

THE STUDY ON ROAD NETWORK IMPROVEMENT
FOR DEVELOPMENT OF REGIONAL GROWTH CENTERS

SCALE :
1:20,000

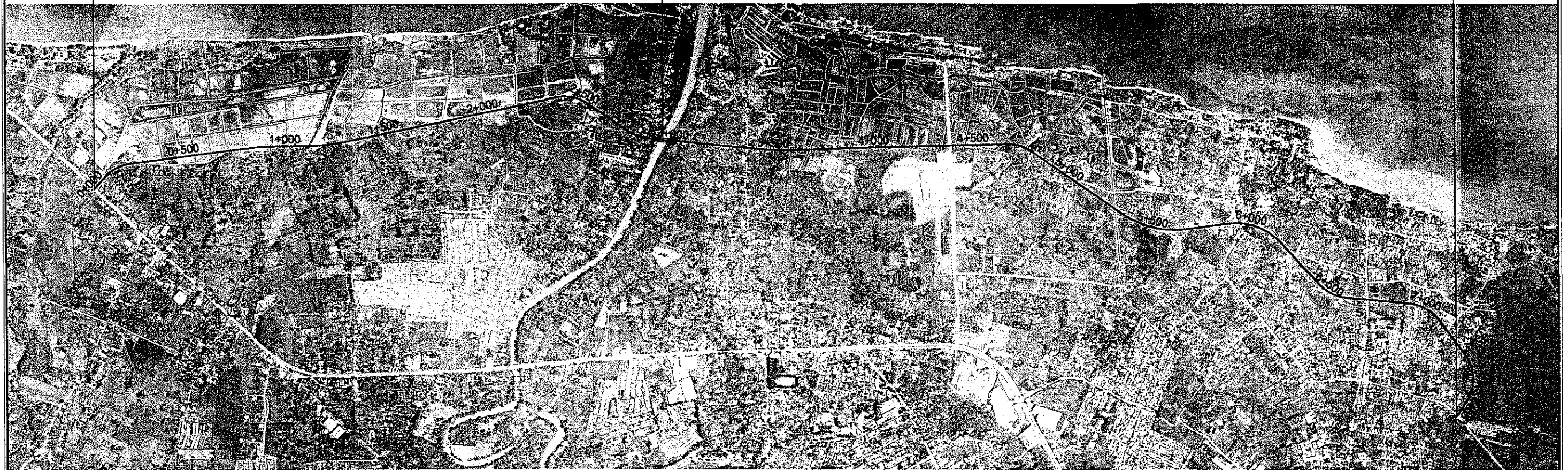
CAGAYAN DE ORO WESTERN COASTAL ROAD
LOCATION PLAN
BRIDGE LIST

DRAWING NO.
B-1

START OF WESTERN
COASTAL ROAD
STA. 0+000.000

BRIDGE NO. C-1
STA. 2+903.854
PCDG, 3 SPAN
L = 108.00m

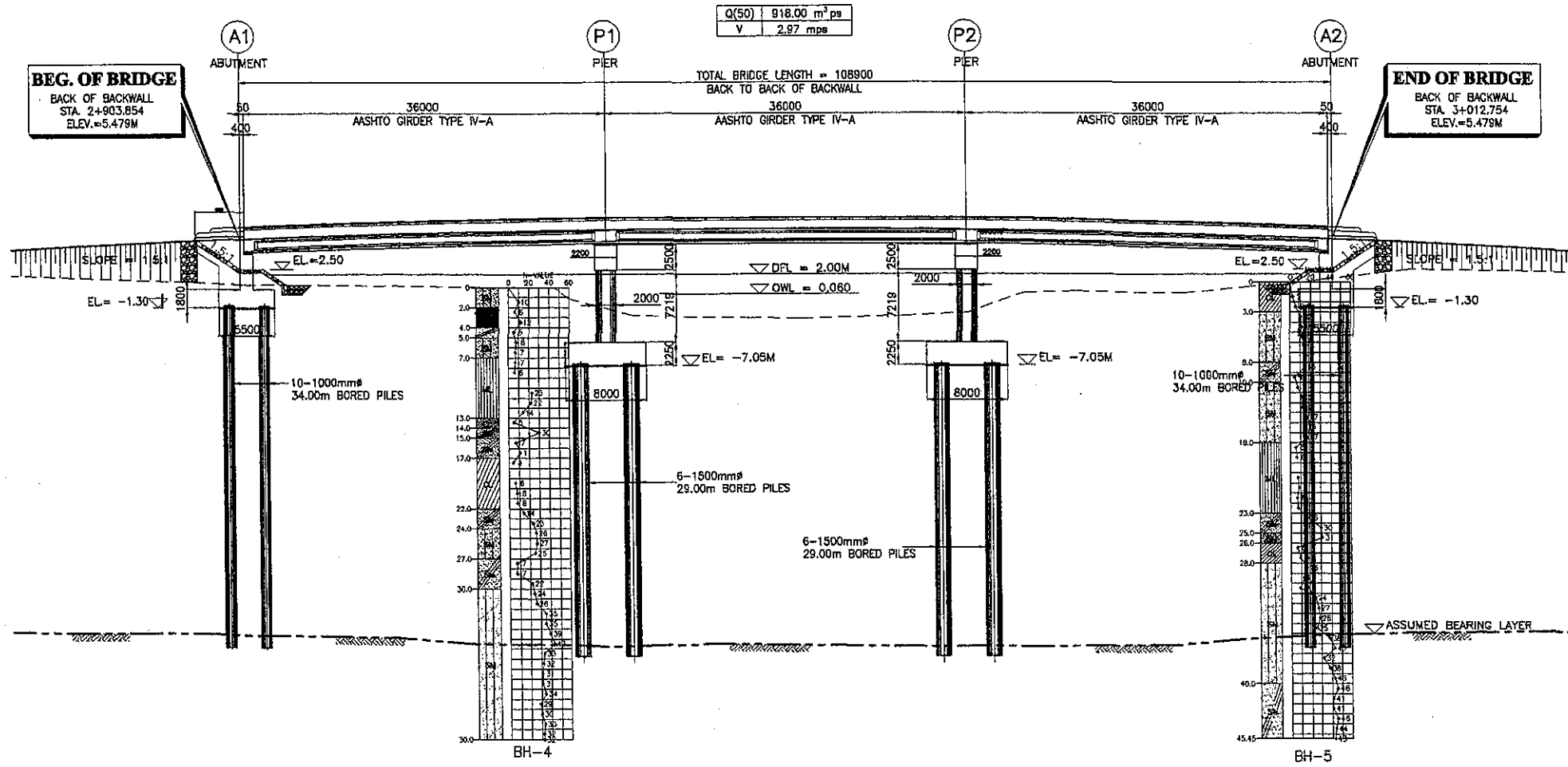
END OF WESTERN
COASTAL ROAD
STA. 7+651.389



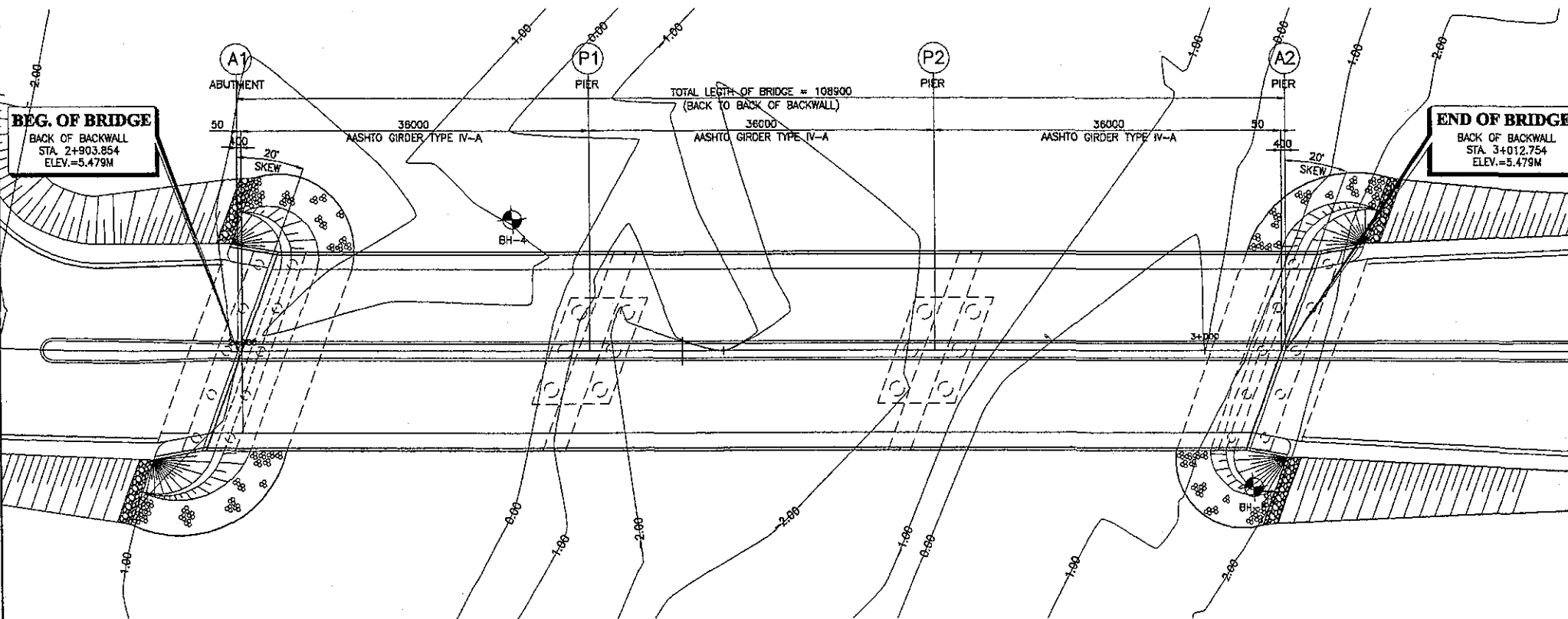
| BRIDGE NO. | STATION | | RIVER NAME | RIVER HYDRAULICS | | | PROPOSED BRIDGE | | | | |
|------------|----------------|----------------|--------------|------------------|------------------|--------------|-----------------|-----------------|-------------------|-------------|------------------------|
| | BEGINNING | END | | ELEV. DFL | Q (cms) (50 yrs) | VELOCITY m/s | NO. OF SPAN | SPAN LENGTH (m) | BRIDGE LENGTH (m) | SKEW (deg.) | SUPERSTRUCTURE TYPE |
| C-1 | STA. 2+903.854 | STA. 3+012.754 | IPONAN RIVER | 2.00 | 918 | 2.97 | 3 | 36+36+36 | 108.00 | 20.00 | PCDG, AASHTO TYPE IV-A |

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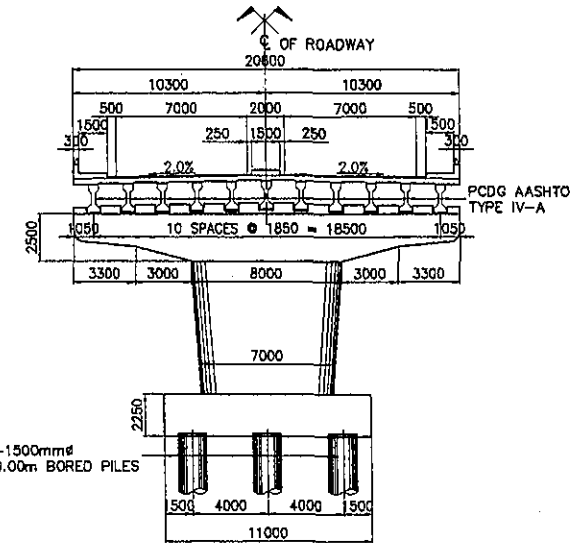
SCALE : AS SHOWN
CAGAYAN DE ORO WESTERN COASTAL ROAD
BRIDGE NO. C-1 (IPONAN RIVER)
STA. 2+903.854
GENERAL PLAN, ELEVATION AND SECTIONS
DRAWING NO. B-2



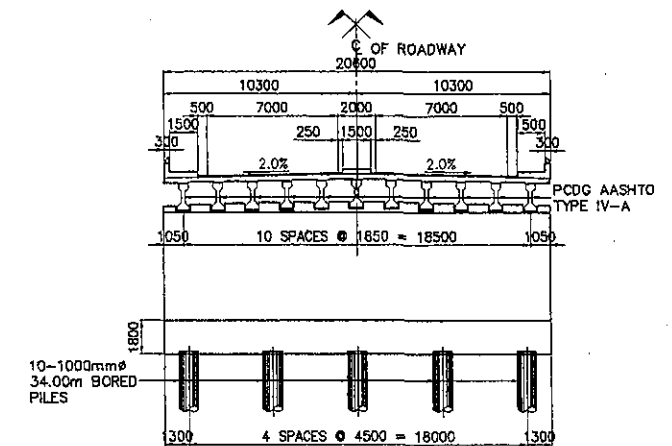
1 ELEVATION
SCALE 1:300



2 PLAN
SCALE 1:300



3 SECTION @ PIER
SCALE 1:200



4 SECTION @ ABUTMENT
SCALE 1:200

SUMMARY OF ESTIMATED QUANTITIES

| ITEM No. | DESCRIPTION | UNIT | QUANTITY |
|----------|---|-------|-----------|
| 103(2) | BRIDGE EXCAVATION, COMMON, ABOVE OWL | cu.m. | 775.00 |
| 103(2)b | BRIDGE EXCAVATION, COMMON, BELOW OWL | cu.m. | 1730.00 |
| 104(1)c | SELECTED BORROW FOR BACKFILLING | cu.m. | 1642.00 |
| 311(2) | PCC PAYMENT (REINFORCED) FOR APPROACH SLAB, t = 300mm | sq.m. | 190.00 |
| 400(16)a | CAST-IN-PLACE CONCRETE BORED PILES, #1000mm | m | 680.00 |
| 400(16)b | CAST-IN-PLACE CONCRETE BORED PILES, #1200mm | m | - |
| 400(16)c | CAST-IN-PLACE CONCRETE BORED PILES, #1500mm | m | 348.00 |
| 401 | CONCRETE RAILINGS | m | 216.00 |
| 404(1) | REINFORCING STEEL, GRADE 40 (fy = 275MPa) | kg | 6895.00 |
| 404(2) | REINFORCING STEEL, GRADE 60 (fy = 415MPa) | kg | 468960.00 |
| 404(3) | PRESTRESSING STEEL, GRADE 270 (Fu = 1860MPa) | kg | - |
| 405(1) | STRUCTURAL CONCRETE CLASS "A1" FOR SUBSTRUCTURE (fc' = 24MPa) | cu.m. | 1511.00 |
| 405(2) | STRUCTURAL CONCRETE CLASS "A2" FOR SUPERSTRUCTURE (fc' = 24MPa) | cu.m. | 881.00 |
| 405(3) | STRUCTURAL CONCRETE CLASS "A3" FOR OTHERS (fc' = 21MPa) | cu.m. | 49.00 |
| 405(6) | STRUCTURAL CONCRETE "LEAN CONCRETE" (fc' = 17MPa) | cu.m. | 46.00 |
| 408(1) | PRESTRESSED CONCRETE GIRDER, AASHTO TYPE IV-A, L=36.00M | eo | 33.00 |
| 407(1)e | ELASTOMERIC BEARING PAD, 625 x 400 x 60 (DURO 60) | ea | 22.00 |
| 407(1)e | EXPANSION JOINT, (±50mm MOVEMENT) | m | 36.00 |
| 407(4) | METAL DRAIN (#150mm G.I. DRAIN PIPE) | m | 48.00 |
| 504(5) | GROUTED RIPRAP SLOPE PROTECTION | cu.m. | 11.00 |
| 506 | LOOSE BOULDER APRON (HAND LAID ROCK, #300mm MIN., S.G. = 2.65) | cu.m. | 126.00 |
| 507 | STEEL SHEET PILE (85 x 400 x 8mm), FURNISHED AND DRIVEN | m | 593.00 |
| 510 | RUBBLE CONCRETE SLOPE PROTECTION, t=350mm | cu.m. | 145.00 |

7TH BRIDGE

ELEMENTS OF CURVES

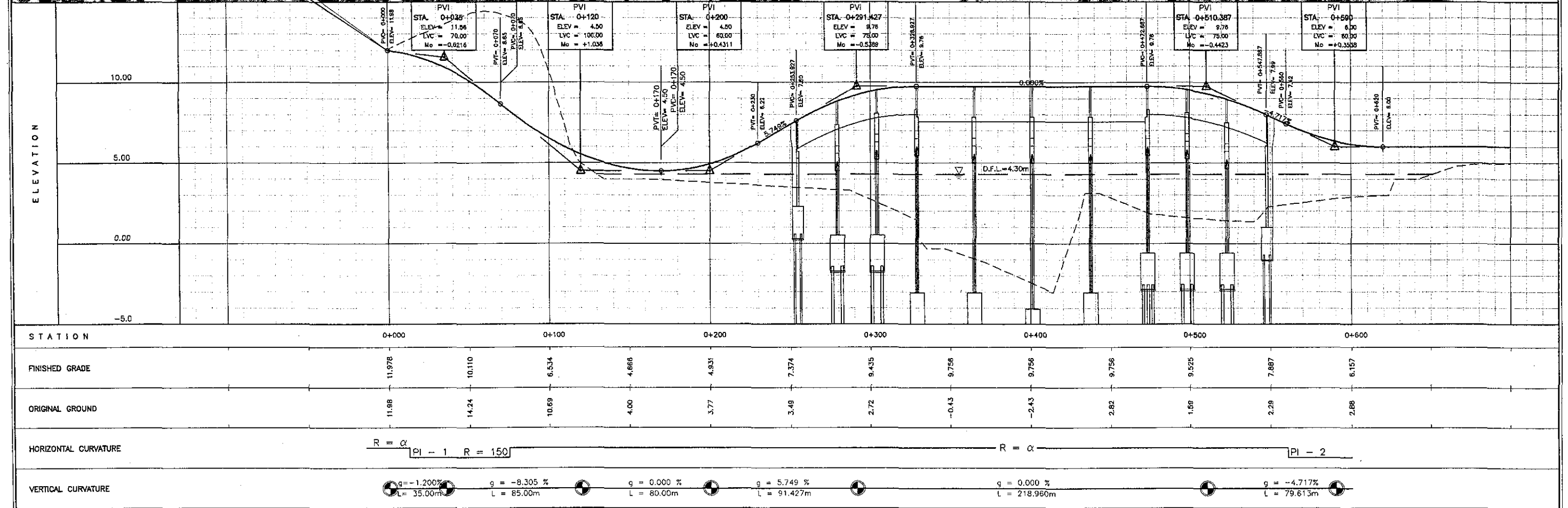
| PI NO. | STATION | COORDINATES | | I | R | T | Lc | Es | V(kph) |
|--------|-----------|-------------|-----------|-----------|--------|-------|--------|------|--------|
| | | NORTHING | EASTING | | | | | | |
| 0 | 0+000.000 | 936979.14 | 459937.97 | | | | | | |
| 1 | 0+043.952 | 936948.90 | 459969.87 | 15°06'18" | 500.00 | 66.29 | 131.82 | 3.30 | 50.00 |

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SCALE :
HOR. 1:2500
VER. 1:250

CAGAYAN DE ORO 7TH BRIDGE
PLAN AND PROFILE
STA. 0+000 - STA. 0+600

DRAWING NO.
R-1



ELEMENTS OF CURVES

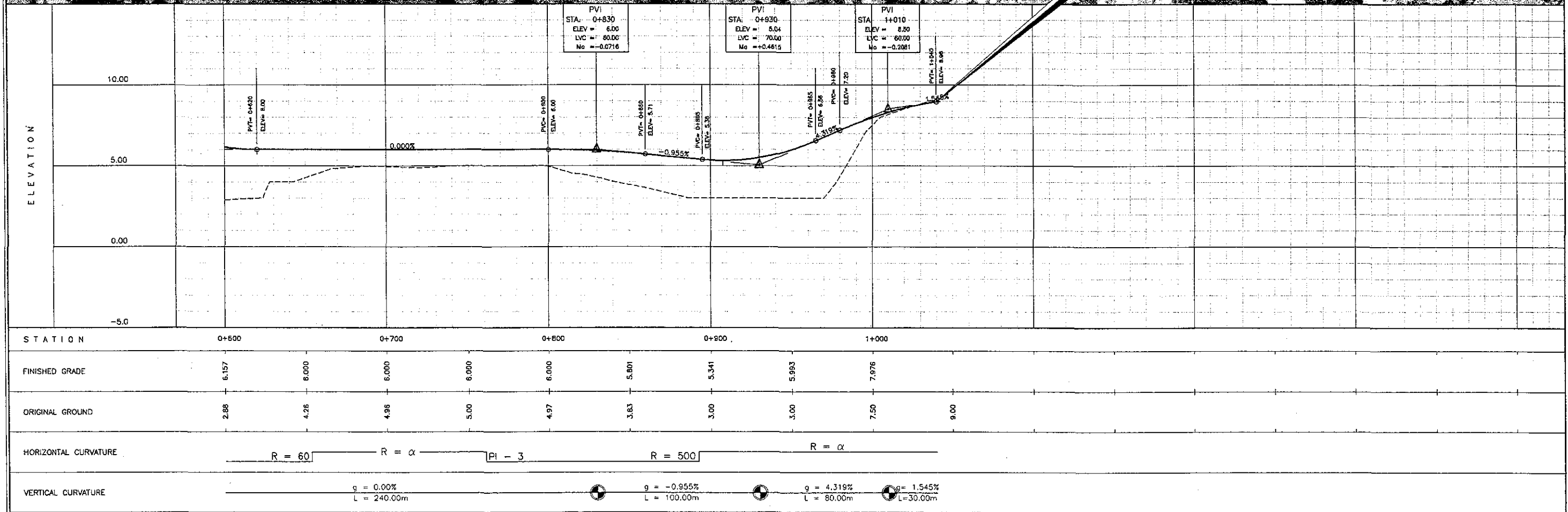
| PI NO. | STATION | COORDINATES | | I | R | T | Lc | Es | V(kph) |
|--------|-----------|-------------|-----------|-----------|--------|-------|-------|--------|--------|
| | | NORTHING | EASTING | | | | | | |
| 2 | 0+619.407 | 936755.10 | 460512.68 | 88°55'12" | 60.00 | 58.88 | 93.12 | 24.064 | 40.00 |
| 3 | 0+826.970 | 936972.28 | 460594.86 | 23°49'06" | 500.00 | 31.63 | 62.36 | 4.376 | 50.00 |
| 4 | 1+042.369 | 937187.40 | 460616.04 | | | | | | |

THE STUDY ON ROAD NETWORK IMPROVEMENT
FOR DEVELOPMENT OF REGIONAL GROWTH CENTERS

SCALE :
HOR. 1:2500
VER. 1:250

CAGAYAN DE ORO 7TH BRIDGE & ACCESS ROAD
PLAN AND PROFILE
STA. 0+600 - STA. 1+042.369

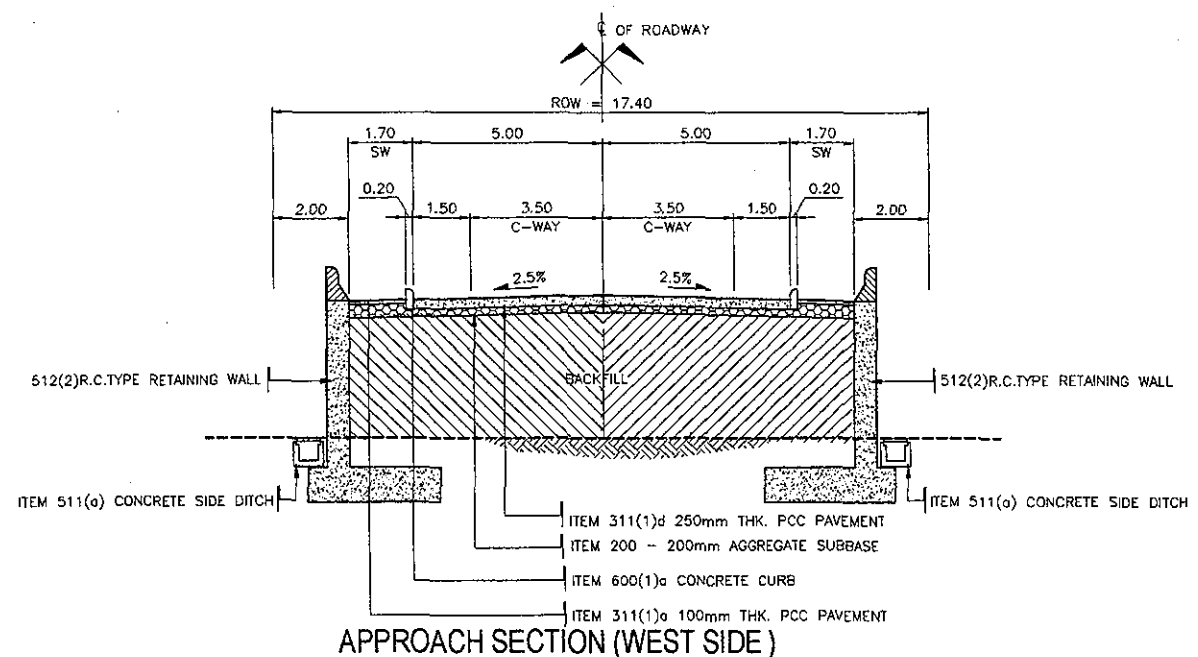
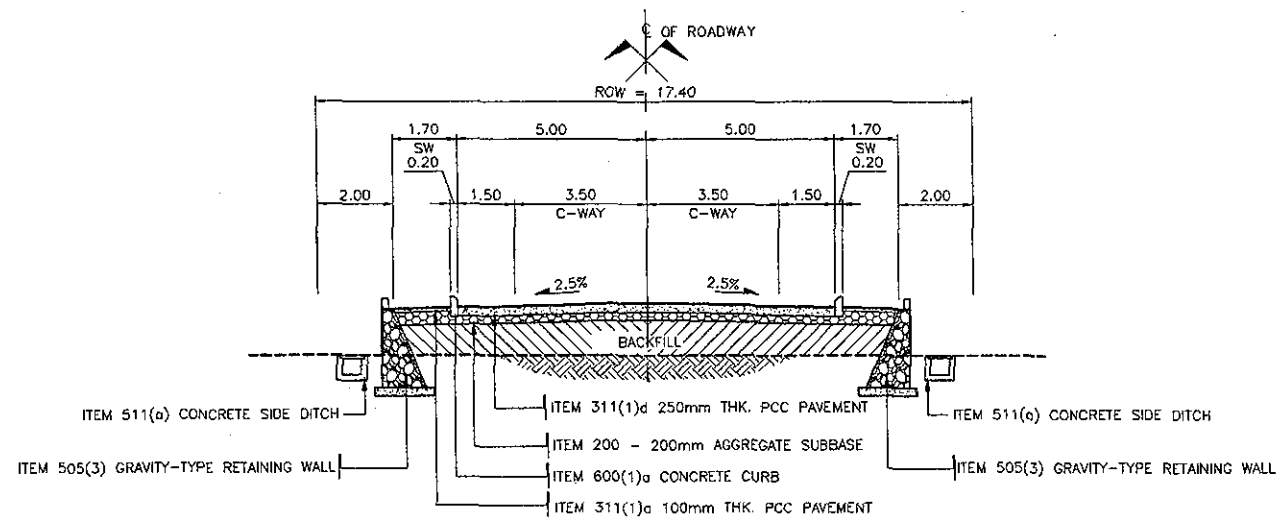
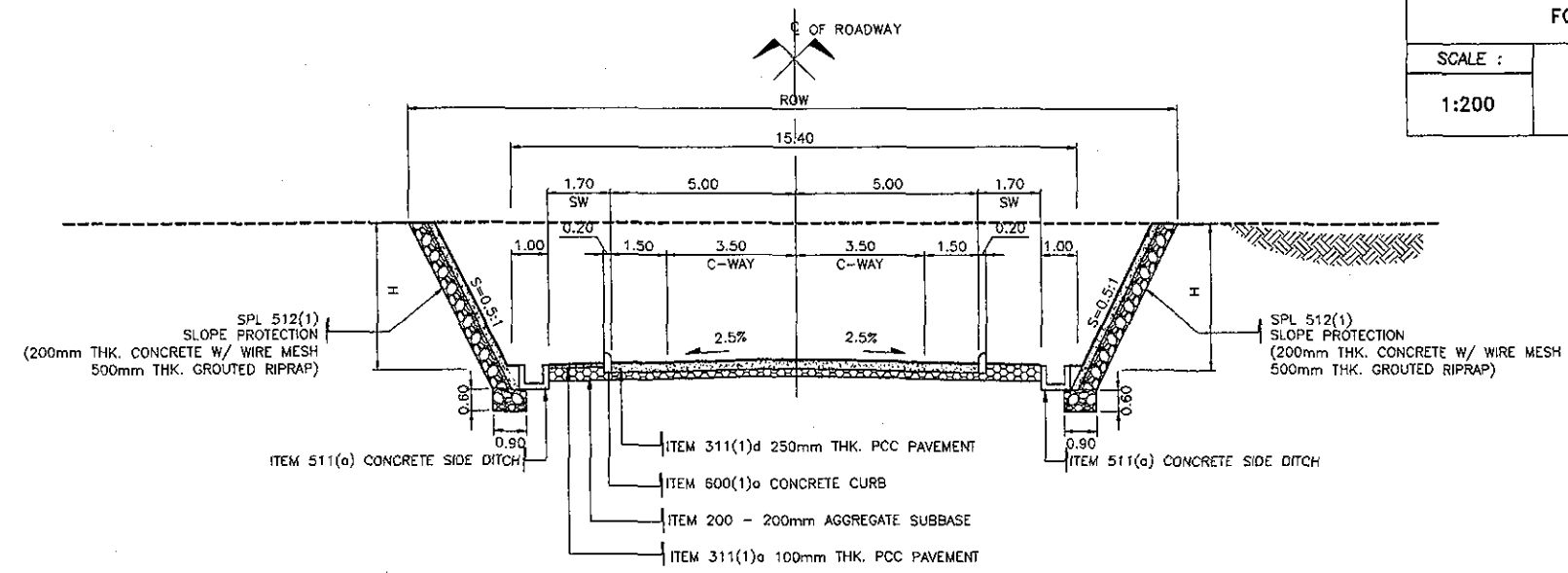
DRAWING NO.
R-2



SCALE :
1:200

CAGAYAN DE ORO 7th BRIDGE
AND ACCESS ROAD
TYPICAL ROAD SECTIONS

DRAWING NO.
R-3



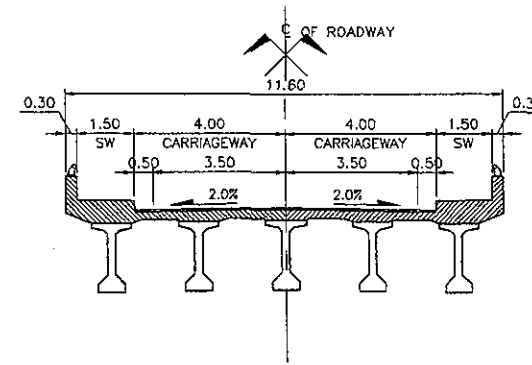
TYPICAL ROAD SECTIONS - CAGAYAN DE ORO 7th BRIDGE AND ACCESS ROAD (1/2)

C:\DROPP\BOX\fr jun\CDO Typical Sections\TypSect_7thBridge_REV.dwg\Tue,27 Jul 2004-10:10am

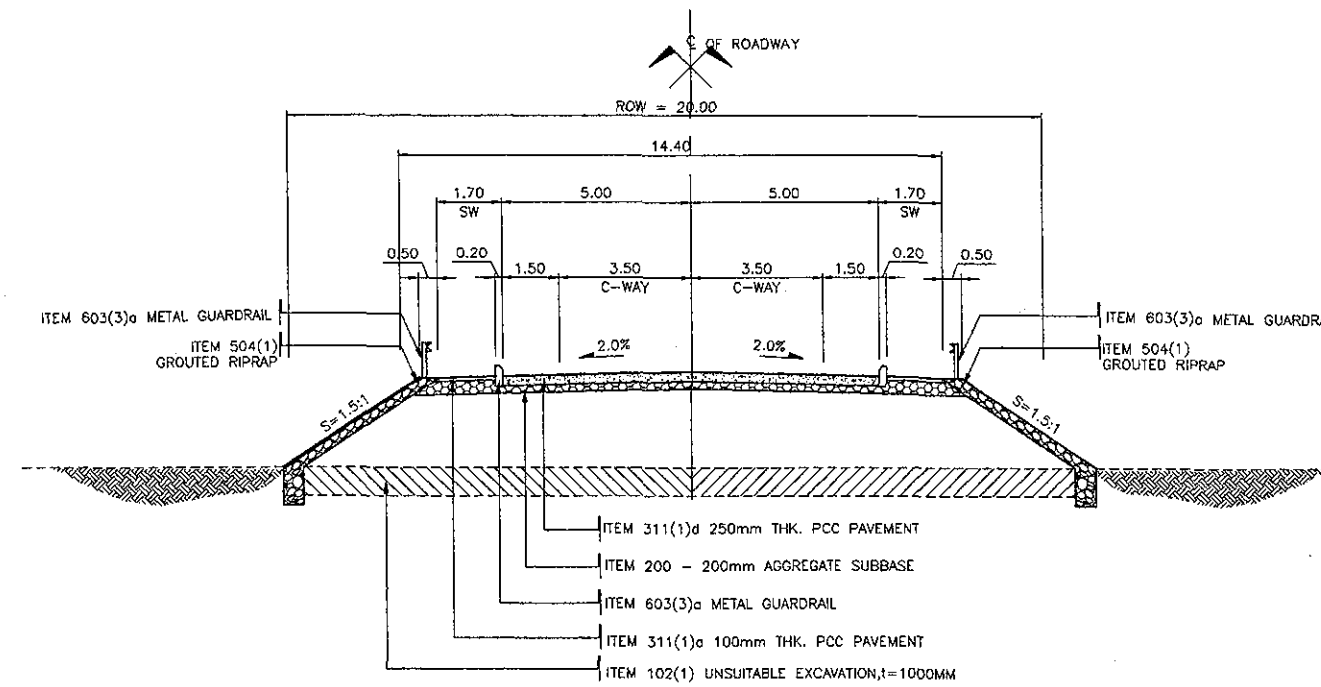
SCALE :
1:200

CAGAYAN DE ORO 7th BRIDGE
AND ACCESS ROAD
TYPICAL ROAD SECTIONS

DRAWING NO.
R-4



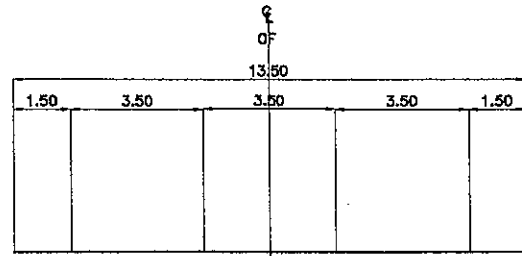
BRIDGE SECTION



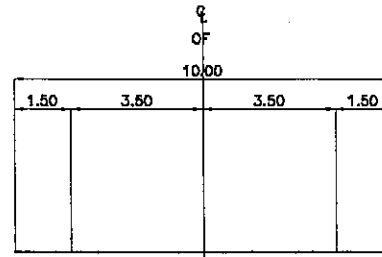
EMBANKMENT SECTION H < 1.00 m

THE STUDY ON ROAD NETWORK IMPROVEMENT
FOR DEVELOPMENT OF REGIONAL GROWTH CENTERS

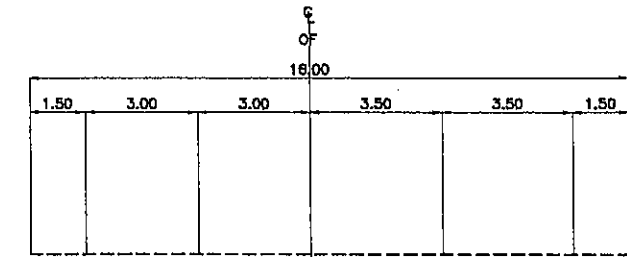
| | | |
|----------------|---|-------------|
| SCALE : | CAGAYAN DE ORO 7TH BRIDGE | DRAWING NO. |
| PLAN. 1:1000 | INTERSECTION DETAILS | R-5 |
| SECTION. 1:200 | BALULANG-CARMEN ROAD/VAMANTA BLVD. INTERSECTION | |



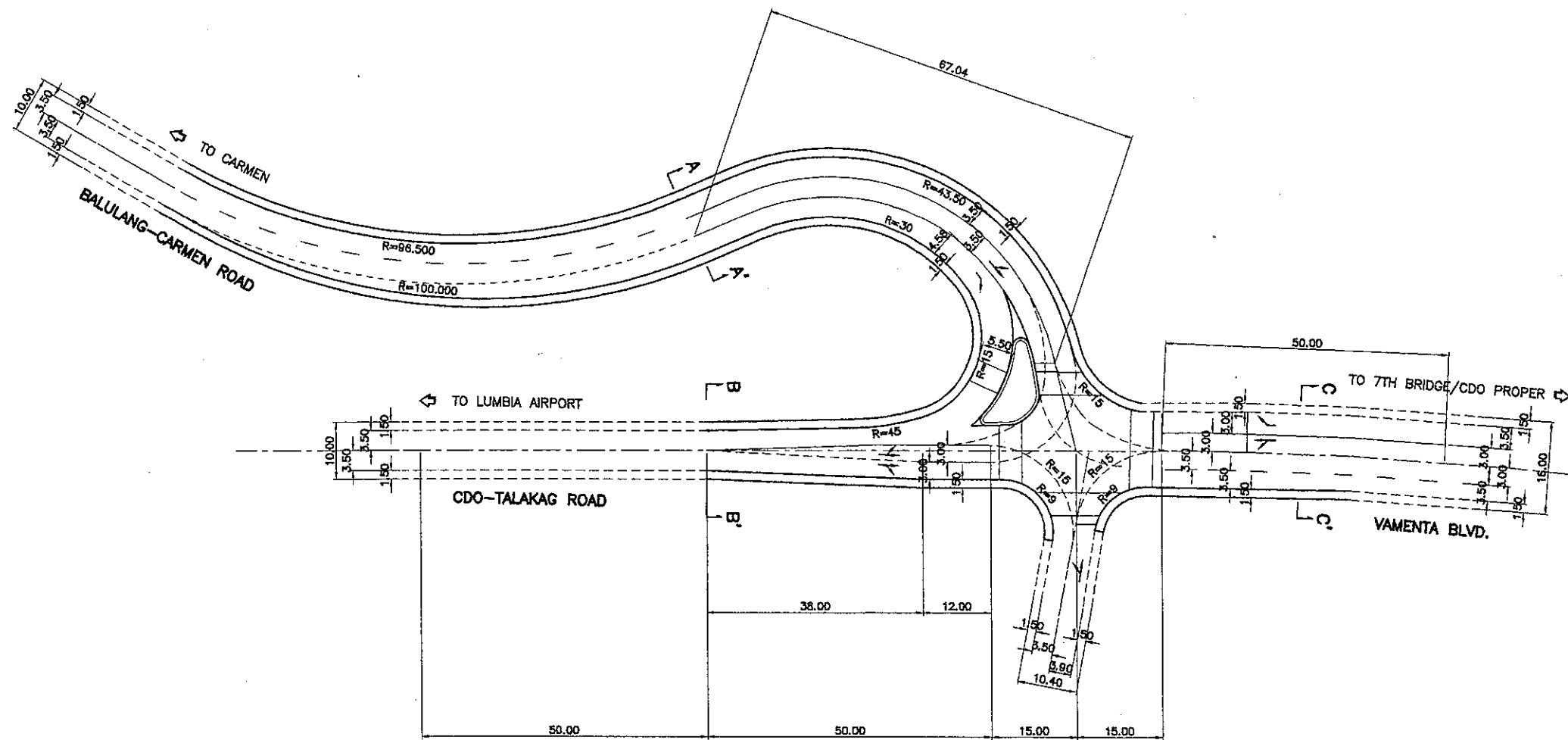
A-A' : BALULANG-CARMEN ROAD



B-B' : CDO TALAKAG ROAD



C-C' : VAMANTA BLVD.



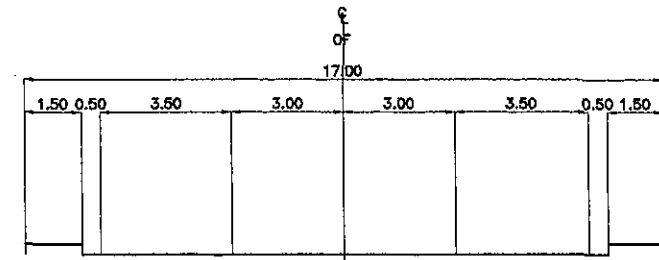
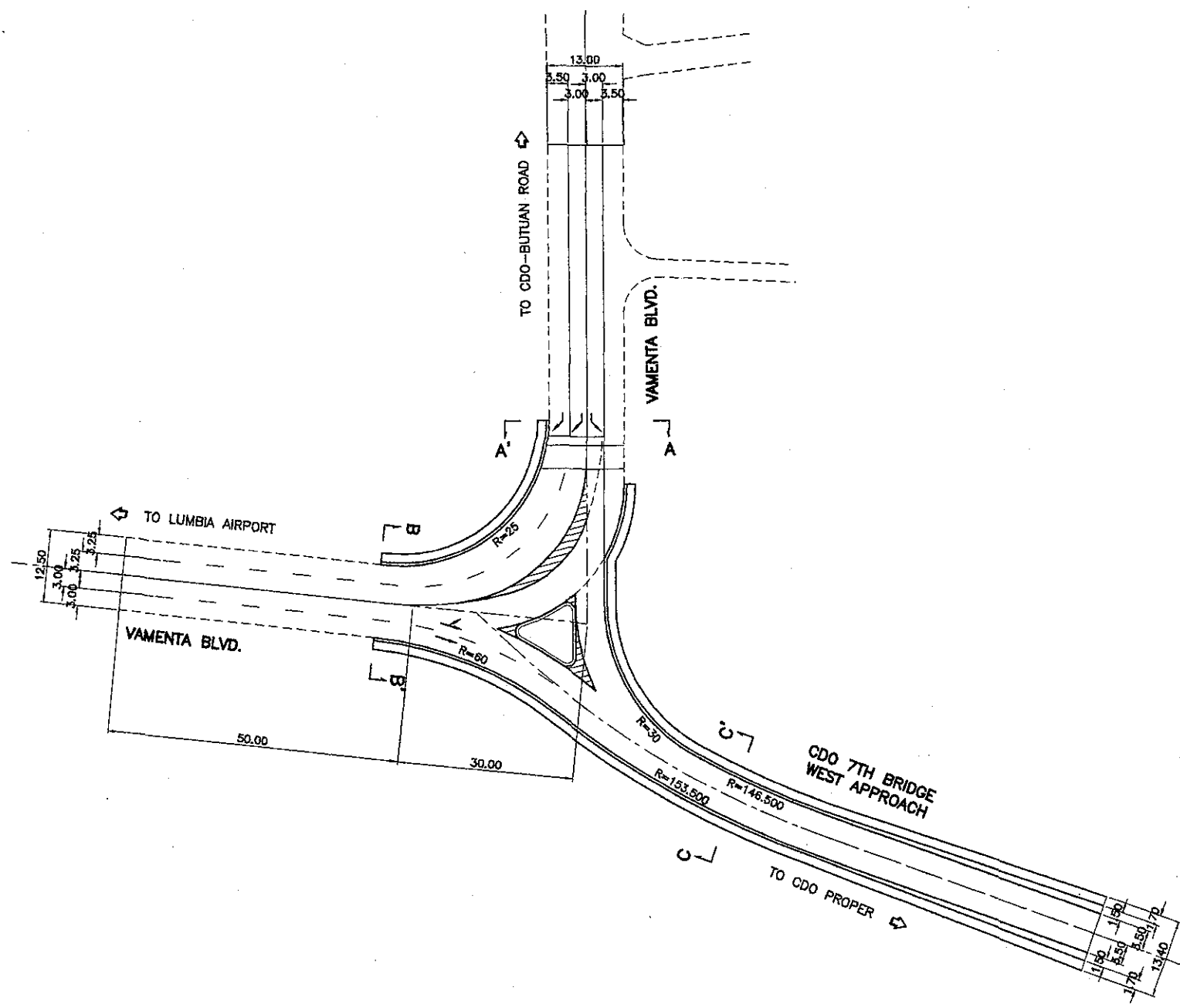
BALULANG-CARMEN ROAD / VAMANTA BLVD. INTERSECTION

THE STUDY ON ROAD NETWORK IMPROVEMENT
FOR DEVELOPMENT OF REGIONAL GROWTH CENTERS

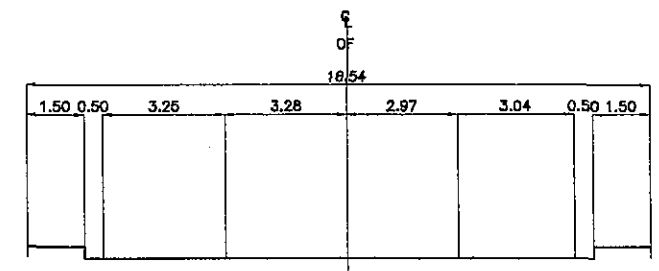
SCALE :
PLAN. 1:1000
SECTION. 1:200

CAGAYAN DE ORO 7TH BRIDGE
INTERSECTION DETAILS
STA. 0+029.138

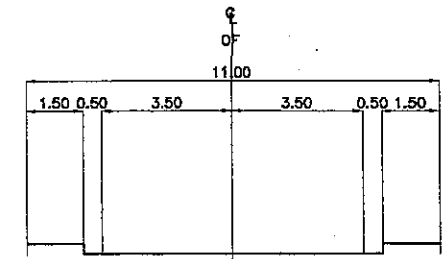
DRAWING NO.
R-6



A-A' : VAMENTA BLVD.



B-B' : VAMENTA BLVD.



C-C' : CDO 7TH BRIDGE WEST APPROACH

INTERSECTION WITH VAMENTA BLVD.
STA. 0+029.138, BEG. OF CDO 7TH BRIDGE

THE STUDY ON ROAD NETWORK IMPROVEMENT
FOR DEVELOPMENT OF REGIONAL GROWTH CENTERS

SCALE :
HOR. 1:3500

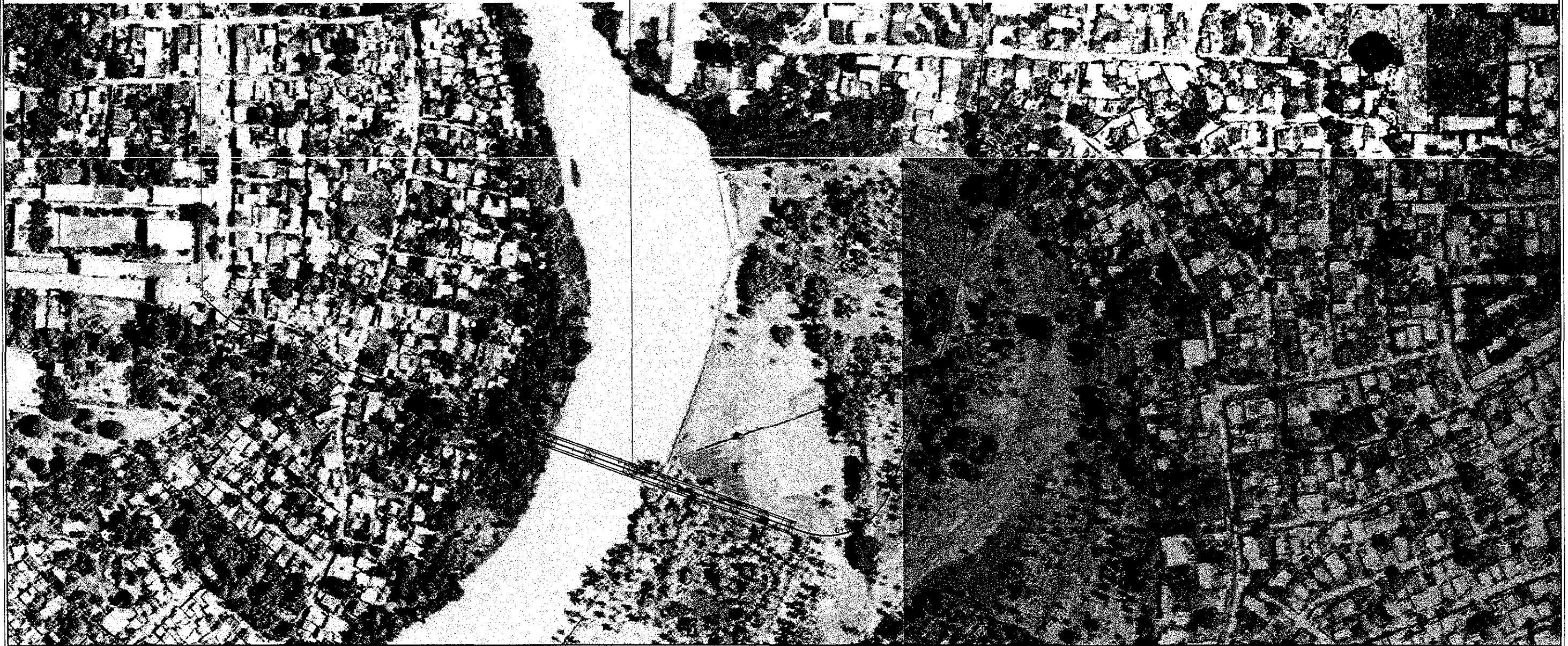
CAGAYAN DE ORO 7TH BRIDGE
LOCATION PLAN
AND BRIDGE LIST

DRAWING NO.
B-1

START OF 7TH BRIDGE
& ACCESS ROAD
STA. 0+000

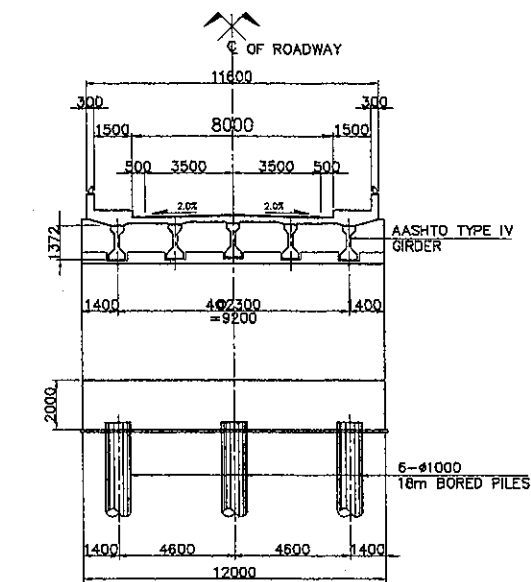
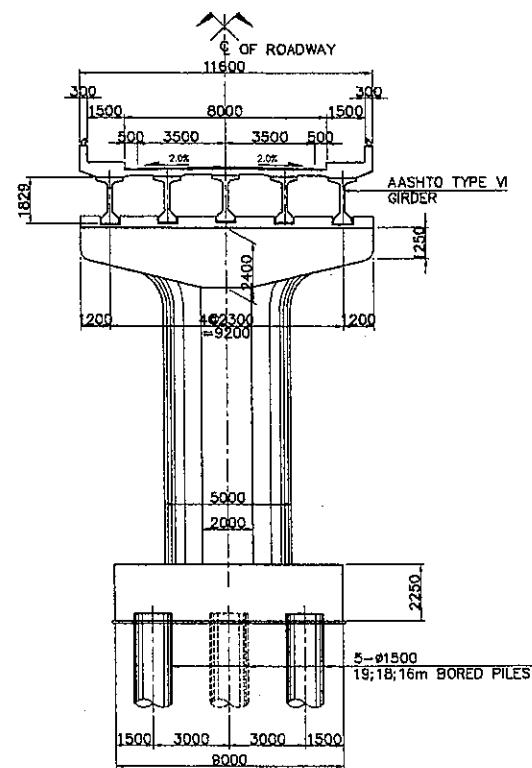
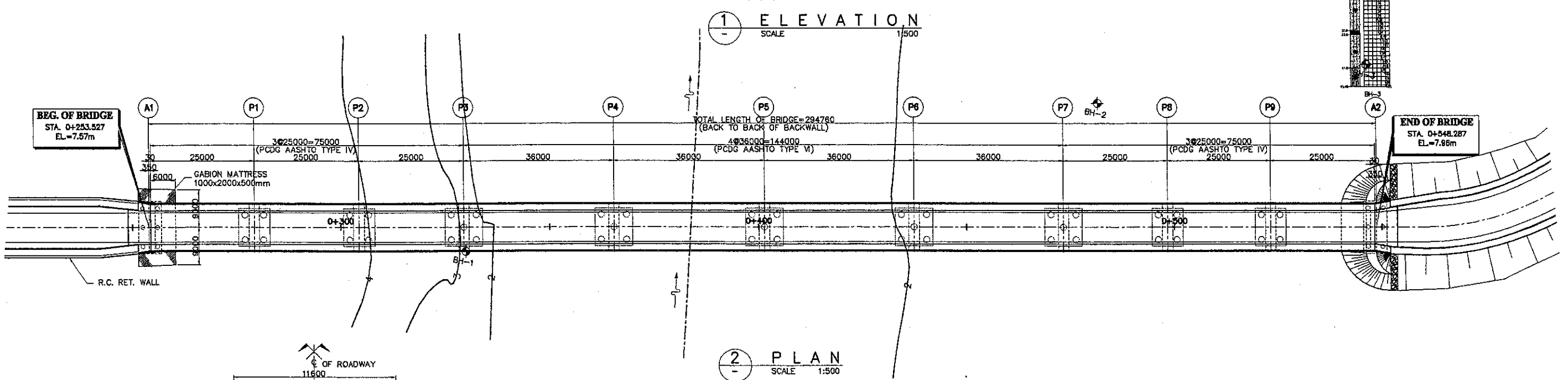
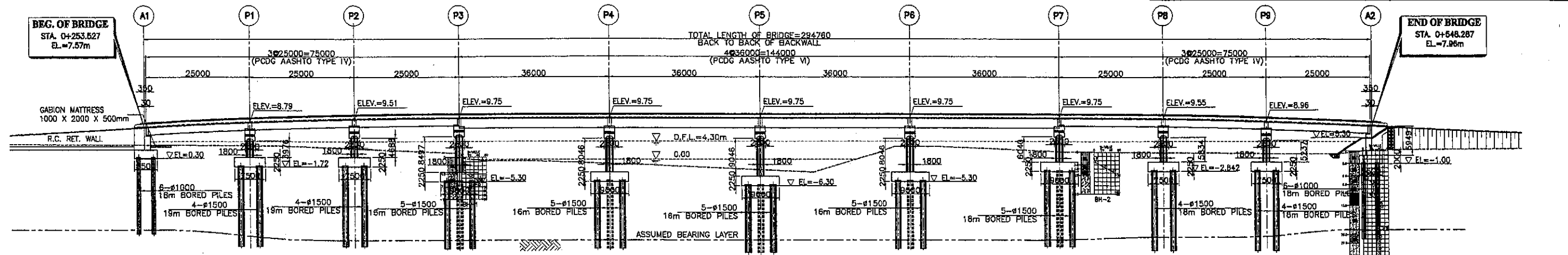
BRIDGE NO. 1
STA. 0+253.927
PCDG, 10-SPANS
L= 294.760m

END OF 7TH BRIDGE
& ACCESS ROAD
STA. 1+042.369



| BRIDGE NO. | STATION | | RIVER NAME | RIVER HYDRAULICS | | | PROPOSED BRIDGE | | | | |
|------------|----------------|----------------|---------------|------------------|------------------|--------------|-----------------|-----------------|-------------------|-------------|---------------------------|
| | BEGINNING | END | | ELEV. DFL | Q (cms) (50 yrs) | VELOCITY m/s | NO. OF SPAN | SPAN LENGTH (m) | BRIDGE LENGTH (m) | SKEW (deg.) | SUPERSTRUCTURE TYPE |
| S-1 | STA. 0+253.527 | STA. 0+548.287 | CAGAYAN RIVER | 4.30 | 3.125 | 3.40 | 10 | 25 m | 294.760 | - | PCDG, AASHTO TYPE IV & VI |

Q(50) 3125 cms
V 3.41 mps



SUMMARY OF ESTIMATED QUANTITIES

| ITEM No. | DESCRIPTION | UNIT | QUANTITY |
|----------|---|-------|-----------|
| 103(2) | BRIDGE EXCAVATION, COMMON, ABOVE OWL | cu.m. | 1557.00 |
| 103(3) | BRIDGE EXCAVATION, COMMON, BELOW OWL | cu.m. | 5596.00 |
| 104(1)c | SELECTED BORROW FOR BACKFILLING | cu.m. | 2966.00 |
| 311(2) | PCC PAVEMENT (REINFORCED) FOR APPROACH SLAB, t = 300mm | sq.m. | 90.00 |
| 400(16)a | CAST-IN-PLACE CONCRETE BORED PILES, #1000mm | m | 216.00 |
| 400(16)b | CAST-IN-PLACE CONCRETE BORED PILES, #1200mm | m | - |
| 400(16)c | CAST-IN-PLACE CONCRETE BORED PILES, #1500mm | m | 706.00 |
| 401 | CONCRETE RAILINGS | m | 588.00 |
| 404(1) | REINFORCING STEEL, GRADE 40 (fy = 275MPa) | kg | 18769.00 |
| 404(2) | REINFORCING STEEL, GRADE 60 (fy = 415MPa) | kg | 885081.00 |
| 404(3) | PRESTRESSING STEEL, GRADE 270 (fu = 1860MPa) | kg | - |
| 405(1) | STRUCTURAL CONCRETE CLASS "A1" FOR SUBSTRUCTURE (fc' = 24MPa) | cu.m. | 2908.00 |
| 405(2) | STRUCTURAL CONCRETE CLASS "A2" FOR SUPERSTRUCTURE (fc' = 24MPa) | cu.m. | 1423.00 |
| 405(3) | STRUCTURAL CONCRETE CLASS "A3" FOR OTHERS (fc' = 21MPa) | cu.m. | 134.00 |
| 405(6) | STRUCTURAL CONCRETE "LEAN CONCRETE" (fc' = 17MPa) | cu.m. | 85.00 |
| 406(1)g | PRESTRESSED CONCRETE GIRDER, ASHTO TYPE VI, L=36.00M | ea | 20.00 |
| 406(1)h | PRESTRESSED CONCRETE GIRDER, ASHTO TYPE IV, L=25.00M | ea | 30.00 |
| 407(1)a | ELASTOMERIC BEARING PAD, 500 x 350 x 60 (DURO 60) | ea | 20.00 |
| 407(1)b | ELASTOMERIC BEARING PAD, 650 x 400 x 60 (DURO 60) | ea | 10.00 |
| 407(2)b | EXPANSION JOINT, (±50mm MOVEMENT) | m | 32.00 |
| 407(4) | METAL DRAIN (#150mm G.I. DRAIN PIPE) | m | 200.00 |
| 504(5) | GROUTED RIPRAP SLOPE PROTECTION | cu.m. | 12.00 |
| 506 | LOOSE BOULDER APRON (HAND LAID ROCK, #300mm MIN., S.G. = 2.65) | cu.m. | 48.00 |
| 507 | STEEL SHEET PILE (850 x 400 x 8mm), FURNISHED AND DRIVEN | m | 2154.00 |
| 509 | GABIENS | cu.m. | 61.00 |
| 510 | RUBBLE CONCRETE SLOPE PROTECTION, t=350mm | cu.m. | 93.00 |