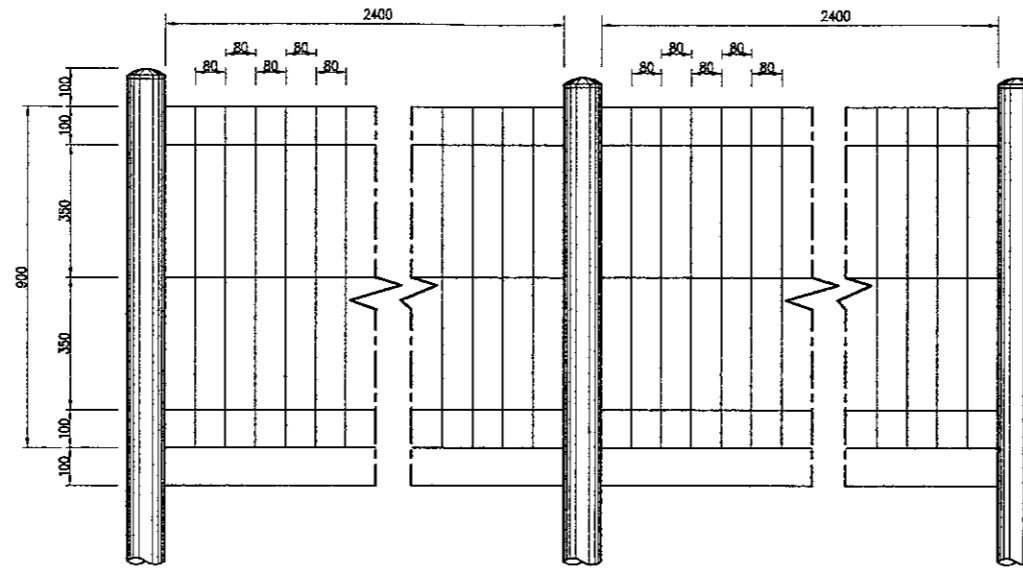
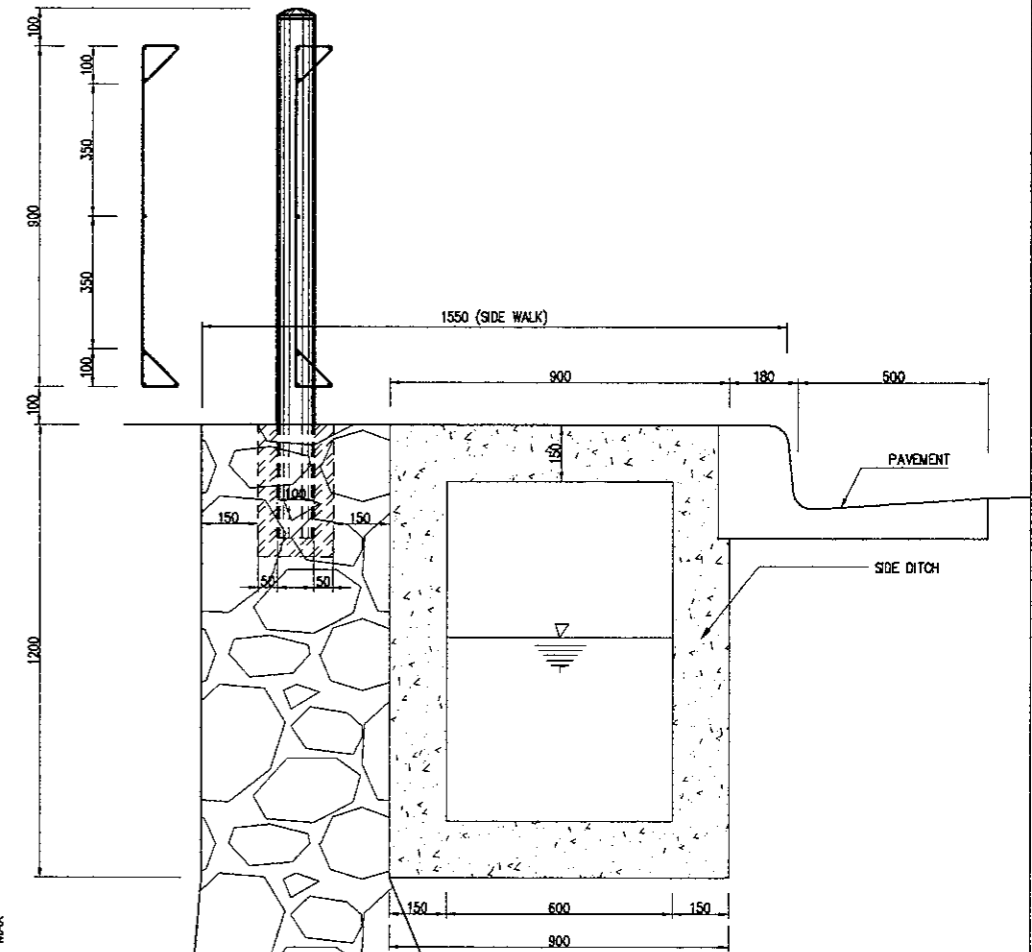


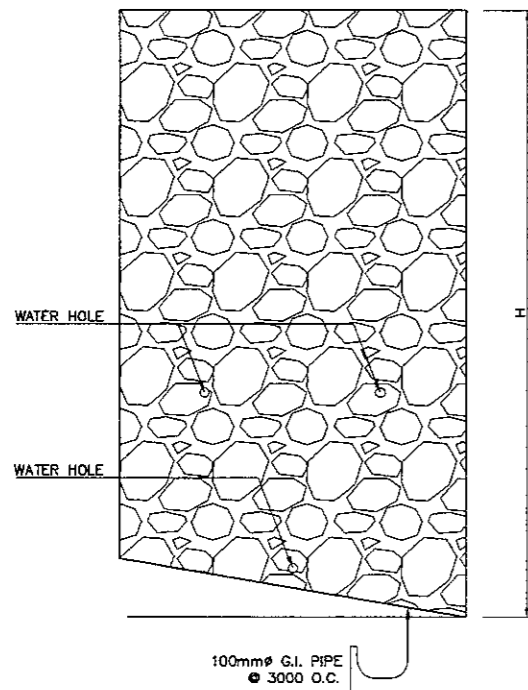
A DETAIL CONNECTION BETWEEN FENCE AND POLE
 NOT TO SCALE



B BRC FENCE
 SCALE 1:20

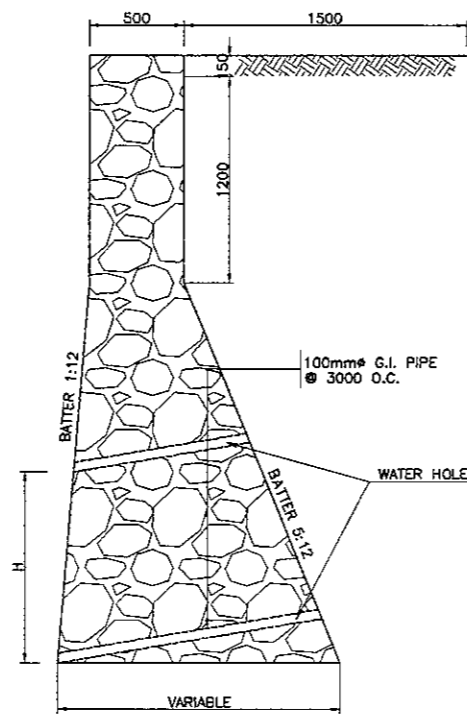


E DETAIL OF BRC FENCE FOUNDATION ON STONE MASONRY
 SCALE 1:20

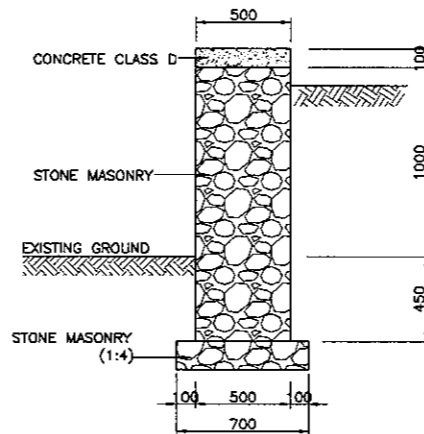


ELEVATION

C STONE MASONRY RETAINING WALL
 SCALE 1:40



SECTION

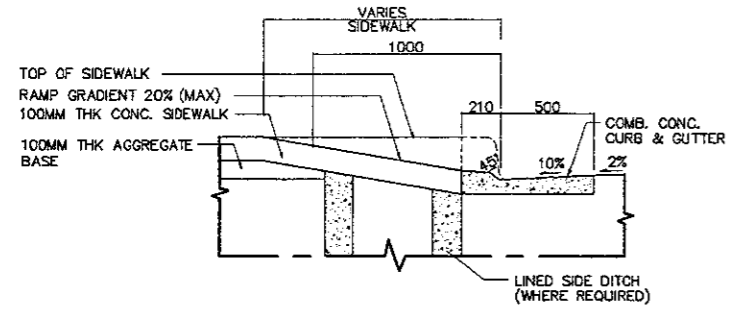


D DWARF STONE WALL (DSW) FOR CUT AND FILL
 SCALE 1:40

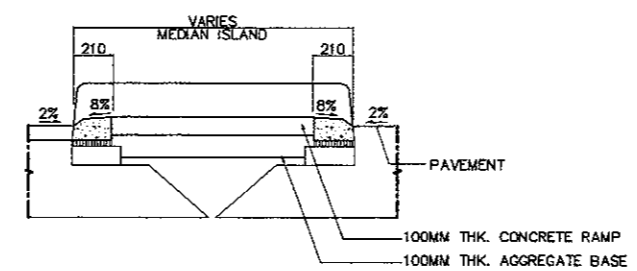
| TABLE | | TABLE | |
|------------------|--|------------------|--|
| HEIGHT IN METERS | QUANTITIES PER LINEAR M OF WALL IN CU. METER | HEIGHT IN METERS | QUANTITIES PER LINEAR M OF WALL IN CU. METER |
| 0.90 | 0.15 | 3.60 | 1.15 |
| 1.20 | 0.23 | 3.90 | 1.30 |
| 1.50 | 0.31 | 4.20 | 1.45 |
| 1.90 | 0.38 | 4.50 | 1.68 |
| 2.10 | 0.46 | 4.80 | 1.91 |
| 2.40 | 0.54 | 5.10 | 2.14 |
| 2.70 | 0.69 | 5.40 | 2.37 |
| 3.00 | 0.77 | 5.60 | 2.68 |
| 3.30 | 0.92 | 6.00 | 2.91 |

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

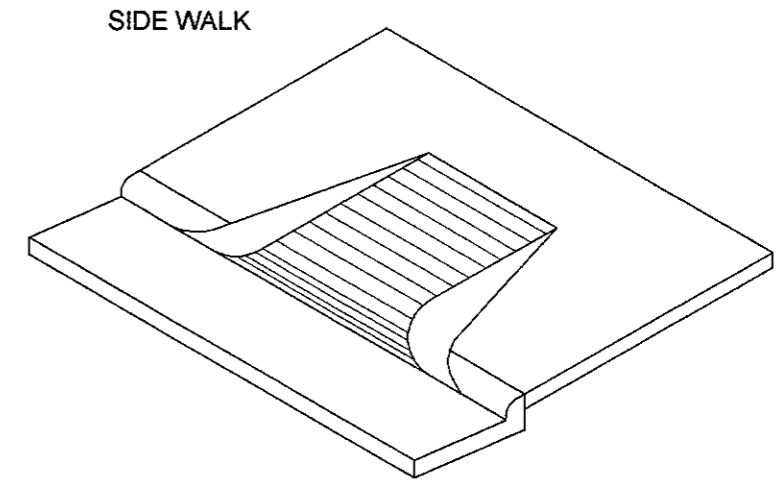
| DESIGNED BY | | CHECKED BY | | SUBMITTED BY | |
|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
| Sign | | Sign | | Sign | |
| Date | | Date | | Date | |



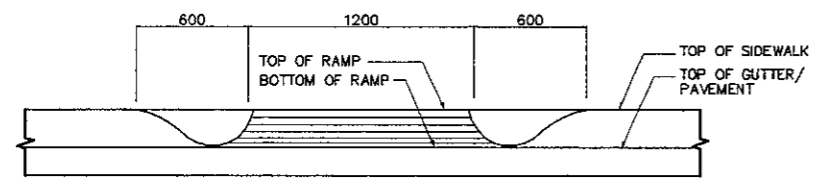
3 SECTION 1-1
 SCALE 1:20



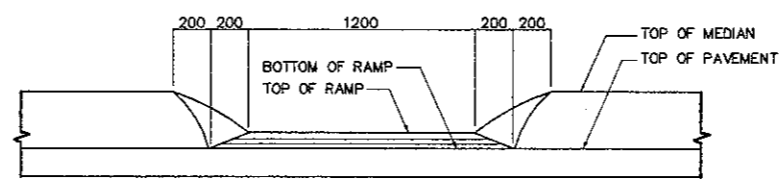
6 SECTION 2-2
 SCALE 1:20



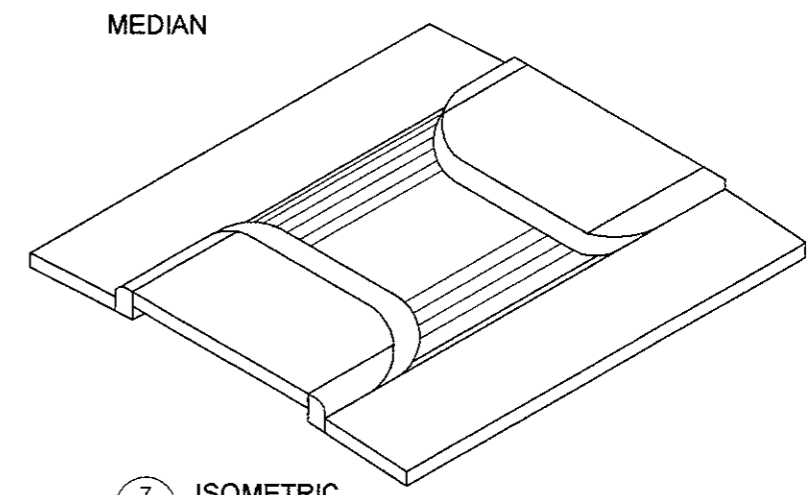
8 ISOMETRIC
 NOT TO SCALE



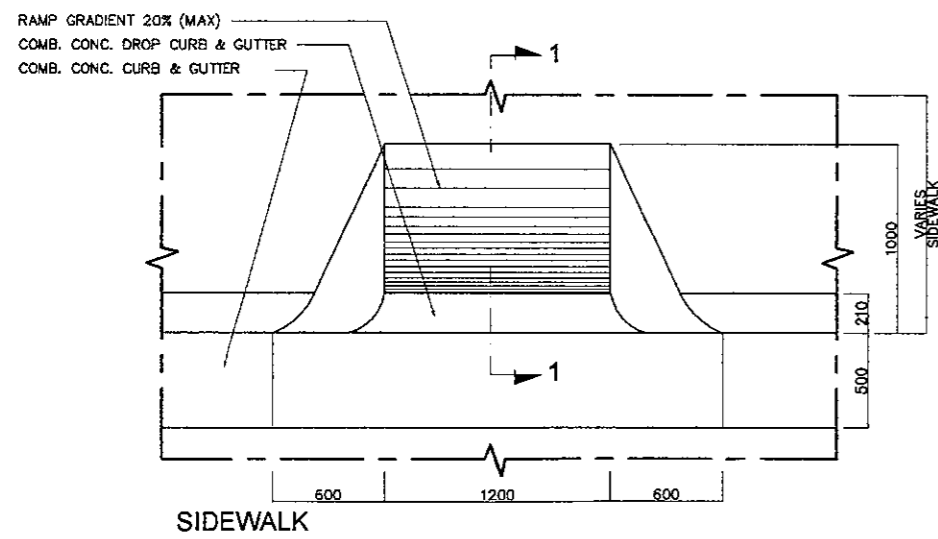
2 ELEVATION
 SCALE 1:20



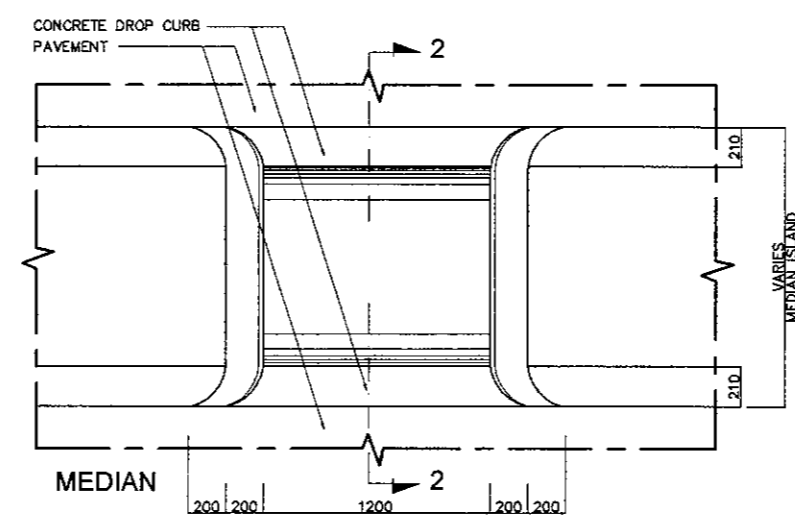
5 ELEVATION
 SCALE 1:20



7 ISOMETRIC
 NOT TO SCALE

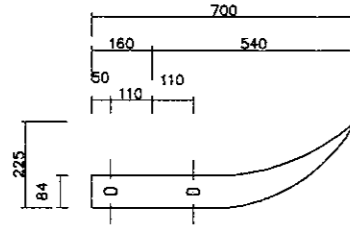
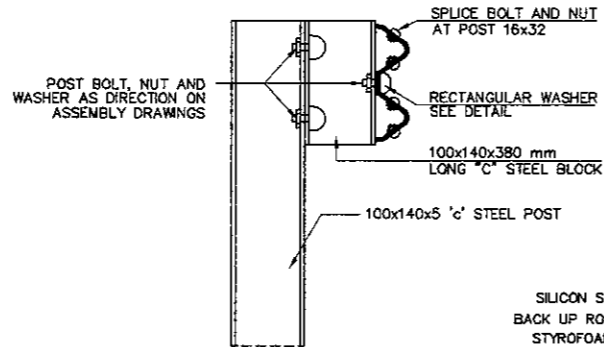
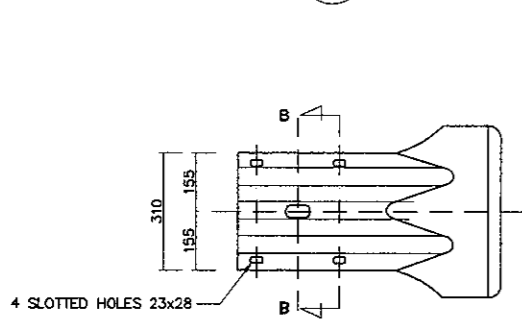
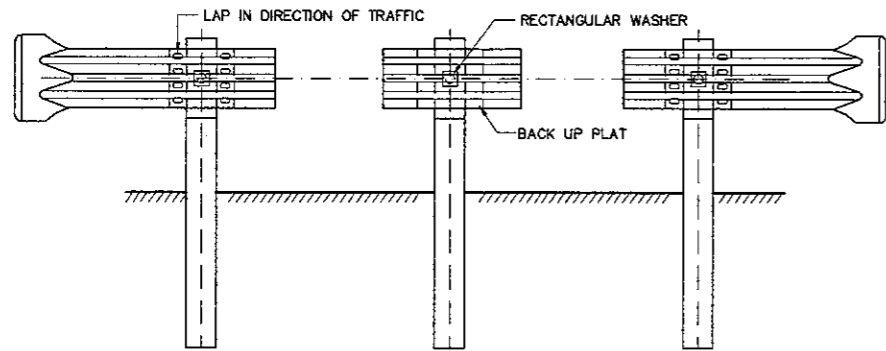
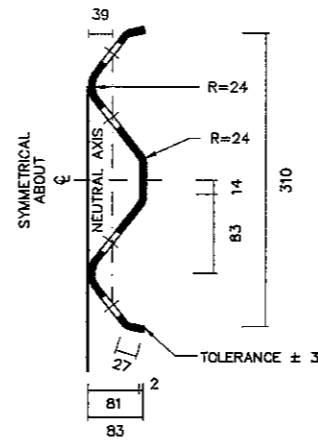
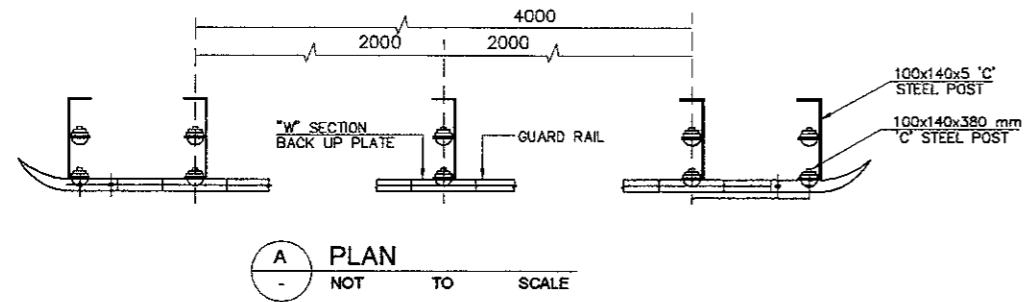


1 PLAN
 SCALE 1:20

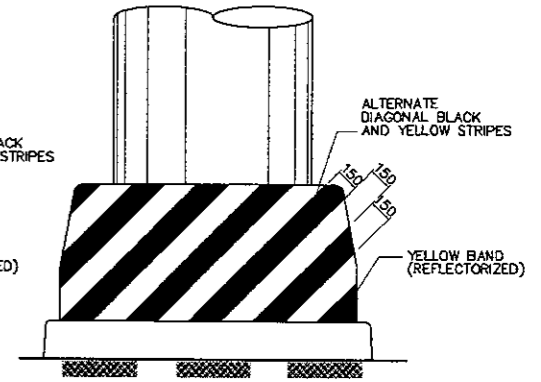
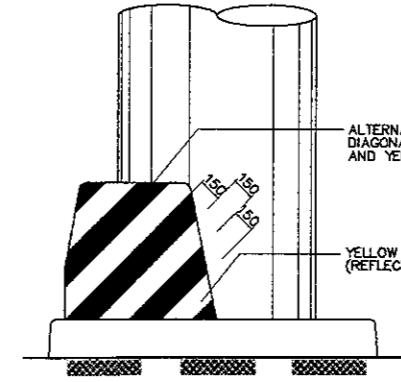
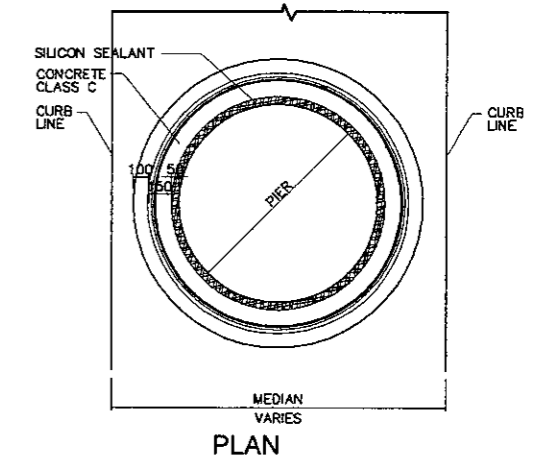
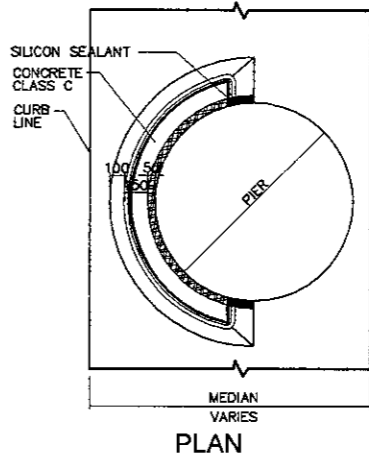
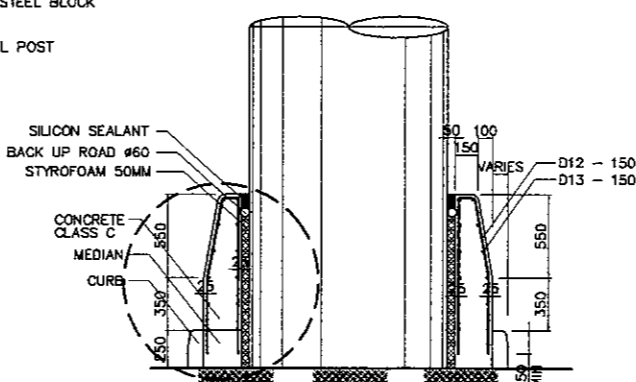
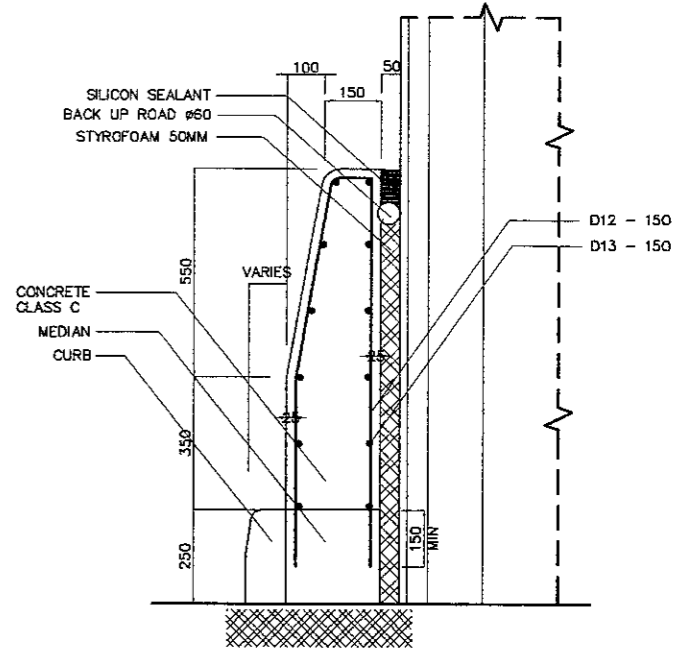
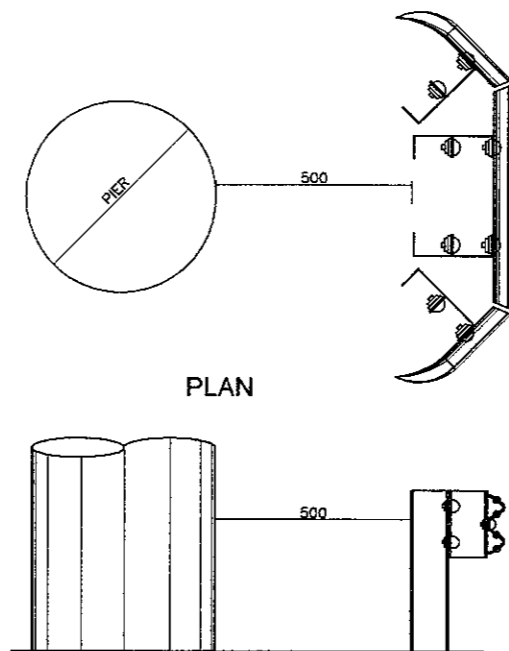


4 PLAN
 SCALE 1:20

A STANDARD CURB-CUT RAMP (FOR PHYSICALLY HANDICAPPED)



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

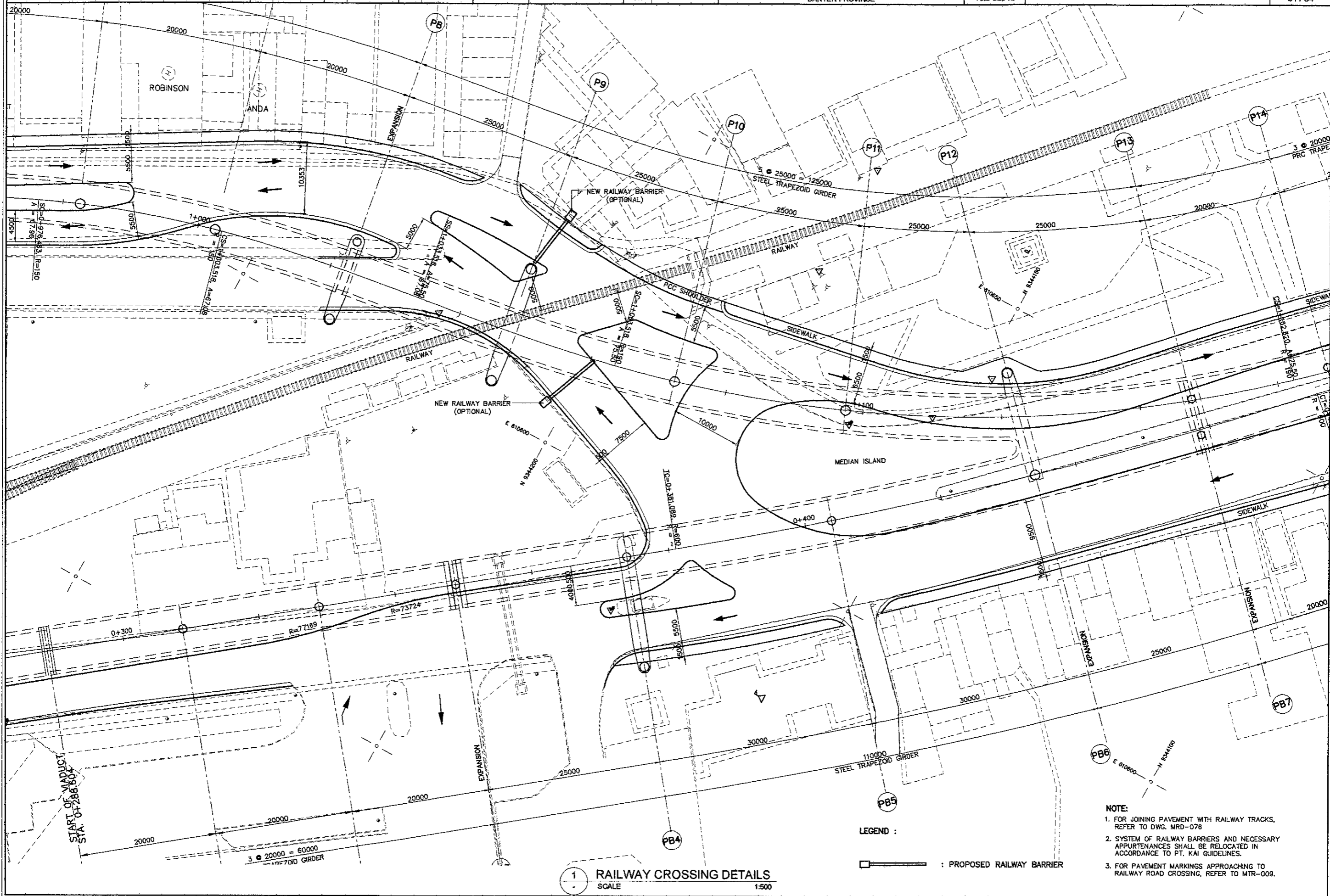


2 CONCRETE COLUMN PROTECTION TYPE 1
 SCALE 1:50


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

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

SCALE :
 1 : 500
 FULL SIZE A3



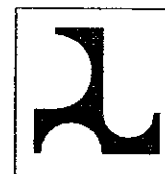
1 RAILWAY CROSSING DETAILS
 SCALE 1:500

LEGEND :
 : PROPOSED RAILWAY BARRIER

- NOTE:
1. FOR JOINING PAVEMENT WITH RAILWAY TRACKS, REFER TO DWG. MRD-076
 2. SYSTEM OF RAILWAY BARRIERS AND NECESSARY APPURTENANCES SHALL BE RELOCATED IN ACCORDANCE TO PT. KAI GUIDELINES.
 3. FOR PAVEMENT MARKINGS APPROACHING TO RAILWAY ROAD CROSSING, REFER TO MTR-009.



JAPAN INTERNATIONAL
COOPERATION AGENCY



DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

DRAINAGE

 **KEI** KATAHIRA & ENGINEERS INTERNATIONAL

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

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

PROJECT AND LOCATION :

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

SCALE :

1 : 1000

FULL SIZE A3

DRAWING TITLE :

DRAINAGE LAYOUT PLAN
 1 OF 4

DRAWING NO. :

MDG-002

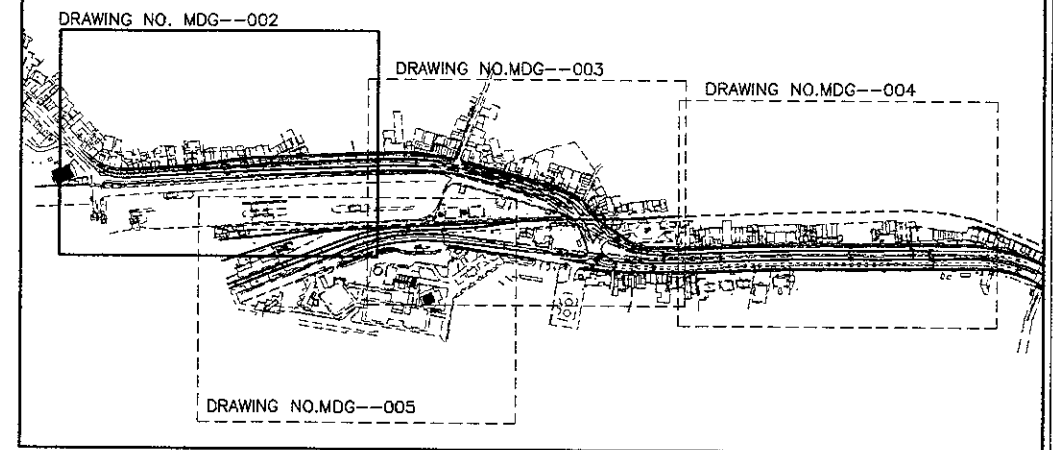
SHEET NO. :

02 / 19

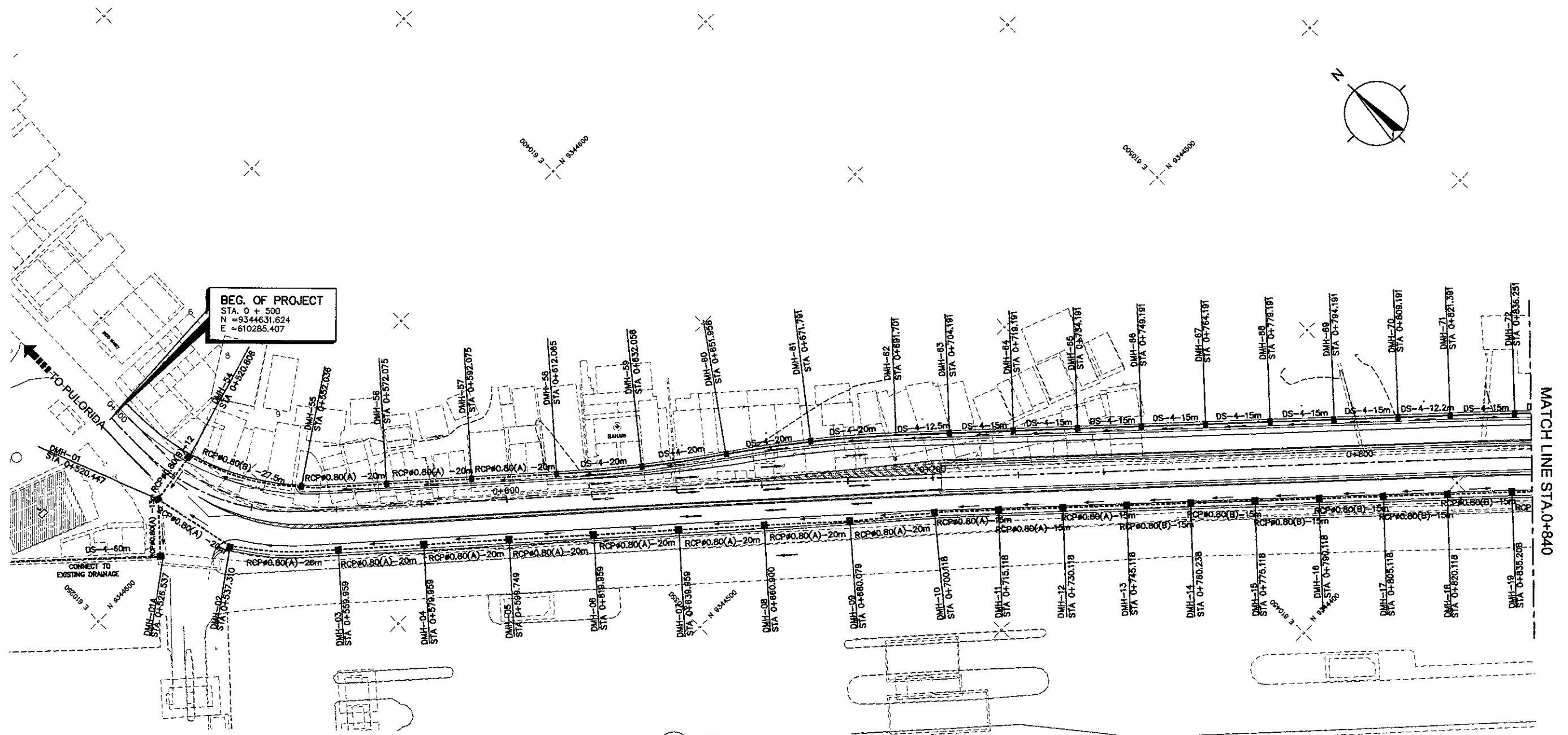
LEGEND

- : DRAINAGE MANHOLES
- : DRAINAGE LINE
- ➔ : NEW CULVERT
- : EXISTING DRAINAGE

- RCP : PIPE CULVERT, RCP#0.80(A)-15.0
 DIAMETER LENGTH
 TYPE
- DS : SIDE DRAIN, DS-2-15.0
 LENGTH
 TYPE



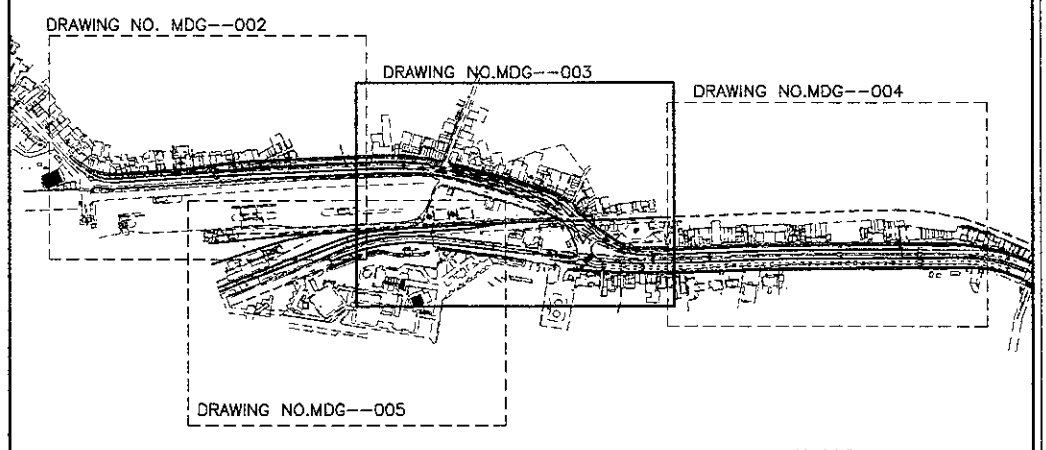
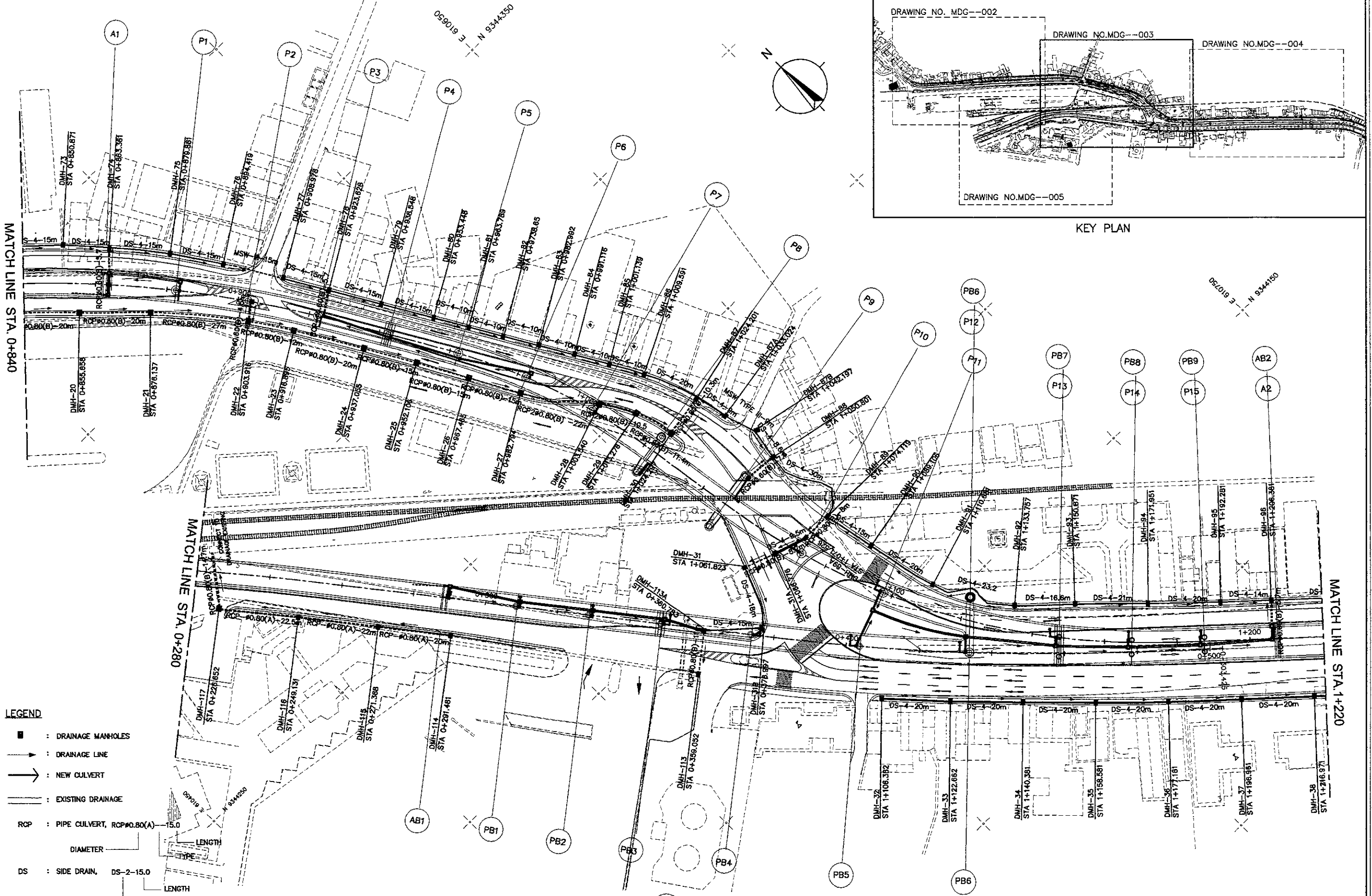
KEY PLAN



BEG. OF PROJECT
 STA. 0 + 500
 N = 9344631.624
 E = 610285.407

1 DRAINAGE LAYOUT PLAN
 SCALE 1:1000

| 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#0.80(A)-15.0
 DIAMETER — LENGTH
 TYPE
- DS : SIDE DRAIN, DS-2-15.0
 LENGTH
 TYPE

1 DRAINAGE LAYOUT PLAN
 SCALE 1:1000

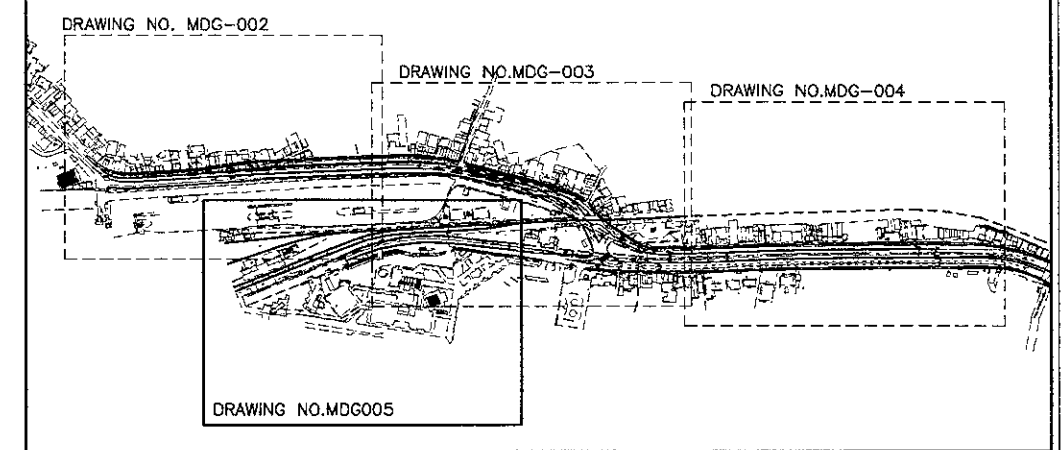
| DESIGNED BY | | CHECKED BY | | SUBMITTED BY | |
|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
| Sign | | Sign | | Sign | |
| Date | | Date | | Date | |

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

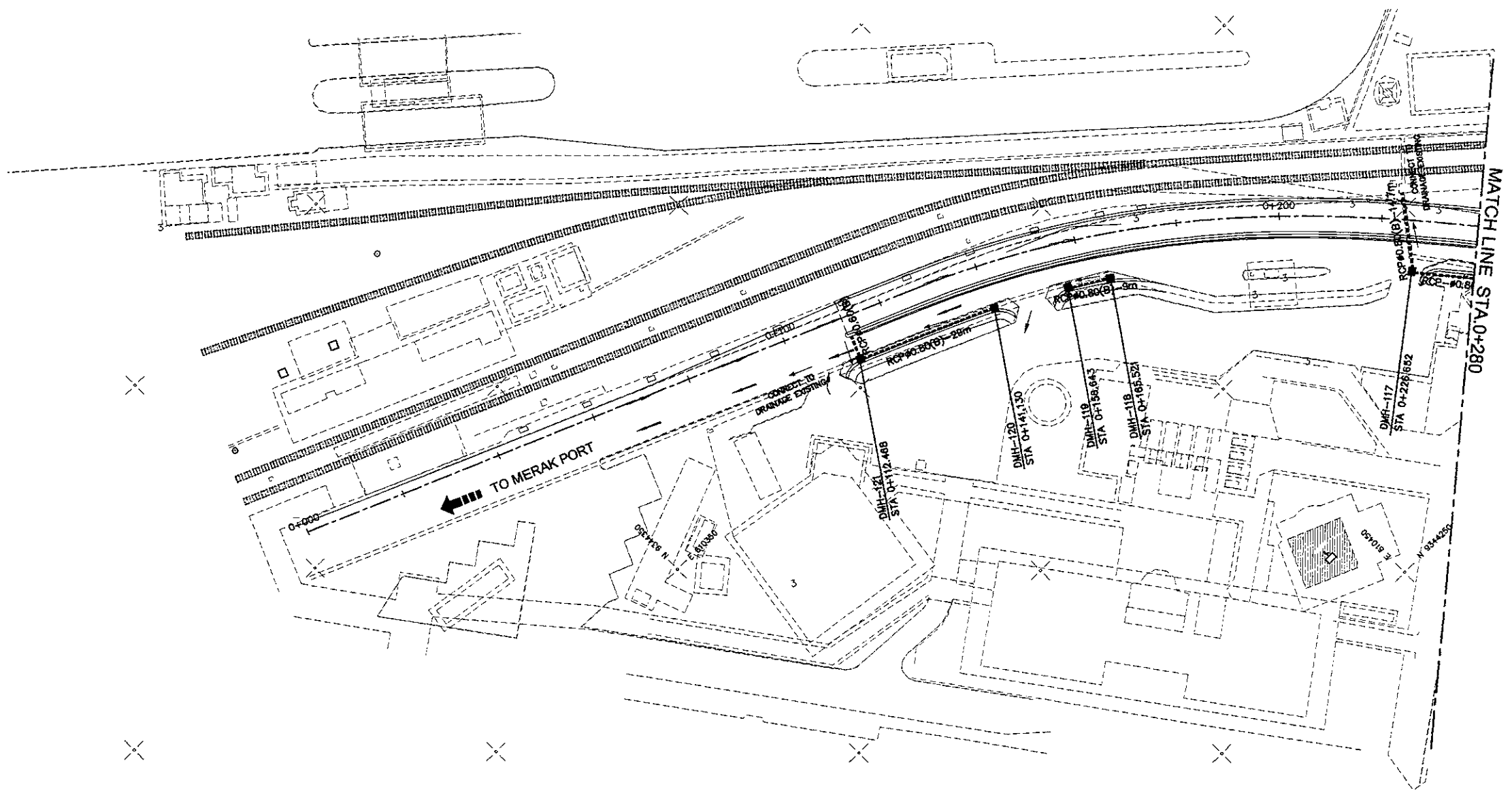
| | |
|------|--|
| Sign | |
| Date | |

LEGEND

- : DRAINAGE MANHOLES
- : DRAINAGE LINE
- : NEW CULVERT
- : EXISTING DRAINAGE
- RCP : PIPE CULVERT, RCP#0.80(A)—15.0
 DIAMETER — LENGTH
 TYPE
- DS : SIDE DRAIN, DS-2—15.0
 LENGTH
 TYPE



KEY PLAN

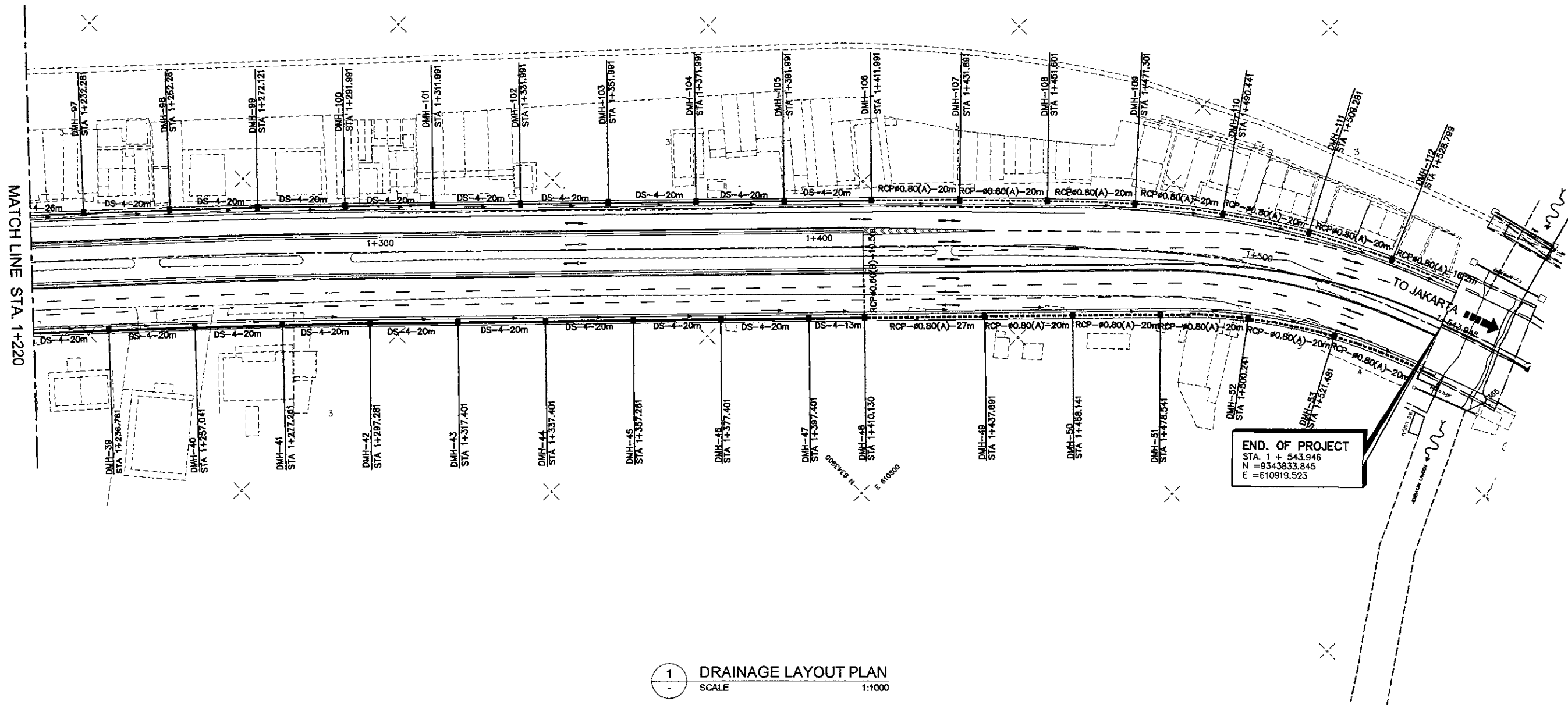
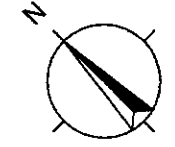
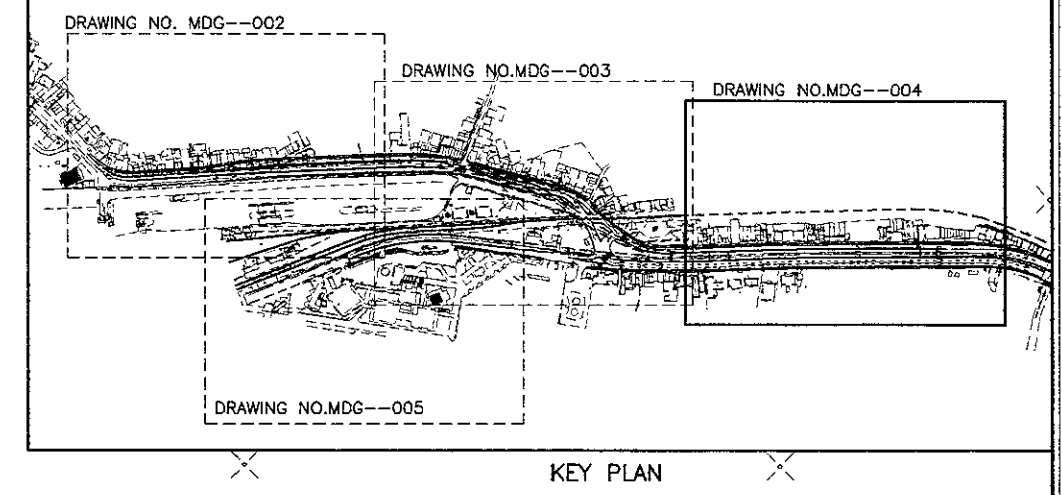


1 DRAINAGE LAYOUT PLAN
 SCALE 1:1000

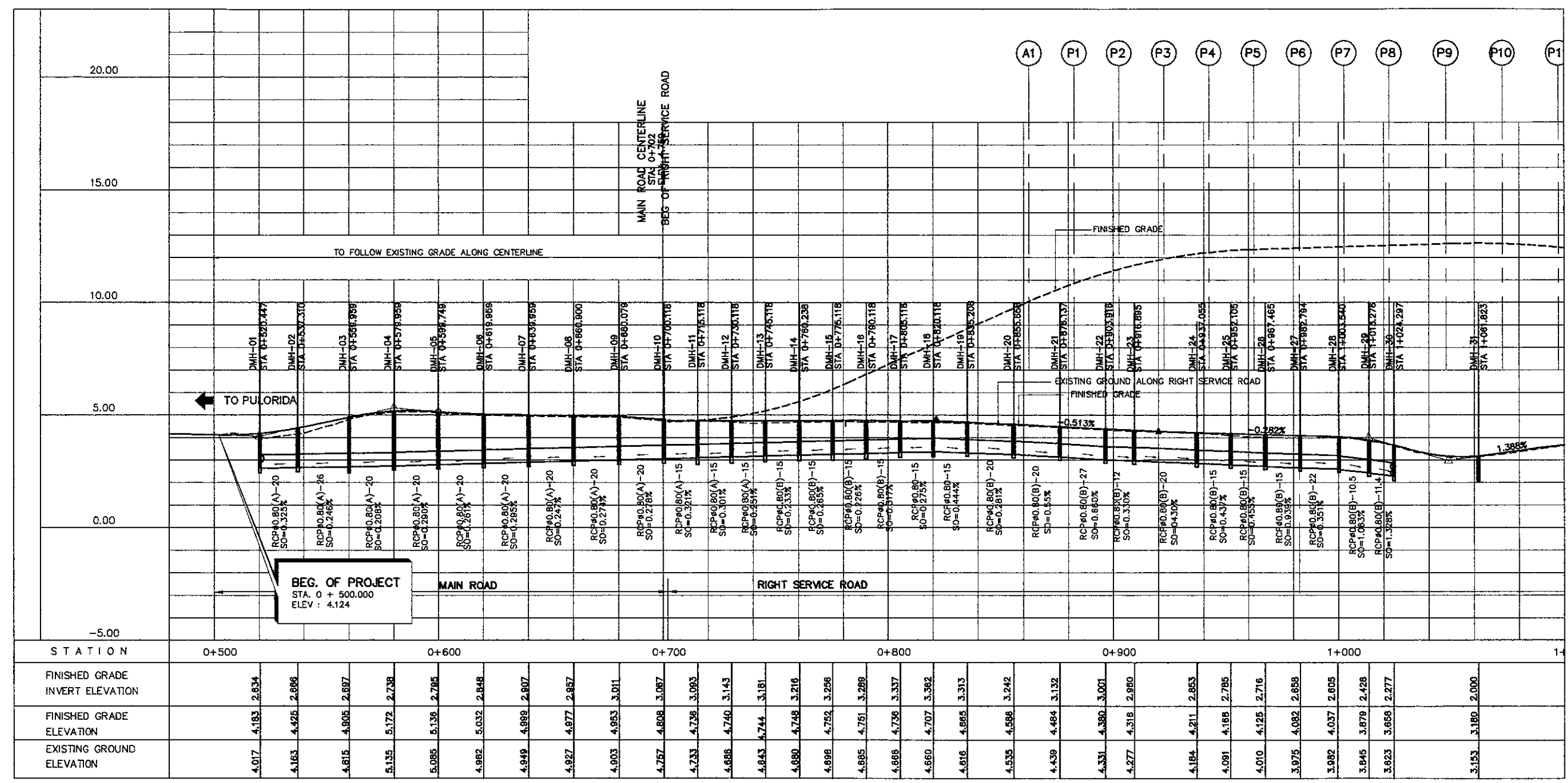
| DESIGNED BY | | CHECKED BY | | SUBMITTED BY | |
|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
| Sign | | Sign | | Sign | |
| Date | | Date | | Date | |

LEGEND

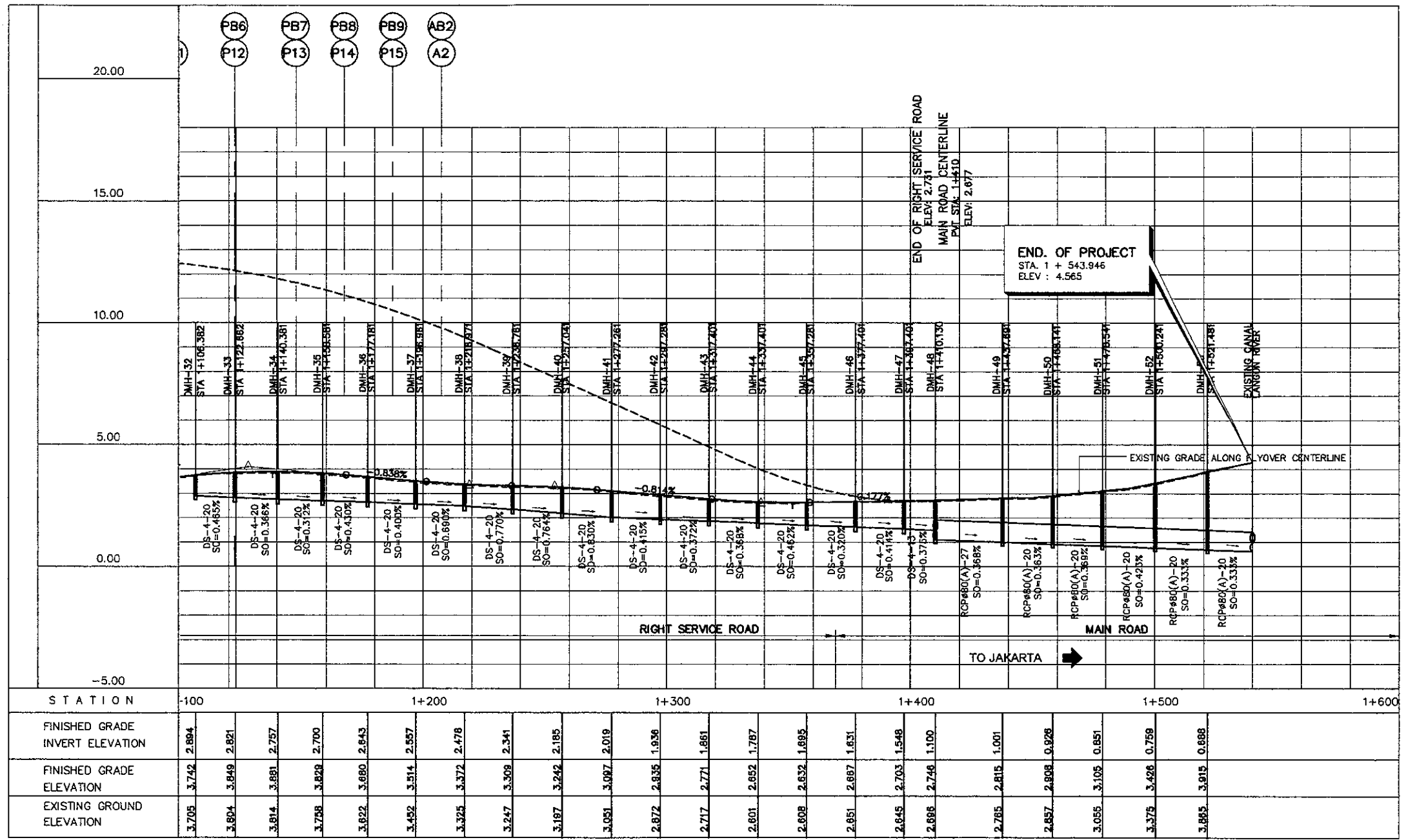
- : DRAINAGE MANHOLES
- ▶— : DRAINAGE LINE
- : NEW CULVERT
- : EXISTING DRAINAGE
- RCP : PIPE CULVERT, RCP#0.80(A)-15.0
 DIAMETER — LENGTH — TYPE
- DS : SIDE DRAIN, DS-2-15.0
 LENGTH — TYPE



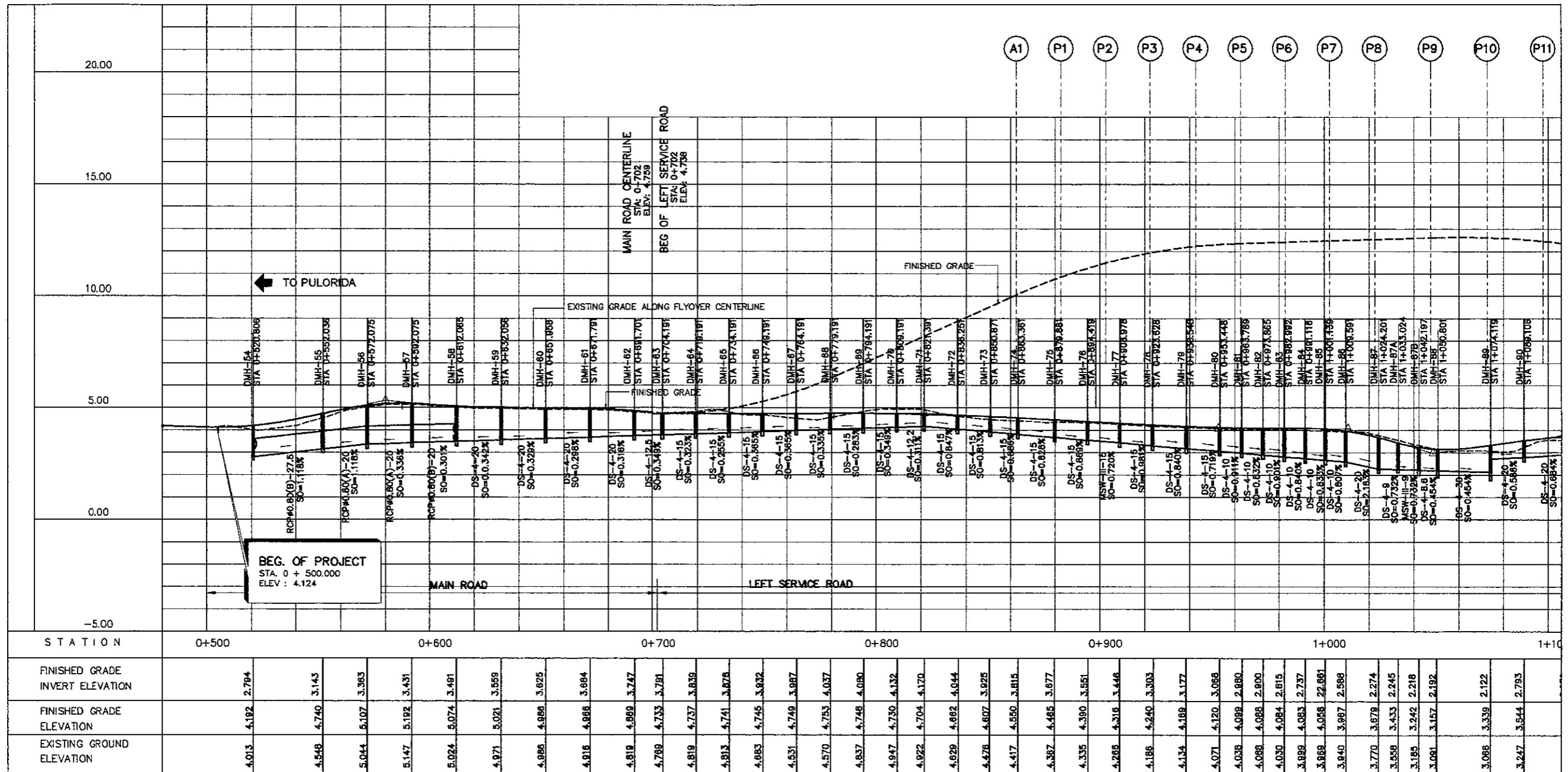
1 DRAINAGE LAYOUT PLAN
 SCALE 1:1000



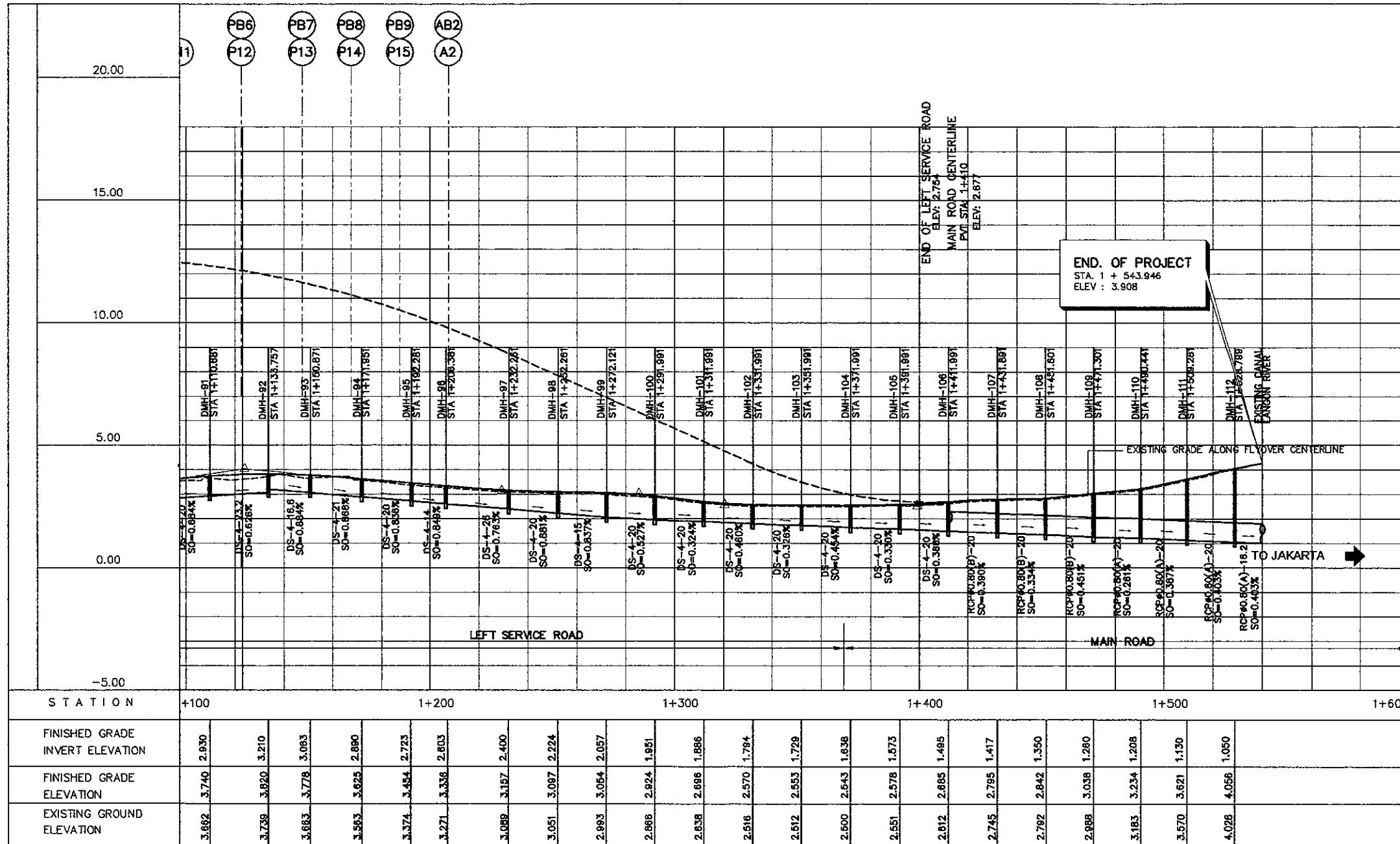
1 DRAINAGE PROFILE, RIGHT SERVICE ROAD (1 OF 2)
 SCALE H:1:2000 V:1:200



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

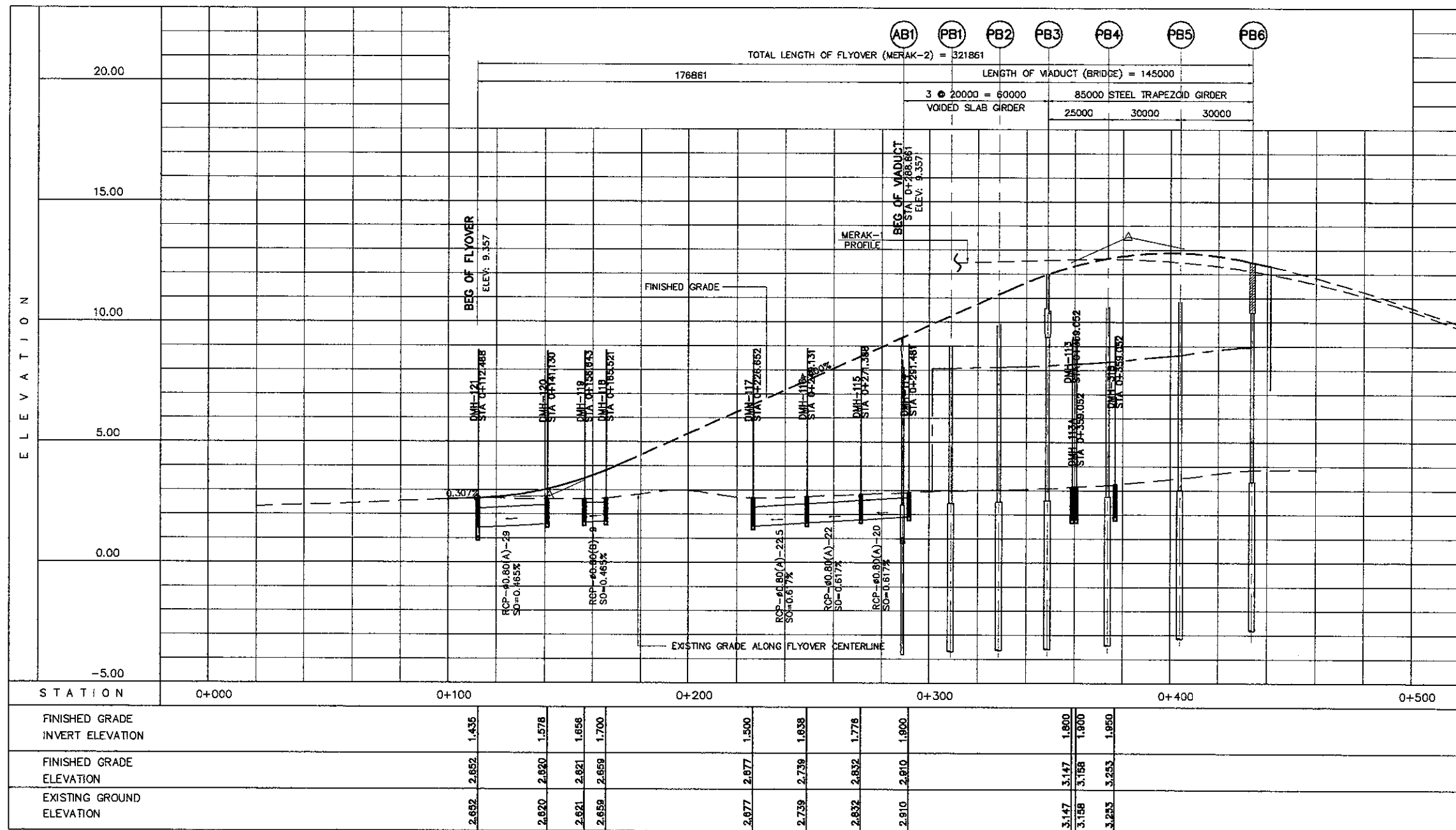


1 DRAINAGE PROFILE, LEFT SERVICE ROAD (1 OF 2)
 SCALE H:1:2000 V:1:200

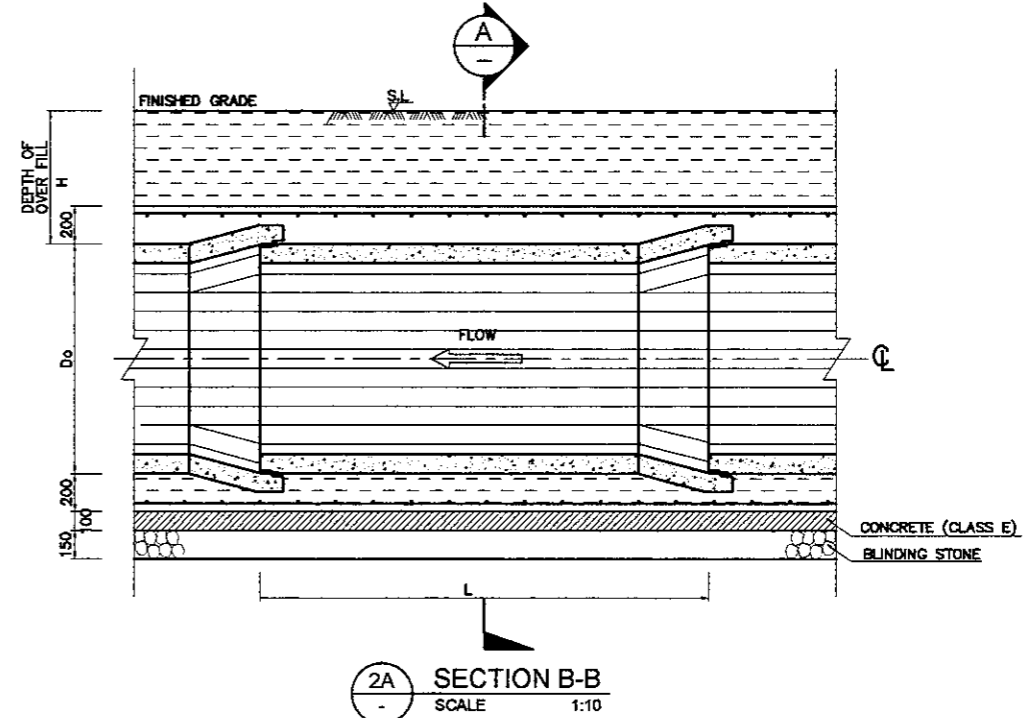
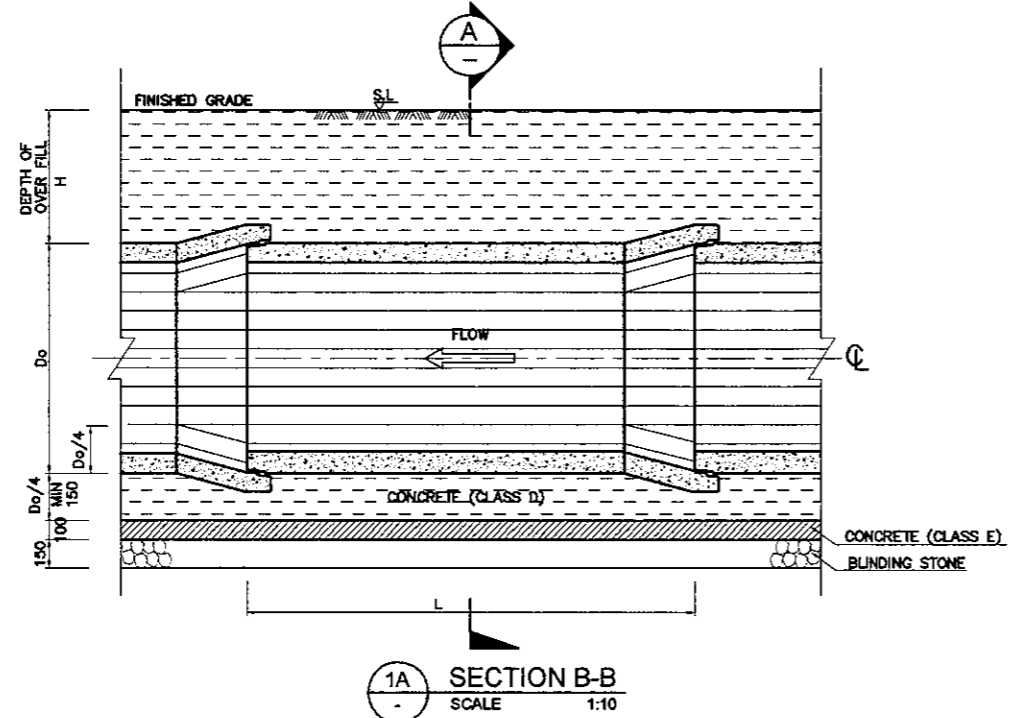
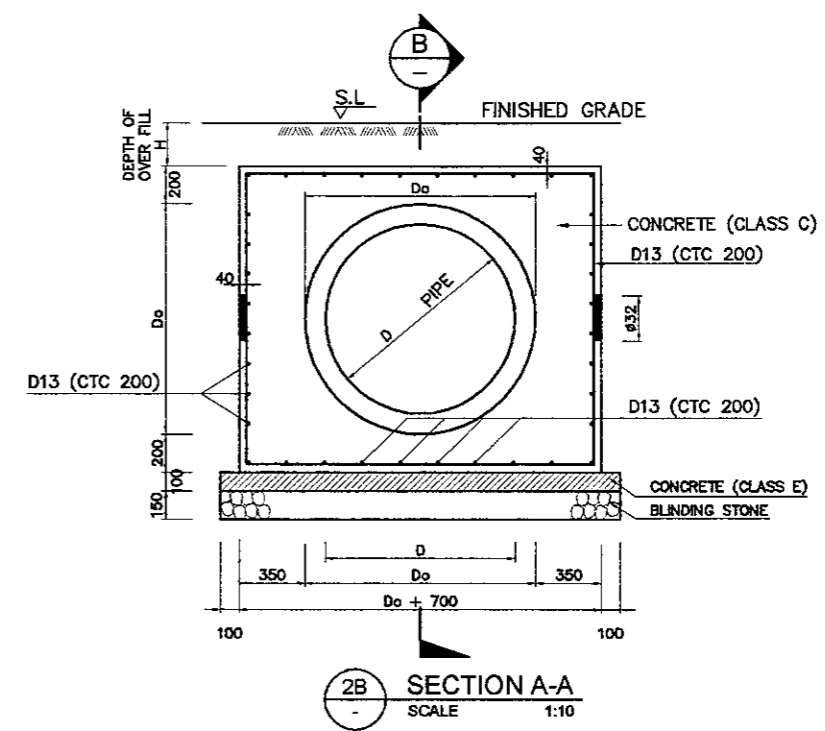
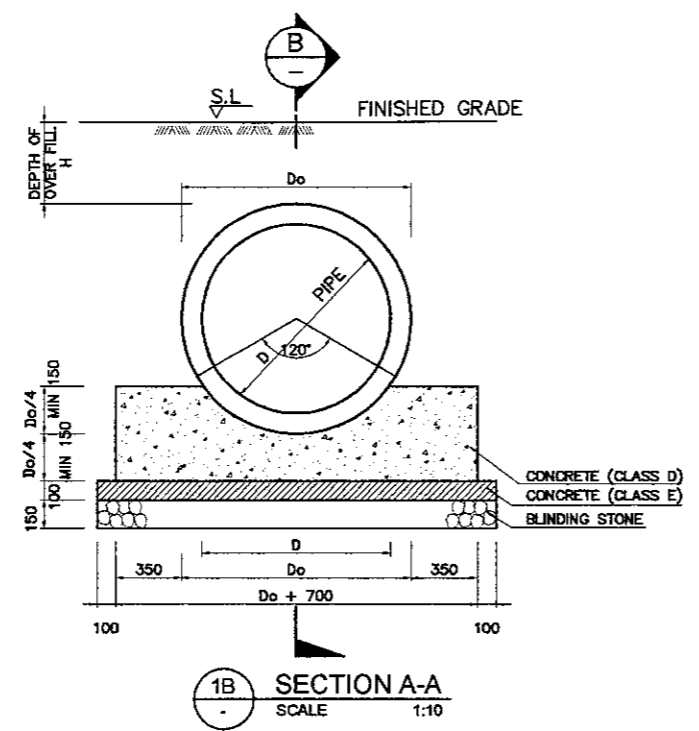


1 DRAINAGE PROFILE, LEFT SERVICE ROAD (2 OF 2)
 SCALE H:1:2000 V:1:200

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



1 PROFILE OF FLYOVER (MERAK-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

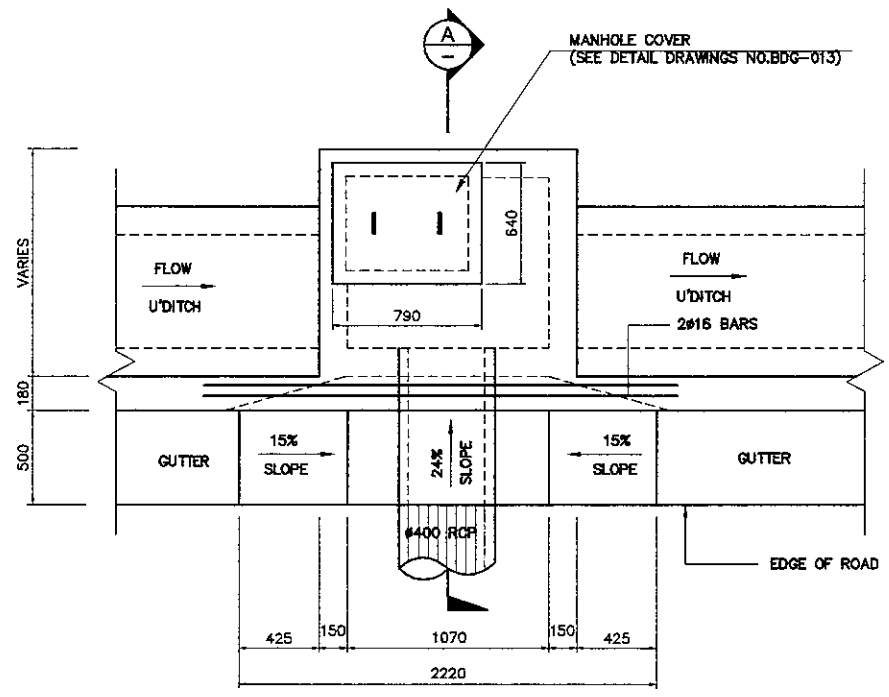
| DIA D | WALL THICKNESS T | Do | LENGTH L | WEIGHT W | RUBBER RING THICKNESS | REQUIRED STRENGTH | |
|----------|------------------------|------|-------------|-------------|-----------------------------|-------------------|----------|
| | | | | | | CRACKING | BREAKING |
| mm | mm | mm | mm | kg | mm | 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 | 3805 | 16.5 | 80.00 | 160.00 |
| 1300 | 140 | 1580 | 2500 | 4444 | 18.5 | 94.20 | 171.25 |
| 1500 | 160 | 1820 | 2500 | 5858 | 20 | 102.20 | 175.00 |

DEPTH OF OVER FILL : H

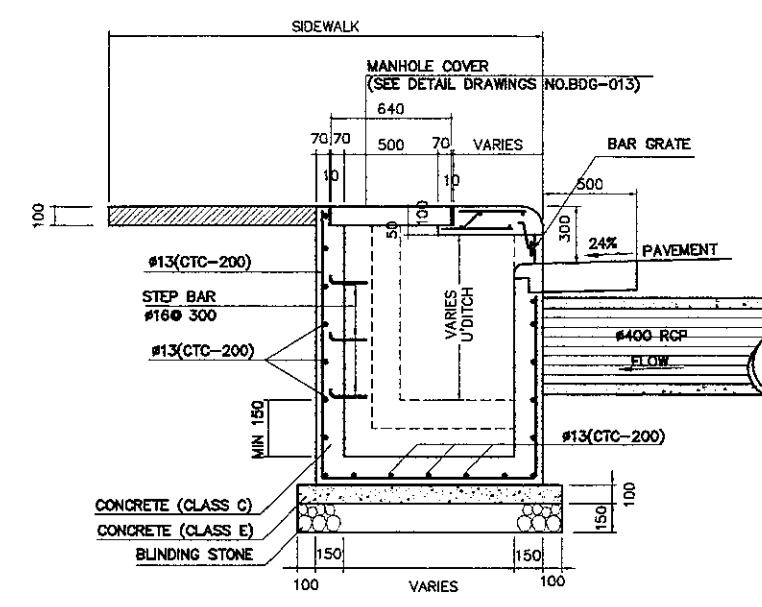
| D | DIMENSION : mm | |
|------|----------------|---------------------------|
| | TYPE - A | TYPE - B |
| 400 | 500 < H < 3000 | 30Q < H < 500 OR 3000 < H |
| 600 | 500 < H < 3000 | 30Q < H < 500 OR 3000 < H |
| 800 | 500 < H < 3000 | 30Q < H < 500 OR 3000 < H |
| 1000 | 500 < H < 3000 | 30Q < H < 500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

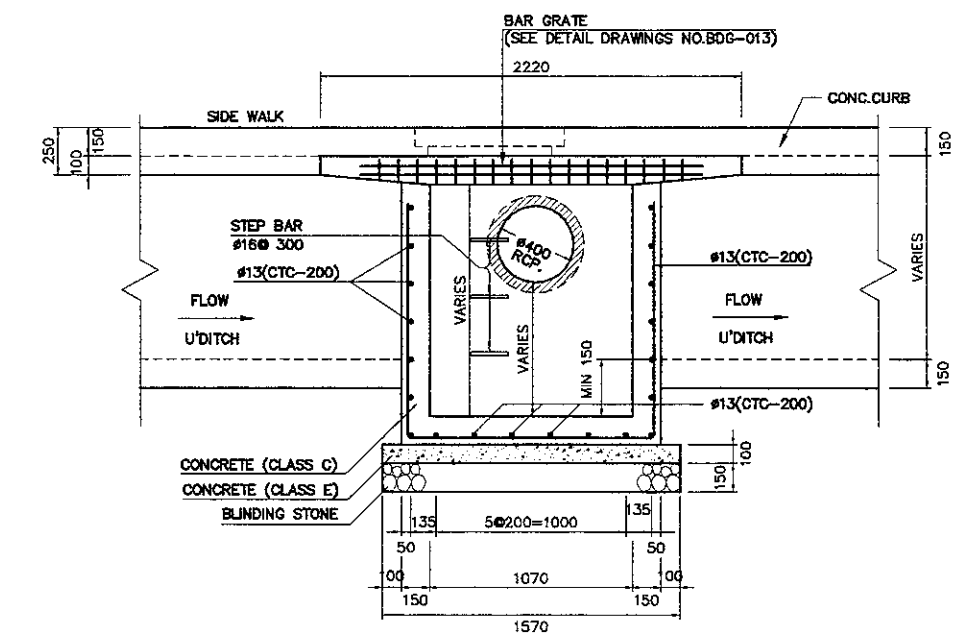
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
- TYPE OF FOUNDATION IS SHOWN ON THE DRAWING.
- THE FOUNDATIONS OF TRANSVERSE PIPE CULVERTS SHALL BE TYPE - B IRRESPECTIVE OF PIPE DEPTH.
- THE CRACKING LOAD MEANS THE LOAD AT WHICH A 0.05 mm WIDE CRACK DEVELOPES ON THE PIPE.
- BREAKING LOAD 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.



2 PLAN
 SCALE 1:40

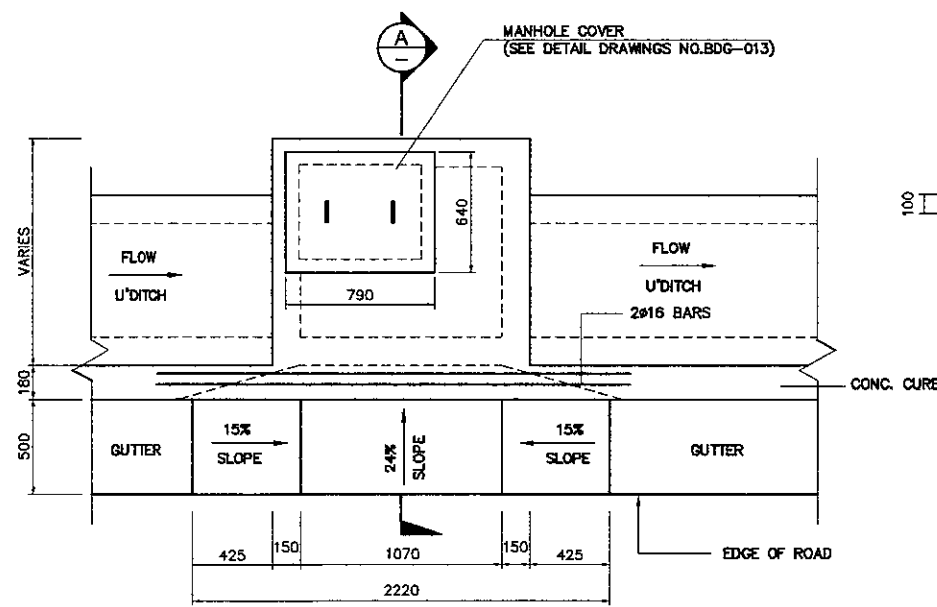


2A SECTION
 SCALE 1:40

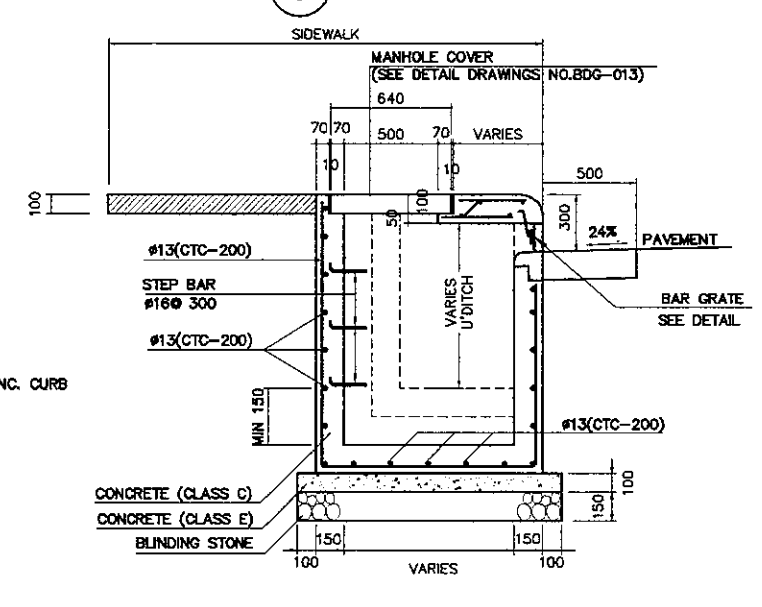


2B FRONT ELEVATION
 SCALE 1:40

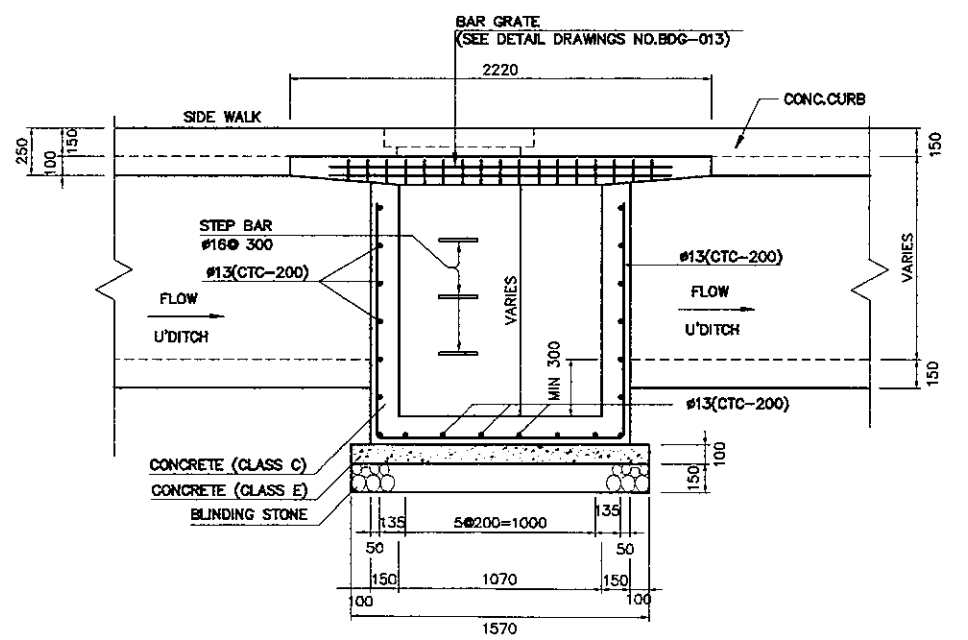
II MANHOLE TYPE - II



1 PLAN
 SCALE 1:40

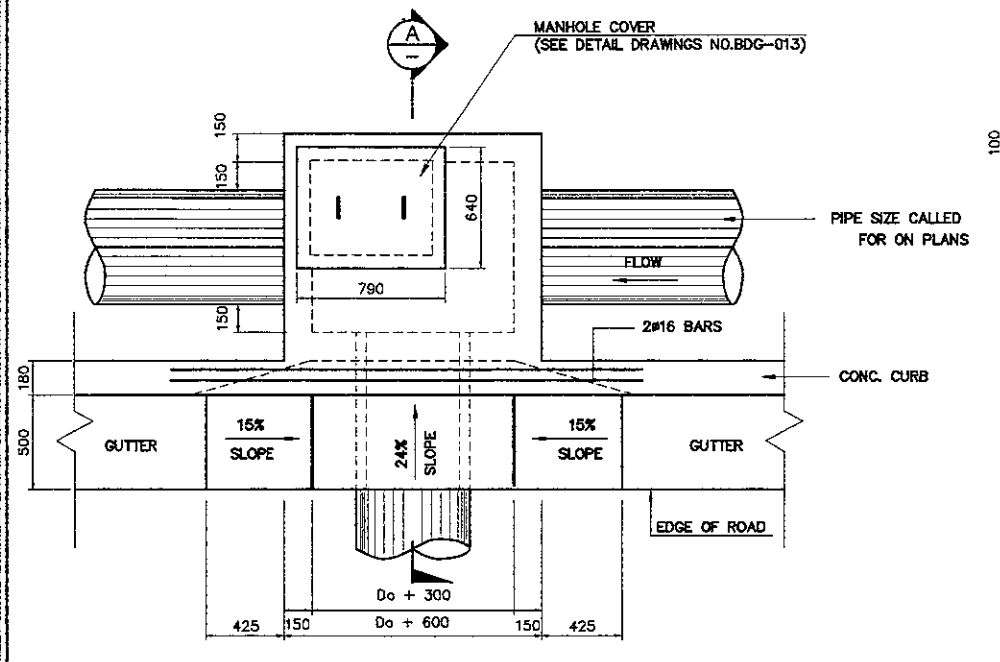


1A SECTION
 SCALE 1:40

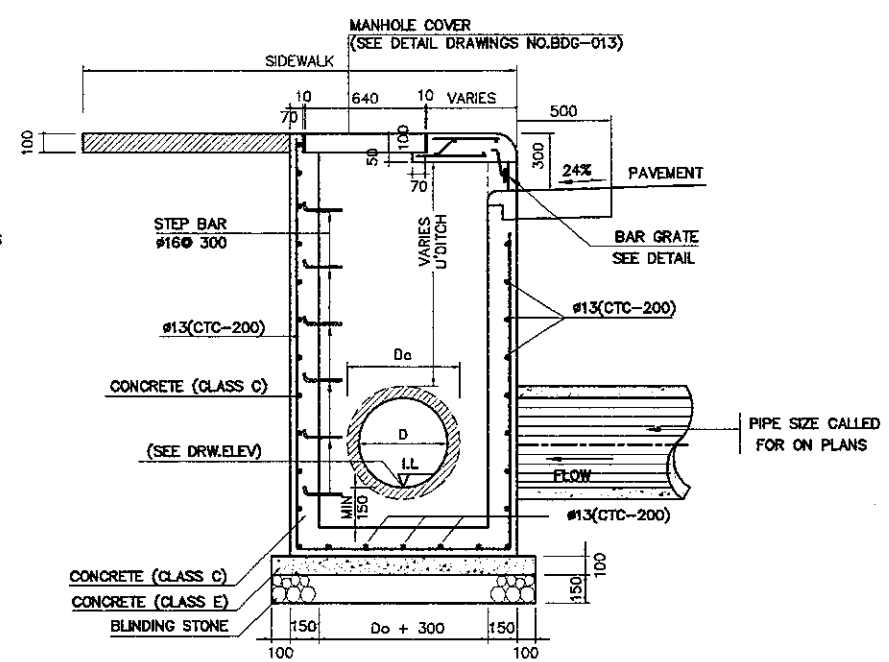


1B FRONT ELEVATION
 SCALE 1:40

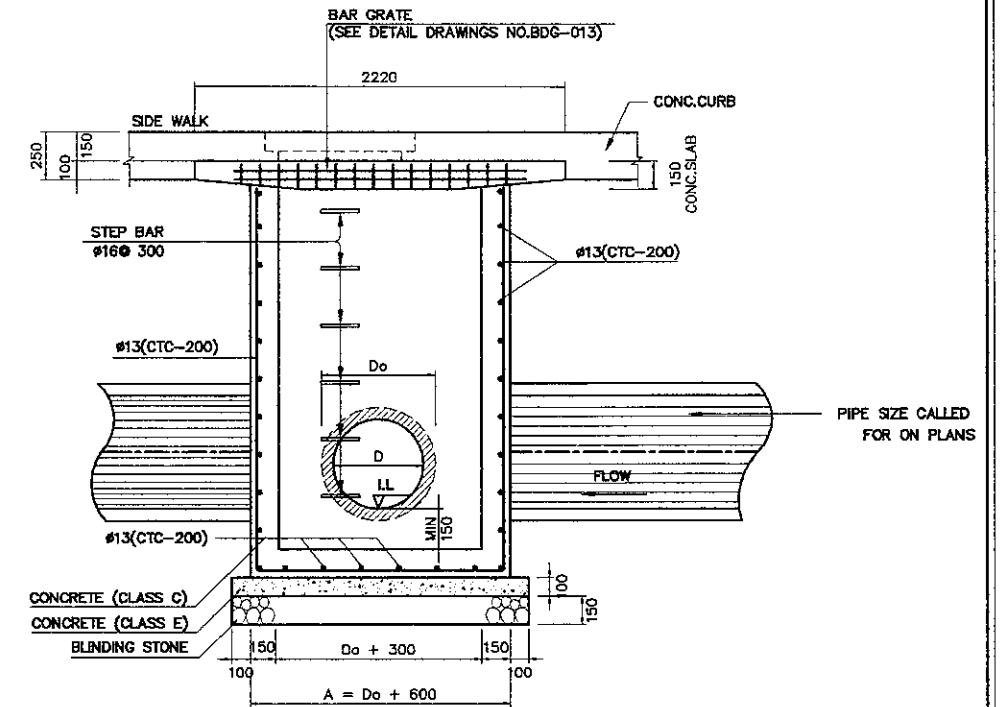
I MANHOLE TYPE - I



4 PLAN
 SCALE 1:40

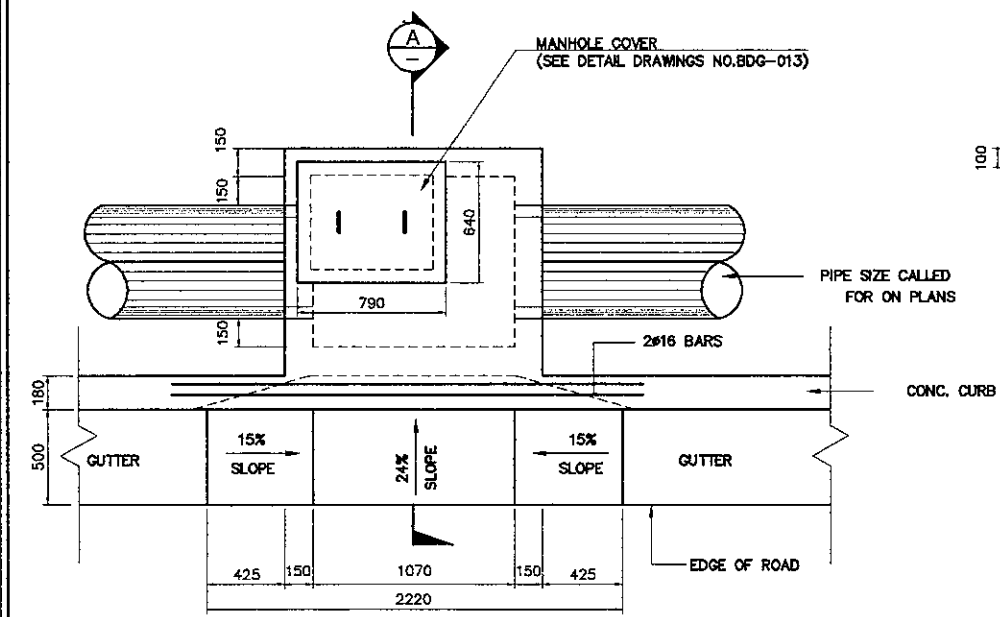


4A SECTION
 SCALE 1:40

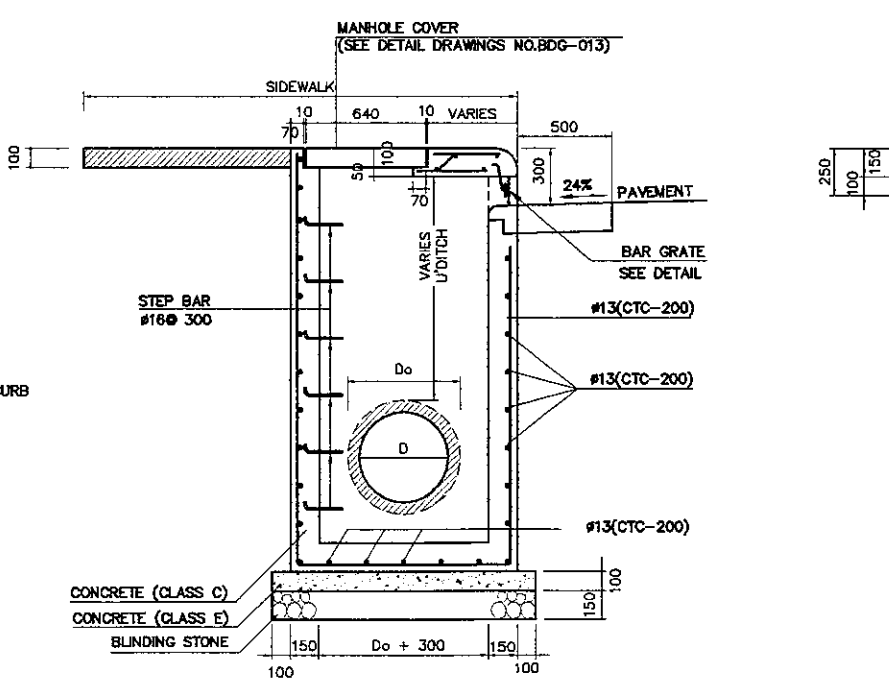


4B FRONT ELEVATION
 SCALE 1:40

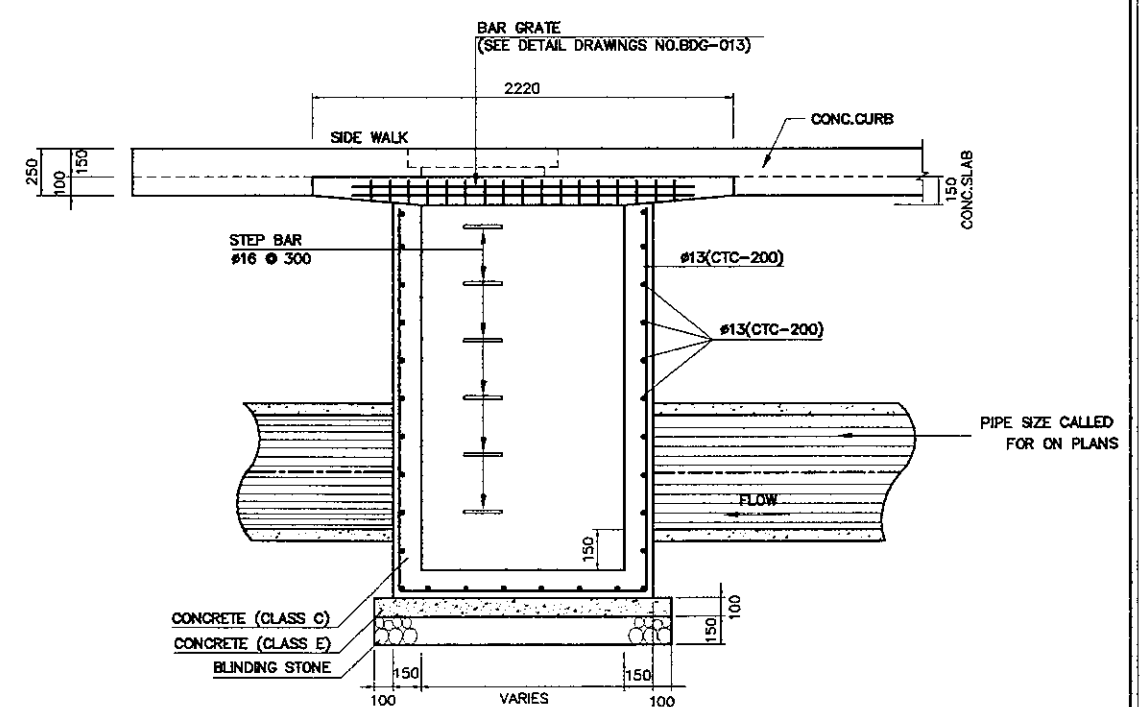
IV MANHOLE TYPE - IV



3 PLAN
 SCALE 1:40

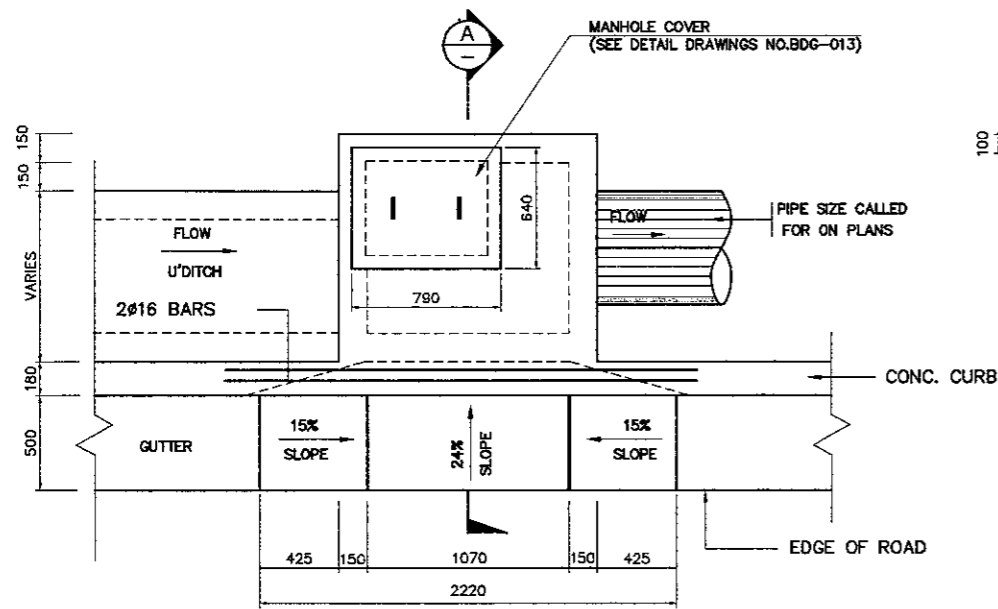


3A SECTION
 SCALE 1:40

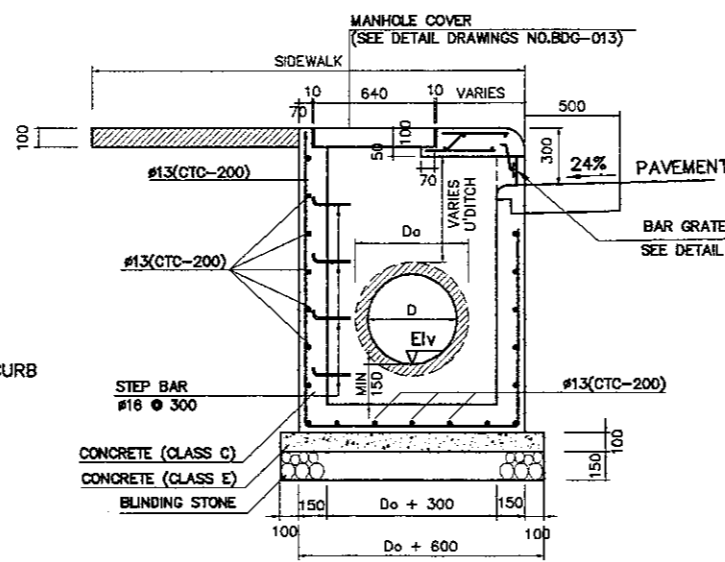


3B FRONT ELEVATION
 SCALE 1:40

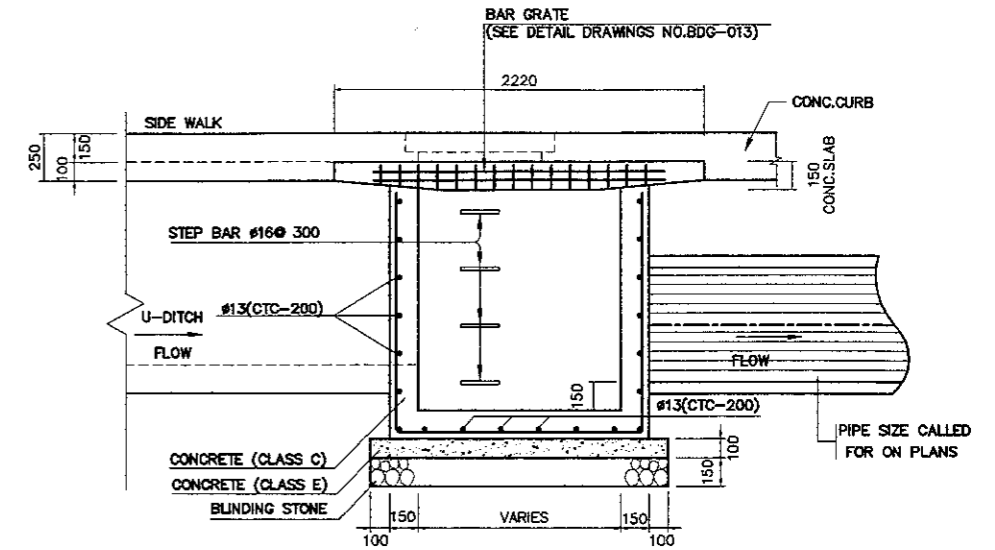
III MANHOLE TYPE - III



6 PLAN
 SCALE 1:40

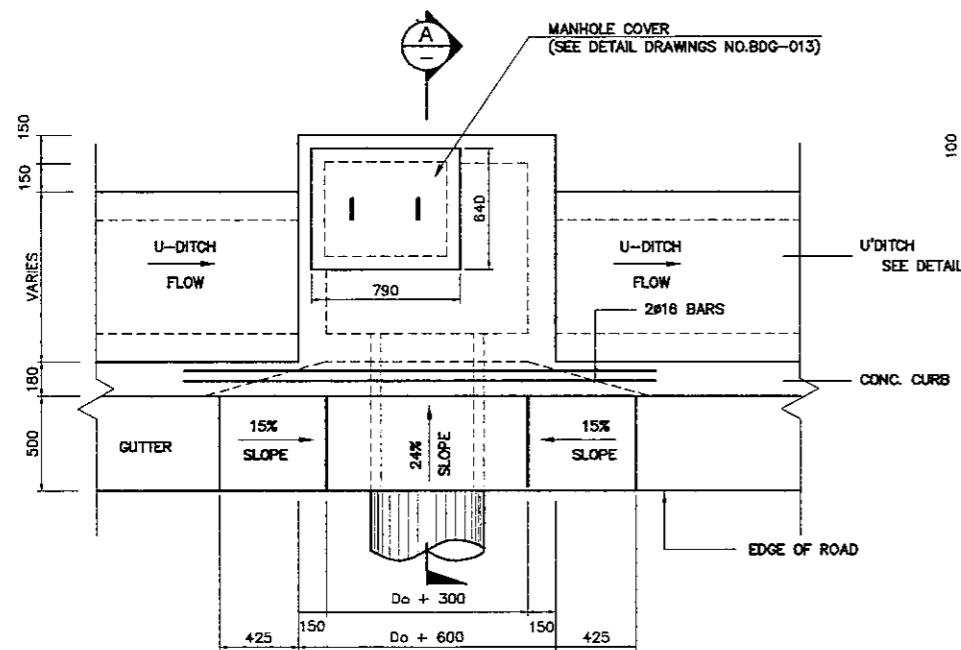


6A SECTION
 SCALE 1:40

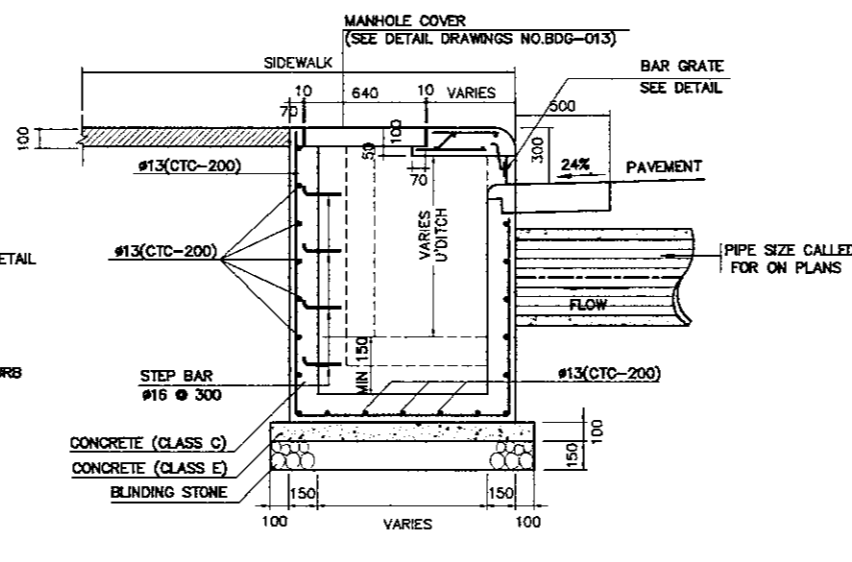


6B FRONT ELEVATION
 SCALE 1:40

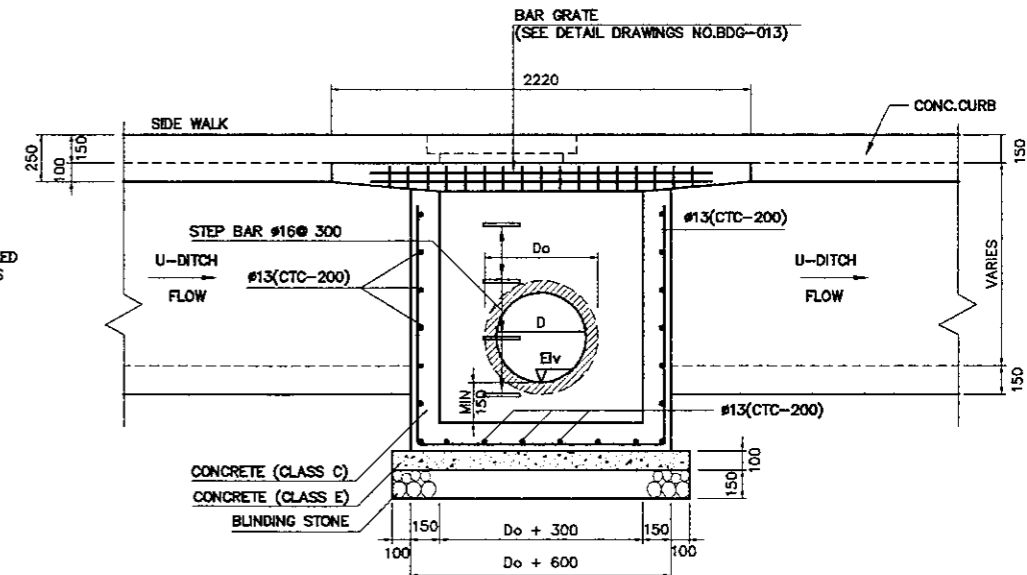
VI MANHOLE TYPE - VI



5 PLAN
 SCALE 1:40



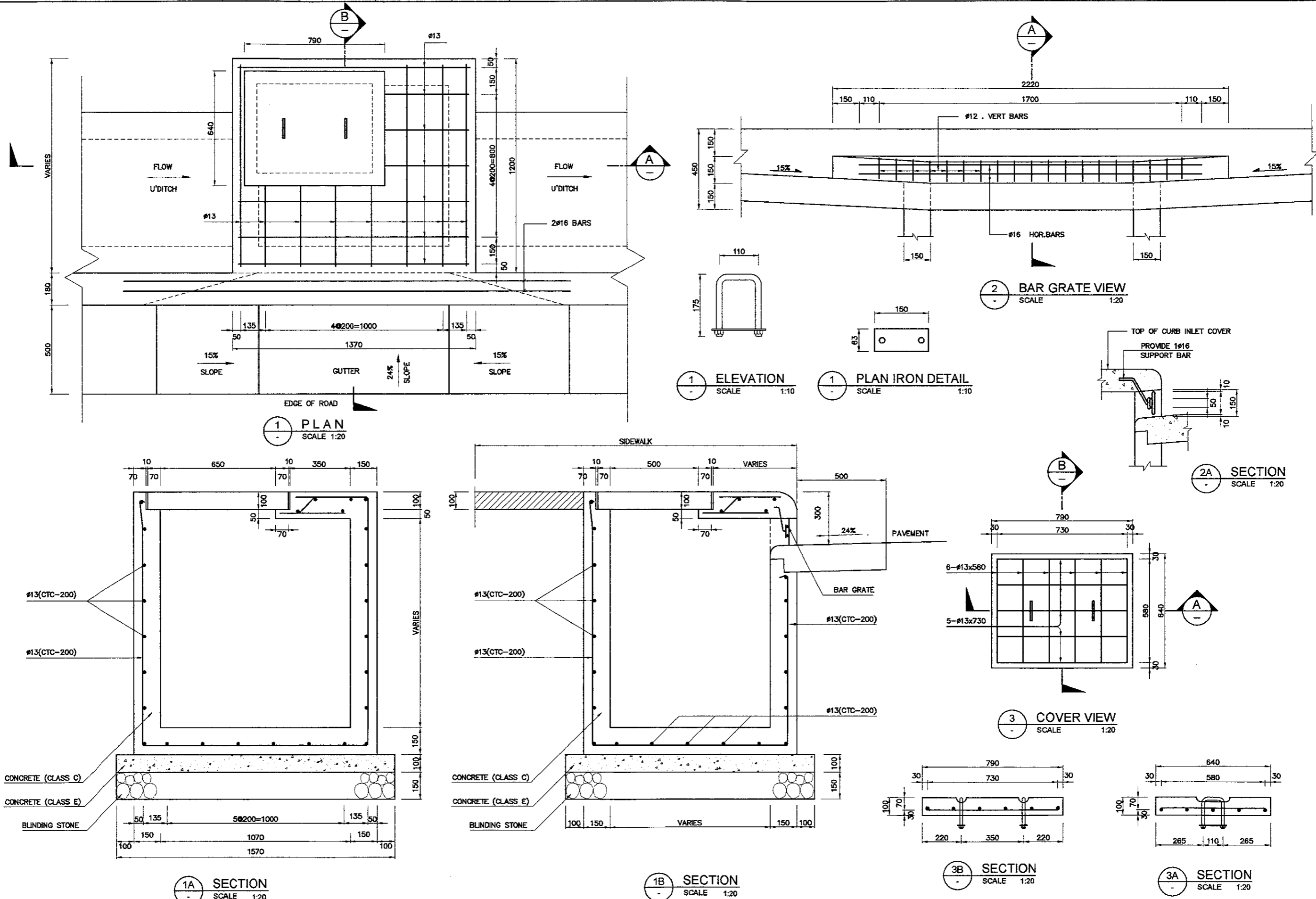
5A SECTION
 SCALE 1:40

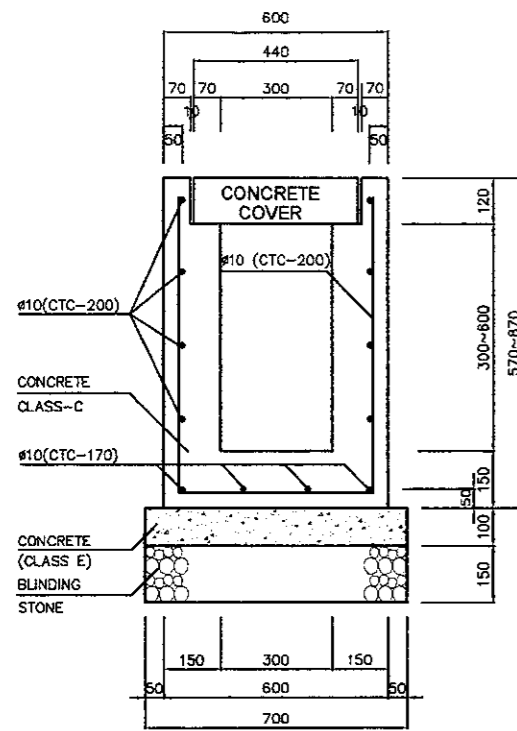


5B FRONT ELEVATION
 SCALE 1:40

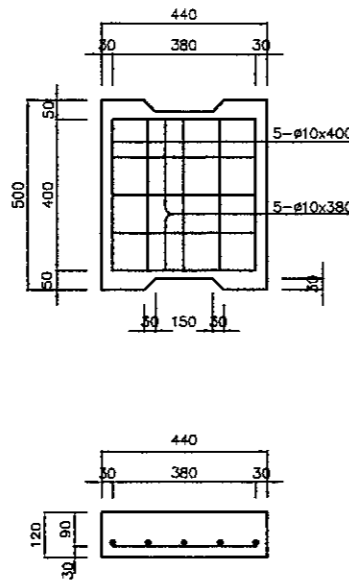
V MANHOLE TYPE - V

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

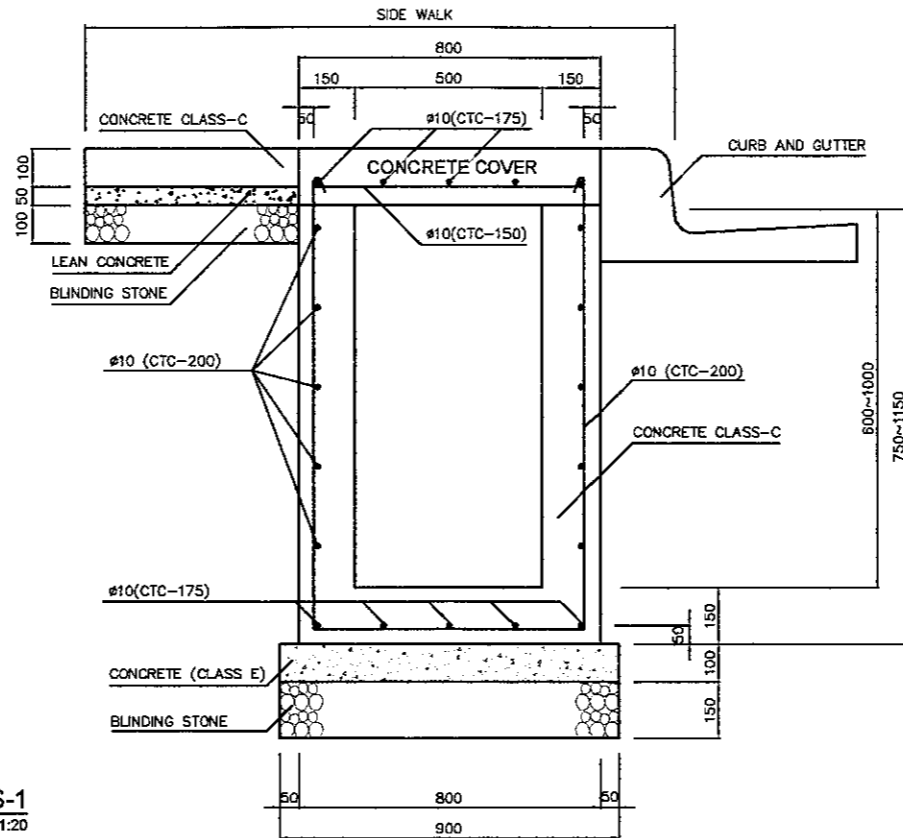




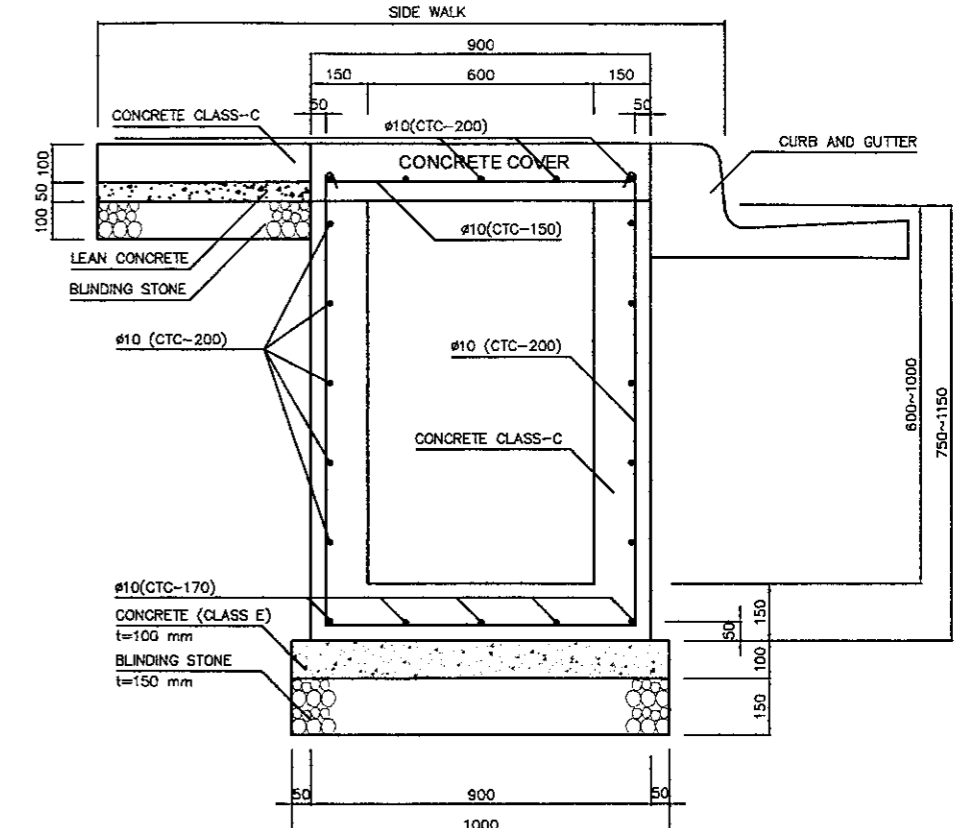
1 DS - 1
 SCALE 1:20



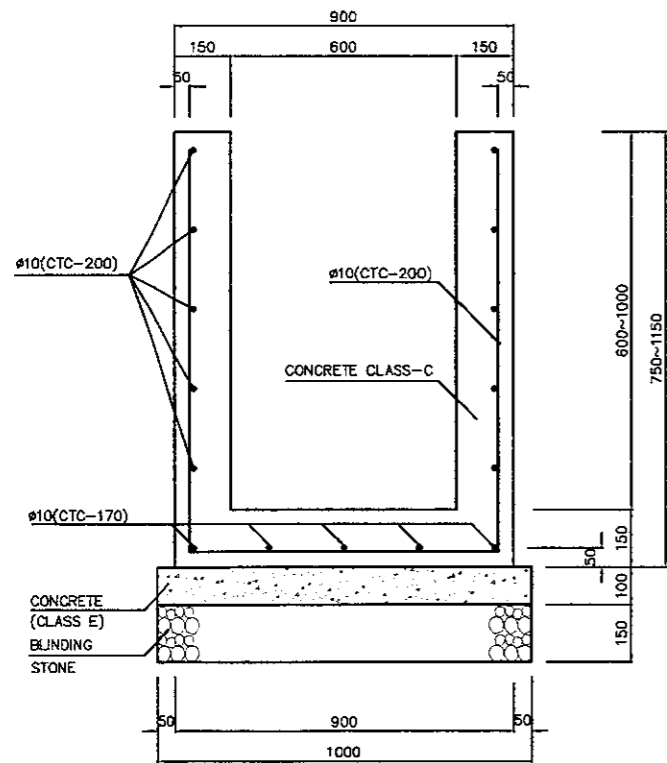
1A CONCRETE COVER FOR DS-1
 SCALE 1:20



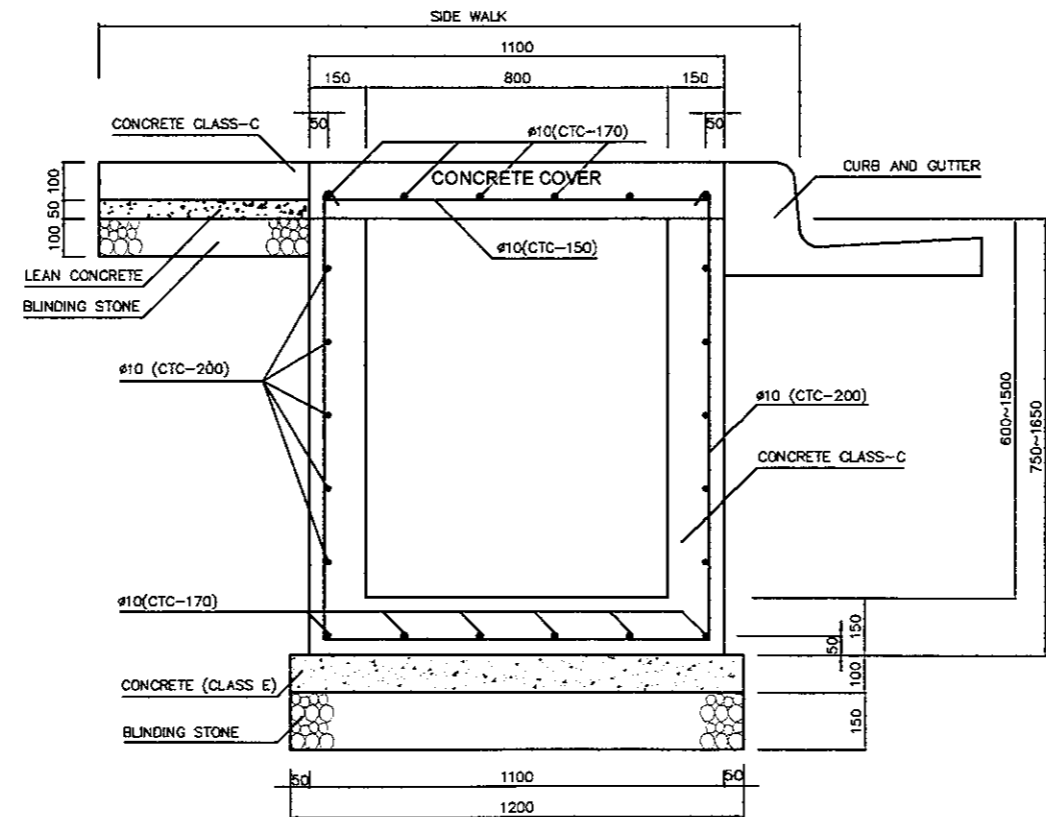
2 DS - 2
 SCALE 1:20



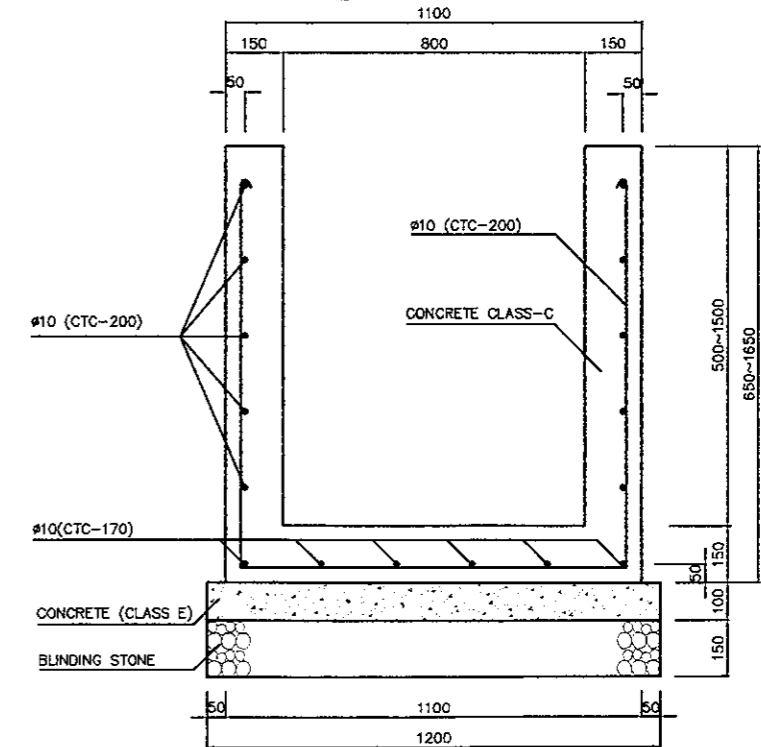
3 DS - 3
 SCALE 1:20



4 DS - 3A
 SCALE 1:20

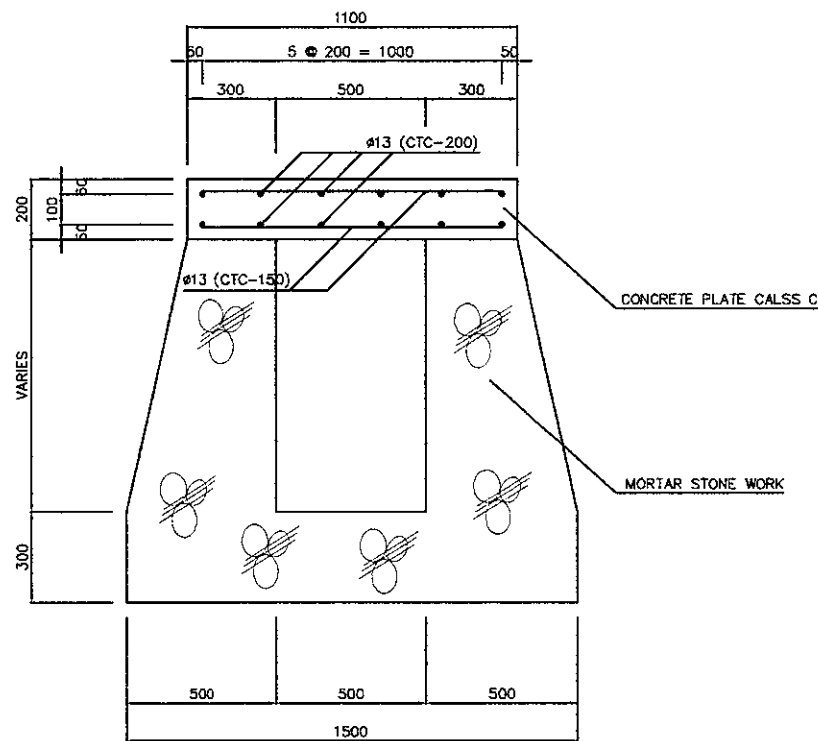


5 DS - 4
 SCALE 1:20

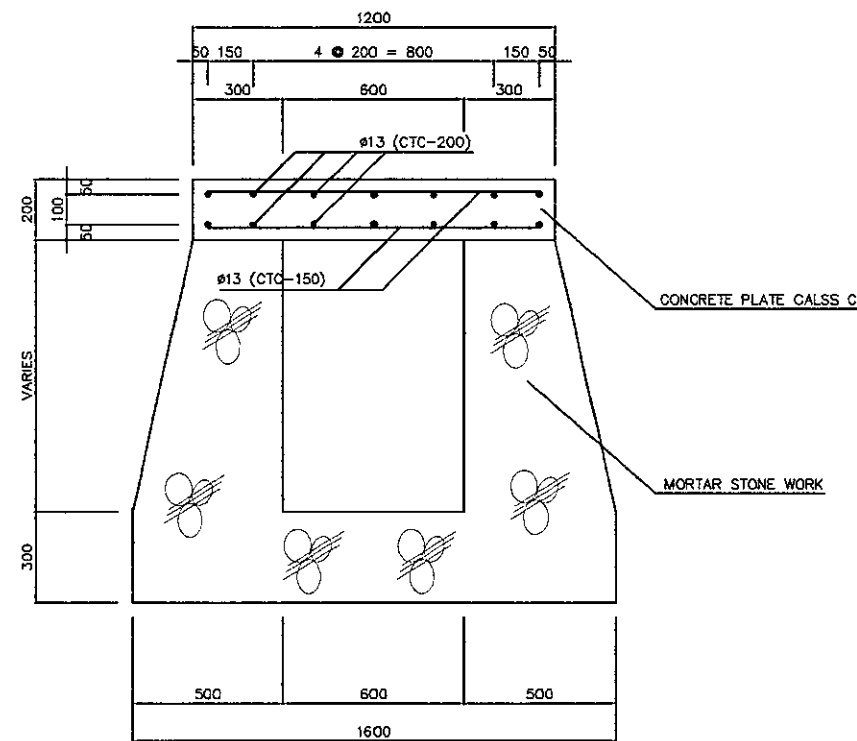


6 DS - 4A
 SCALE 1:20

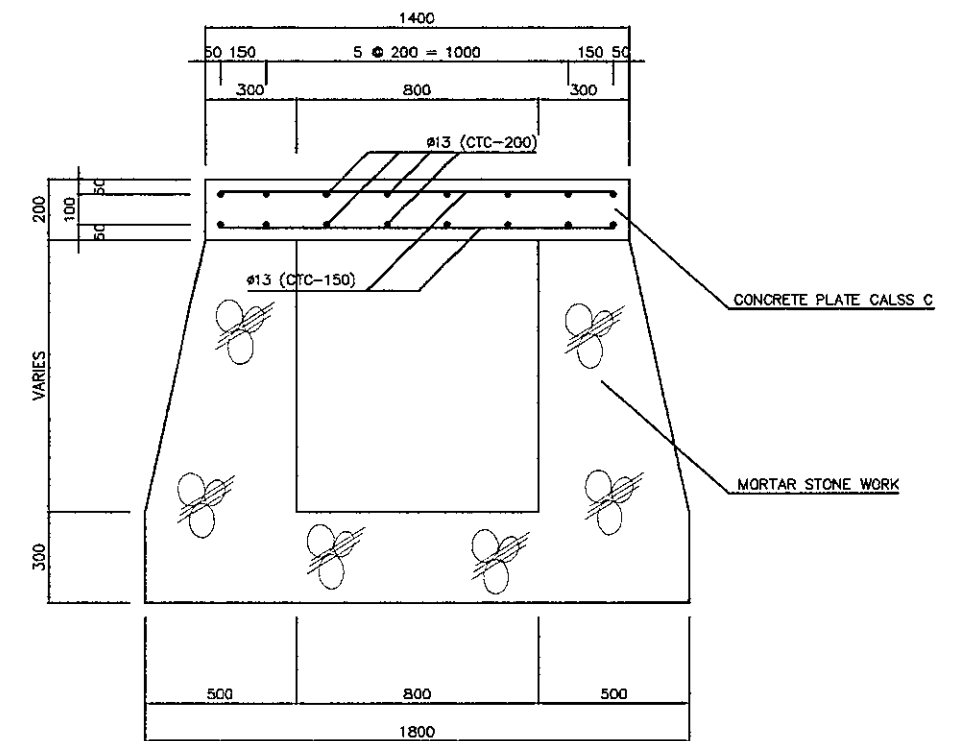
| DESIGNED BY | | CHECKED BY | | SUBMITTED BY | |
|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
| Sign | | Sign | | Sign | |
| Date | | Date | | Date | |



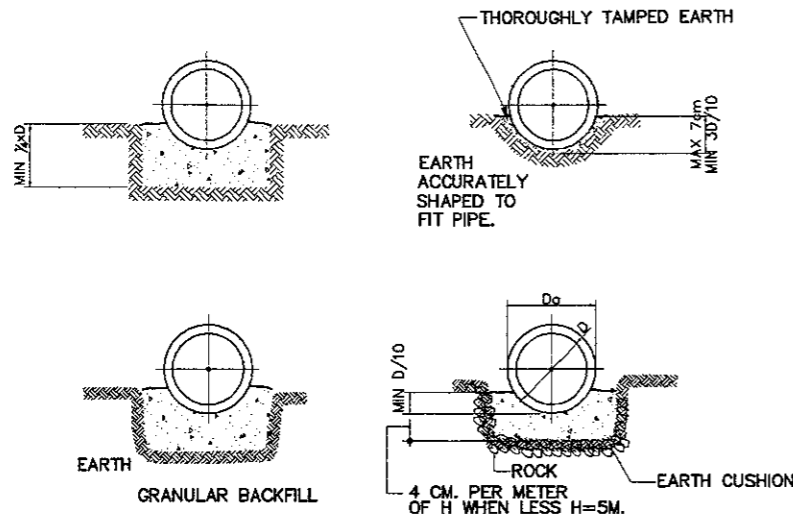
1 MORTAR STONE WORK TYPE - I
 SCALE 1:25



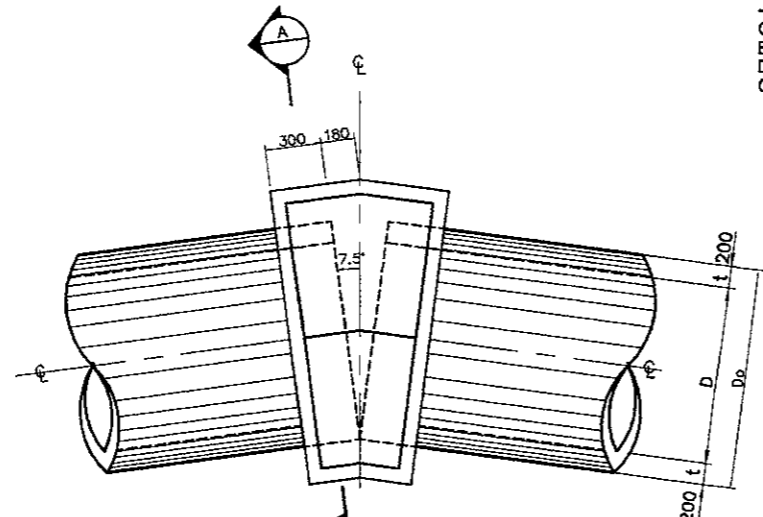
2 MORTAR STONE WORK TYPE - II
 SCALE 1:25



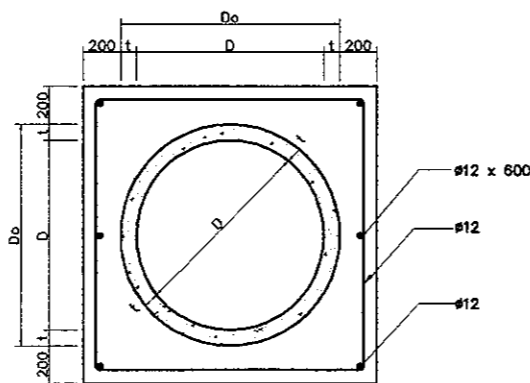
3 MORTAR STONE WORK TYPE - III
 SCALE 1:25



1 TYPICAL BEDDING FOR PROJECTING CONDUITS
 SCALE N T S

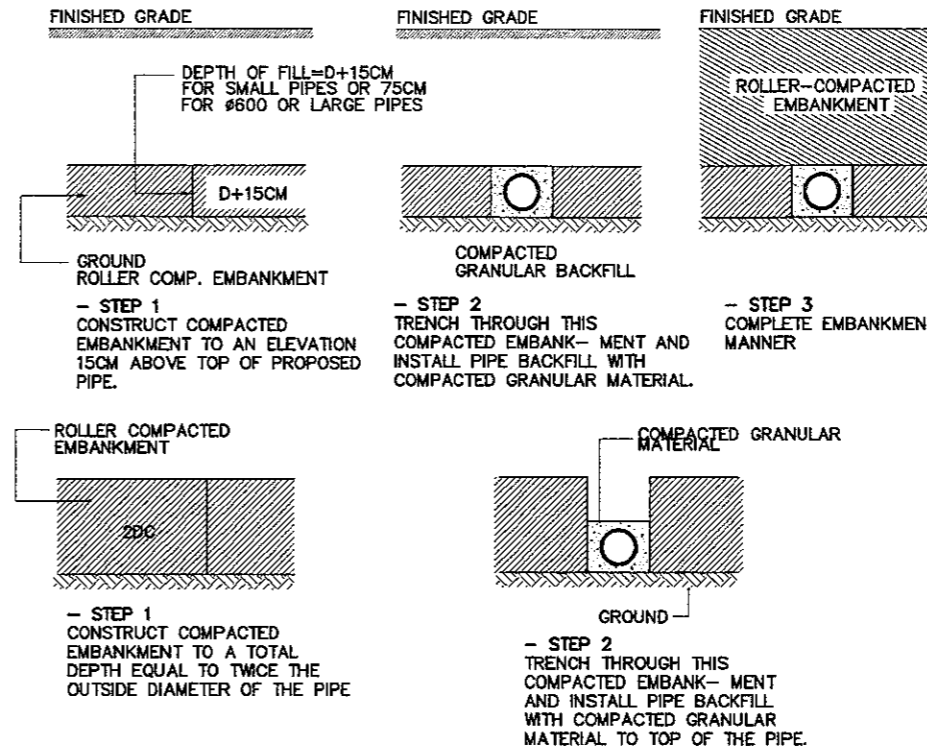


3 PLAN
 SCALE 1:20

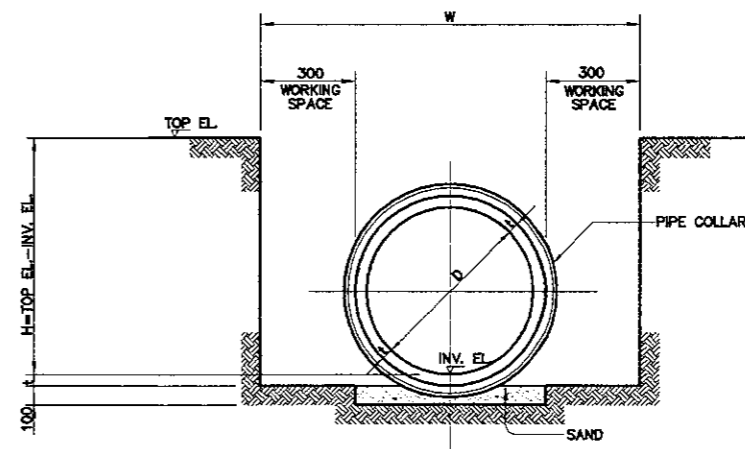


3A SECTION
 SCALE 1:20

3 PIPE COLLAR AT BEND DETAILS
 SCALE 1:20



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



4 FRONT VIEW
 SCALE 1:20

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

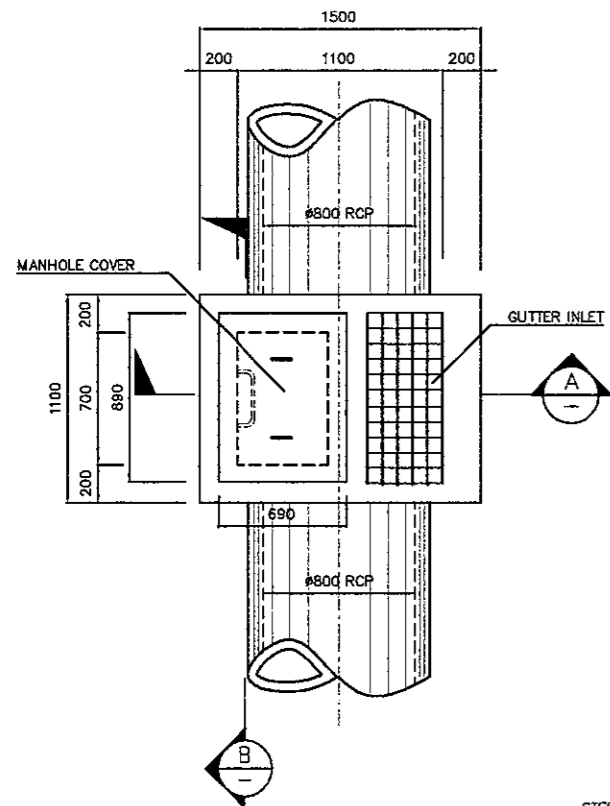
| STANDARD CONCRETE PIPE COLLAR | | |
|-------------------------------|-----------------|--------------|
| PIPE DIAMETER (MM.) | CONCRETE (CUM.) | REBARS (KG.) |
| 460 | 0.493 | 8.5 |
| 610 | 0.656 | 10.0 |
| 760 | 0.842 | 11.0 |
| 910 | 1.056 | 12.5 |
| 1070 | 1.314 | 16.5 |
| 1220 | 1.586 | 19.0 |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

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

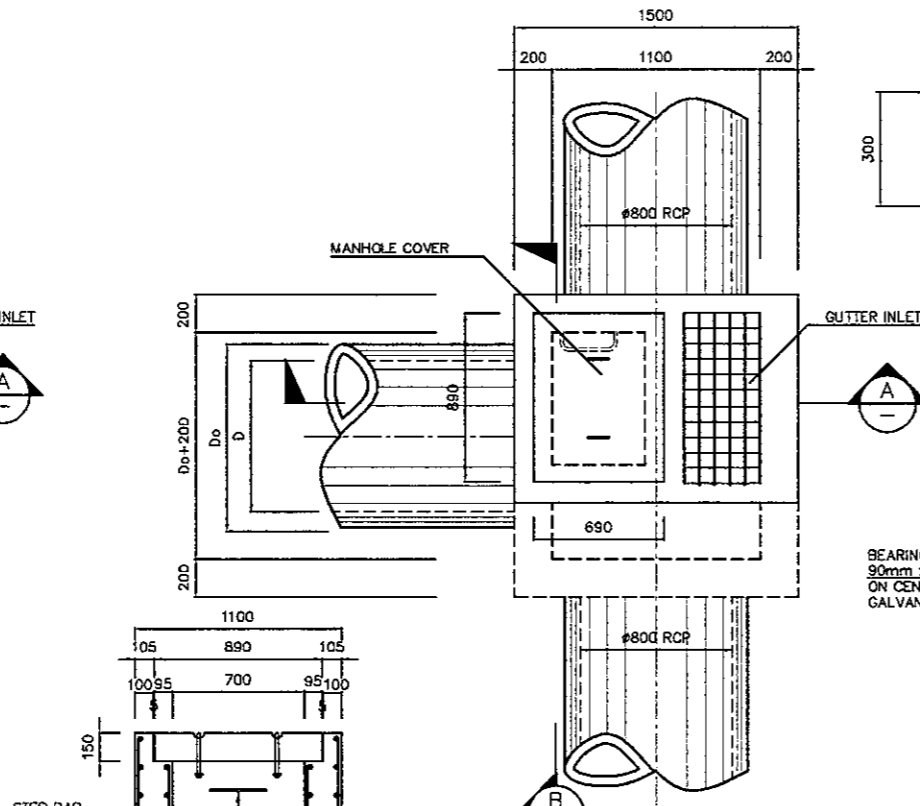
| DESIGNED BY | CHECKED BY | SUBMITTED BY |
|--------------|-----------------|----------------|
| Name R. UENO | Name T. OKUMURA | Name M. KIUCHI |
| Sign | Sign | Sign |
| Date | Date | Date |

| APPROVED BY | NAME | DATE |
|-------------------------|------|------|
| Ir. HERRY VAZA M.Eng.Sc | | |
| NIP. : 110038400 | | |

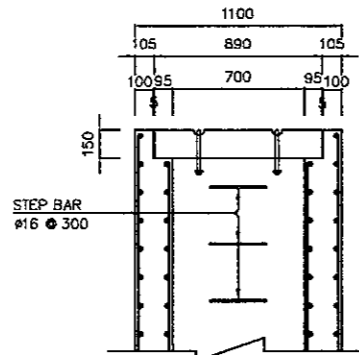
| SCALE : |
|--------------|
| 1 : 10 |
| 1 : 20 |
| 1 : 40 |
| FULL SIZE A3 |



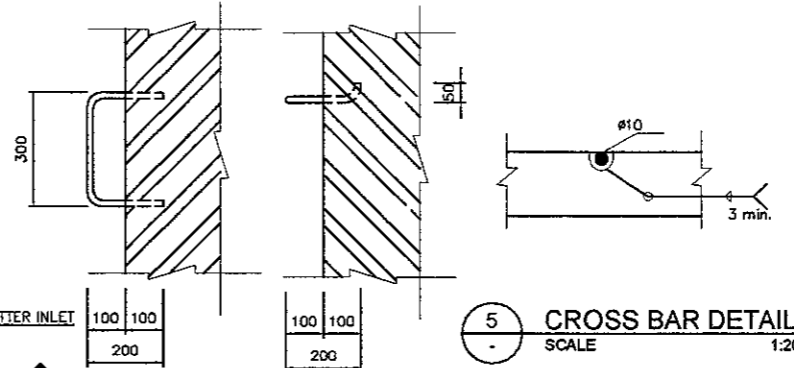
1 PLAN SCALE 1:40



2 PLAN SCALE 1:40

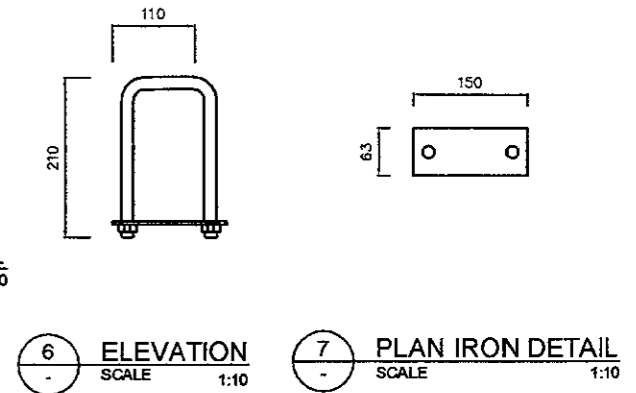


STEP BAR #16 @ 300



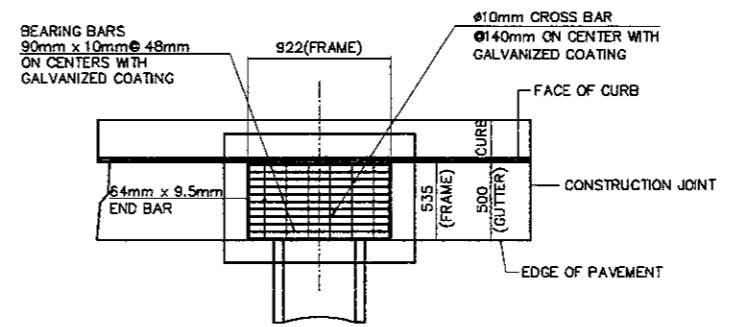
5 CROSS BAR DETAIL SCALE 1:20

3 STEP DETAIL SCALE 1:20

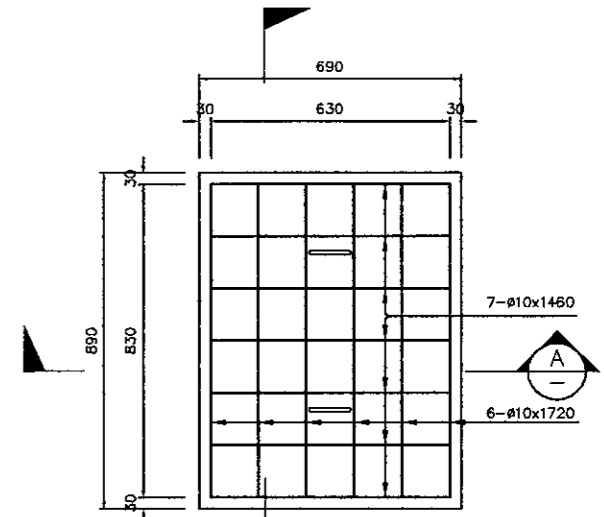


6 ELEVATION SCALE 1:10

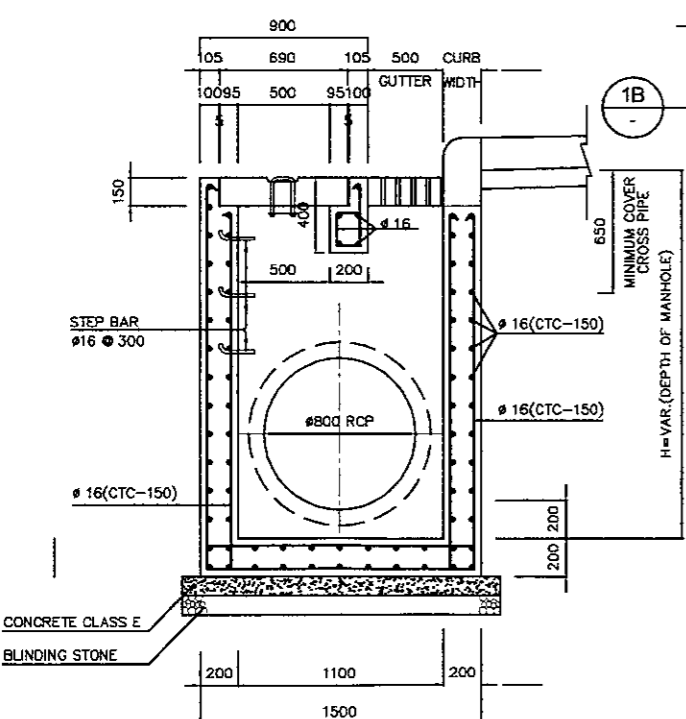
7 PLAN IRON DETAIL SCALE 1:10



4 GUTTER INLET SCALE 1:40

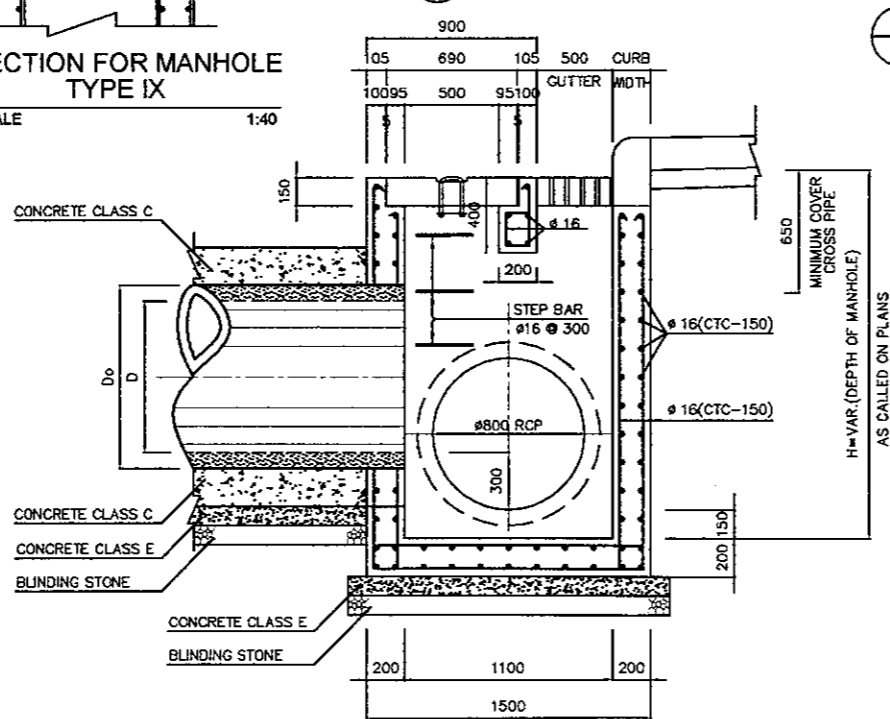


8 PLAN SCALE 1:20



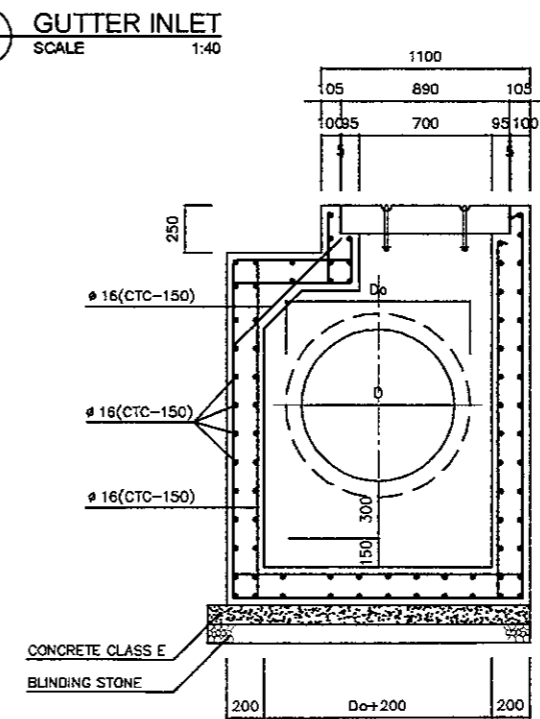
1A SECTION SCALE 1:40

GUTTER INLET MANHOLE DETAIL TYPE-IX



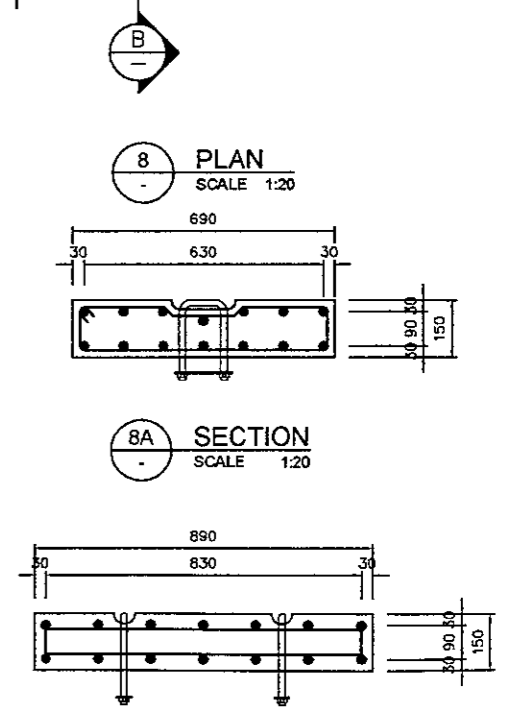
2A SECTION SCALE 1:40

GUTTER INLET MANHOLE DETAIL TYPE-X



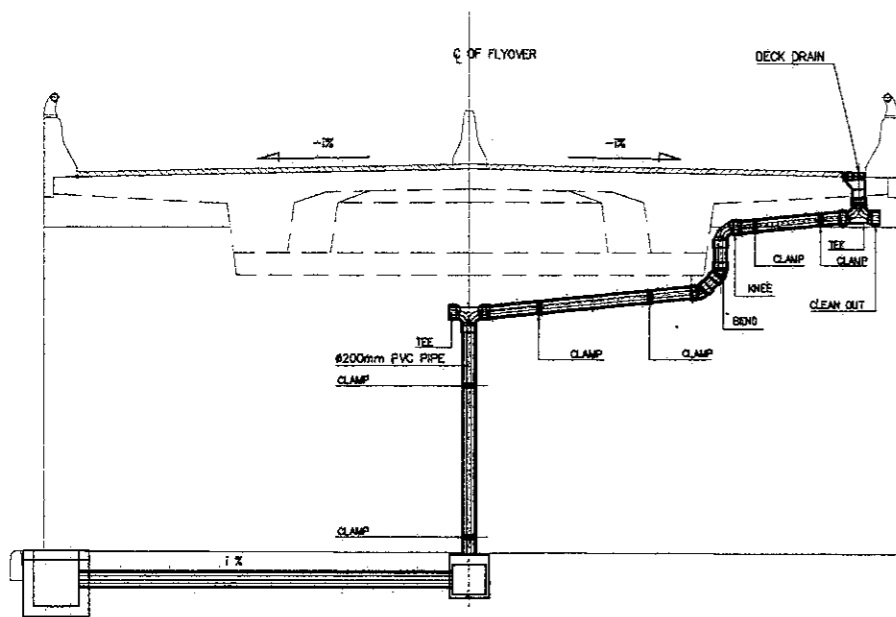
2B SECTION SCALE 1:40

SECTION FOR MANHOLE TYPE X

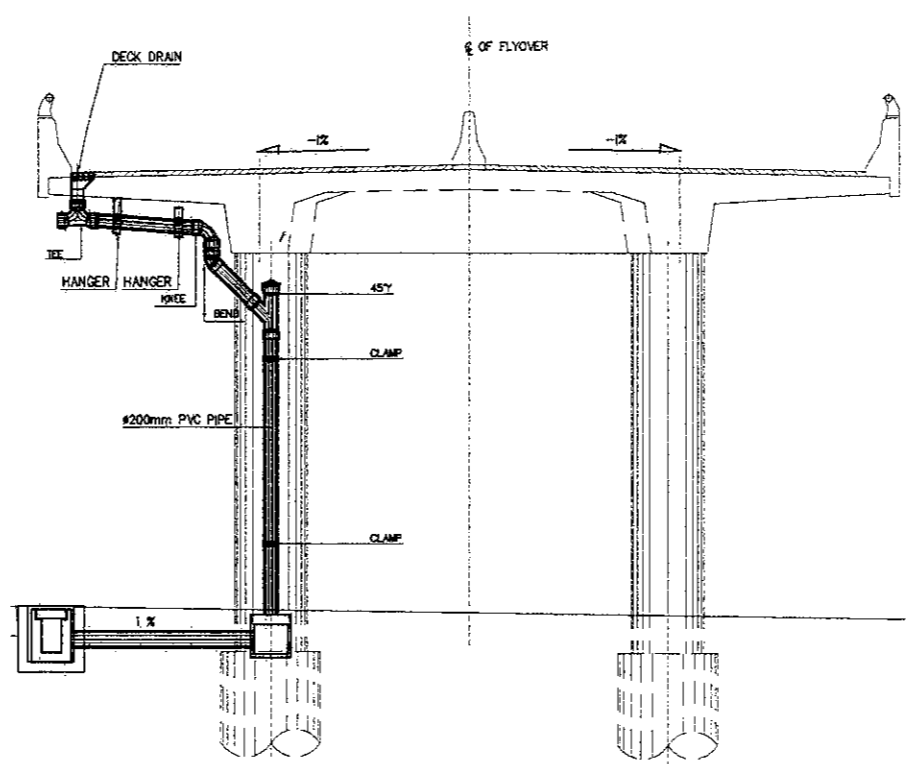


8A SECTION SCALE 1:20

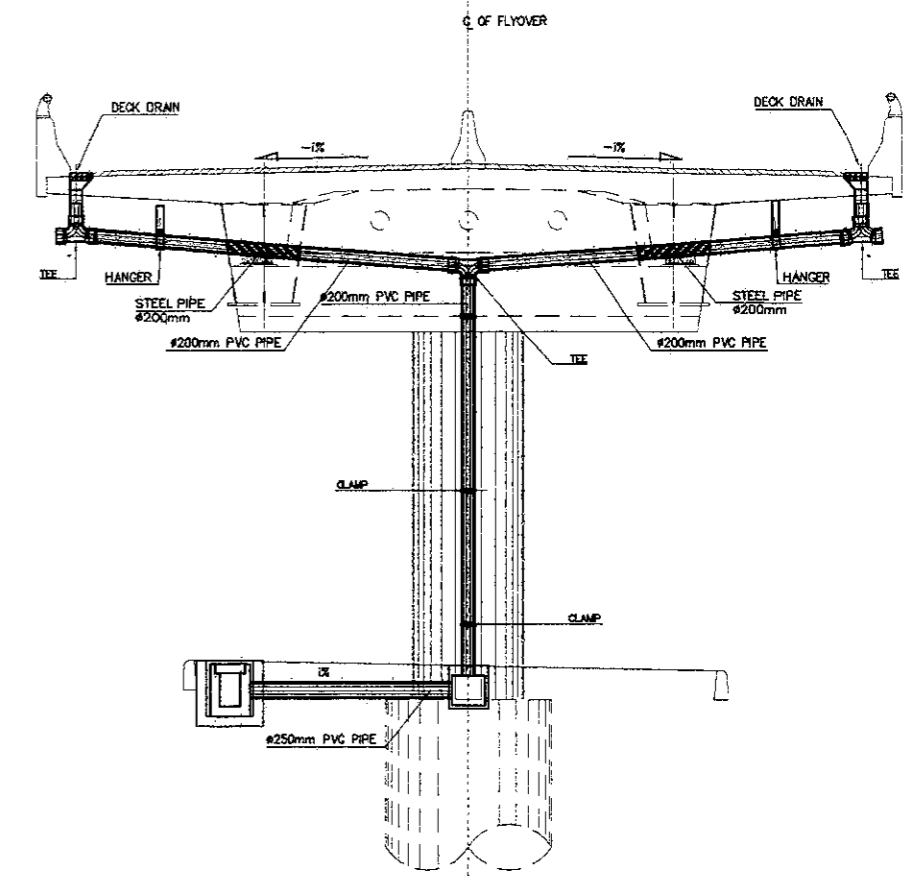
8B SECTION SCALE 1:20



1 FRONT VIEW OF ABUTMENT
 NTS



2 FRONT VIEW OF PC SECTION
 NTS



3 FRONT VIEW OF STEEL SECTION
 NTS

DRAINAGE SCHEDULE

| BRIDGE TYPE | ABUTMENT/PIER NO | STATION LIMIT | LEFT SIDE | | RIGHT SIDE | | ACCESSORIES | | | | | | | |
|-------------|------------------|---------------|--------------------------|------------|--------------------|--------------------------|-----------------|-------------|------------|-------------|------------|------------------|------------|---------------|
| | | | APPLIED HORIZONTAL DRAIN | | DECK DRAIN TYPE II | APPLIED HORIZONTAL DRAIN | PIPE #200mm (m) | BEND (unit) | TEE (unit) | KNEE (unit) | 45° (unit) | CLEAN OUT (unit) | | |
| | | | TYPE OF DRAIN | LENGHT (m) | | | | | | | | | LENGHT (m) | TYPE OF DRAIN |
| PC | A1 | 0+862.50 | NONE | NONE | NONE | NONE | 7.00 | 4.8 | 0 | 2 | 2 | 0 | 2 | |
| | P1 | 0+882.50 | | | | | 7.00 | 6.3 | 1 | 1 | 1 | 1 | 1 | 2 |
| | P2 | 0+902.50 | | | | | 7.00 | 7.1 | 1 | 1 | 1 | 1 | 1 | 2 |
| | P3 | 0+922.50 | | | | | 7.00 | 7.0 | 1 | 1 | 3 | 1 | 2 | |
| | P4 | 0+942.50 | | | | | 20.00 | 8.0 | 1 | 1 | 3 | 1 | 2 | |
| | P5 | 0+962.50 | | | | | 20.00 | 8.6 | 1 | 1 | 3 | 1 | 2 | |
| | P6 | 0+982.50 | | | | | 20.00 | 9.6 | 1 | 1 | 2 | 1 | 2 | |
| P7 | 1+002.50 | 20.00 | 8.0 | 1 | 1 | 1 | 1 | 2 | | | | | | |
| STEEL | P8 | 1+022.50 | NONE | NONE | NONE | NONE | 25.00 | 11.2 | 0 | 2 | 0 | 0 | 2 | |
| | P9 | 1+047.50 | | | | | 14.0 | 0 | 2 | 0 | 0 | 2 | | |
| | P10 | 1+072.50 | | | | | 8.6 | 1 | 1 | 1 | 1 | 2 | | |
| | P11 | 1+097.50 | | | | | 8.3 | 1 | 1 | 1 | 1 | 2 | | |
| | P12/PB6 | 1+122.50 | | | | | 18.3 | 1 | 3 | 1 | 1 | 4 | | |
| | P13/PB7 | 1+147.50 | | | | | 6.8 | 1 | 1 | 1 | 1 | 2 | | |
| PC | P14/PB8 | 1+167.50 | NONE | NONE | NONE | NONE | 5.4 | 1 | 1 | 1 | 1 | 2 | | |
| | P15/PB9 | 1+187.50 | | | | | 5.4 | 1 | 1 | 1 | 1 | 2 | | |
| | A2/AB2 | 1+207.50 | | | | | 7.5 | 0 | 2 | 2 | 0 | 2 | | |
| | AB1 | 0+288.86 | | | | | 6.8 | 0 | 2 | 2 | 0 | 2 | | |
| | PB1 | 0+308.86 | | | | | 7.3 | 1 | 1 | 1 | 1 | 2 | | |
| PB2 | 0+328.86 | 8.7 | 1 | 1 | 1 | 1 | 2 | | | | | | | |
| STEEL | PB3 | 0+348.86 | NONE | NONE | NONE | NONE | 8.5 | 1 | 1 | 3 | 1 | 2 | | |
| | PB4 | 0+378.86 | | | | | 9.5 | 1 | 1 | 1 | 1 | 2 | | |
| | PB5 | 0+403.36 | | | | | 9.3 | 1 | 1 | 1 | 1 | 2 | | |

APPROACH 1

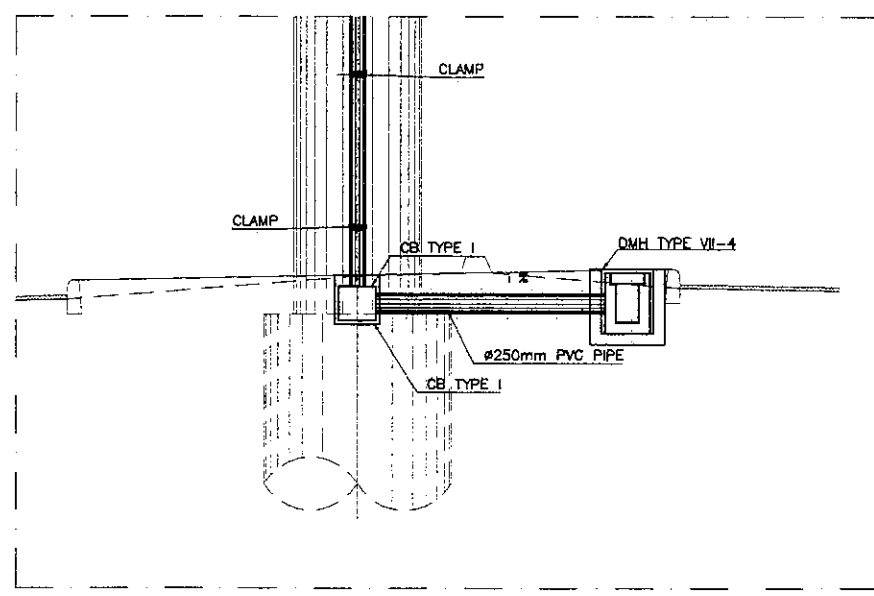
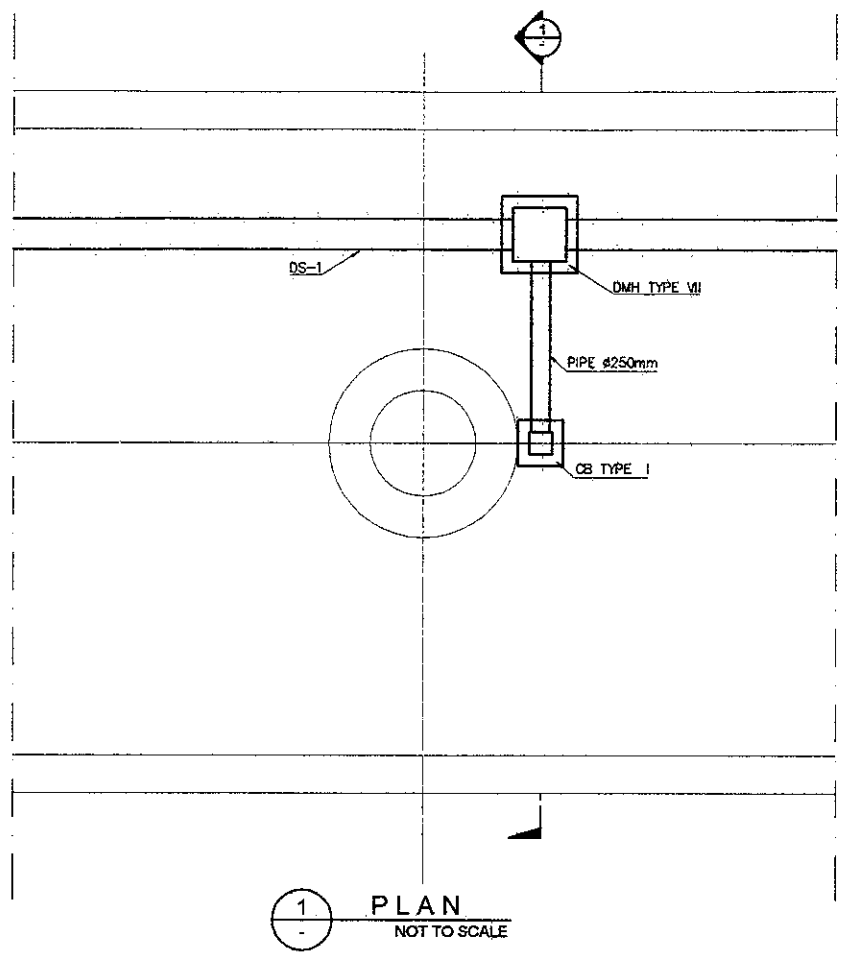
| STA | DECK DRAIN TYPE II | POSITION | | PIPE | | ACCESSORIES | |
|----------|--------------------|----------|-------|-------------|------------|-------------|--------------------|
| | | LEFT | RIGHT | SIZE (φ,mm) | LENGHT (m) | KNEE (unit) | TEE 250X200 (unit) |
| 0+742.50 | DD-1L | 1 | NONE | 200 | 0.24 | 2 | 0 |
| 0+762.50 | DD-2L | 1 | NONE | 200 | 0.84 | 1 | 1 |
| 0+782.50 | DD-3L | 1 | NONE | 200 | 1.15 | 1 | 0 |
| 0+802.50 | DD-4L | 1 | NONE | 200 | 2.07 | 1 | 0 |
| 0+822.50 | DD-5R | NONE | 1 | 200 | 3.01 | 1 | 0 |
| 0+842.50 | DD-6R | NONE | 1 | 200 | 3.97 | 1 | 0 |

APPROACH B

| STA | DECK DRAIN TYPE II | POSITION | | PIPE | | ACCESSORIES | |
|----------|--------------------|----------|-------|-------------|------------|-------------|--------------------|
| | | LEFT | RIGHT | SIZE (φ,mm) | LENGHT (m) | KNEE (unit) | TEE 250X200 (unit) |
| 0+128.86 | DD-1R | NONE | 1 | 200 | 0.13 | 1 | 1 |
| 0+148.86 | DD-2R | NONE | 1 | 200 | 0.39 | 1 | 1 |
| 0+168.86 | DD-3R | NONE | 1 | 200 | 0.85 | 1 | 1 |
| 0+188.75 | DD-4R | NONE | 1 | 200 | 0.75 | 1 | 0 |
| 0+208.86 | DD-5R | NONE | 1 | 200 | 1.82 | 1 | 0 |
| 0+228.86 | DD-6R | NONE | 1 | 200 | 2.91 | 1 | 0 |
| 0+248.86 | DD-7L | 1 | NONE | 200 | 3.75 | 1 | 0 |
| 0+268.86 | DD-8L | 1 | NONE | 200 | 4.56 | 1 | 0 |

APPROACH 2

| STA | DECK DRAIN TYPE II | POSITION | | PIPE | | ACCESSORIES | |
|----------|--------------------|----------|-------|-------------|------------|-------------|--------------------|
| | | LEFT | RIGHT | SIZE (φ,mm) | LENGHT (m) | KNEE (unit) | TEE 250X200 (unit) |
| 1+227.50 | DD-9R | NONE | 1 | 200 | 5.24 | 1 | 0 |
| 1+247.50 | DD-8R | NONE | 1 | 200 | 4.39 | 1 | 0 |
| 1+267.50 | DD-7R | NONE | 1 | 200 | 3.53 | 1 | 0 |
| 1+287.50 | DD-6R | NONE | 1 | 200 | 2.69 | 1 | 0 |
| 1+307.50 | DD-5R | NONE | 1 | 200 | 2.06 | 1 | 0 |
| 1+327.50 | DD-4R | NONE | 1 | 200 | 1.33 | 1 | 0 |
| 1+347.50 | DD-3R | NONE | 1 | 200 | 0.81 | 1 | 1 |
| 1+367.50 | DD-2R | NONE | 1 | 200 | 0.10 | 1 | 1 |
| 1+387.50 | DD-1R | NONE | 1 | 200 | 0.21 | 1 | 1 |



DRAINAGE SCHEDULE

| FROM MH | TO MH | LOCATION | LENGTH (m) | U'DITCH/PIPE SLOPE(%) | INVERT ELEV. (m) | | REMARKS |
|-----------------|-----------------|----------|------------|-----------------------|------------------|------------|--------------|
| | | | | | UPSTREAM | DOWNSTREAM | |
| CB TYPE I-2 | DMH TYPE VII-2 | P1-P1 | 2 | 0.50 | 4.060 | 4.050 | PIPE #250 |
| DMH TYPE VII-2 | DMH TYPE VII-1 | P1-A1 | 19.6 | 1.04 | 4.050 | 3.847 | U'DITCH DS 1 |
| DMH TYPE VII-1B | DMH TYPE VII-1A | A1-A1 | 1.9 | 0.30 | 3.859 | 3.853 | U'DITCH DS 1 |
| DMH TYPE VII-1A | DMH TYPE VII-1 | A1-A1 | 2.1 | 0.30 | 3.853 | 3.847 | U'DITCH DS 1 |
| DMH TYPE VII-1 | DMH-74 | A1-A1 | 5.7 | 2.00 | 3.847 | 3.735 | RCP #600 (B) |
| DMH TYPE VII-3 | DMH-22 | P2-P2 | 4.5 | 2.00 | 3.679 | 3.569 | RCP #800 (B) |
| CB TYPE I-5 | CB TYPE I-4 | P6-P5 | 19.8 | 1.00 | 3.802 | 3.612 | PIPE #250 |
| CB TYPE I-4 | CB TYPE I-3 | P5-P4 | 19.7 | 1.00 | 3.612 | 3.415 | PIPE #250 |
| CB TYPE I-3 | DMH TYPE VII-4 | P4-P3 | 19 | 1.00 | 3.415 | 3.217 | PIPE #250 |
| DMH TYPE VII-4 | DMH-78 | P3-P3 | 5.7 | 2.00 | 3.217 | 3.107 | RCP #800 (B) |
| CB TYPE I-6 | DMH-28 | P7-P7 | 1.7 | 2.00 | 3.617 | 3.557 | PIPE #250 |
| CB TYPE I-7 | EXISTING | P8-P8 | 1.3 | 2.00 | 3.364 | 3.338 | PIPE #250 |
| DMH TYPE VII-5 | DMH-88 | P9-P9 | 8 | 2.00 | 2.524 | 2.388 | RCP #800 (B) |
| CB TYPE I-8 | DS-3 | P10-P10 | 2.5 | 2.00 | 2.924 | 2.874 | PIPE #250 |
| CB TYPE I-9 | DMH TYPE VII-6 | P11-P11 | 2.5 | 0.30 | 3.223 | 3.192 | PIPE #250 |
| CB TYPE I-10 | DMH TYPE VII-6 | P11-P11 | 6.8 | 0.30 | 3.207 | 3.192 | PIPE #250 |
| DMH TYPE VII-6 | DMH TYPE VII-7 | P11-P12 | 26 | 0.30 | 3.192 | 3.114 | U'DITCH DS 1 |
| CB TYPE I-11 | DMH TYPE VII-7 | P12-P12 | 3.8 | 5.00 | 3.441 | 3.114 | PIPE #250 |
| DMH TYPE VII-7 | DMH TYPE VII-8 | P12-P13 | 24 | 0.30 | 3.114 | 3.042 | U'DITCH DS 1 |
| CB TYPE I-12 | DMH TYPE VII-8 | P13-P13 | 1.8 | 5.00 | 3.132 | 3.042 | PIPE #250 |
| DMH TYPE VII-8 | DMH TYPE VII-9 | P13-P14 | 19 | 0.30 | 3.042 | 2.985 | U'DITCH DS 1 |
| CB TYPE I-13 | DMH TYPE VII-9 | P14-P14 | 1.4 | 5.00 | 3.055 | 2.985 | PIPE #250 |
| DMH TYPE VII-9 | DMH TYPE VII-10 | P14-P15 | 19 | 0.30 | 2.985 | 2.928 | U'DITCH DS 1 |
| CB TYPE I-14 | DMH TYPE VII-10 | P15-P15 | 1.6 | 5.00 | 3.008 | 2.928 | PIPE #250 |
| DMH TYPE VII-10 | DMH TYPE VII-11 | P15-A2 | 19 | 0.30 | 2.928 | 2.871 | U'DITCH DS 1 |
| DMH TYPE VII-11 | DMH TYPE VII-12 | A2-A2 | 3.0 | 0.30 | 2.871 | 2.862 | U'DITCH DS 1 |
| DMH TYPE VII-12 | DMH-96 | A2-A2 | 5.7 | 2.00 | 2.862 | 2.752 | RCP #800 (B) |
| CB TYPE I-11A | DS-4 | P12-P12 | 2.0 | 2.00 | 3.393 | 3.353 | PIPE #250 |
| CB TYPE I-15 | DMH-31B | PB4-PB4 | 2.0 | 2.00 | 2.500 | 2.560 | PIPE #250 |
| CB TYPE I-19 | DMH TYPE VII-18 | AB1-AB1 | 2.5 | 0.30 | 2.223 | 2.216 | PIPE #250 |
| DMH TYPE VII-18 | DMH TYPE VII-17 | AB1-PB1 | 19.2 | 0.40 | 2.216 | 2.139 | U'DITCH DS 1 |
| CB TYPE I-18 | DMH TYPE VII-17 | PB1-PB1 | 0.7 | 1.00 | 2.146 | 2.139 | PIPE #250 |
| DMH TYPE VII-17 | DMH TYPE VII-16 | PB1-PB2 | 19.3 | 0.40 | 2.139 | 2.062 | U'DITCH DS 1 |
| CB TYPE I-17 | DMH TYPE VII-16 | PB2-PB2 | 0.7 | 1.00 | 2.069 | 2.062 | PIPE #250 |
| DMH TYPE VII-16 | DMH TYPE VII-15 | PB2-PB1 | 19.5 | 0.40 | 2.062 | 1.984 | U'DITCH DS 1 |
| CB TYPE I-16 | DMH TYPE VII-15 | PB1-PB1 | 1.0 | 1.00 | 1.994 | 1.984 | PIPE #250 |
| DMH TYPE VII-15 | DMH-31B | PB1-PB4 | 10 | 0.80 | 1.984 | 1.900 | U'DITCH DS 1 |

DRAINAGE ALONG APPROACH LEFT SIDE

| FROM STA/MH | TO STA/MH | TYPE OF U'DITCH/PIPE | LENGTH (m) | U'DITCH/PIPE SLOPE(%) |
|-------------|----------------|----------------------|------------|-----------------------|
| 0+742.50 | 0+762.50 | PIPE #250 | 20 | 0.30 |
| 0+762.50 | 0+782.50 | U'DITCH DS 5 | 20 | 0.30 |
| 0+782.50 | 0+802.50 | U'DITCH DS 5 | 20 | 0.30 |
| 0+802.50 | 0+822.50 | U'DITCH DS 5 | 20 | 0.30 |
| 0+822.50 | 0+842.50 | U'DITCH DS 5 | 20 | 0.30 |
| 0+842.50 | DMH TYPE VII-1 | U'DITCH DS 5 | 20 | 0.30 |

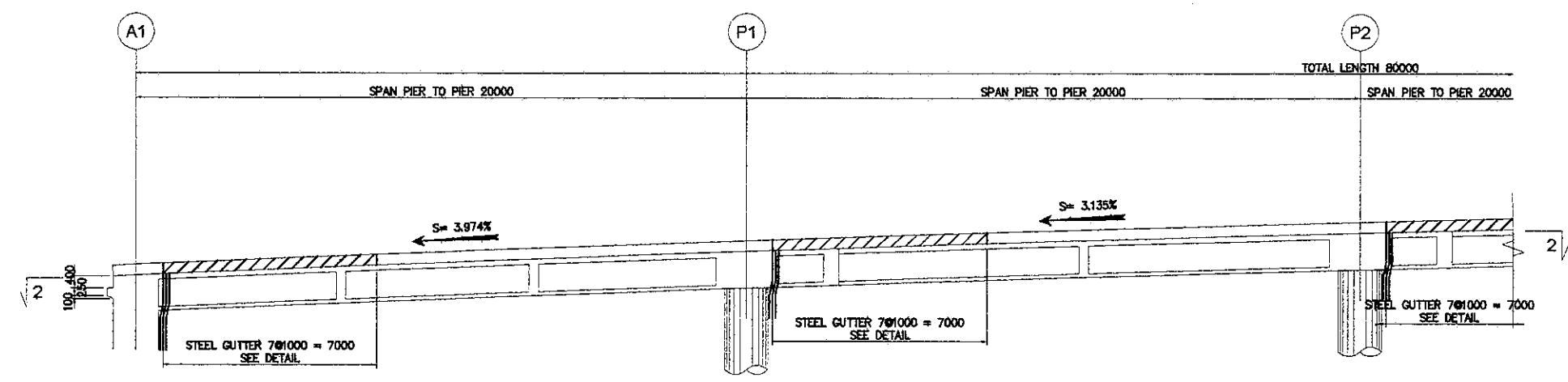
| FROM STA/MH | TO STA/MH | TYPE OF U'DITCH/PIPE | LENGTH (m) | U'DITCH/PIPE SLOPE(%) |
|-------------|-----------------|----------------------|------------|-----------------------|
| 0+248.86 | 0+268.86 | PIPE #250 | 20 | 0.30 |
| 0+268.86 | DMH TYPE VII-18 | U'DITCH DS 5 | 20 | 0.30 |

DRAINAGE ALONG APPROACH RIGHT SIDE

| FROM STA/MH | TO STA/MH | TYPE OF U'DITCH/PIPE | LENGTH (m) | U'DITCH/PIPE SLOPE(%) |
|-------------|-----------------|----------------------|------------|-----------------------|
| 0+822.50 | 0+842.50 | U'DITCH DS 5 | 20 | 0.30 |
| 0+842.50 | DMH TYPE VII-18 | U'DITCH DS 5 | 20 | 0.30 |

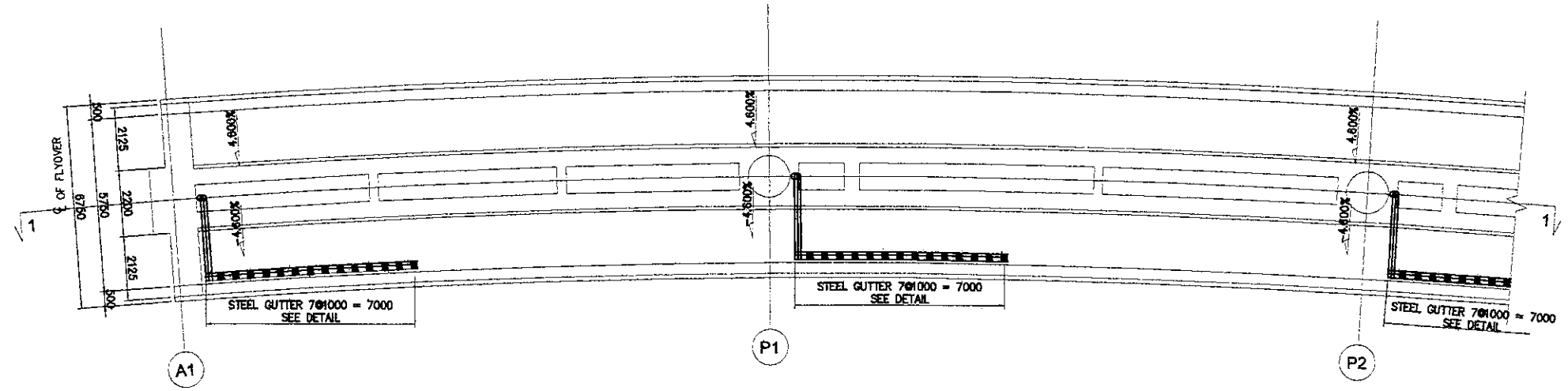
| FROM STA/MH | TO STA/MH | TYPE OF U'DITCH/PIPE | LENGTH (m) | U'DITCH/PIPE SLOPE(%) |
|-------------|-----------|----------------------|------------|-----------------------|
| 1+227.50 | 1+247.50 | U'DITCH DS 5 | 20 | 1.35 |
| 1+247.50 | 1+267.50 | U'DITCH DS 5 | 20 | 0.30 |
| 1+267.50 | 1+287.50 | U'DITCH DS 5 | 20 | 0.33 |
| 1+287.50 | 1+307.50 | U'DITCH DS 5 | 20 | 1.31 |
| 1+307.50 | 1+327.50 | U'DITCH DS 5 | 20 | 0.86 |
| 1+327.50 | 1+347.50 | PIPE #250 | 20 | 0.47 |
| 1+347.50 | 1+367.50 | PIPE #250 | 20 | 0.88 |
| 1+367.50 | 1+387.50 | PIPE #250 | 20 | 0.88 |
| 1+387.50 | DMH VII-1 | PIPE #250 | 22.5 | 0.68 |
| DMH VII-1 | DMH-48 | RCP #600 (B) | 10.8 | 0.50 |

| 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

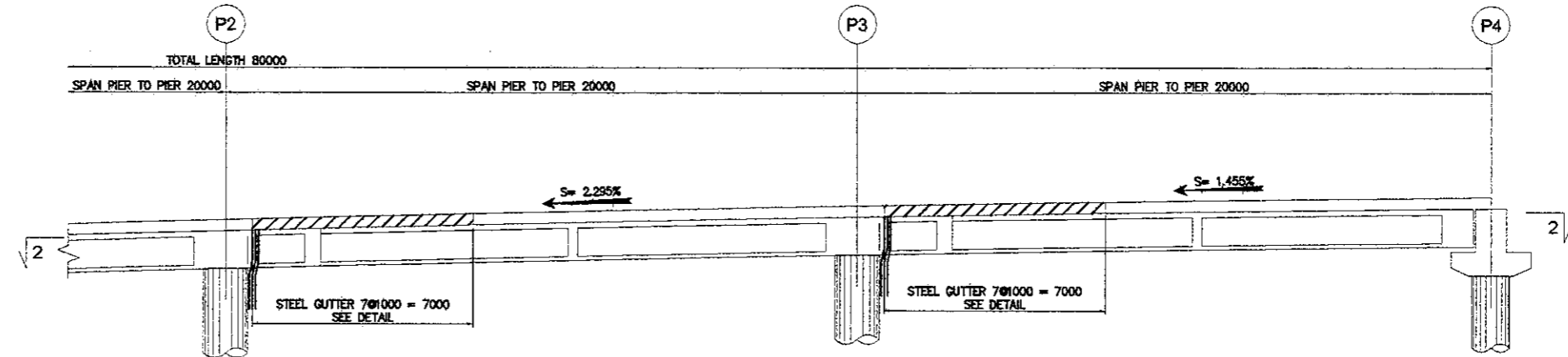
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2 SECTION 2-2

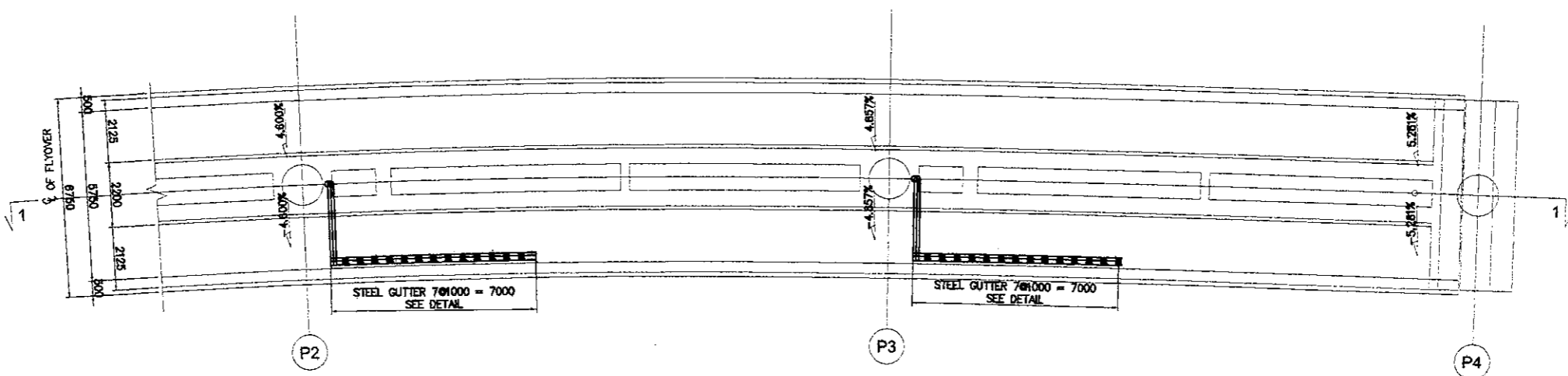
 SCALE : 1 : 200

| 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

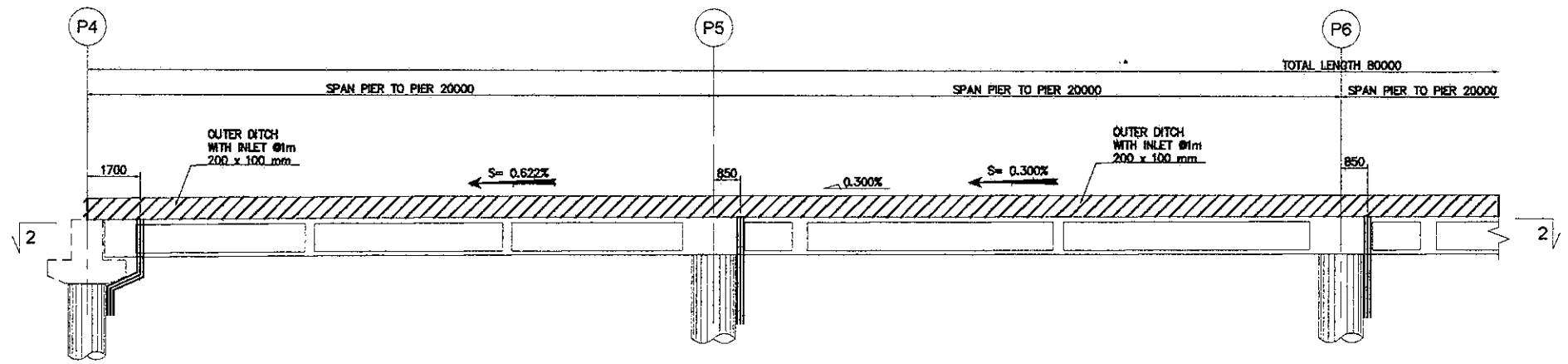
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2 SECTION 2-2

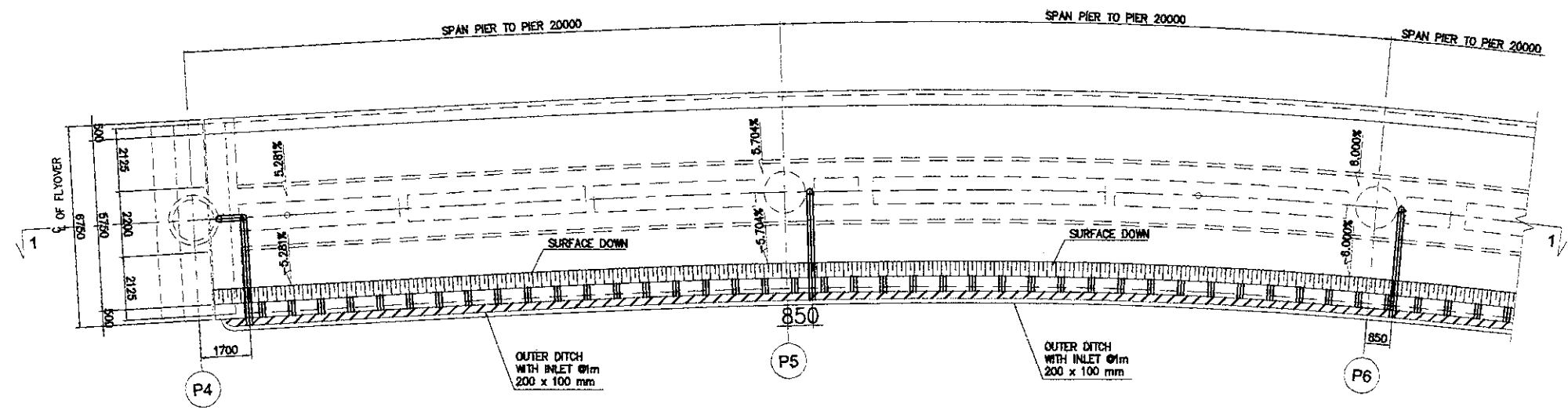
 SCALE : 1 : 200

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



1 SECTION 1-1

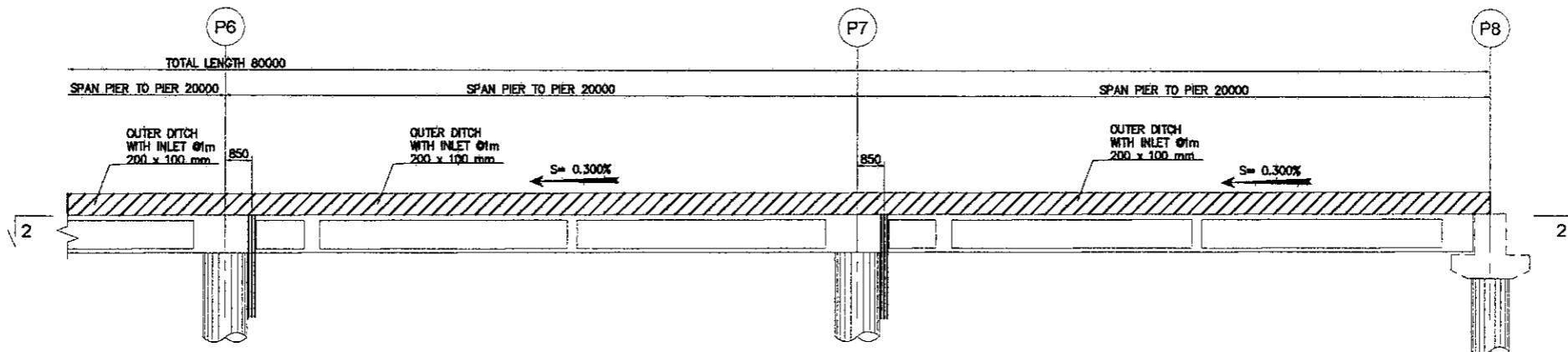
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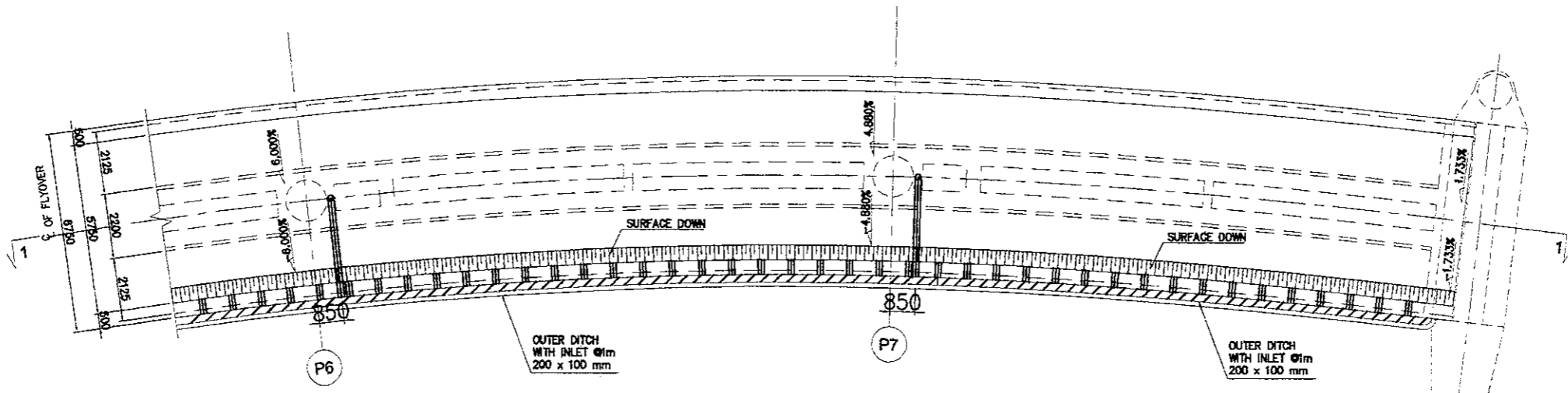
2 SECTION 2-2

 SCALE : 1 : 200

| DESIGNED BY | CHECKED BY | SUBMITTED BY |
|---------------|------------------|-----------------|
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| Sign: _____ | Sign: _____ | Sign: _____ |
| Date: _____ | Date: _____ | Date: _____ |

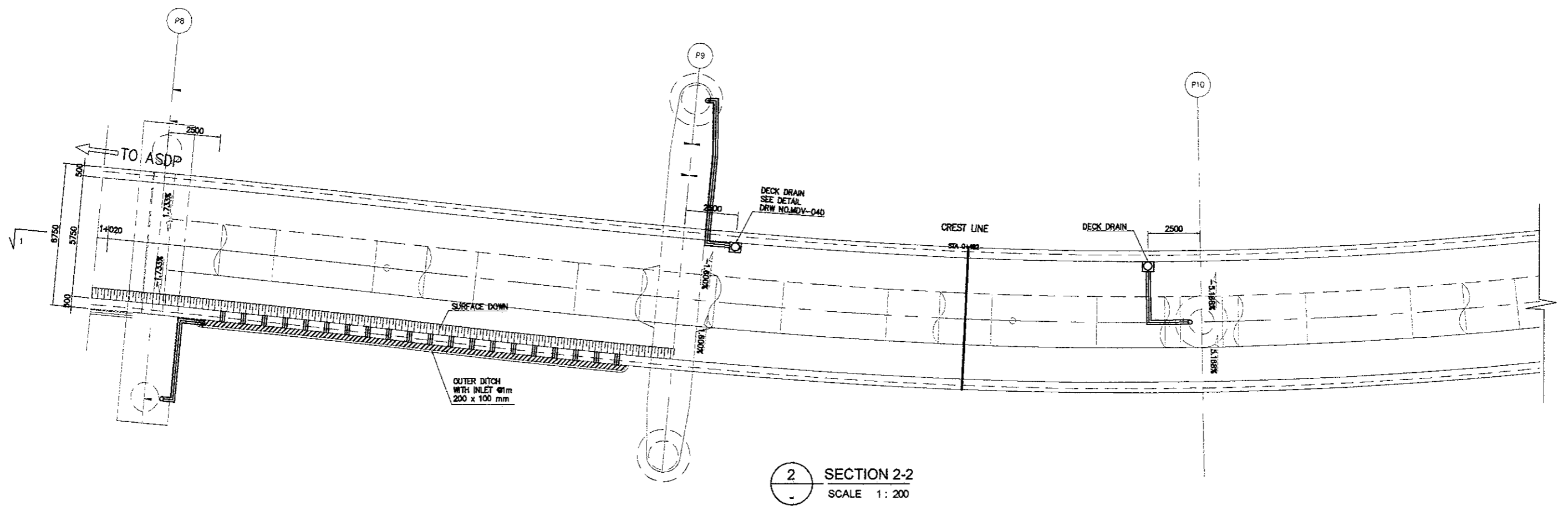
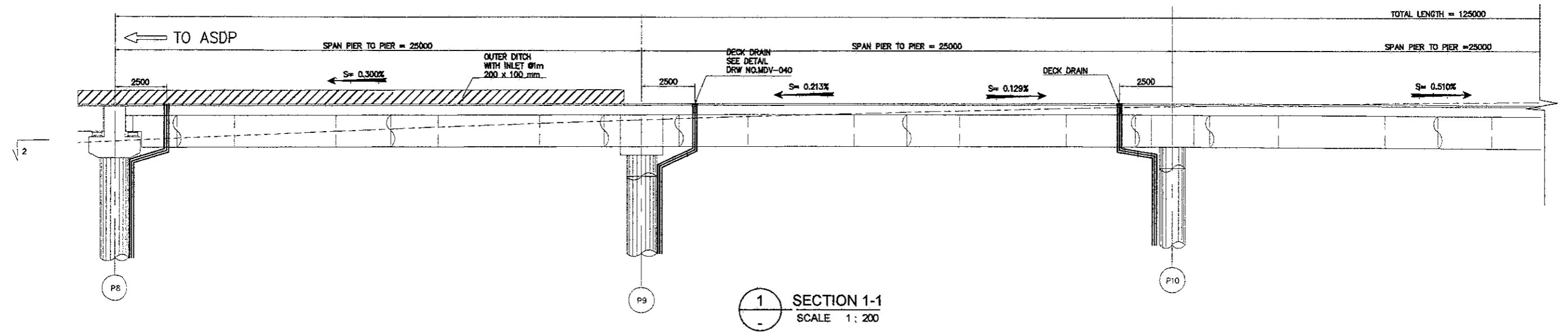


1 SECTION 1-1
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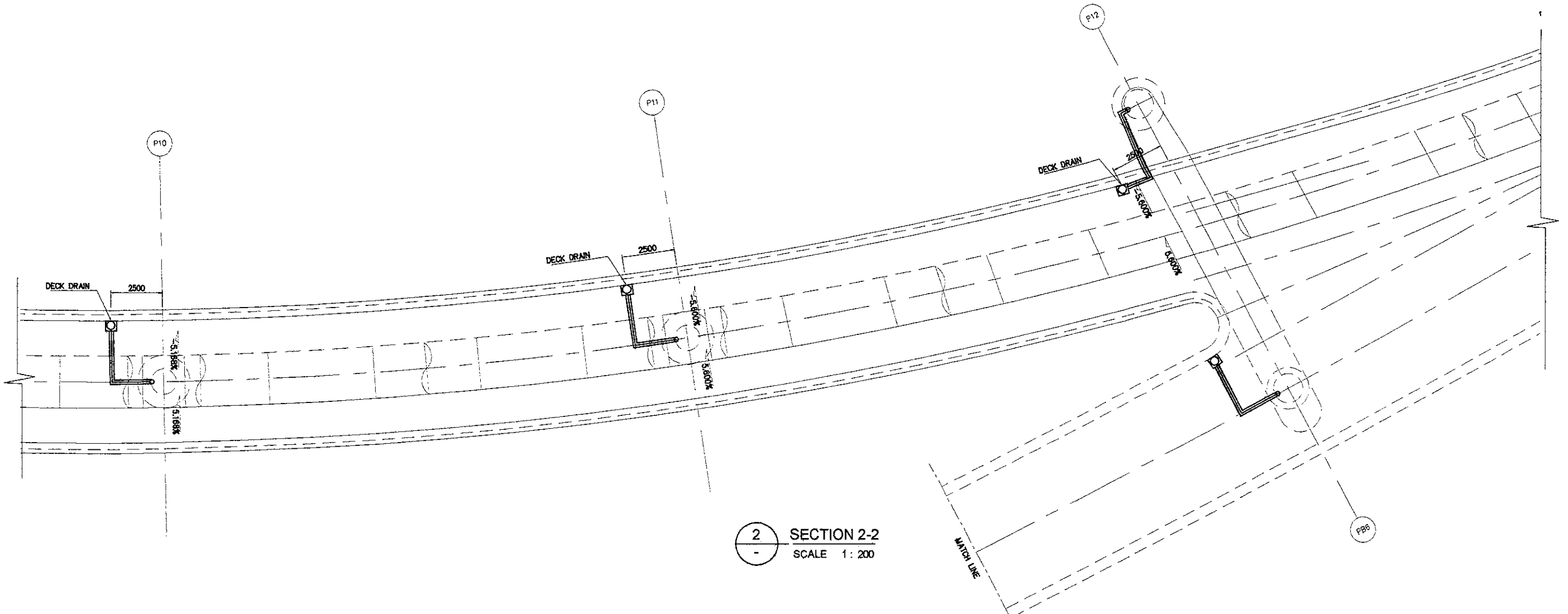
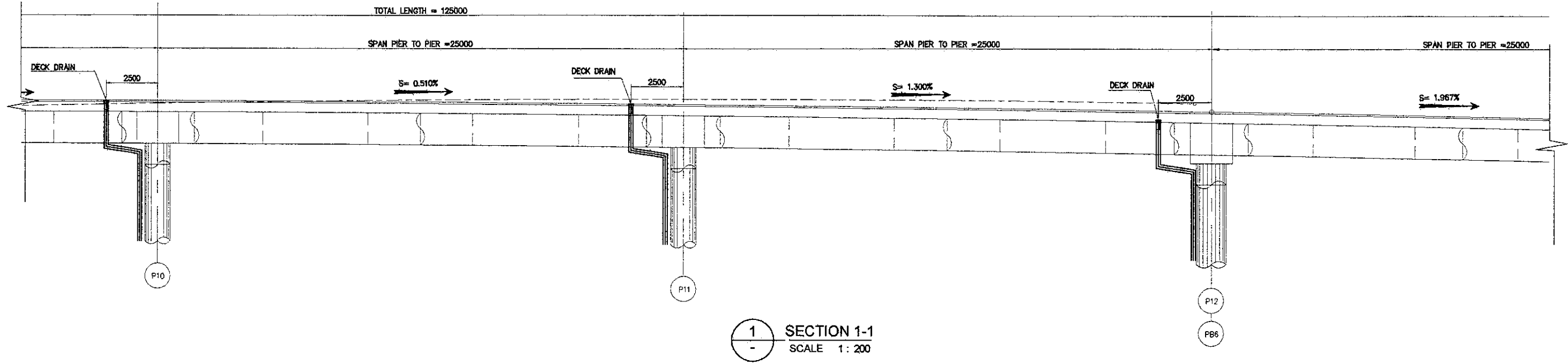


2 SECTION 2-2
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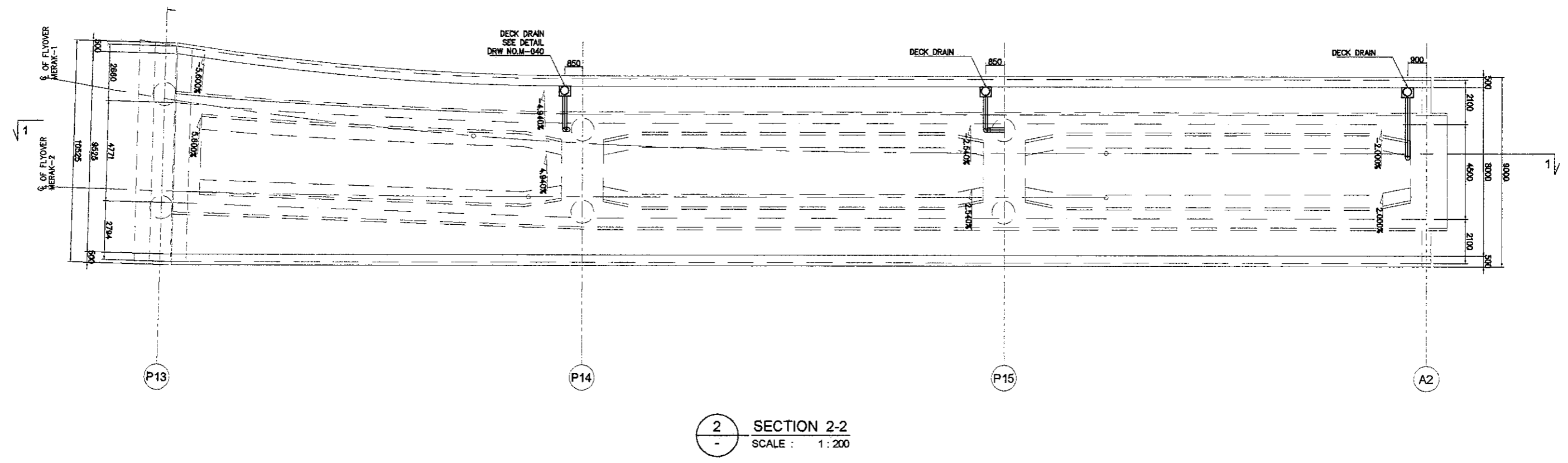
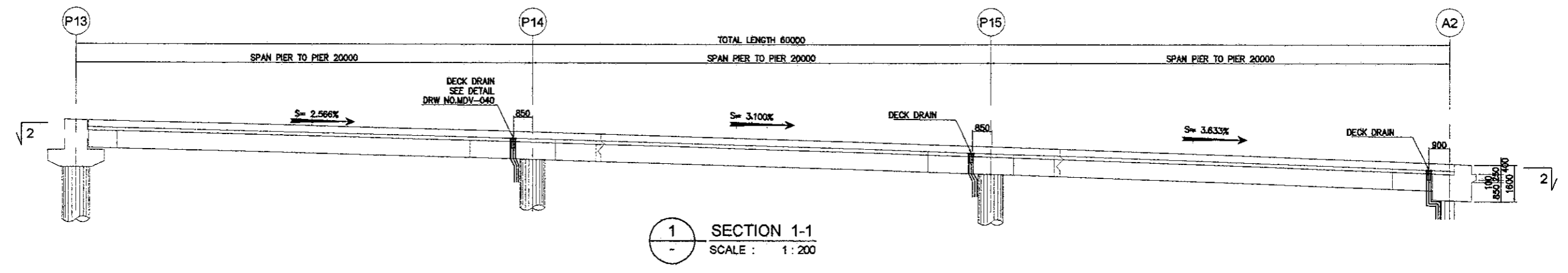
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|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
| Sign | | Sign | | Sign | |
| Date | | Date | | Date | |



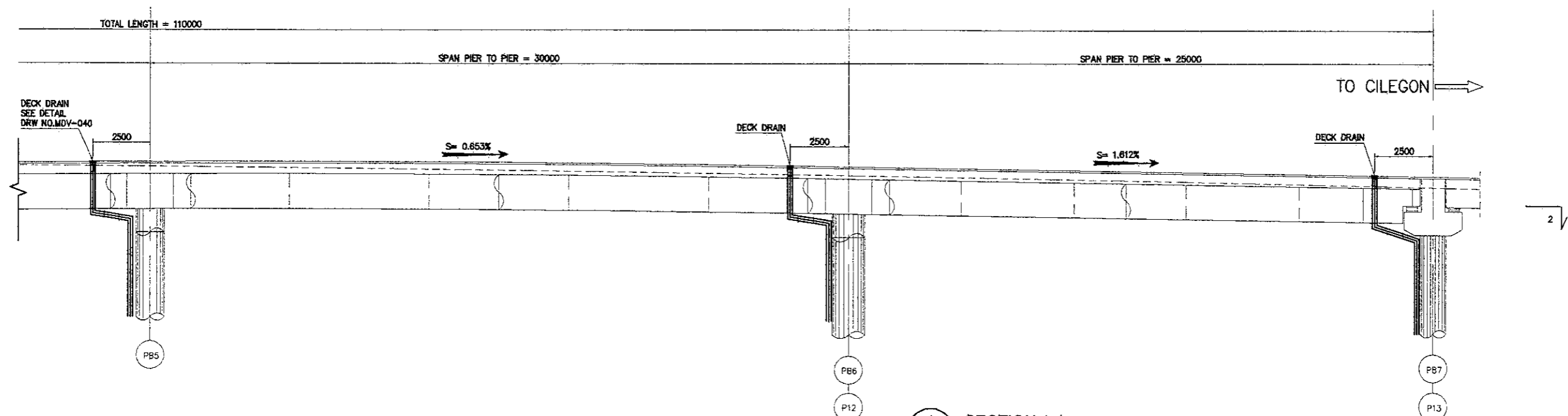
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|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
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| Date | | Date | | Date | |



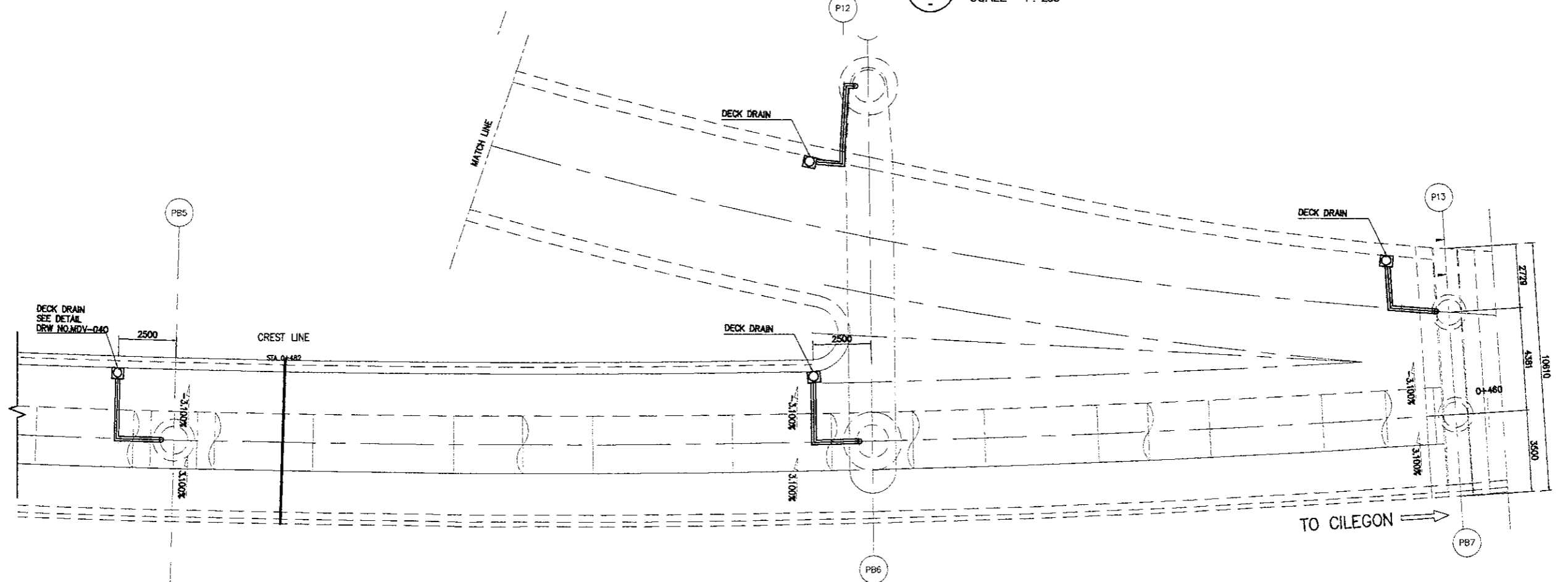
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|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
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| Date | | Date | | Date | |



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

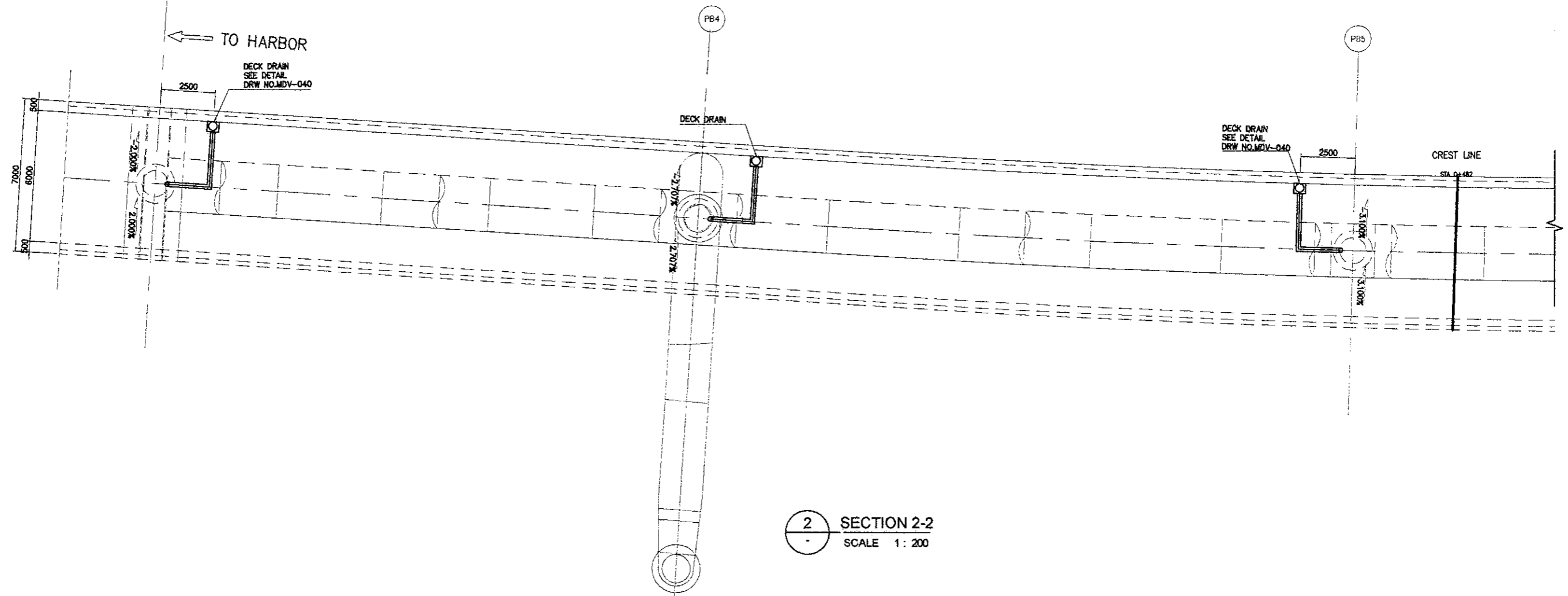
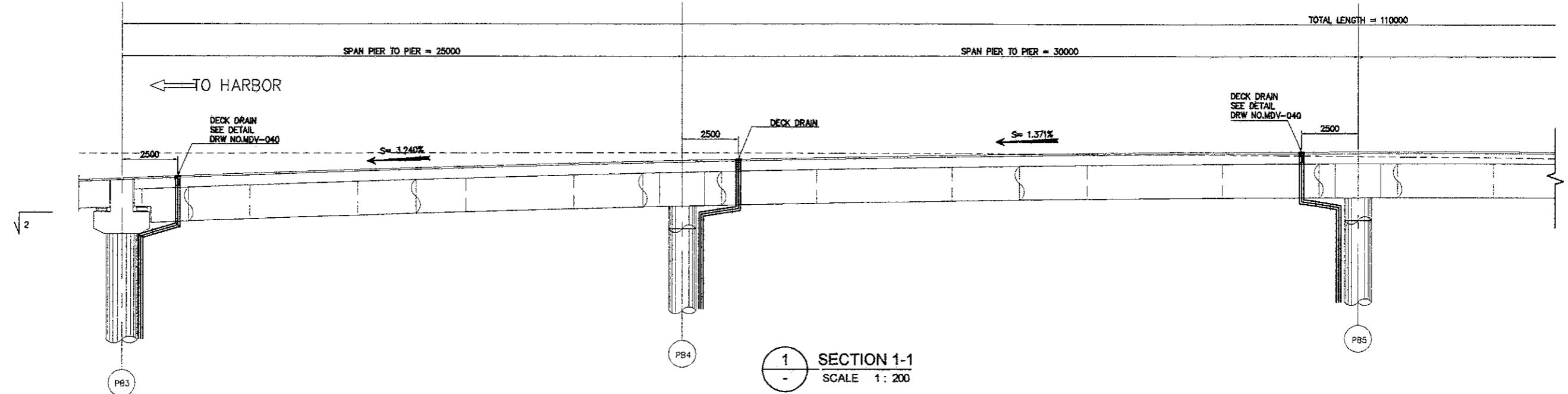


1 SECTION 1-1
 SCALE 1 : 200

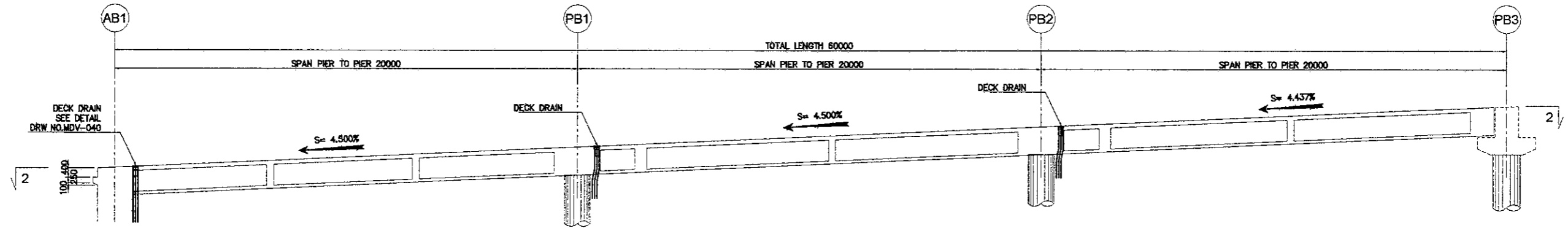


2 SECTION 2-2
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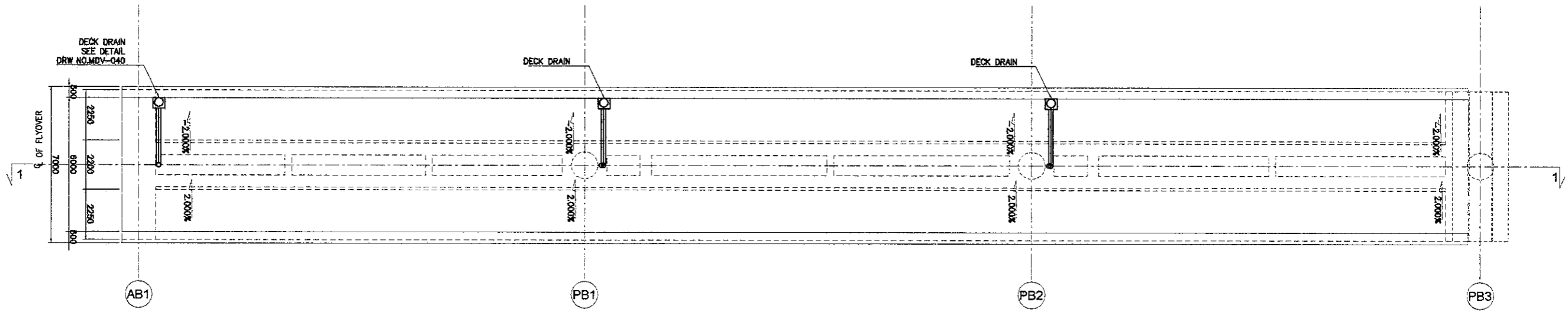
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|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
| Sign | | Sign | | Sign | |
| Date | | Date | | Date | |



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

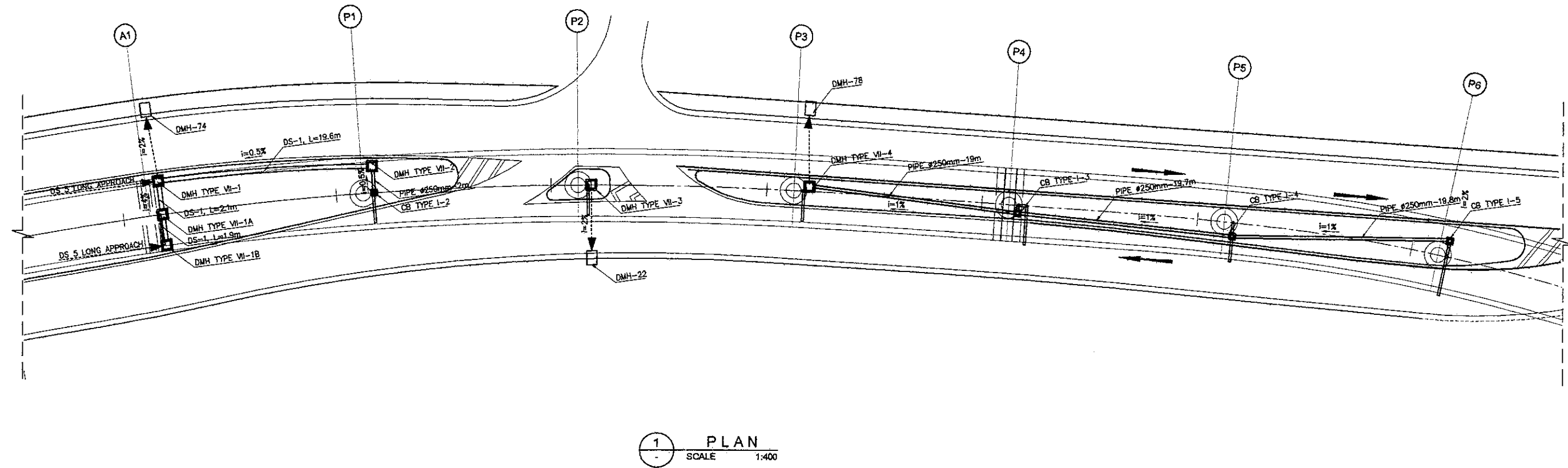
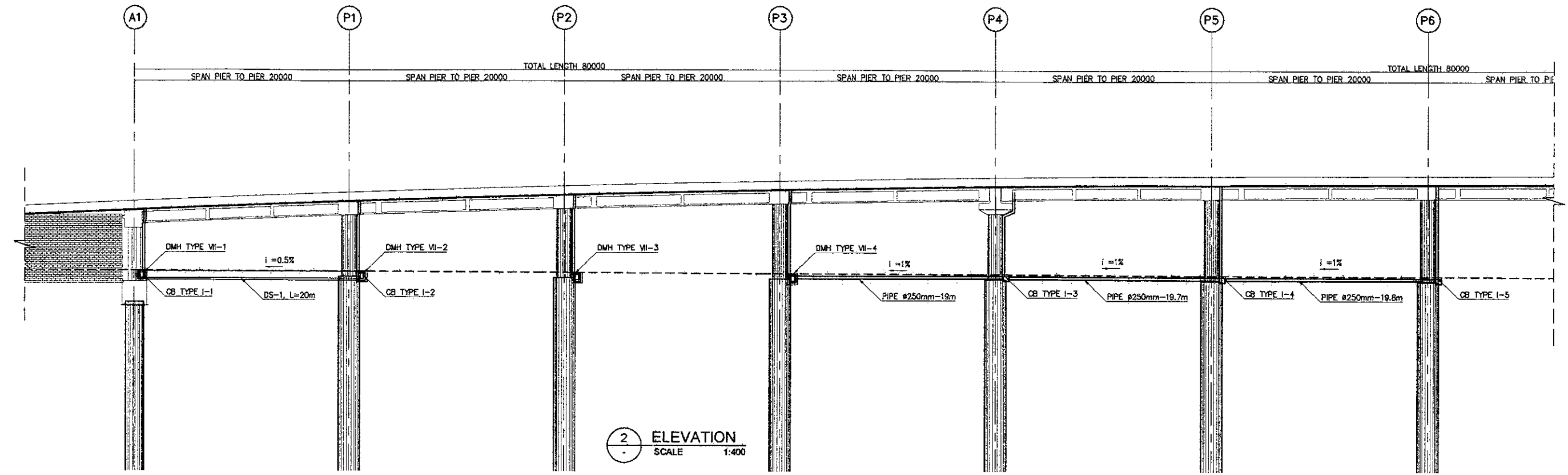


1 SECTION 1-1
 SCALE : 1 : 200



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: _____ |





JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS
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| Sign | | Sign | | Sign | |
| Date | | Date | | Date | |



REPUBLIC OF INDONESIA
 MINISTRY OF PUBLIC WORKS
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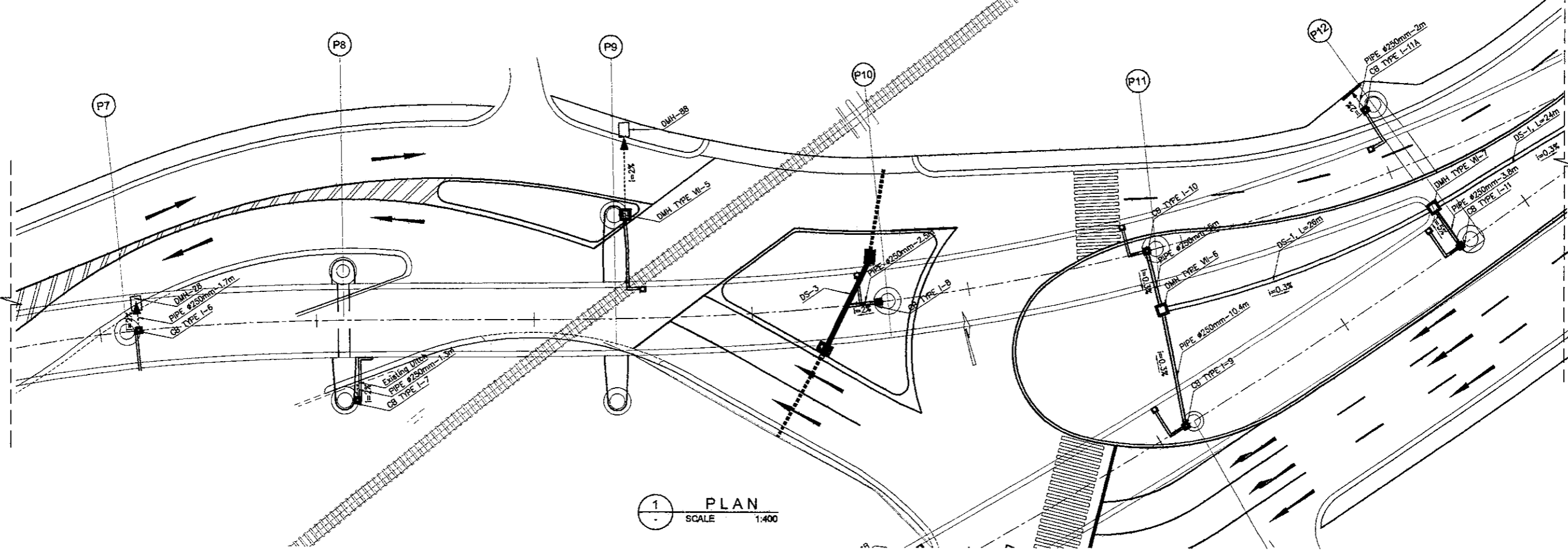
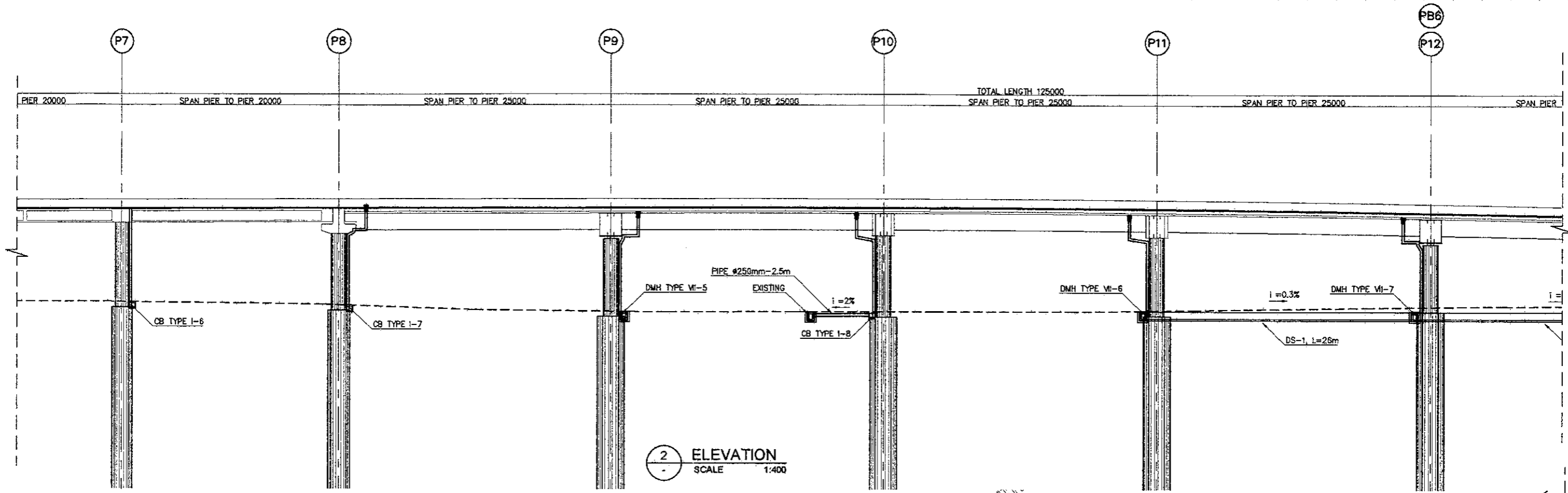
APPROVED BY
 Ir. HERRY VAZA M.Eng.Sc
 NIP. : 110038400

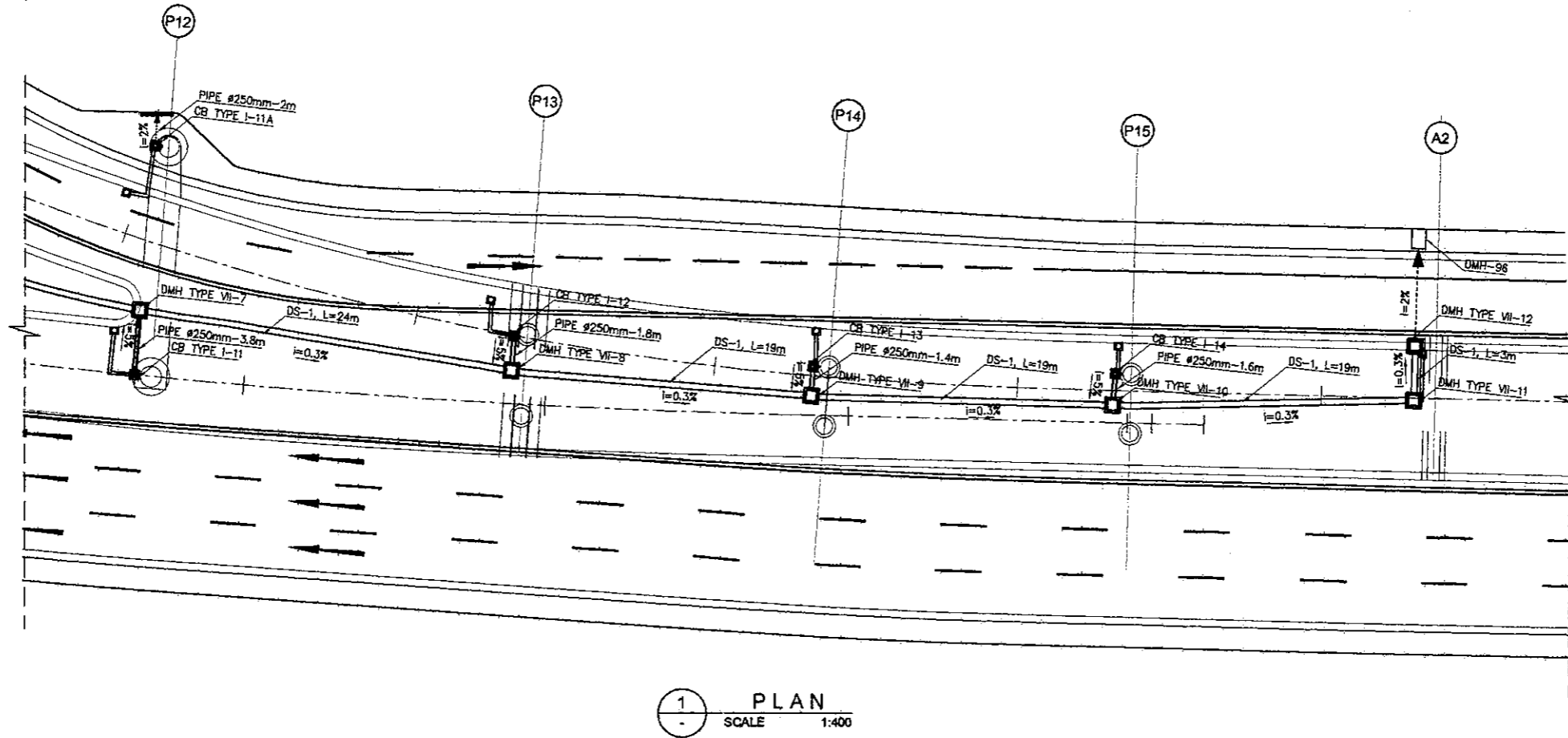
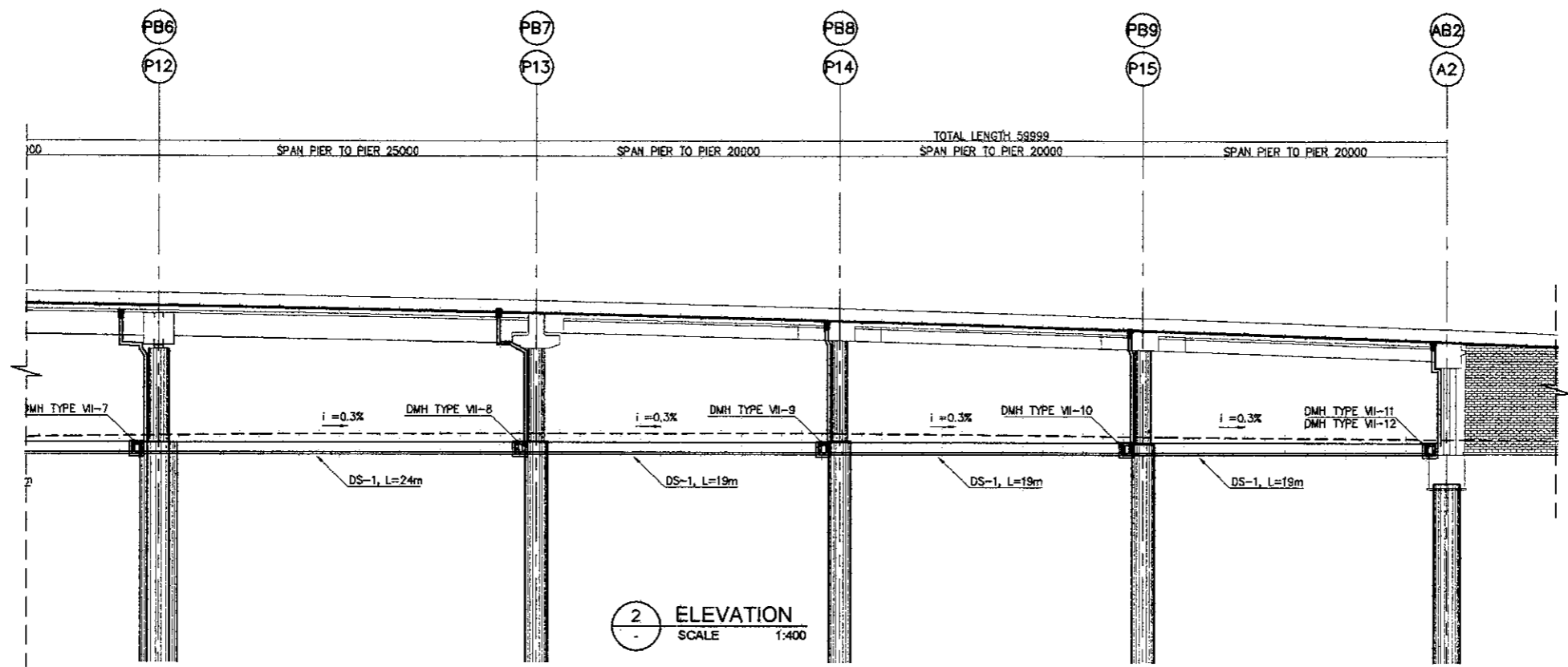
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 NORTH JAVA CORRIDOR FLYOVER PROJECT
 MERAK FLYOVER - CONTRACT PACKAGE 1
 (MERAK - BALARAJA)
 BANTEN PROVINCE

SCALE :
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 FULL SIZE A3

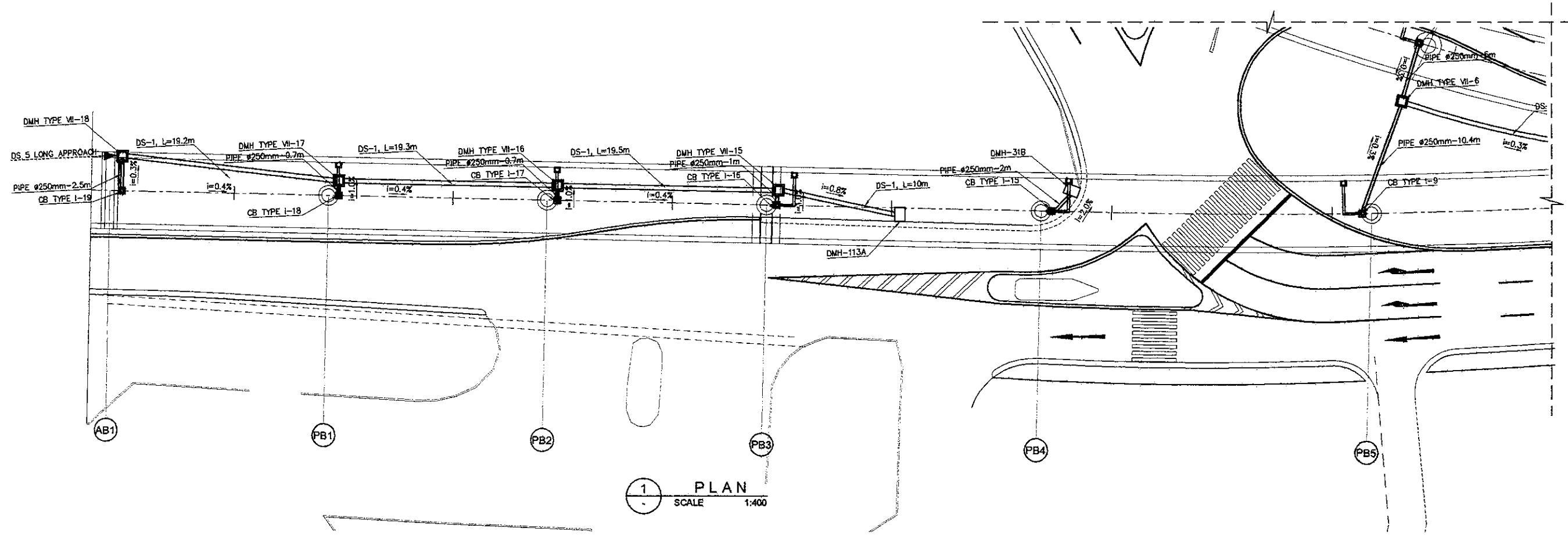
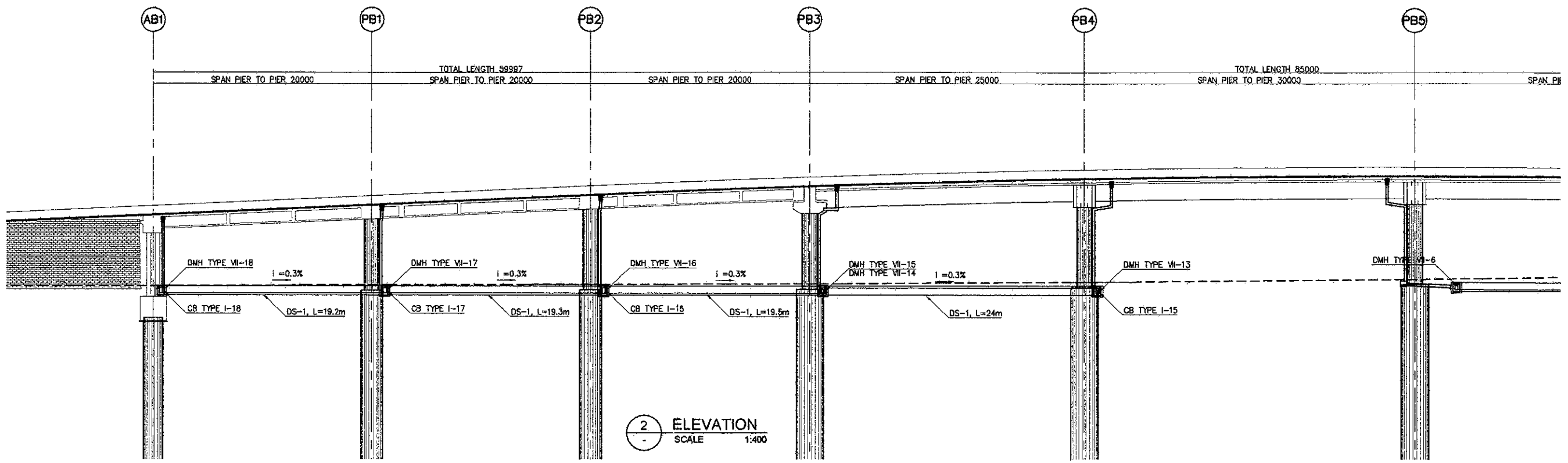
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 UNDER VIADUCT AT GRADE LEVEL 2 OF 4

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 SHEET NO :
 14 / 56

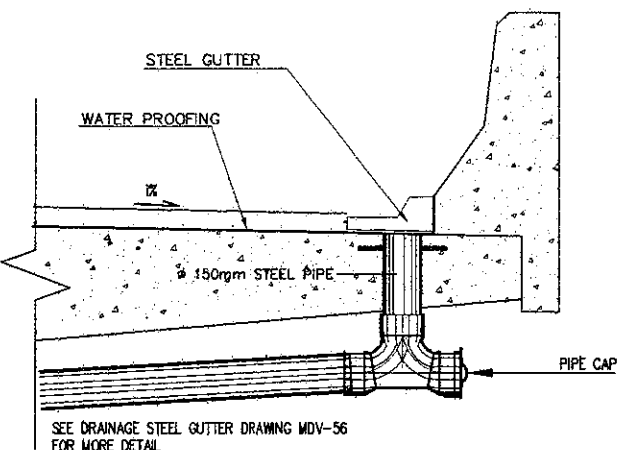




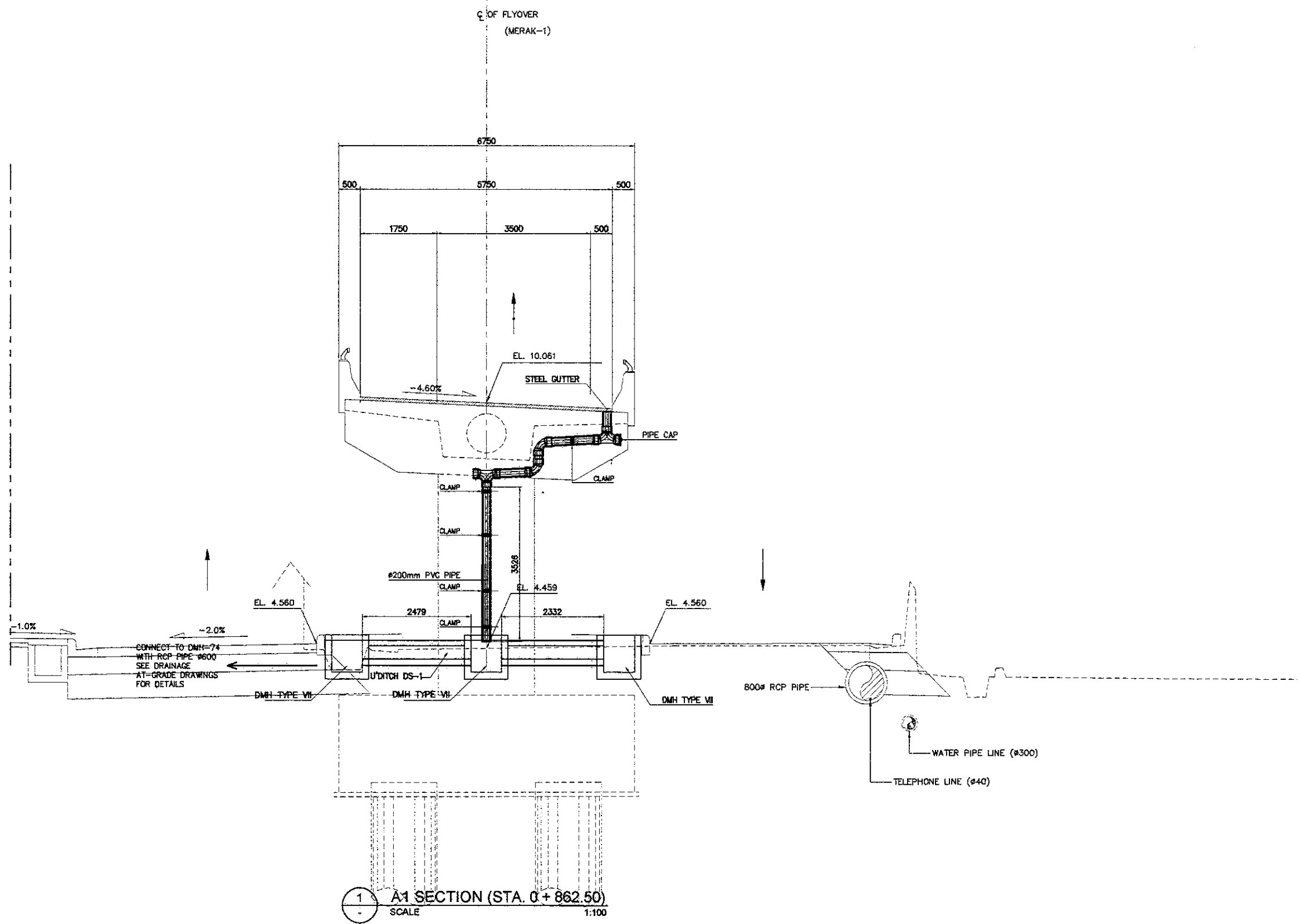
| DESIGNED BY | CHECKED BY | SUBMITTED BY |
|--------------|-----------------|----------------|
| Name R. UENO | Name T. OKUMURA | Name M. KIUCHI |
| Sign | Sign | Sign |
| Date | Date | Date |



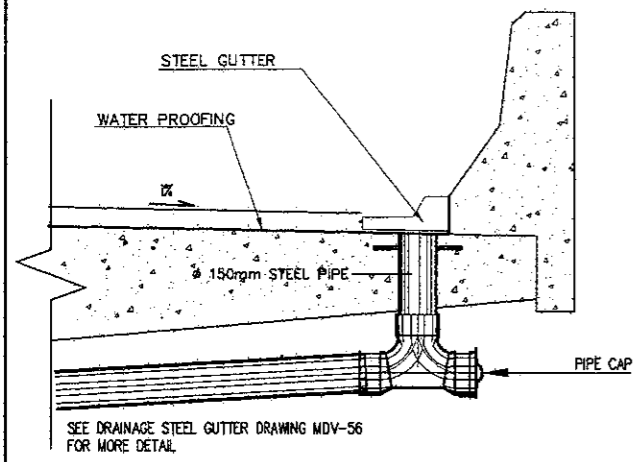
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|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
| Sign | | Sign | | Sign | |
| Date | | Date | | Date | |



DETAIL OF STEEL GUTTER
 SCALE 1:30

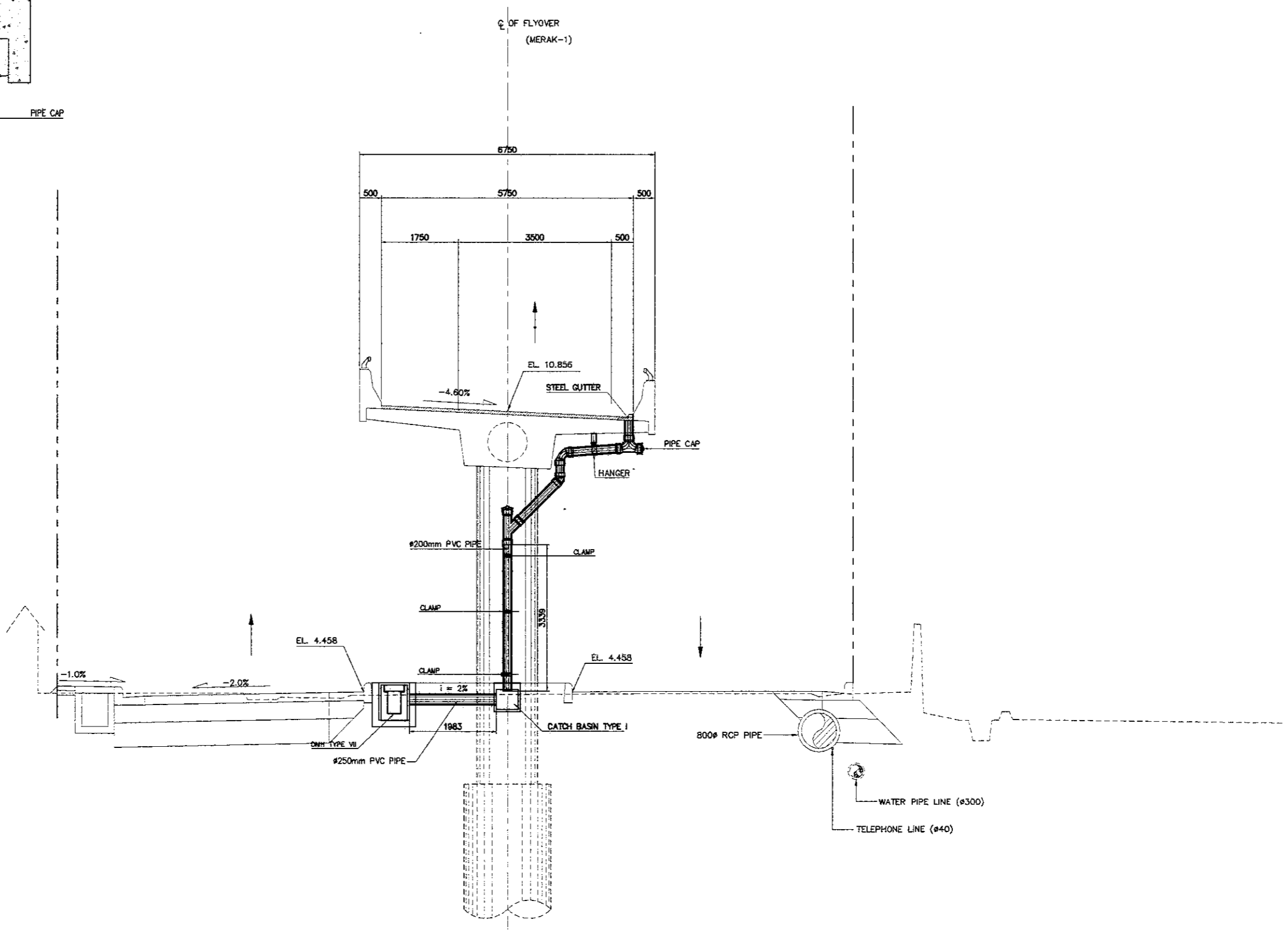


| DESIGNED BY | | CHECKED BY | | SUBMITTED BY | |
|-------------|---------|------------|------------|--------------|-----------|
| Name | R. UENO | Name | T. OKUMURA | Name | M. KIUCHI |
| Sign | | Sign | | Sign | |
| Date | | Date | | Date | |



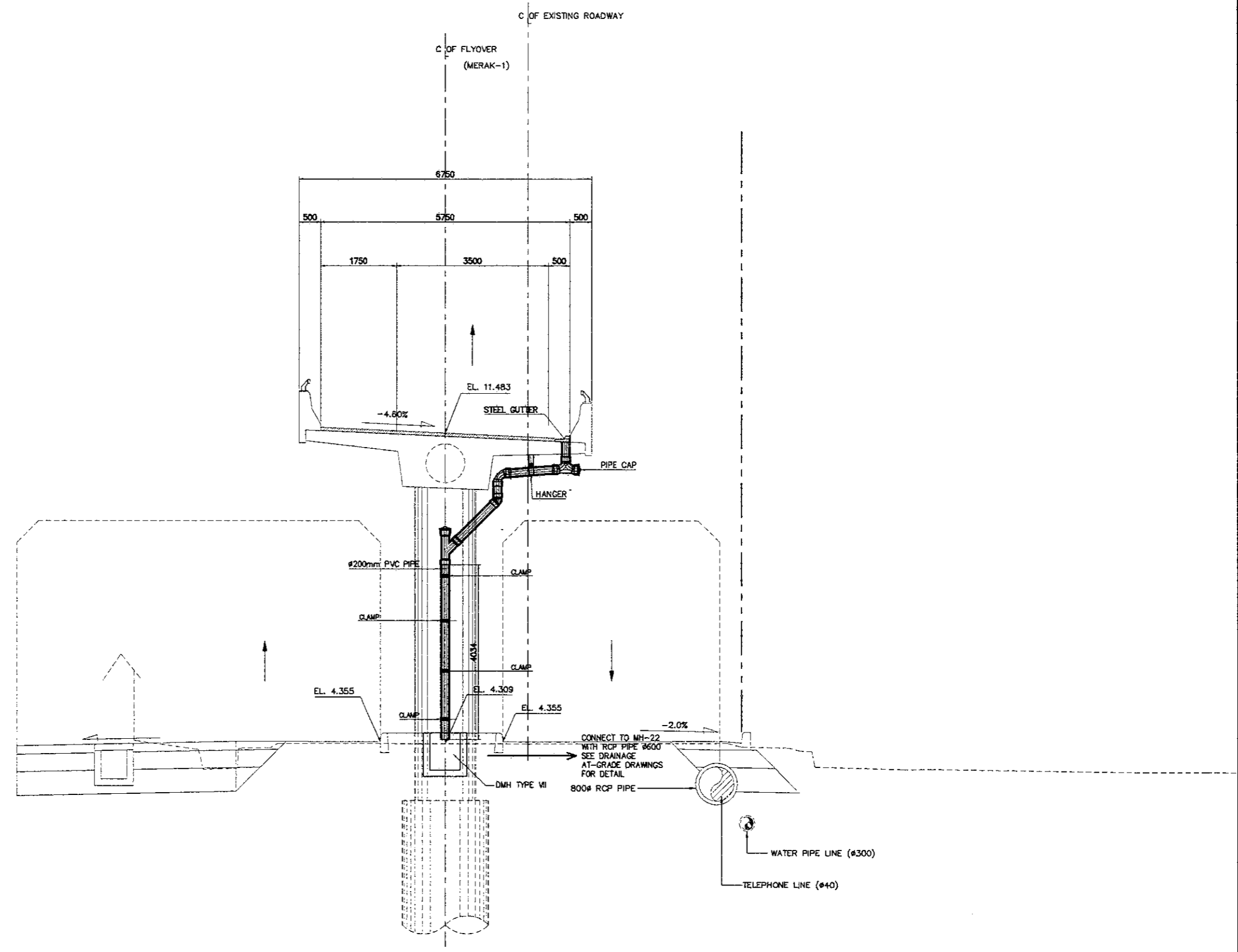
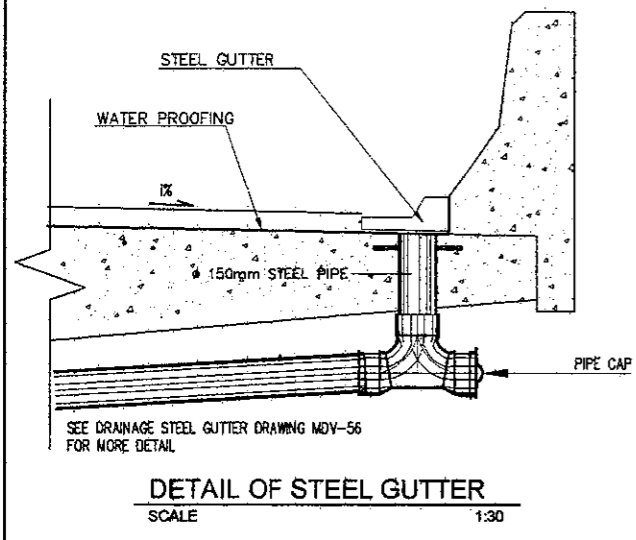
DETAIL OF STEEL GUTTER

 SCALE 1:30



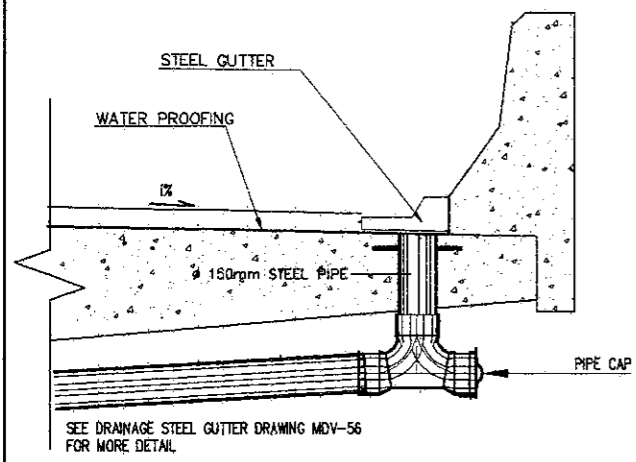
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 SCALE 1:100



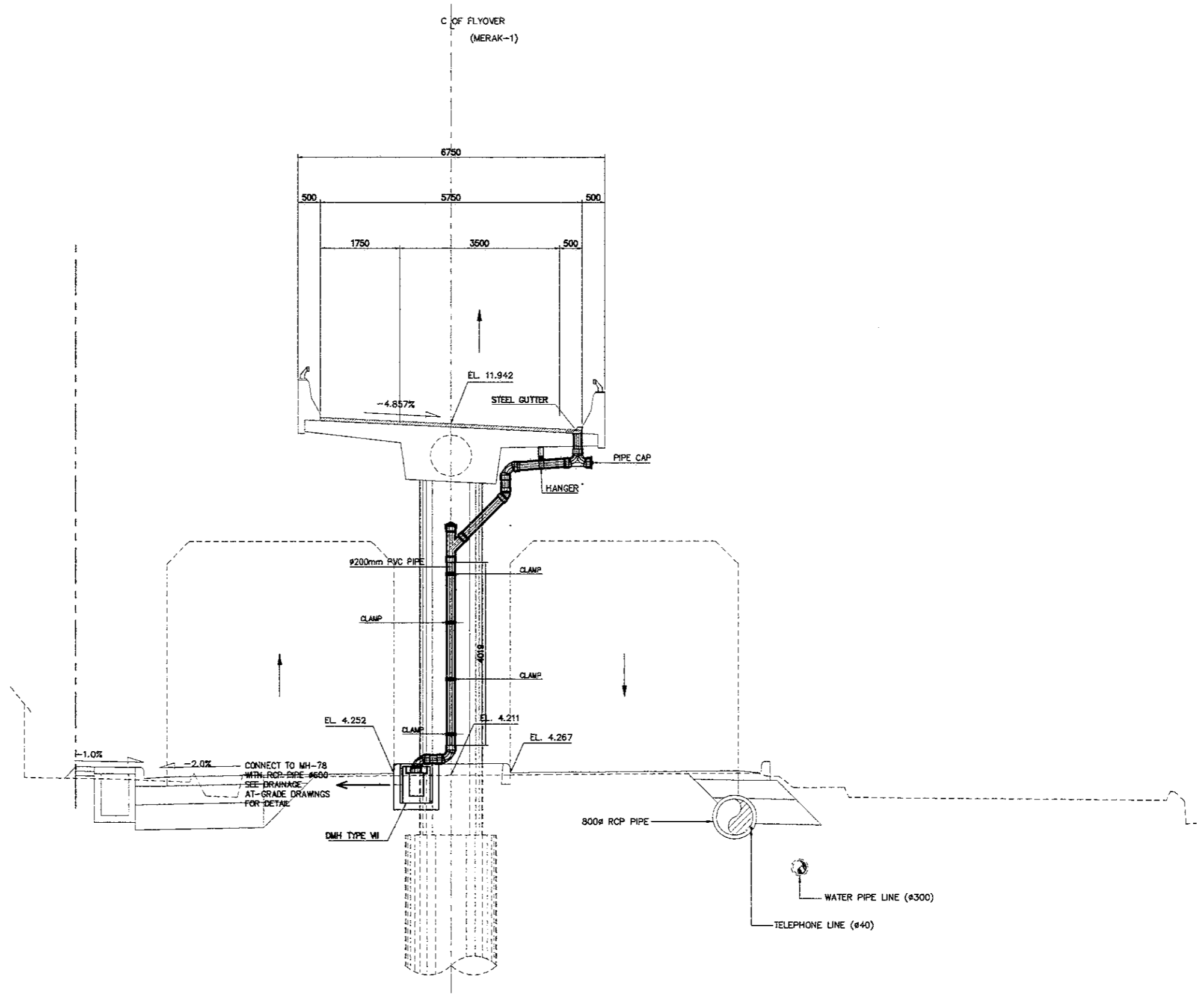
1 P2 SECTION (STA. 0 + 902.50)
 SCALE 1:100

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



DETAIL OF STEEL GUTTER

 SCALE 1:30



1 P3 SECTION (STA. 0 + 922.50)

 1:100