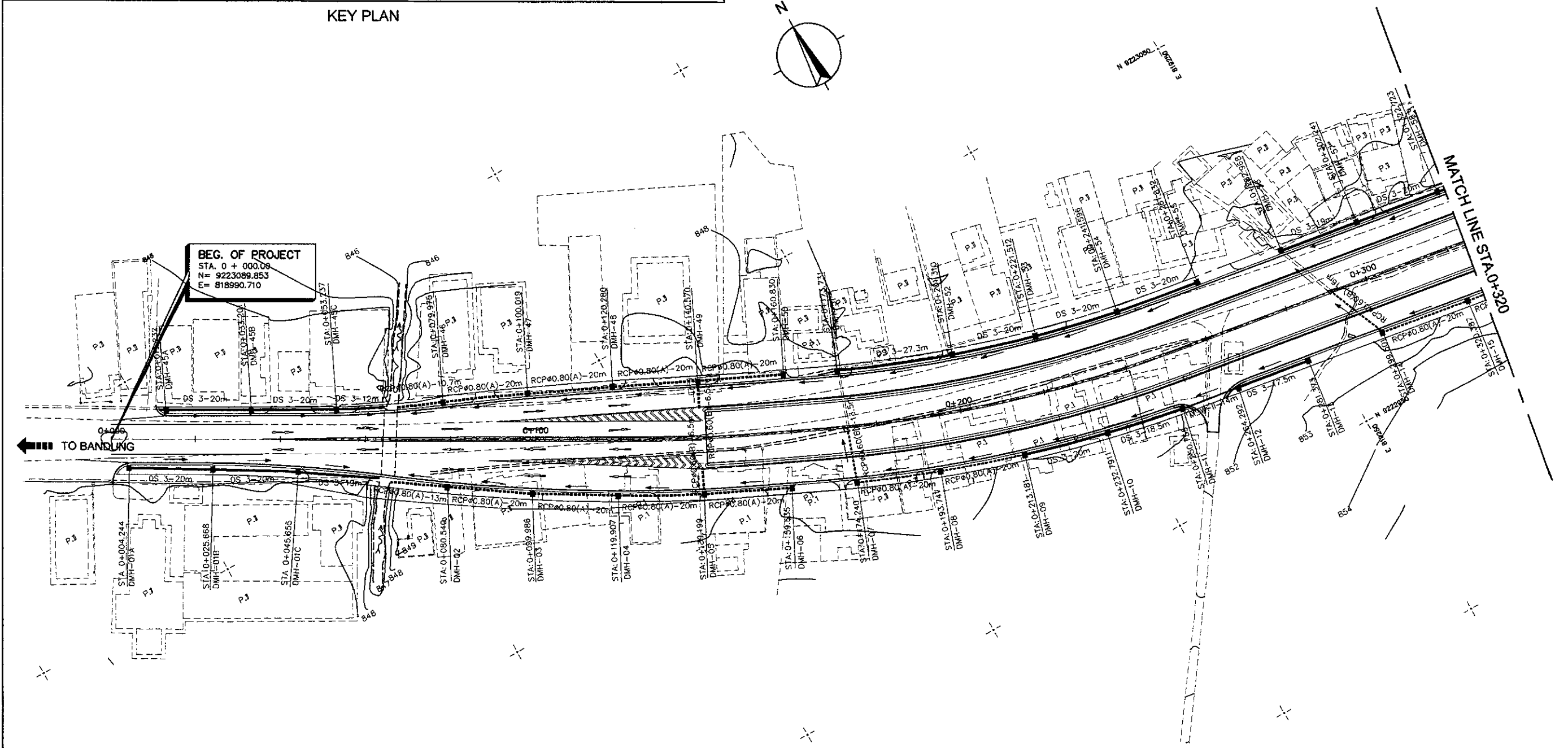
FROM MH	TO MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	SLOPE (%)	FINISHED AT MANHOLE (m)		INVERT ELEV. (m)	
					UPSTREAM	DOWNSTREAM	UPSTREAM	DOWNSTREAM
DRAINAGE SLOPE DMH-45A TO DMH-45C								
DMH-45A	DMH-45B	U'DITCH DS 3	20	0.41	848.906	848.928	848.179	848.096
DMH-45B	DMH-45C	U'DITCH DS 3	20	0.41	848.928	848.971	848.096	848.015
DMH-45C	-	U'DITCH DS 3	12	0.41	848.971	-	848.015	-
DRAINAGE SLOPE DMH-50 TO DMH-46								
DMH-50	DMH-49	RCP #800 (A)	20	0.41	849.030	849.070	847.541	847.458
DMH-49	DMH-48	RCP #800 (A)	20	0.18	849.070	849.030	847.458	847.423
DMH-48	DMH-47	RCP #800 (A)	20	0.25	849.030	849.020	847.423	847.373
DMH-47	DMH-46	RCP #800 (A)	20	0.22	849.020	849.010	847.373	847.330
DMH-46	-	RCP #800 (A)	10.7	0.36	849.010	-	847.330	-
DRAINAGE SLOPE DMH-55 TO DMH-51								
DMH-55	DMH-54	U'DITCH DS 3	20	1.83	850.370	849.980	849.506	849.140
DMH-54	DMH-53	U'DITCH DS 3	20	1.39	849.980	849.690	849.140	848.862
DMH-53	DMH-52	U'DITCH DS 3	20	1.24	849.690	849.420	848.862	848.614
DMH-52	DMH-51	U'DITCH DS 3	27.3	0.30	849.420	849.120	848.614	848.310
DMH-51	-	-	-	-	849.030	-	847.828	-
DRAINAGE SLOPE DMH-71 TO DMH-56								
DMH-71	DMH-70	U'DITCH DS 3	24.5	1.88	860.094	859.550	859.207	858.773
DMH-70	DMH-69	U'DITCH DS 3	24	1.48	859.550	859.213	858.773	858.415
DMH-69	DMH-68	U'DITCH DS 3	16	1.39	859.213	859.030	858.415	858.192
DMH-68	DMH-67	U'DITCH DS 3	23	2.14	859.030	858.580	858.192	857.699
DMH-67	DMH-66	U'DITCH DS 3	18.9	2.09	858.580	858.200	857.699	857.347
DMH-66	DMH-65	U'DITCH DS 3	20	2.54	858.200	857.770	857.347	856.836
DMH-65	DMH-64	U'DITCH DS 3	20	2.90	857.770	857.160	856.836	856.257
DMH-64	DMH-63	U'DITCH DS 3	20	3.84	857.160	856.460	856.257	855.533
DMH-63	DMH-62	U'DITCH DS 3	22.3	4.00	856.460	855.430	855.533	854.640
DMH-62	DMH-61	U'DITCH DS 3	18	3.90	855.430	854.784	854.640	853.951
DMH-61	DMH-60	U'DITCH DS 3	20	3.84	854.784	854.035	853.951	853.171
DMH-60	DMH-59	U'DITCH DS 3	20	3.92	854.035	853.310	853.171	852.390
DMH-59	DMH-58	U'DITCH DS 3	20	4.42	853.310	852.420	852.390	851.505
DMH-58	DMH-57	U'DITCH DS 3	20	4.54	852.420	851.490	851.505	850.592
DMH-57	DMH-56	U'DITCH DS 3	20	4.89	851.490	850.820	850.592	849.958
DMH-56	-	-	-	-	850.820	-	849.592	-
DRAINAGE SLOPE DMH-91 TO DMH-71A								
DMH-91	DMH-90A	MSW-II	9	2.31	869.053	868.873	868.251	868.037
DMH-90A	DMH-90	U'DITCH DS 3	12	2.31	868.873	868.580	868.037	867.757
DMH-90	DMH-89	U'DITCH DS 3	20	1.65	868.580	868.240	867.757	867.426
DMH-89	DMH-88	U'DITCH DS 3	20	1.87	868.240	867.940	867.426	867.051
DMH-88	DMH-87	U'DITCH DS 3						

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



KEY PLAN

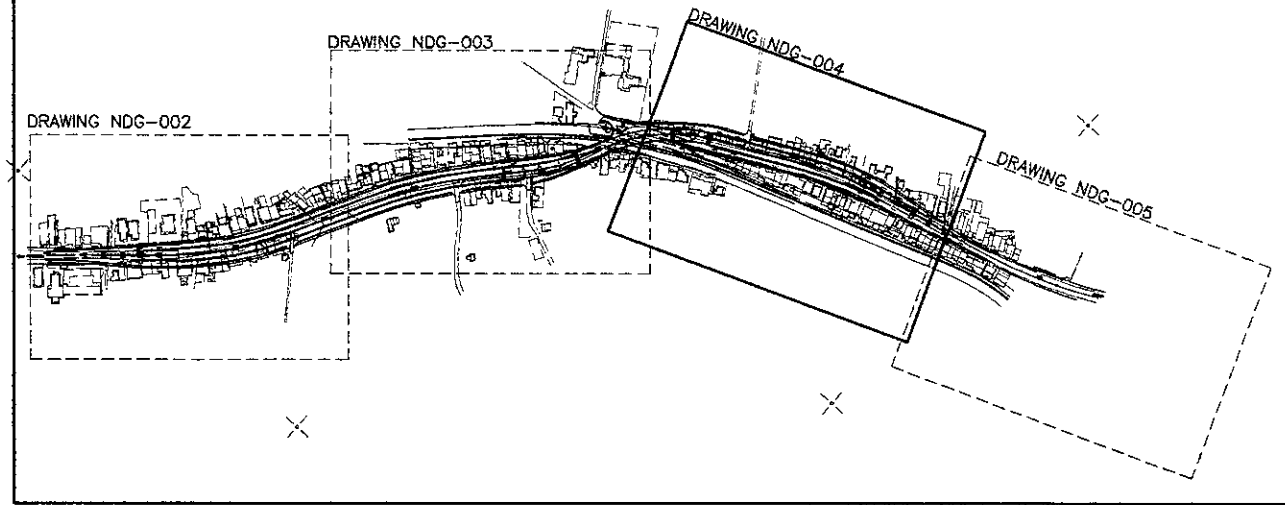
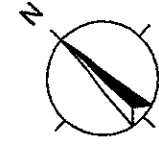
- LEGEND**
- : DRAINAGE MANHOLES
 - : DRAINAGE LINE
 - - - : NEW CULVERT
 - - - : EXISTING DRAINAGE
 - RCP : PIPE CULVERT, RCP-Ø0.80 (A)-15.0
 DIAMETER — LENGTH
 TYPE
 - DS : SIDE DRAIN, DS 3-15.0
 LENGTH
 TYPE



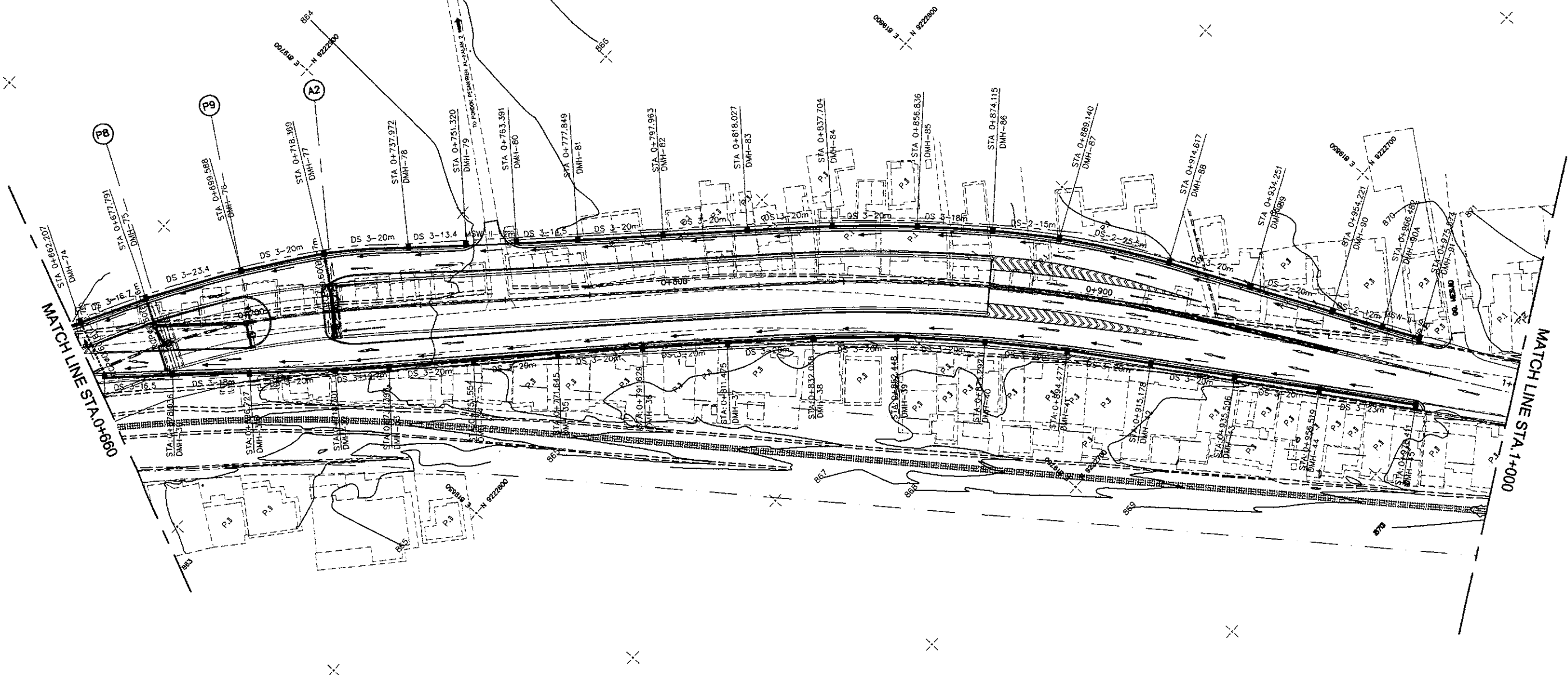
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name R. UENO	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date

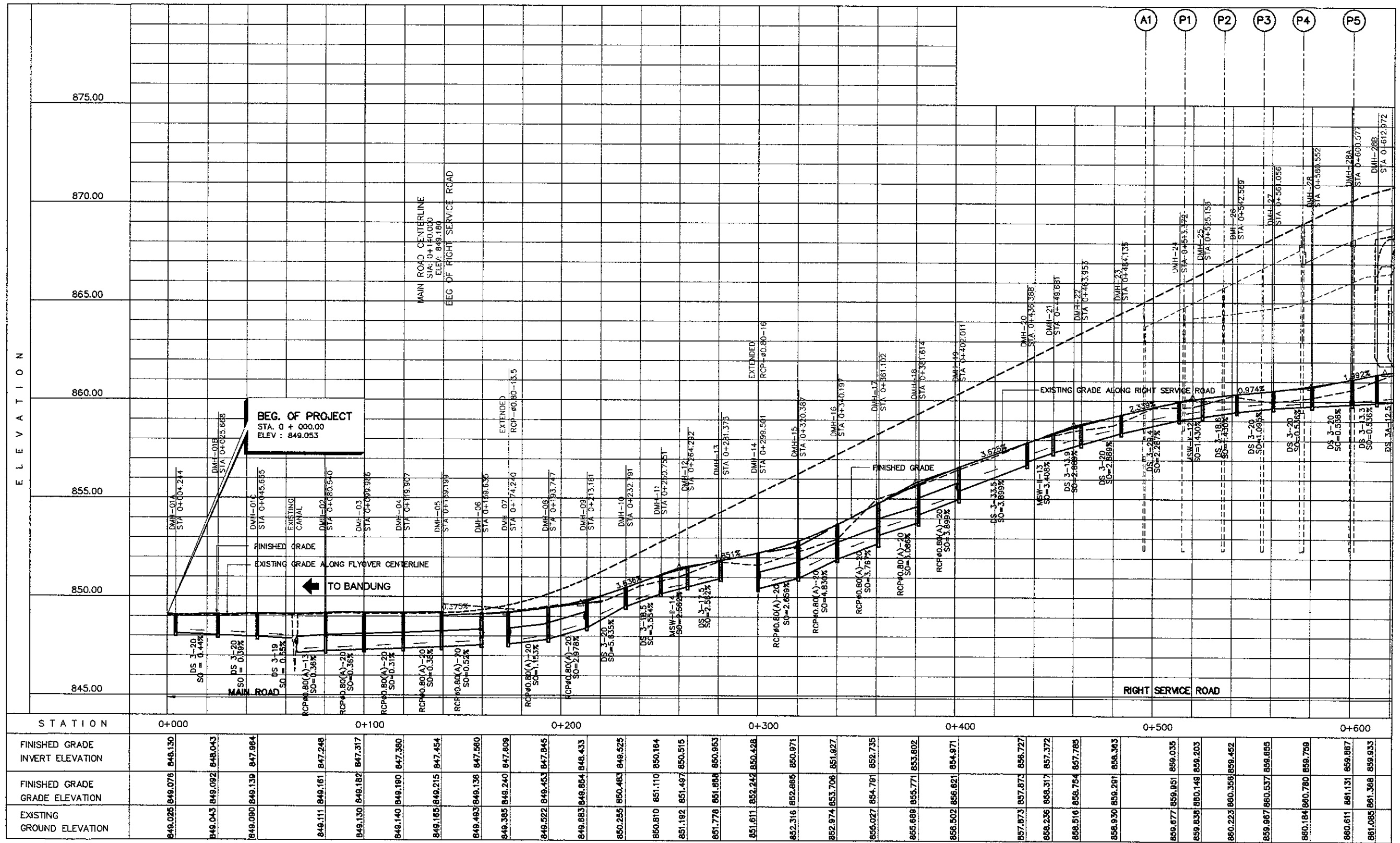
LEGEND

- : DRAINAGE MANHOLES
 - : DRAINAGE LINE
 - - -> : NEW CULVERT
 - - - : EXISTING DRAINAGE
 - ⊗ : RCP : PIPE CULVERT, RCP-φ0.80 (A)-15.0
 - ⊗ : DS : SIDE DRAIN, DS 3-15.0
- DIAMETER LENGTH
 TYPE TYPE



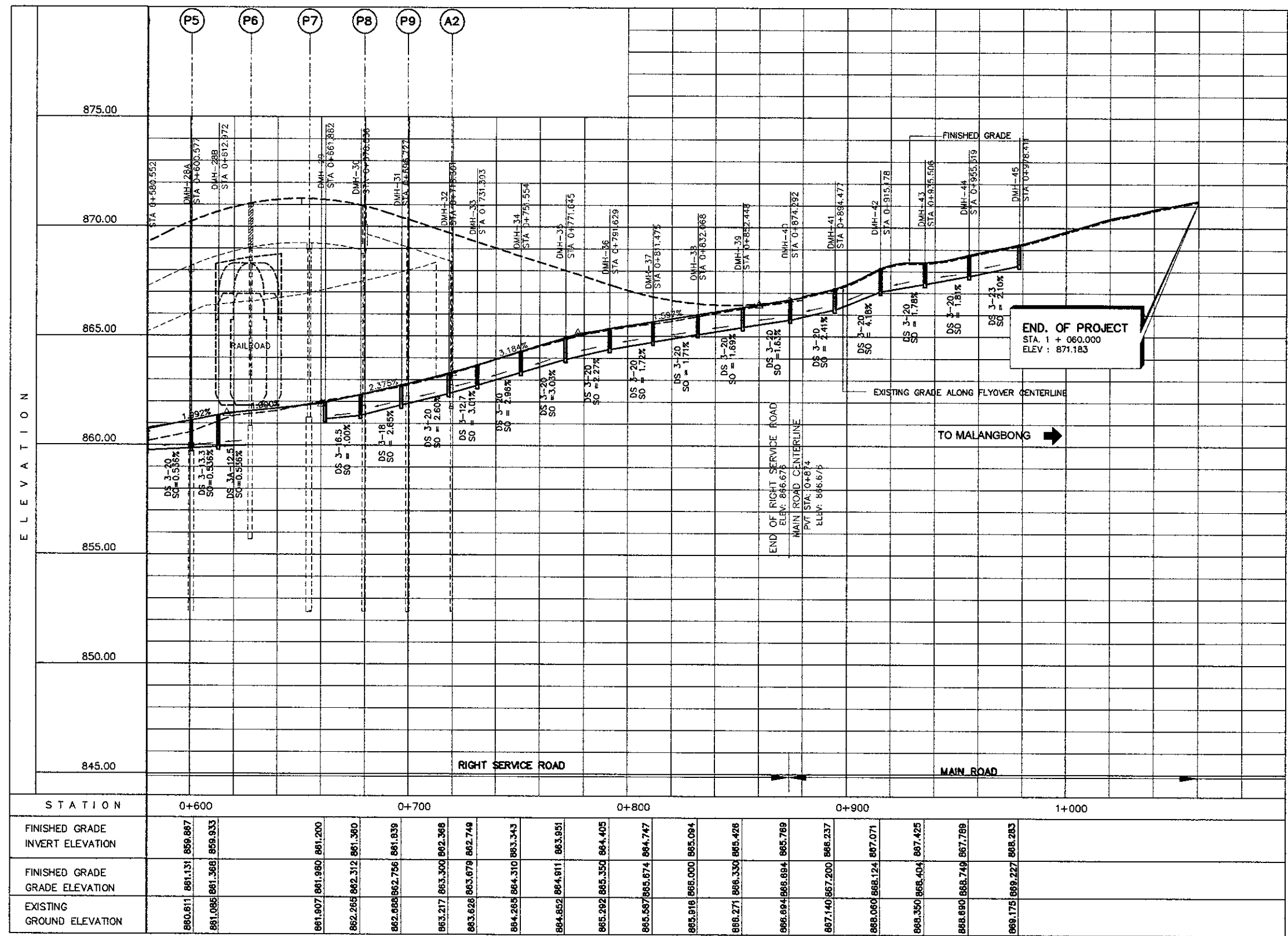
KEY PLAN



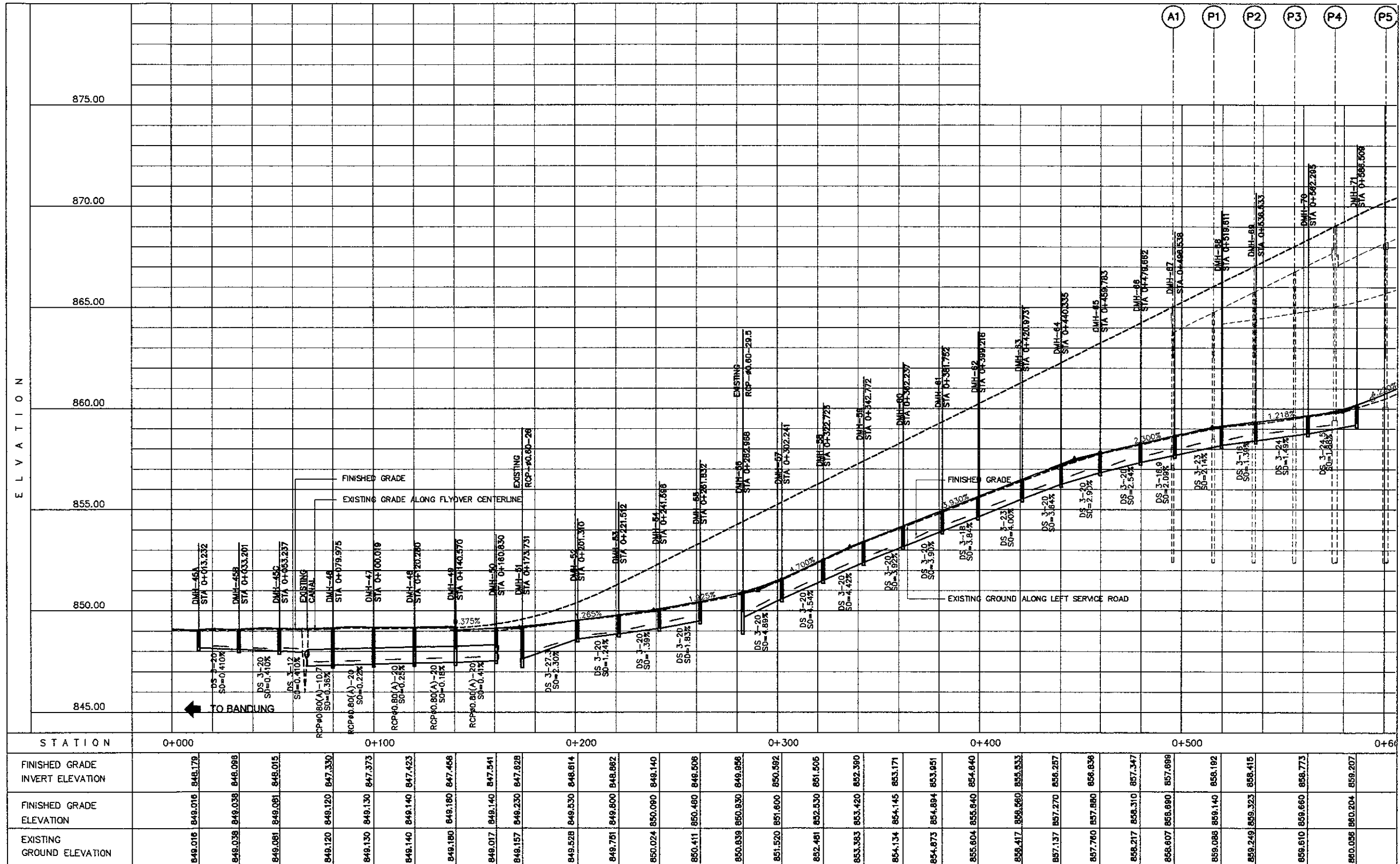


1 DRAINAGE PROFILE RIGHT SERVICE ROAD (1 OF 2)
 SCALE H = 1:2000 V = 1:200

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



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



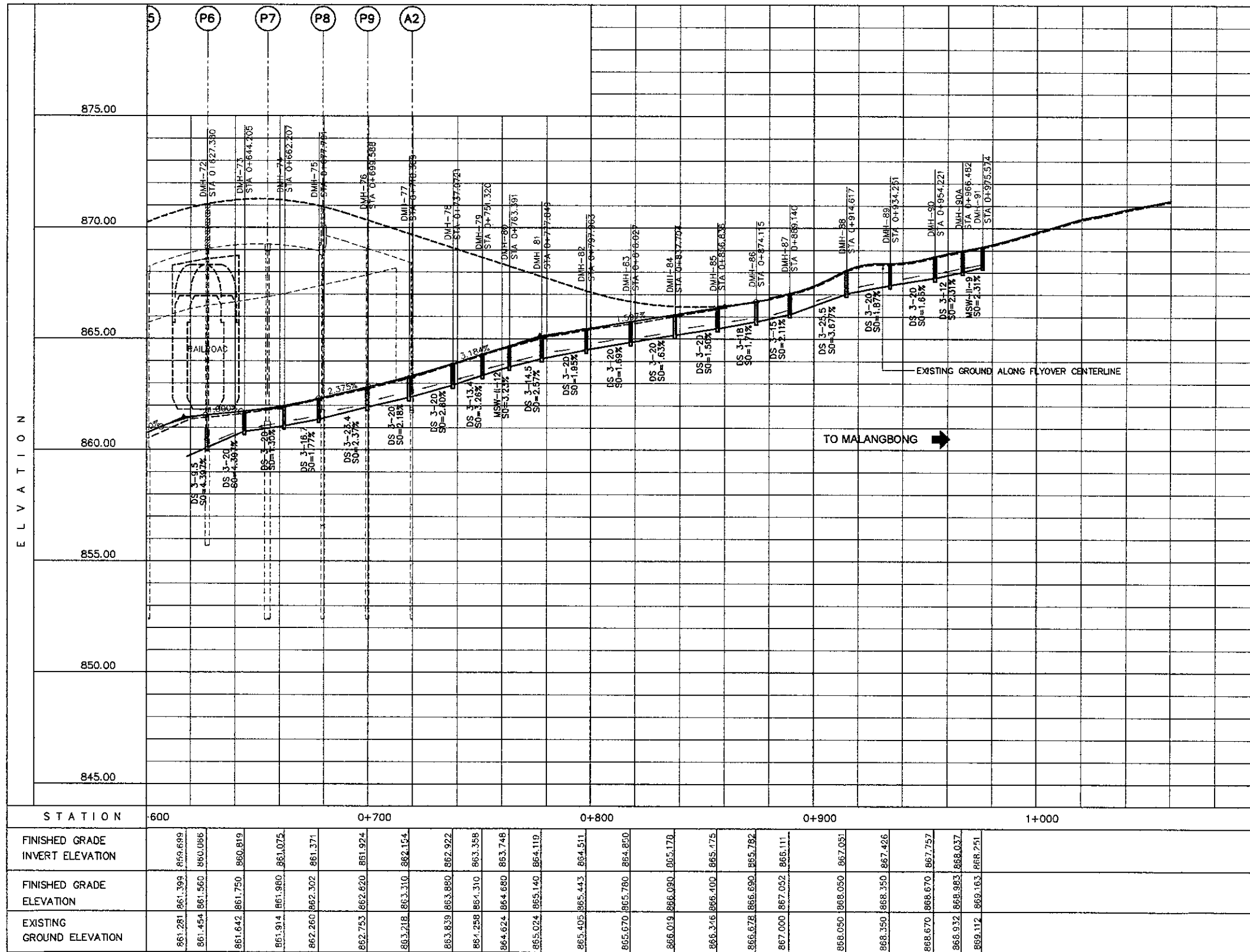
STATION	0+000	0+100	0+200	0+300	0+400	0+500	0+600
FINISHED GRADE INVERT ELEVATION	848.179	848.098	848.015	847.330	847.373	847.423	848.614
FINISHED GRADE ELEVATION	849.016	849.038	849.081	849.120	849.130	849.140	849.140
EXISTING GROUND ELEVATION	849.016	849.038	849.081	849.120	849.130	849.140	849.140

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

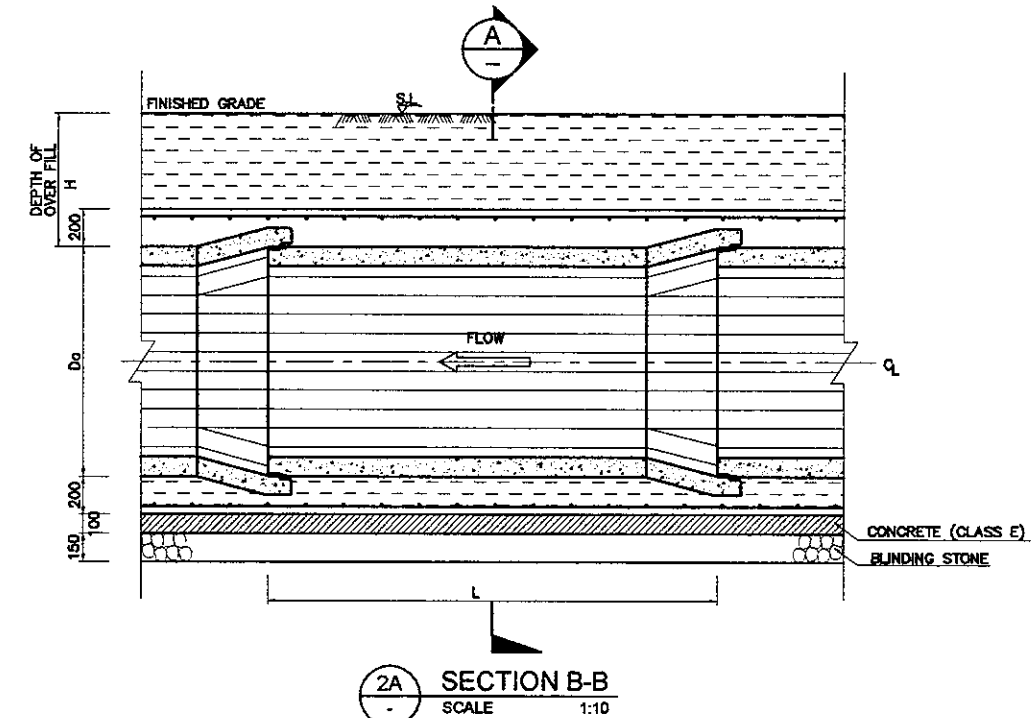
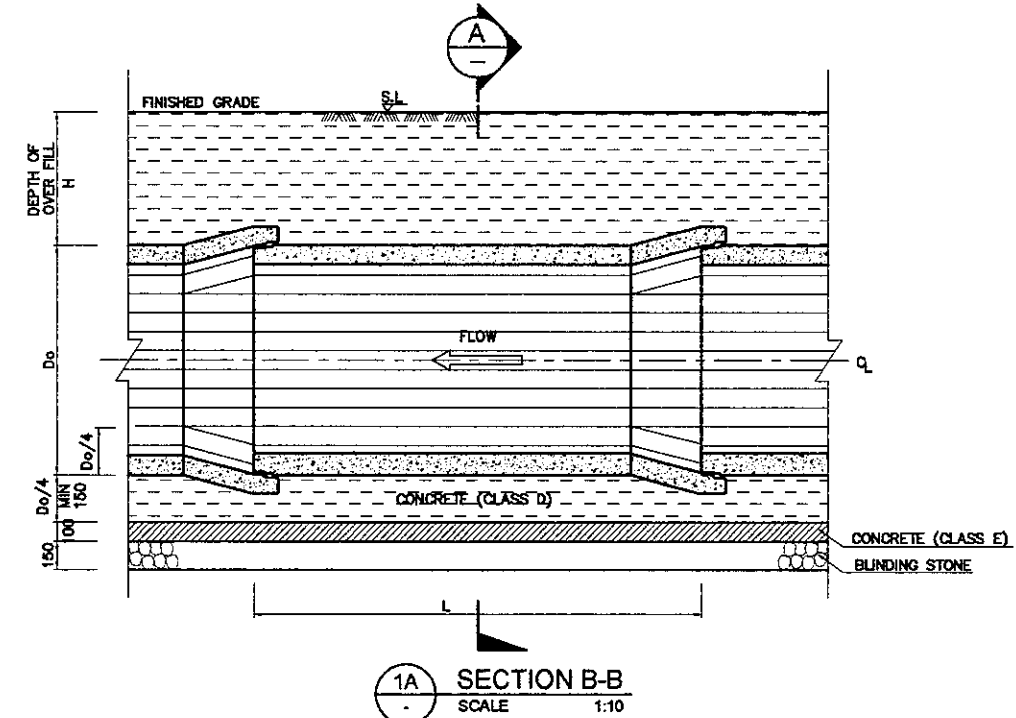
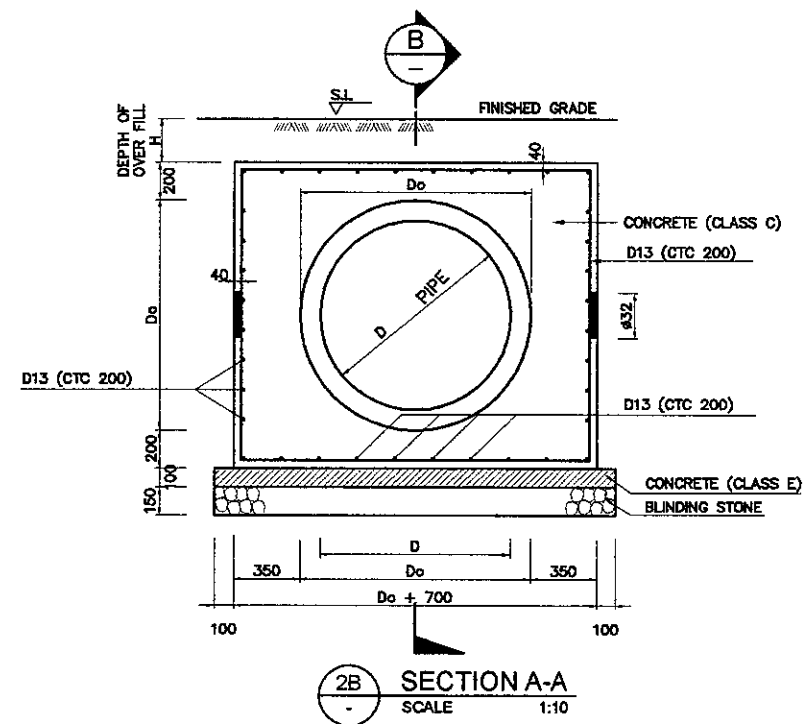
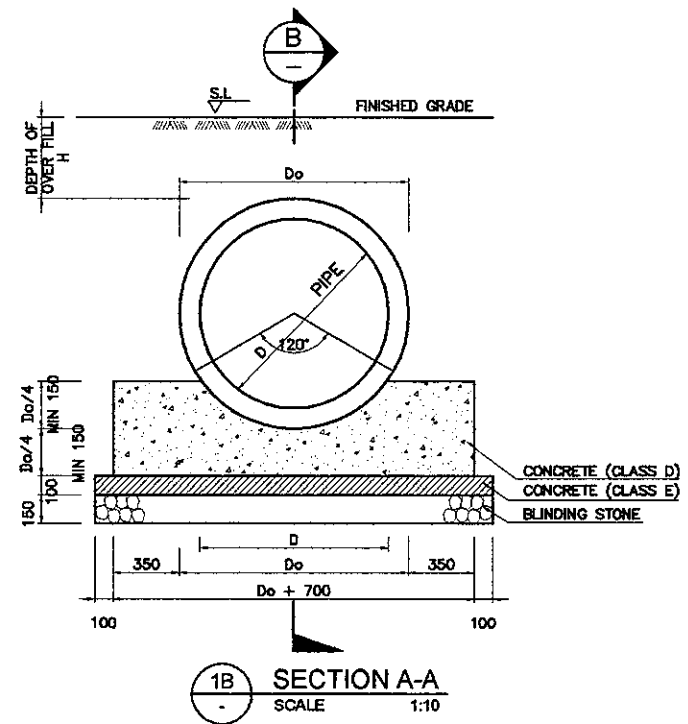
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

APPROVED BY	
Name	Ir. HERRY VAZA M,Eng.Sc
Sign	
Date	

SCALE :	
H:	1:2000
V:	1:100
FULL SIZE A3	



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



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

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

PIPE DETAILS

DIA D	WALL THICKNESS T	Do	LENGTH L	WEIGHT W	RUBBER RING THICKNESS	REQUIRED STRENGTH	
						CRACKING	BREAKING
mm	mm	mm	mm	kg	mm	KN/m	KN/m
400	55	510	1250	281	12	35.19	58.65
600	70	740	1250/2500	519/965	12	43.07	73.00
800	84	988	2500	1690	15.5	58.40	102.50
1000	108	1216	2500	2638	15.5	75.00	138.00
1200	130	1460	2500	3605	16.5	80.00	160.00
1300	140	1580	2500	4444	18.5	94.20	171.25
1500	160	1820	2500	5858	20	102.20	175.00

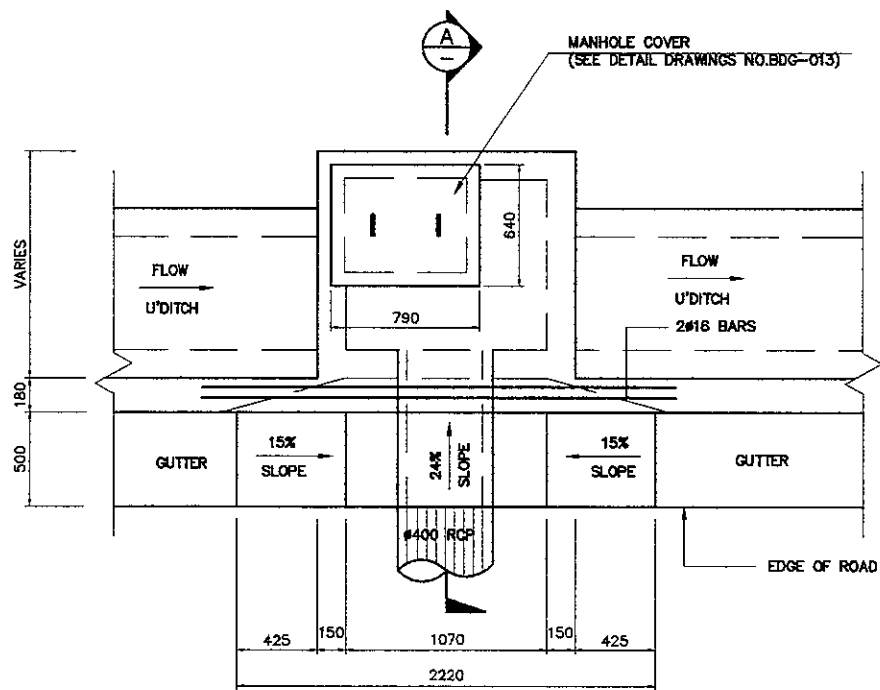
DEPTH OF OVER FILL : H

D	DIMENSION : mm	
	TYPE - A	TYPE - B
400	500 < H < 3000	30Q < H < 500 OR 3000 < H
600	500 < H < 3000	30Q < H < 500 OR 3000 < H
800	500 < H < 3000	30Q < H < 500 OR 3000 < H
1000	500 < H < 3000	30Q < H < 500 OR 3000 < H
1200	600 < H < 3000	30Q < H < 600 OR 3000 < H
1300	600 < H < 3000	30Q < H < 600 OR 3000 < H
1500	600 < H < 3000	30Q < H < 600 OR 3000 < H

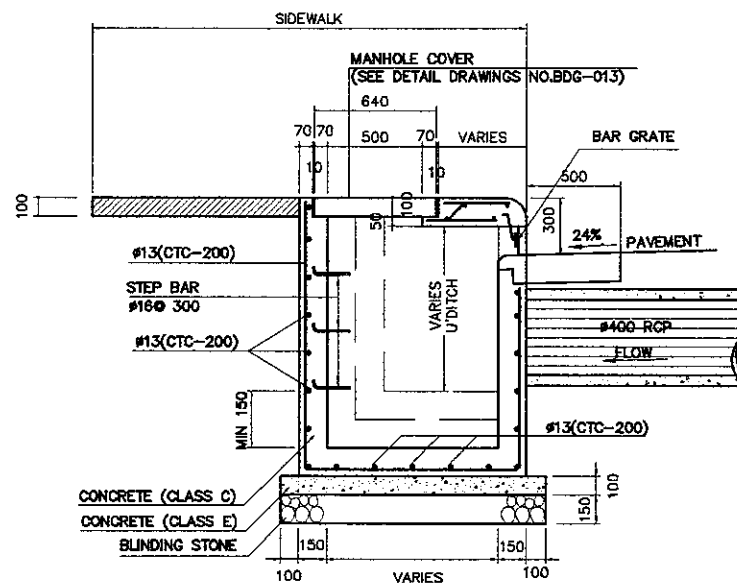
NOTES :

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

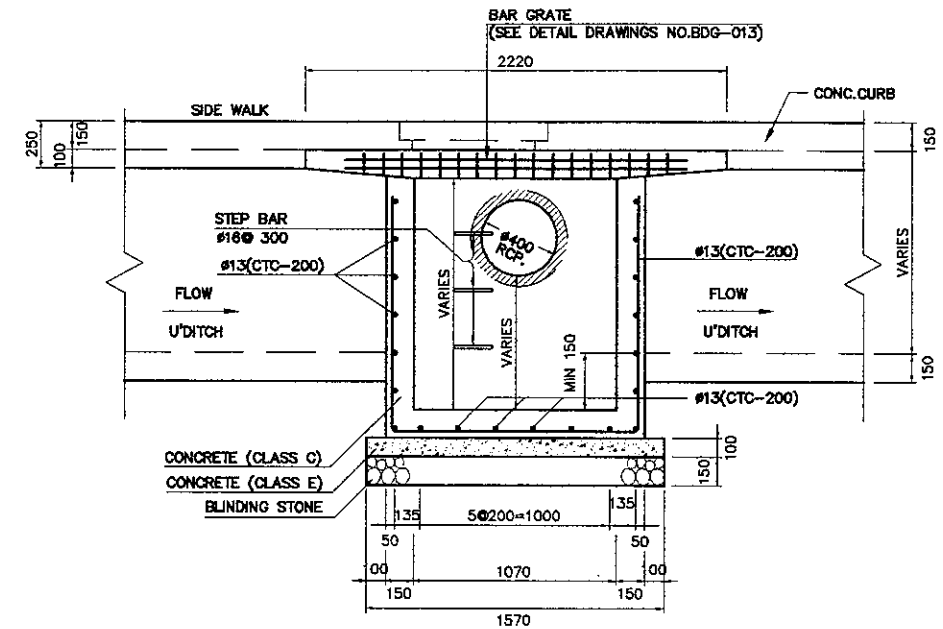
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



2 PLAN
 SCALE 1:40

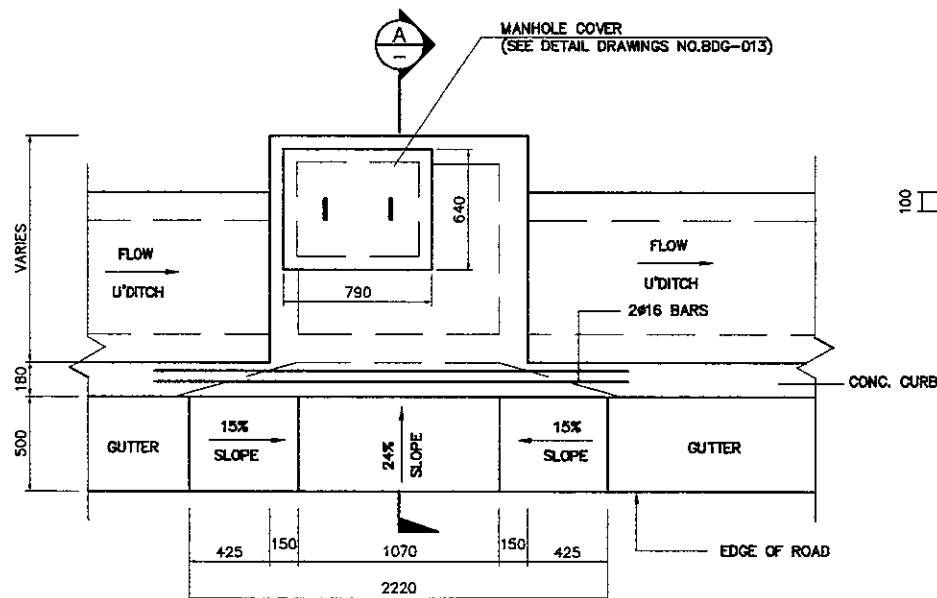


2A SECTION
 SCALE 1:40

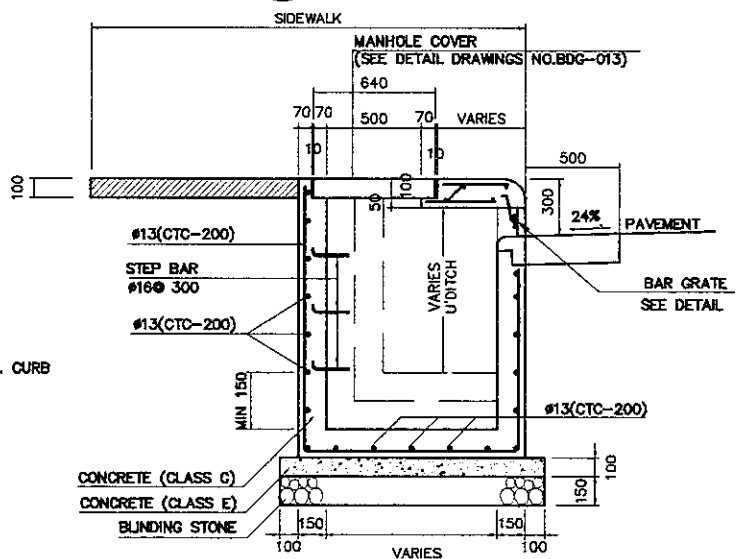


2B FRONT ELEVATION
 SCALE 1:40

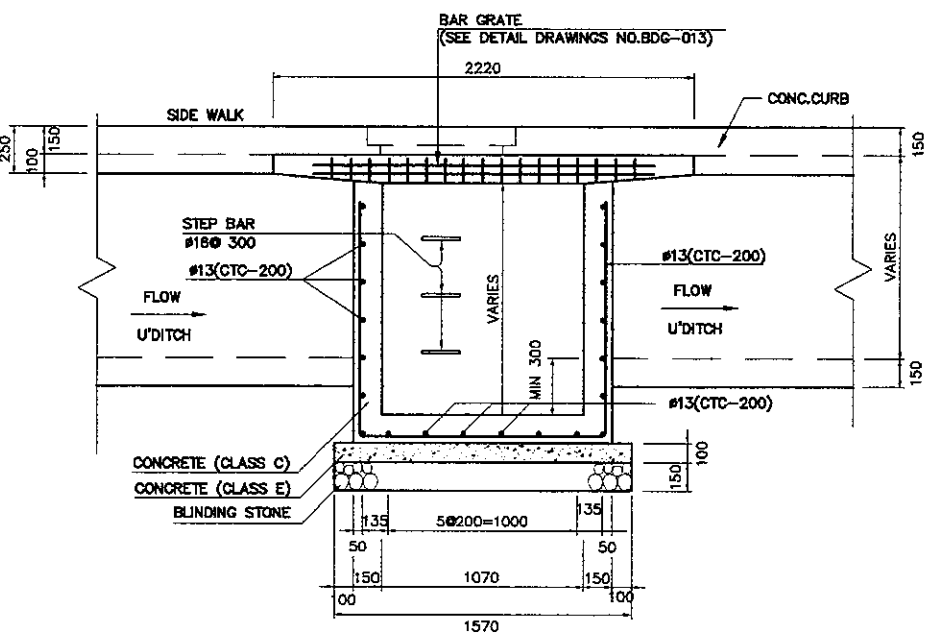
II MANHOLE TYPE - II



1 PLAN
 SCALE 1:40

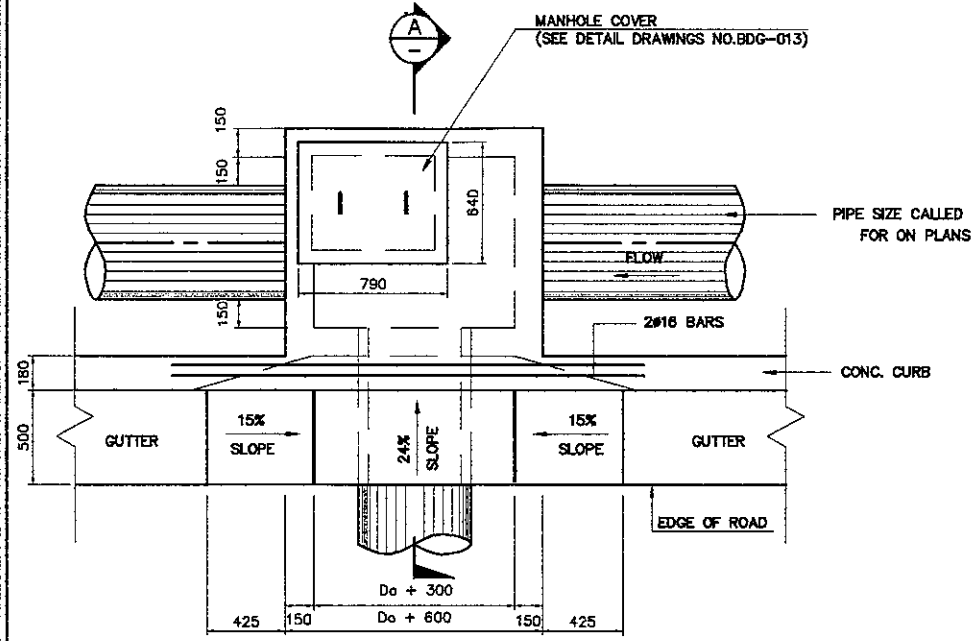


1A SECTION
 SCALE 1:40

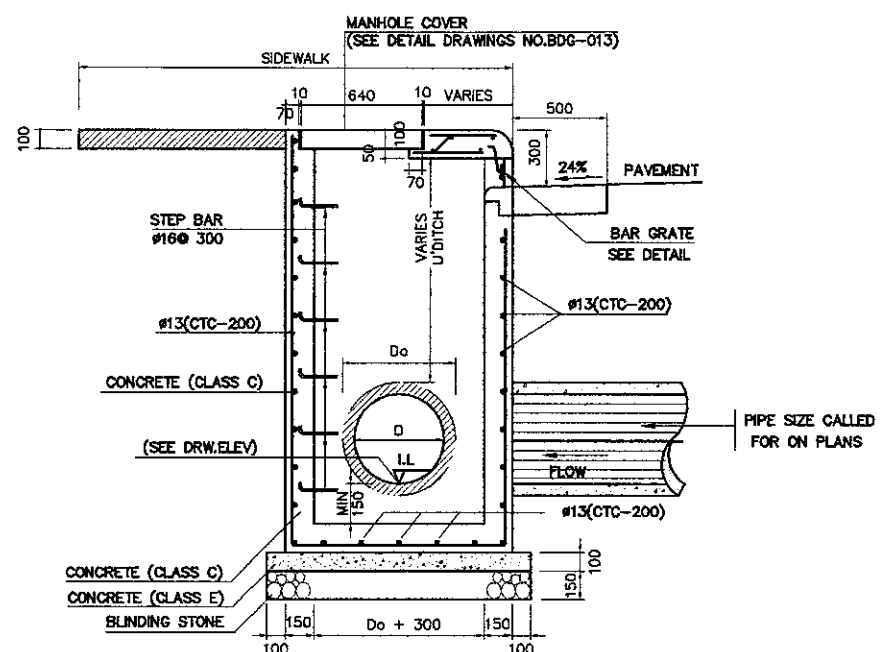


1B FRONT ELEVATION
 SCALE 1:40

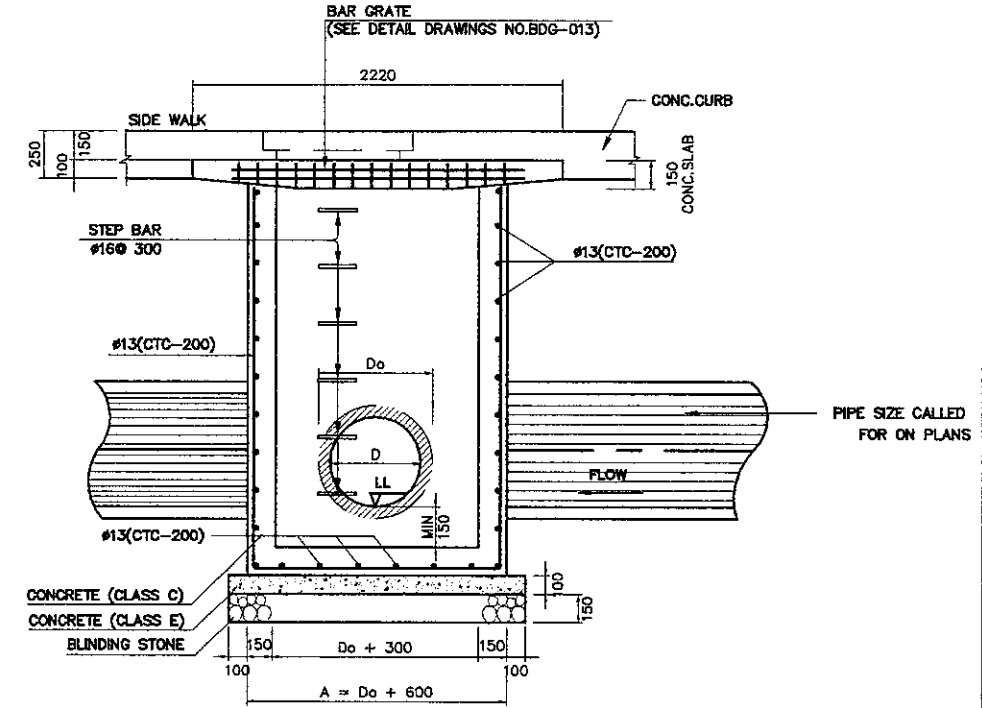
I MANHOLE TYPE - I



4 PLAN
 SCALE 1:40

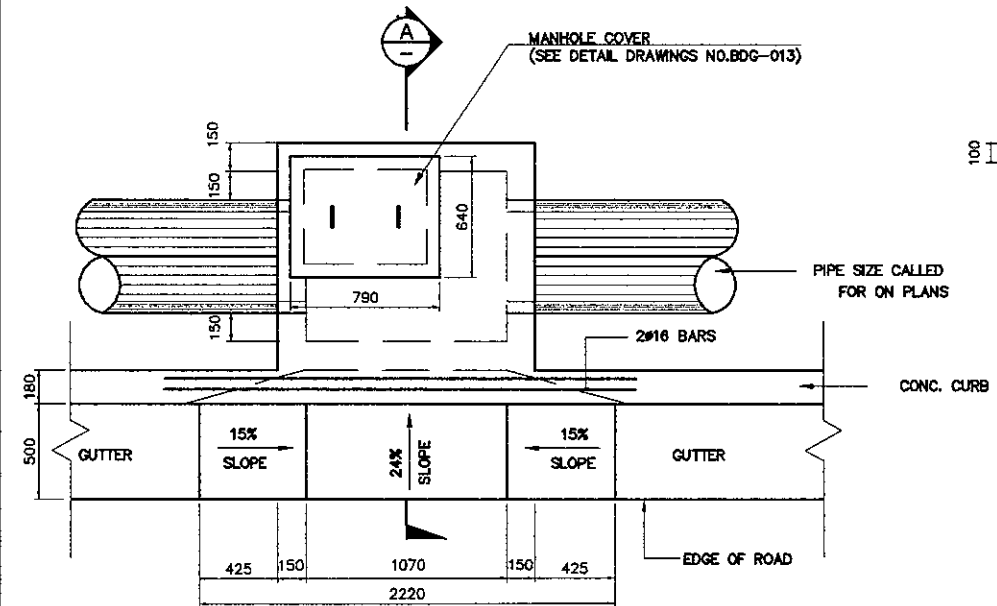


4A SECTION
 SCALE 1:40

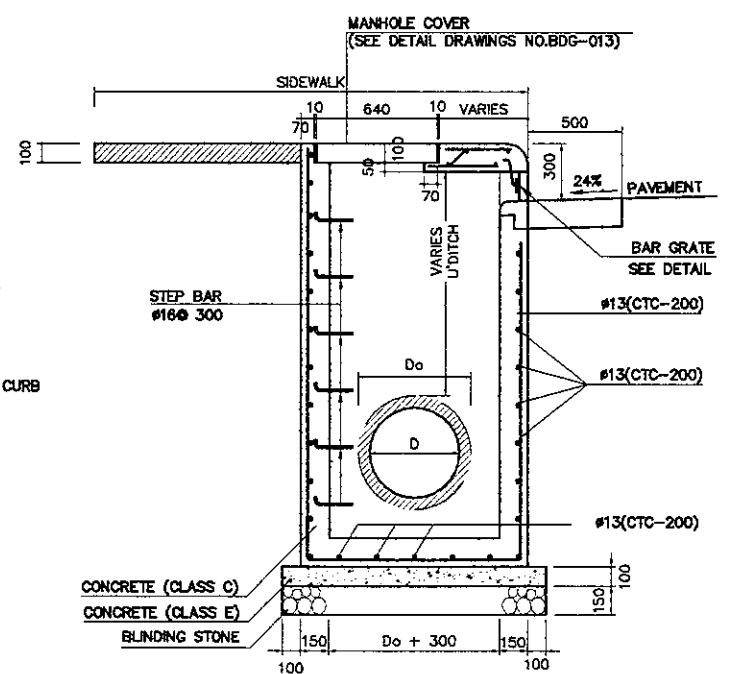


4B FRONT ELEVATION
 SCALE 1:40

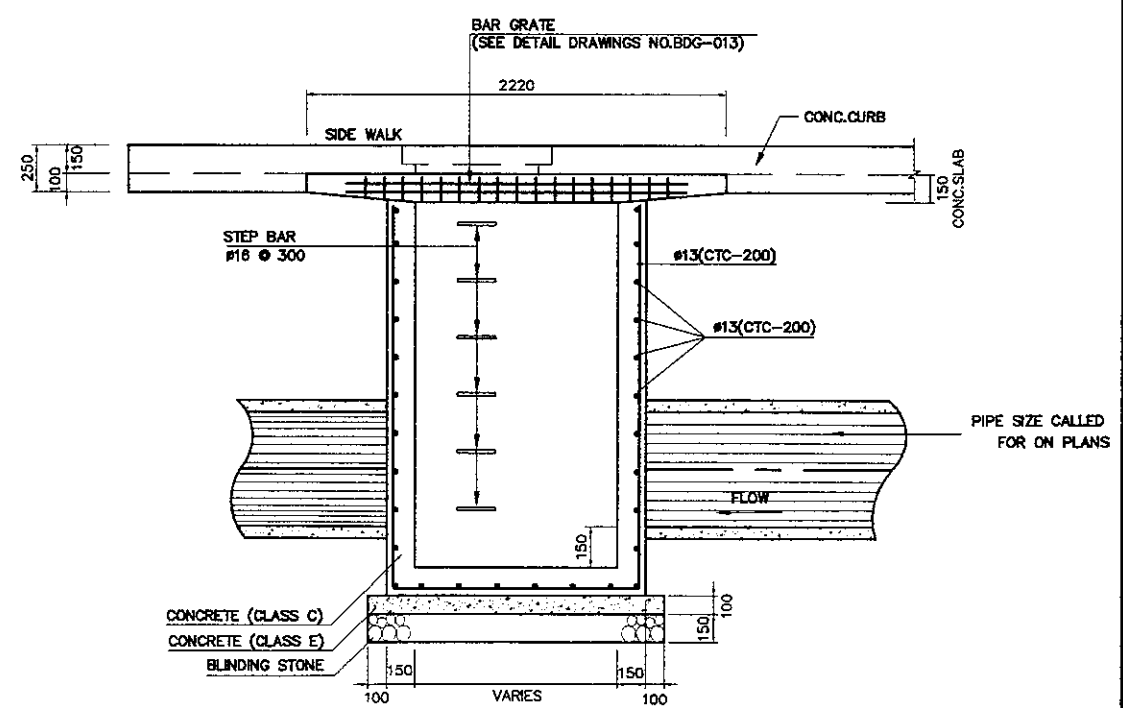
IV MANHOLE TYPE - IV



3 PLAN
 SCALE 1:40



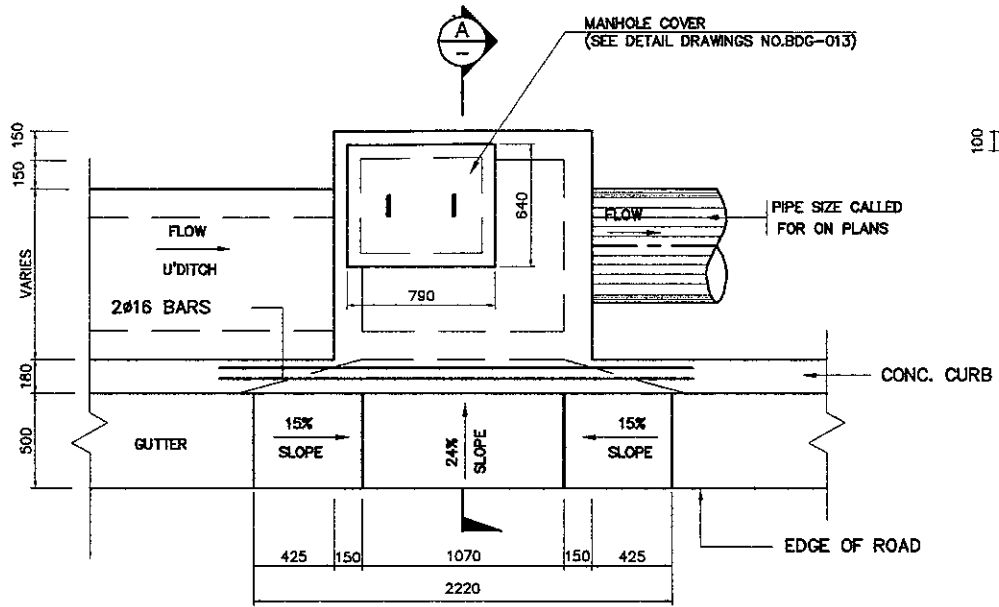
3A SECTION
 SCALE 1:40



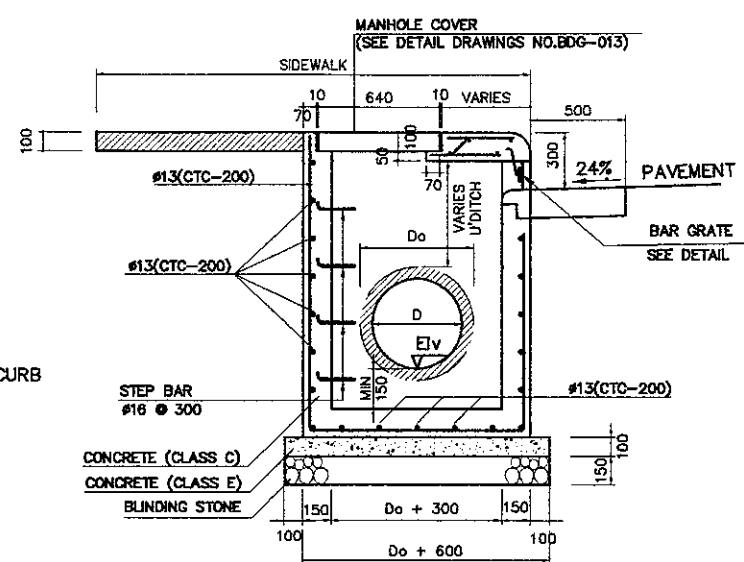
3B FRONT ELEVATION
 SCALE 1:40

III MANHOLE TYPE - III

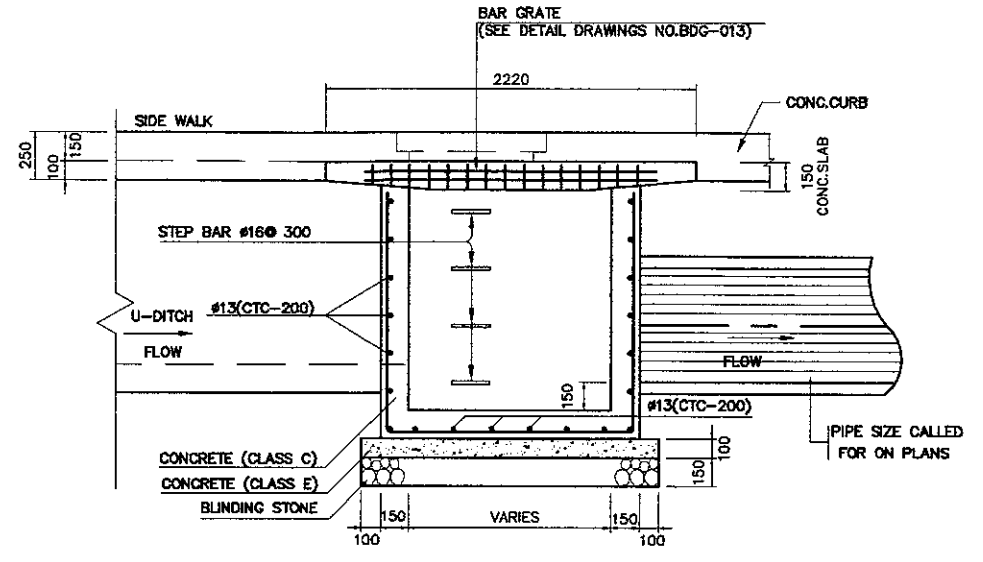
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



6 PLAN
 SCALE 1:40

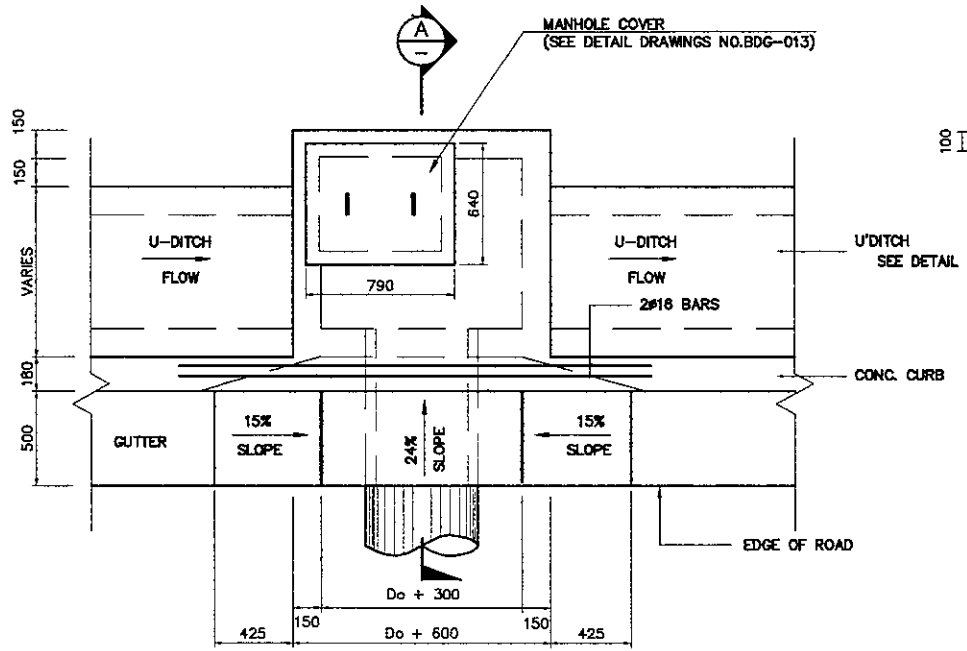


6A SECTION
 SCALE 1:40

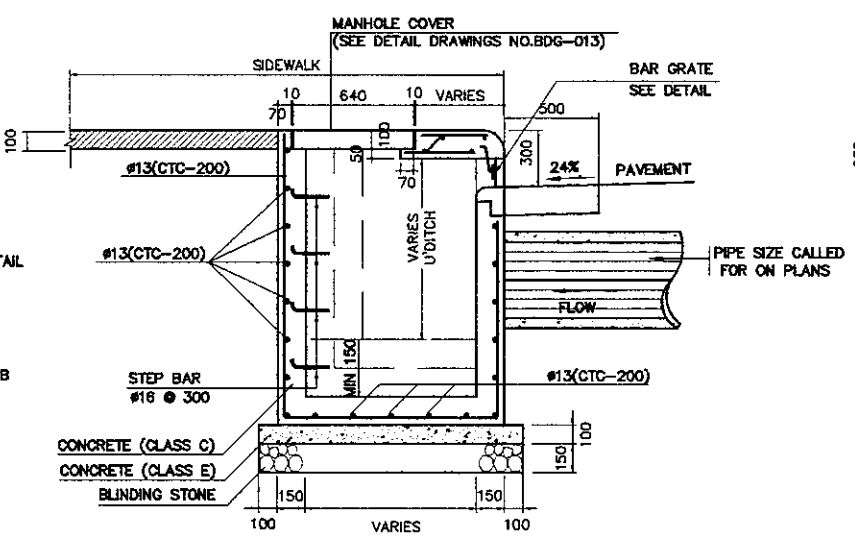


6B FRONT ELEVATION
 SCALE 1:40

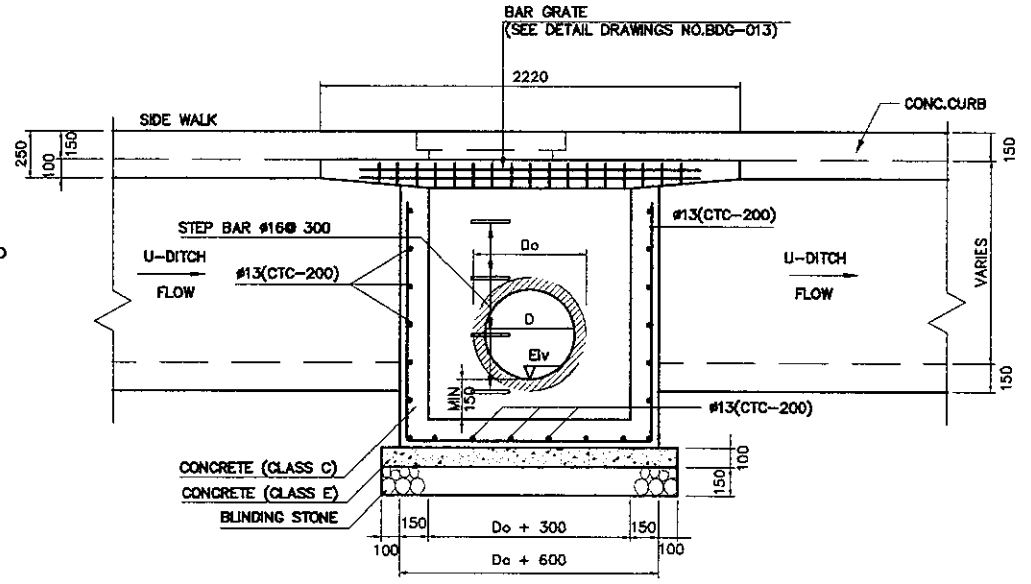
VI MANHOLE TYPE - VI



5 PLAN
 SCALE 1:40



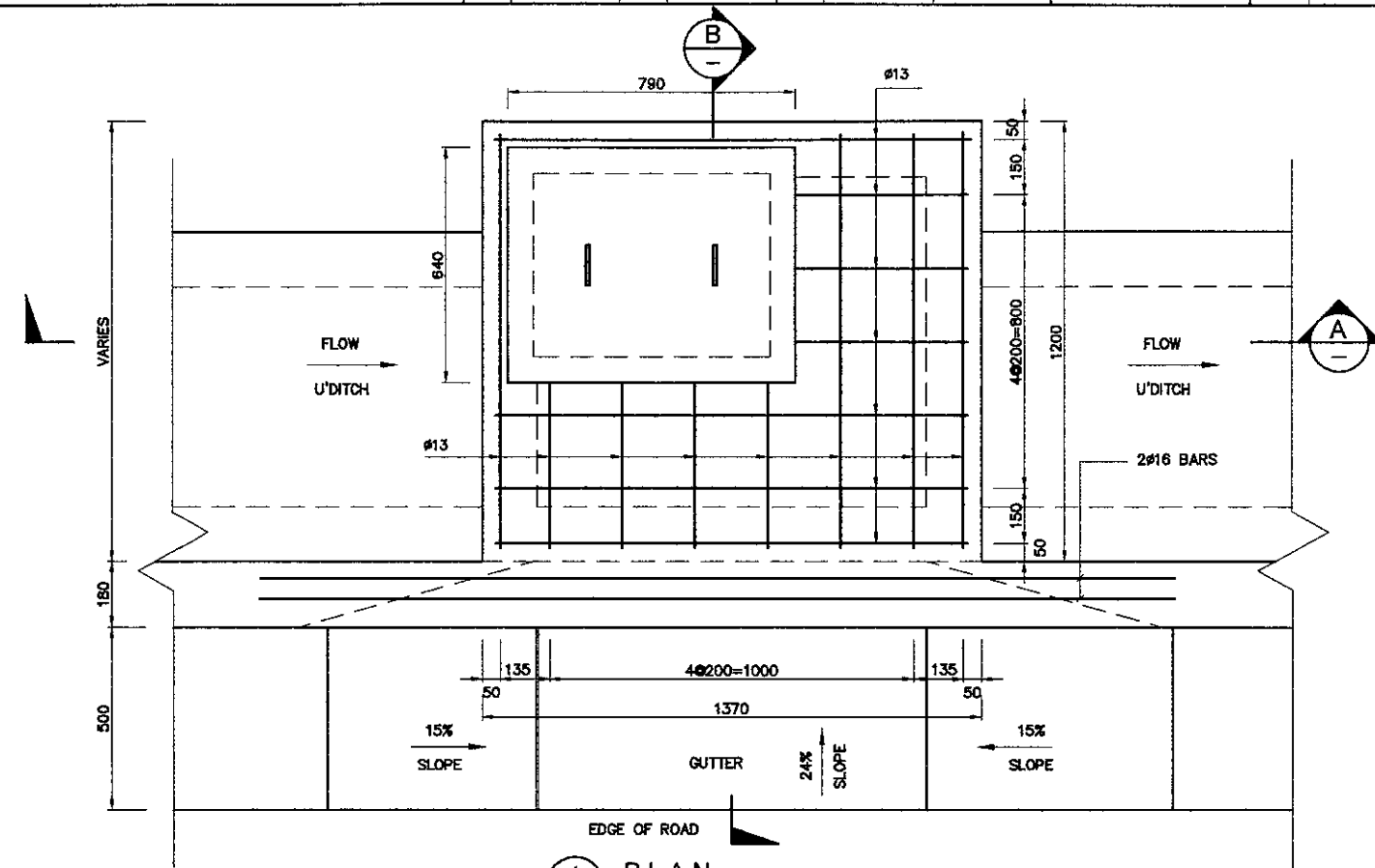
5A SECTION
 SCALE 1:40



5B FRONT ELEVATION
 SCALE 1:40

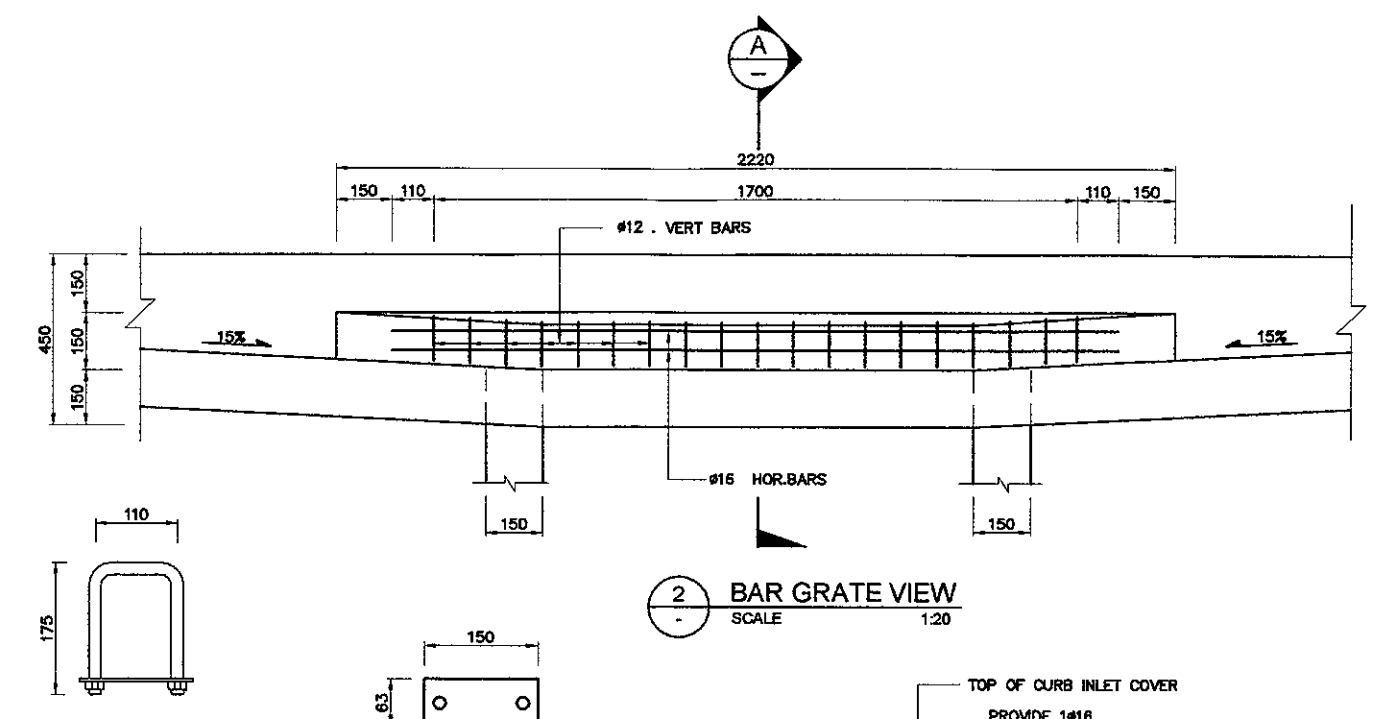
V MANHOLE TYPE - V

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



1 PLAN

 SCALE 1:20



1 ELEVATION

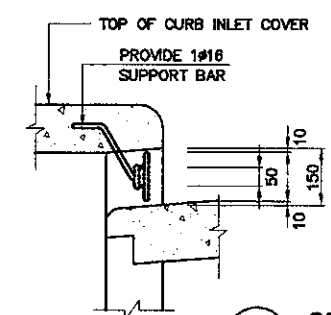
 SCALE 1:10

1 PLAN IRON DETAIL

 SCALE 1:10

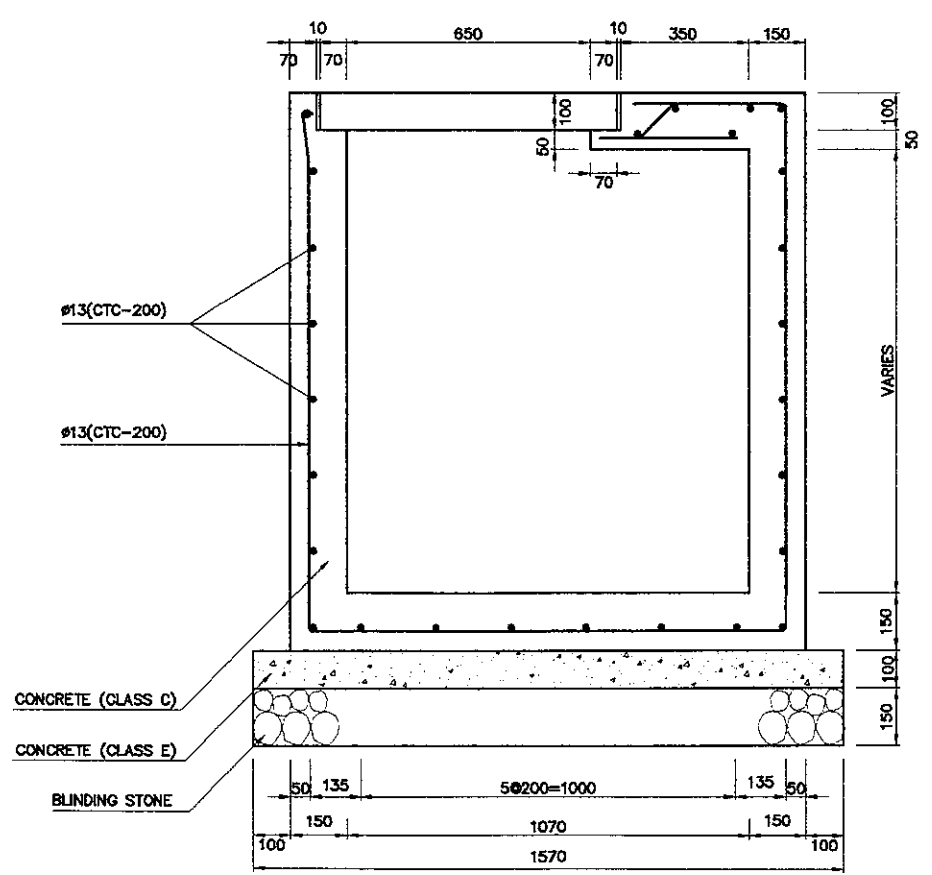
2 BAR GRATE VIEW

 SCALE 1:20



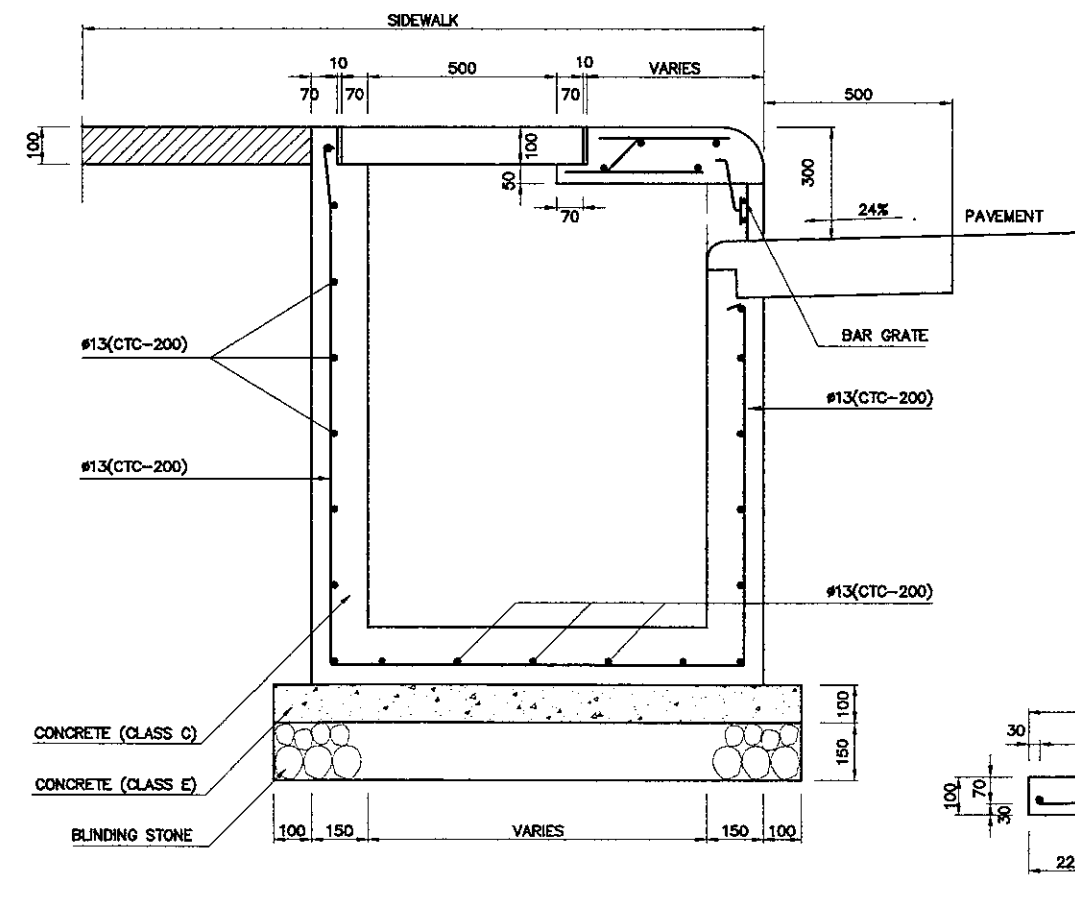
2A SECTION

 SCALE 1:20



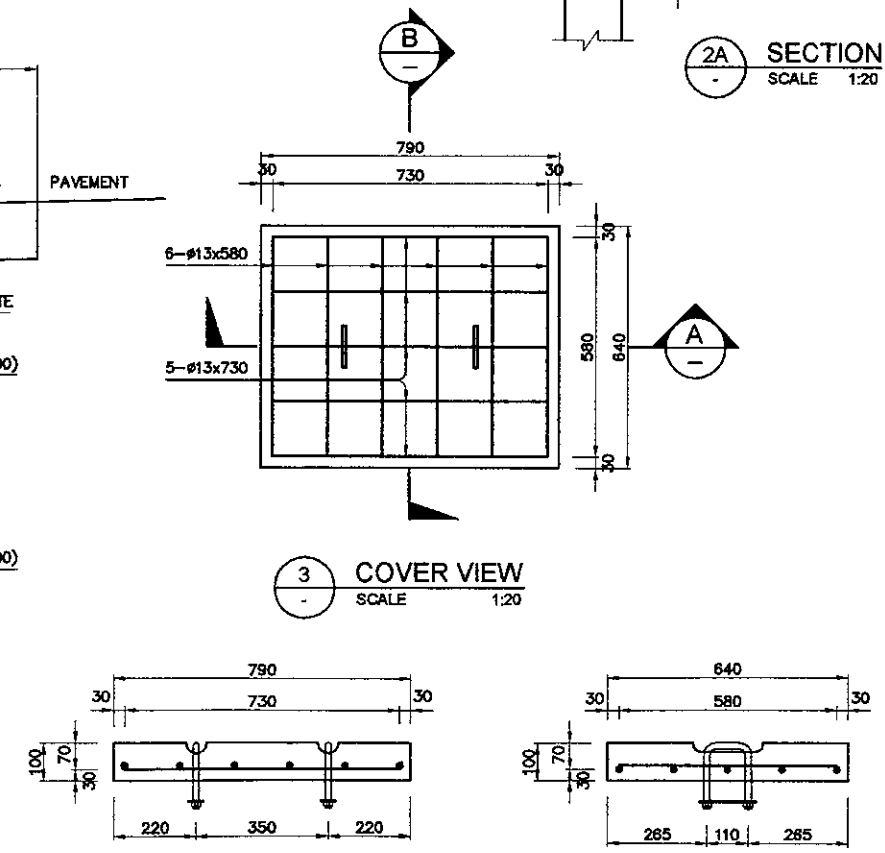
1A SECTION

 SCALE 1:20



1B SECTION

 SCALE 1:20



3 COVER VIEW

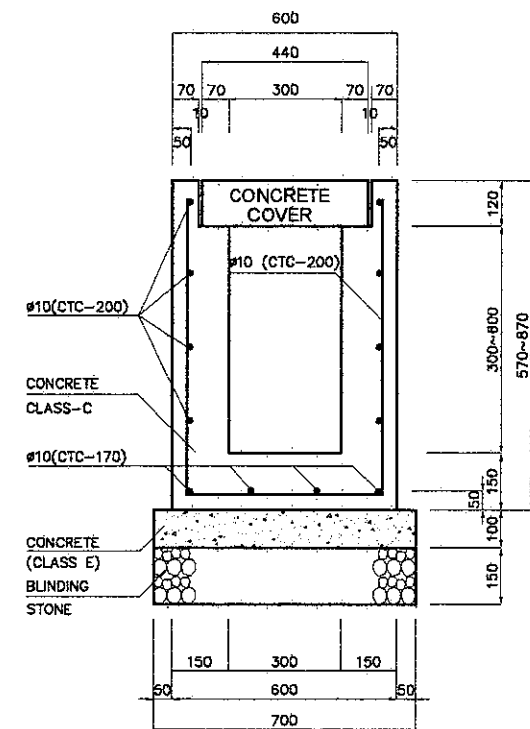
 SCALE 1:20

3B SECTION

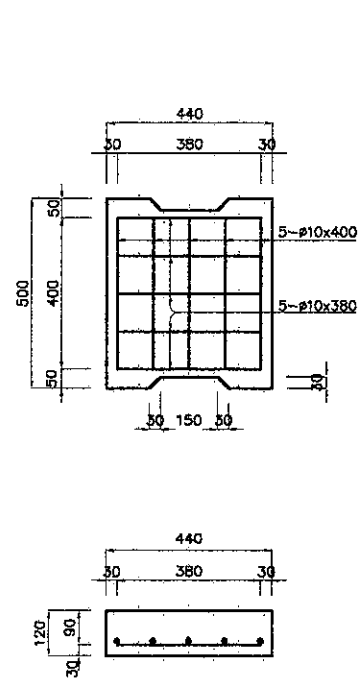
 SCALE 1:20

3A SECTION

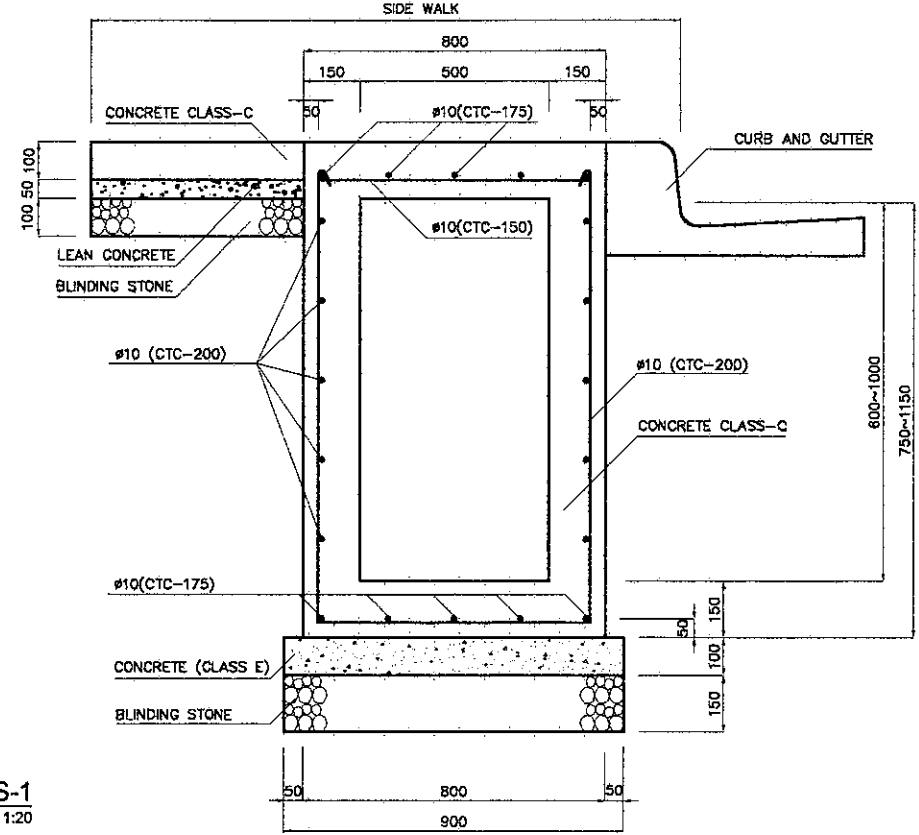
 SCALE 1:20



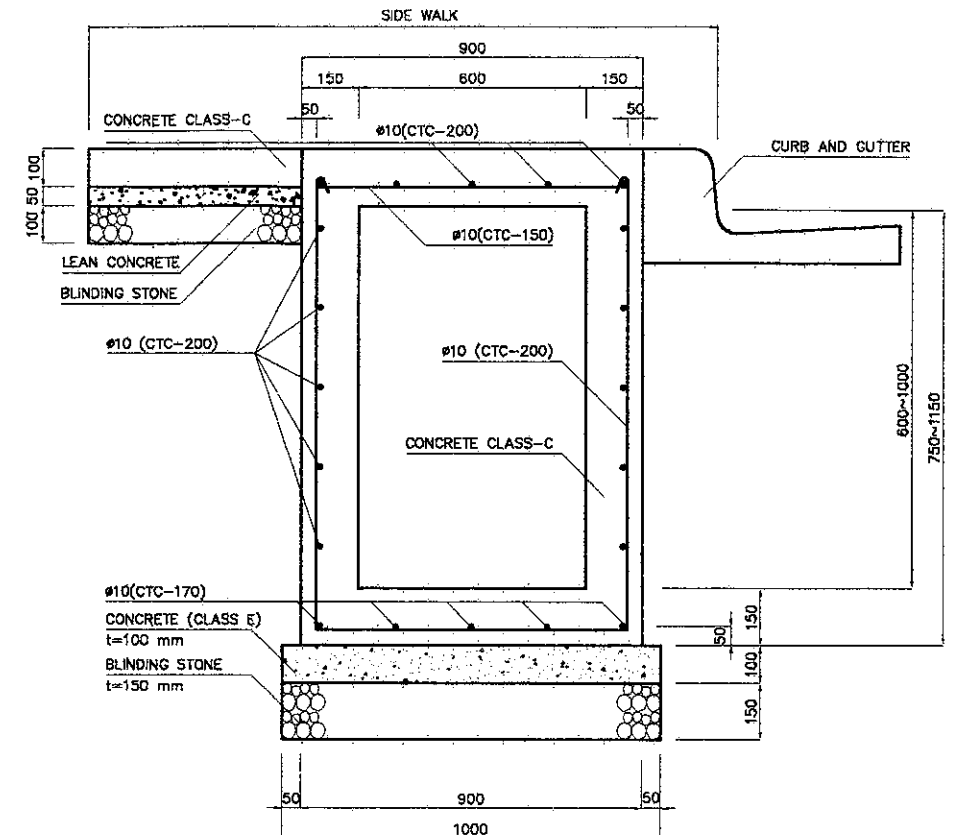
1 DS - 1
 SCALE 1:20



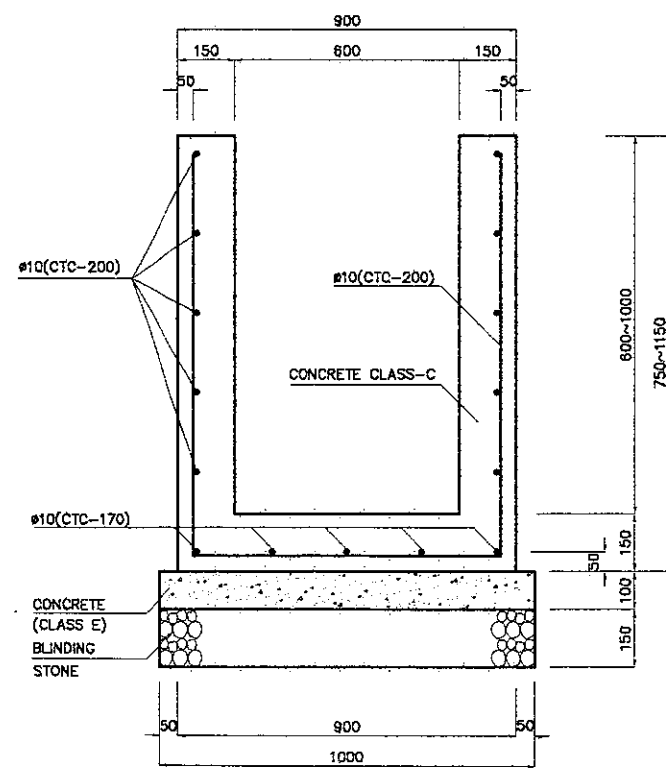
1A CONCRETE COVER FOR DS-1
 SCALE 1:20



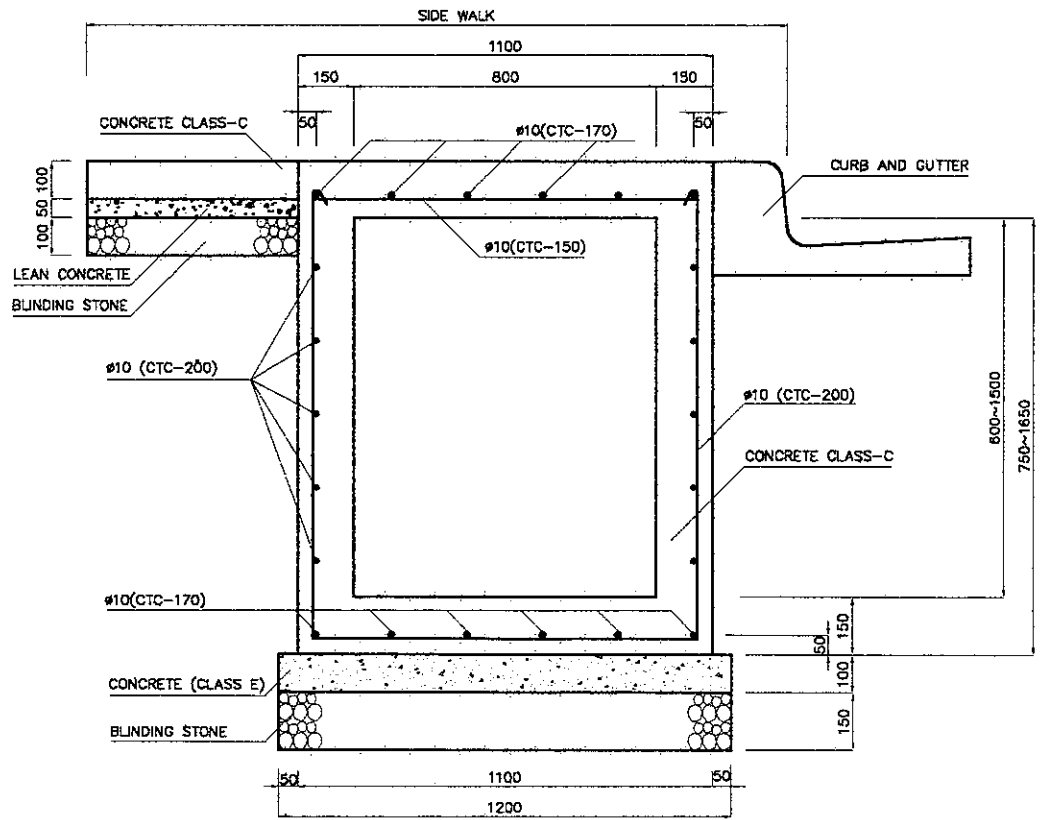
2 DS - 2
 SCALE 1:20



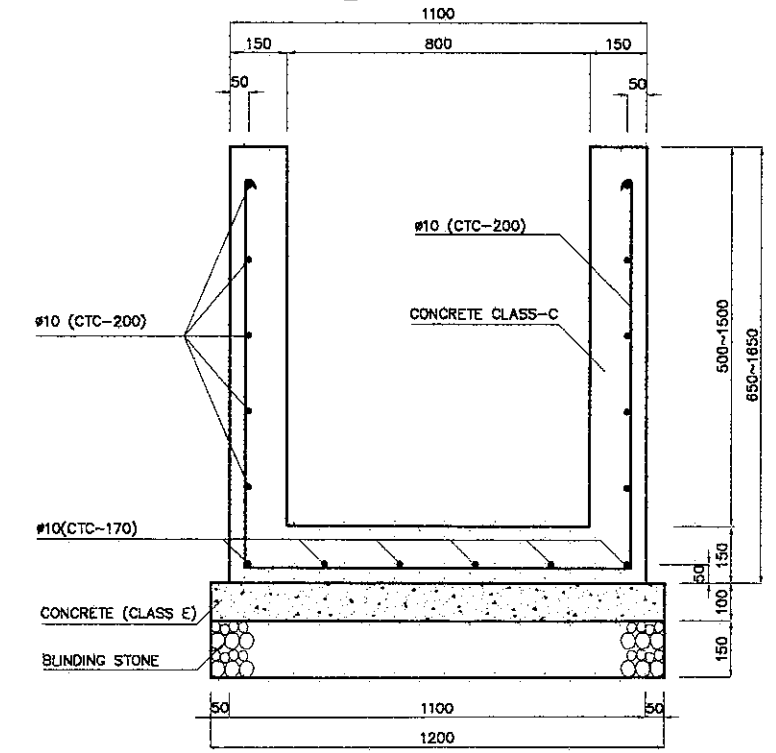
3 DS - 3
 SCALE 1:20



4 DS - 3A
 SCALE 1:20

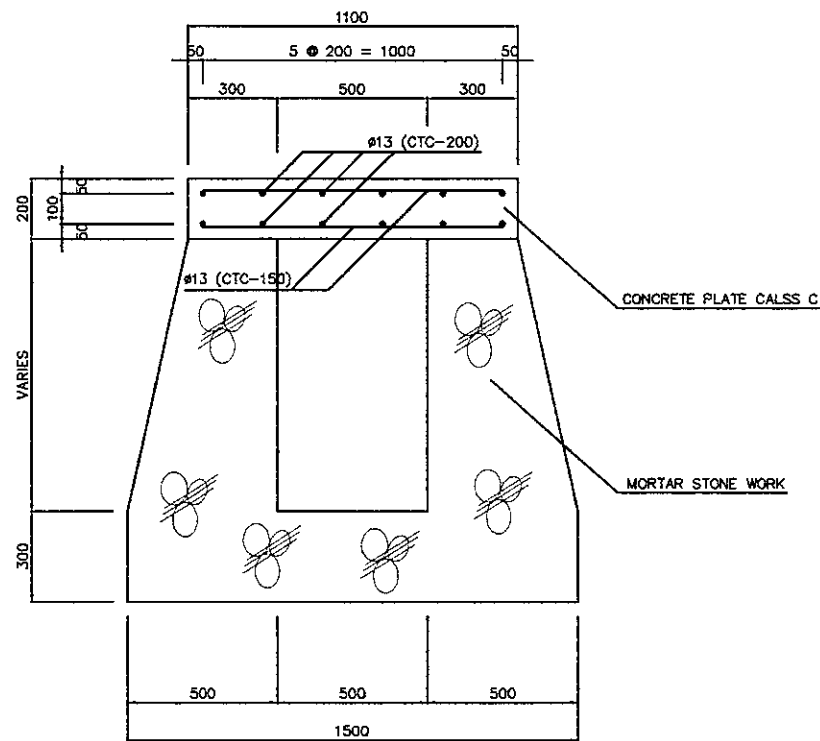


5 DS - 4
 SCALE 1:20



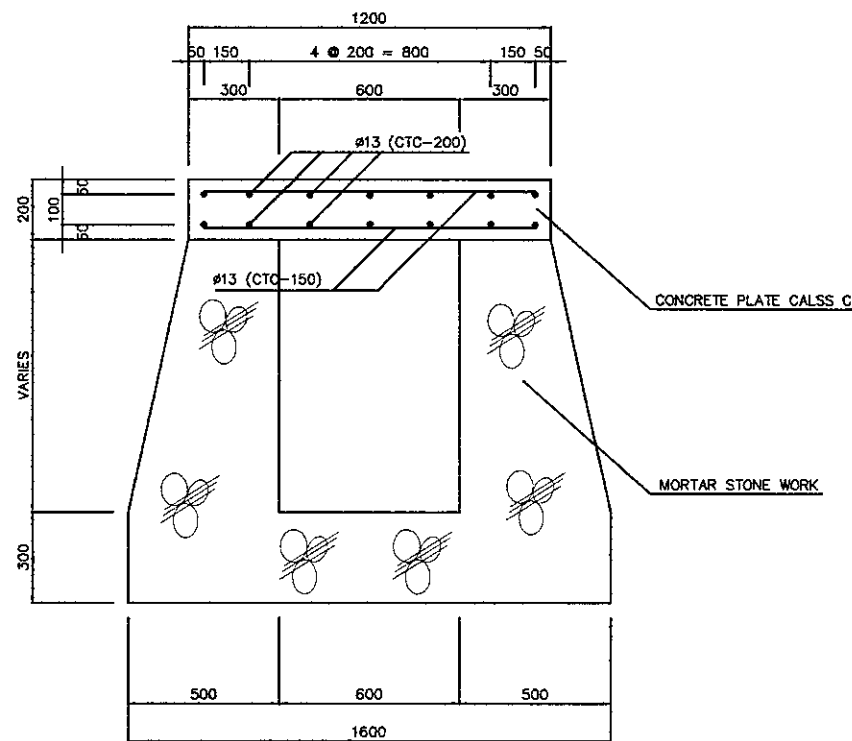
6 DS - 4A
 SCALE 1:20

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



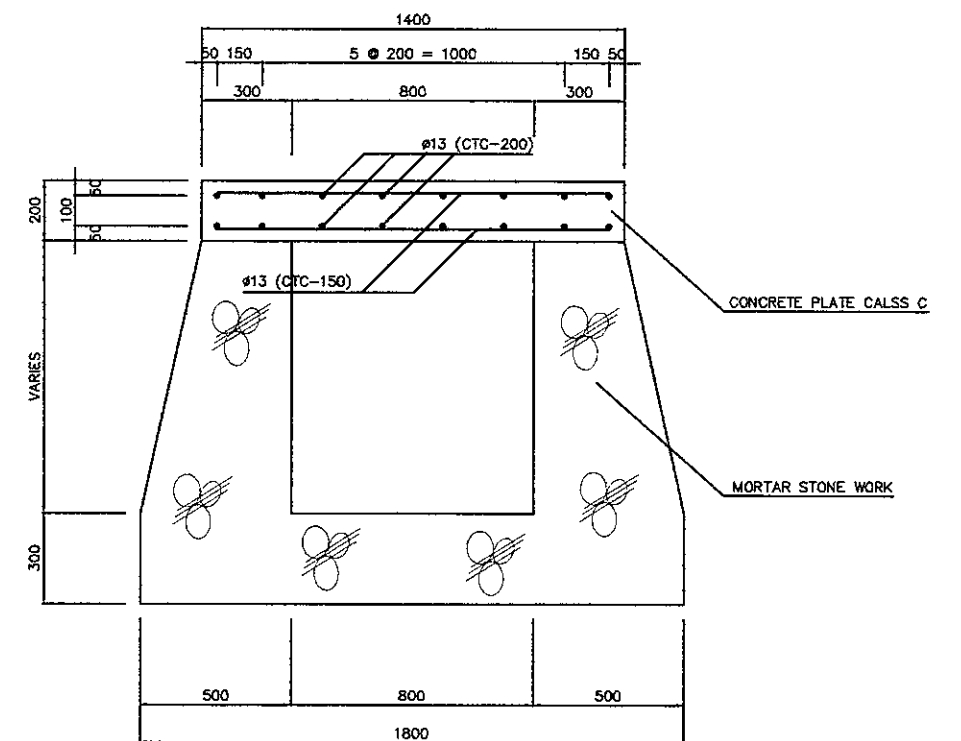
1 MORTAR STONE WORK TYPE - I

 SCALE 1:25



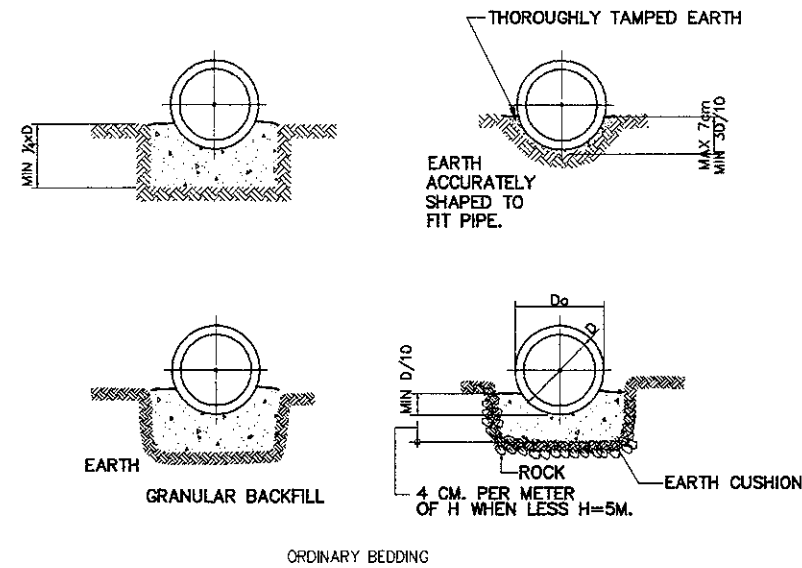
2 MORTAR STONE WORK TYPE - II

 SCALE 1:25

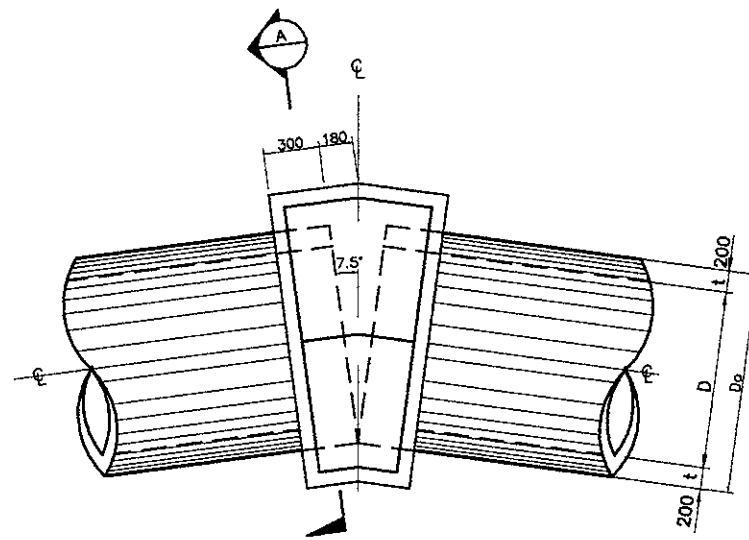


3 MORTAR STONE WORK TYPE - III

 SCALE 1:25

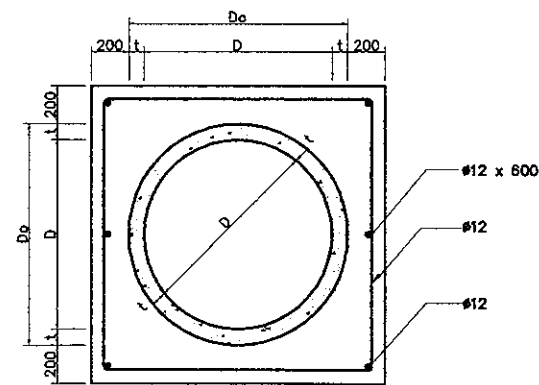


1 TYPICAL BEDDING FOR PROJECTING CONDUITS
 SCALE N T S



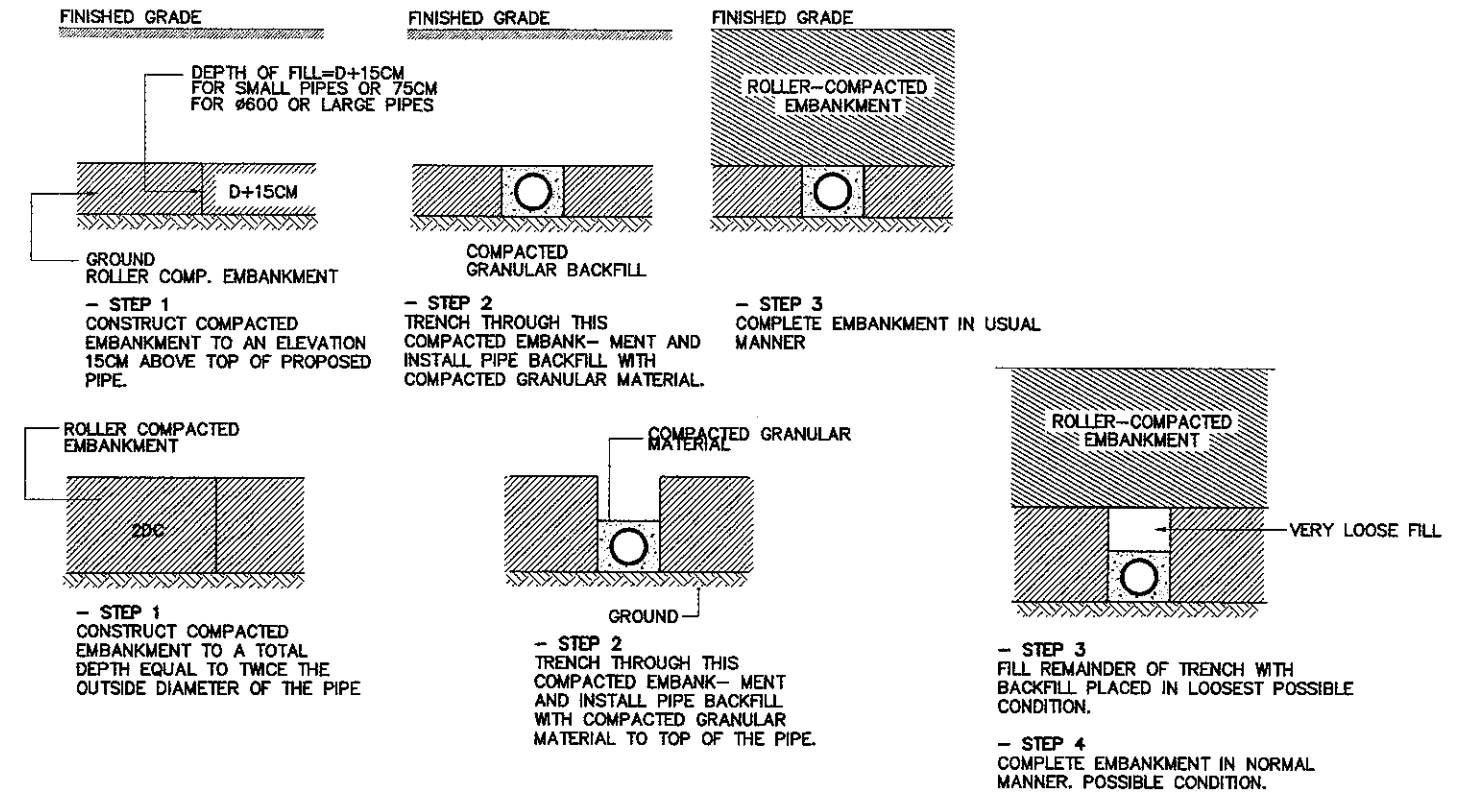
3 PLAN
 SCALE 1:40

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

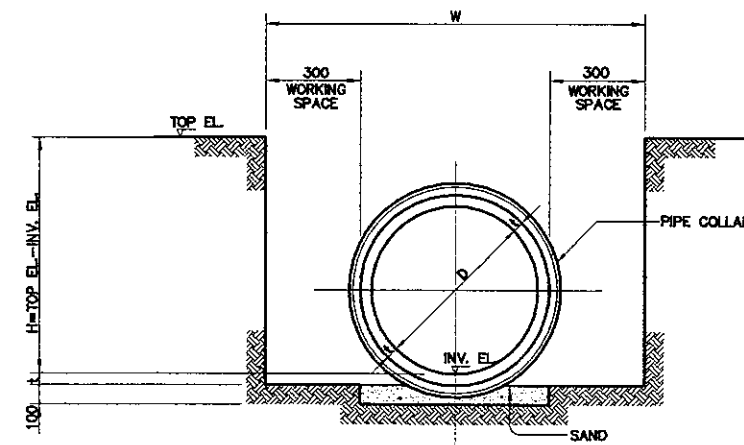


3A SECTION
 SCALE 1:40

3 PIPE COLLAR AT BEND DETAILS
 SCALE 1:40



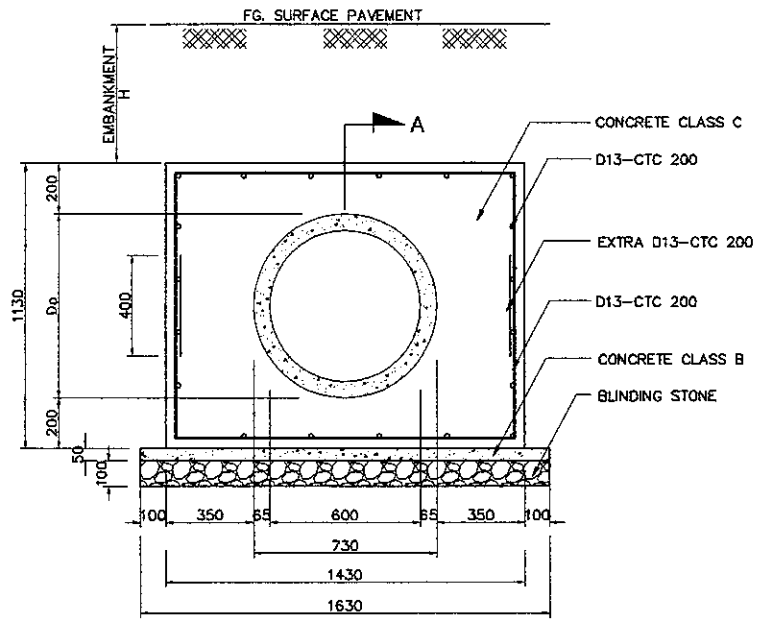
2 METHODS OF PIPE INSTALLATION FOR FILL AREAS
 SCALE N T S



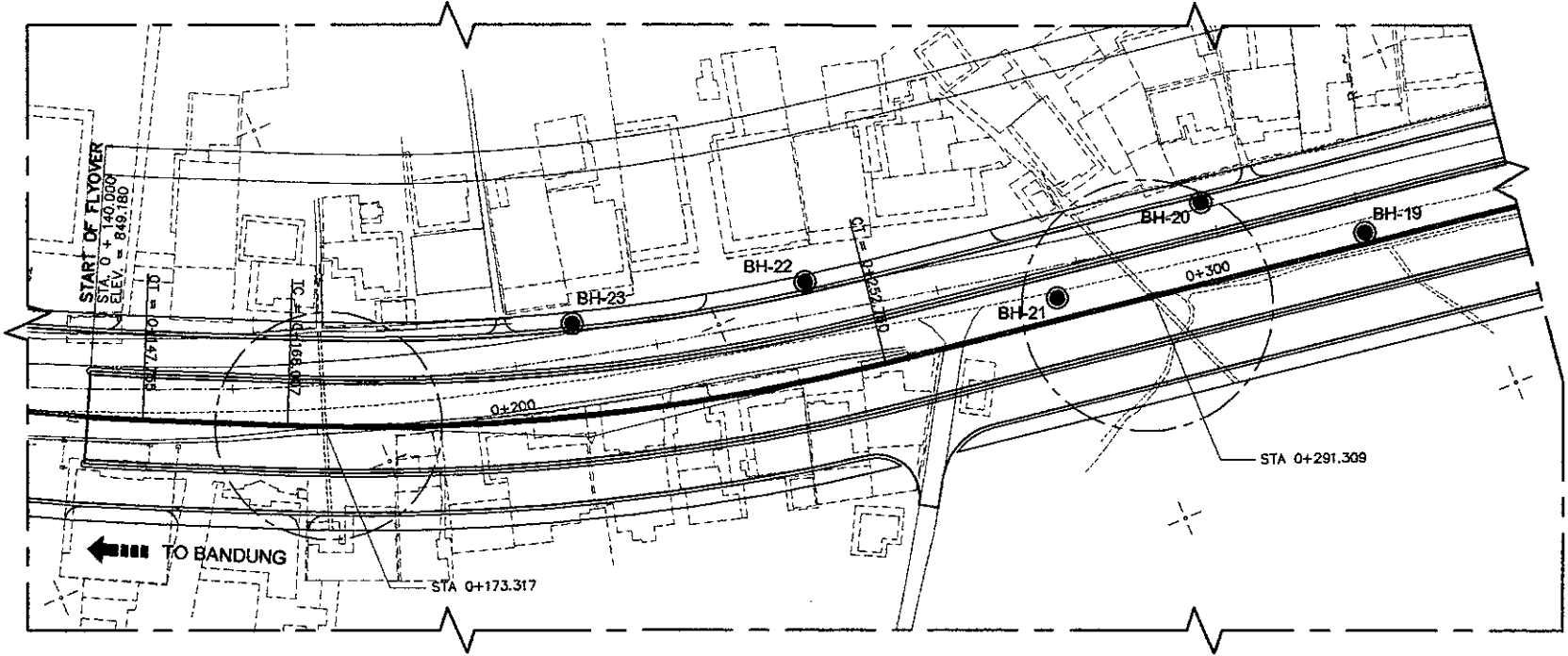
4 FRONT VIEW
 SCALE 1:40

4 TRENCHING AND BEDDING DETAILS FOR CUT AREAS
 SCALE 1:40

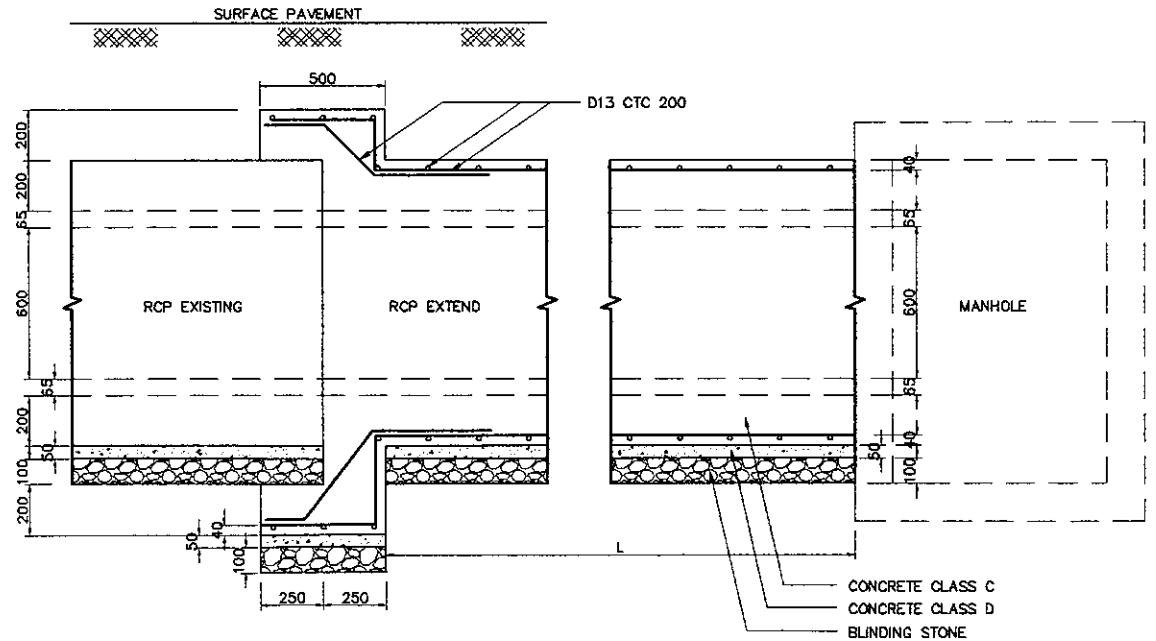
NOTES:
 1. ALL DIMENSIONS SHOWN ON THIS PLAN ARE IN MILLIMETER UNITS OTHERWISE INDICATED.
 2. D = INTERNAL DIAMETER.



3 CROSS SECTION
 SCALE 1:30



4 PLAN
 SCALE 1:50

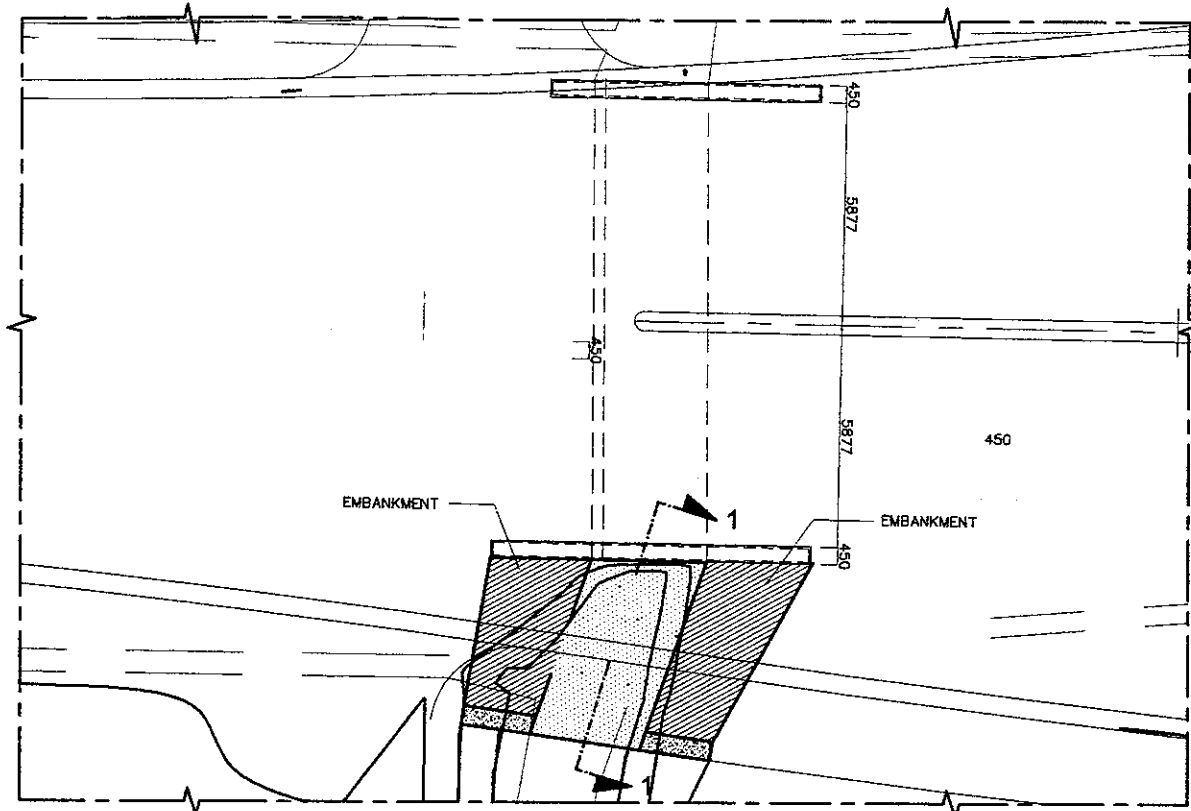


2 SECTION A-A
 SCALE 1:30

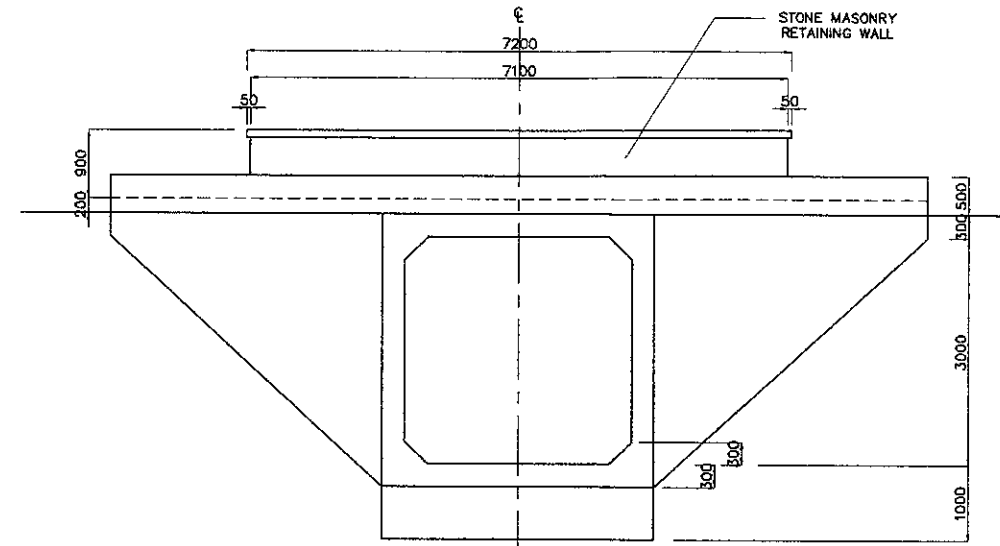
1 DETAIL OF EXTENSION RC PIPE
 SCALE 1:30

STATION (STA)	INNER DIAMETER (D)	OUTER DIAMETER (Do)	WALL THICKNESS (t)	SEGMENTATION OF RCP (Lo)	LENGTH (L)	WEIGHT (W)	RUBBER RING (Rb)	LOAD MAX	
								CREAKING LOAD	BROKEN LOAD
0+173.317	600	730	65	2500	13500	825KG	18	4307 KG/M	7800 KG/M
0+291.309	600	730	65	250	16000	825KG	18	4307 KG/M	7800 KG/M

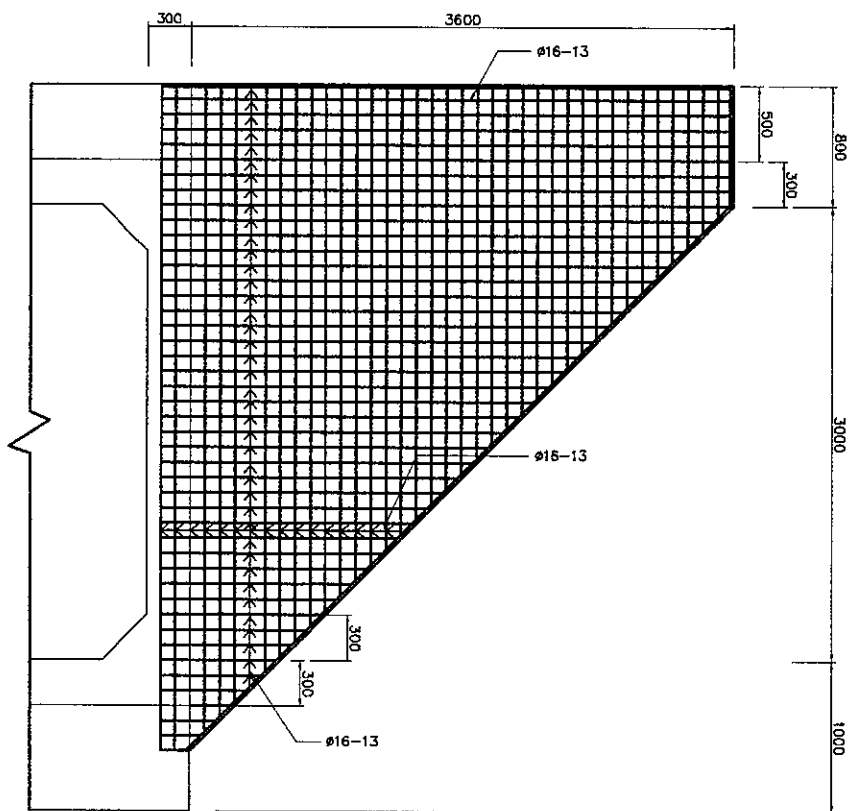
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



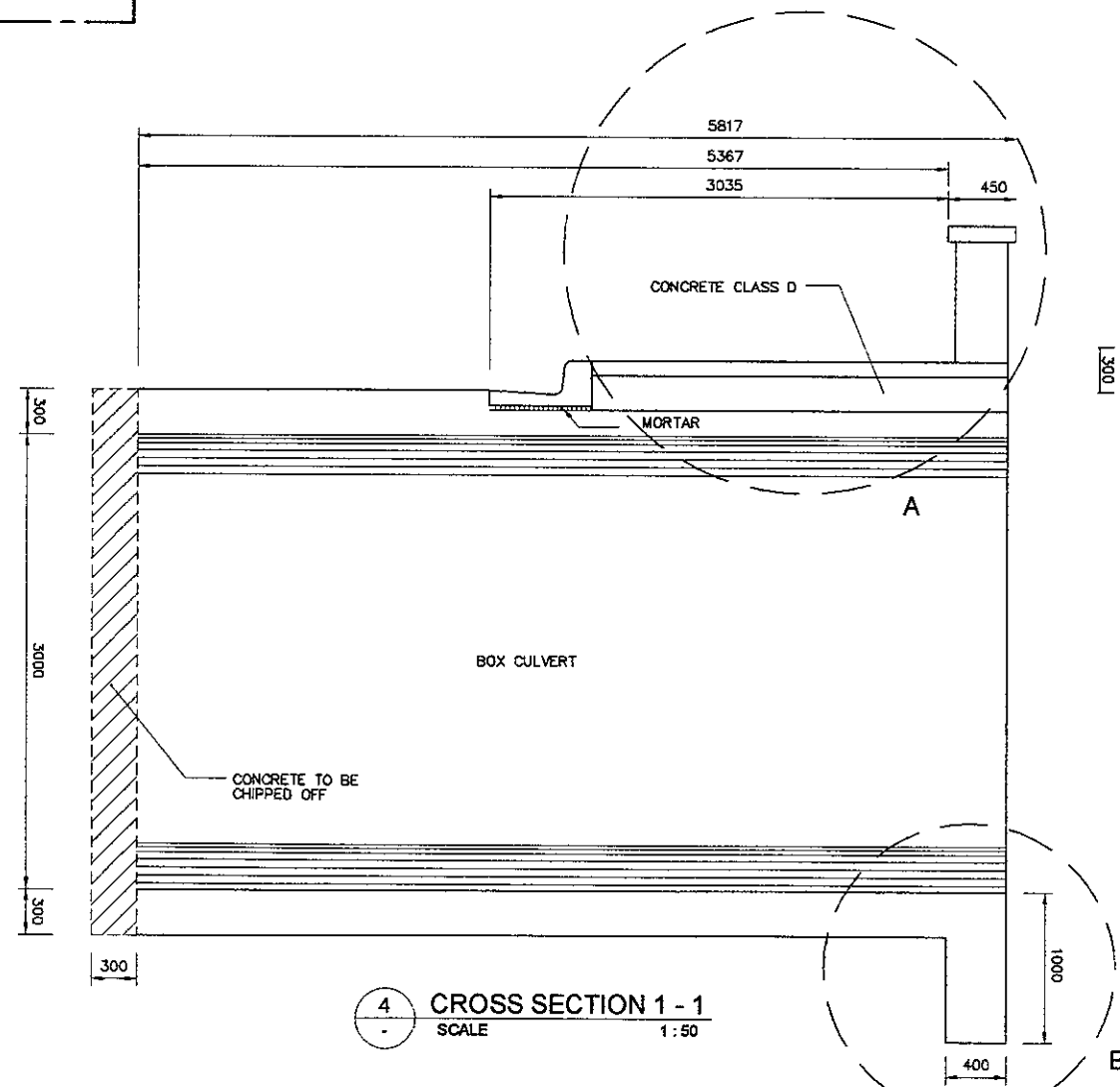
1 PLAN
 SCALE 1:400



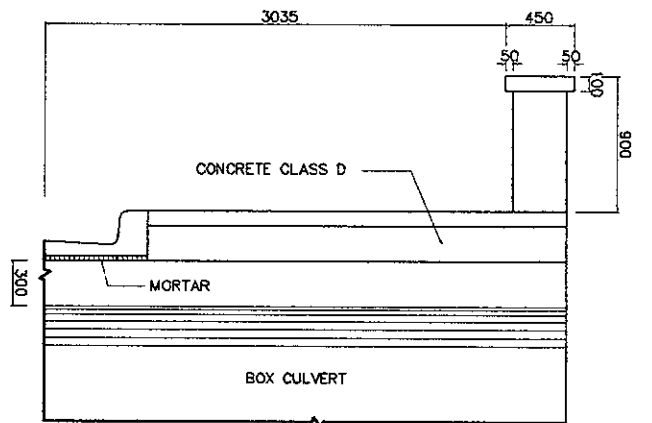
2 ELEVATION
 SCALE 1:100



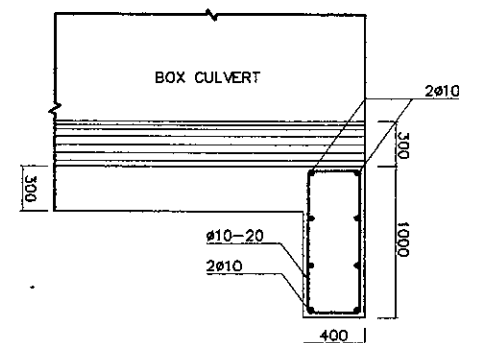
3 DETAIL REINFORCEMENT EDGE WALL
 SCALE 1:50



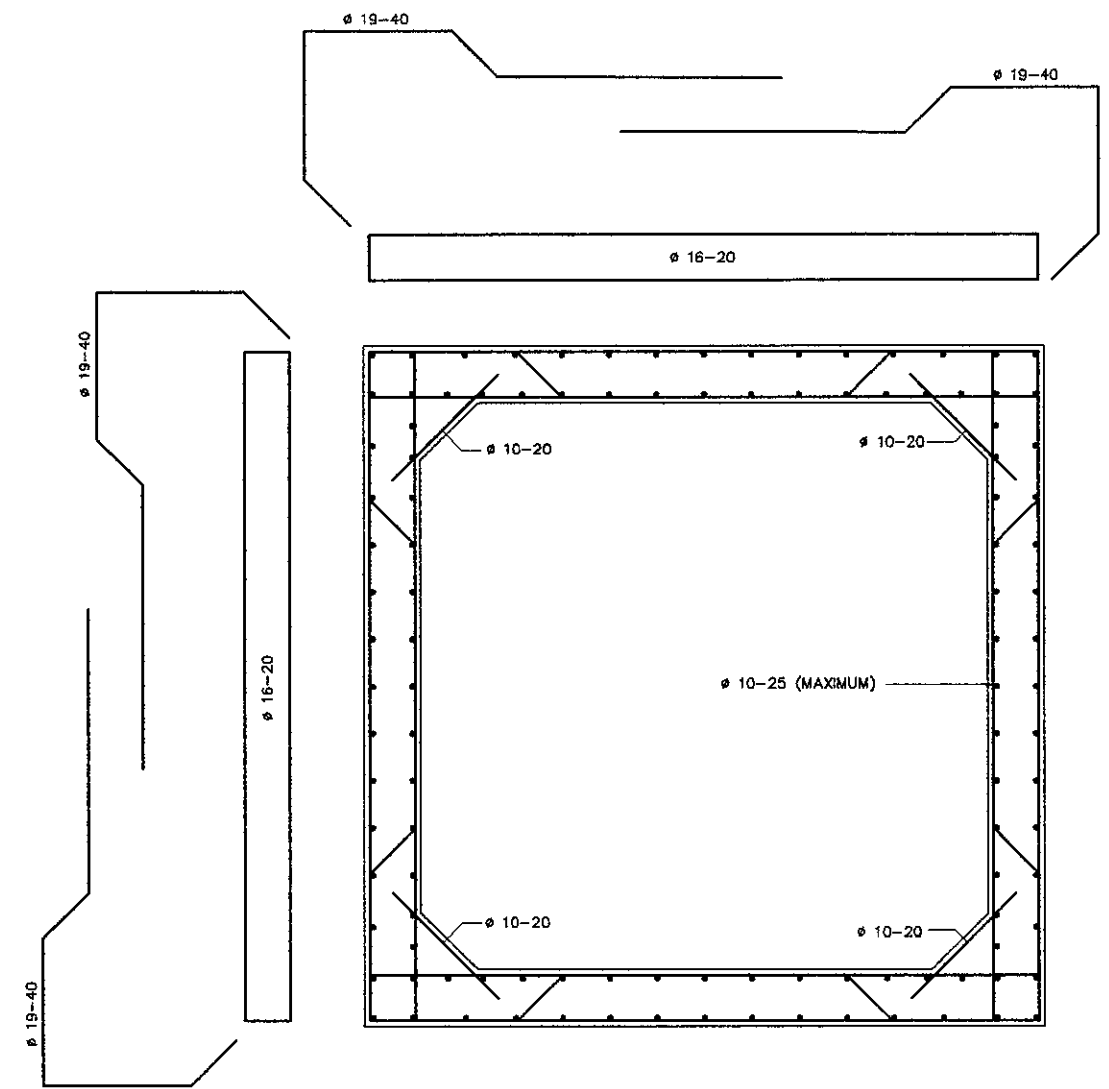
4 CROSS SECTION 1 - 1
 SCALE 1:50



5 DETAIL - A
 SCALE 1:50



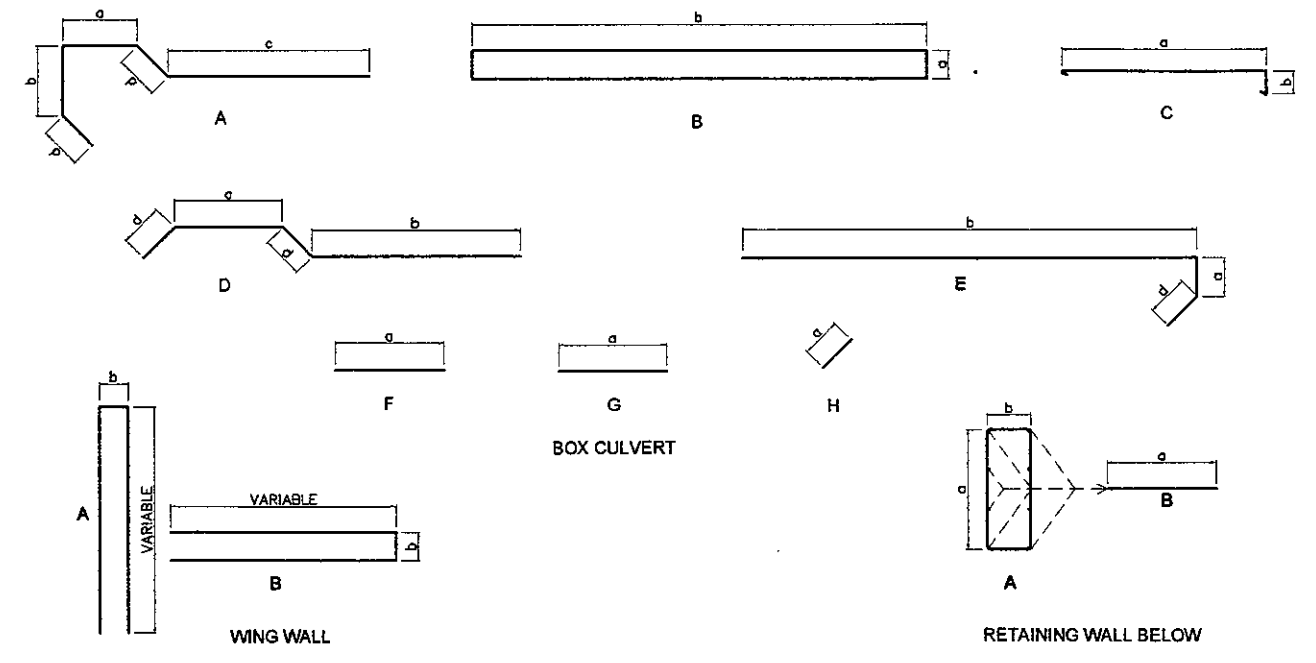
6 DETAIL - B
 SCALE 1:50

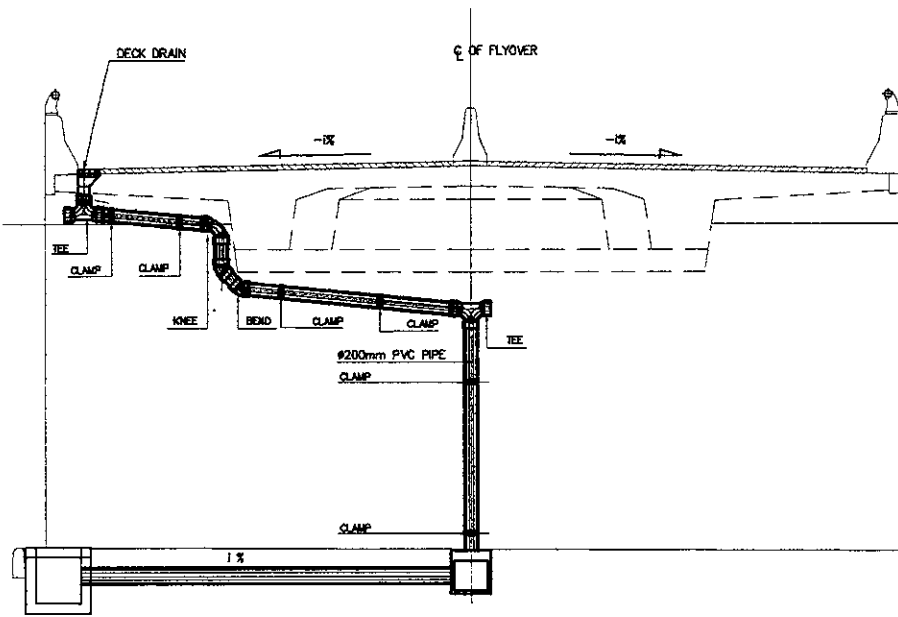


1 REINFORCEMENT DETAIL
 SCALE 1:40

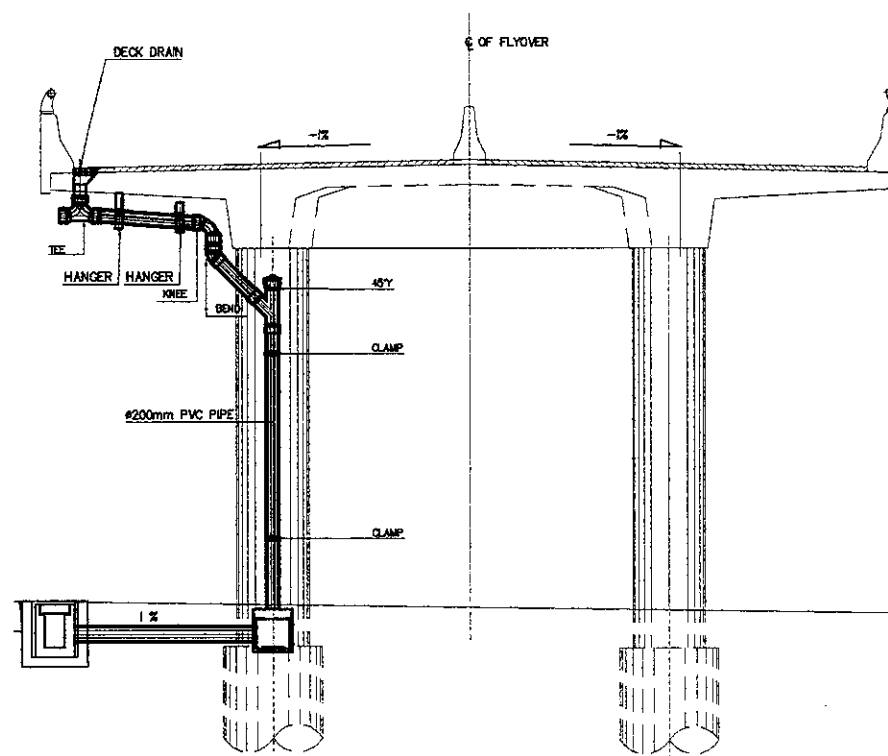
REINFORCEMENT BAR ARRANGEMENT DOUBLE BOX CULVERT PER M LENGTH

STRUCTURE	TYPE	Ø (MM)	LENGTH (CM)				TOTAL LENGTH (CM)	NUMBER	UNIT WEIGHT (KG/M)	WEIGHT (KG)
			a	b	c	d				
BOX CULVERT	A	19	72	72	189	34	401	20	2.23	179
	B	16	354	24			756	20	1.58	238
	C	10	100				100	112	0.62	69
	D	10	79				79	20	0.62	10
WING WALL (1 EACH)	A	16	74 s.d 410				188 s.d 860	30	1.58	248
	B	16	0 s.d 384				0 s.d 788	33	1.58	205
RETAINING WALL BELOW	A	10	36	92			256	18	0.62	28
	B	10	354				354	8	0.62	17

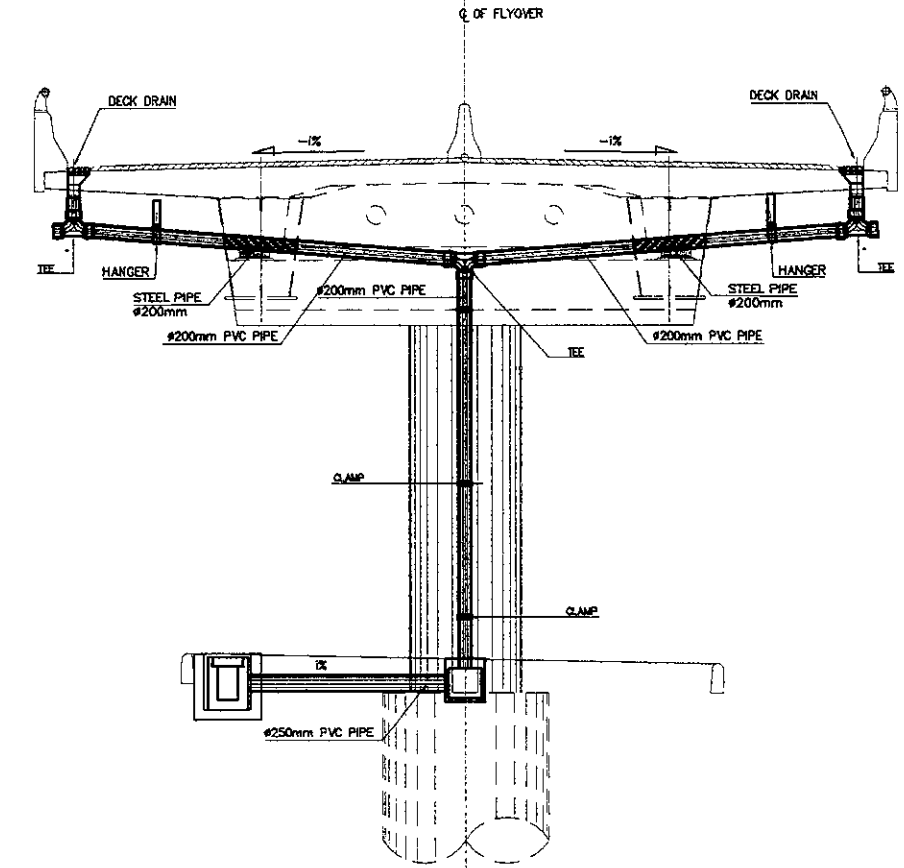




1 FRONT VIEW OF ABUTMENT
 NTS



1 FRONT VIEW OF PC SECTION
 NTS



1 FRONT VIEW OF STEEL SECTION
 NTS

DRAINAGE SCHEDULE

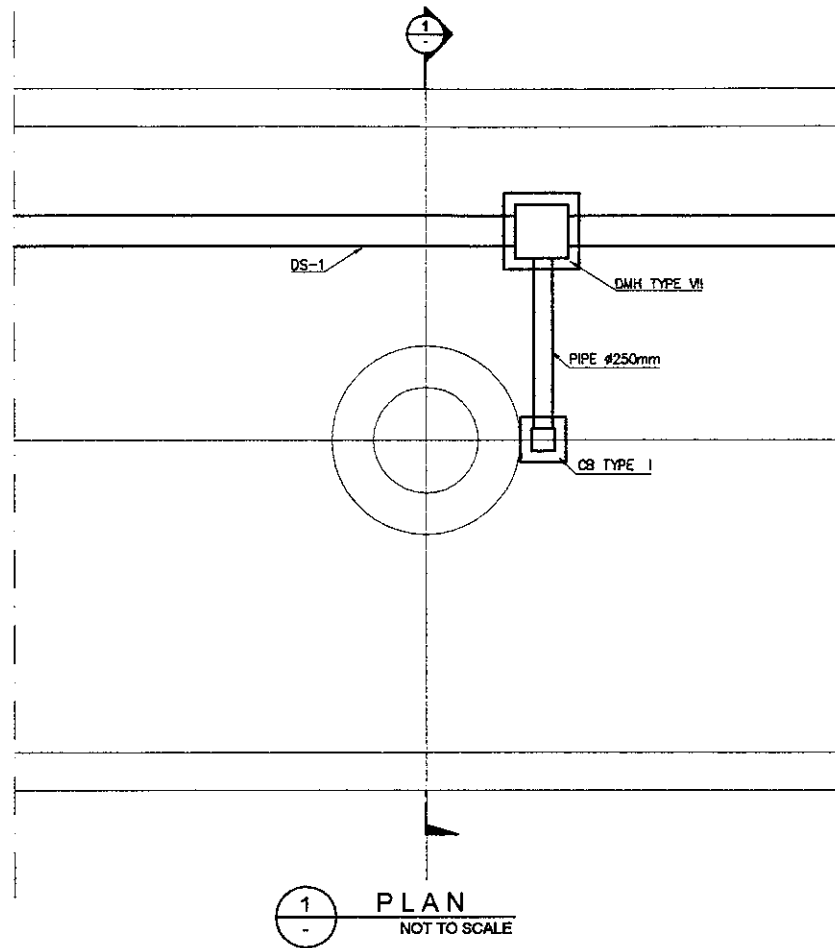
BRIDGE TYPE	ABUTMENT/PIER NO	STATION LIMIT	LEFT SIDE		RIGHT SIDE		ACCESSORIES									
			APPLIED HORIZONTAL DRAIN		DECK DRAIN TYPE II	APPLIED HORIZONTAL DRAIN	PIPE Ø200mm (m)	BEND (unit)	TEE (unit)	KNEE (unit)	45°Y (unit)	CLEAN OUT (unit)				
			TYPE OF DRAIN	LENGHT (m)									LENGHT (m)	TYPE OF DRAIN		
PC	A1	0+495.50	NONE	NONE	1	NONE	NONE	NONE	9.5	2	2	1	0	1		
	P1	0+515.50			1				6.6	1	1	1	1	1		
	P2	0+535.50			1				7.3	1	1	1	1	1		
	P3	0+555.50			1				8.1	1	1	1	1	1		
STEEL	P4	0+575.50	NONE	NONE	1	NONE	NONE	NONE	12.7	0	2	0	0	1		
	P5	0+600.50			1	1	27.00	SURFACE DOWN	18.2	0	3	0	0	0	2	
	P6	0+627.50			NONE	NONE	NONE	NONE	NONE	NONE	0	0	0	0	0	0
	P7	0+654.50									1	12.7	0	2	0	0
PC	P8	0+697.50	NONE	NONE	NONE	1	NONE	NONE	12	0	2	0	0	1		
	P9	0+699.50			1	7.1	1	1	1	1	1					
	A2	0+719.50			1	6.6	0	1	1	0	1					

APPROACH 1

STA	DECK DRAIN TYPE II	POSITION		PIPE		ACCESSORIES	
		LEFT	RIGHT	SIZE (ø,mm)	LENGHT (m)	KNEE (unit)	TEE 250X200 (unit)
0+155.50	DD-1L	1	NONE	200	0.15	1	1
0+175.50	DD-2L	1	NONE	200	0.15	1	1
0+195.50	DD-3L	1	NONE	200	0.55	1	1
0+215.50	DD-4L	1	NONE	200	0.69	1	0
0+235.50	DD-5L	1	NONE	200	1.41	1	0
0+255.50	DD-6L	1	NONE	200	2.06	1	0
0+275.50	DD-7L/DD-7R	1	1	200	5.50	2	0
0+295.50	DD-8L/DD-8R	1	1	200	6.30	2	0
0+315.50	DD-9L/DD-9R	1	1	200	6.58	2	0
0+335.50	DD-10R	NONE	1	200	3.31	1	0
0+355.50	DD-11R	NONE	1	200	3.48	1	0
0+375.50	DD-12R	NONE	1	200	3.69	1	0
0+395.50	DD-13R	NONE	1	200	3.91	1	0
0+415.50	DD-14R	NONE	1	200	4.12	1	0
0+435.50	DD-15R	NONE	1	200	4.37	1	0
0+455.50	DD-16R	NONE	1	200	4.74	1	0
0+475.50	DD-17R	NONE	1	200	5.23	1	0

APPROACH 2

STA	DECK DRAIN TYPE II	POSITION		PIPE		ACCESSORIES	
		LEFT	RIGHT	SIZE (ø,mm)	LENGHT (m)	KNEE (unit)	TEE 250X200 (unit)
0+739.50	DD-7L/DD-7R	1	1	200	10.2	2	0
0+759.50	DD-6L/DD-6R	1	1	200	7.6	2	0
0+779.50	DD-5L/DD-5R	1	1	200	5.2	2	0
0+799.50	DD-4L/DD-4R	1	1	200	3.6	2	0
0+819.50	DD-3R	NONE	1	200	1.4	1	1
0+839.50	DD-2R	NONE	1	200	0.8	1	1
0+859.50	DD-1R	NONE	1	200	0.4	2	0



DRAINAGE SCHEDULE

FROM MH	TO MH	LOCATION	LENGTH (m)	U'DITCH/PIPE SLOPE(%)	INVERT ELEV. (m)		REMARKS
					UPSTREAM	DOWNSTREAM	
CB TYPE I-1	DMH TYPE VII-3	P1-P1	2.5	2.00	858.636	858.586	PIPE #250
DMH TYPE VII-3	DMH TYPE VI-1	P1-A1	19.2	2.00	858.586	858.202	U'DITCH DS 1
DMH TYPE VII-1	DMH TYPE VII-2	A1-A1	6.0	2.00	858.202	858.082	U'DITCH DS 1
DMH TYPE VII-2	DMH-67	A1-A1	5.8	2.00	858.082	857.972	RCP #600 (B)
CB TYPE I-5	DMH TYPE VII-6	P5-P4	25	2.00	860.447	859.947	PIPE #250
CB TYPE I-4	DMH TYPE VII-6	P4-P4	1.6	1.00	859.963	859.947	PIPE #250
DMH TYPE VII-6	DMH TYPE VII-5	P4-P3	19.2	3.00	859.947	859.371	U'DITCH DS 1
CB TYPE I-3	DMH TYPE VII-5	P3-P3	1	2.00	859.381	859.371	PIPE #250
DMH TYPE VII-5	DMH TYPE VII-4	P3-P2	18.6	2.00	859.371	858.999	U'DITCH DS 1
CB TYPE I-2	DMH TYPE VII-4	P2-P2	2.4	1.00	859.023	858.999	PIPE #250
DMH TYPE VII-4	DMH-69	P2-P2	6.5	2.00	858.999	858.347	RCP #600 (B)
CB TYPE I-5A	DMH-29	P7-P7	6.3	0.30	861.600	861.581	PIPE #250
CB TYPE I-7	DMH TYPE VII-8	P9-P9	2.5	2.00	862.047	861.997	PIPE #250
DMH TYPE VII-8	DMH TYPE VII-7	P9-P8	19.3	2.00	861.997	861.811	U'DITCH DS 1
CB TYPE I-6	DMH TYPE VII-7	P8-P8	4.2	2.00	861.895	861.811	PIPE #250
DMH TYPE VII-7	DMH-75	P8-P8	6.0	2.00	861.611	861.501	RCP #600 (B)
DMH TYPE VII-11	DMH TYPE VII-10	A2-A2	1.0	0.50	862.991	862.946	U'DITCH DS 1
DMH TYPE VII-10	DMH TYPE VII-9	A2-A2	9.0	1.50	862.946	862.931	U'DITCH DS 1
DMH TYPE VII-9	DMH TYPE VII-77	A2-A2	7.6	0.50	862.931	862.927	RCP #600 (B)

DRAINAGE ALONG APPROACH LEFT SIDE

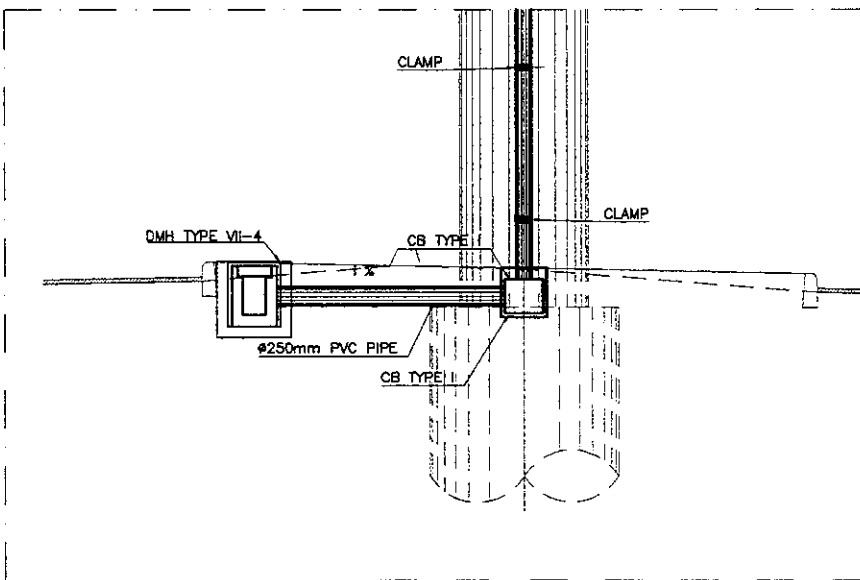
FROM STA/MH	TO STA/MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	U'DITCH/PIPE SLOPE(%)
0+315.50	0+295.50	U'DITCH DS 5	20	4.32
0+295.50	0+275.50	U'DITCH DS 5	20	2.98
0+275.50	0+255.50	U'DITCH DS 5	20	1.97
0+255.50	0+235.50	U'DITCH DS 5	20	1.72
0+235.50	0+215.50	U'DITCH DS 5	20	1.44
0+215.50	0+195.50	U'DITCH DS 5	20	1.19
0+195.50	0+175.50	PIPE #250	20	1.00
0+175.50	0+155.50	PIPE #250	20	1.00
0+155.50	DMH VIII-1	PIPE #250	15.5	1.00
DMH VIII-1	DMH-49	RCP #600 (B)	6.5	0.5

FROM STA/MH	TO STA/MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	U'DITCH/PIPE SLOPE(%)
0+799.50	0+779.50	U'DITCH DS 5	20	1.90
0+779.50	0+759.50	U'DITCH DS 5	20	2.89
0+759.50	0+739.50	U'DITCH DS 5	20	3.18
0+739.50	DMH TYPE VII-9	U'DITCH DS 5	20	2.94

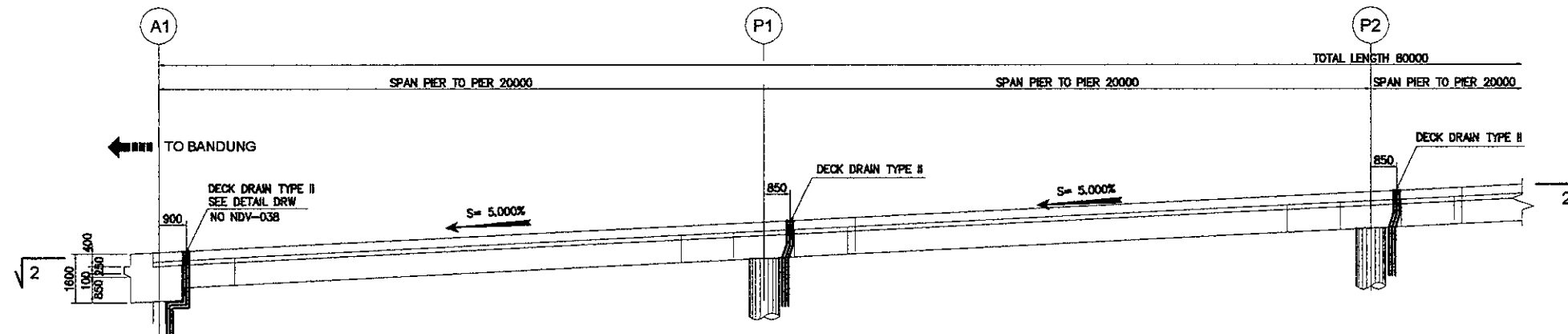
DRAINAGE ALONG APPROACH RIGHT SIDE

FROM STA/MH	TO STA/MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	U'DITCH/PIPE SLOPE(%)
0+475.50	0+455.50	U'DITCH DS 5	20	2.52
0+455.50	0+435.50	U'DITCH DS 5	20	3.16
0+435.50	0+415.50	U'DITCH DS 5	20	3.78
0+415.50	0+395.50	U'DITCH DS 5	20	3.93
0+395.50	0+375.50	U'DITCH DS 5	20	3.93
0+375.50	0+355.50	U'DITCH DS 5	20	3.93
0+355.50	0+335.50	U'DITCH DS 5	20	4.13
0+335.50	0+315.50	U'DITCH DS 5	20	4.51
0+315.50	0+295.50	U'DITCH DS 5	20	4.32
0+295.50	0+275.50	U'DITCH DS 5	20	2.98
0+275.50	0+255.50	U'DITCH DS 5	20	1.97
0+255.50	0+235.50	U'DITCH DS 5	20	1.72
0+235.50	0+215.50	U'DITCH DS 5	20	1.44
0+215.50	0+195.50	U'DITCH DS 5	20	1.19
0+195.50	0+175.50	PIPE #250	20	1.11
0+175.50	0+155.50	PIPE #250	20	0.87
0+155.50	DMH VIII-2	PIPE #250	15.5	0.38
DMH VIII-2	DMH-05	RCP #600 (B)	6.5	0.5

FROM STA/MH	TO STA/MH	TYPE OF U'DITCH/PIPE	LENGTH (m)	U'DITCH/PIPE SLOPE(%)
0+859.50	0+839.50	PIPE #250	20	1.00
0+839.50	0+819.50	PIPE #250	20	1.00
0+819.50	0+799.50	PIPE #250	20	1.00
0+799.50	0+779.50	U'DITCH DS 5	20	1.90
0+779.50	0+759.50	U'DITCH DS 5	20	2.89
0+759.50	0+739.50	U'DITCH DS 5	20	3.18
0+739.50	DMH TYPE VII-11	U'DITCH DS 5	20	2.97

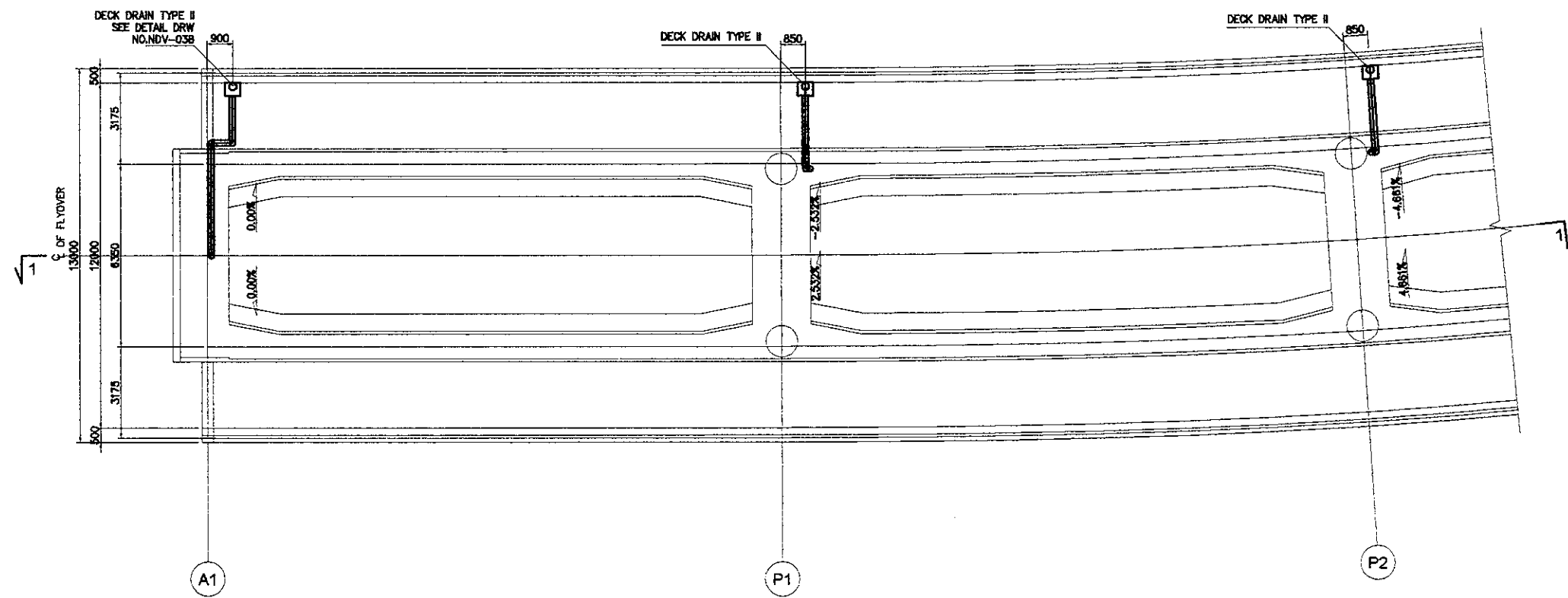


DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



1 SECTION 1-1

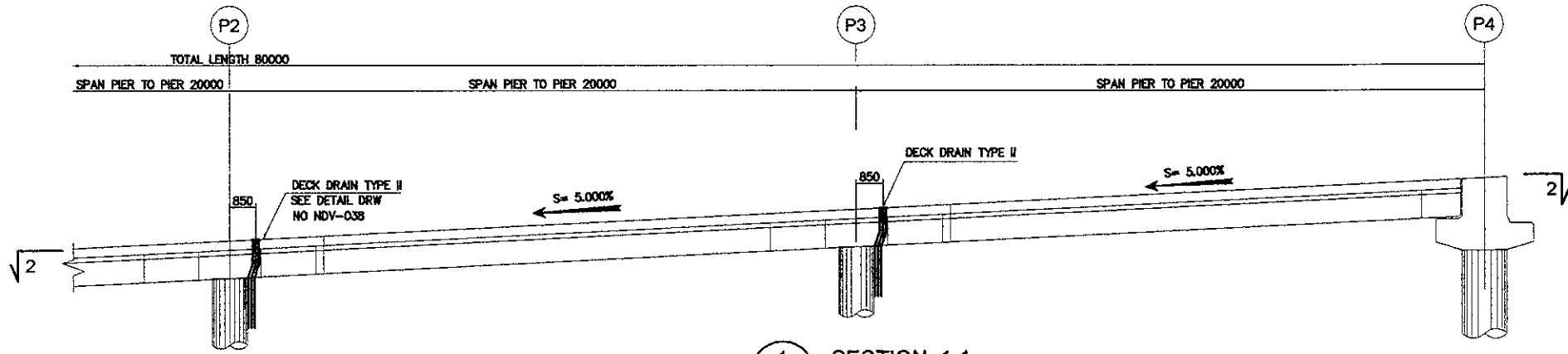
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2 SECTION 2-2

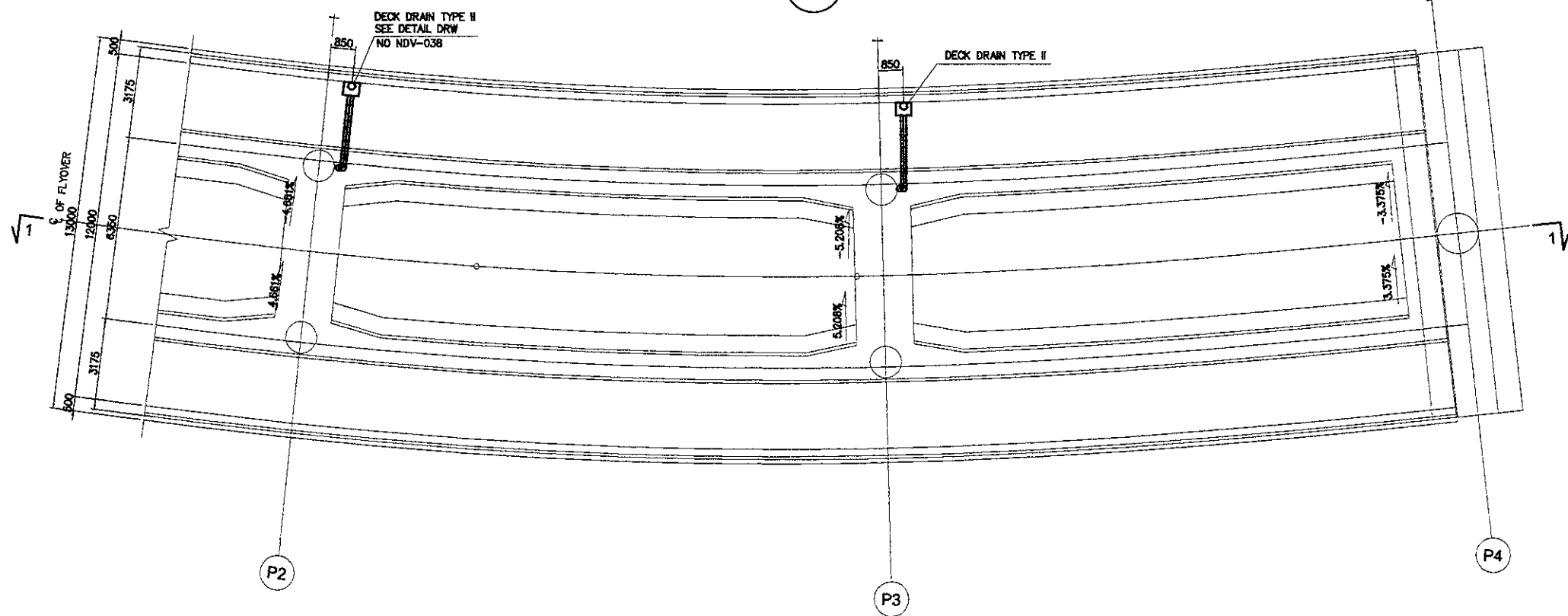
 SCALE : 1 : 200

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



1 SECTION 1-1

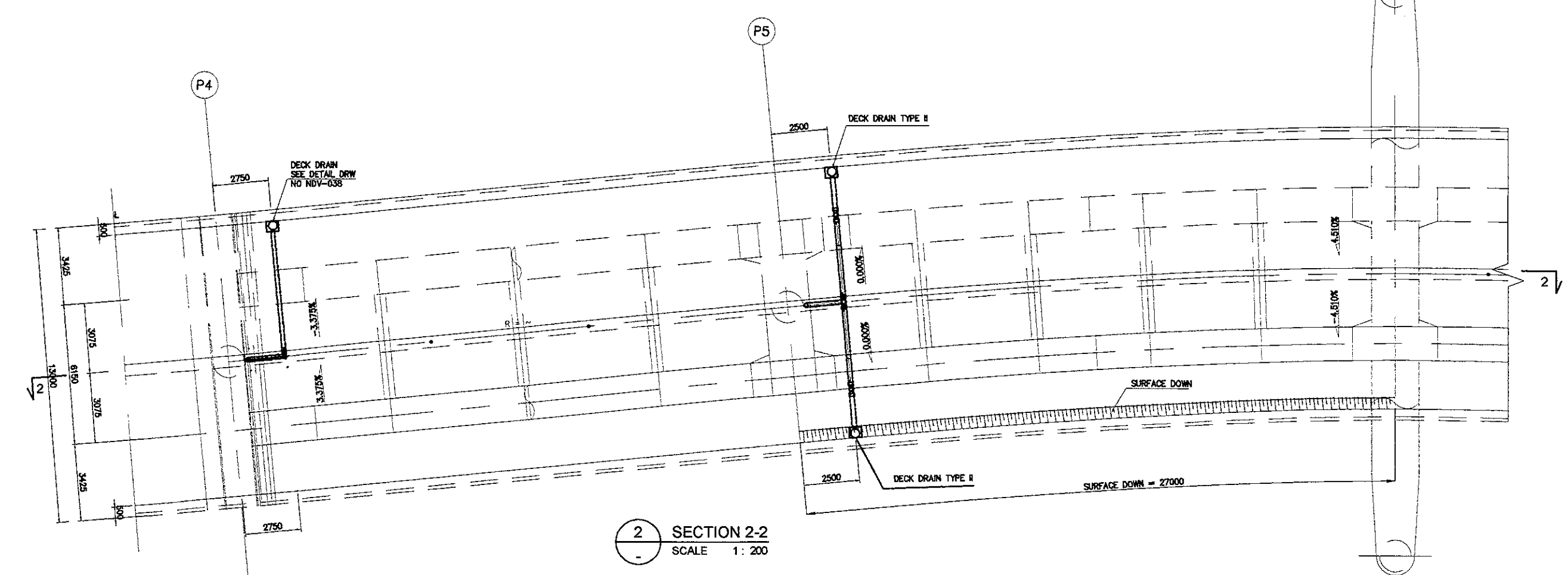
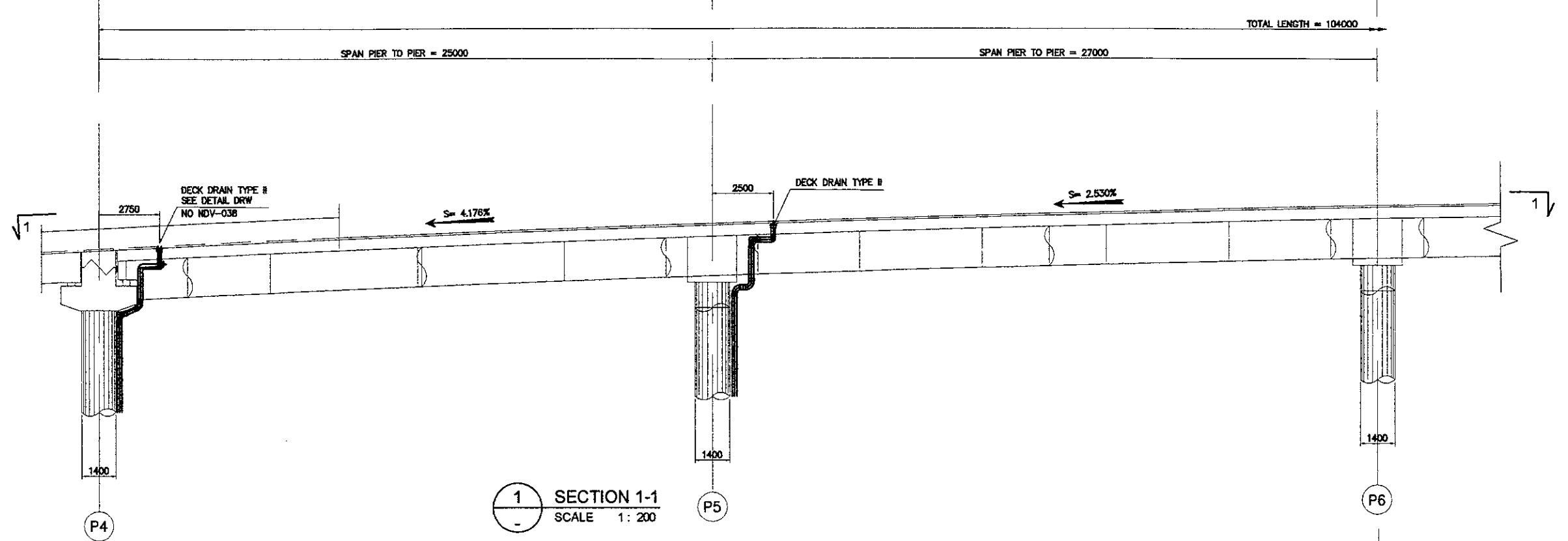
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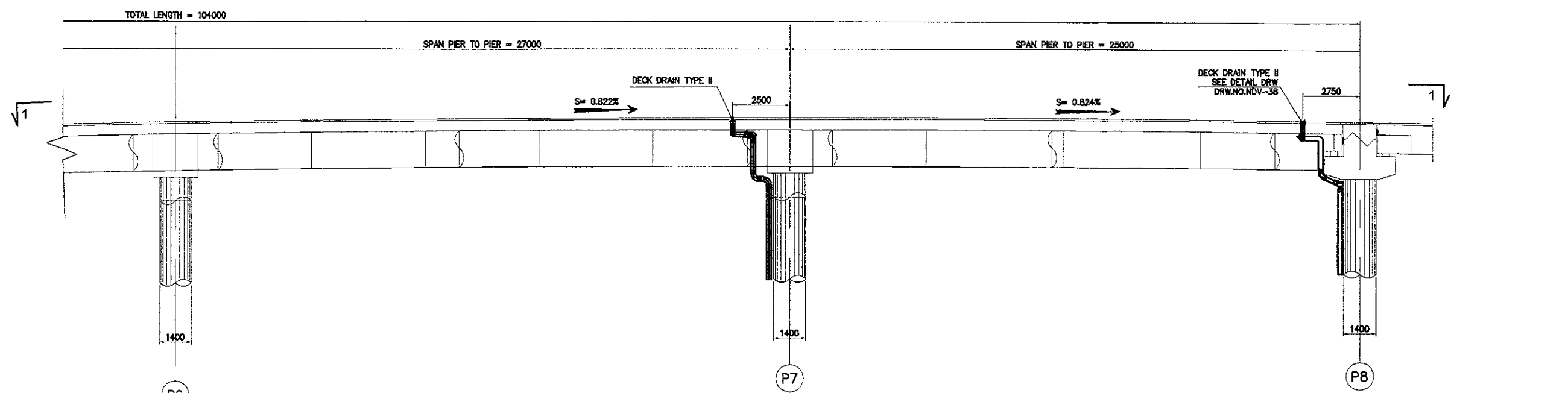
2 SECTION 2-2

 SCALE : 1 : 200

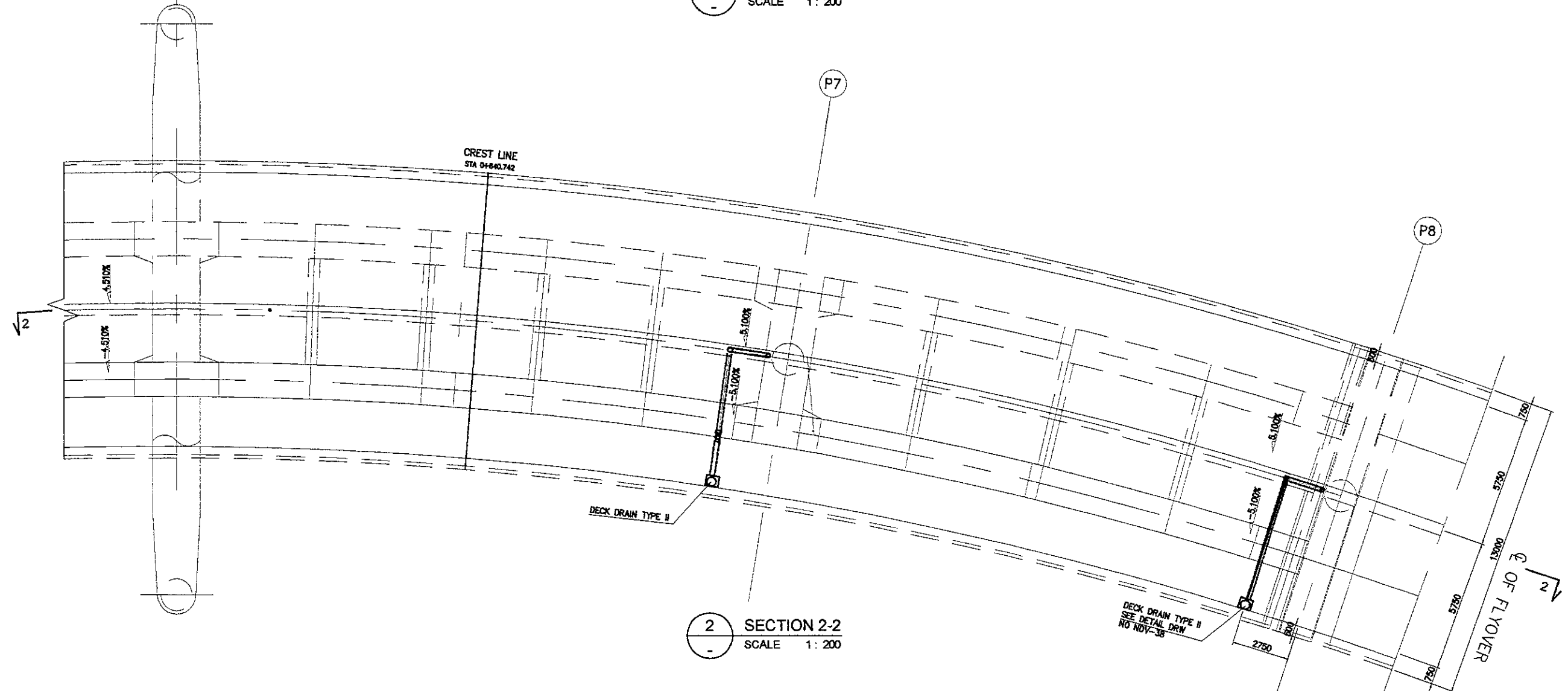
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



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

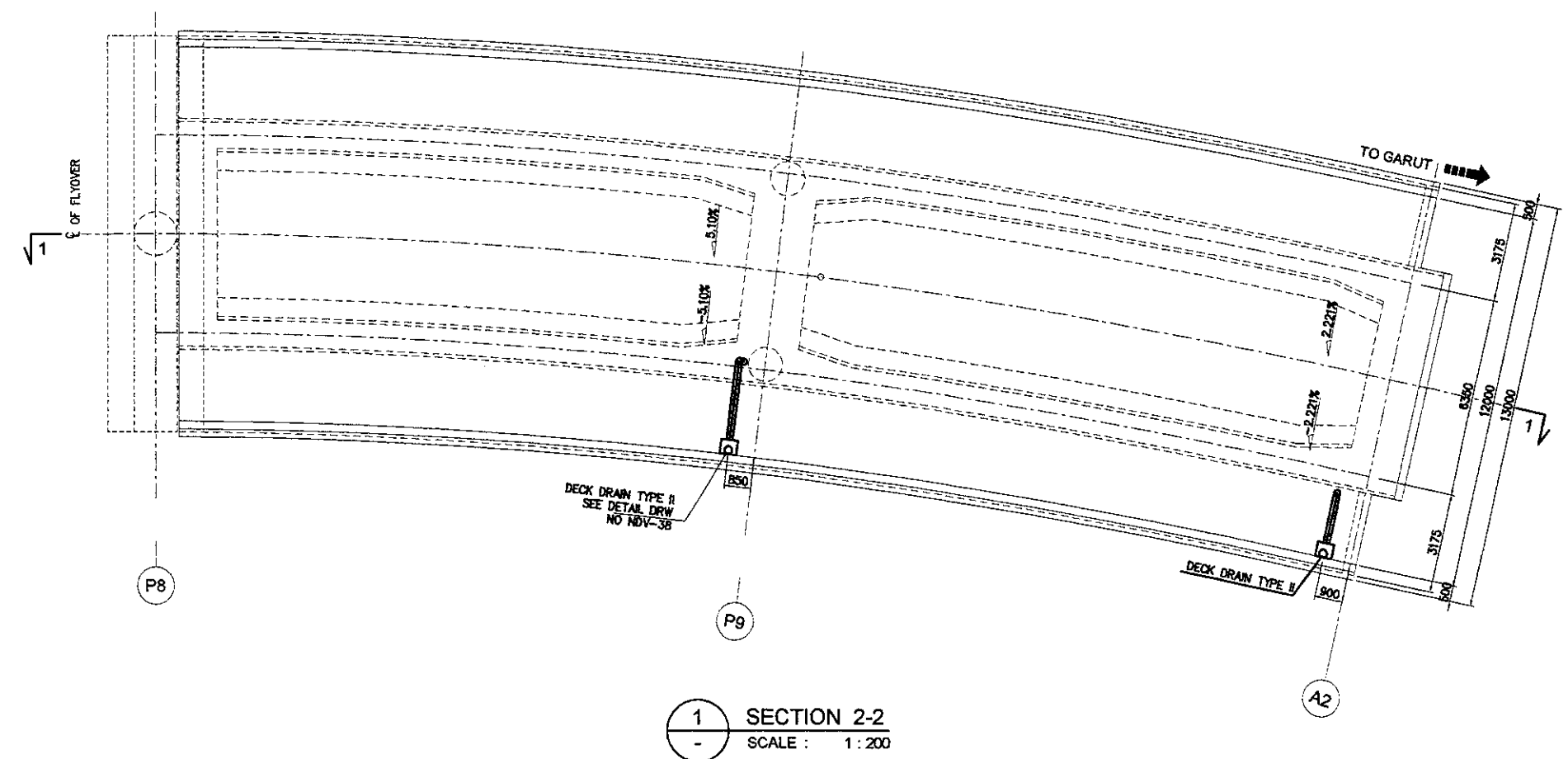
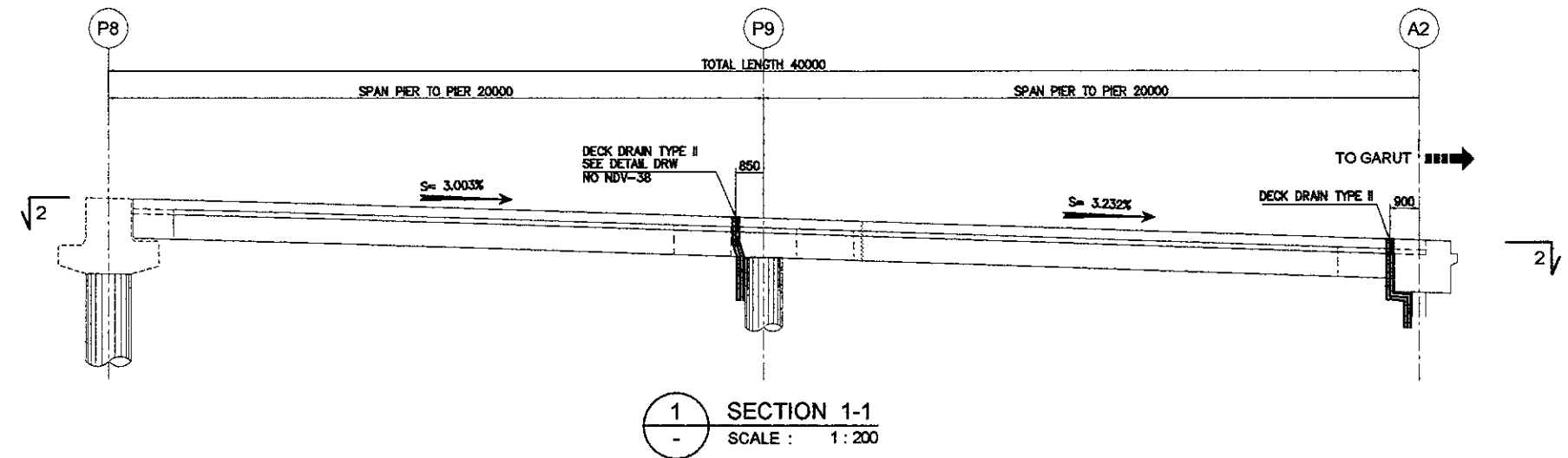


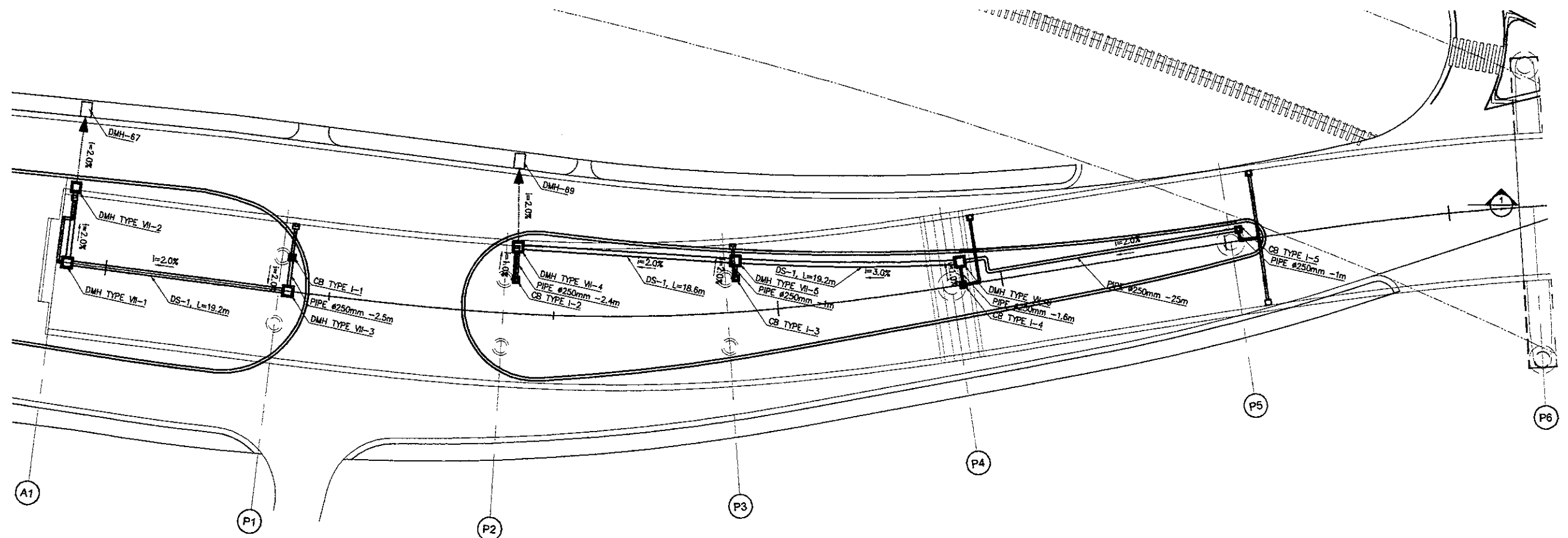
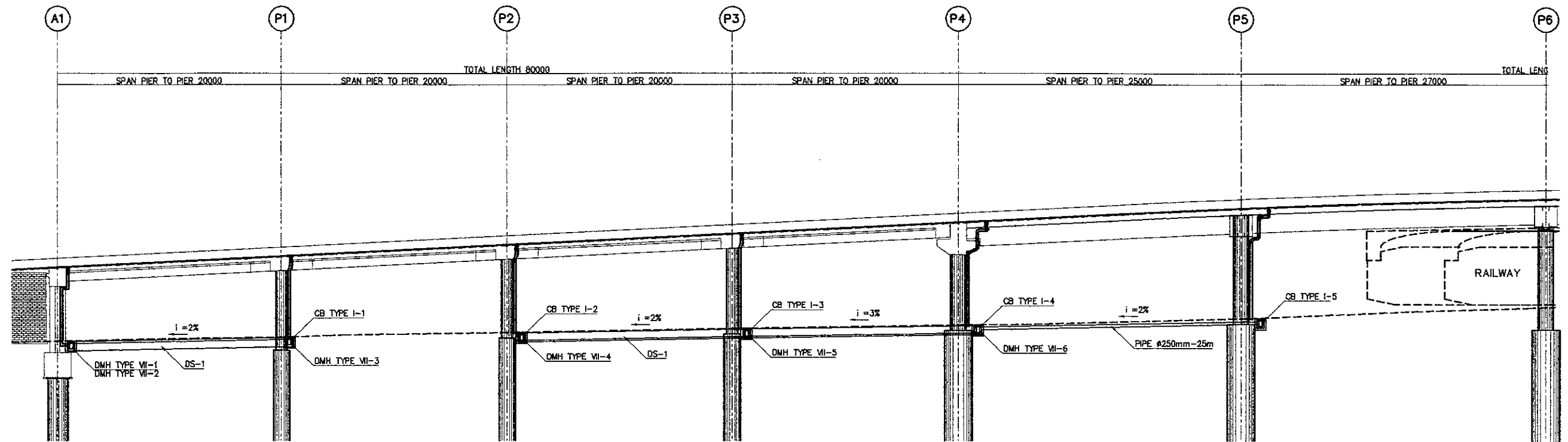
1 SECTION 1-1
 SCALE 1 : 200



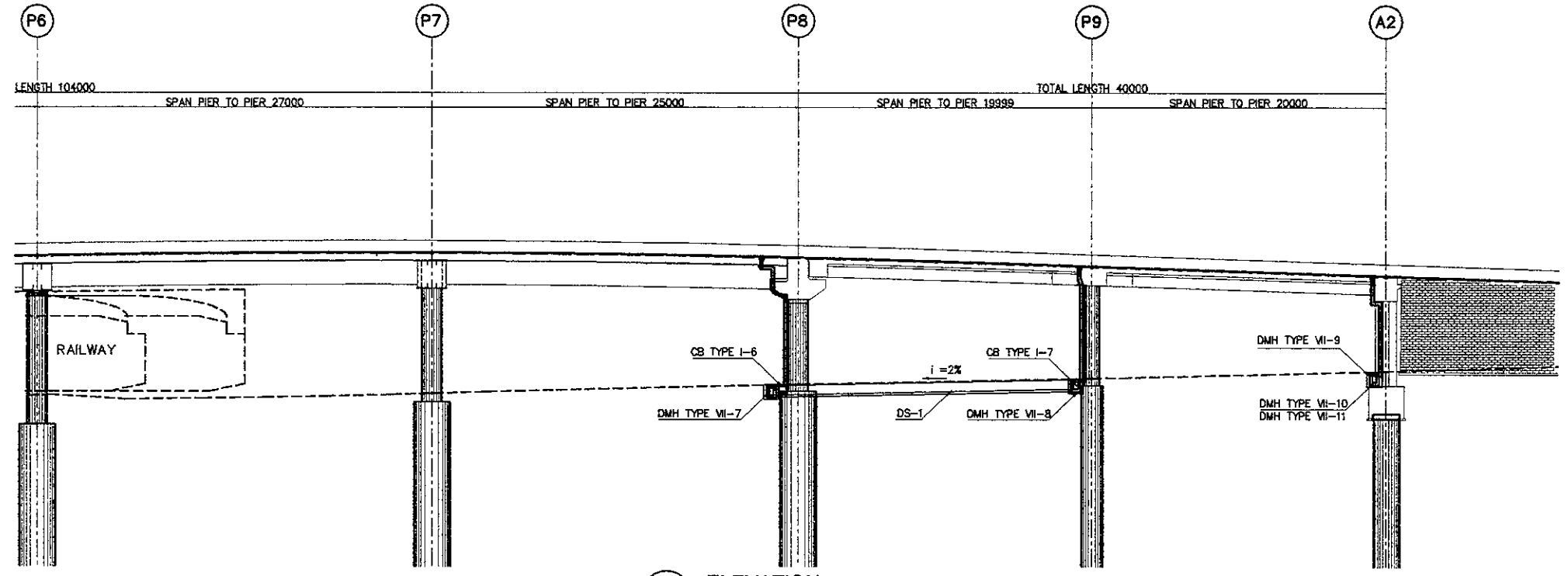
2 SECTION 2-2
 SCALE 1 : 200

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Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



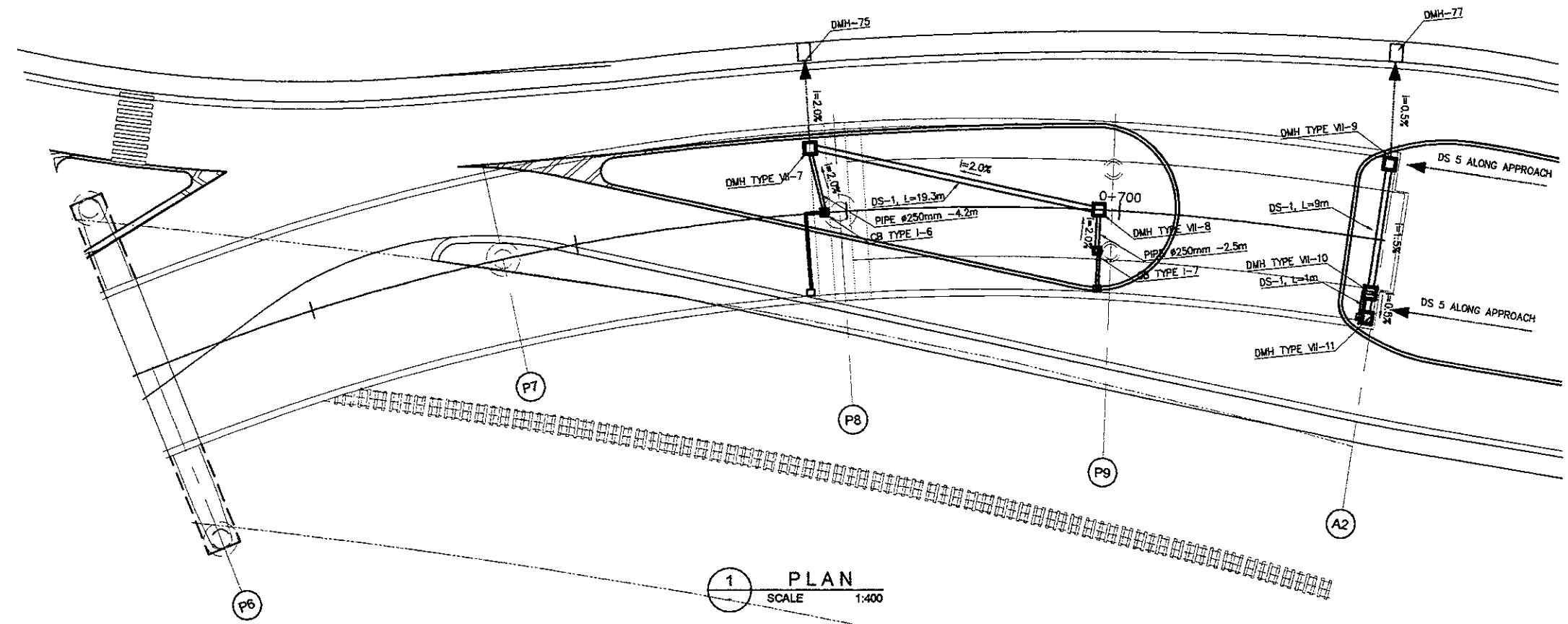


DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



2 ELEVATION

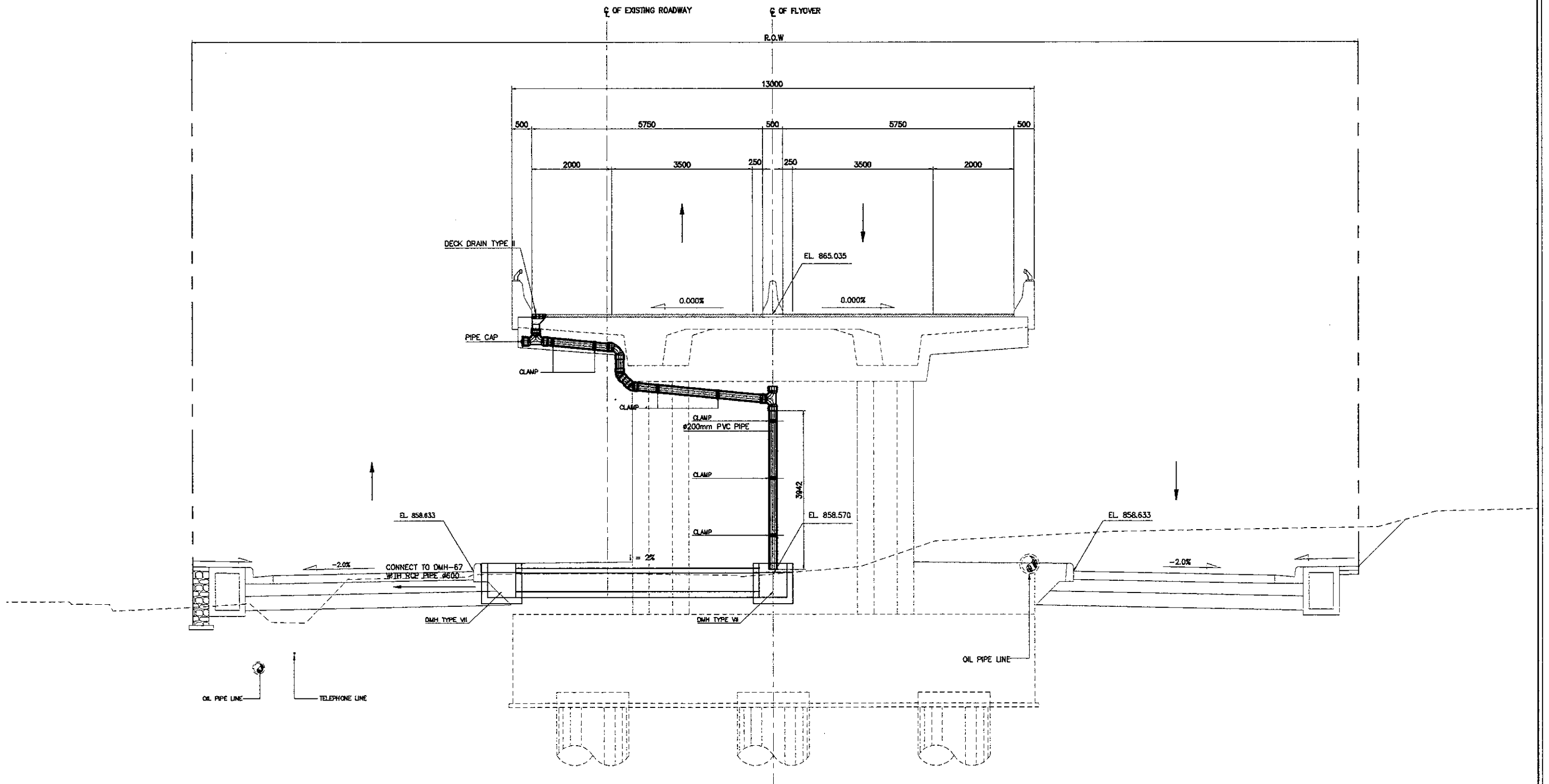
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1 PLAN

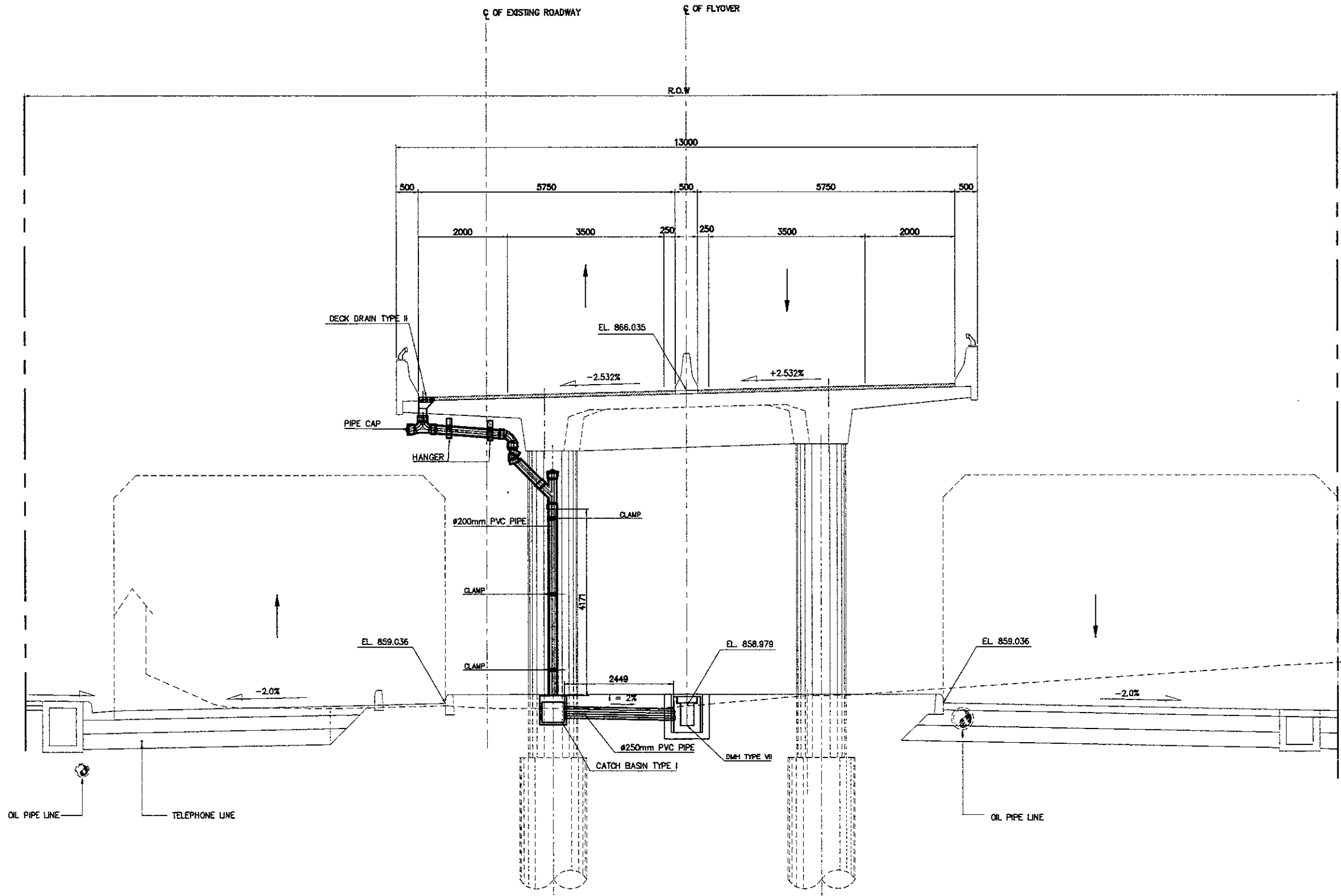
 SCALE 1:400

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



1 A1 SECTION (STA. 0 + 495.50)
 SCALE 1:100

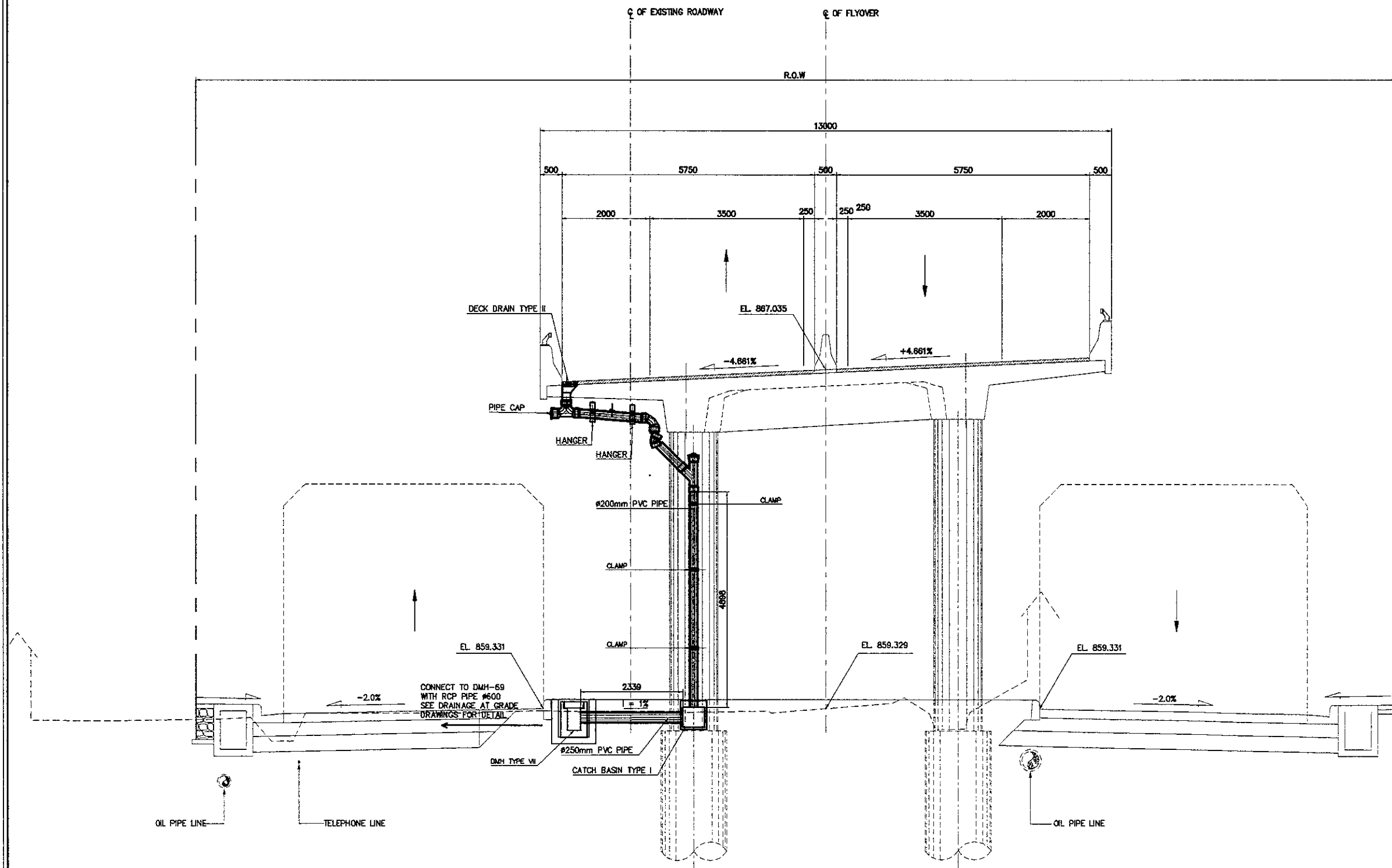
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUNURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



1 P1 SECTION (STA. 0 + 515.50)

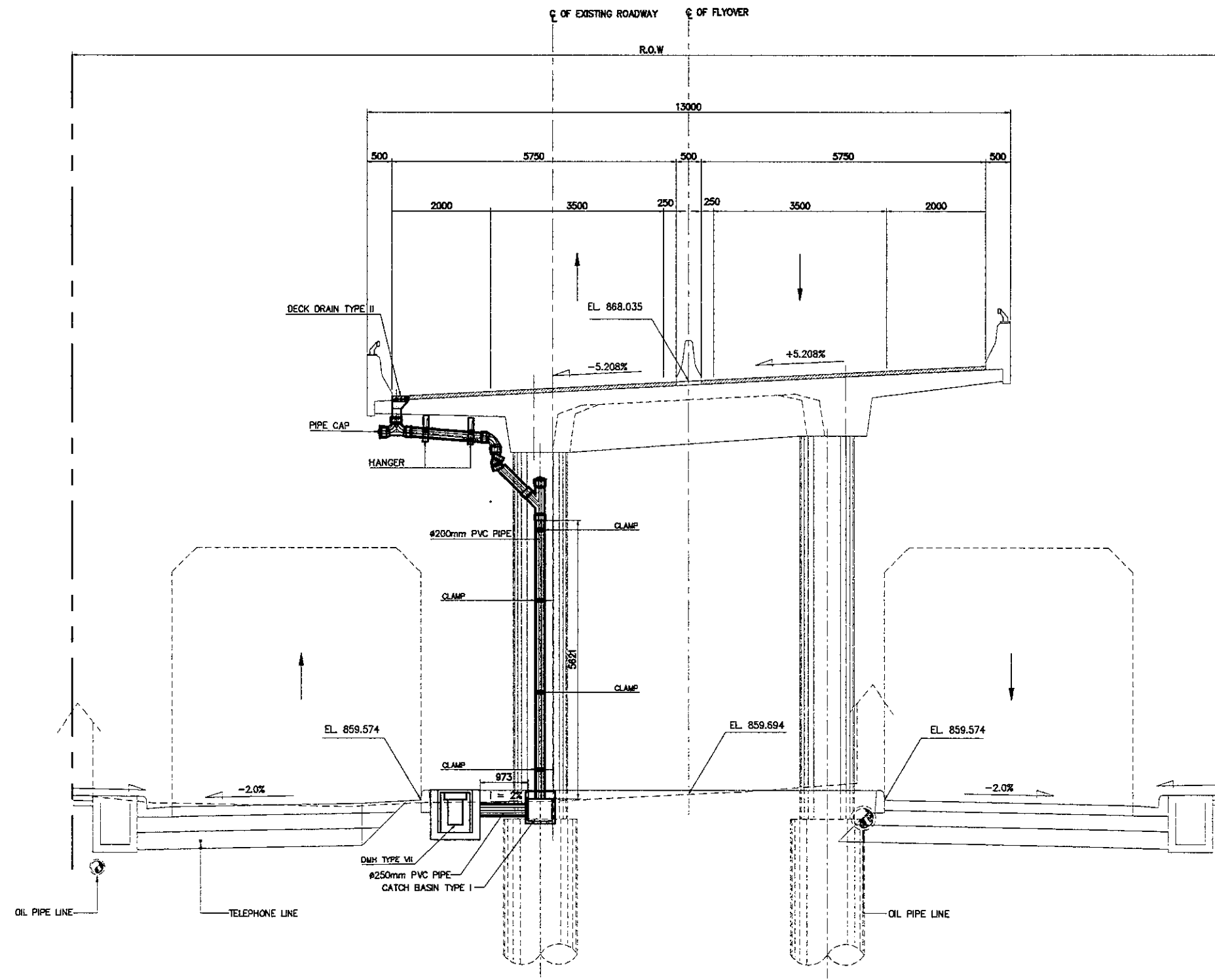
 SCALE 1:100

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



1 P2 SECTION (STA. 0 + 535.50)
 SCALE 1:100

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



1 P3 SECTION (STA. 0 + 555.50)

 1:100



JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL

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



REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HIGHWAYS

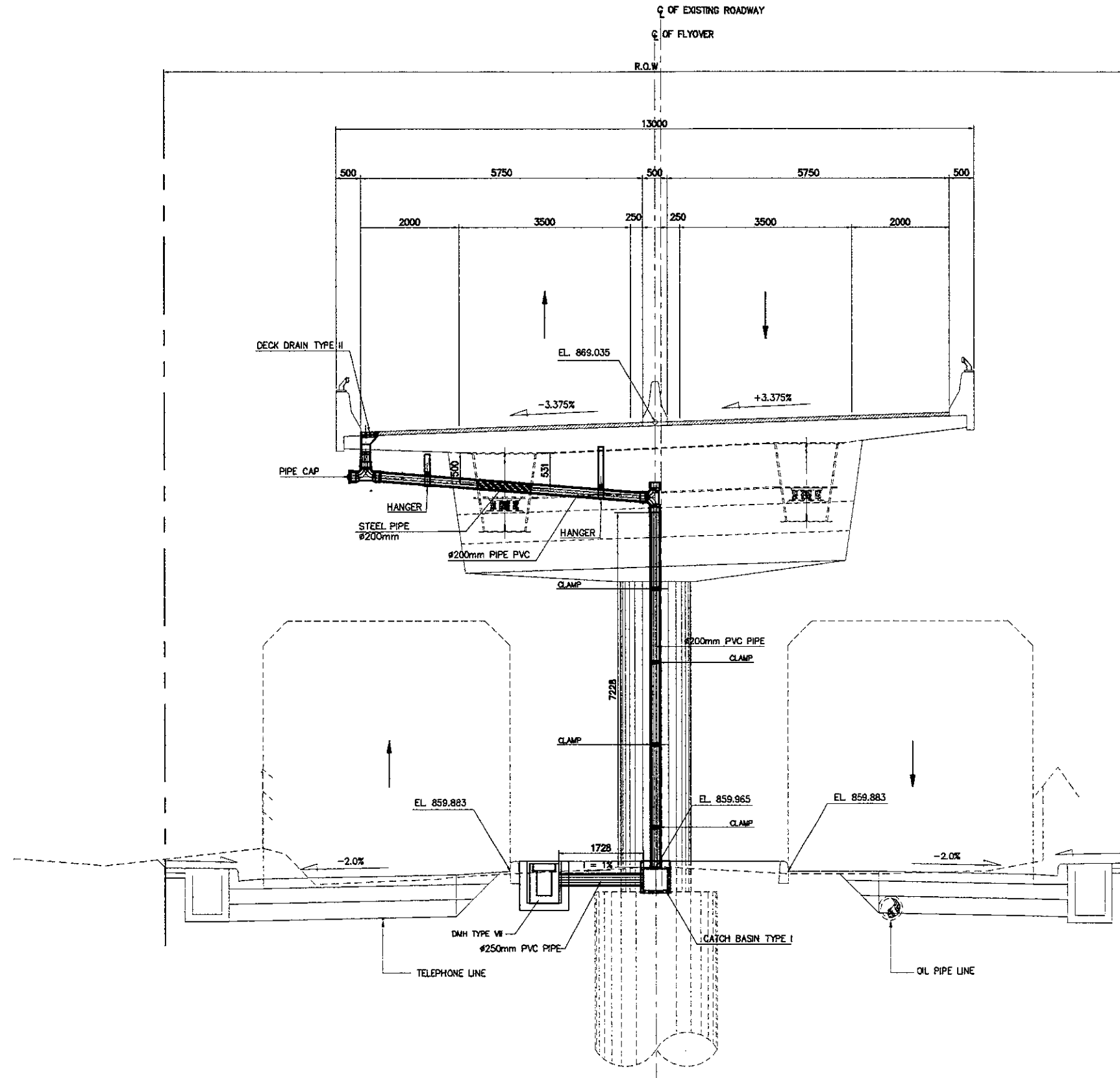
APPROVED BY Ir. HERRY VAZA M,Eng.Sc
NIP. : 110038400

PROJECT AND LOCATION :
DETAILED DESIGN STUDY OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
NAGREG FLYOVER - CONTRACT PACKAGE 2
(NAGREG - GEBANG)
WEST JAVA PROVINCE

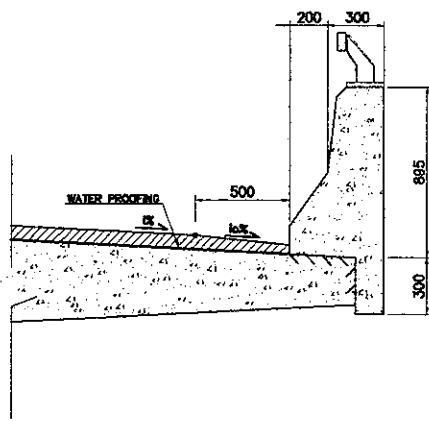
SCALE :
1 : 100
FULL SIZE A3

DRAWING TITLE :
ABUTMENT AND PIER SECTIONS
SHOWING DOWNSPOUT PIPE
5 OF 11

DRAWING NO :
NDV-014
SHEET NO :
14 / 36

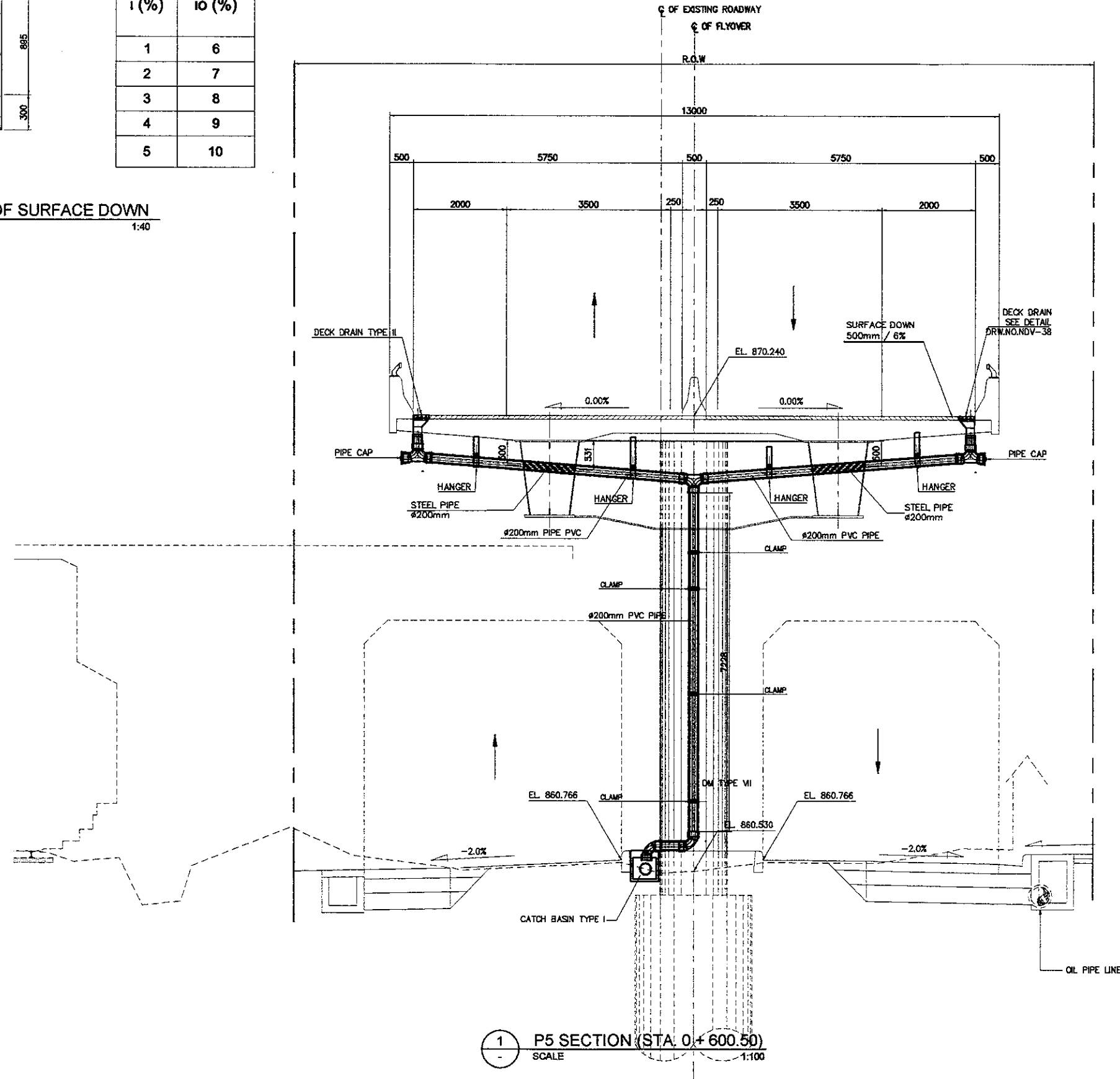


1 P4 SECTION (STA. 0 + 575.50)
SCALE 1:100

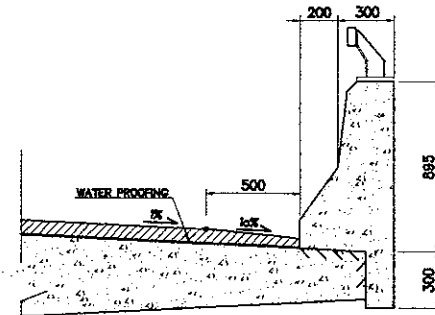


i (%)	io (%)
1	6
2	7
3	8
4	9
5	10

DETAIL OF SURFACE DOWN
 SCALE 1:40



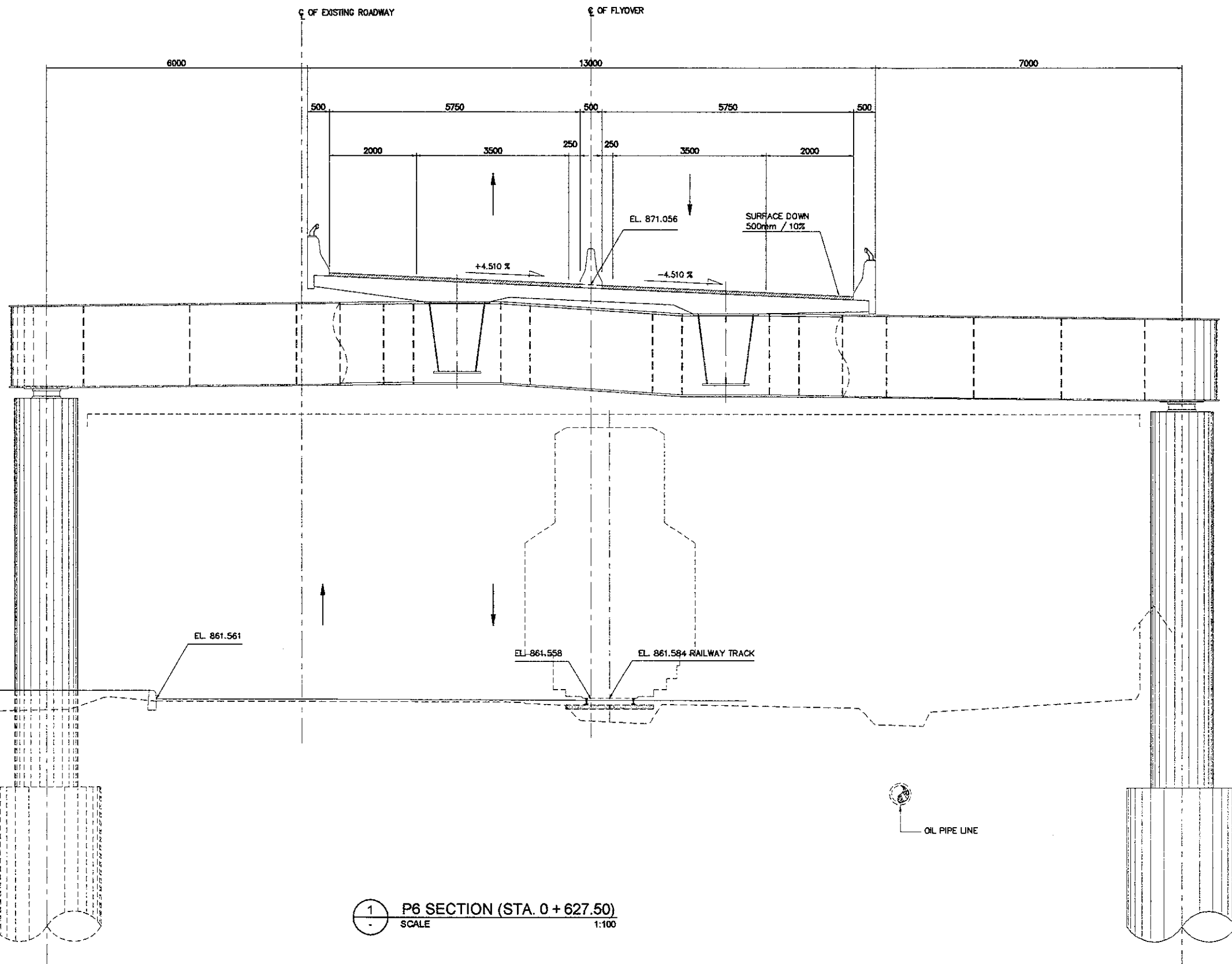
1 P5 SECTION (STA. 0+600.50)
 SCALE 1:100



DETAIL OF SURFACE DOWN

 SCALE 1:40

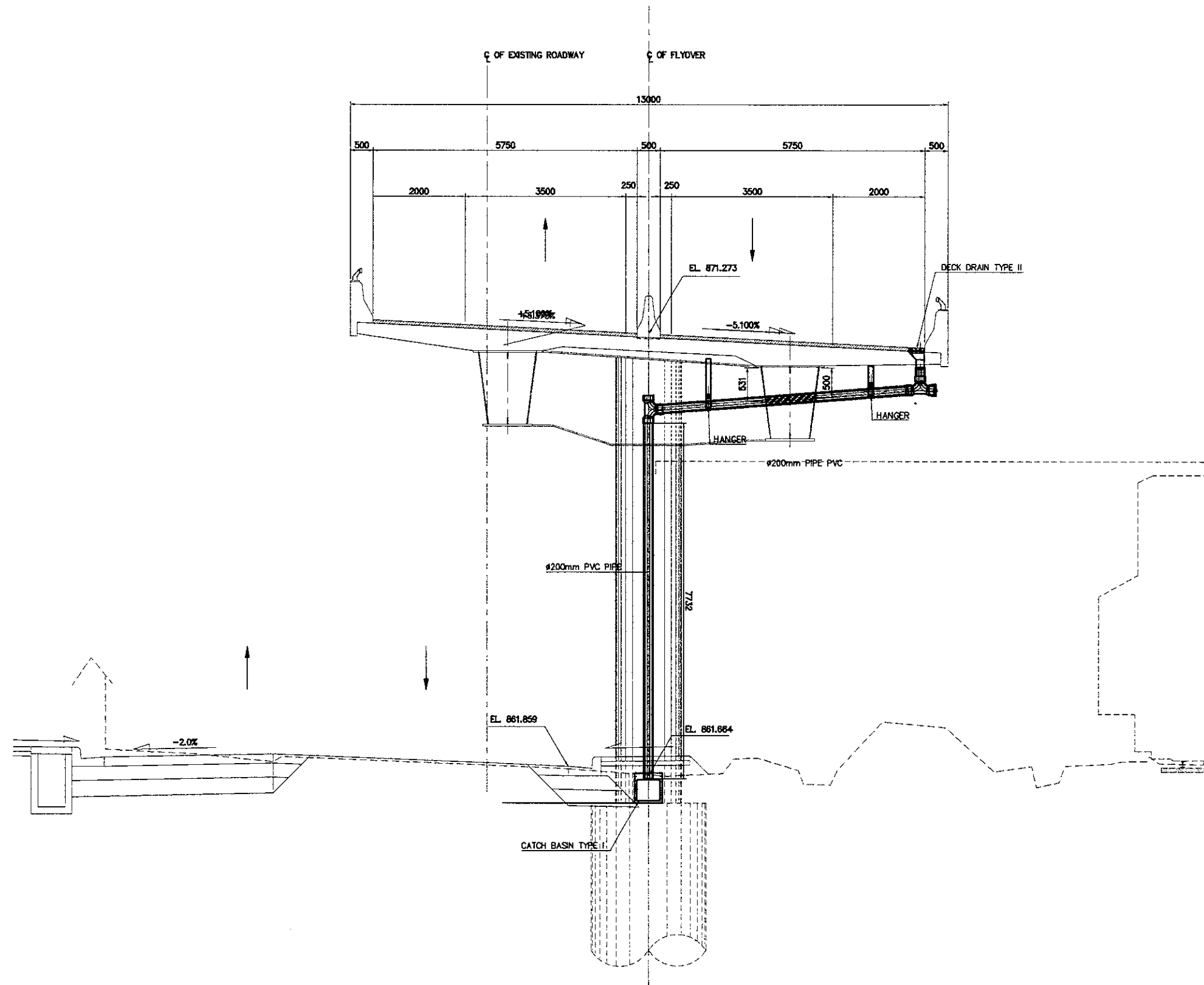
l (%)	lo (%)
1	6
2	7
3	8
4	9
5	10



1 P6 SECTION (STA. 0 + 627.50)

 SCALE 1:100

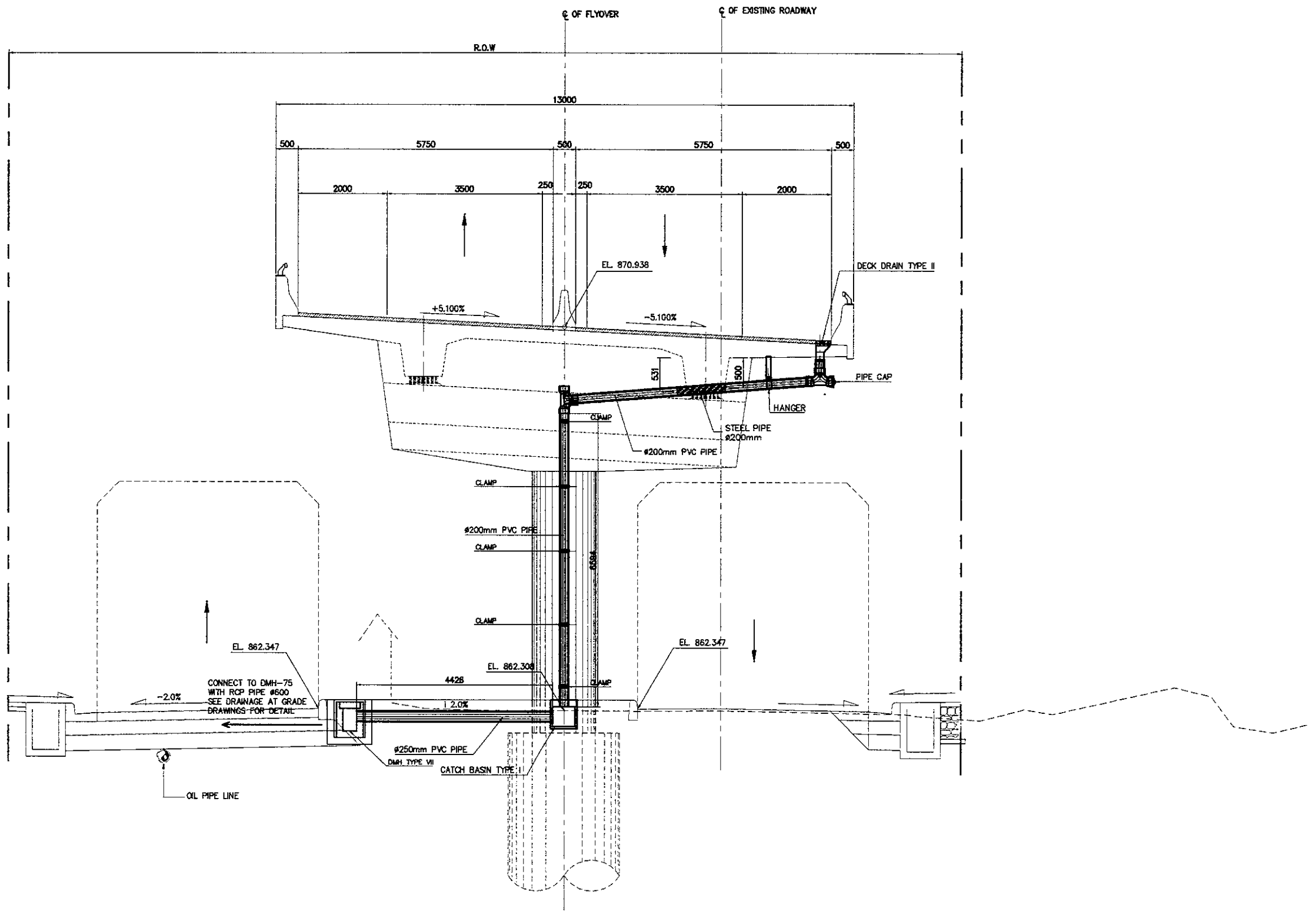
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



1 P7 SECTION (STA. 0 + 654.50)

 1:100

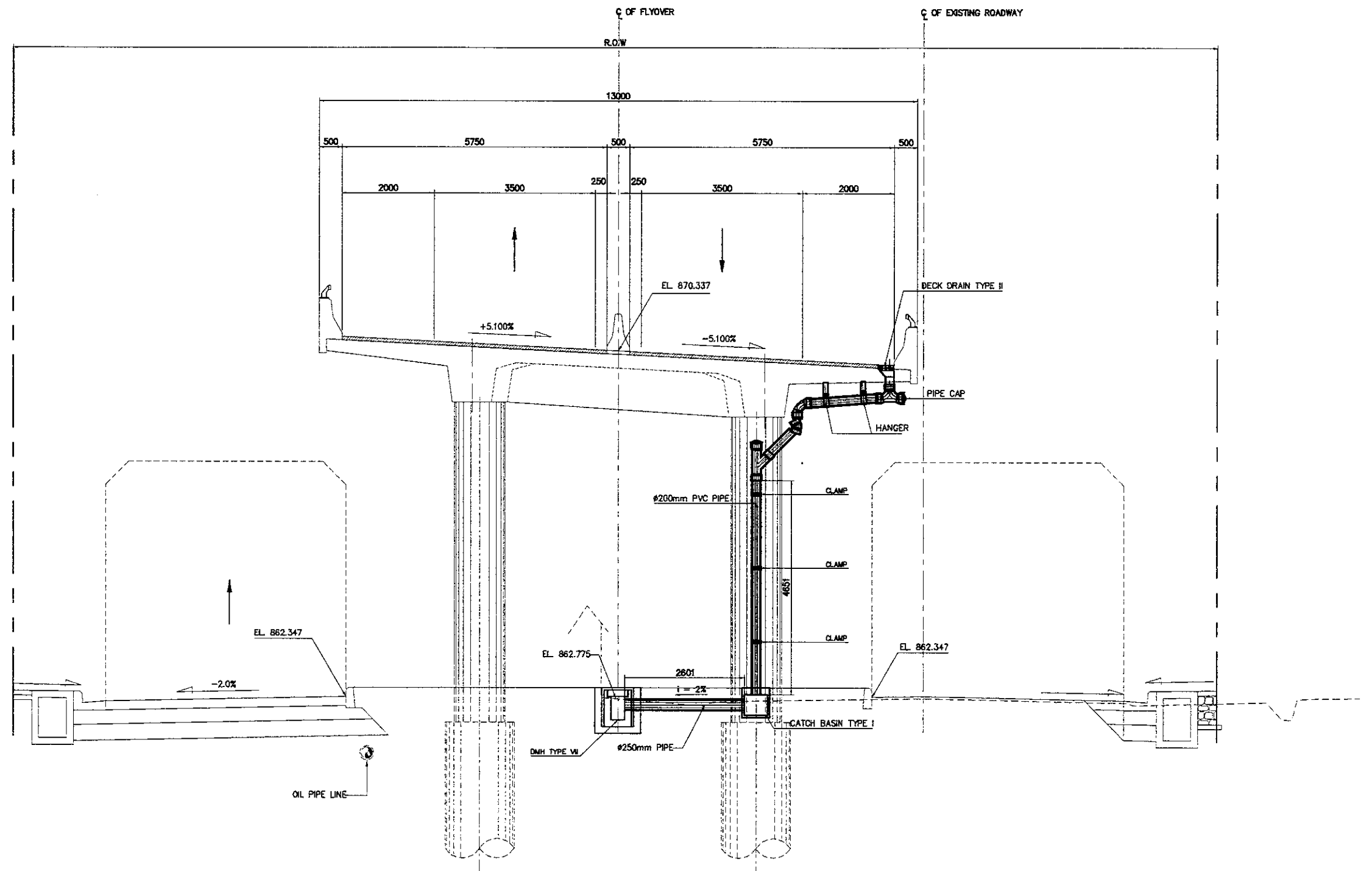
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



1 P8 SECTION (STA. 0 + 679.50)

 SCALE 1:100

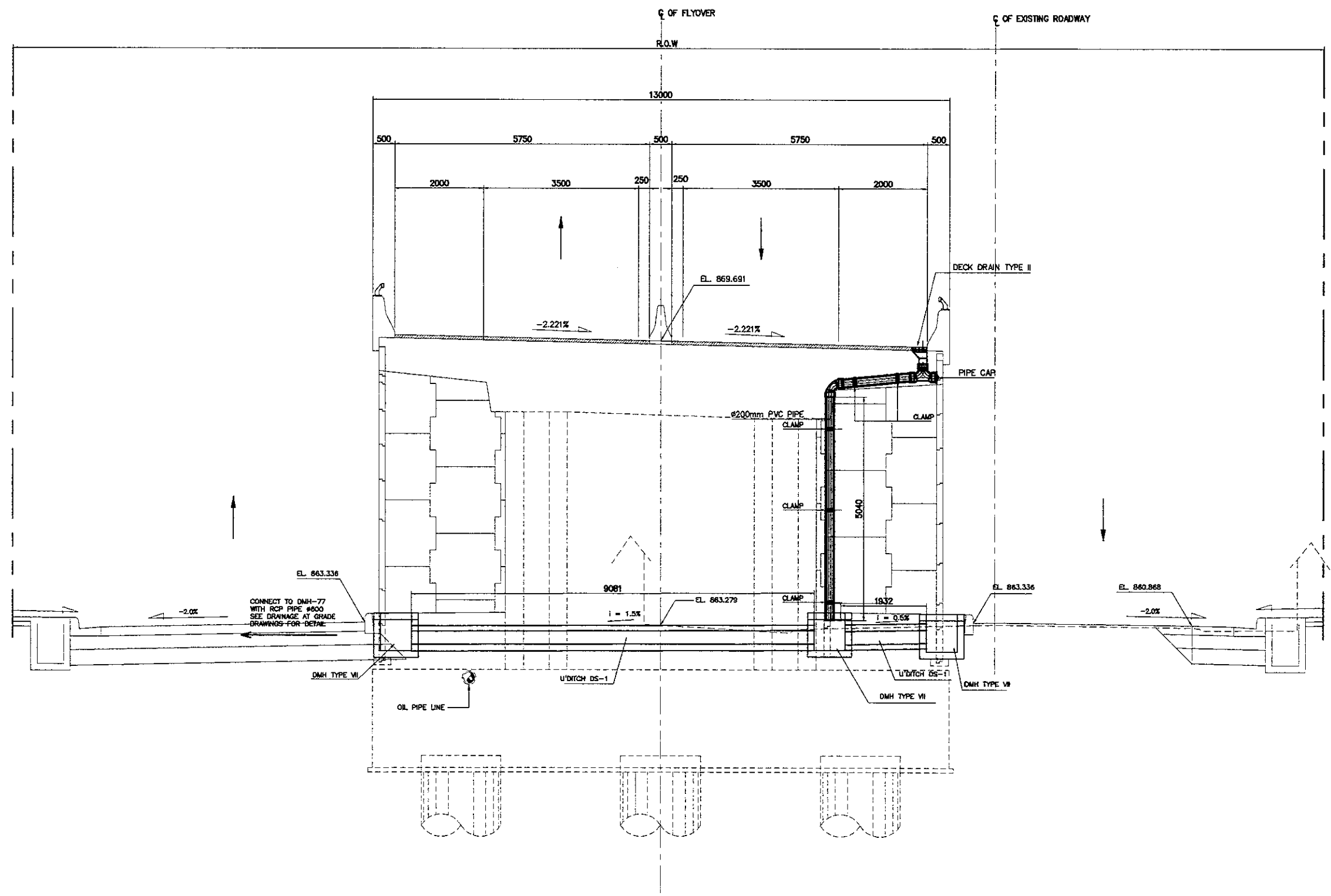
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	R. UENO	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



1 P9 SECTION (STA. 0 + 699.50)

 SCALE 1:100

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



1 A2 SECTION (STA. 0 + 719.50)

 SCALE 1:100