CH.27+300.000
PH=10.300
GH=11.33
9.748 10.203 9.813 10.300 9.910 10.203 9.813 9.748
9.07 9.07
DL= 8.00

CH.27+275.000
PH=10.025
GH=14.90
9.473 9.928 9.538 10.025 9.635 9.928 9.538 9.473
1:1.0 1:1.0 13.80
8.80 8.80
1622 3250 3250 1622
4872 4872
DL= 7.00

CH.27+250.000
PH=9.750
GH=8.66
9.198 9.652 9.262 9.750 9.360 9.652 9.262 9.198
1:1.0 8.52
DL= 7.00

CH.27+225.000
PH=9.475
GH=6.49
8500
1000 6500 1000
8.923 9.377 8.987 9.475 9.085 9.377 8.987 8.923
4.000I 3.000I 3.000I 4.000I
1:1.5 1:1.5
1622 3250 3250 1622
4872 4872
DL= 5.00

CH.27+400.000
PH=12.864
GH=11.10
12.766 12.370 12.864 12.474 12.766 12.376
12.312 12.312
DL= 10.00

CH.27+375.000
PH=11.948
GH=7.14
11.850 11.460 11.948 11.558 11.850 11.460
11.396 11.396
DL= 6.00

CH.27+350.000
PH=11.216
GH=6.18
11.119 10.728 11.216 10.826 11.119 10.728
10.664 10.664
DL= 4.00

CH.27+325.000
PH=10.666
GH=5.62
10.568 10.178 10.666 10.276 10.568 10.178
10.114 10.114
DL= 4.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Hatada, Principal — 25 Sep. 1989, Date

DRAWN: K.E.
CHECKED: C. Tai
DESIGNED: A. Magan
CHECKED: T. Kawakami

PROJECT ENGINEER: W. Kuca
EXECUTIVE ENGINEER: Ueta

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24 Oct. 89, SECRETARY

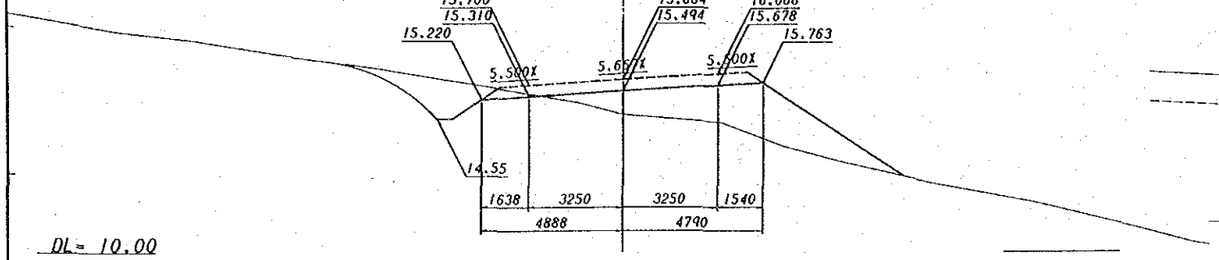
SCALES: HORIZONTAL & VERTICAL m. 1 : 100

SHEET 226 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 27 + 225 — CH. 27 + 400

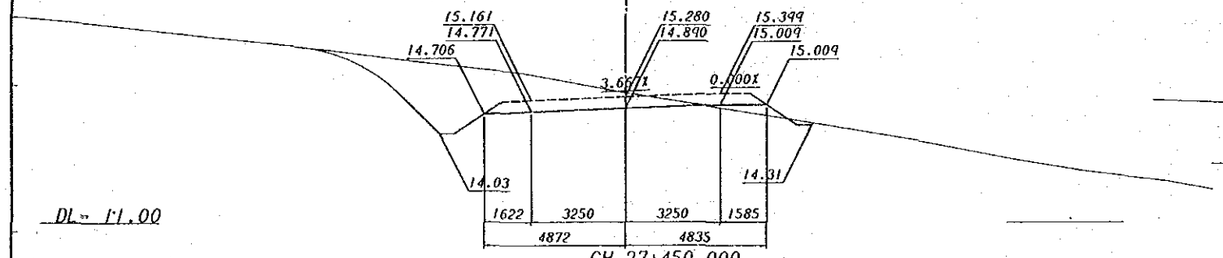
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 87984
REV.

CH.27+475.000
PH=15.884
GH=14.69



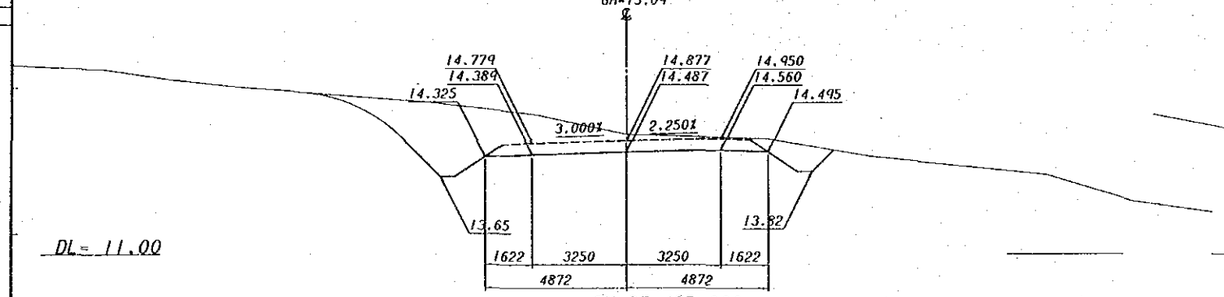
DL= 10.00

CH.27+460.000
PH=15.280
GH=15.42



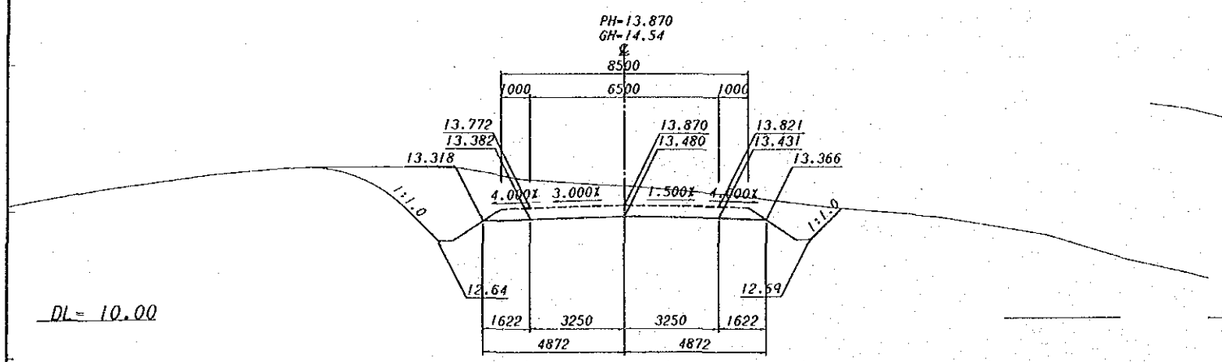
DL= 11.00

CH.27+450.000
PH=14.877
GH=15.09



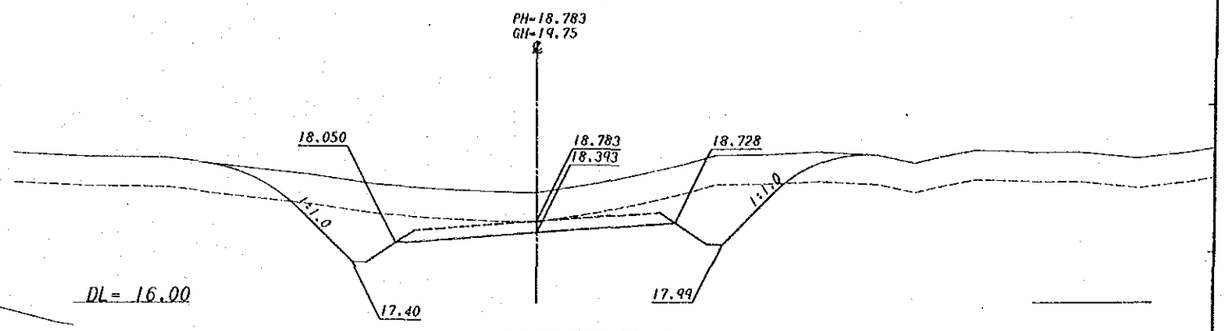
DL= 11.00

CH.27+425.000
PH=13.870
GH=14.54



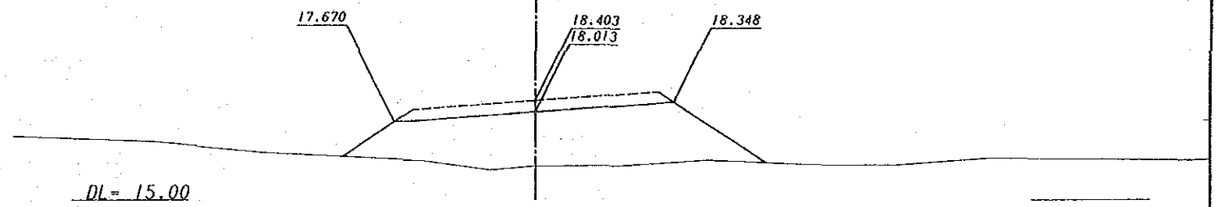
DL= 10.00

CH.27+575.000
PH=18.783
GH=19.75



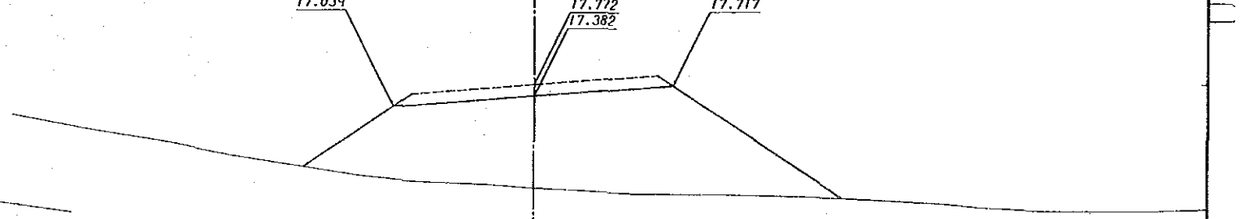
DL= 16.00

CH.27+550.000
PH=18.403
GH=16.16



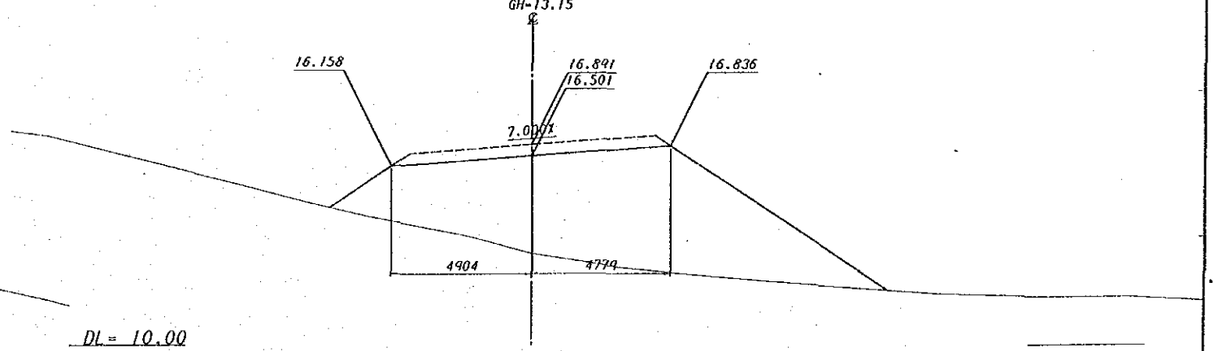
DL= 15.00

CH.27+525.000
PH=17.772
GH=14.23



DL= 12.00

CH.27+500.000
PH=16.891
GH=13.15



DL= 10.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK Nº.s

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Mukaida — Principal — 26 Sep. 1969 — Date

DRAWN: K.E.
CHECKED: a.s.d
DESIGNED: a. Maguire
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.69 — SECRETARY

SCALES: 4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

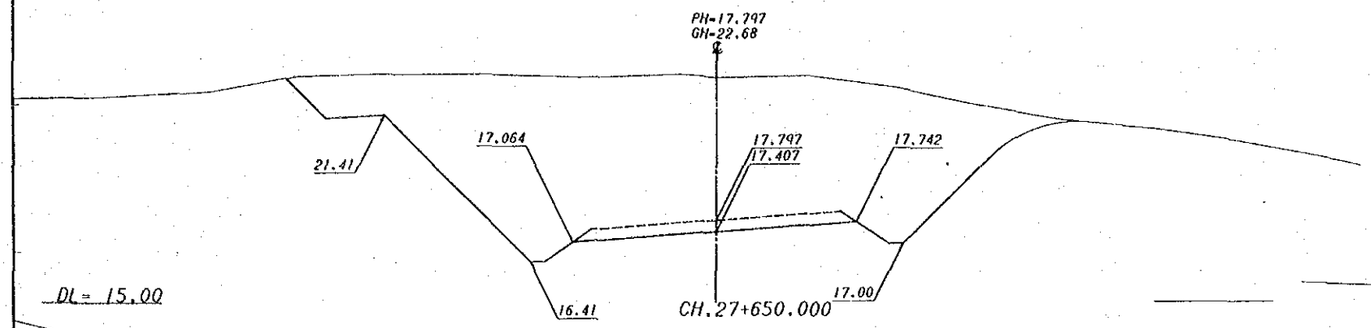
SHEET 227 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 27 + 425 — CH. 27 + 575

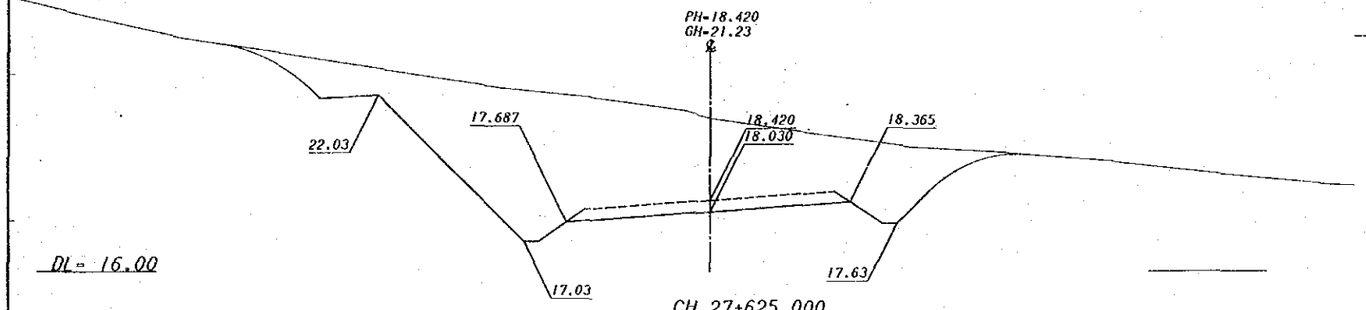
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 87985

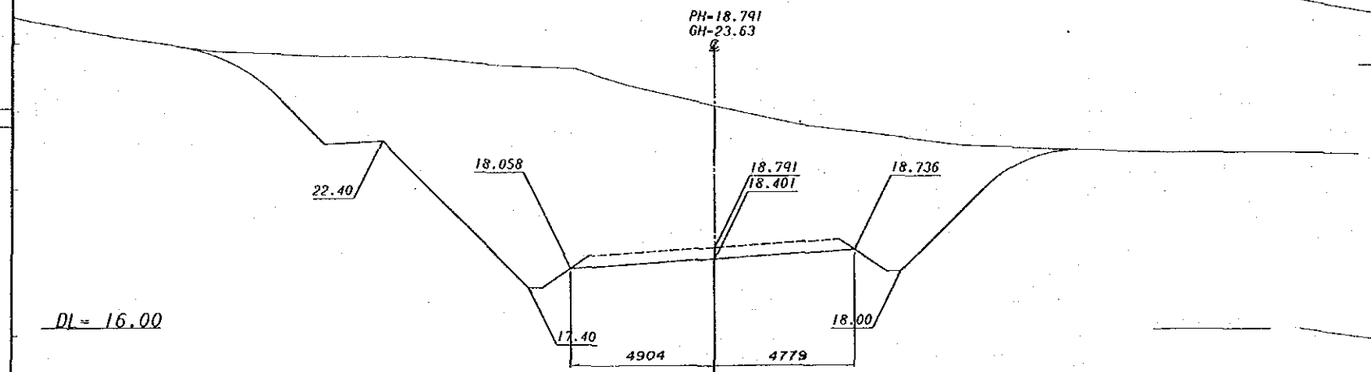
CH.27+675.000



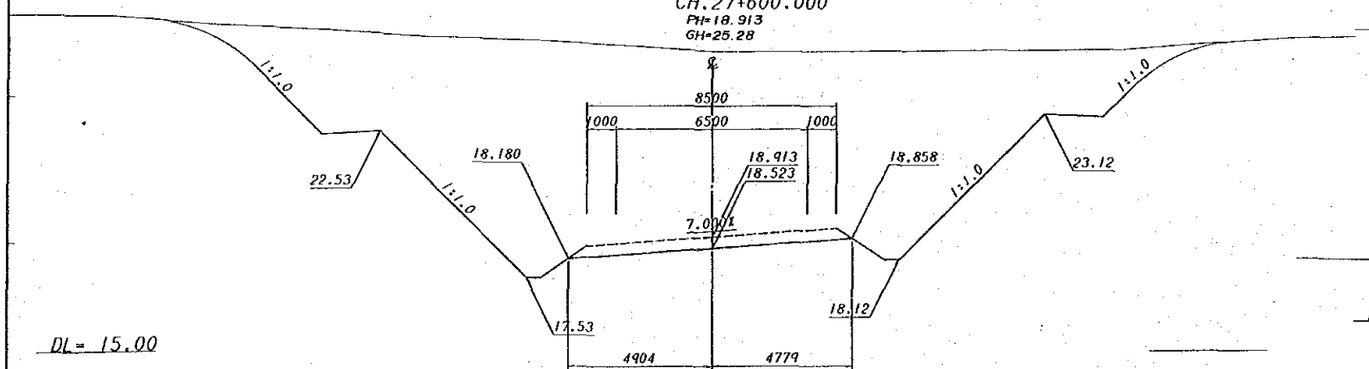
CH.27+650.000



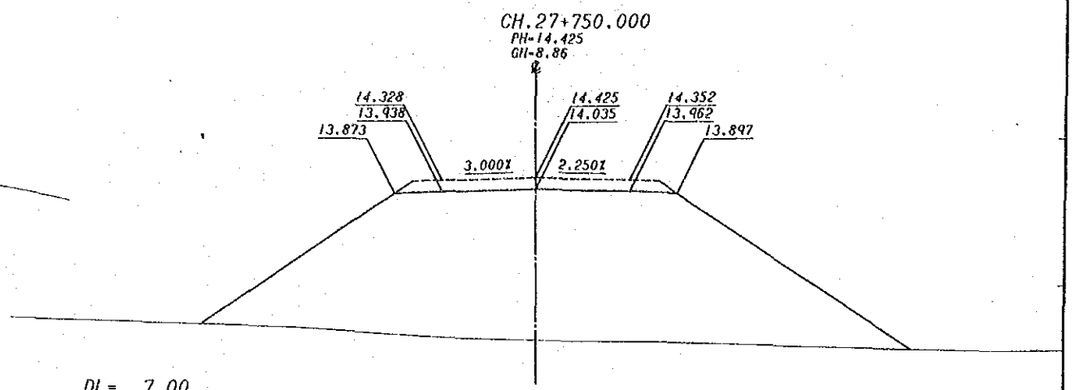
CH.27+625.000



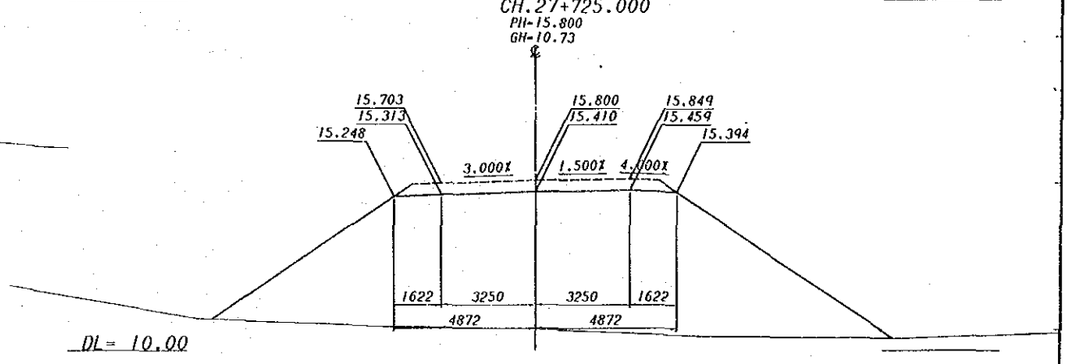
CH.27+600.000



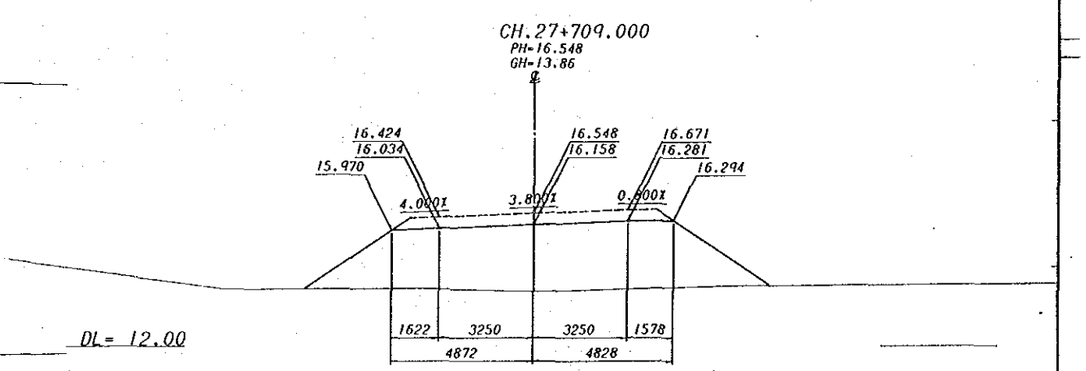
CH.27+750.000



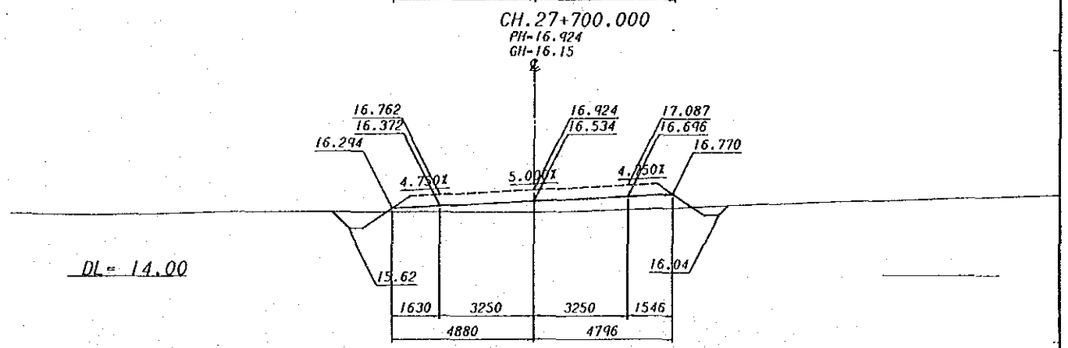
CH.27+725.000



CH.27+709.000



CH.27+700.000



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED:
DESIGNED:
CHECKED:

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89 — SECRETARY

SCALES: 4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

SHEET 228 OF 281

PROJECT No. S.C. 120-33-814/A

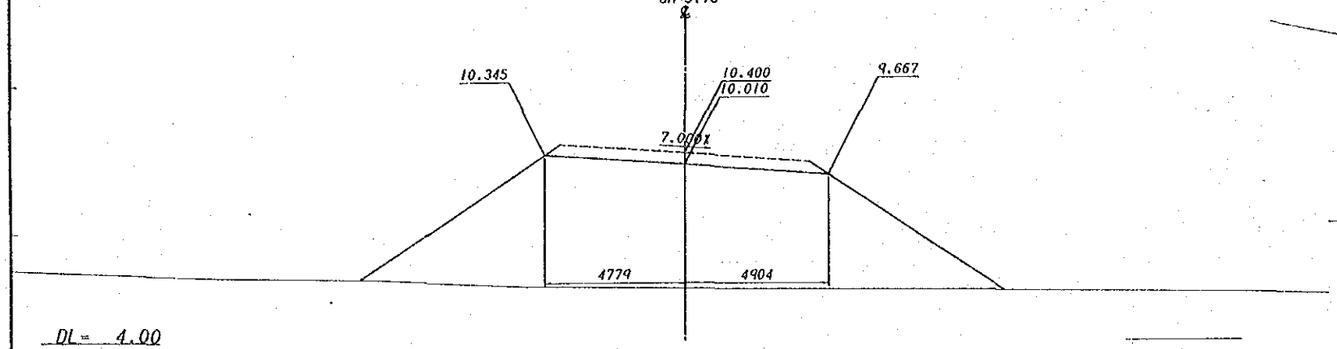
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 27 + 600 — CH. 27 + 750

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

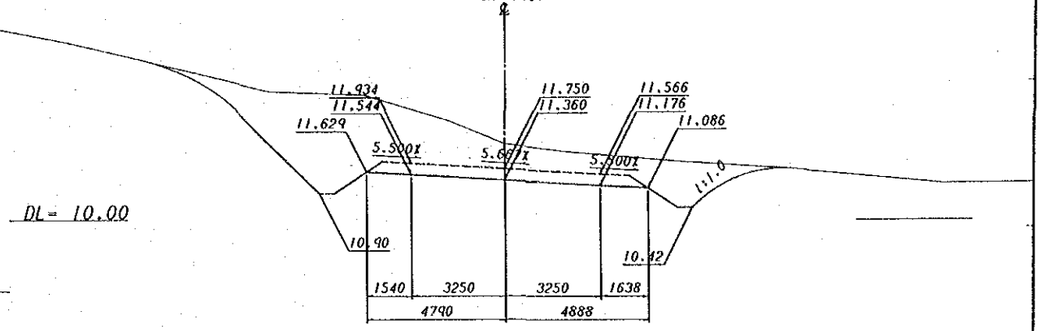
DRAWING No. A1/ 87986

REV.

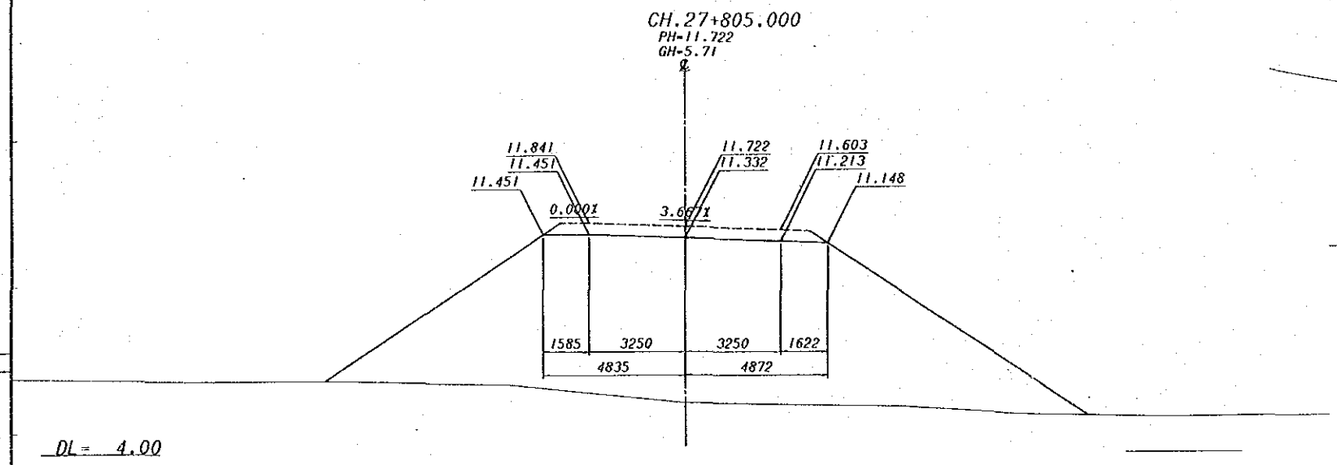
CH.27+850.000
PH=10.400
GH=5.78



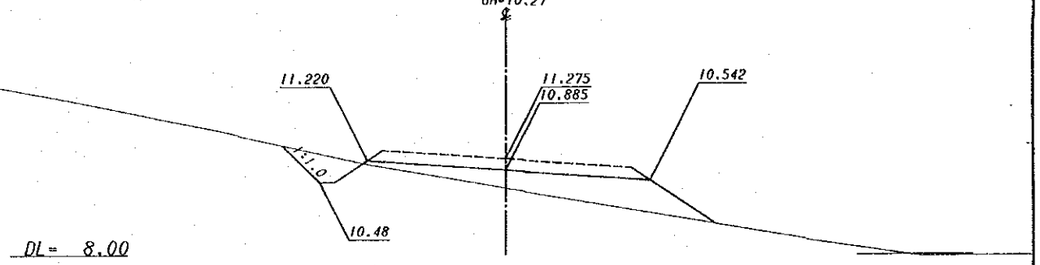
CH.28+ 25.000
PH=11.750
GH=12.61



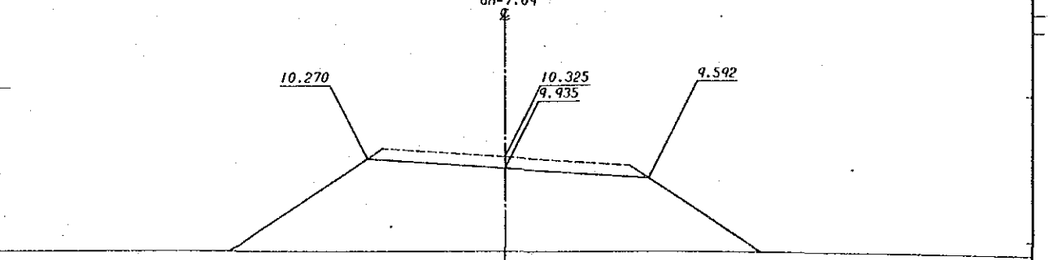
CH.27+805.000
PH=11.722
GH=5.71



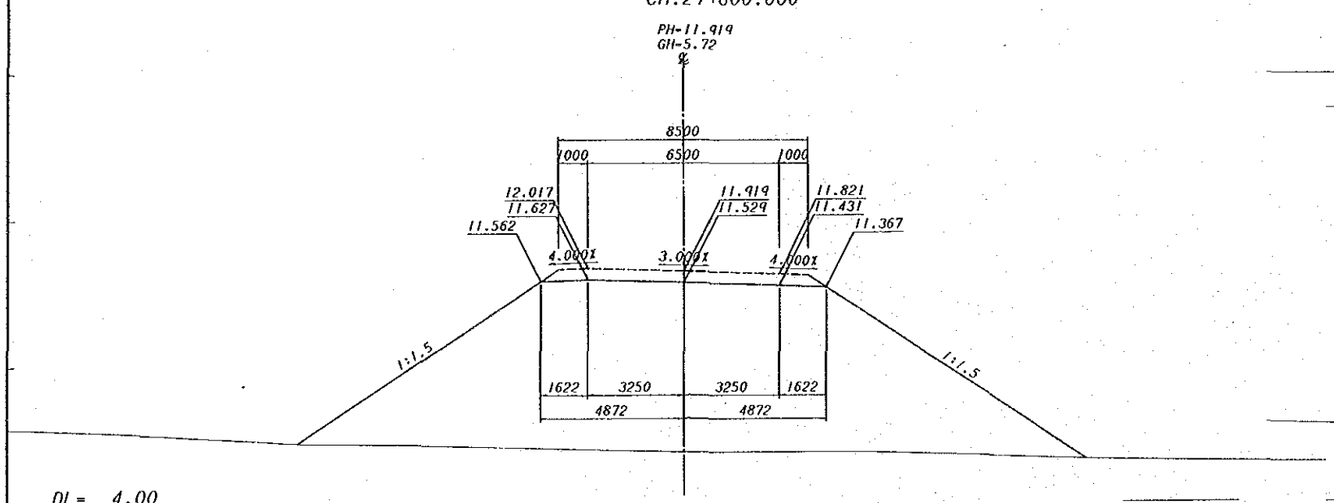
CH.28+ 0.000
PH=11.275
GH=10.27



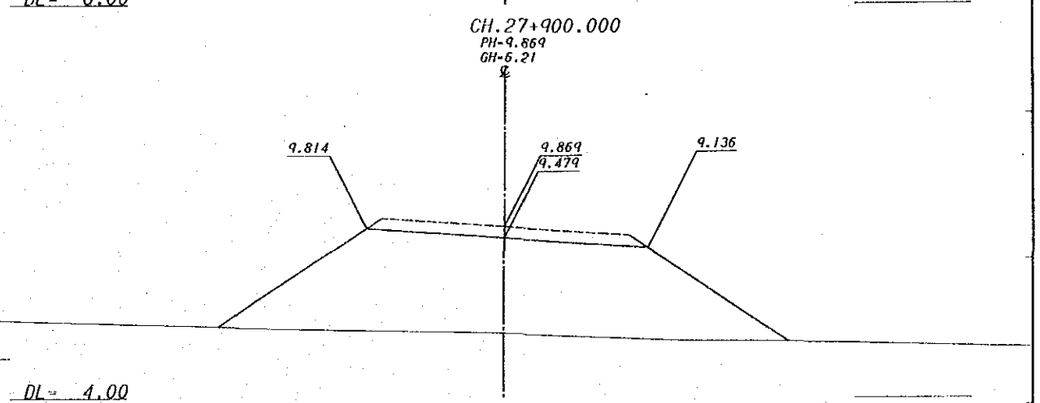
CH.27+950.000
PH=10.325
GH=7.09



CH.27+800.000
PH=11.919
GH=5.72



CH.27+900.000
PH=9.869
GH=6.21



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yuichi, Principal, 25 Sep. 1989, Date

DRAWN: K.E.
CHECKED:
DESIGNED: a. Magara
CHECKED:

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 2.10.89
FAS(CS) SECRETARY

SCALES: 4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

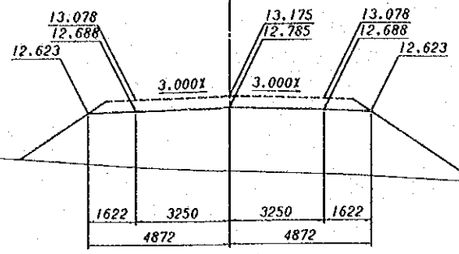
SHEET 229 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 27 + 800 — CH. 28 + 25

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

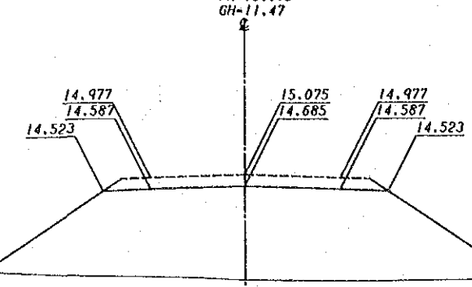
DRAWING No. A1/ 87987
REV.

CH.28+100.000
PH=13.175
GH=10.62



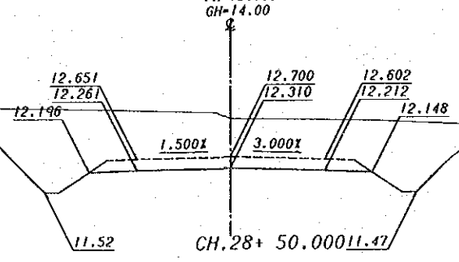
DL= 9.00

CH.28+200.000
PH=15.075
GH=11.47



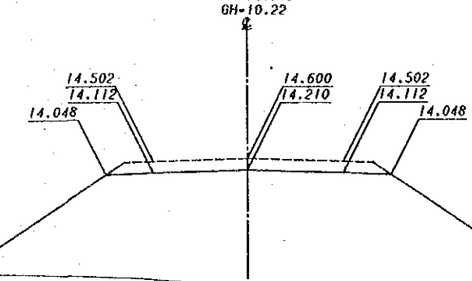
DL= 10.00

CH.28+ 75.000
PH=12.700
GH=14.00



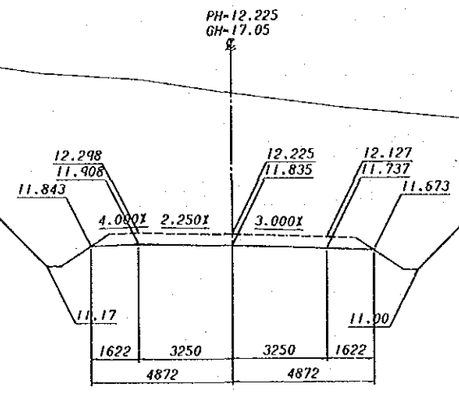
DL= 10.00

CH.28+175.000
PH=14.600
GH=10.22



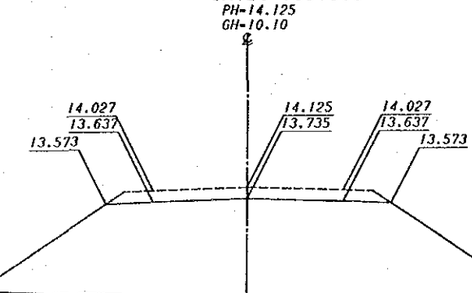
DL= 8.00

CH.28+ 50.000
PH=12.225
GH=17.05



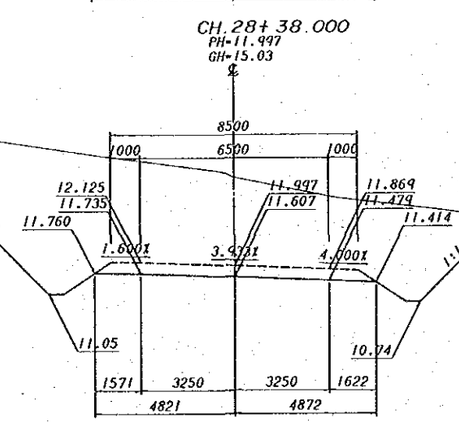
DL= 10.00

CH.28+150.000
PH=14.125
GH=10.10



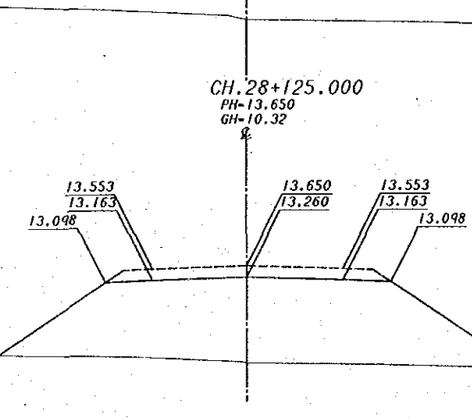
DL= 8.00

CH.28+ 38.000
PH=11.997
GH=15.03



DL= 10.00

CH.28+125.000
PH=13.650
GH=10.32



DL= 9.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NO.8

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Hutchins, Principal — 25 Sep. 1989, Date

DRAWN: K.E. — CHECKED — DESIGNED: A. Magatso — CHECKED — PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER — APPROVED — SECRETARY

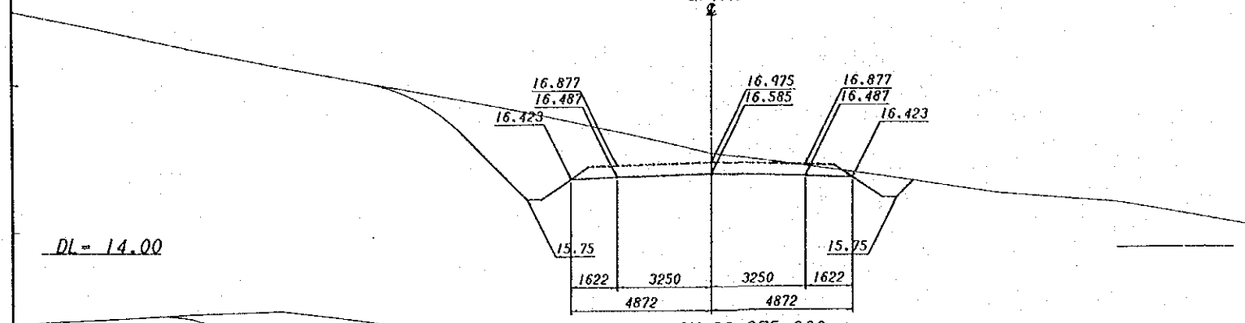
SCALES: HORIZONTAL & VERTICAL m. 1 : 100

SHEET 230 OF 281 — PROJECT No. S.C. 120-33-814/A

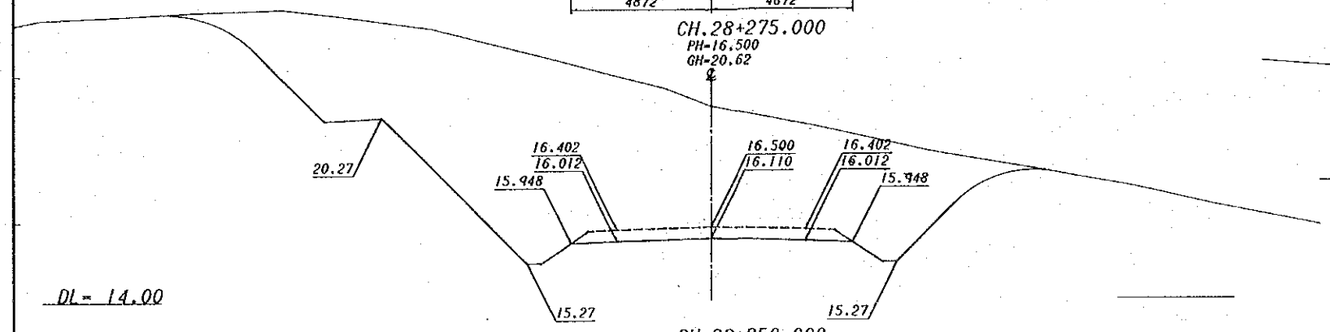
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 28 + 38 — CH. 28 + 200

PAPUA NEW GUINEA DEPARTMENT OF WORKS — DRAWING No. A1/ 87988 — REV.

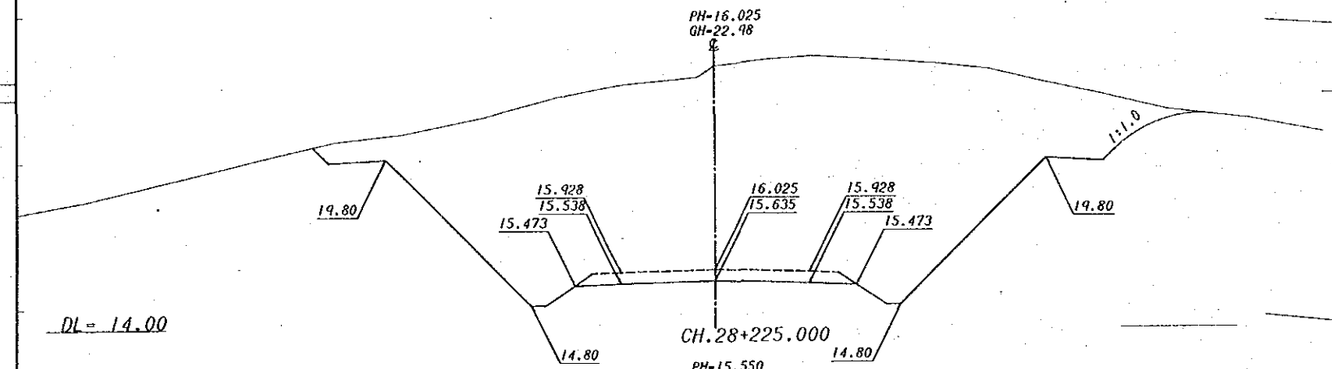
CH.28+300.000
PH-16.975
GH-17.29



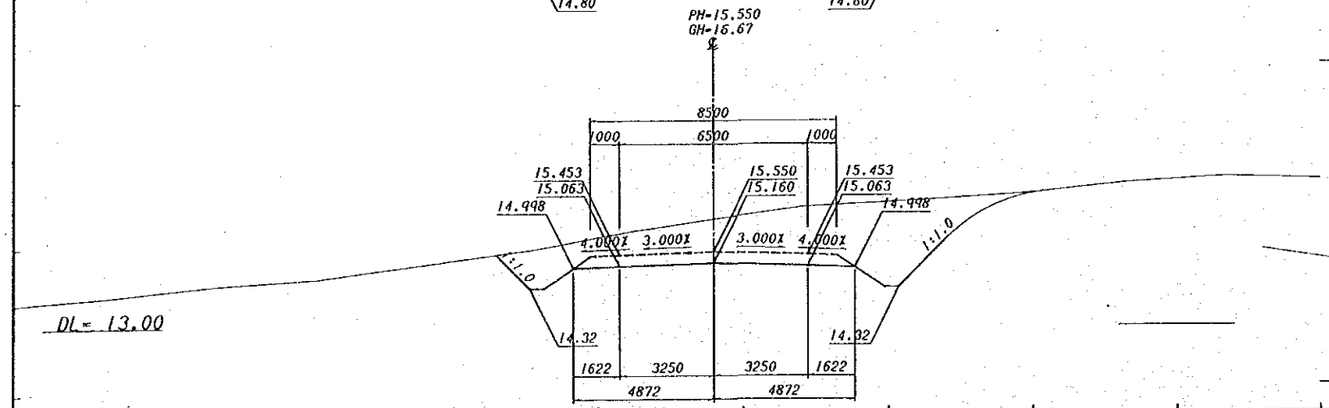
CH.28+275.000
PH-16.500
GH-20.62



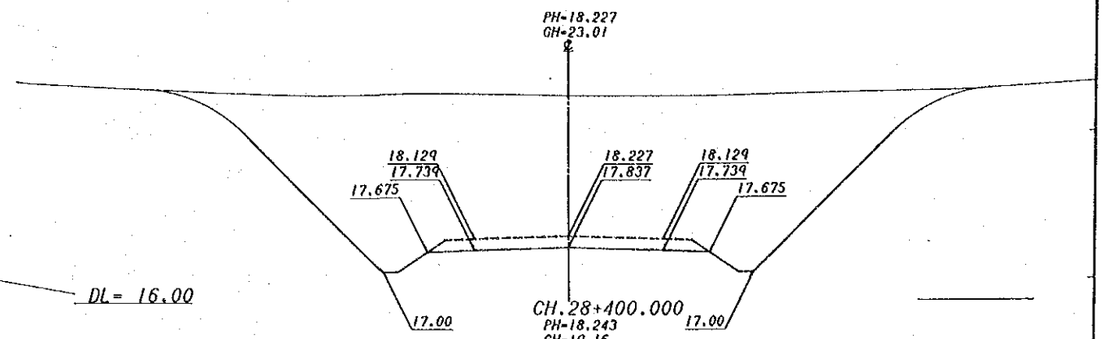
CH.28+250.000
PH-16.025
GH-22.98



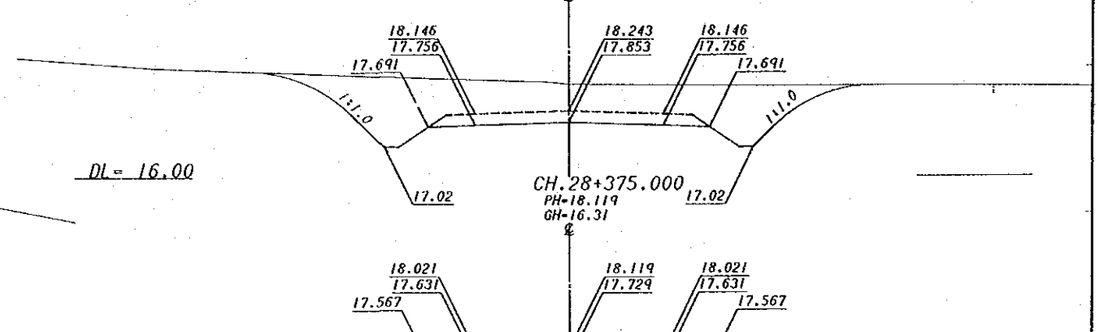
CH.28+225.000
PH-15.550
GH-16.67



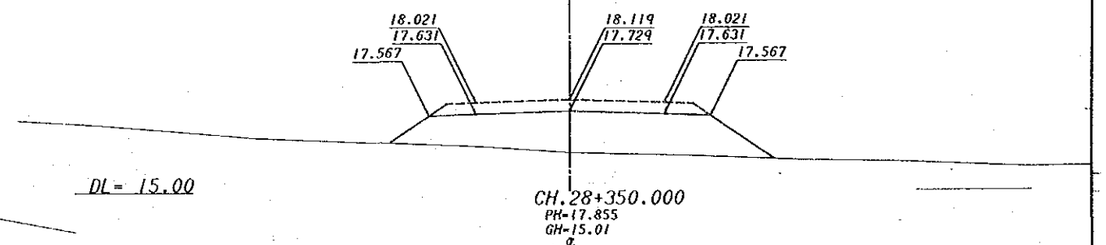
CH.28+425.000
PH-18.227
GH-23.01



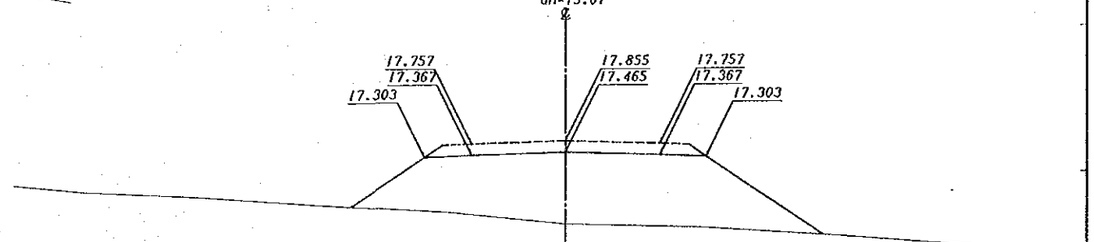
CH.28+400.000
PH-18.243
GH-19.16



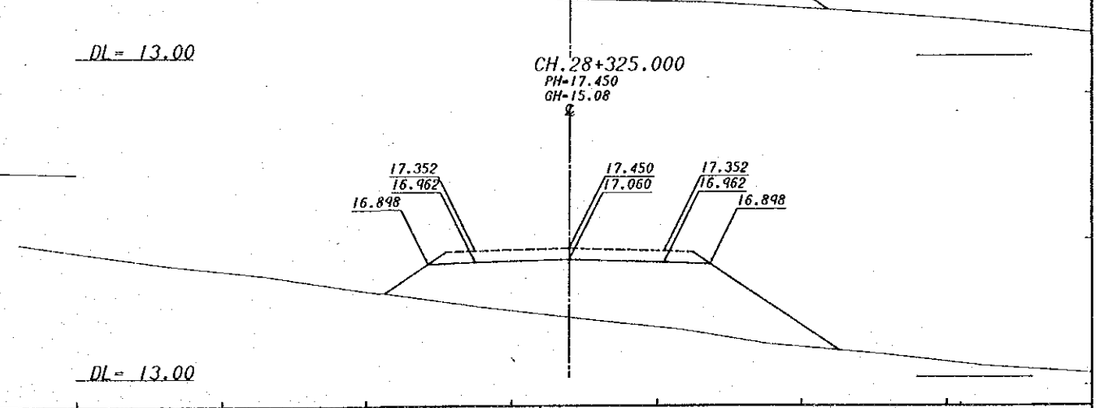
CH.28+375.000
PH-18.119
GH-16.31



CH.28+350.000
PH-17.855
GH-15.01



CH.28+325.000
PH-17.450
GH-15.08



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NR.8

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 (Date)

DRAWN: K.E.
CHECKED:
DESIGNED: A. Magaba
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

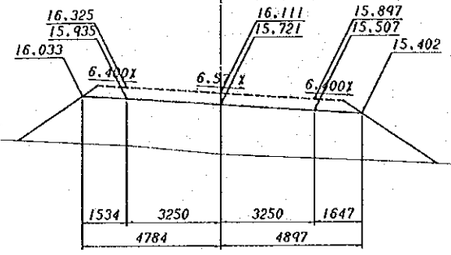
RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89 — SECRETARY

SCALES: HORIZONTAL & VERTICAL m. 1 : 100

SHEET 231 OF 281
PROJECT No. S.C.120-33-814/A

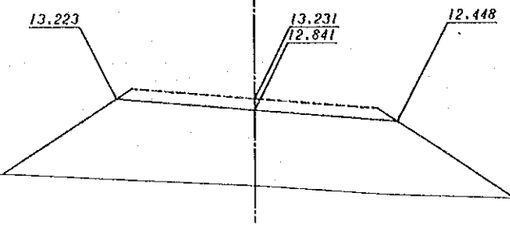
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 28 + 225 — CH. 28 + 425
PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1/ 87989
REV.

CH.28+550.000
PH=16.111
GH=14.03



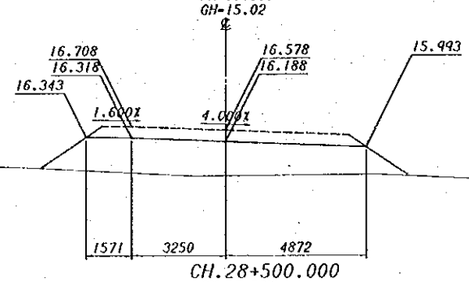
DL= 12.00

CH.28+750.000
PH=13.231
GH=10.25



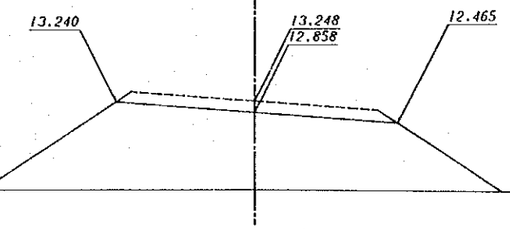
DL= 9.00

CH.28+532.000
PH=16.578
GH=15.02



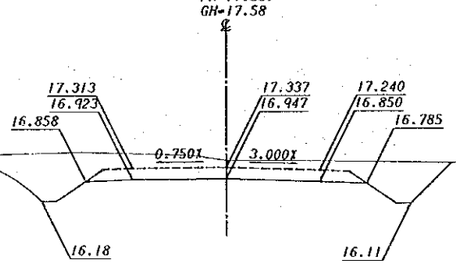
DL= 14.00

CH.28+700.000
PH=13.248
GH=10.22



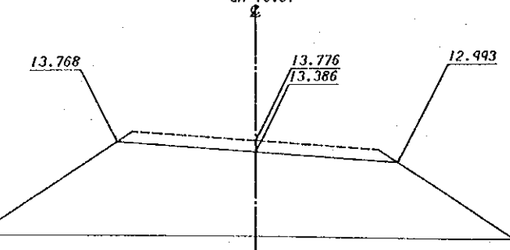
DL= 9.00

CH.28+500.000
PH=17.337
GH=17.58



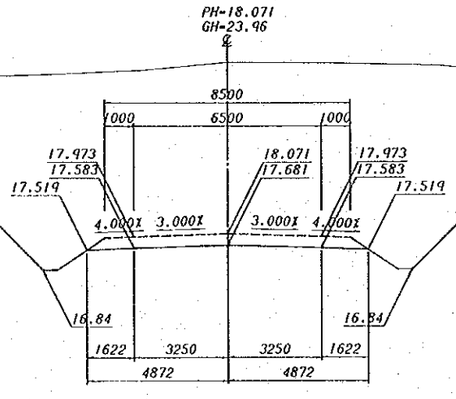
DL= 15.00

CH.28+650.000
PH=13.776
GH=10.51



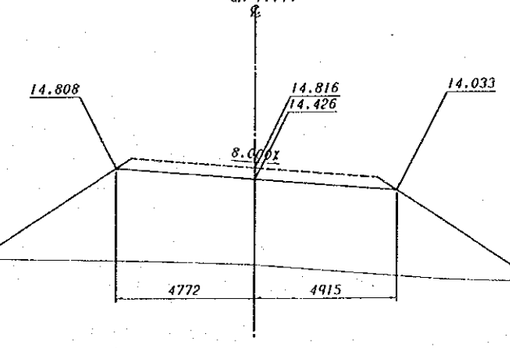
DL= 9.00

CH.28+450.000
PH=18.071
GH=23.96



DL= 15.00

CH.28+600.000
PH=14.816
GH=11.49



DL= 9.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.8

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yokoi — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: C. Sato
DESIGNED: A. Magato
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24. 10. 89 — SECRETARY

SCALES
HORIZONTAL & VERTICAL m.
1 : 100

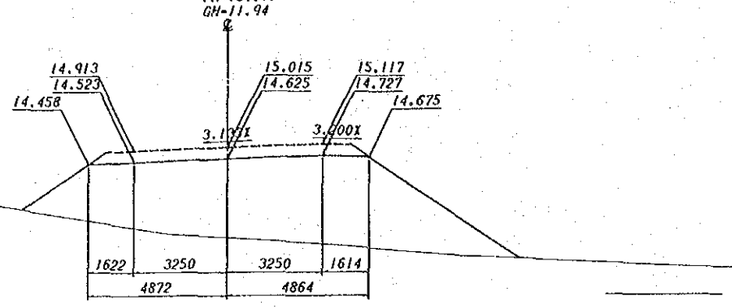
SHEET 232 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 28 + 450 — CH. 28 + 750

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

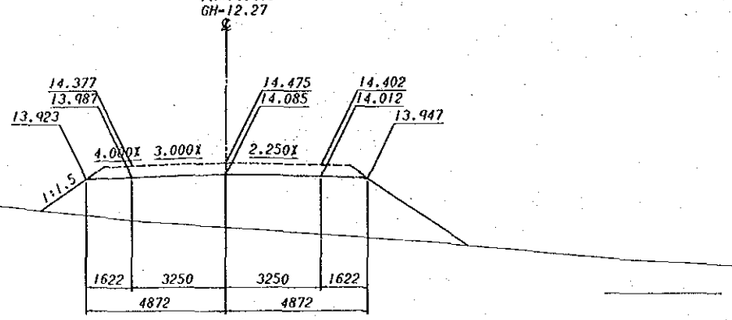
DRAWING No. A1/ 87990
REV.

CH.28+886.000
PH=15.015
GH=11.94



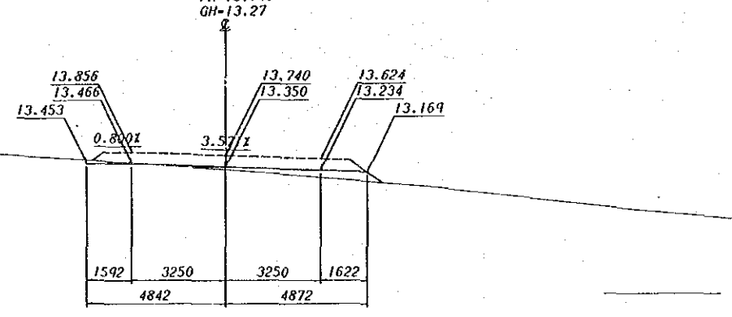
DL= 10.00

CH.28+850.000
PH=14.475
GH=12.27



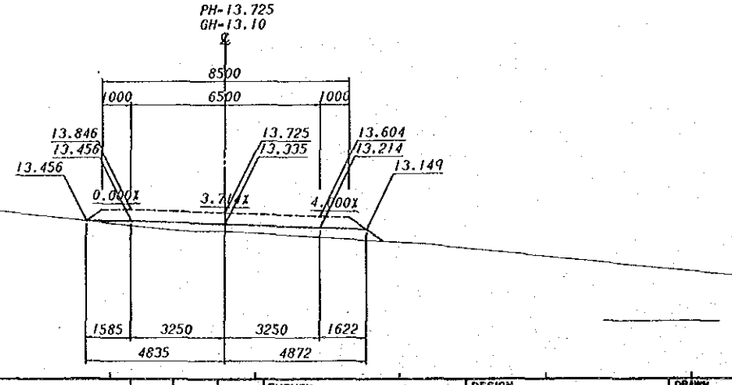
DL= 10.00

CH.28+801.000
PH=13.740
GH=13.27



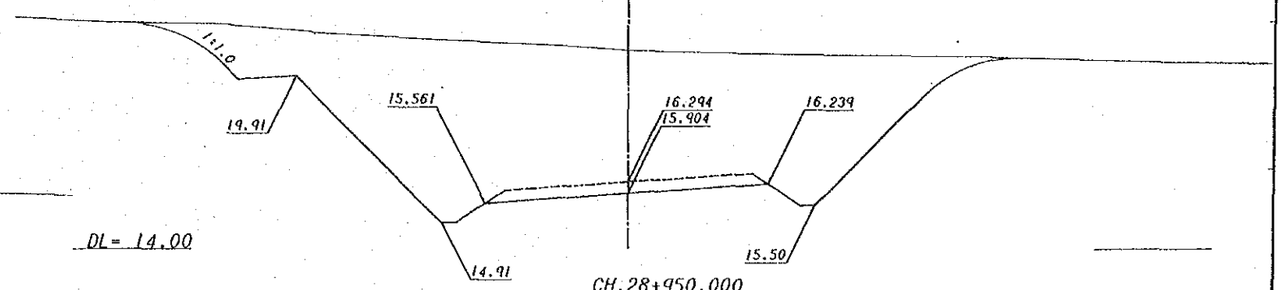
DL= 9.00

CH.28+800.000
PH=13.725
GH=13.10



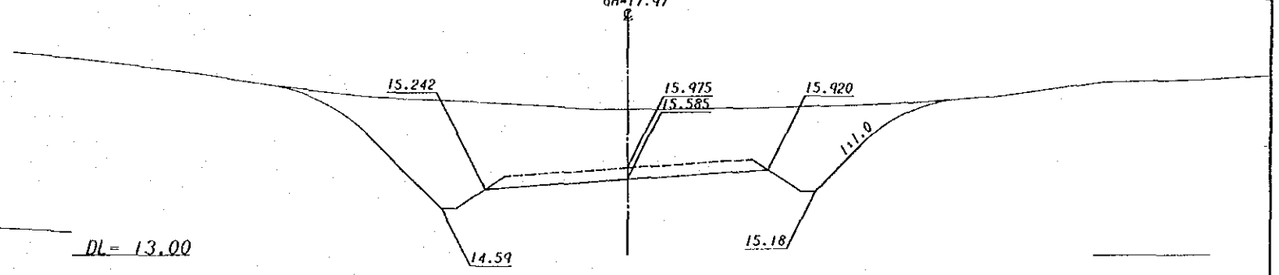
DL= 10.00

CH.28+975.000
PH=16.294
GH=20.77



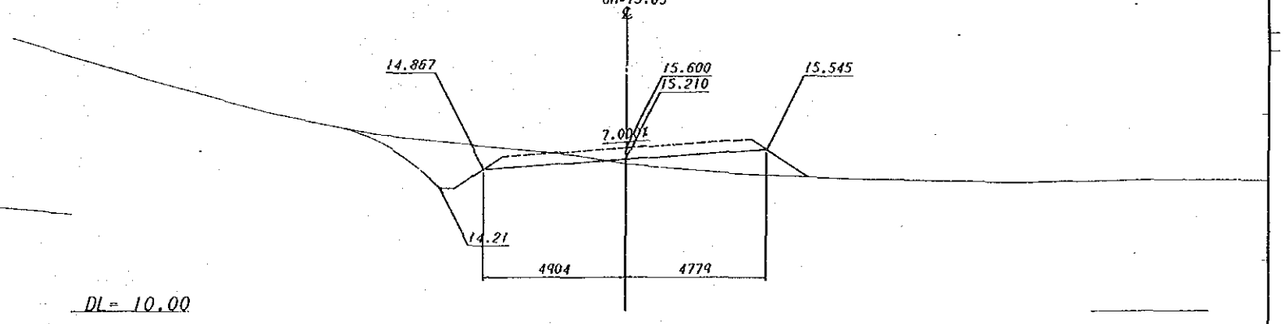
DL= 14.00

CH.28+950.000
PH=15.975
GH=17.97



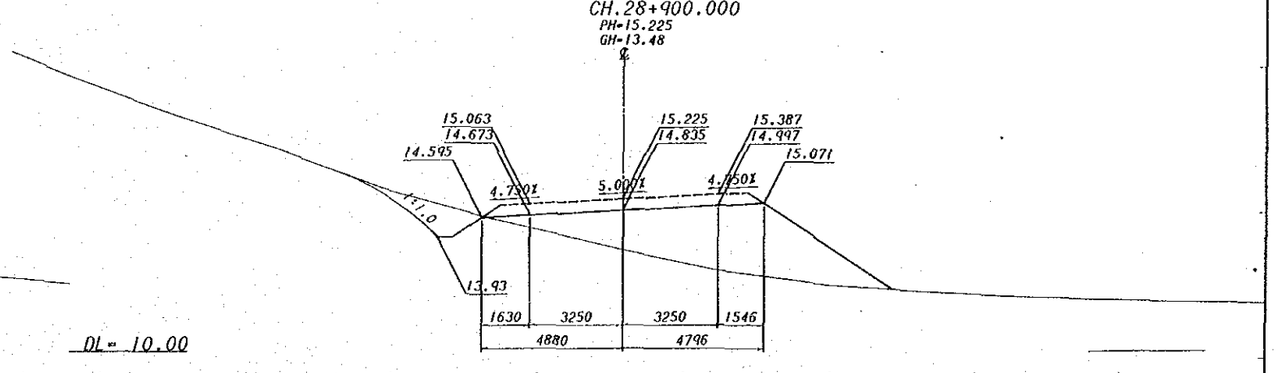
DL= 13.00

CH.28+925.000
PH=15.600
GH=15.05



DL= 10.00

CH.28+900.000
PH=15.225
GH=13.48



DL= 10.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK No.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Hilton — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: C.Ito
DESIGNED: A. Magato
CHECKED: T. Kamekawa

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89 — for (T.S.) SECRETARY

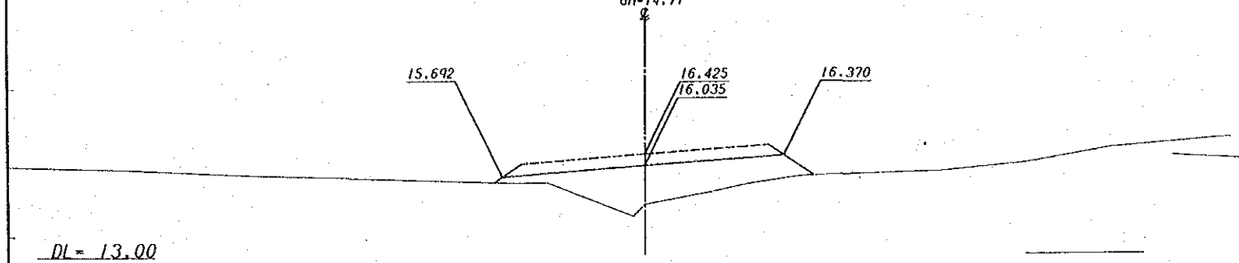
SCALES
HORIZONTAL & VERTICAL m.
1 : 100

SHEET 233 OF 281
PROJECT No. S.C.120-33-814/A

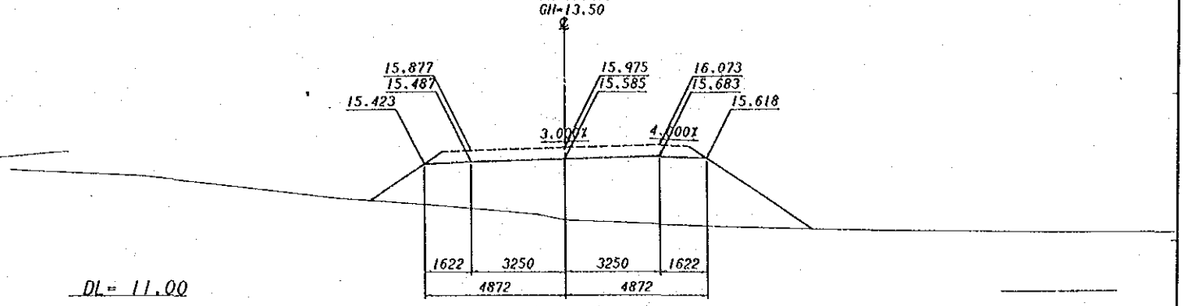
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 28 + 800 — CH. 28 + 975

PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 87991
REV.

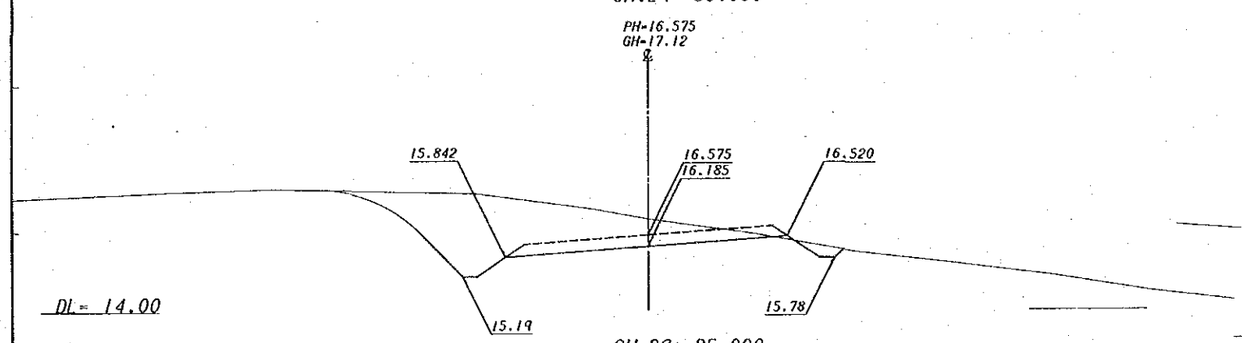
CH.29+100.000
PH=16.425
GH=14.71



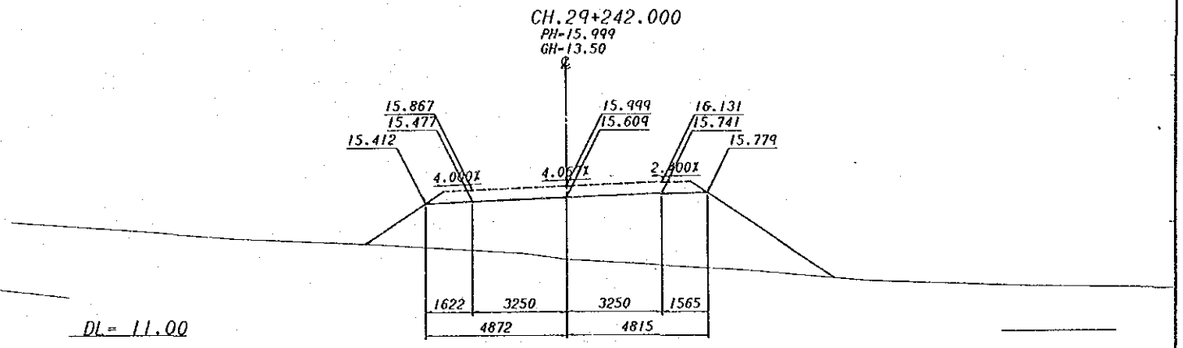
CH.29+250.000
PH=15.975
GH=13.50



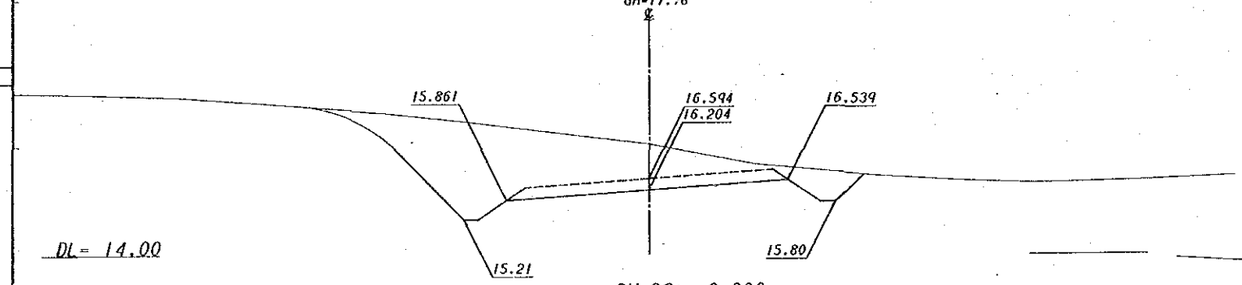
CH.29+ 50.000
PH=16.575
GH=17.12



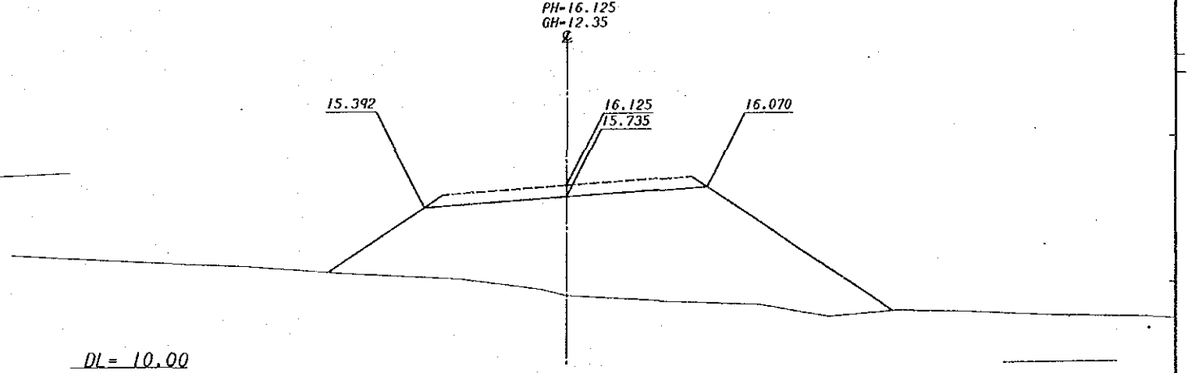
CH.29+242.000
PH=15.999
GH=13.50



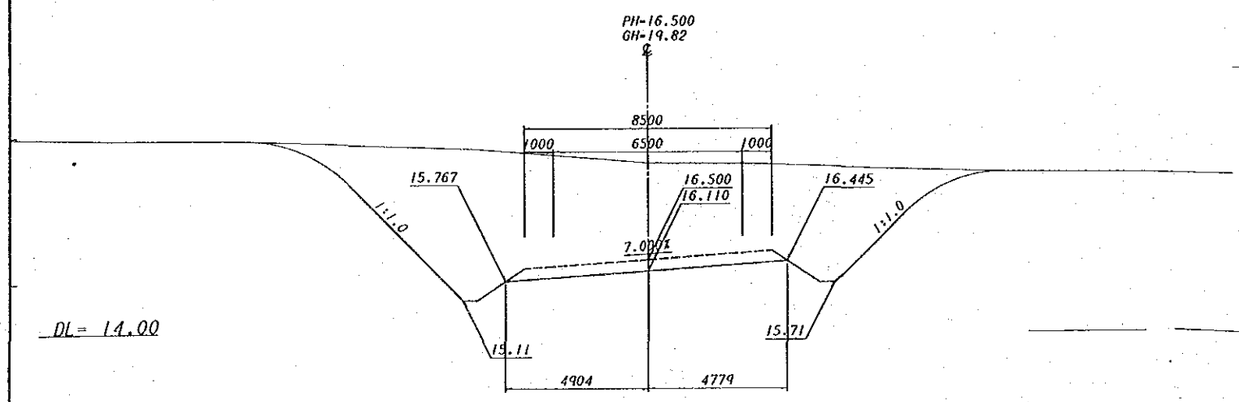
CH.29+ 25.000
PH=16.594
GH=17.78



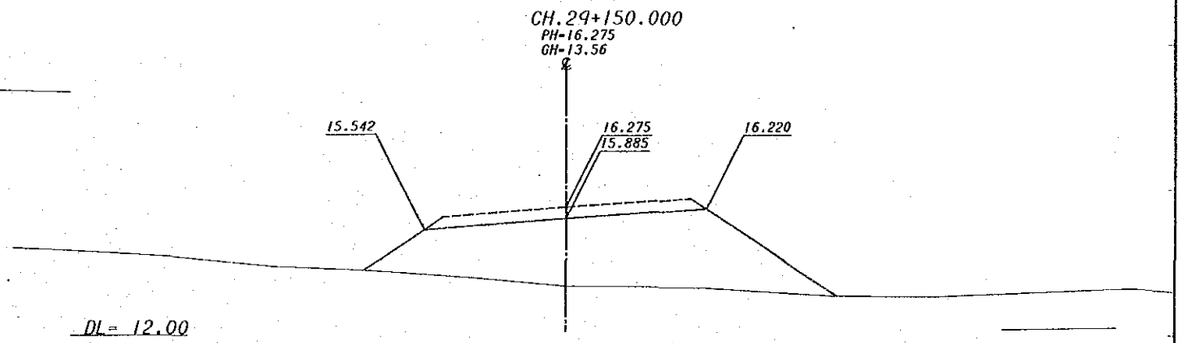
CH.29+200.000
PH=16.125
GH=12.35



CH.29+ 0.000
PH=16.500
GH=19.82



CH.29+150.000
PH=16.275
GH=13.56



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN: K.E.
CHECKED:
DESIGNED: A. Mogato
CHECKED:

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89
PAS/TO SECRETARY

SCALES: 4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

SHEET 234 OF 281
PROJECT No. S.C. 120-33-814/A

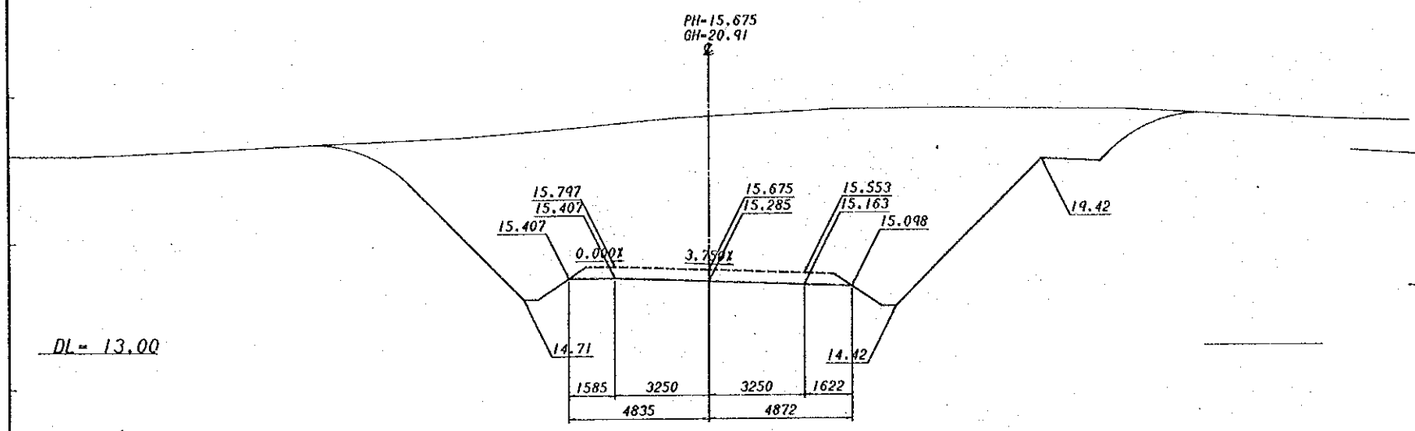
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 29 + 0 — CH. 29 + 250

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 87992
REV.

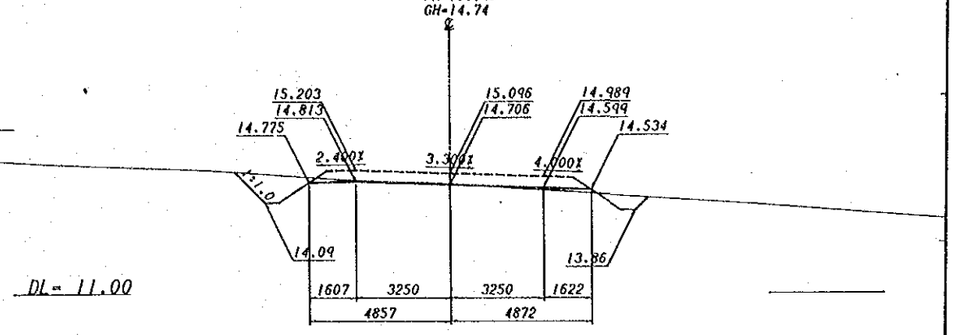
CH.29+350.000

PH=15.675
GH=20.91



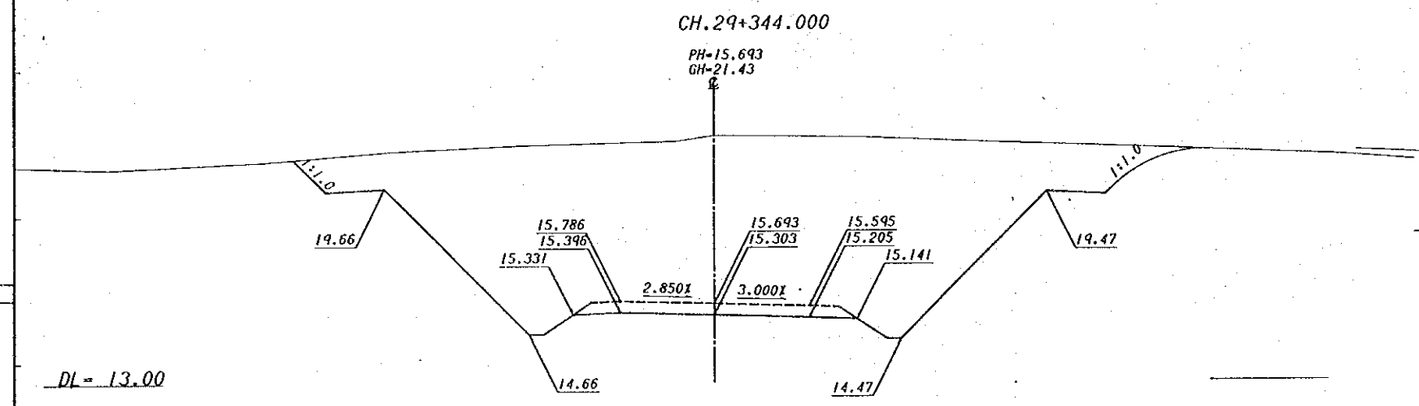
CH.29+543.000

PH=15.096
GH=14.74



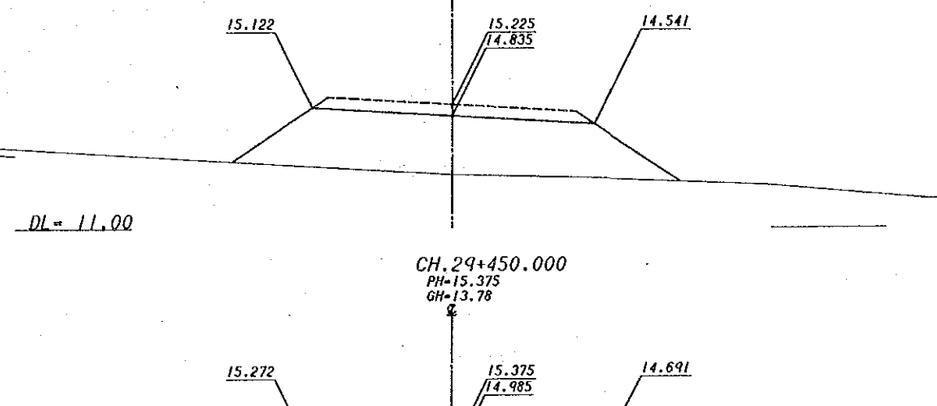
CH.29+344.000

PH=15.693
GH=21.43



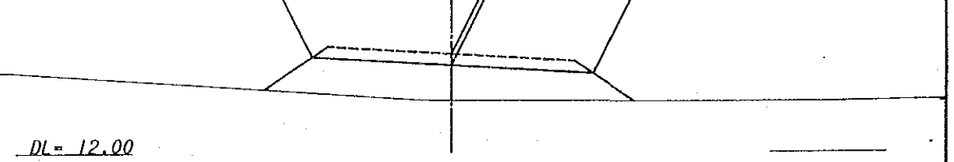
CH.29+500.000

PH=15.225
GH=12.83



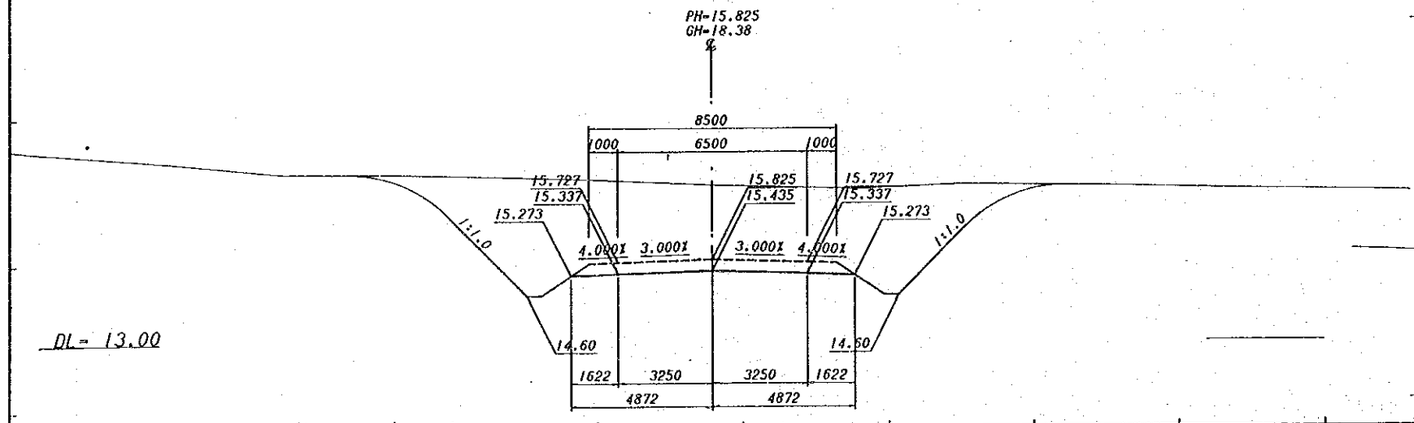
CH.29+450.000

PH=15.375
GH=13.78



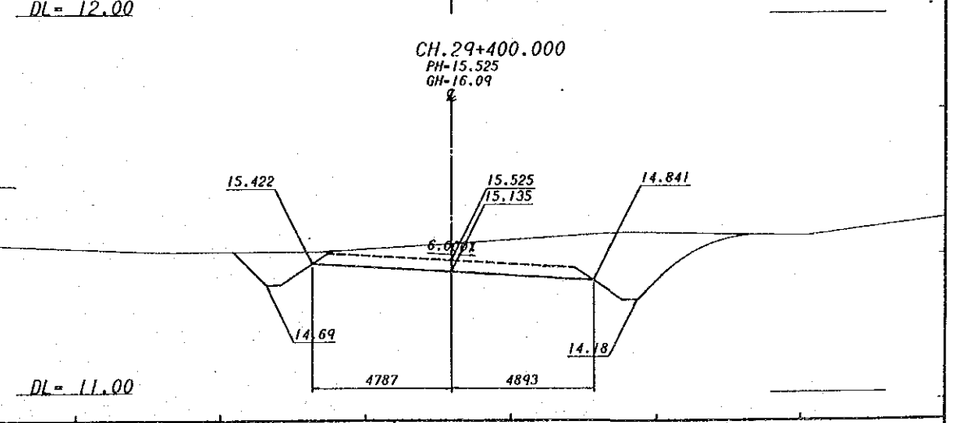
CH.29+300.000

PH=15.825
GH=18.38



CH.29+400.000

PH=15.525
GH=16.09



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK Nr.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Hitchen — 28 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: C.H.
DESIGNED: A. Magabe
CHECKED: Z. Kawakami

PROJECT ENGINEER: K. Kimura
EXECUTIVE ENGINEER:

RECOMMENDED: A. Magabe — PRINCIPAL ENGINEER
APPROVED: 24.10.89 — SECRETARY

SCALES: HORIZONTAL & VERTICAL m. 1 : 100

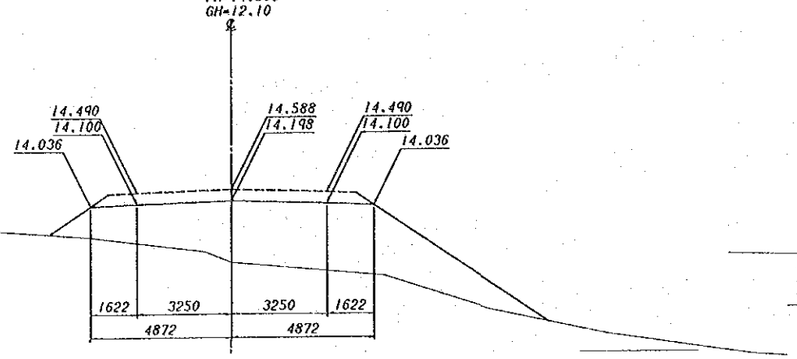
SHEET 235 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 29 + 300 — CH. 29 + 543

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

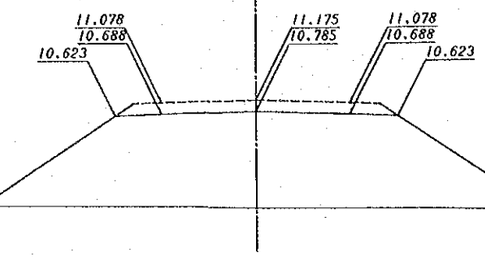
DRAWING No. A1/ 87993
REV.

CH.29+650.000
PH=14.588
GH=12.10



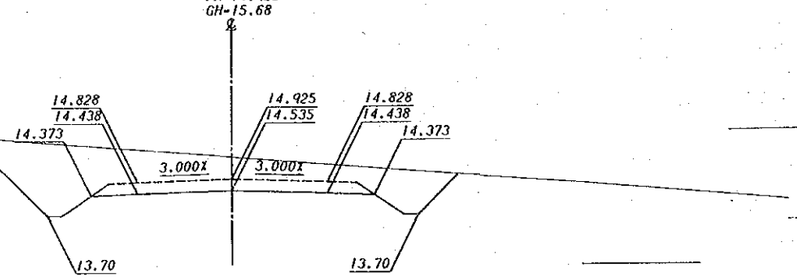
DL = 9.00

CH.29+850.000
PH=11.175
GH=7.48



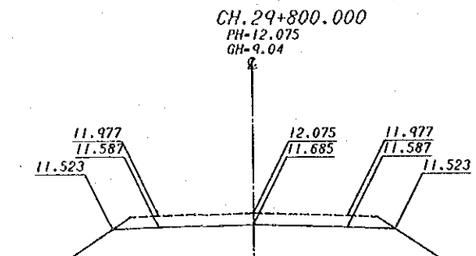
DL = 6.00

CH.29+600.000
PH=14.925
GH=15.68



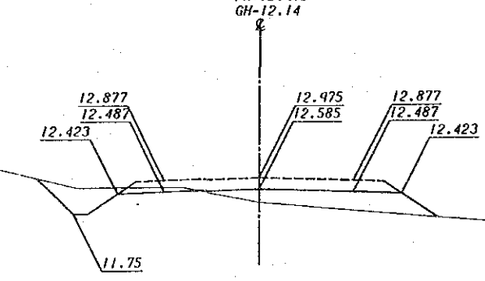
DL = 12.00

CH.29+800.000
PH=12.075
GH=9.04



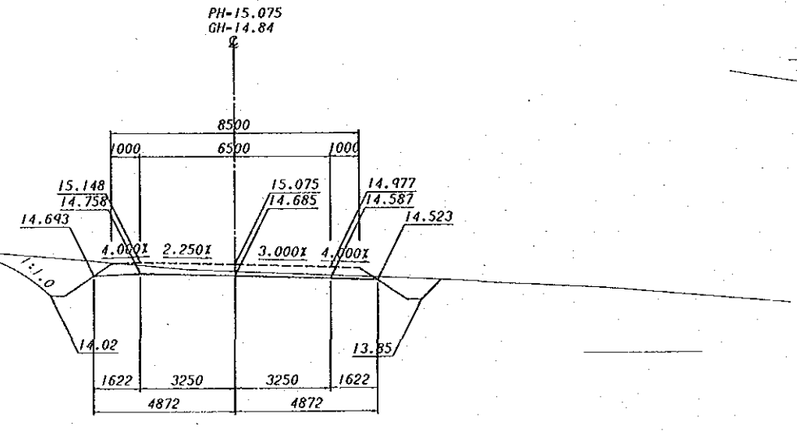
DL = 7.00

CH.29+750.000
PH=12.975
GH=12.14



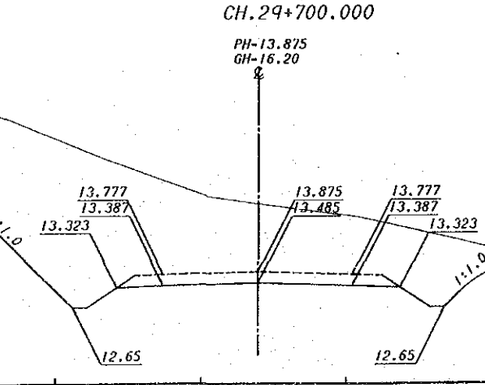
DL = 10.00

CH.29+550.000
PH=15.075
GH=14.84



DL = 12.00

CH.29+700.000
PH=13.875
GH=16.20



DL = 11.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN: K.E.
CHECKED
DESIGNED
CHECKED

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — FAC(TI) SECRETARY

SCALES
HORIZONTAL & VERTICAL m.
1 : 100

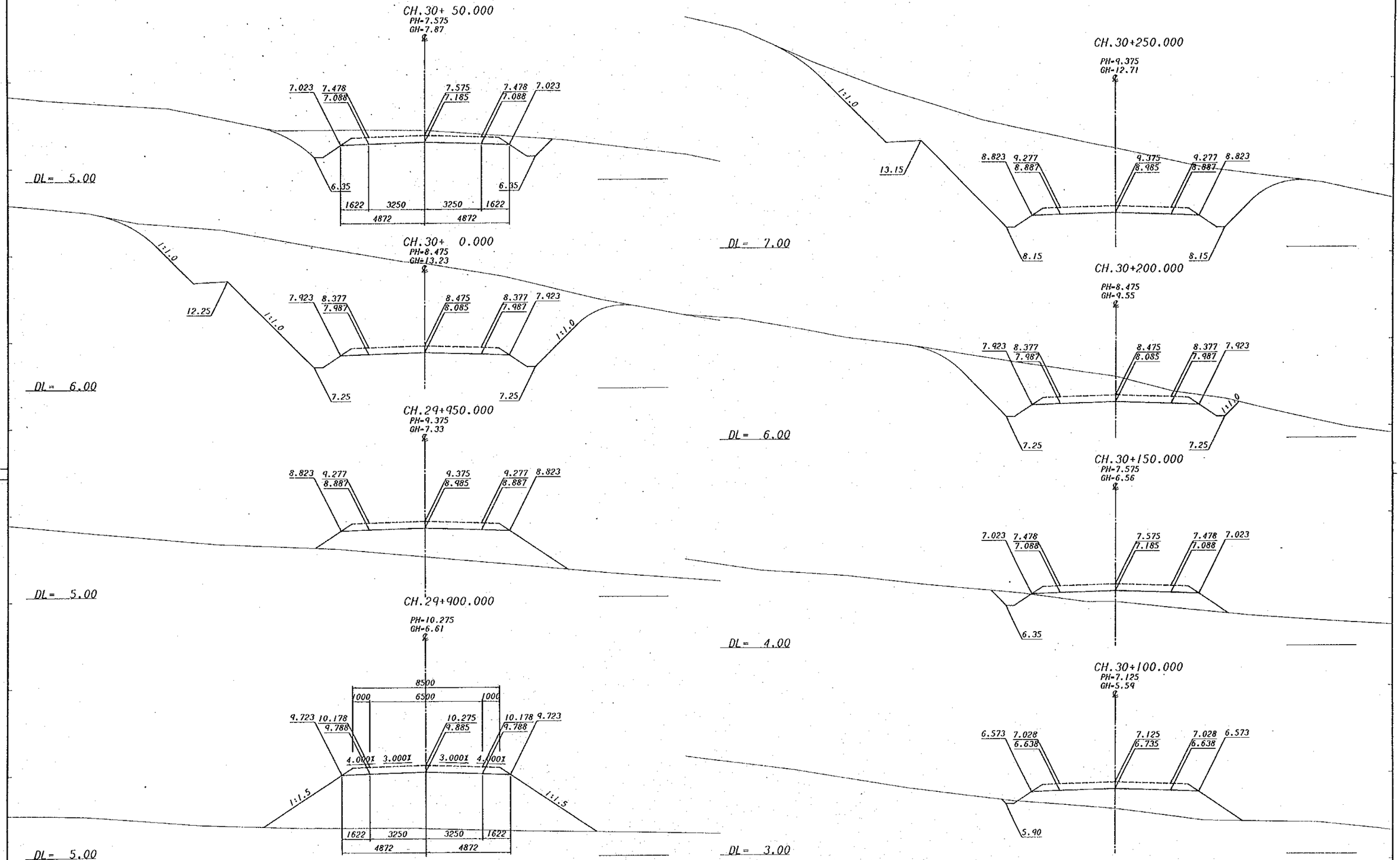
SHEET 236 OF 281
PROJECT No. S.C.120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 29+550 — CH. 29+850

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 87994

REV.



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yuta — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: E. Ali
DESIGNED: A. Magato
CHECKED: T. Kamekawa

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — SECRETARY

SCALES
HORIZONTAL & VERTICAL m.
1 : 100

SHEET 237 OF 281
PROJECT No. S.C. 120-33-814/A

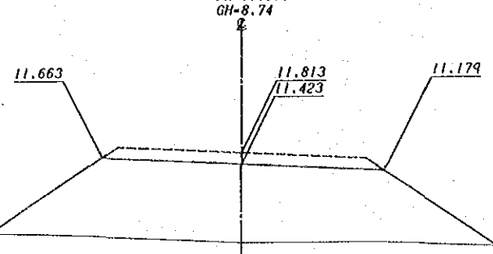
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 29 + 900 — CH. 30 + 250

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 87995
REV.

CH.30+400.000

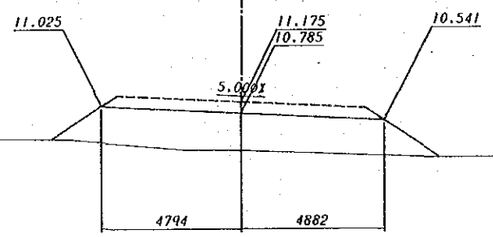
PH=11.813
GH=8.74



DL = 7.00

CH.30+350.000

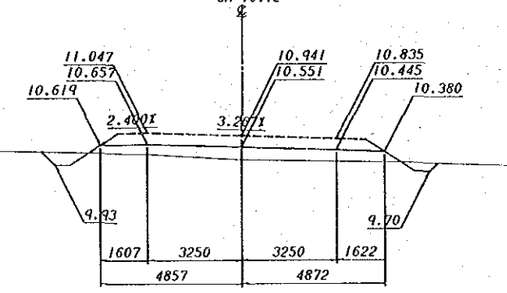
PH=11.175
GH=9.52



DL = 7.00

CH.30+337.000

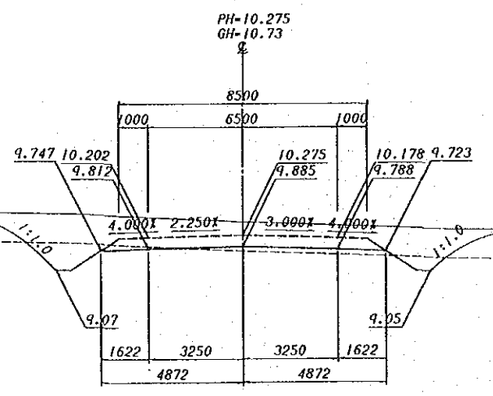
PH=10.941
GH=10.12



DL = 7.00

CH.30+300.000

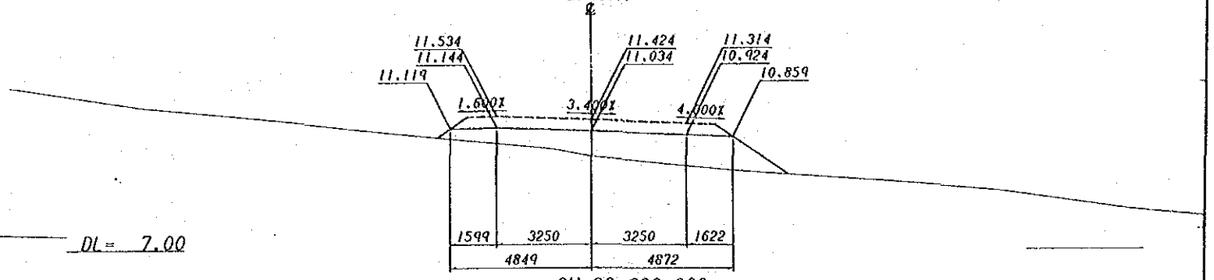
PH=10.275
GH=10.73



DL = 7.00

CH.30+617.000

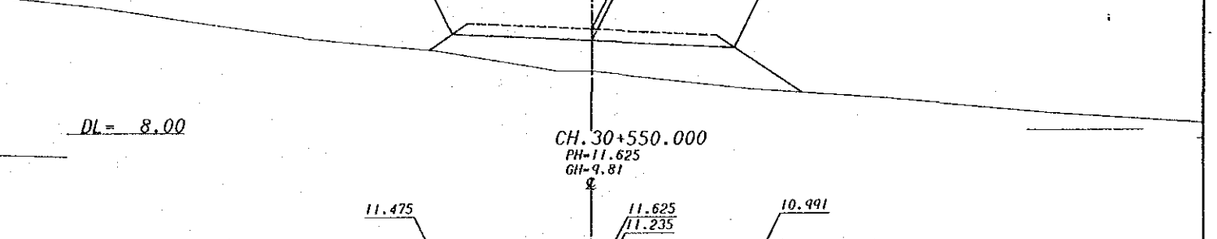
PH=11.424
GH=10.17



DL = 7.00

CH.30+600.000

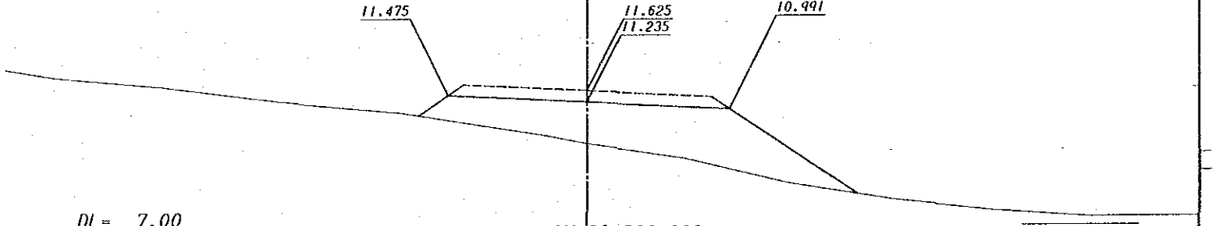
PH=11.475
GH=10.04



DL = 8.00

CH.30+550.000

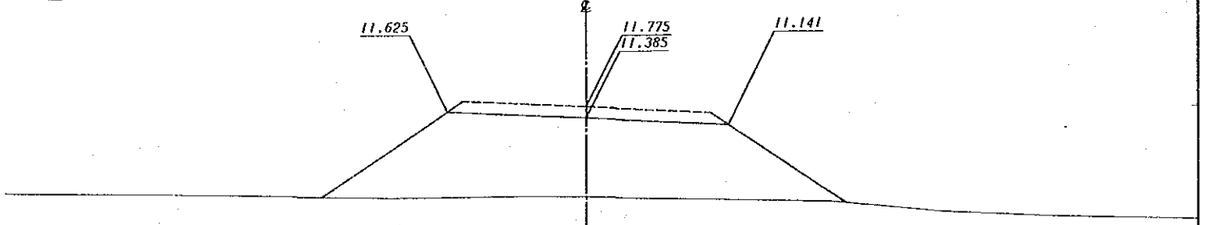
PH=11.625
GH=9.81



DL = 7.00

CH.30+500.000

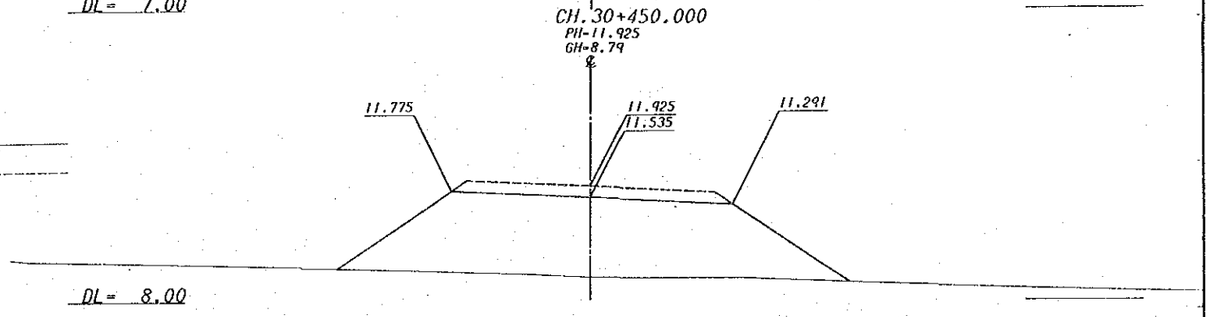
PH=11.775
GH=8.69



DL = 7.00

CH.30+450.000

PH=11.925
GH=8.79



DL = 8.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK NR.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Makita, Principal, 25 Sep. 1989, Date

DRAWN: K.E.
CHECKED
DESIGNED: A. Magato
CHECKED: T. Kamikawa

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24. 10. 89, F43 (T9), SECRETARY

SCALES: 4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

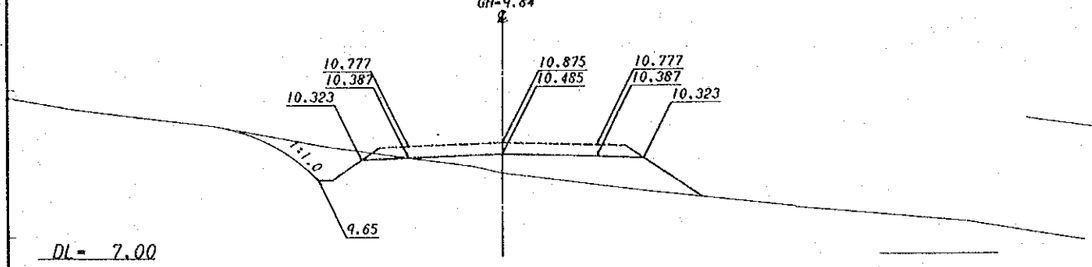
SHEET 238 OF 281
PROJECT No. S.C.120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 30 + 300 — CH. 30 + 617

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

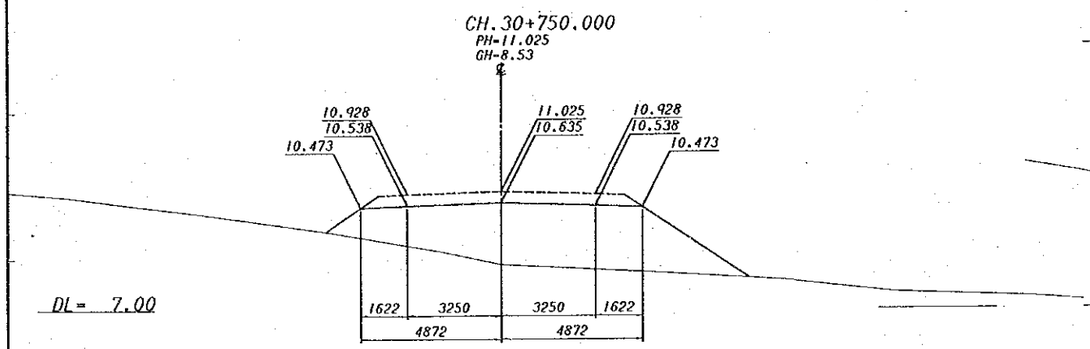
DRAWING No. A1/ 87996
REV.

CH. 30+800.000
PH=10.875
GH=9.84



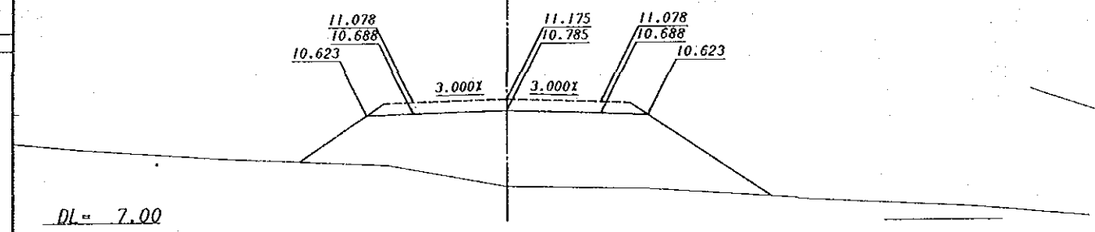
DL = 7.00

CH. 30+750.000
PH=11.025
GH=8.53



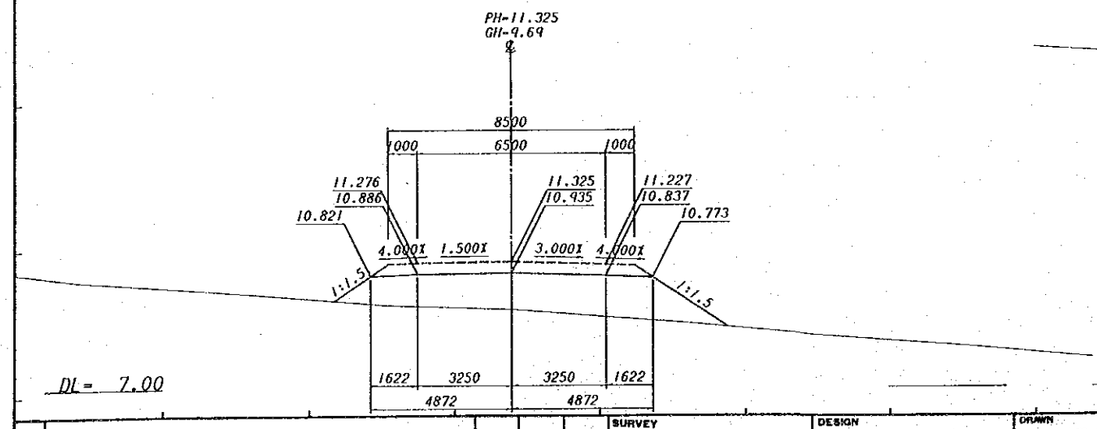
DL = 7.00

CH. 30+700.000
PH=11.175
GH=8.19



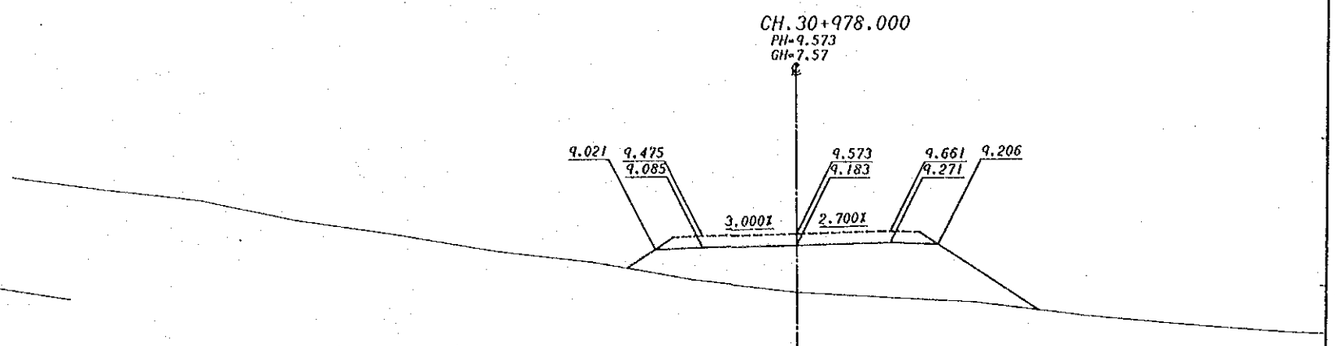
DL = 7.00

CH. 30+650.000
PH=11.325
GH=9.69



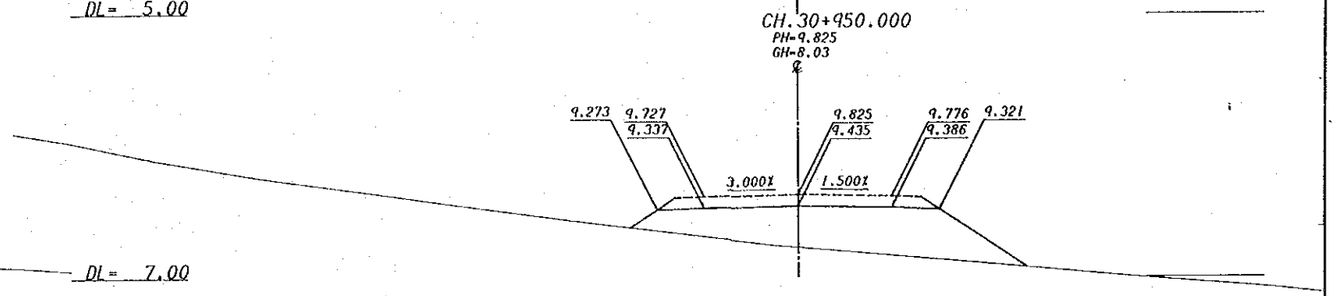
DL = 7.00

CH. 30+978.000
PH=9.573
GH=7.57



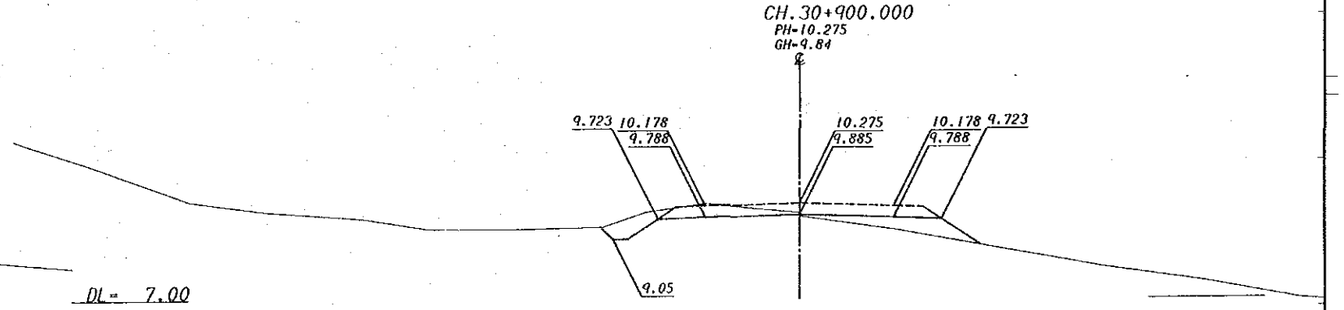
DL = 5.00

CH. 30+950.000
PH=9.825
GH=8.03



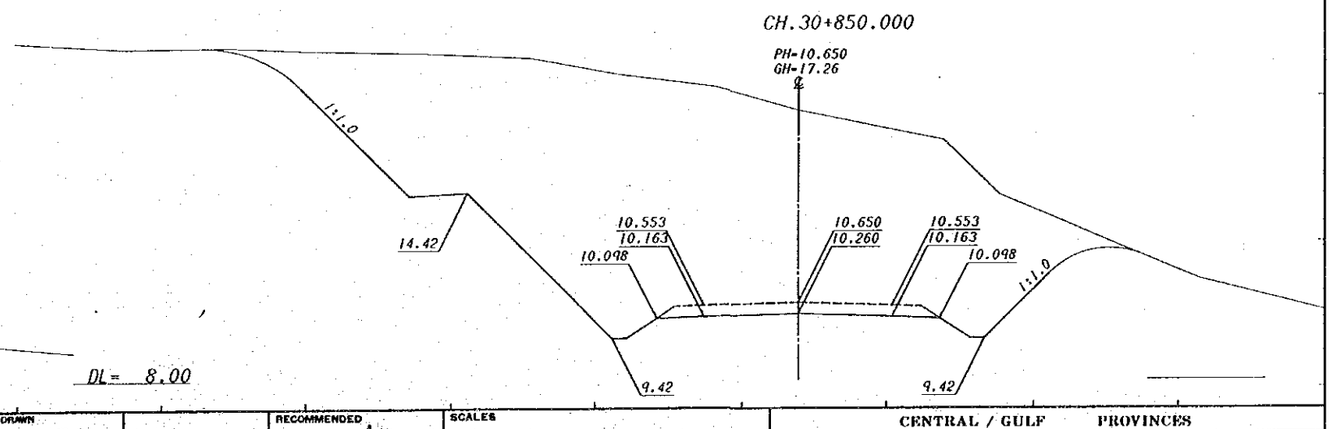
DL = 7.00

CH. 30+900.000
PH=10.275
GH=9.84



DL = 7.00

CH. 30+850.000
PH=10.650
GH=17.26



DL = 8.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Hayashida — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: C. Shiraishi
DESIGNED: A. Magabo
CHECKED: T. Kawada

PROJECT ENGINEER: W. Kinebuchi
EXECUTIVE ENGINEER:

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89 — SECRETARY

SCALES: 4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

SHEET 239 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 30 + 650 — CH. 30 + 978

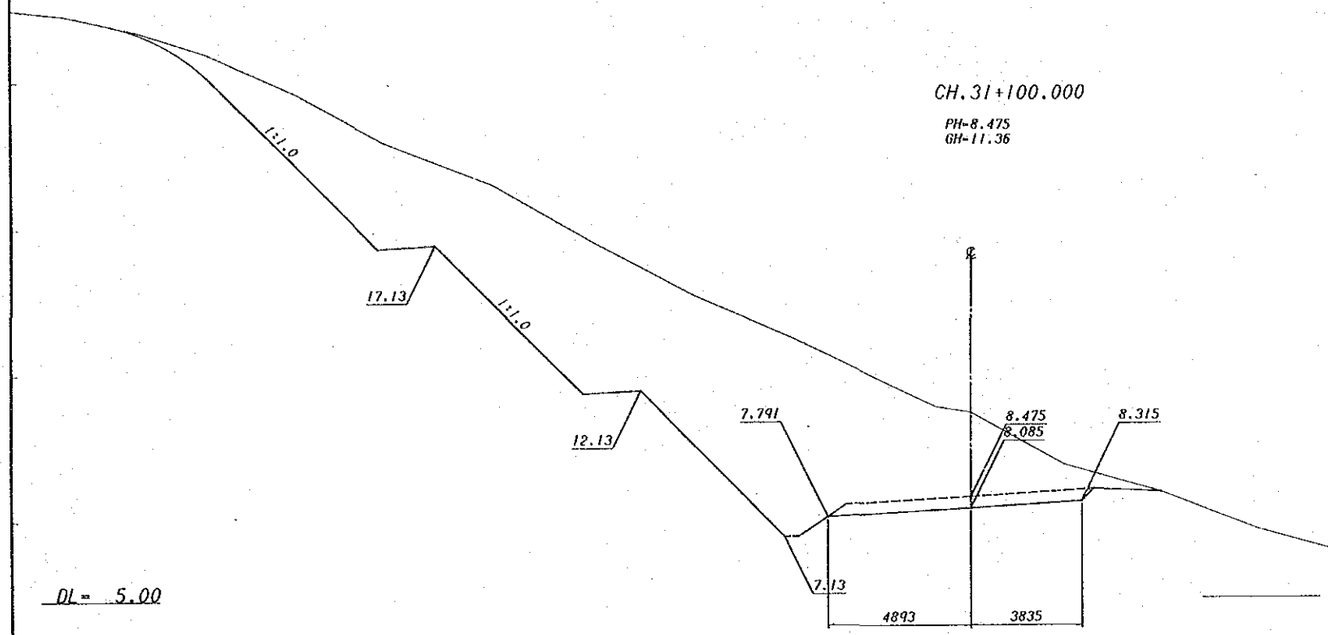
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 87997

REV.

CH.31+100.000

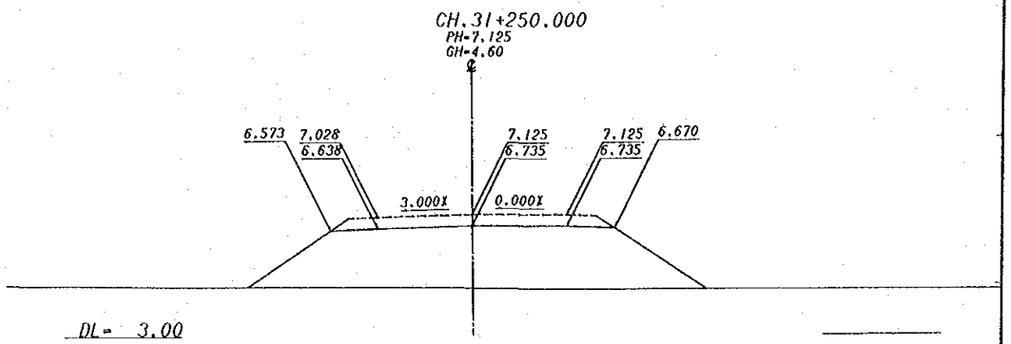
PH=8.475
GH=11.36



DL= 5.00

CH.31+250.000

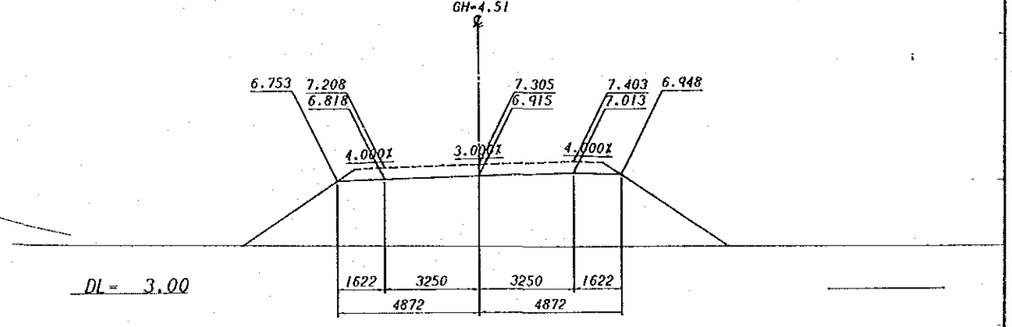
PH=7.125
GH=4.60



DL= 3.00

CH.31+230.000

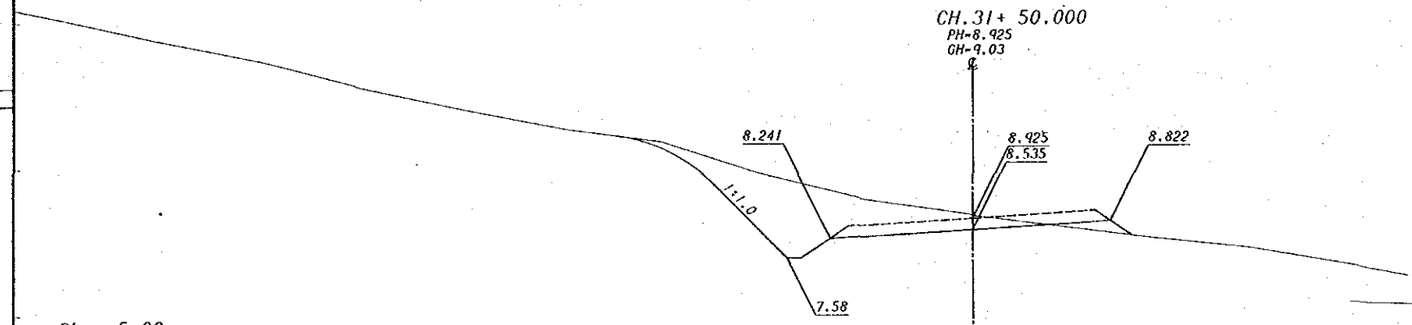
PH=7.305
GH=4.51



DL= 3.00

CH.31+ 50.000

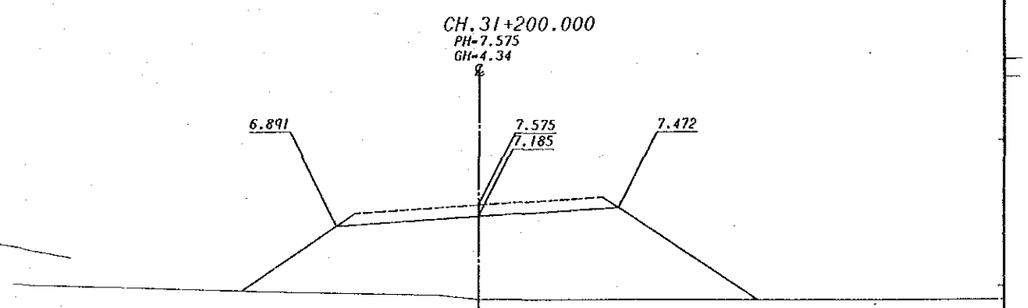
PH=8.925
GH=9.03



DL= 5.00

CH.31+200.000

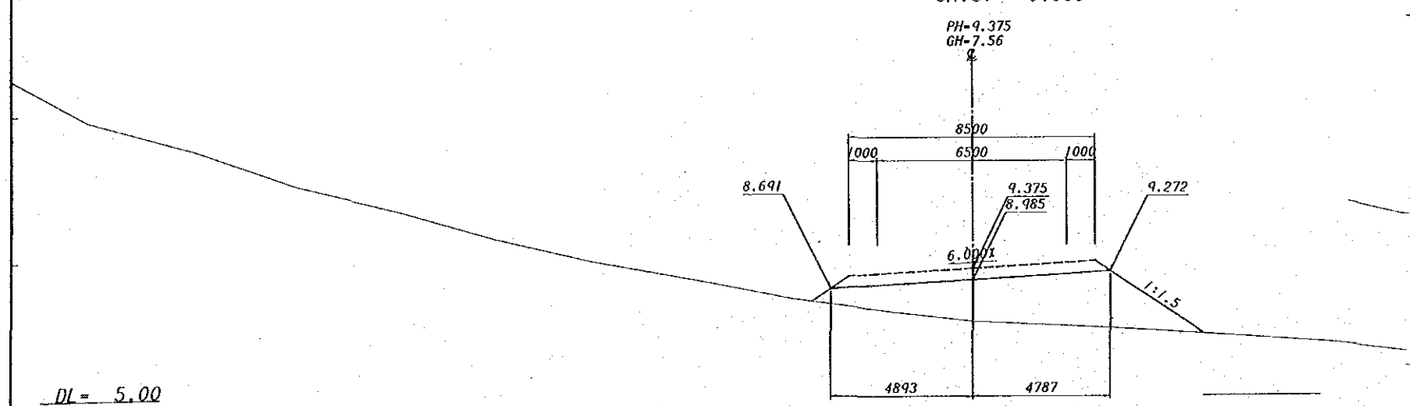
PH=7.575
GH=4.34



DL= 3.00

CH.31+ 0.000

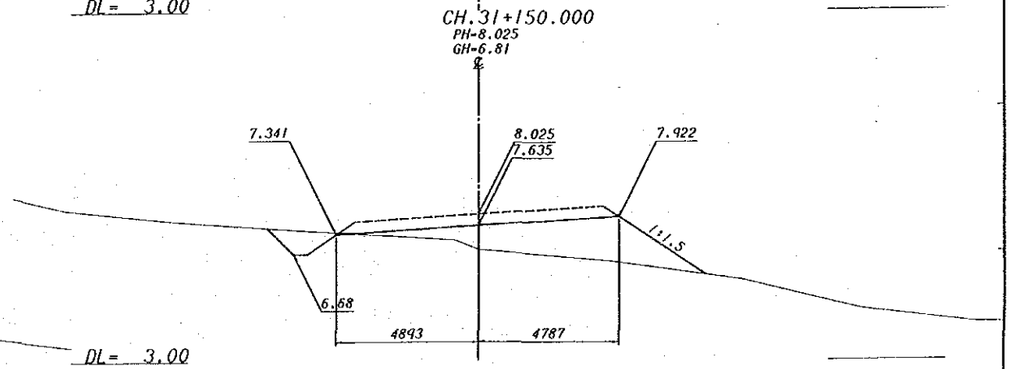
PH=9.375
GH=7.56



DL= 5.00

CH.31+150.000

PH=8.025
GH=6.81



DL= 3.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.S:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN: K.E.
CHECKED
DESIGNED: A. Magaka
CHECKED
PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24. 10. 89
SECRETARY

SCALES: 4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

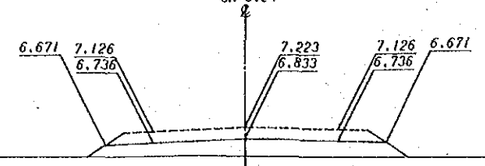
SHEET 240 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 31 + 0 — CH. 31 + 250

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

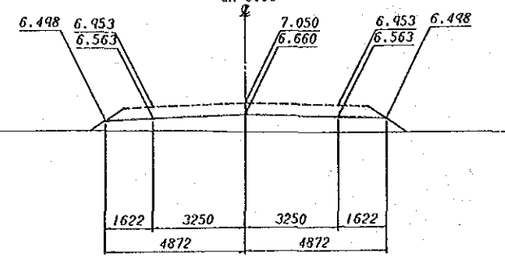
DRAWING No. A1/ 87998
REV.

CH. 31+500.000
PH=7.223
GH=6.24



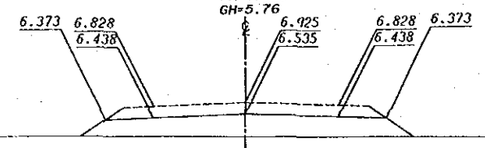
DL= 5.00

CH. 31+450.000
PH=7.050
GH=6.06



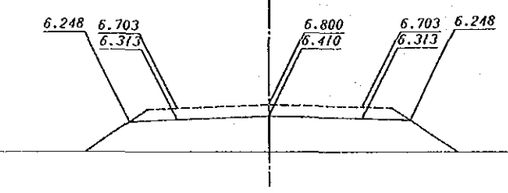
DL= 3.00

CH. 31+400.000
PH=6.925
GH=5.76



DL= 4.00

CH. 31+350.000
PH=6.800
GH=5.19



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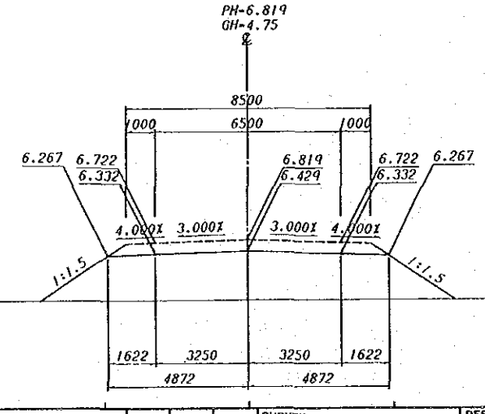
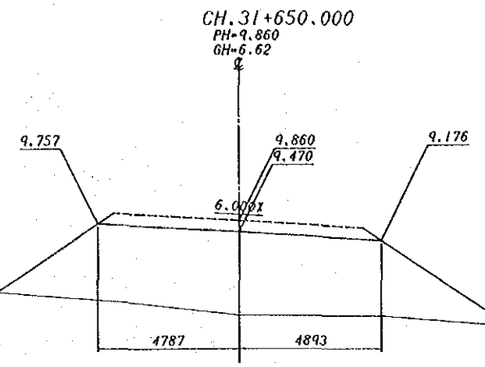
CH. 31+300.000
PH=6.819
GH=4.75



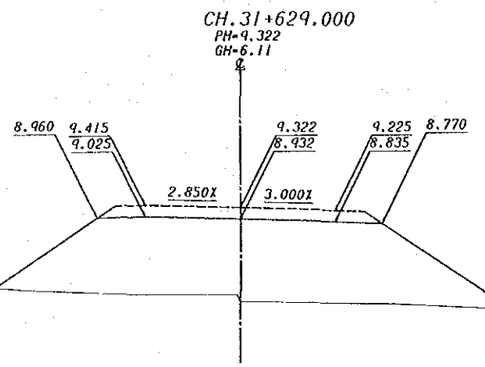
DL= 3.00

CH. 31+650.000
PH=9.860
GH=6.62



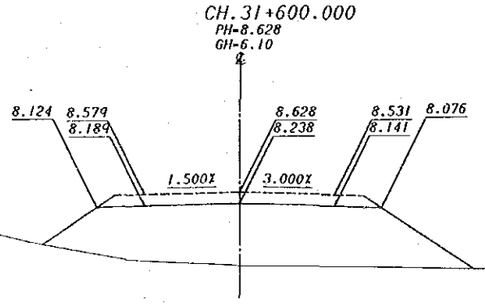
DL= 5.00

CH. 31+629.000
PH=9.322
GH=6.11



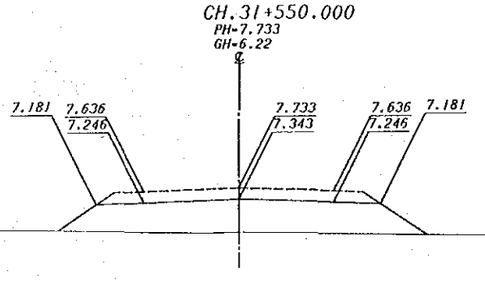
DL= 4.00

CH. 31+600.000
PH=8.628
GH=6.10



DL= 5.00

CH. 31+550.000
PH=7.733
GH=6.22



DL= 5.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NOS:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Hirata — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED: C.ZAO
DESIGNED: A. Magaro
CHECKED: T. Kamikawa

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24 Jo. 89 — SECRETARY

SCALES: HORIZONTAL & VERTICAL m.
1 : 100

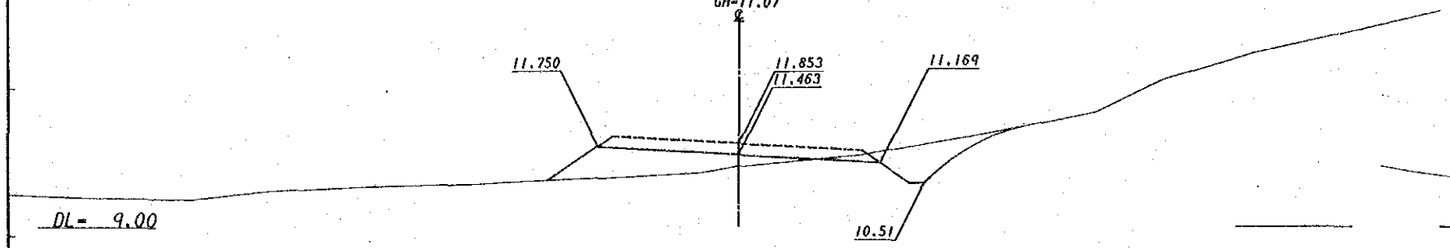
SHEET 241 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 31 + 300 — CH. 31 + 650

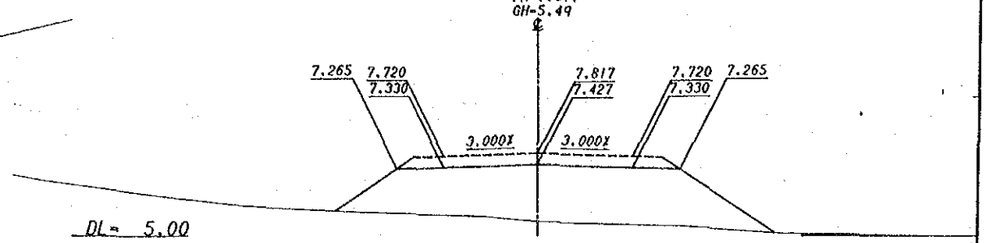
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 87999
REV.

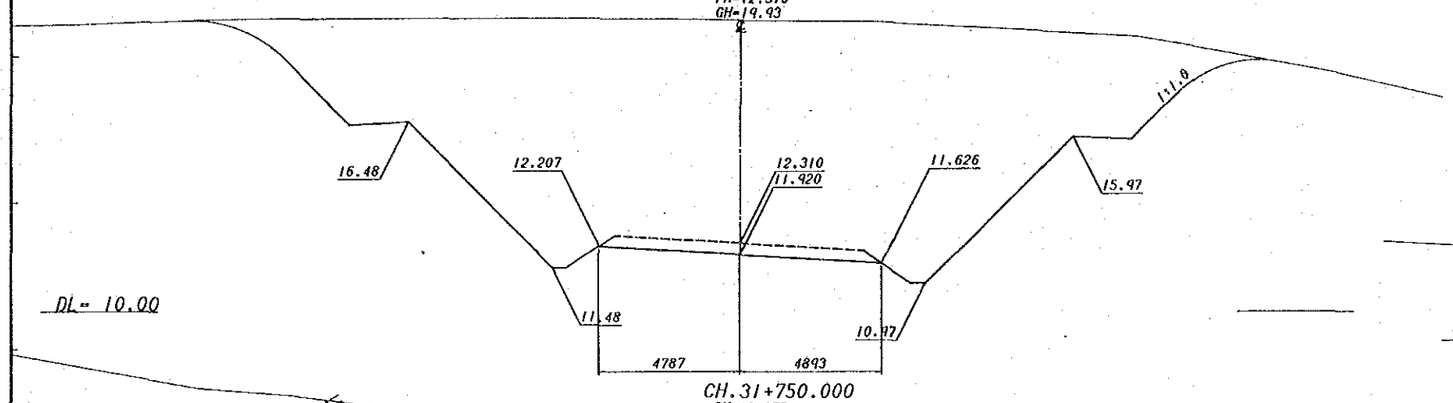
CH.31+850.000
PH=11.853
GH=11.07



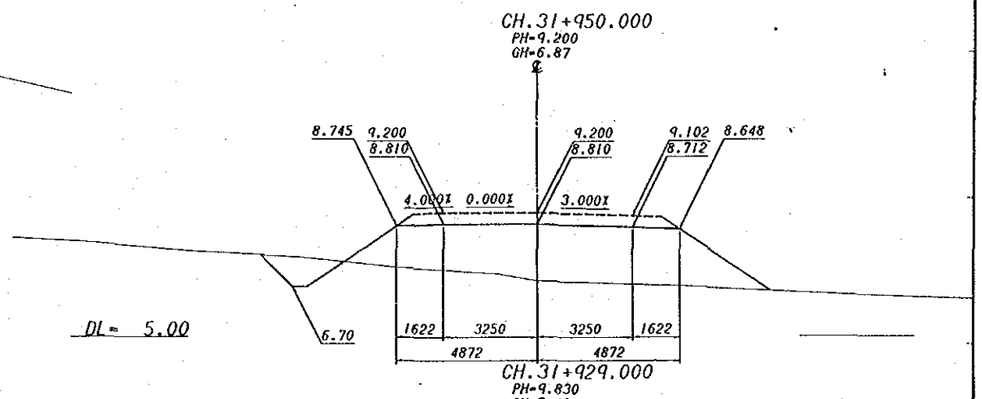
CH.32+ 0.000
PH=7.817
GH=5.49



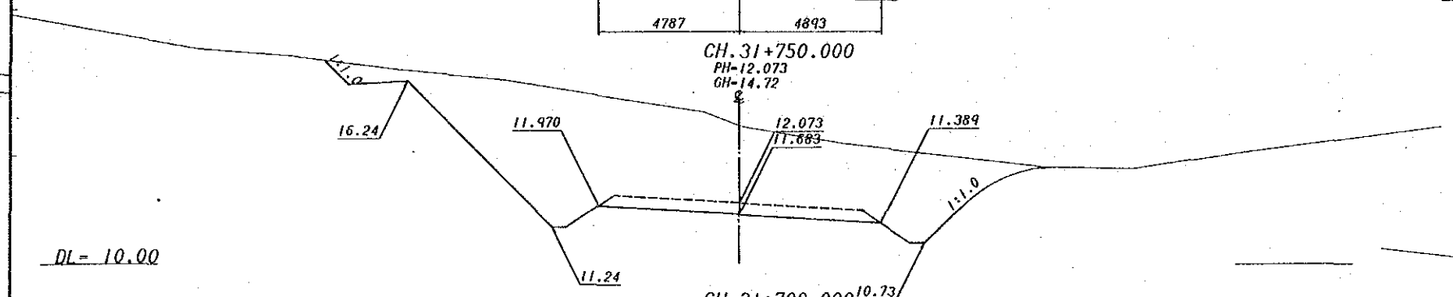
CH.31+800.000
PH=12.310
GH=9.93



CH.31+950.000
PH=9.200
GH=6.87

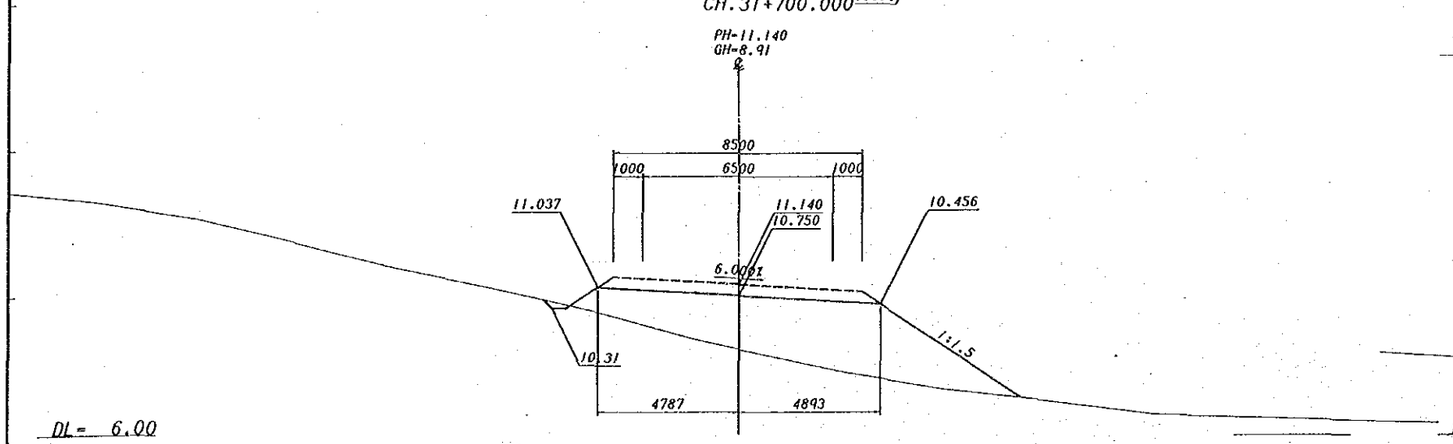


CH.31+750.000
PH=12.073
GH=14.72

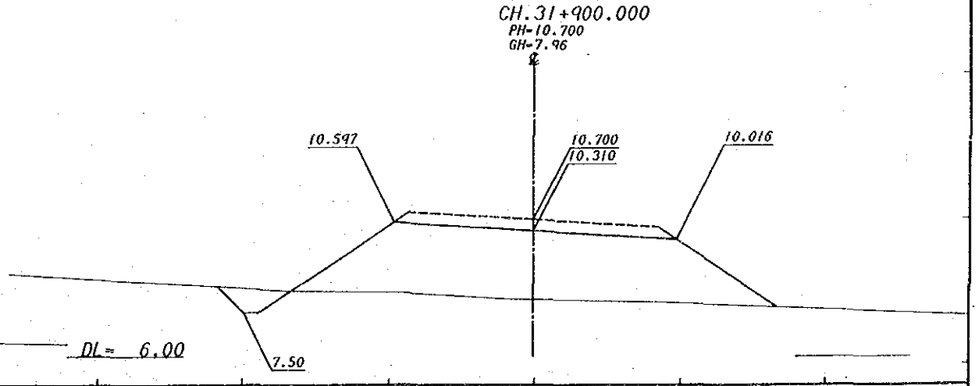


CH.31+929.000
PH=9.830
GH=7.48

CH.31+700.000
PH=11.140
GH=8.91



CH.31+900.000
PH=10.700
GH=7.96



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal 25 Sep. 1989 Date

DRAWN: K. E.
CHECKED
DESIGNED: A. Magaba
CHECKED: T. Kamekawa

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 24.10.89
SECRETARY

SCALES
HORIZONTAL & VERTICAL m.
1 : 100

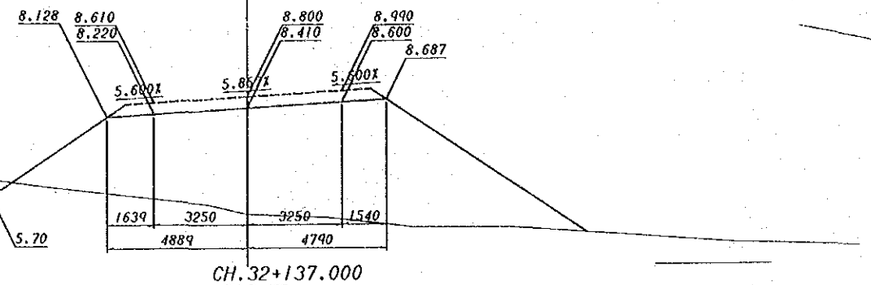
SHEET 242 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 31+700 — CH. 32+ 0

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

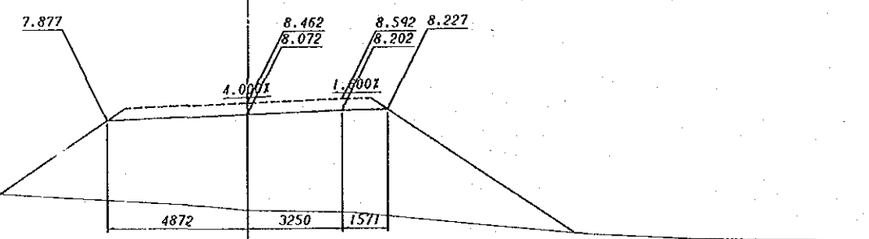
DRAWING No. A1/ 88000
REV.

CH.32+150.000
PH-8.800
GH-4.79



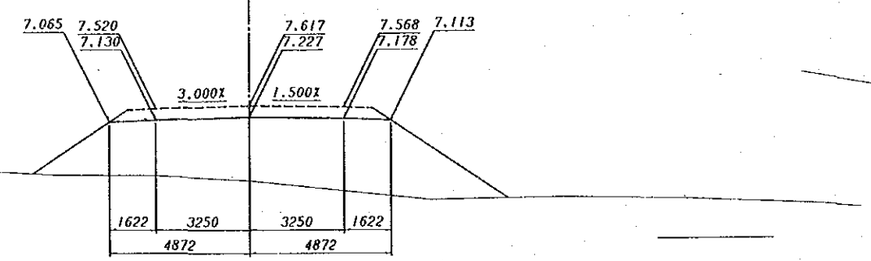
DL = 3.00

CH.32+137.000
PH-8.462
GH-4.80



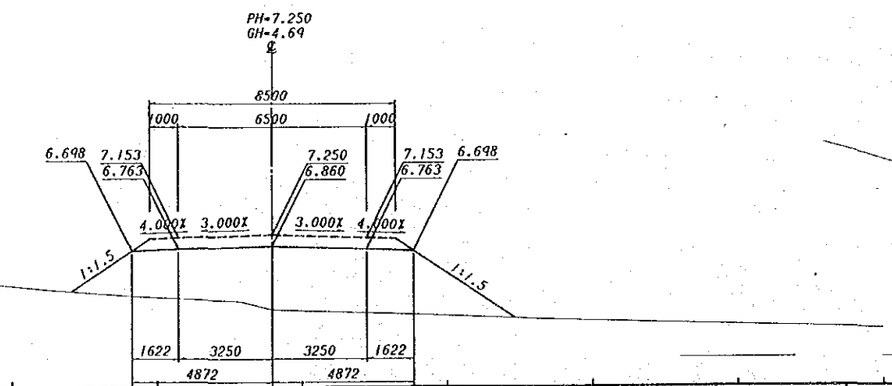
DL = 3.00

CH.32+100.000
PH-7.617
GH-5.05



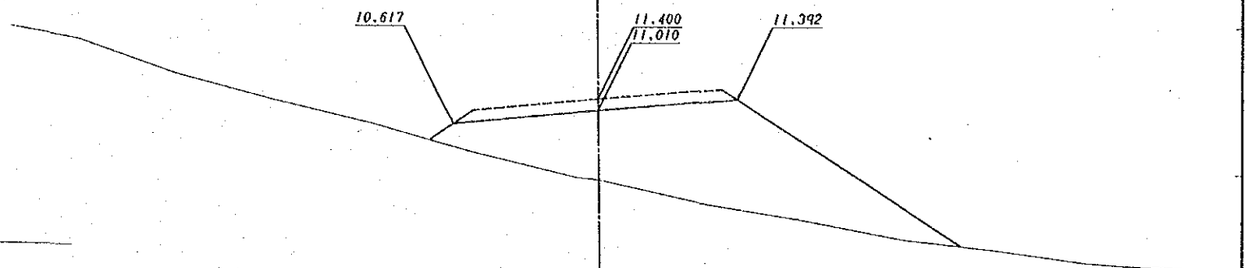
DL = 3.00

CH.32+ 50.000
PH-7.250
GH-4.69



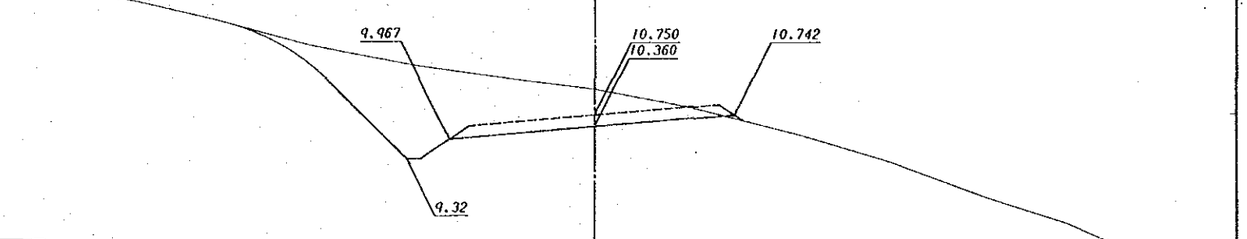
DL = 3.00

CH.32+250.000
PH-11.400
GH-8.63



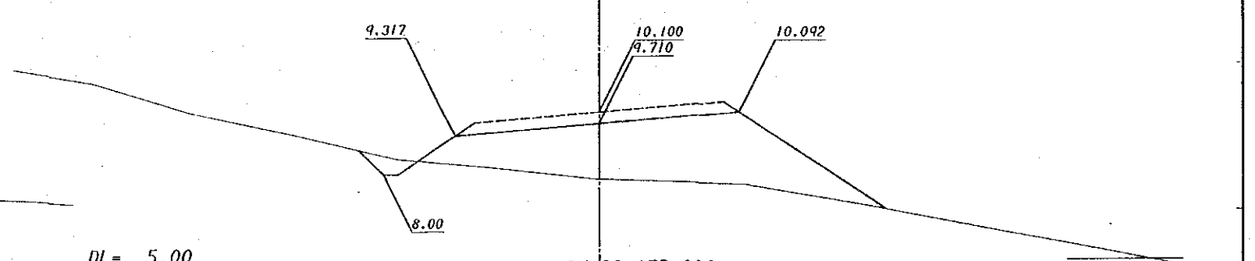
DL = 5.00

CH.32+225.000
PH-10.750
GH-11.63



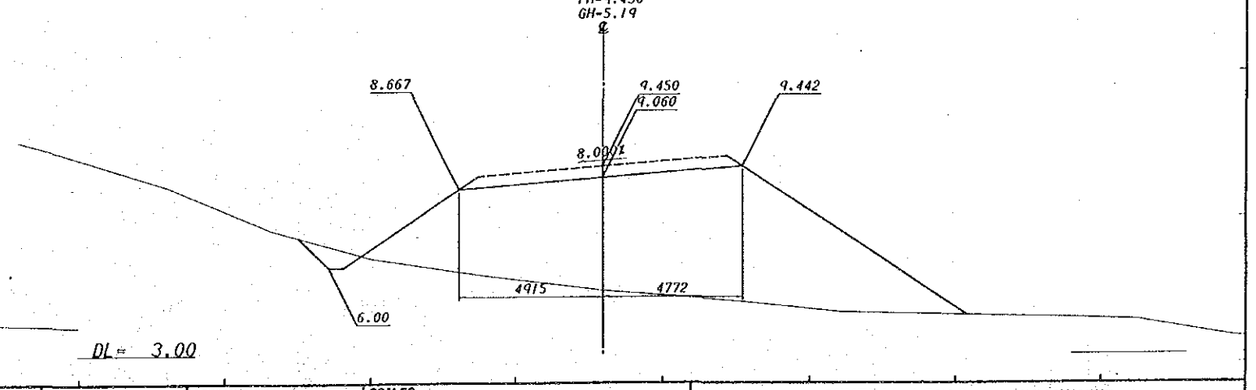
DL = 5.00

CH.32+200.000
PH-10.100
GH-7.81



DL = 5.00

CH.32+175.000
PH-9.450
GH-5.19



DL = 3.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NO.8

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Ishii — Principal — 25 Sep. 1989 — Date

DRAWN: K.E.
CHECKED:
DESIGNED: A. Megaro
CHECKED:

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 24.10.89 — FACTY SECRETARY

SCALES
4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

SHEET 243 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 32 + 50 — CH. 32 + 250

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 88001
REV.

CH. 32+350.000
PH=13.619
GH=18.87
1:1.0
17.19
12.836
13.619
13.229
13.611
12.19
12.87
DL = 11.00

CH. 32+325.000
PH=13.255
GH=15.90
12.472
13.255
12.865
13.247
1:1.0
11.83
12.51
DL = 11.00

CH. 32+300.000
PH=12.700
GH=11.62
11.917
12.700
12.310
12.692
1:1.0
11.27
4915
4772
DL = 9.00

CH. 32+275.000
PH=12.050
GH=9.03
8500
1000
6500
1000
11.267
12.050
11.660
12.042
8.000%
1:1.5
1:1.5
4915
4772
DL = 6.00

CH. 32+426.000
PH=13.555
GH=10.89
13.416
13.026
13.555
13.165
13.694
13.304
12.961
13.354
4.280%
3.800%
1622
3250
3250
1558
4872
4808
DL = 9.00

CH. 32+425.000
PH=13.567
GH=10.92
13.423
13.033
13.567
13.177
13.711
13.321
12.968
13.383
4.060%
4.420%
4.000%
1622
3250
3250
1552
4872
4802
DL = 9.00

CH. 32+400.000
PH=13.775
GH=10.43
12.992
13.775
13.385
13.767
DL = 9.00

CH. 32+375.000
PH=13.792
GH=13.96
13.009
13.792
13.402
13.784
12.36
DL = 11.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.5

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yokota, Principal, 25 Sep. 1989, Date

DRAWN: K.E.
CHECKED: O.Taki
DESIGNED: A. Nagata
CHECKED: T. Kawakami

PROJECT ENGINEER: W. Kirk
EXECUTIVE ENGINEER:

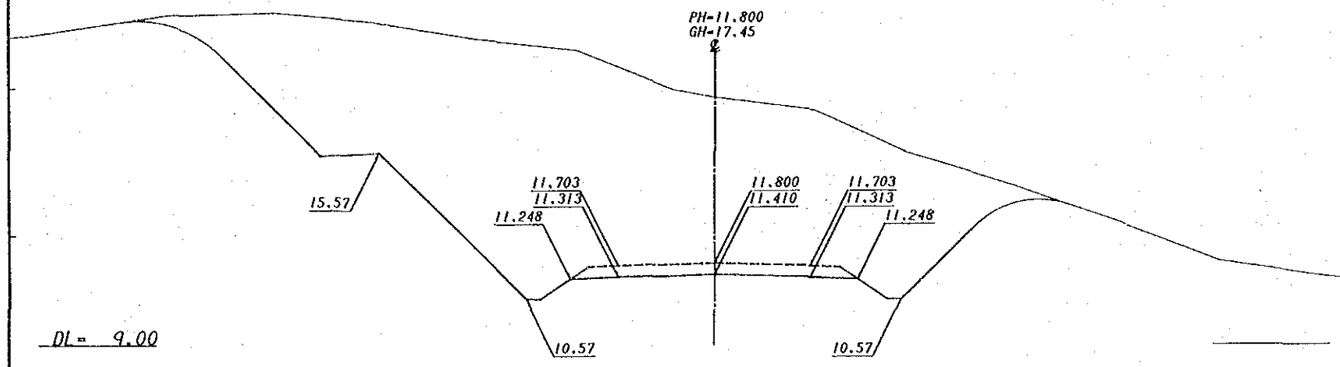
RECOMMENDED: A. Monye, PRINCIPAL ENGINEER
APPROVED: 21.10.91, J. Lemu, FAE(TA) SECRETARY

SCALES: 4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

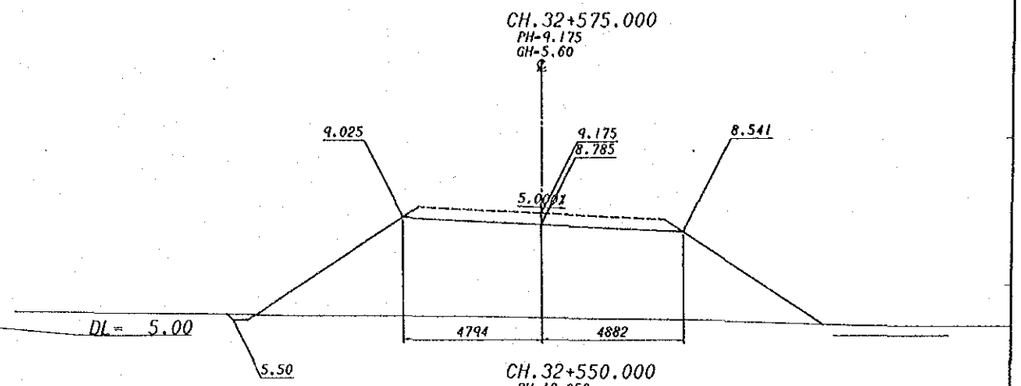
SHEET 244 OF 281
PROJECT No. S.C.120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 32 + 275 — CH. 32 + 426
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 88002
REV.

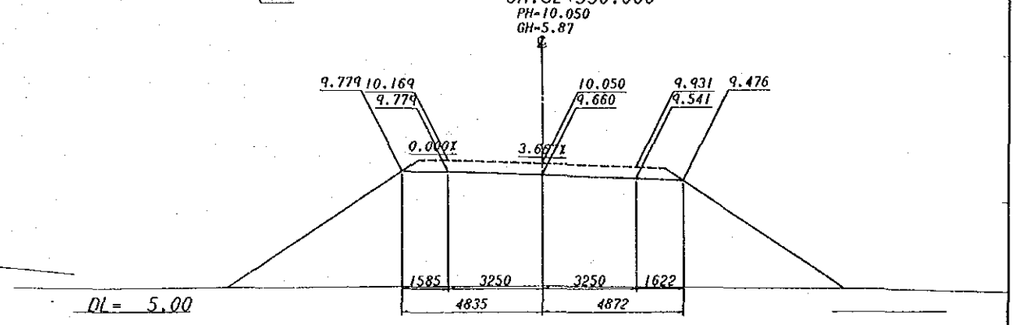
CH.32+500.000



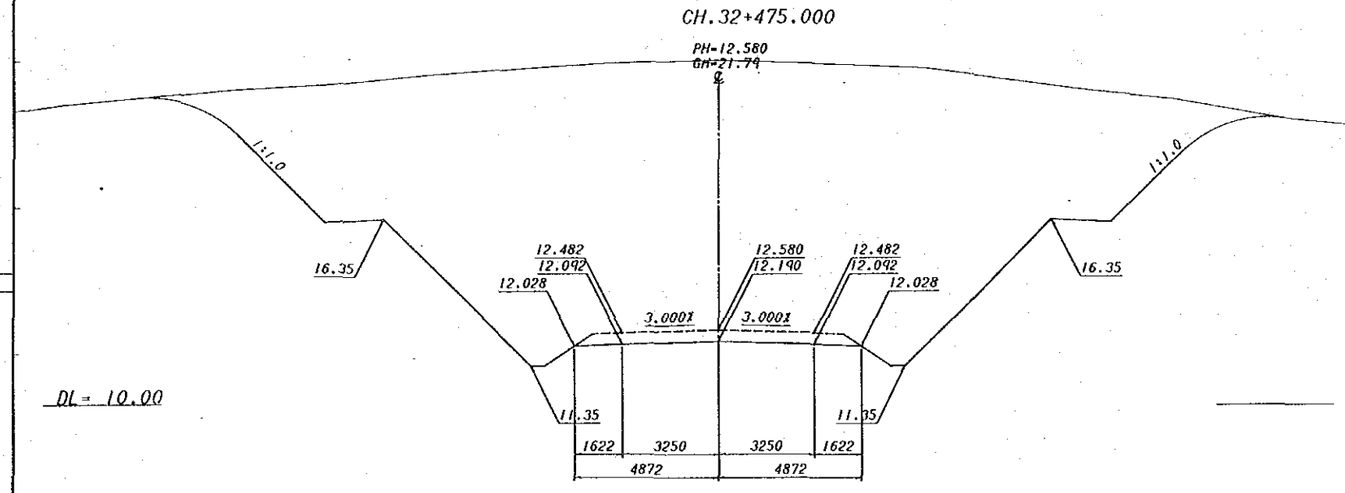
CH.32+575.000



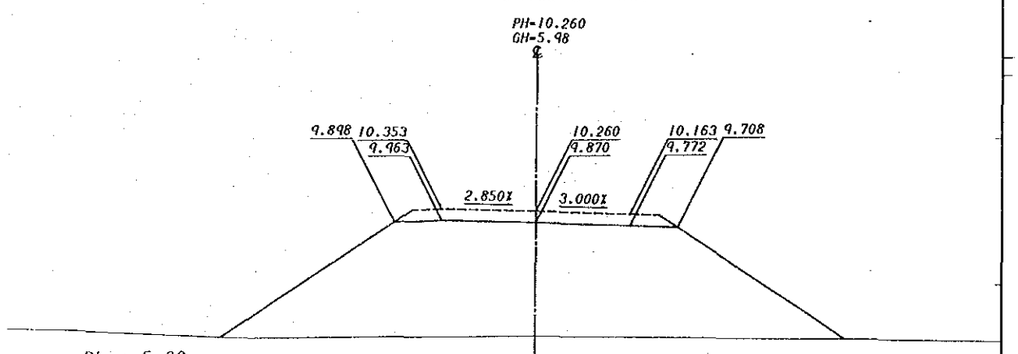
CH.32+550.000



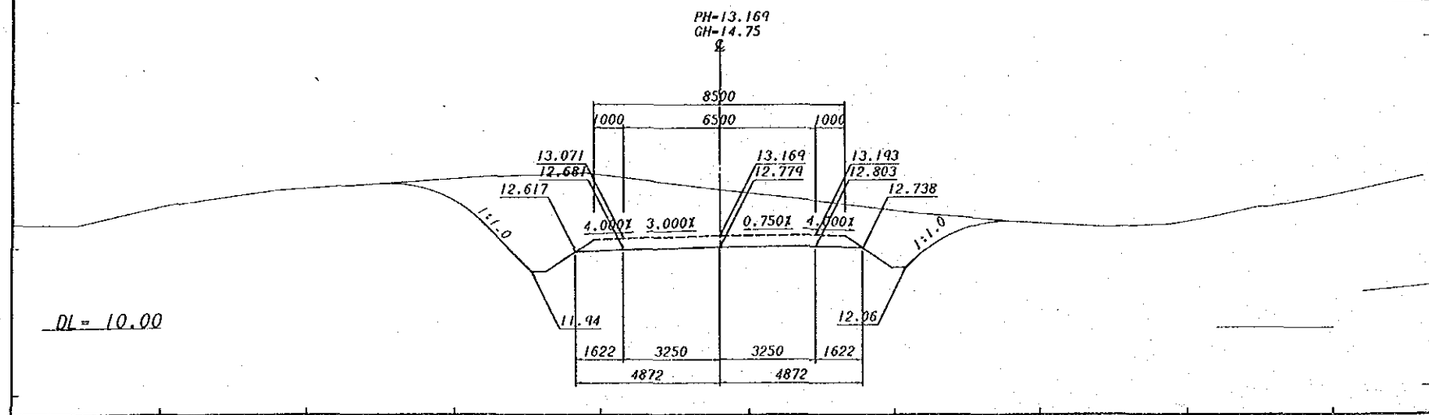
CH.32+475.000



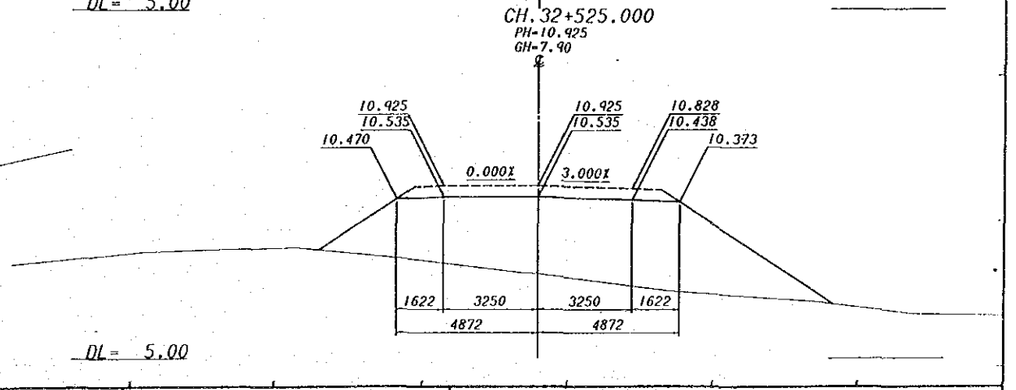
CH.32+544.000



CH.32+450.000



CH.32+525.000



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL, ..ft — HORIZONTAL DATUM — SURVEY BOOK Nr.s

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Hutchins, Principal — 25 Sep. 1989, Date

DRAWN: K. E. — CHECKED — DESIGNED — CHECKED

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER — APPROVED: 24.10.89, SECRETARY

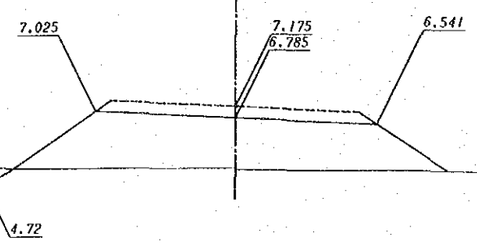
SCALES: HORIZONTAL & VERTICAL m. 1 : 100

SHEET 245 OF 281 — PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 32 + 450 — CH. 32 + 575

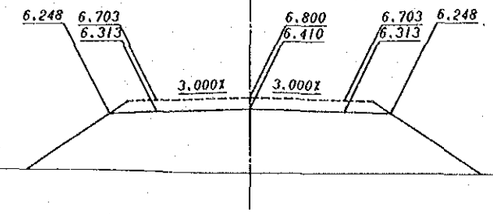
PAPUA NEW GUINEA DEPARTMENT OF WORKS — DRAWING No. A1/ 88003 — REV.

CH.32+675.000
PH=7.175
GH=5.01



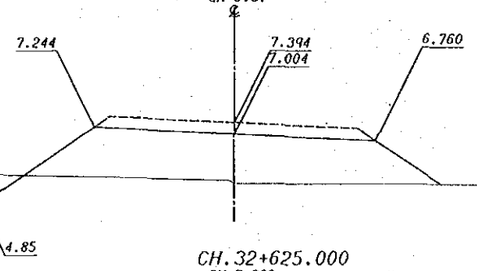
DL= 4.00

CH.32+750.000
PH=6.800
GH=4.22



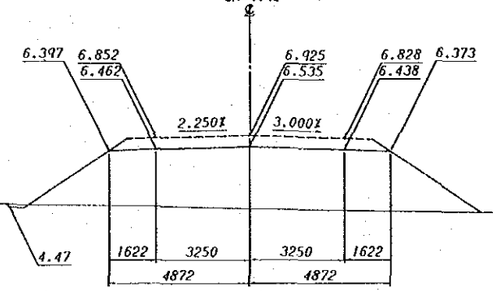
DL= 3.00

CH.32+650.000
PH=7.394
GH=5.31



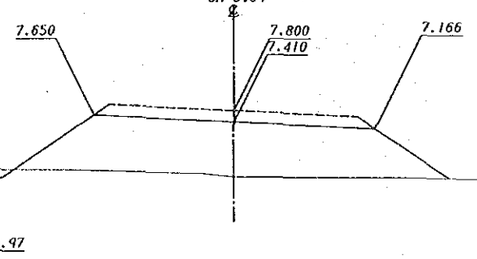
DL= 4.00

CH.32+725.000
PH=6.925
GH=4.42



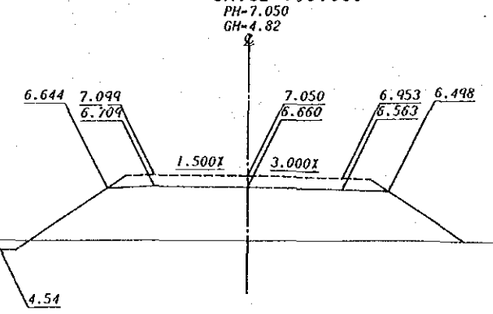
DL= 3.00

CH.32+625.000
PH=7.800
GH=5.54



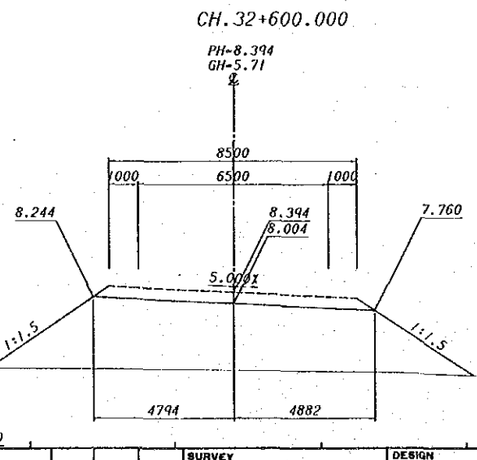
DL= 4.00

CH.32+700.000
PH=7.050
GH=4.82



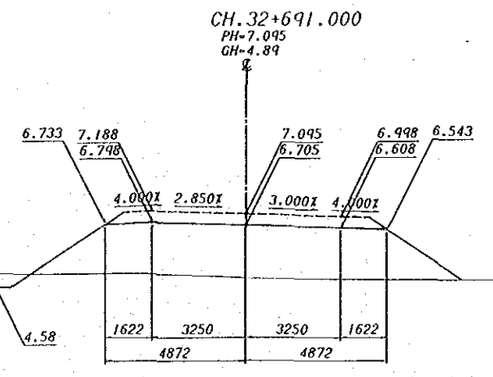
DL= 3.00

CH.32+600.000
PH=8.394
GH=5.71



DL= 4.00

CH.32+691.000
PH=7.095
GH=4.89



DL= 3.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Yoshida, Principal — 26 Sep. 1989, Date

DRAWN: K.E. — CHECKED — DESIGNED: A. Nagato — CHECKED: Y. Kawakami

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER

APPROVED: 24.10.89 — SECRETARY

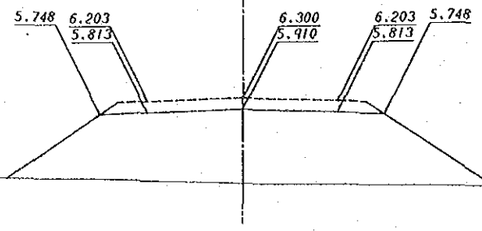
SCALES: HORIZONTAL & VERTICAL m. 1 : 100

SHEET 246 OF 281 — PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 32 + 600 — CH. 32 + 750

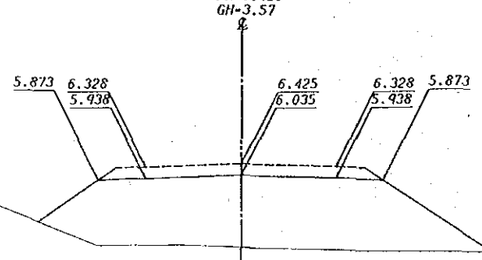
PAPUA NEW GUINEA DEPARTMENT OF WORKS — DRAWING No. A1/ 88004 — REV.

CH.32+850.000
PH=6.300
GH=3.38



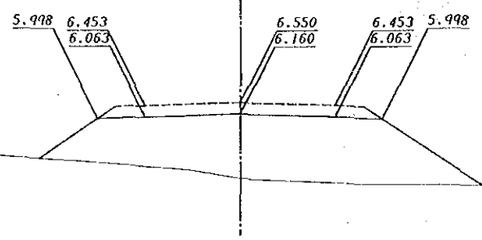
DL= 2.00

CH.32+825.000
PH=6.425
GH=3.57



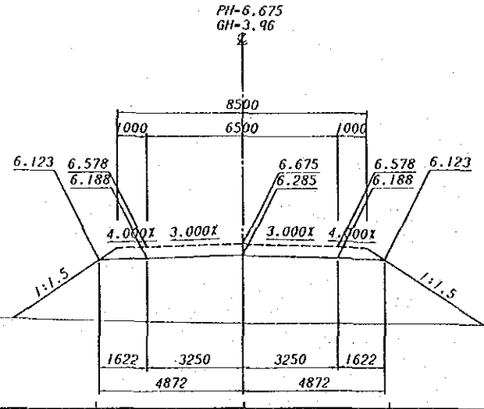
DL= 2.00

CH.32+800.000
PH=6.550
GH=3.96



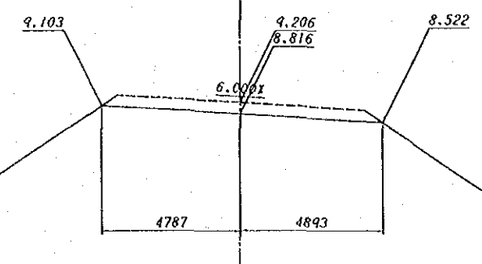
DL= 2.00

CH.32+775.000
PH=6.675
GH=3.96



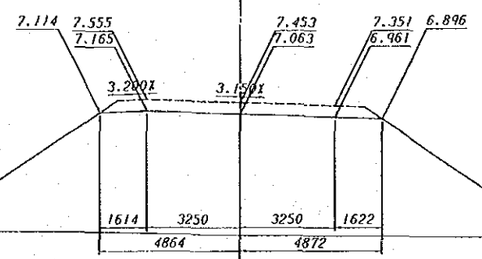
DL= 2.00

CH.33+ 0.000
PH=9.206
GH=2.84



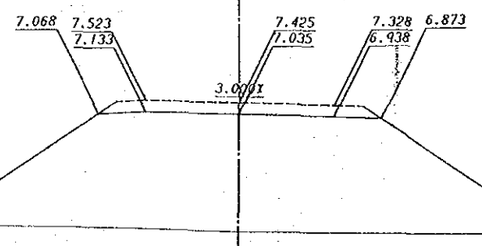
DL= 1.00

CH.32+951.000
PH=7.453
GH=2.93



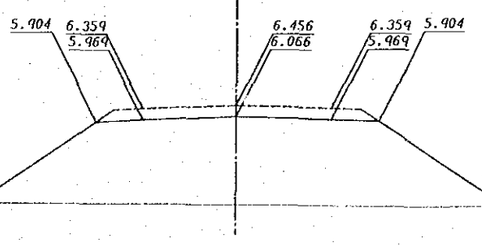
DL= 2.00

CH.32+950.000
PH=7.425
GH=3.02



DL= 2.00

CH.32+900.000
PH=6.456
GH=3.03



DL= 2.00

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Yokota, Principal — 25 Sep. 1989, Date

DRAWN: K. E. — CHECKED — DESIGNED: A. Nagano — CHECKED: T. Kawakami

PROJECT ENGINEER — EXECUTIVE ENGINEER

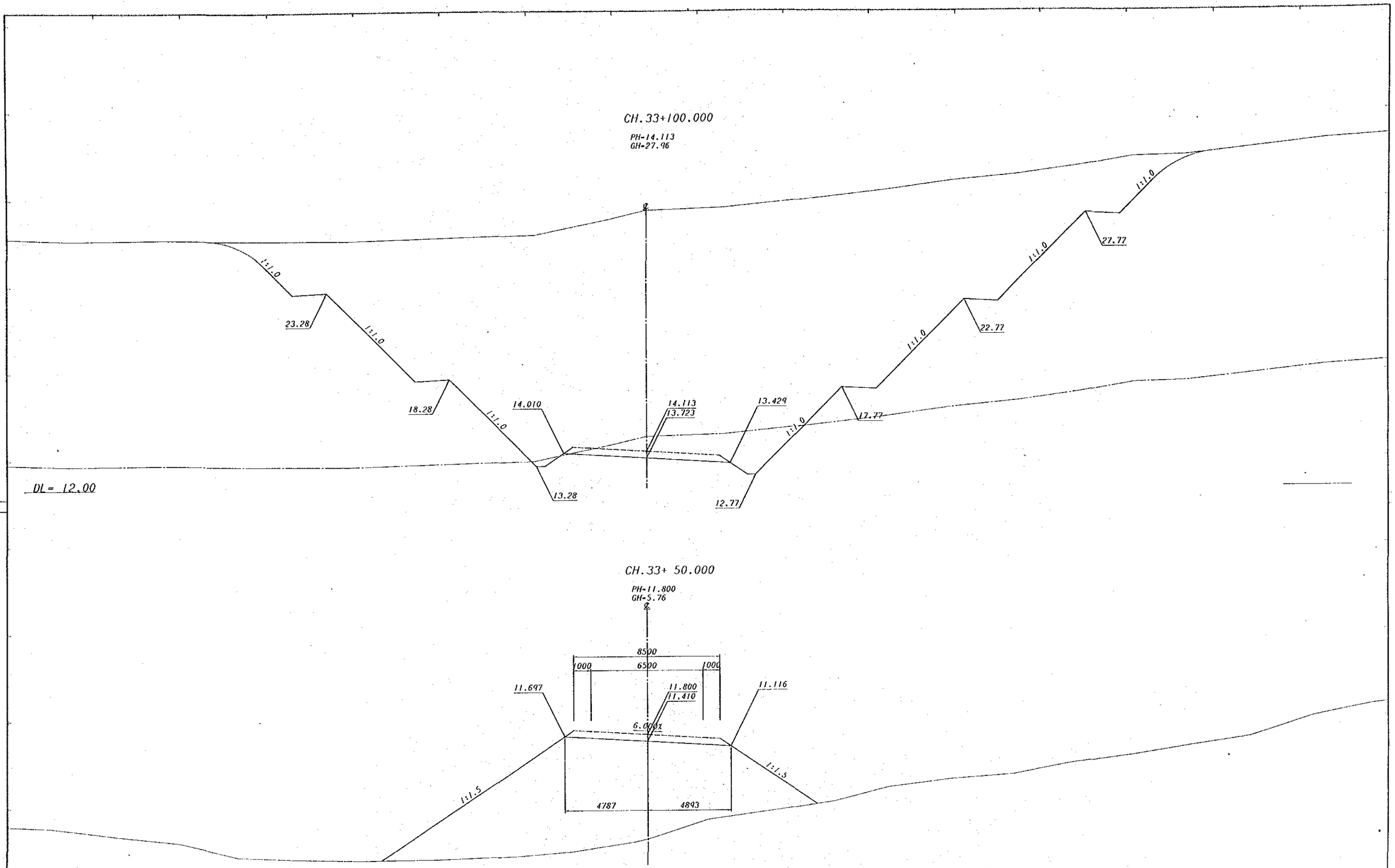
RECOMMENDED: PRINCIPAL ENGINEER — APPROVED: 24.10.89 — F&S(TS) SECRETARY

SCALES: 4 2 0 2 4 — HORIZONTAL & VERTICAL in. — 1 : 100

SHEET 247 OF 281 — PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 32+775 — CH. 33 + 0

PAPUA NEW GUINEA — DEPARTMENT OF WORKS — DRAWING No. A1/ 88005



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: J.I.C.A. Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.5

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yokota, Principal — 25 Sep. 1989, Date

DRAWN: K.E.
CHECKED: G. Hato
DESIGNED: A. Magata
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 4.10.89, F. Tomoi, F&S(S) SECRETARY

SCALES: HORIZONTAL & VERTICAL m. 1 : 100

SHEET 218 OF 281
PROJECT No. S.C. 120-33-811/A

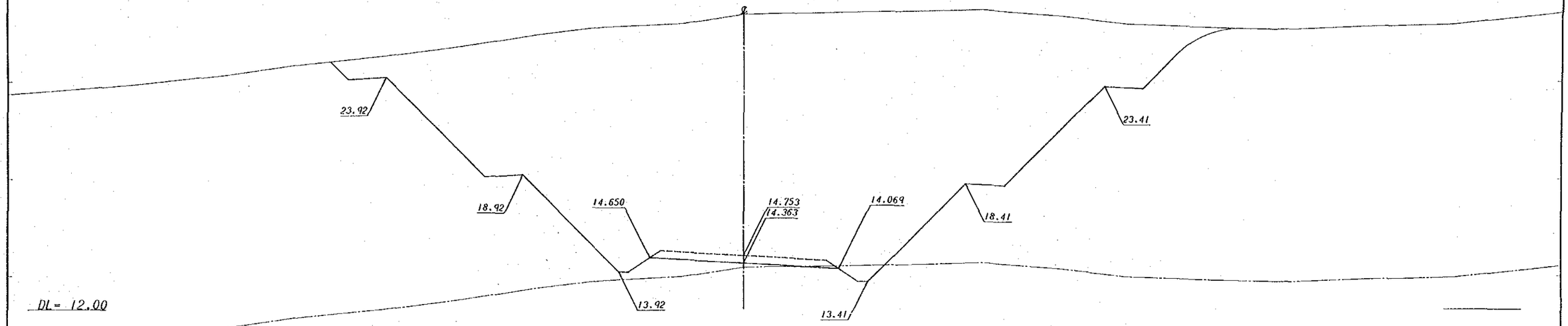
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 33 + 50 — CH. 33 + 100

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1 88006 REV.

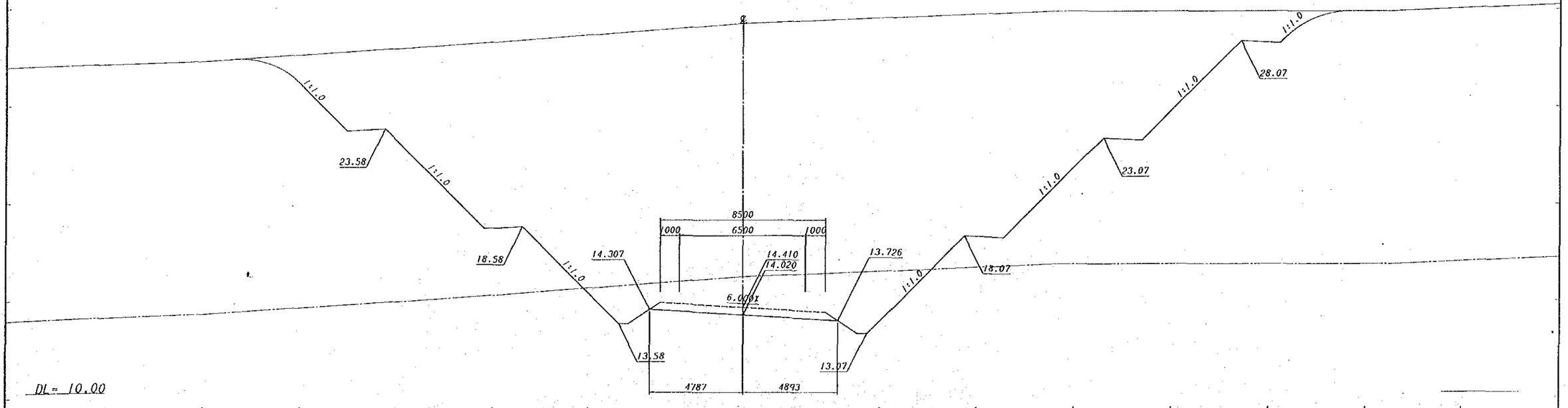
CH.33+125.000

PH=14.753
GH=27.15



CH.33+110.000

PH=14.410
GH=29.00



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NO.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Hatakeyama, Principal — 25 Sep. 1989, Date

DRAWN: K.E. — CHECKED — DESIGNED: a. Magabo — CHECKED: Z. Kawakami

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER

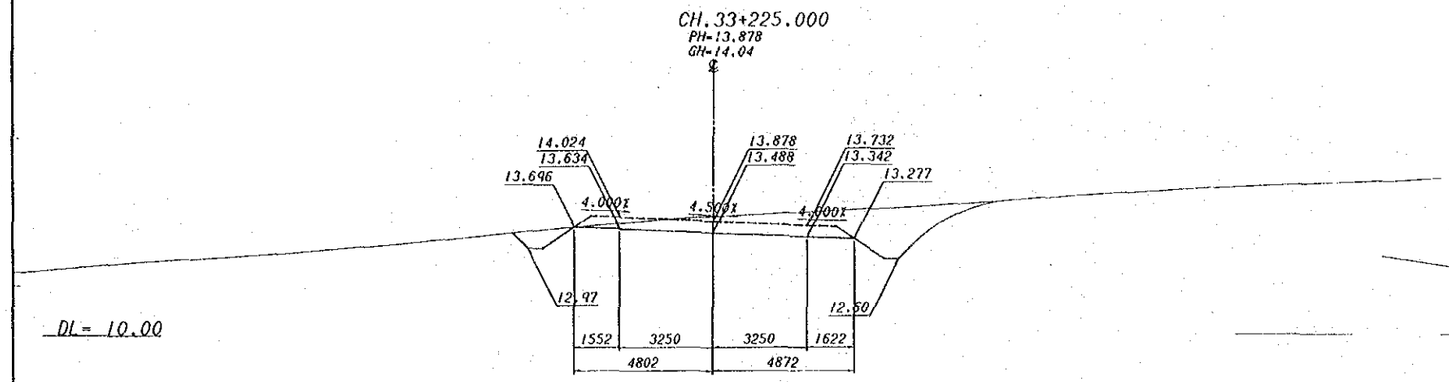
APPROVED: 27.12.89 — FOR (TY) SECRETARY

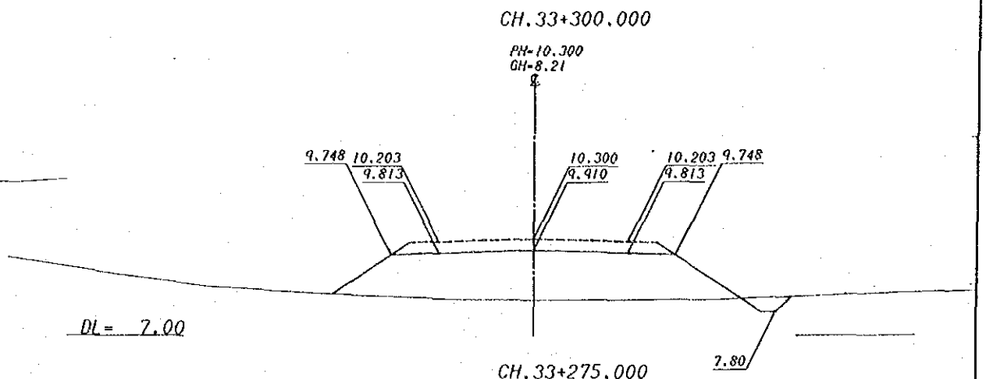
SCALES: HORIZONTAL & VERTICAL m. — 1 : 100

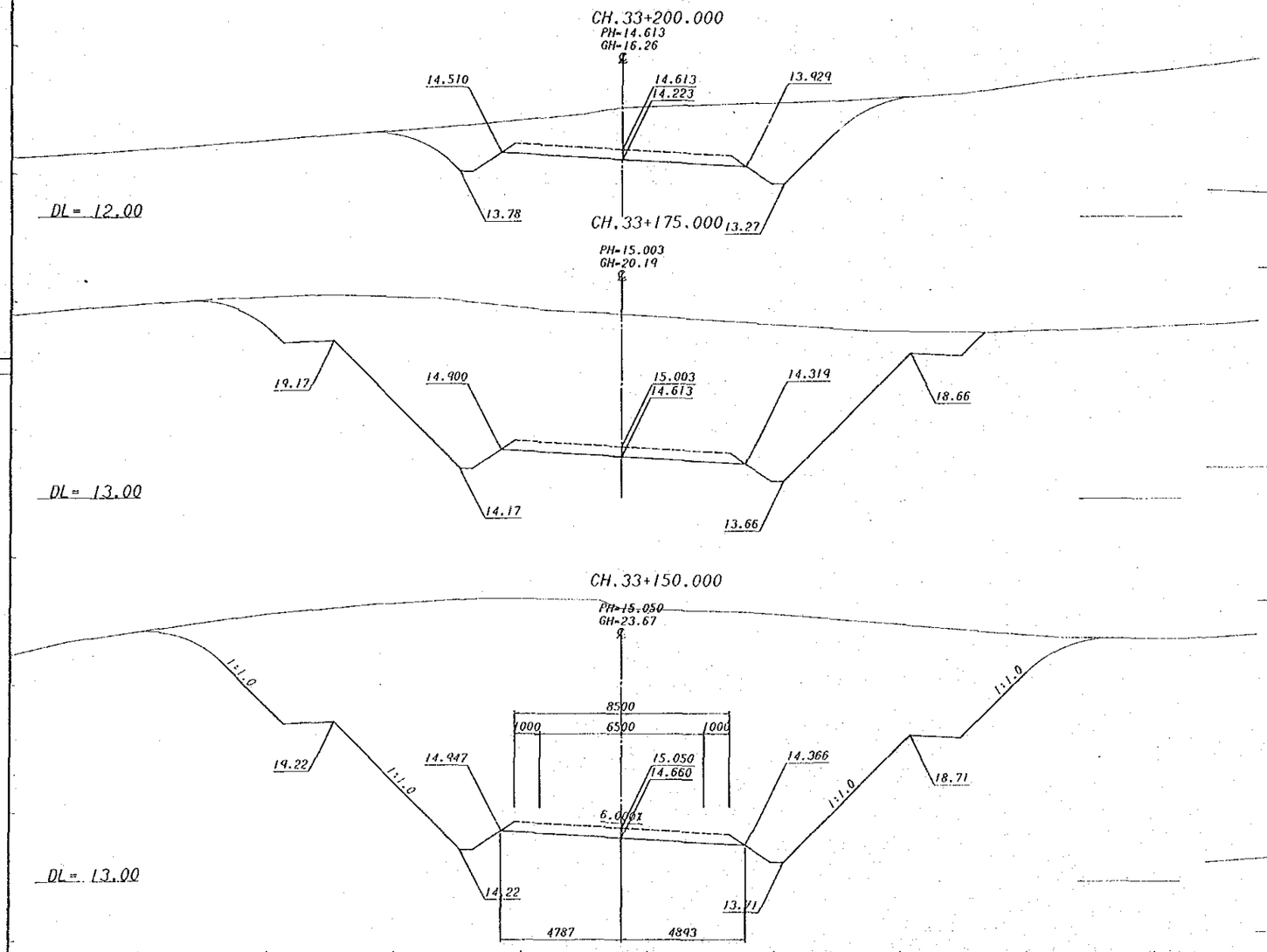
SHEET 249 OF 281 — PROJECT No. S.C. 120-33-814/A

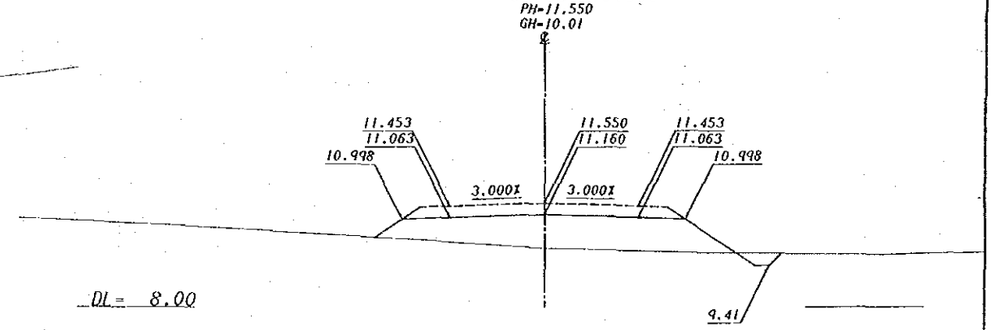
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 33+110 — CH. 33+125

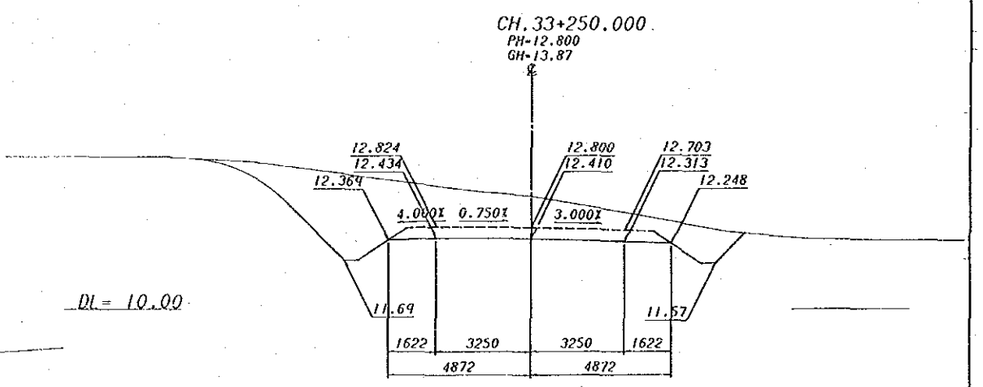
PAPUA NEW GUINEA DEPARTMENT OF WORKS — DRAWING No. A1/ 88007 — REV.

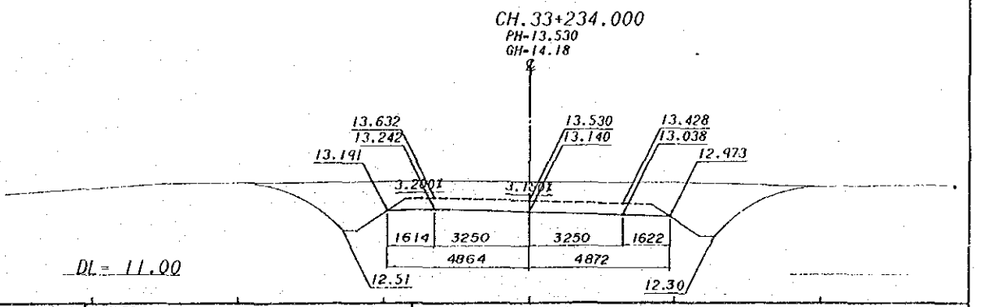












REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.s

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Hunter's Principal — 25 Sep. 1989 Date

DRAWN: K.E. — CHECKED: C. Ishii — DESIGNED: A. Magaro — CHECKED: T. Kondo

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER

APPROVED: 24.10.89 — for(CY) SECRETARY

SCALES: HORIZONTAL & VERTICAL m. 1 : 100

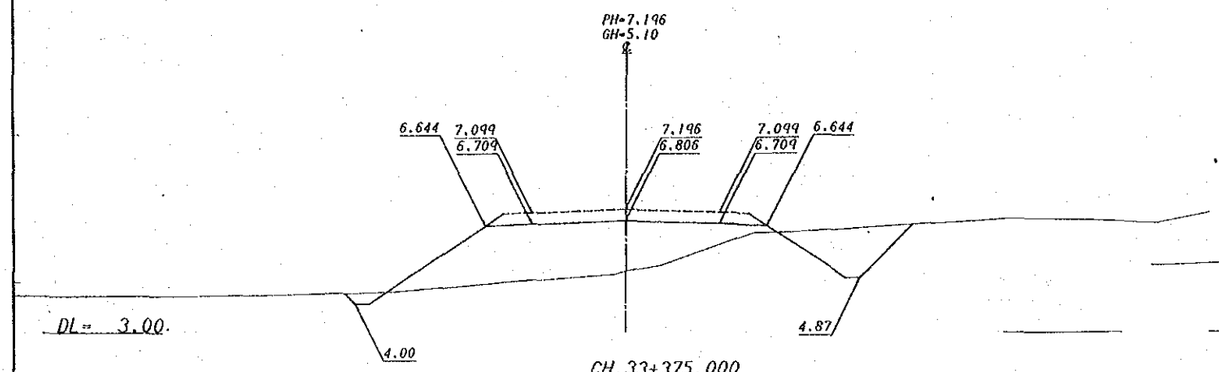
SHEET 250 OF 281 — PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 33 + 150 — CH. 33 + 300

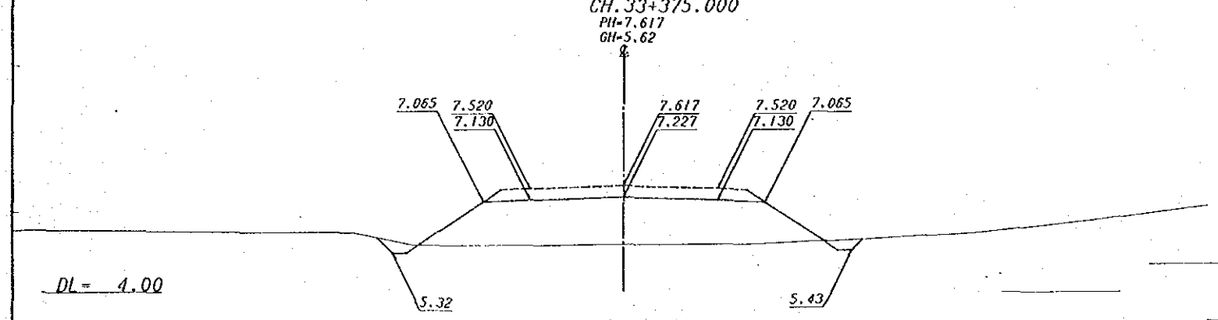
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/ 88008

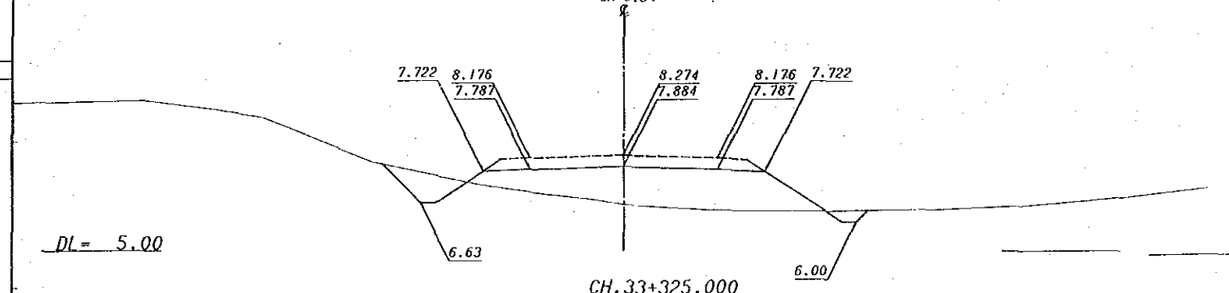
CH.33+400.000



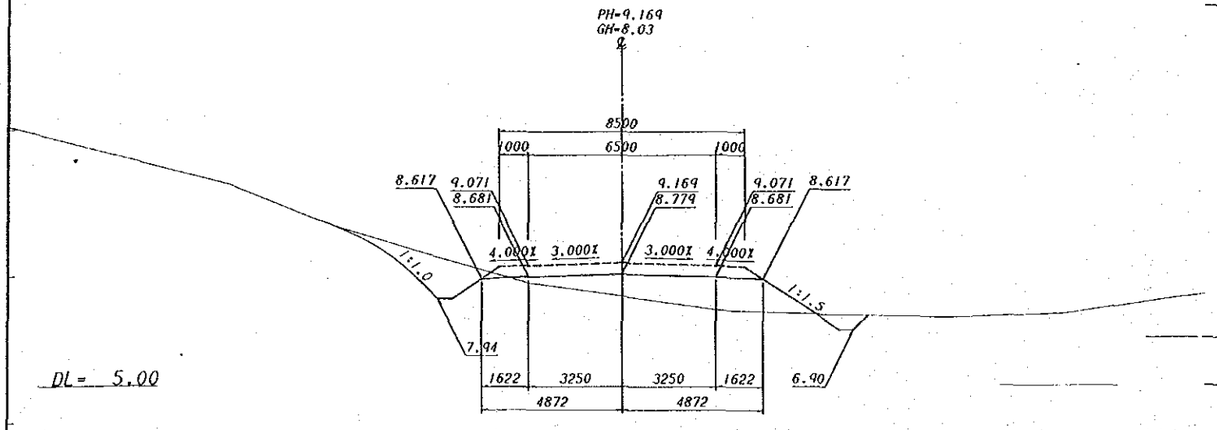
CH.33+375.000



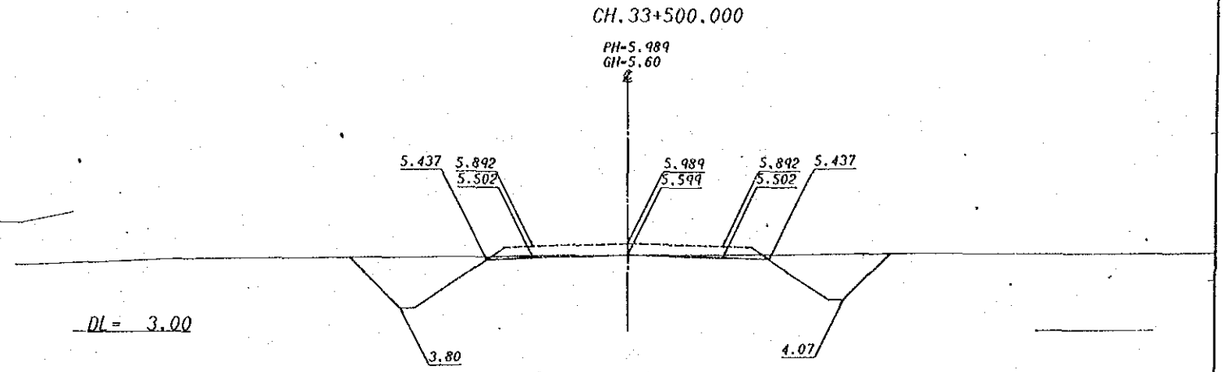
CH.33+350.000



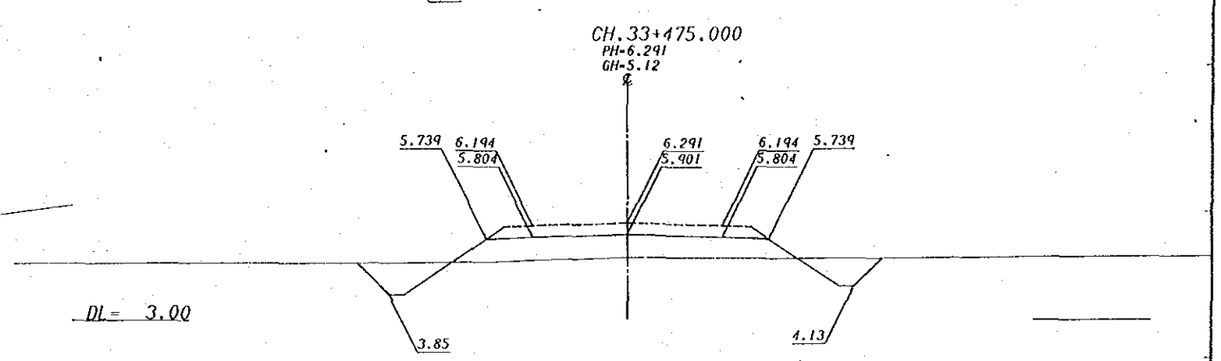
CH.33+325.000



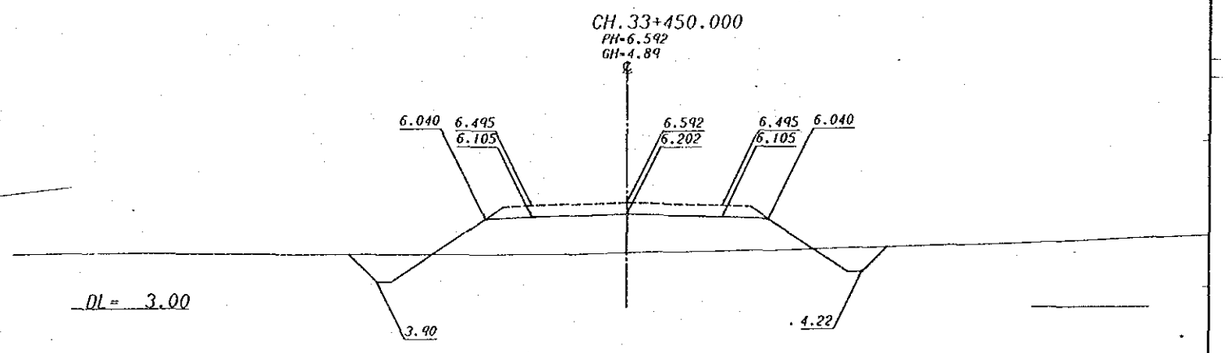
CH.33+500.000



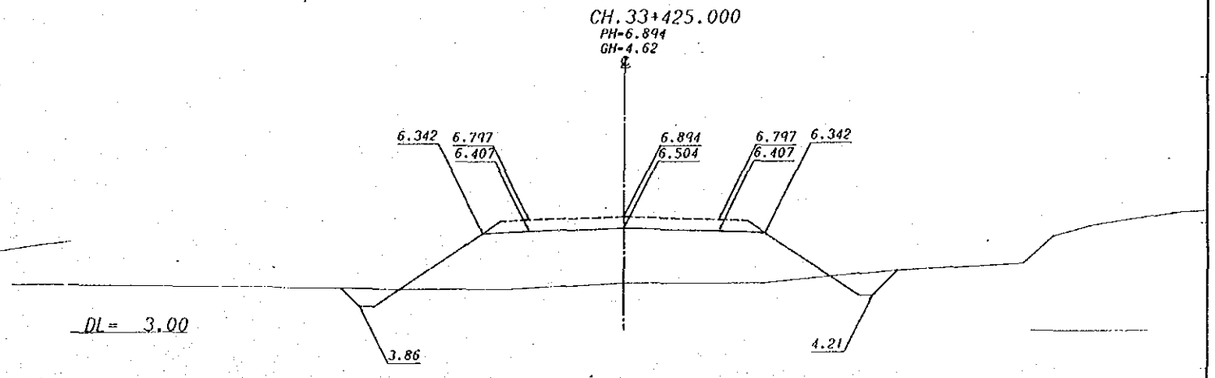
CH.33+475.000



CH.33+450.000



CH.33+425.000



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA
Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK No.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Harkins, Principal, 25 Sep. 1989, Date

DRAWN: K.E.
CHECKED
DESIGNED: A. Magalio
CHECKED: T. Kawakami

PROJECT ENGINEER
EXECUTIVE ENGINEER

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED: 25.10.89, SECRETARY

SCALES
4 2 0 2 4
HORIZONTAL & VERTICAL m.
1 : 100

SHEET 251 OF 281
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
CROSS SECTIONS
CH. 33 + 325 — CH. 33 + 500
PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1/ 88009
REV.

GENERAL NOTES

1. ABBREVIATIONS

T	TOP	STRP	STIRRUP
B	BOTTOM	TRMR	TRIMMER
NF	NEAR FACE	MS	MILD STEEL
FF	FAR FACE	SYMM	SYMMETRICAL
EW	EACH WAY	NTS	NOT TO SCALE
EF	EACH FACE	TYP	TYPICAL
℄	CENTRELINE	FLG	FLANGE
ℙ	PLATE		

2. DESIGN LOADINGS

NORMAL	T44	STANDARD VEHICLE
ABNORMAL	60T	TONNE VEHICLE
EARTHQUAKE	EEBPNG	1985 ZONE 4
DECK	A14	

3. PILING

ALL PILING SHALL BE THE SPECIFIED GRADE
MAXIMUM TOLERANCE ON PLAN POSITION AT PILE TOP FOR ANY PILE = ± 75mm

PILE CONTRACT LENGTHS		SIZE
BEREINA ABUTMENT	11.2 m x 6 no's	500ϕ x 14 THK
MALALAUA ABUTMENT	11.4 m x 6 no's	500ϕ x 14THK

MAXIMUM PILE WORKING COMPRESSION LOAD 920 kN
THE TIP OF THE PILES SHALL BE REINFORCED AS SHOWN
TEST PILE 11·0m x 1no 500 ϕx 14 THK

4. CONCRETE

ALL CONCRETE SHALL BE GRADE 25. (FĆ = 25 MPa)

5. REINFORCING STEEL

ALL REINFORCEMENT SHALL BE EITHER :-

a) TEMPCORE (T.C.) BARS OF 410 MPa
b) ROUND (R) BARS OF 230 MPa

6. LAP LENGTHS

UNLESS NOTED OTHERWISE LAP LENGTHS TO BE AS FOLLOWS :-

12	DIA	500mm
16	DIA	650mm
20	DIA	800mm
24	DIA	1000mm
28	DIA	1500mm
32	DIA	1650mm

7. COVER TO OUTSIDE FACE OF REINFORCEMENT

DECK
a) TOP OF ROADWAY 35mm
BOT OF ROADWAY AND ELSEWHERE 30mm
PIER
a) CROSS BEAM 40mm
b) COLUMNS 40mm
c) PILE CAP 65mm

ABUTMENT
a) WINGWALL/BACKWALL
- OPEN FACES 30mm
- FILL FACES 50mm

b) PILE CAP 65mm

8. STRUCTURAL STEELWORK

ALL MAIN BEAMS, COVER PLATES AND SPLICE PLATES TO BE GRADE 350 STEEL. ALL OTHER STEELWORK TO BE GRADE 250 STEEL. ALL WELDS SHALL BE 6mm CONTINUOUS FILLET WELDS NOTED OTHERWISE.

9. BOLTING

ALL BOLTS ON MAIN STEELWORK (MAIN BEAMS, CROSS FRAMES AND BRACING) TO BE M24 8.8/TF.

ALL OTHER BOLTS TO BE GRADE 4.6/S

10. STEELWORK FINISHES

ALL SURFACES TO BE SUITABLY PROTECTED BY PAINT WORK - REFER TO SPECIFICATION.

11. BEARINGS

ABUTMENT LOADS - DEAD LOAD = 131.72 kN
LIVE LOAD = 380.63 kN
TOTAL = 512.35 kN

BEARING ASSUMED FOR DETAILING = POT BEARING BP.B-103 (FIXED)
POT BEARING BP.B-104 (MOVABLE)

MEAN TEMPERATURE IS 26·1°C AT THE PROJECT SITE

12. MAIN BEAM PRECAMBER

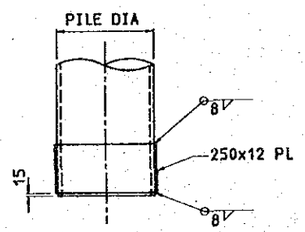
STEEL BEAMS TO BE PRECAMBERED TO THE UNSTRESSED PROFILE SHOWN ON THE DRAWINGS.

13. ERECTION

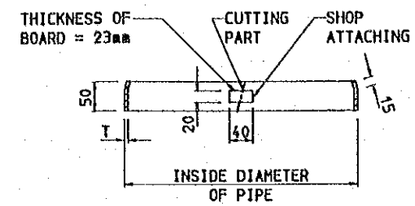
THE CONTRACTOR IS TO PROVIDE DETAILS OF ERECTION PROCEDURES TO THE ENGINEER PRIOR TO ERECTION OF THE GIRDERS, THIS IS TO ENSURE THAT THE ALLOWABLE STRESSES ON THE GIRDER SECTIONS ARE NOT EXCEEDED

14.

ABUTMENT A - BEREINA SIDE
ABUTMENT B - MALALAUA SIDE



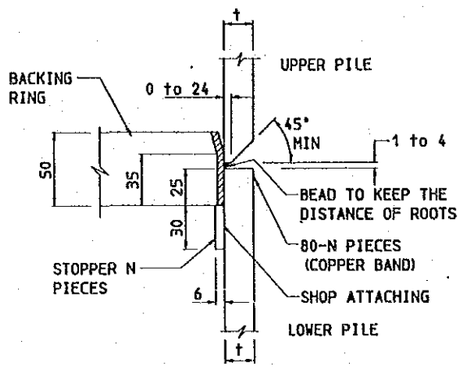
PILE TOE REINFORCEMENT (OPEN END)



BACKING RING - CROSS SECTION

THICKNESS OF BACKING RING

OUTSIDE DIAMETER D	T (mm)
1016 AND UNDER	4.5
OVER 1016	6.0



BACKING RING AND STOPPER

NUMBER OF STOPPERS

OUTSIDE DIAMETER D (mm)	N NUMBER OF PIECES
609.6 AND UNDER	4
OVER 609.6 to 1016 incl.	6
OVER 1016	8

NOTES
1. MAXIMUM PILE SECTION LENGTH EQUALS 10m.
2. WELDING TO BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.

SHAPES AND DIMENSIONS OF BACKING RING AND STOPPER

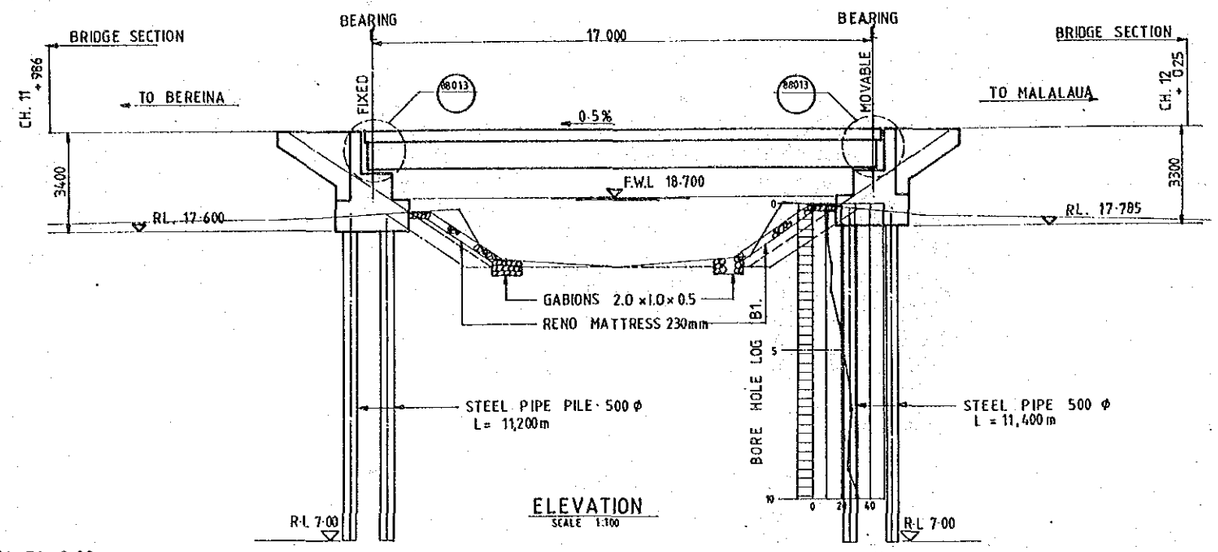
DRAWING LIST

DRG No.	DRAWING TITLE
88010	GENERAL NOTES AND DRAWING LIST.
88011	GENERAL ARRANGEMENT
88012	ABUTMENT - CONCRETE & REINFORCEMENT DETAILS.
88013	CONCRETE DECK DETAILS
88014	STEELWORK DETAILS
88015	HANDRAILING/IMPACT ANGLE DETAILS
88016	BAR BENDING SCHEDULE.
88017	BEARING BP.B-103 (FIXED)
88018	BEARING BP.B-104 (MOVABLE)
88019	RIVER BANK PROTECTIONS, BEARING UNITS, BACKFILL TO BRIDGE ABUTMENT AND OTHERS

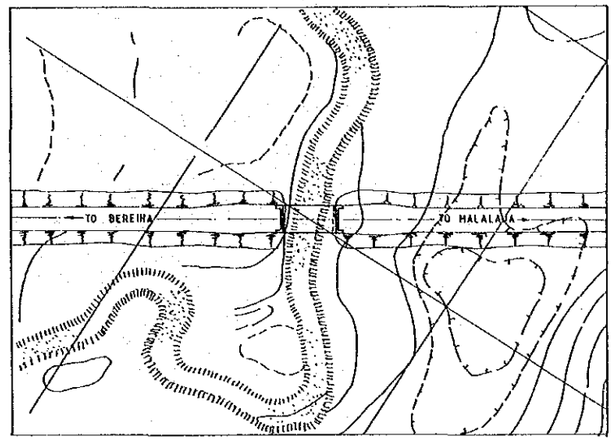
REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: J I C A — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NºS
DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — Principal — 25 Sep. 1989 Date
DRAWN: M.S — CHECKED — DESIGNED: M. Shimizu — CHECKED
PROJECT ENGINEER 1/11/89 — EXECUTIVE ENGINEER 1/11/89
RECOMMENDED 1/11/89 PRINCIPAL ENGINEER — APPROVED SECRETARY
SCALES
SHEET 252 OF 281 — PROJECT No. S.C.120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.1 - TAIENA BRIDGE
GENERAL NOTES AND DRAWING LIST
PAPUA NEW GUINEA DEPARTMENT OF WORKS — DRAWING No. A1/ 88010 — REV



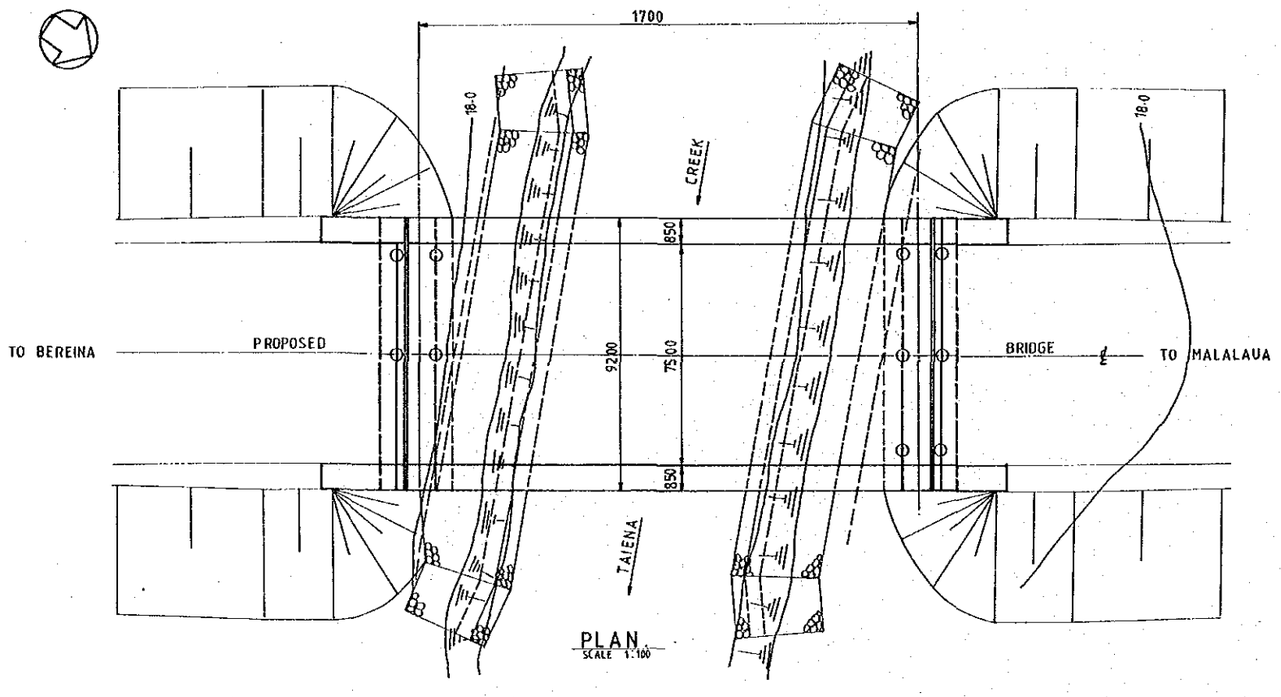
ELEVATION
SCALE 1:100



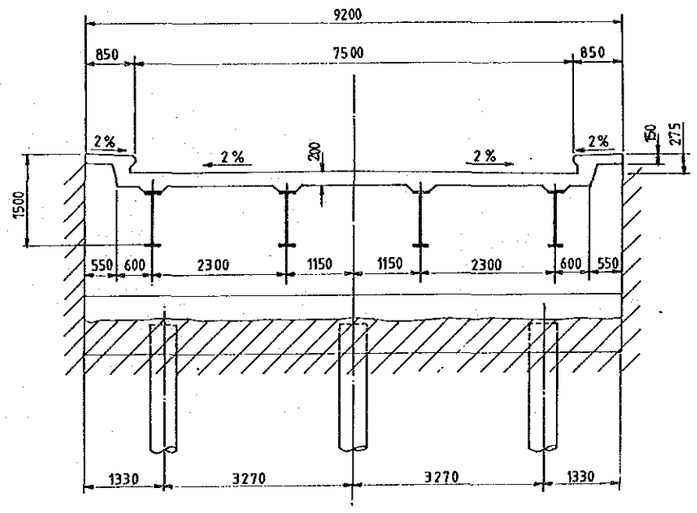
LOCALITY PLAN.
SCALE. 1:1000

DATUM RL. 0·00m

GRADE LEVELS	20.982 20.985	21.028	21.070 21.073
SURFACE LEVELS	18·10		17·80
CHAINAGES	CH. 11 + 996·4 CH. 11 + 997·0	CH. 12 + 5.5	CH. 12 + 14.0 CH. 12 + 14.6



PLAN.
SCALE 1:100



TYPICAL CROSS SECTION
SCALE : 1:50

NOTES:
1. ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS.
2. GRADE LEVELS ARE AT BRIDGE CENTRELINE.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Matsuda — Principal — 25 Sep. 1989 — Date

DRAWN: J.B. Ha6010 M·S
CHECKED: Y Doi
DESIGNED: J. Kawakami
CHECKED: Y Doi

PROJECT ENGINEER 1/11/89
EXECUTIVE ENGINEER 1/11/89

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED 1·11·89: SECRETARY FAS(T)

SCALES

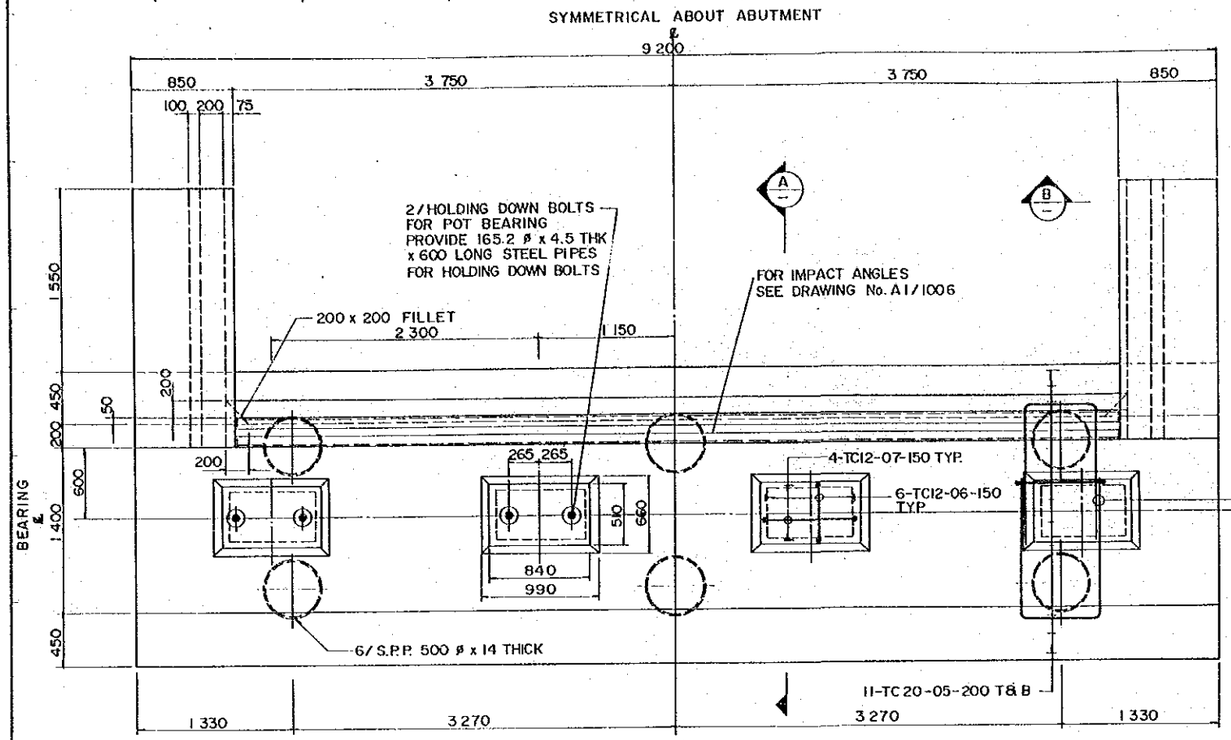
SHEET 253 OF 281

PROJECT No.

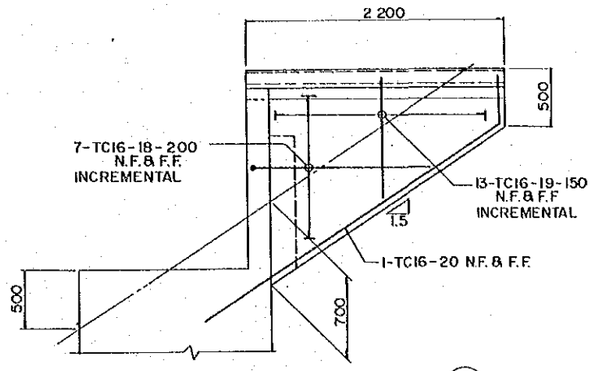
CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.1 - TAIENA BRIDGE
GENERAL ARRANGEMENT.

PAPUA NEW GUINEA
DEPARTMENT OF WORKS

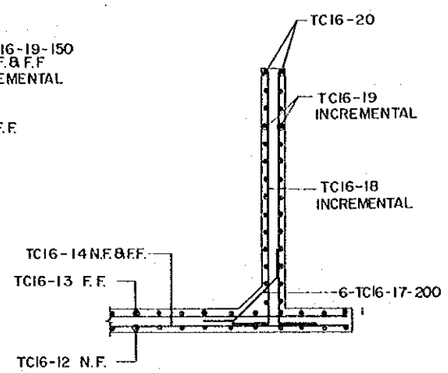
DRAWING No. A1 88011



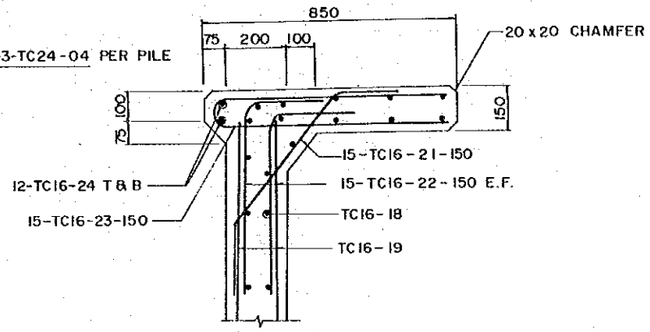
PLAN
1:25



TYPICAL WINGWALL VIEW (D)
1:25

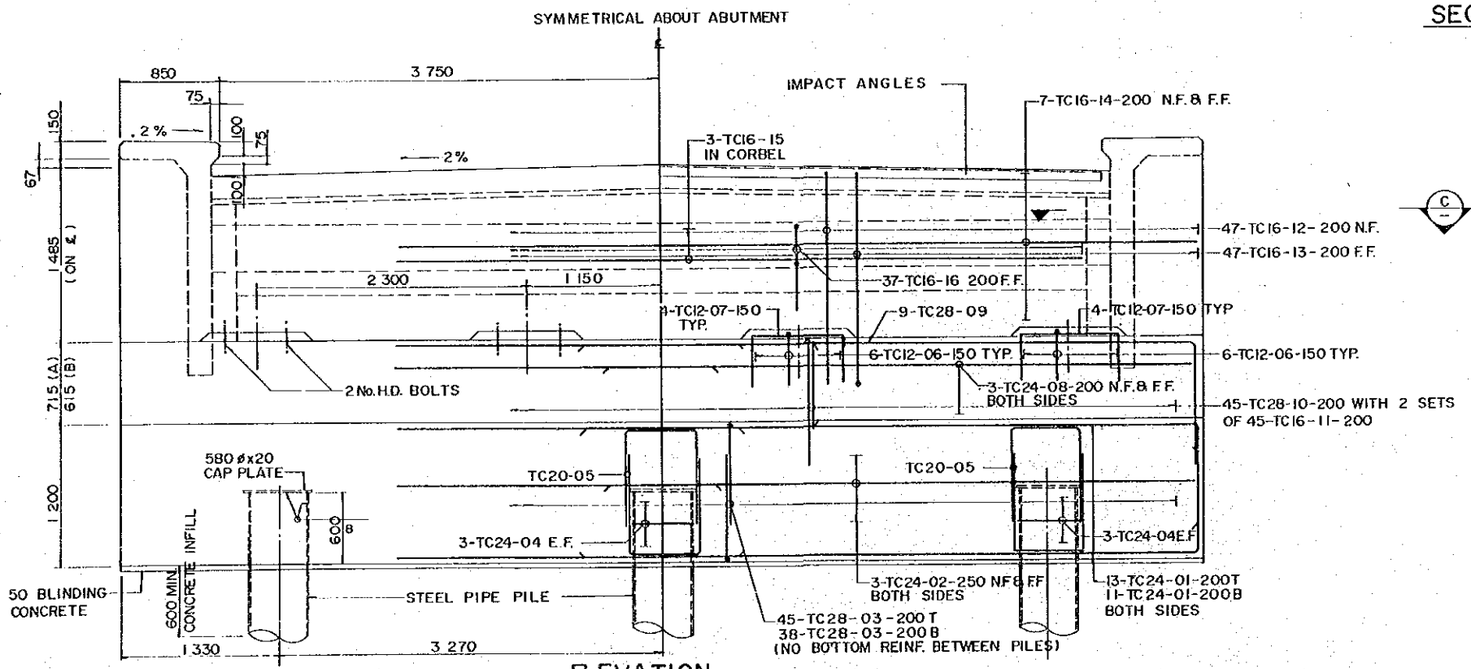


SECTION (C)
1:25

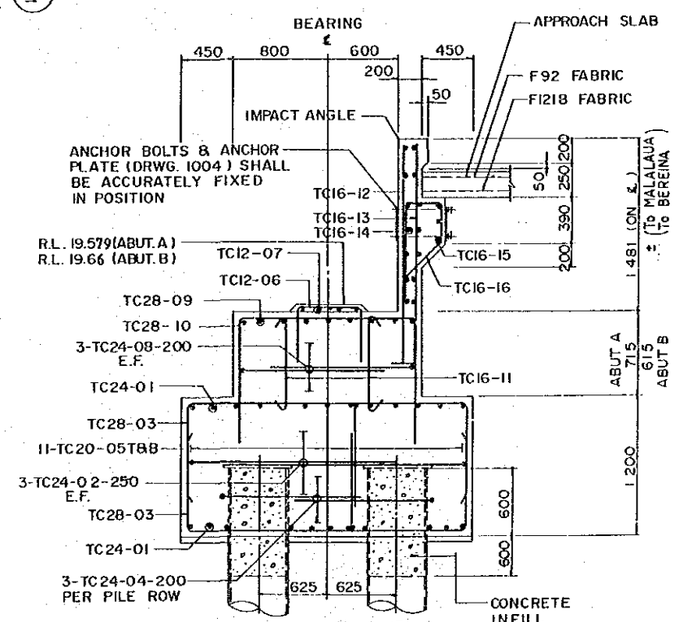


NOTE :
1. Backfill to Abutment wall provide min. 500 Free draining fill material
2. Approach slab extending 3000 from abutment 230 thick.
   Reinf. F92 Fabric top, F1218 fabric bottom.

SECTION (B)
1:10



ELEVATION
1:25



SECTION (A)
1:25

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Yudenich, Principal — 25 Sep. 1989 — Date

DRAWN: M.S
CHECKED:
DESIGNED:
CHECKED:

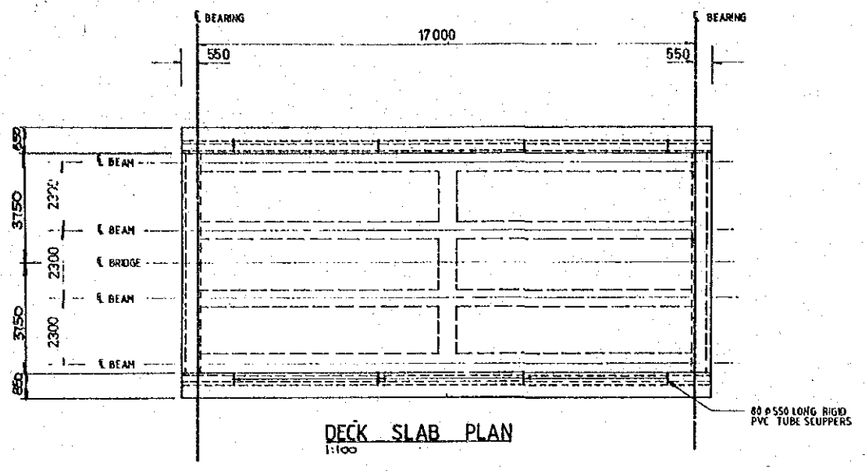
PROJECT ENGINEER — 11/1/89
EXECUTIVE ENGINEER — 11/1/89

RECOMMENDED: PRINCIPAL ENGINEER — 11.11.89
APPROVED: PAS(T) SECRETARY — 1.11.89

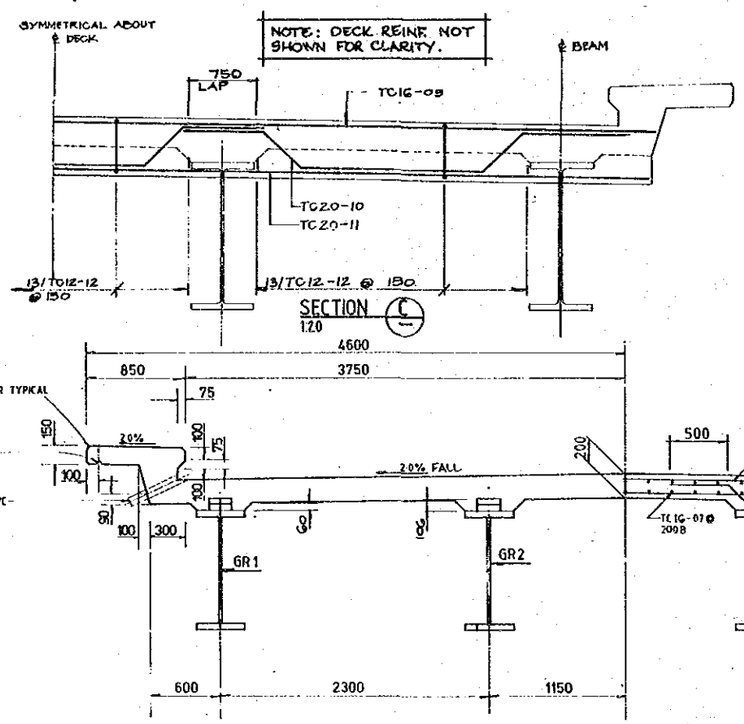
SCALES

SHEET 251 OF 281
PROJECT No. S.C. 120-33-814/A

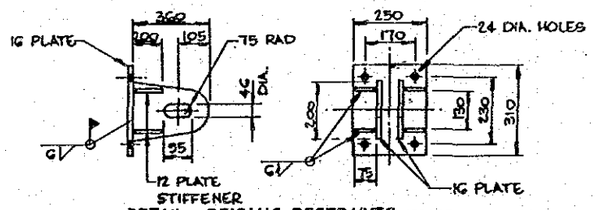
CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.1 - TAIENA BRIDGE
ABUTMENT - CONCRETE & REINFORCEMENT DETAILS.
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1 88012
REV.



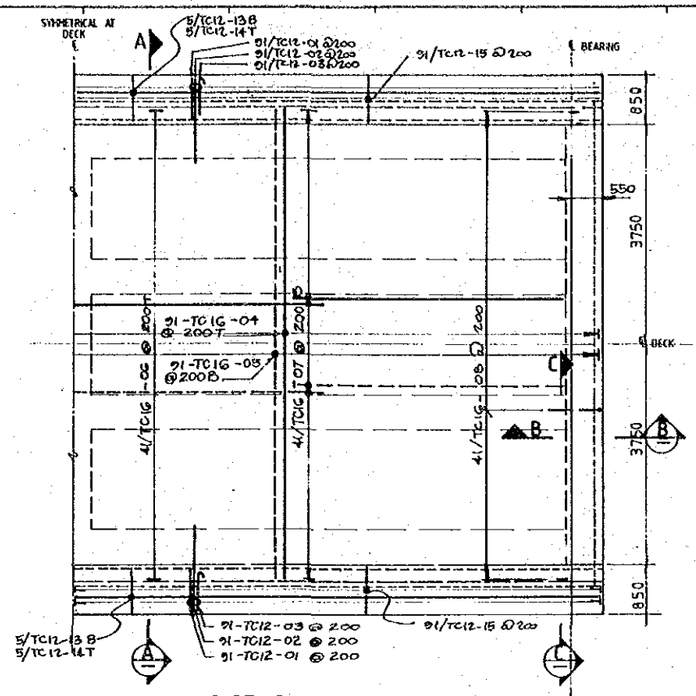
DECK SLAB PLAN
1:100



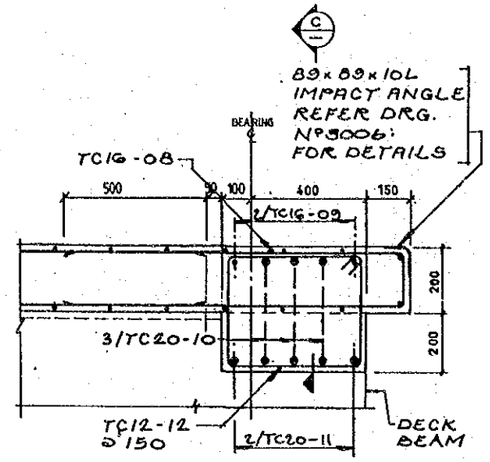
SECTION A
1:25



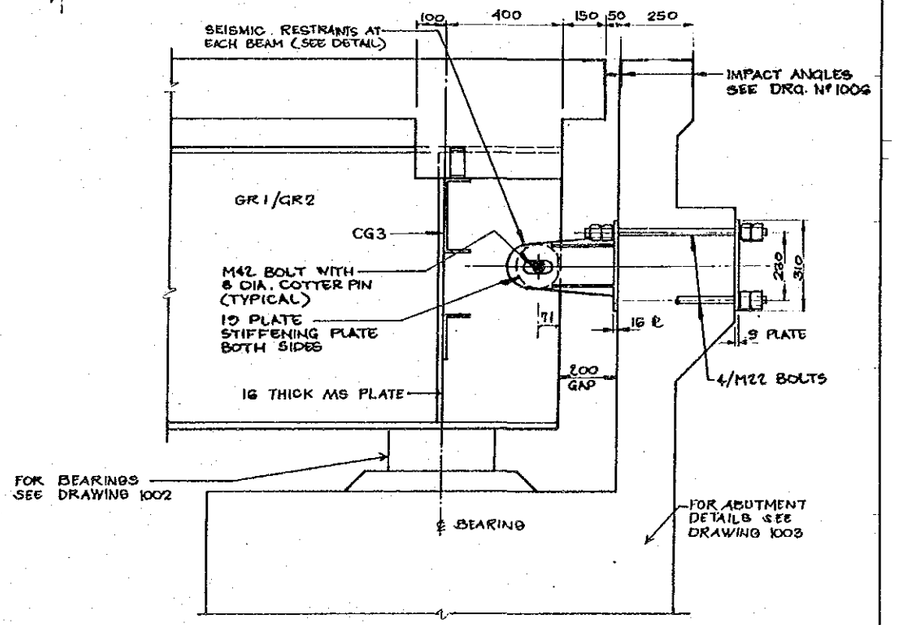
DETAIL – SEISMIC RESTRAINTS (GRADE 250 STEEL)
1:10



PART PLAN REINFORCEMENT
1:50



SECTION B
1:10



DETAIL 1
1:10

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK NR.:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Mahuchi — Principal — 25 Sep. 1989 — Date

DRAWN: M·S
CHECKED: M. Ihuinja
DESIGNED: M. Ihuinja
CHECKED: M. Doi

PROJECT ENGINEER — 1/10/89
EXECUTIVE ENGINEER — 1/10/89

RECOMMENDED: PRINCIPAL ENGINEER — 11/10/89
APPROVED: I. K. M. — FOR SECRETARY

SCALES

SHEET 255 OF 281

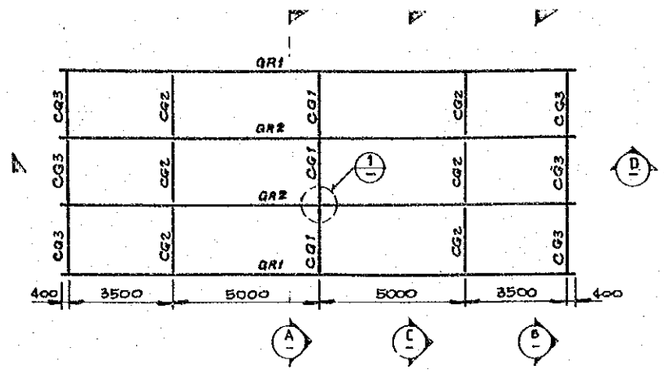
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.1 - TAIENA BRIDGE
CONCRETE DECK DETAILS

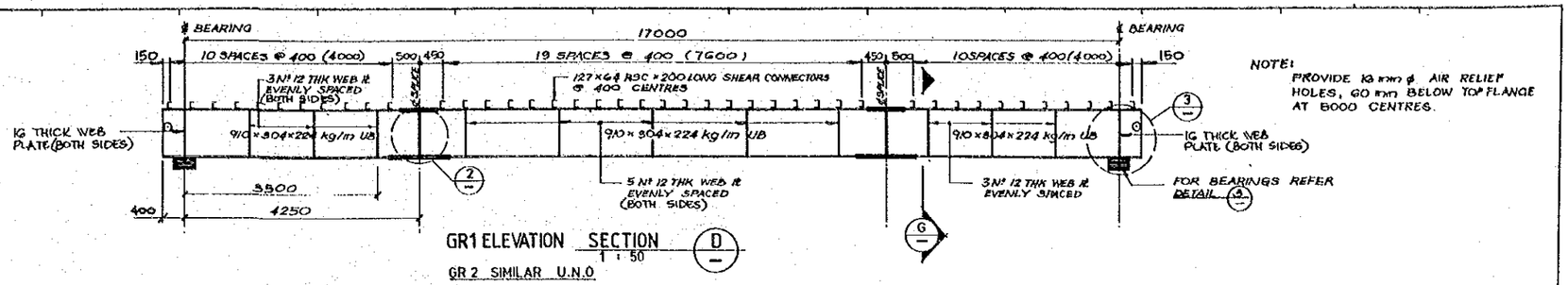
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1/88013

REV.

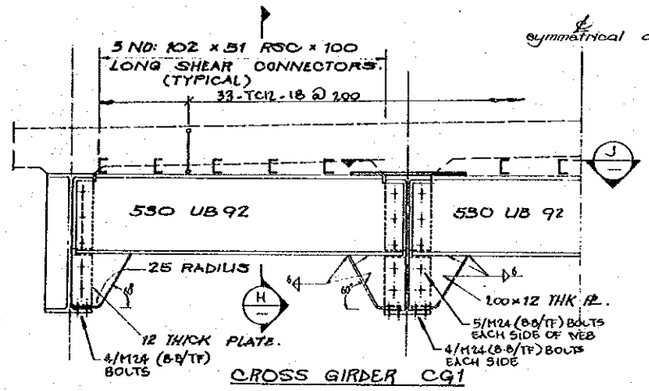


STEELWORK LAYOUT PLAN
SCALE 1:100

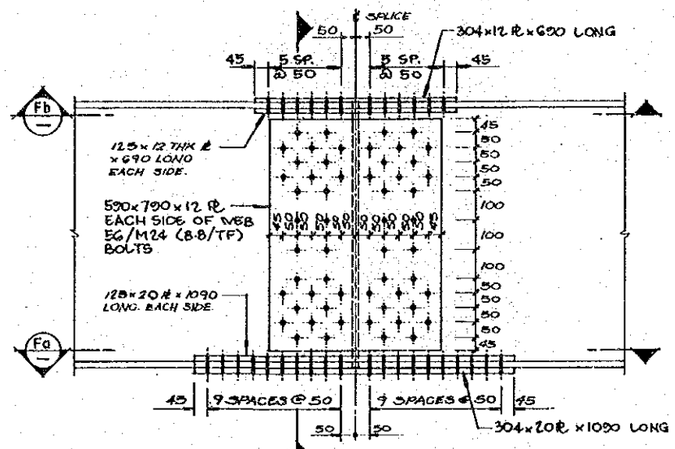


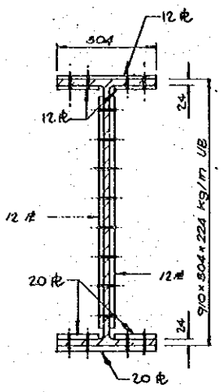
NOTE:
PROVIDE 40 mm ϕ AIR RELIEF HOLES, 60 mm BELOW TOP FLANGE AT 8000 CENTRES.

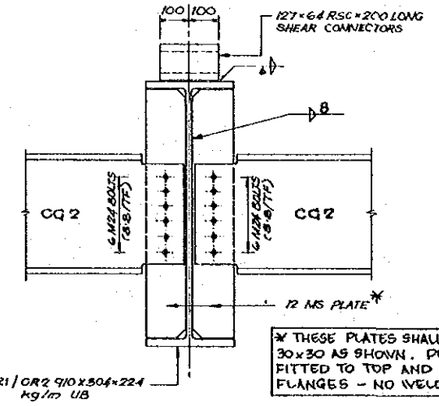
GR1 ELEVATION SECTION D
1 : 50
GR 2 SIMILAR U.N.O



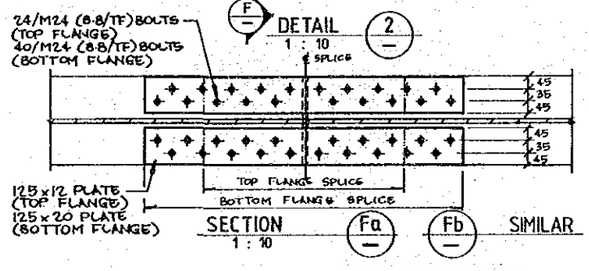
CROSS GIRDER CG1





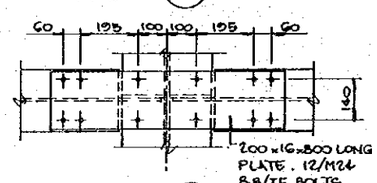


* THESE PLATES SHALL BE FILLETED 30×30 AS SHOWN. PLATES TO BE FITTED TO TOP AND BOTTOM FLANGES - NO WELDS

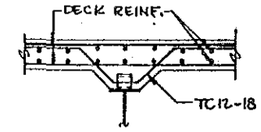


DETAIL 2
1 : 10

SECTION F
1 : 10

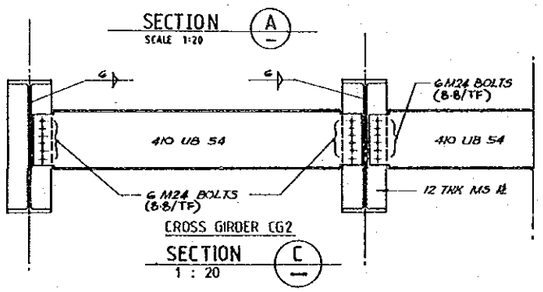


SECTION G
1 : 10



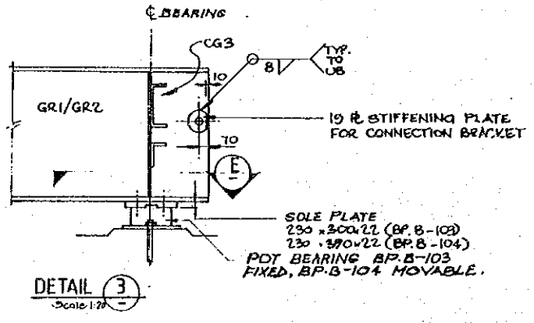
SECTION H
1:20

SECTION A
SCALE 1:20

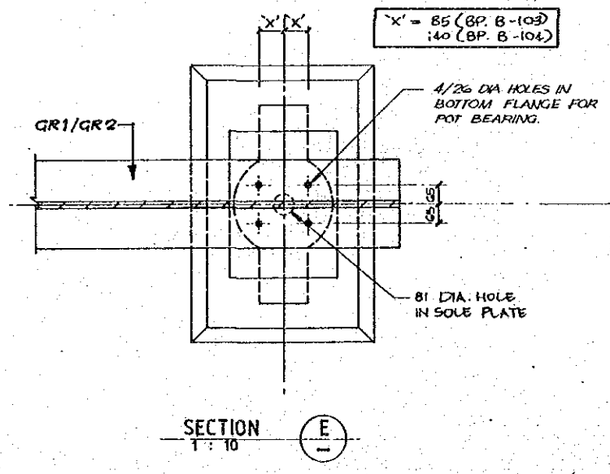


CROSS GIRDER CG2

SECTION C
1 : 20

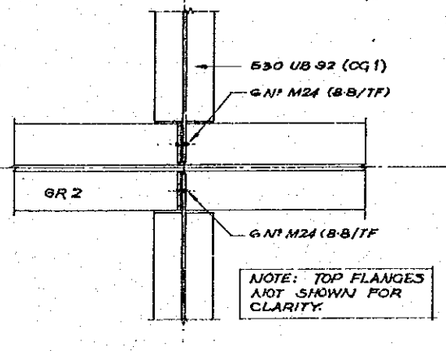


DETAIL 3
Scale 1:10



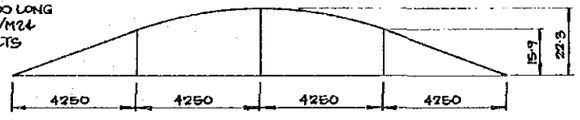
'X' = 85 (BP. B-103)
:40 (BP. B-104)

SECTION E
1 : 10

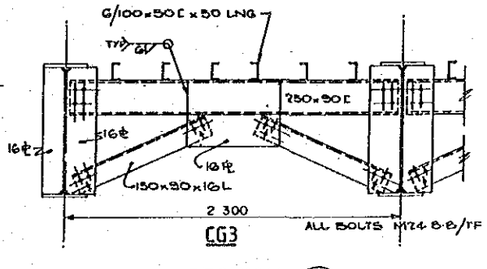


NOTE: TOP FLANGES NOT SHOWN FOR CLARITY.

DETAIL 1
1 : 10



PRECAMBER DIAGRAM · GR1/GR2
1:100



SECTION B
1 : 20

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK Nº.8

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Makoto, Principal, 25 Sep. 1989 Date

DRAWN: P.G, M.S
CHECKED
DESIGNED: M. Shinji
CHECKED

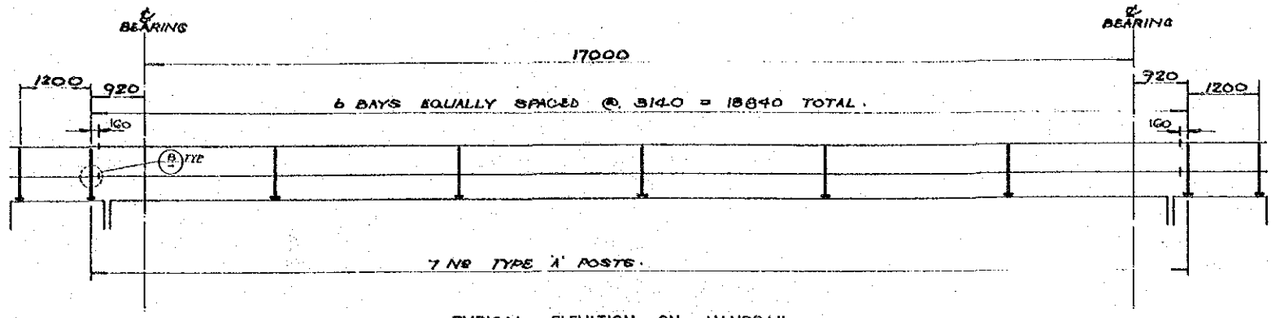
PROJECT ENGINEER 1/11/89
EXECUTIVE ENGINEER 1/11/89

RECOMMENDED 1/11/89 PRINCIPAL ENGINEER
APPROVED 1.11.89 SECRETARY

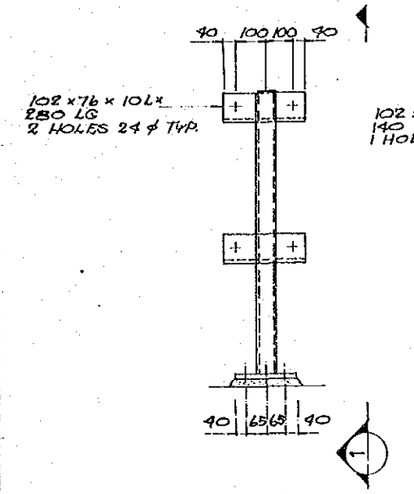
SCALES

SHEET 256 OF 281
PROJECT No. S.C.120-33-814/A

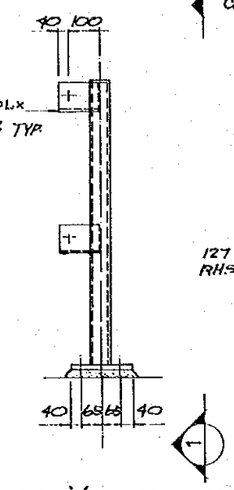
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.1 - TAIENA BRIDGE
STEEL WORK DETAILS
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 88014
REV.



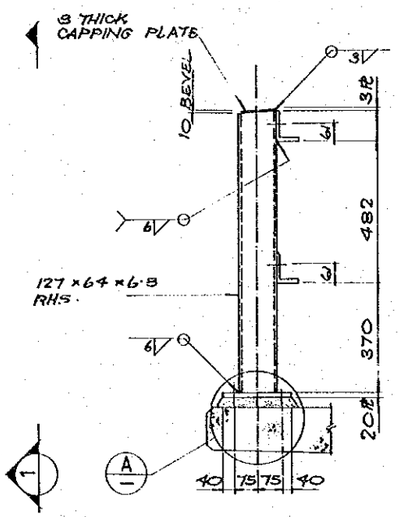
TYPICAL ELEVATION ON HANDRAIL
1:50



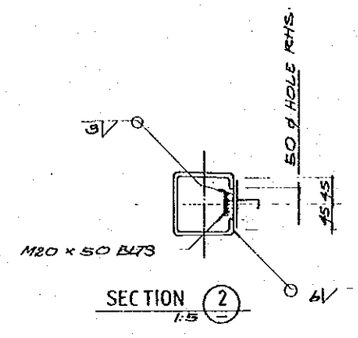
TYPE 'A' HANDRAIL POST
1:10



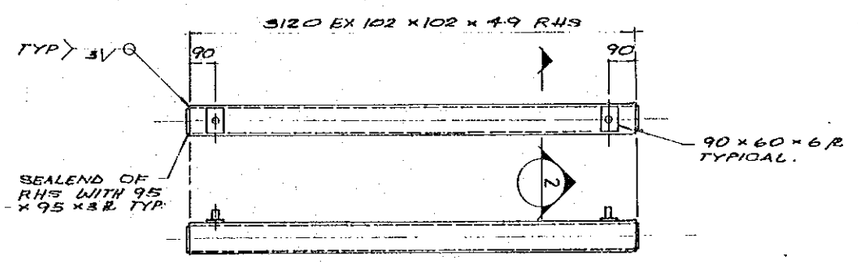
TYPE 'B' HANDRAIL POST
1:10



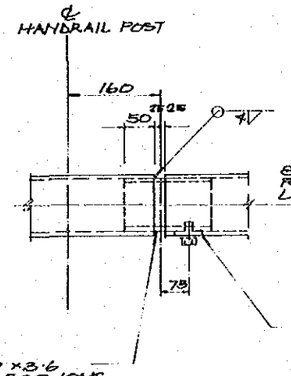
SECTION (1)
1:10



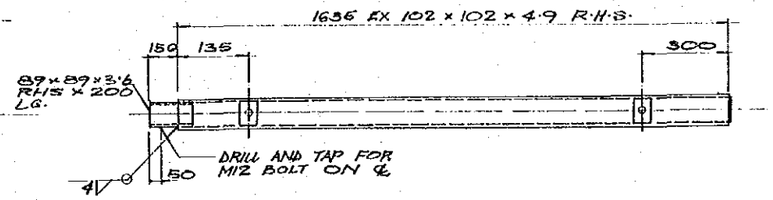
SECTION (2)
1:5



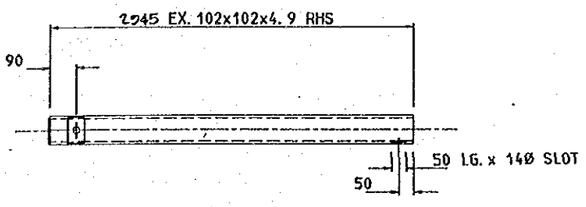
INTERNAL BAY HANDRAIL



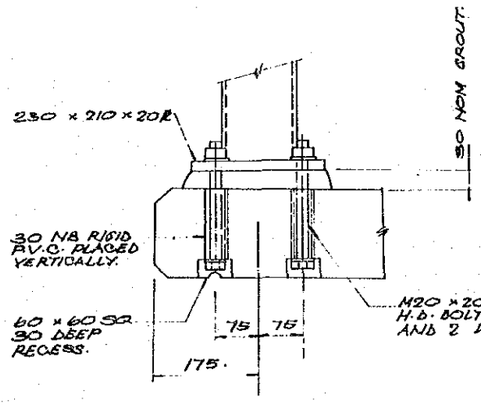
DETAIL (B) TYPICAL
1:5



END BAY HANDRAIL

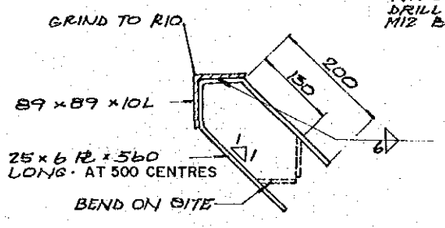


PENULTIMATE BAY HANDRAIL



DETAIL (A)
1:5

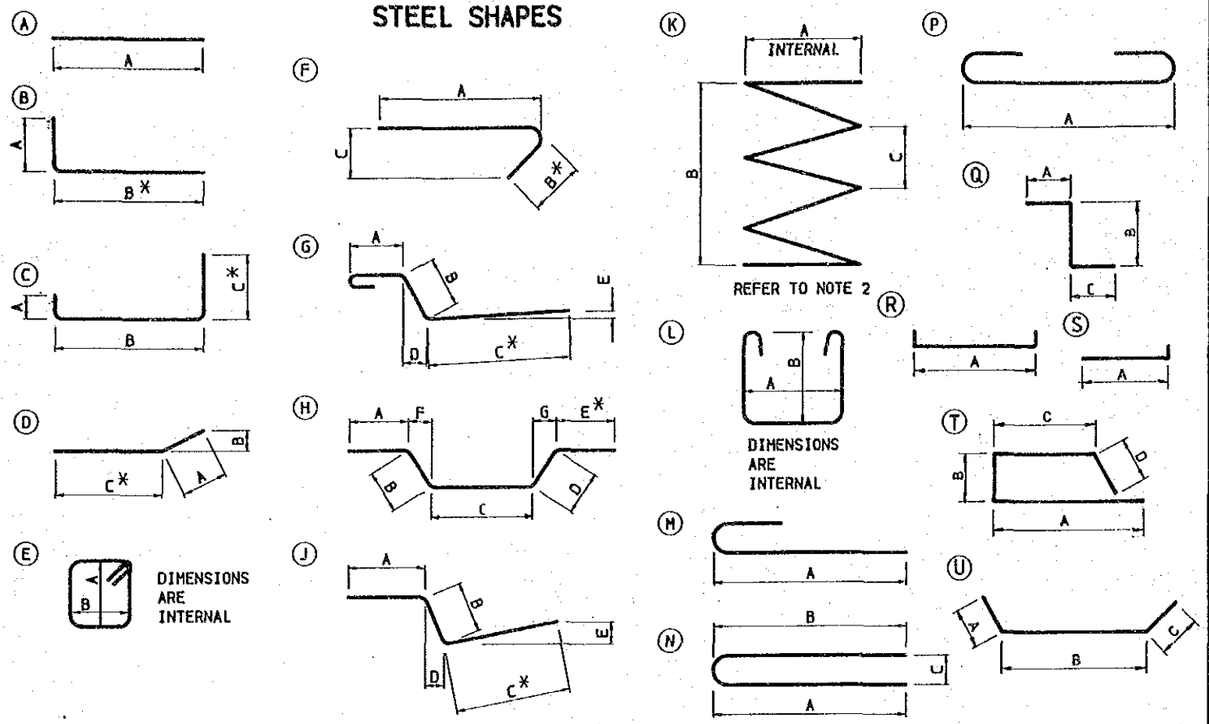
NOTE: ALL BOLTS TO BE M20



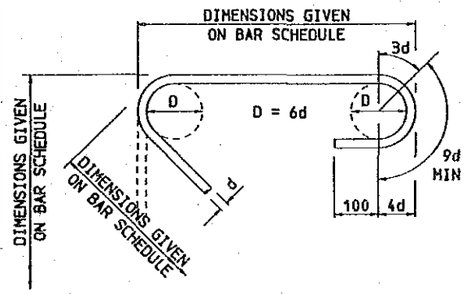
DETAIL - IMPACT ANGLE
1:5

REV.	AMENDMENTS	BY	APP'D	DATE	SURVEY: JICA (Date) / VERTICAL DATUM: MEAN SEA LEVEL / HORIZONTAL DATUM / SURVEY BOOK NR.S	DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Hutchins, Principal, 25 Sep. 1989 (Date)	DRAWN: M.S / CHECKED / DESIGNED: M. Shimizu / CHECKED	PROJECT ENGINEER 1/11/89 / EXECUTIVE ENGINEER 1/11/89	RECOMMENDED: PRINCIPAL ENGINEER 1.11.89 / APPROVED 1.11.89: SECRETARY	SCALES	SHEET 257 OF 281 / PROJECT No. S.C. 120-33-814/A	CENTRAL / GULF PROVINCES — TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION — BRIDGE No.1 - TAIENA BRIDGE — HANDRAILING / IMPACT ANGLE DETAILS — PAPUA NEW GUINEA DEPARTMENT OF WORKS / DRAWING No. A1/88015 / REV.

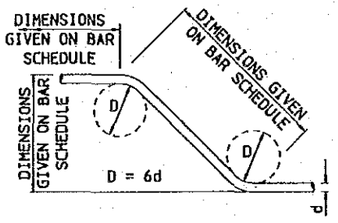
STEEL SHAPES



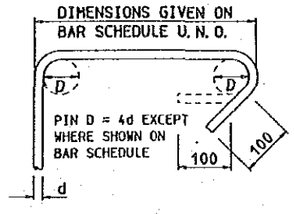
STANDARD HOOKS AND BENDS



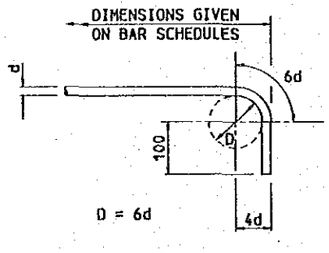
ACUTE ANGLE AND 90° BEND



OBTUSE ANGLE BEND



BENDS AND HOOKS FOR STIRRUPS AND LIGATURES (ENCOMPASSING)



RIGHT ANGLE BEND

NOTES

1. EXPLANATION OF BAR MARKS
   e.g. 40 - TC32 - 07 - 250 - B
   - 40 — No. OFF
   - TC32 — TYPE / BAR DIAMETER
   - 07 — LOCATION MARK
   - 250 — SPACING
   - B — BAR MARK
2. SPIRAL LENGTH HAS BEEN CALCULATED ASSUMING WELDED LAP SHOWN ON DRG. 86052
3. DIMENSIONS ARE OUTSIDE TO OUTSIDE OF BARS UNLESS NOTED OTHERWISE
4. * DENOTES TOLERANCE TO BE TAKEN UP ON THIS DIMENSION WHICH IS OMITTED FROM THE BAR BENDING SCHEDULE
5. ** DENOTES NO ALLOWANCE HAS BEEN MADE FOR LAPS
6. ALL HOOKS AND BENDS ARE TO BE IN ACCORDANCE WITH THE STANDARD DETAILS
7. OMISSION OF DIMENSION FOR PARTS OF STANDARD SHAPES IN THE SCHEDULE SHALL INDICATE DELETION OF THOSE PARTS
8. *REINFORCING BARS TO BE EITHER*
   a) DEFORMED TEMPCORE (T. C.) BARS GRADE 410
   b) PLAIN ROUND (R) BARS GRADE 230

TEMPCORE GRADE DEFORMED

TYPE & DIA	MARK	No. OFF	A	B	C	D	E	F	G	CUTTING LENGTH (mm)	MASS (kg)	SHAPE CODE	REMARKS
TC24	01	96	850	525 *						6076	2071·8	B	
TC24	02	24	1770	5020*						6766	576·6	B	
TC28	03	166	850	2400	850 *					4044	5245·1	C	
TC24	04	96	1180	600	1150 *					2852	364·6	C	
TC20	05	182	850	648	850					2308	751·3	C	
TC12	06	48	450	500	450 *					1376	58·6	C	
TC12	07	32	450	800	450					1676	47·6	C	
TC24	08	24	1220	5020 *						6216	529·8	B	
TC28	09	36	1070	5250 *						6292	1094·9	B	
TC28	10	90	1070	1500	1070 *					3584	1559·8	C	
TC16	11	180	775							1105	322·5	P	
TC16	12	94	1875							1875	278·2	A	
TC16	13	94	200	1575*						1759	241·1	B	
TC16	14	28	9100							9100	402·3	A	
TC16	15	6	7150							7180	67·7	A	
TC16	16	74	740	320	330	450				1808	211·3	T	
TC16	17	24	200	550	200					950	36	U	
TC16	18	40	600	300 *		TOTAL	LENGTH	= 66.00	m	884	78·2	B	
	TO	(8 sets of 5)	2100	300 *		TOTAL	WEIGHT	= 104·168	kg	2884	210·8	B	INCREMENTAL = 500
TC16	19	104	583			TOTAL	LENGTH	= 117·852	m	595	87·5	A	
	TO	(8 sets of 13)	1733			TOTAL	WEIGHT	= 186·057	kg	1788	284·6	A	INCREMENTAL = 100
TC16	20	8	3043	2500	400 *					3443	48·5	P	
TC16	21	60	200	500	200					900	85·2	U	
TC16	22	120	250	600*						884	138	B	
TC16	23	60	750	750	90					1526	144·6	N	
TC16	24	48	2100							2100	159·1	A	
				TOTAL	TONNAGE		13.420	tonnes.	2 Nº	ABUTMENTS			
TC12	01	182	400	440	570 *	165				1410	227·5	J	
TC12	02	182	675	410	365					1418	229·1	G	
TC12	03	182	700	300 *						1000	161·6	F	
TC16	04	91	8100							8460	1215·6	P	
TC16	05	91	8000							8000	1149·5	A	
TC16	06	41	16900							16900	1055·1	A	
TC16	07	41	16900							16900	1055·1	A	
TC16	08	82	1170	1170	130					2389	283·4	N	
TC16	09	4	8000							8000	50·5	A	
TC20	10	18	750	370	1300	370	750 *	225	225	3540	157·1	H	
TC20	11	12	2200							2200	65·1	A	
TC12	12	78	310	415						1605	101·1	E	
TC12	13	10	18000							18000	159·9	A	
TC12	14	10	18000							18000	159·9	A	
TC12	15	182	675							675	109·1	H	
TC16	16	182	500	280	200	280	500 *	200	200	1760	505·8	H	
TC16	17	182	500	220	200	220	300 *	160	160	1440	413·8	H	
TC12	18	33	500	220	180	220	500 *	160	160	1620	47·4	H	
				TOTAL	TONNAGE	7·237	tonnes	1 Nº	DECK				

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Yakuwa, Principal — 25 Sep. 1989 Date

DRAWN: M.S — CHECKED — DESIGNED: M. Shimizu — CHECKED — PROJECT ENGINEER 1/11/89 — EXECUTIVE ENGINEER 1/11/89

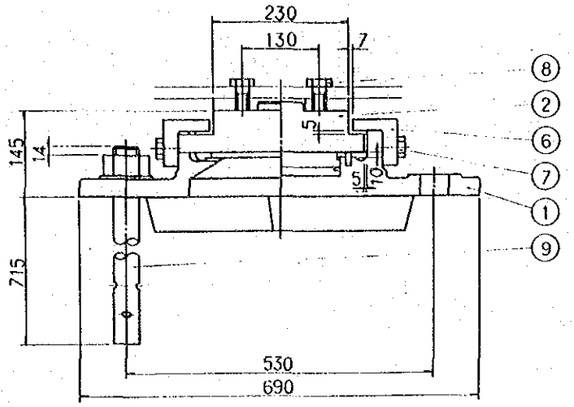
RECOMMENDED — PRINCIPAL ENGINEER — APPROVED 1.11.89 — SECRETARY FAS(T)

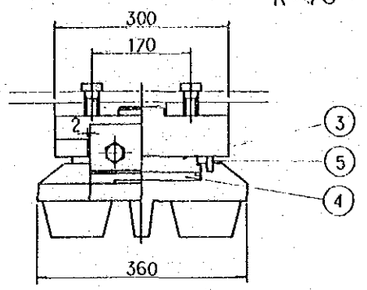
SCALES

SHEET 258 OF 281 — PROJECT No. S.C. 120-33-814/A

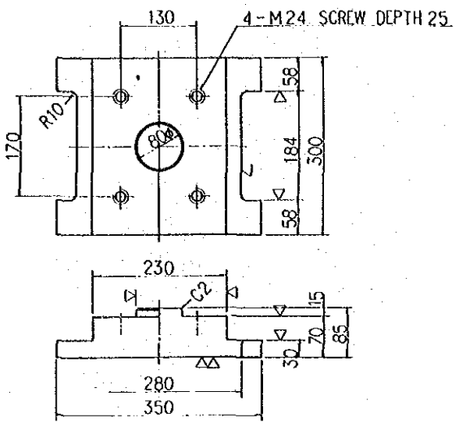
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.1 - TAIENA BRIDGE
BAR BENDING SCHEDULE
PAPUA NEW GUINEA DEPARTMENT OF WORKS — DRAWING No. A1/88016 — REV.

R-75TON Fix BEARING





② ∼ (▽ ▽▽) SS41



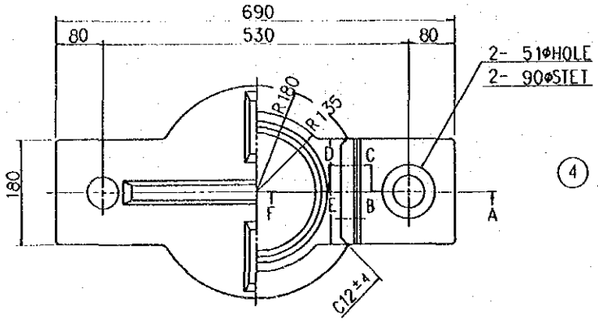
DESIGN CONDITION

TOTAL REACTION	R	50.2 ton
DEAD LOAD REACTION	Rd	12.1 ton
LIVE LOAD REACTION	RL(i)	38.1 ton
LONGITUDINAL FORCE (FRICTION)	RH1f	5.0 ton
LONGITUDINAL FORCE (EARTHQUAKE)	RH1e	10.6 ton
TRANSVERSE FORCE (EARTHQUAKE)	RH2e	5.1 ton
UPLIFT (EARTHQUAKE)	V	1.2 ton
SEISMIC COEFFICIENT	KH	0.42
FRICATIVE COEFFICIENT	f	0.1
BEARING STRESS OF CONCRETE	σba	80 kg/cm²

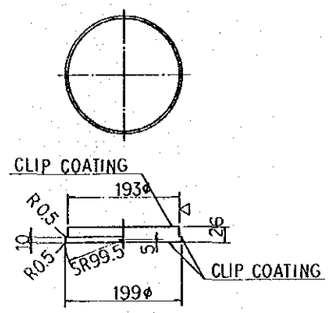
MATERIAL LIST

MAKE	NAME	MATERIAL	NO	WEIGHT	NOTE
1	LOWER BEARING	SC46	1	67.7	
2	UPPER BEARING	SS41	1	43.6	
3	MIDDLE PLATE	SS41	1	6.1	
4	RUBBER PLATE	CHLOROPRENE RUBBER	1	0.6	
5	SEAL RING	CHLOROPRENE RUBBER	1	0.3	
6	SIDE BLOCK	SS41	2	8.4	
7	BOLT	SS41	4	0.7	M20-50 (S=46)
8	BOLT	SS41	4		M24-? (S=54)
9	ANCHOR BOLT·NUT	SS41	2	22.4	
TOTAL WEIGHT (kg)				149.8	

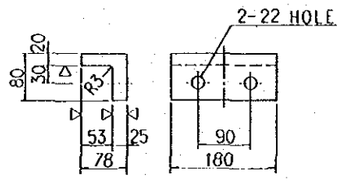
① ∼ (▽ 12.5S ▽▽) SC46



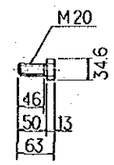
③ 12.5S ▽▽ (▽) SS41



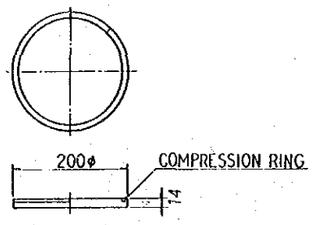
⑥ ∼ (▽) SS41



⑦ SS41



④ ∼ CHLOROPRENE RUBBER



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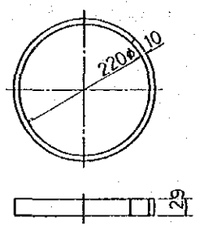

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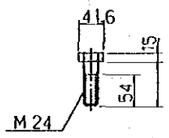

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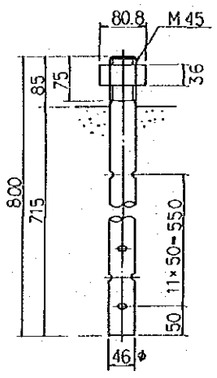
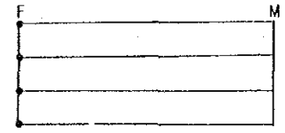


PLAN



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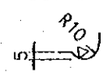
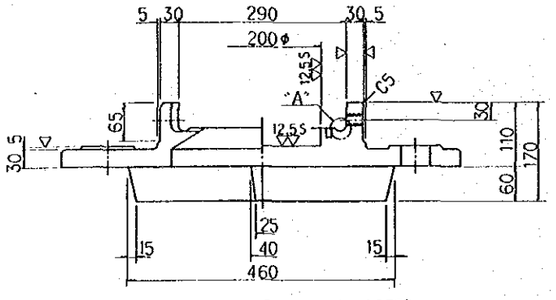
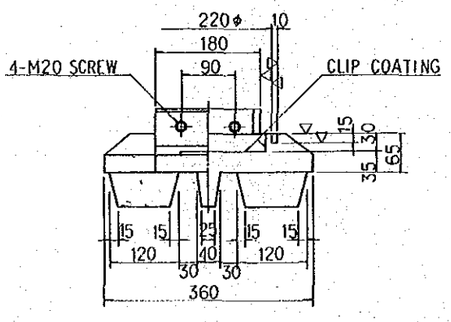


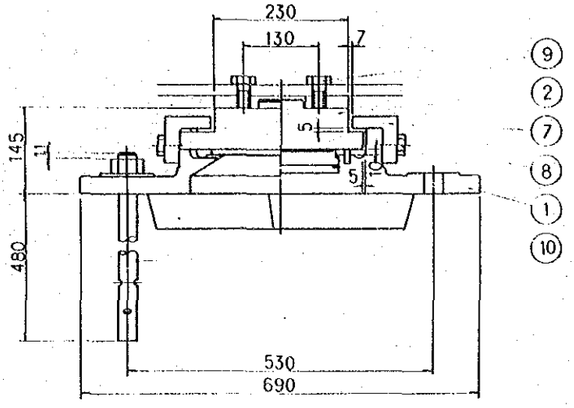


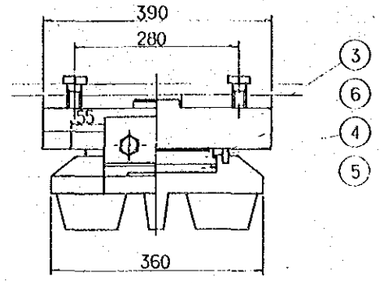
SECTION "ABCDEF"



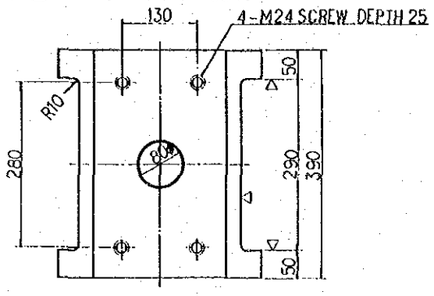
REV.	AMENDMENTS	BY	APP'D	DATE	SURVEY: JICA; VERTICAL DATUM: MEAN SEA LEVEL; HORIZONTAL DATUM; SURVEY BOOK Nº.s	DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY; Principal 25 Sep. 1989	DRAWN: M·S; CHECKED; DESIGNED; CHECKED	PROJECT ENGINEER 1/9/89; EXECUTIVE ENGINEER 1/11/89	RECOMMENDED; APPROVED 1·11·89 (A.S(TS)) SECRETARY	SCALES	SHEET 259 OF 281; PROJECT No. S.C.120-33-814/A	CENTRAL / GULF PROVINCES; TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION; BRIDGE No.1 - TAIENA BRIDGE; BEARING BP-B - 103 (FIXED); PAPUA NEW GUINEA DEPARTMENT OF WORKS; DRAWING No. A1/ 88017	REV.

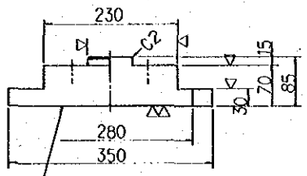
R=75 TON M_{ov} BEARING





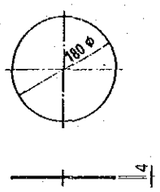
② ▽ ▽▽▽ SS41



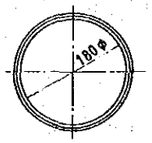


HARD CHROMIUM COATINGS

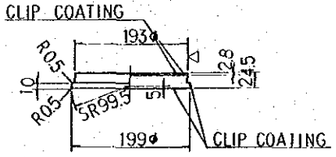
③ ∼ PTFE



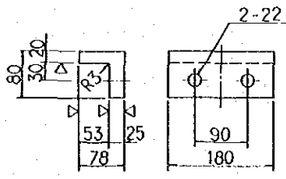
④ 12.5S ▽ SS41



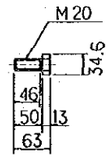
CLIP COATING



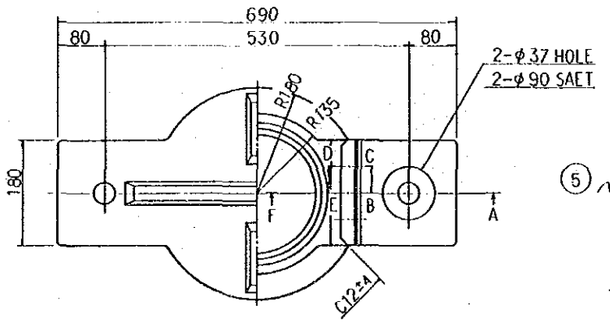
⑦ ∼ (▽) SS41



⑧ SS41



① ∼ (▽ 12.5S ▽▽) SC46



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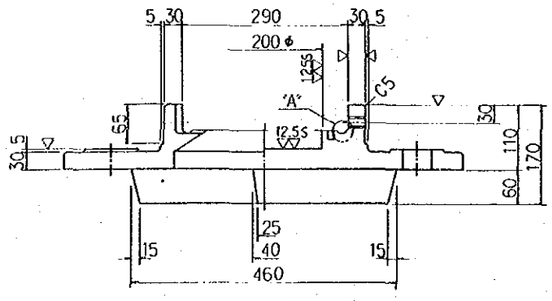
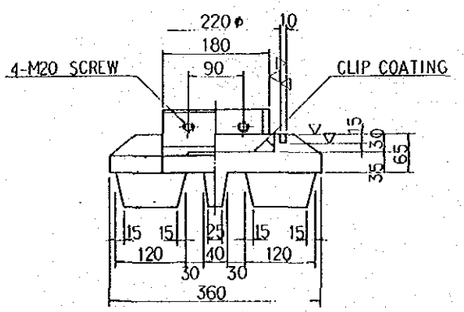
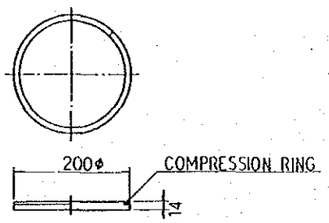


SECTION "ABCDEF"



⑤ ∼ CHLOROPRENE RUBBER



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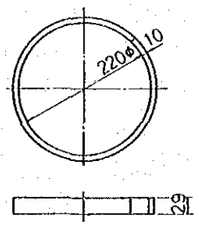

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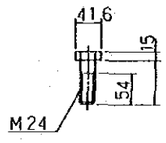
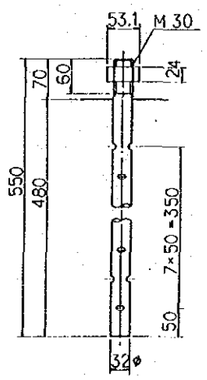
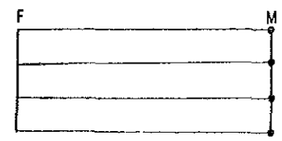


⑩ ∼ SS41



PLAN



DESIGN CONDITION

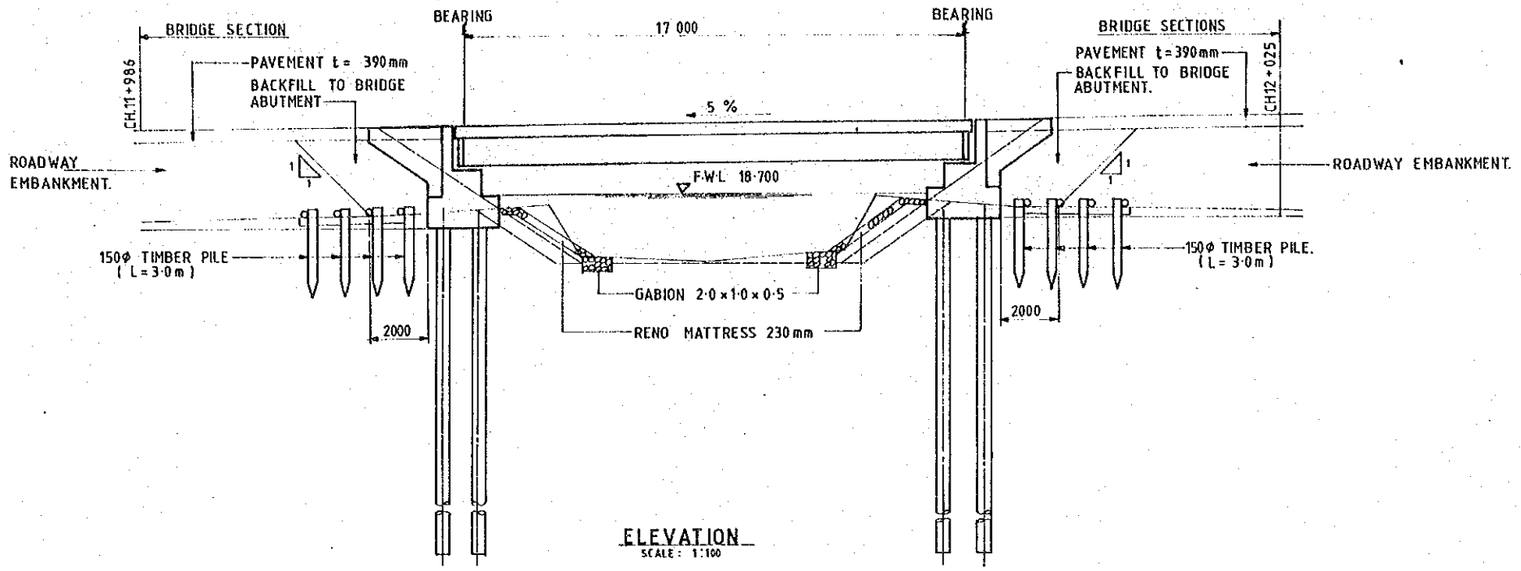
TOTAL REACTION	R	48.9	ton
DEAD LOAD REACTION	Rd	13.2	ton
LIVE LOAD REACTION	R(l.l)	35.7	ton
LONGITUDINAL FORCE (FRICTION)	RH1f	4.9	ton
LONGITUDINAL FORCE (EARTHQUAKE)	RH1e	5.5	ton
TRANSVERSE FORCE (EARTHQUAKE)	RH2e	5.5	ton
UPLIFT (EARTHQUAKE)	V	1.3	ton
MOVABLE LENGTH	e1	50	mm
DESIGNED LENGTH	e2	70	mm
TOTAL LENGTH	e	110	mm
SEISMIC COEFFICIENT	KH	0.42	
FRICATIVE COEFFICIENT	f	0.1	
BEARING STRESS OF CONCRETE	σba	80	kg/cm²

MATERIAL LIST

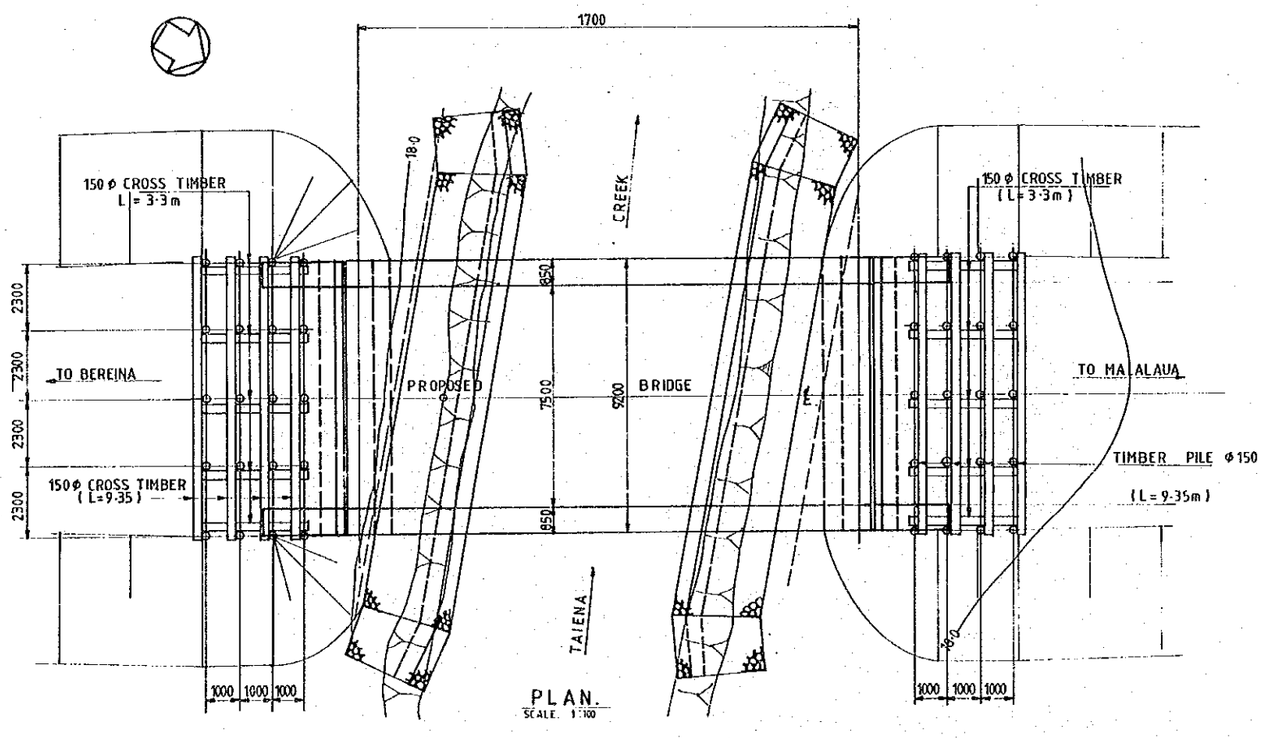
MAKE	NAME	MATERIAL	NO	WEIGHT	NOTE
1	LOWER BEARING	SC46	1	68.2	
2	UPPER BEARING	SS41	1	55.8	
3	GLIDE PLATE	PTFE	1	0.2	
4	MIDDLE PLATE	SS41	1	5.3	
5	RUBBER PLATE	CHLOROPRENE RUBBER	1	0.6	
6	SEAL RING	CHLOROPRENE RUBBER	1	0.3	
7	SIDE BLOCK	SS41	2	8.4	
8	BOLT	SS41	4	0.7	M20 S=46, M24 S=54
9	BOLT	SS41	4		
10	ANCHOR BOLT NUT	SS41	2	7.4	
TOTAL WEIGHT (kg)				146.9	

REV.	AMENDMENTS	BY	APP'D	DATE	SURVEY: JICA Date; VERTICAL DATUM: MEAN SEA LEVEL; HORIZONTAL DATUM; SURVEY BOOK NO.6	DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY; Principal 25 Sep. 1989 Date	DRAWN: M.S; CHECKED: Y. Doi; DESIGNED: M. Shimizu; CHECKED: Y. Doi	PROJECT ENGINEER; EXECUTIVE ENGINEER	RECOMMENDED: PRINCIPAL ENGINEER; APPROVED: I.A.89; SECRETARY	SCALES	SHEET 260 OF 281; PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.1 - TAIENA BRIDGE
BEARING BP-B-104 (MOVABLE)
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/88018
REV.



ELEVATION
SCALE : 1:100



PLAN.
SCALE. 1:100

TABLE OF QUANTITIES				
DESCRIPTION		UNIT	QUANTITY	REMARKS
CLEARING AND GRUBBING AT BRIDGE SITE		ha	0·1	
EXCAVATION FOR STRUCTURAL FOUNDATIONS	TYPE C	m^3	0	
	TYPE D	m^3	20	
BACKFILL TO EXCAVATIONS FOR STRUCTURAL FOUNDATIONS		m^3	8·3	
BACKFILL TO BRIDGE ABUTMENT		m^3	295	
ROADWAY EMBANKMENT		m^3	721	
BEARING UNITS	TIMBER PILE	m	120	150 φ
	CROSS TIMBER	m	107·8	150 φ
SAND MAT		m^3	0	
EXCAVATION FOR BANK PROTECTION WORKS (TYPE D)		m^3	51·8	
EXCAVATION FOR RIVER CHANNEL ALIGNMENT (TYPE D)		m^3	49·1	
GABIONS		m^3	19·5	
RENO MATTRESSES (TYPE B)		m^2	140·4	t = 230mm

NOTES:
1. PAVEMENT, ROAD SIGNS AND EXCAVATION FOR THE ROADWAY EMBANKMENT ARE INCLUDED IN ROAD WORKS.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.8

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Malcolm — Principal — 25 Sep. 1989 — Date

DRAWN: M·S — CHECKED: Y. Doi — DESIGNED: T. Kawakami — CHECKED: Y. Doi

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER

APPROVED — I. R. 89 — SECRETARY

SCALES

SHEET 261 OF 281

PROJECT No. S.C.120-33-814/A

CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No. 1. - TAIENA BRIDGE
RIVER BANK PROTECTIONS, BACKFILL TO BRIDGE ABUTMENT AND OTHERS

PAPUA NEW GUINEA DEPARTMENT OF WORKS

DRAWING No. A1 88019

GENERAL NOTES

1. ABBREVIATIONS

T	TOP	STRP	STIRRUP
B	BOTTOM	TRMR	TRIMMER
NF	NEAR FACE	MS	MILD STEEL
FF	FAR FACE	SYMM	SYMMETRICAL
EW	EACH WAY	NTS	NOT TO SCALE
EF	EACH FACE	TYP	TYPICAL
℄	CENTRELINE	FLG	FLANGE
R	PLATE		

2. DESIGN LOADINGS

NORMAL		T44	STANDARD VEHICLE
ABNORMAL		60T	TONNE VEHICLE
EARTHQUAKE		EEBPNG	1985 ZONE 4
DECK		A14	

3. PILING

ALL PILING SHALL BE THE SPECIFIED GRADE
MAXIMUM TOLERANCE ON PLAN POSITION AT PILE TOP FOR ANY PILE = ± 75mm

PILE CONTRACT LENGTHS			SIZE
MALALAUA	ABUTMENT	10.2 m × 6 nos	500ϕ x 14THK
BEREINA	ABUTMENT	10.2 m × 6 nos	500ϕ x 14THK

MAX PILE WORKING COMPRESSION LOADS 1140 kN
THE TIP OF THE PILE SHALL BE REINFORCED AS SHOWN
TEST PILE 10·0m × 1no 500 ϕ × 14 THK

4. CONCRETE

ALL CONCRETE SHALL BE GRADE 25. (f'_c = 25 MPa)

5. REINFORCING STEEL

ALL REINFORCEMENT SHALL BE EITHER :-

a) TEMPCORE (T.C.) BARS OF 410 MPa
b) ROUND (R) BARS OF 230 MPa

6. LAP LENGTHS

UNLESS NOTED OTHERWISE LAP LENGTHS TO BE AS FOLLOWS :-

12	DIA	500mm
16	DIA	650mm
20	DIA	800mm
24	DIA	1000mm
28	DIA	1500mm
32	DIA	1650mm

7. COVER TO OUTSIDE FACE OF REINFORCEMENT

DECK
a) TOP OF ROADWAY 35mm
BOT OF ROADWAY AND ELSEWHERE 30mm
PIER
a) CROSS BEAM 40mm
b) COLUMNS 40mm
c) PILE CAP 65mm

ABUTMENT
a) WINGWALL/BACKWALL
- OPEN FACES 30mm
- FILL FACES 50mm

b) PILE CAP 65mm

8. STRUCTURAL STEELWORK

ALL MAIN BEAMS, COVER PLATES AND SPLICE PLATES TO BE GRADE 350 STEEL. ALL OTHER STEELWORK TO BE GRADE 250 STEEL. ALL WELDS SHALL BE 6mm CONTINUOUS FILLET WELDS UNLESS NOTED OTHERWISE.

9. BOLTING

ALL BOLTS ON MAIN STEELWORK (MAIN BEAMS, CROSS FRAMES AND BRACING) TO BE M24 8.8/TF.

ALL OTHER BOLTS TO BE GRADE 4.6/S

10. STEELWORK FINISHES

ALL SURFACES TO BE SUITABLY PROTECTED BY PAINT WORK *REFER TO SPECIFICATION.*

11. BEARINGS

ABUTMENT LOADS

DEAD LOAD = 164·43 kN
LIVE LOAD = 393·38 kN
TOTAL = 557·81 kN

BEARING ASSUMED FOR DETAILING = POT BEARING BP. B-103 (FIXED)
POT BEARING BP. B-104 (MOVABLE)

MEAN TEMPERATURE IS 26·1 °C AT THE PROJECT SITE

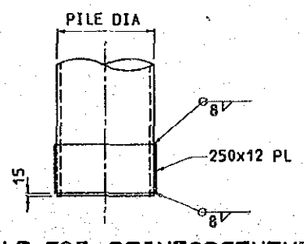
12. MAIN BEAM PRECAMBER

STEEL BEAMS TO BE PRECAMBERED TO THE UNSTRESSED PROFILE SHOWN ON THE DRAWINGS

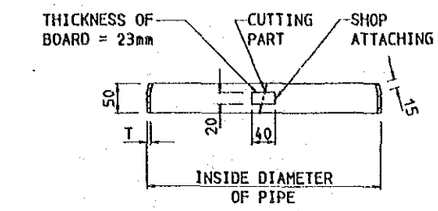
13. ERECTION

THE CONTRACTOR IS TO PROVIDE DETAILS OF ERECTION PROCEDURES TO THE ENGINEER PRIOR TO ERECTION OF THE GIRDERS, THIS IS TO ENSURE THAT THE ALLOWABLE STRESSES ON THE GIRDER SECTIONS ARE NOT EXCEEDED

ABUTMENT A - BEREINA SIDE
ABUTMENT B - MALALAUA SIDE



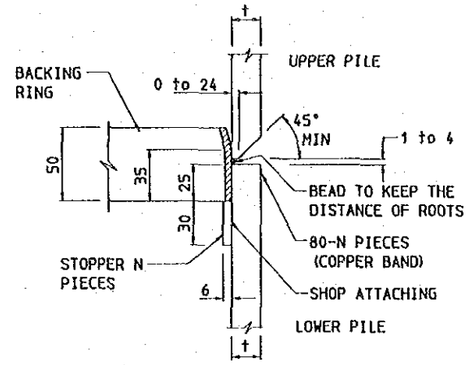
PILE TOE REINFORCEMENT (OPEN END)



BACKING RING - CROSS SECTION

THICKNESS OF BACKING RING

OUTSIDE DIAMETER D	T (mm)
1016 AND UNDER	4.5
OVER 1016	6.0



BACKING RING AND STOPPER

NUMBER OF STOPPERS

OUTSIDE DIAMETER D (mm)	N NUMBER OF PIECES
609.6 AND UNDER	4
OVER 609.6 to 1016 incl.	6
OVER 1016	8

NOTES
1. MAXIMUM PILE SECTION LENGTH EQUALS 10m.
2. WELDING TO BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.

SHAPES AND DIMENSIONS OF BACKING RING AND STOPPER

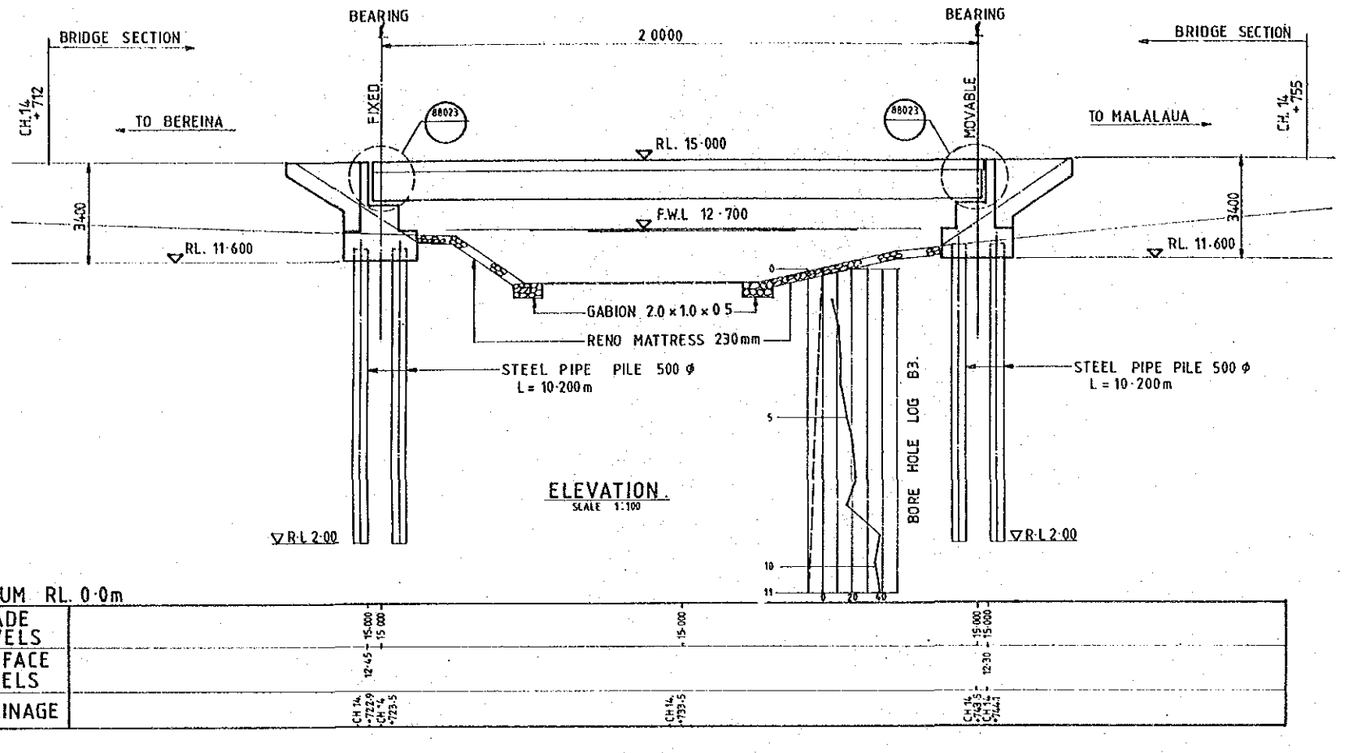
DRAWING LIST

DRG No.	DRAWING TITLE
88020	GENERAL NOTES AND DRAWING LIST.
88021	GENERAL ARRANGEMENT.
88022	ABUTMENT DETAILS.
88023	CONCRETE DECK DETAILS.
88024	STEEL WORK DETAILS.
88025	HANDRAILING /IMPACT ANGLE DETAILS.
88026	BAR BENDING SCHEDULE.
88027	BEARING BP.B-103 (FIXED)
88028	BEARING BP.B-104 (MOVABLE)
88029	RIVER BANK PROTECTIONS, BEARING UNITS, BACKFILL TO BRIDGE ABUTMENT AND OTHERS

REV	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NO.S
DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Malcia, Principal — 25 Sep. 1989 Date
DRAWN: M·S — CHECKED — DESIGNED: M. Shimizu — CHECKED
PROJECT ENGINEER 11/9/89 — EXECUTIVE ENGINEER 11/9/89
RECOMMENDED 11/9/89 PRINCIPAL ENGINEER — APPROVED 1.11.89 SECRETARY
SCALES
SHEET 262 OF 281 — PROJECT No S.C. 120-33-811/A

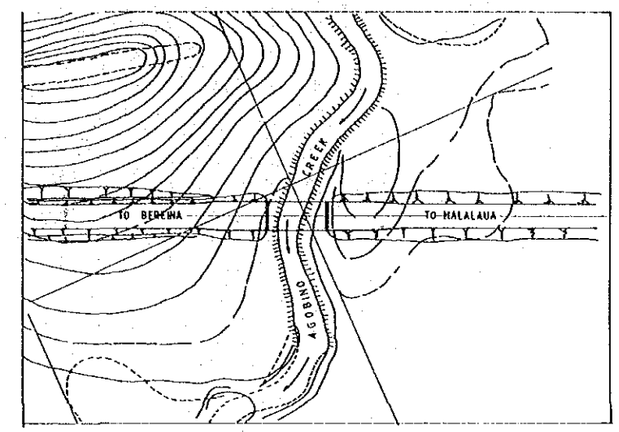
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No. 2 - AGOBINO BRIDGE
GENERAL NOTES AND DRAWING LIST.
PAPUA NEW GUINEA DEPARTMENT OF WORKS — DRAWING No. A1 88020



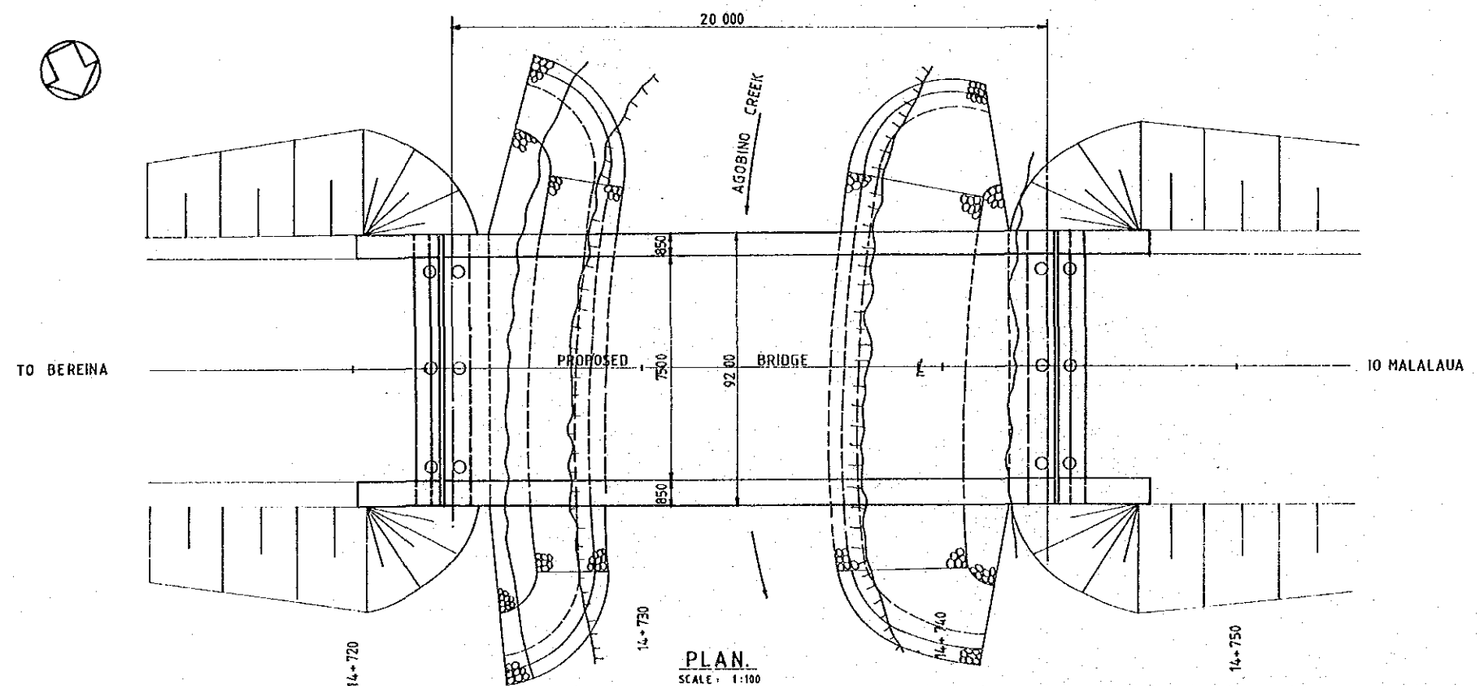
ELEVATION
SCALE 1:100

DATUM RL. 0·0m

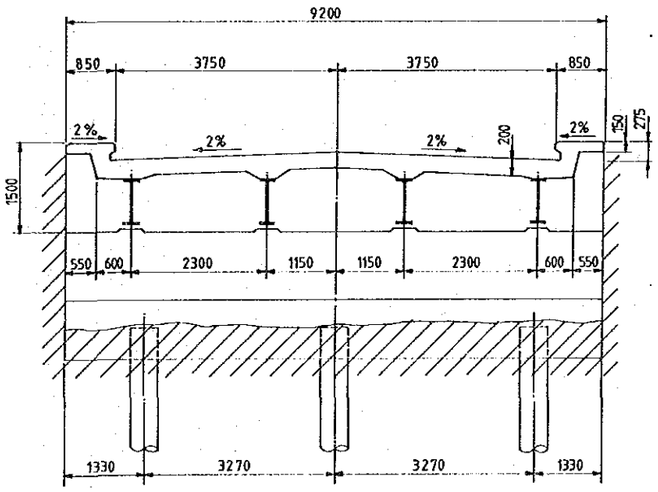
GRADE LEVELS	15·000 15·000	15·000	15·000 15·000
SURFACE LEVELS	12·45		12·30
CHAINAGE	CH.14 +722.9 CH.14 +729.5	CH.14 +735.5	CH.14 +743.5 CH.14 +750.1



LOCALITY PLAN.
SCALE 1:1000



PLAN.
SCALE : 1:100



TYPICAL CROSS SECTION.
SCALE 1:50

NOTES:
1. ROAD ALIGNMENT DESIGN AND DETAILS BY OTHERS
2. GRADE LEVELS ARE AT BRIDGE CENTRELINE.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK No.5

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 26 Sep. 1989 Date

DRAWN: J.B.HaGGIO M·S
CHECKED
DESIGNED
CHECKED

PROJECT ENGINEER 1/11/89
EXECUTIVE ENGINEER 1/11/89

RECOMMENDED — PRINCIPAL ENGINEER
APPROVED 1·11·89 — SECRETARY

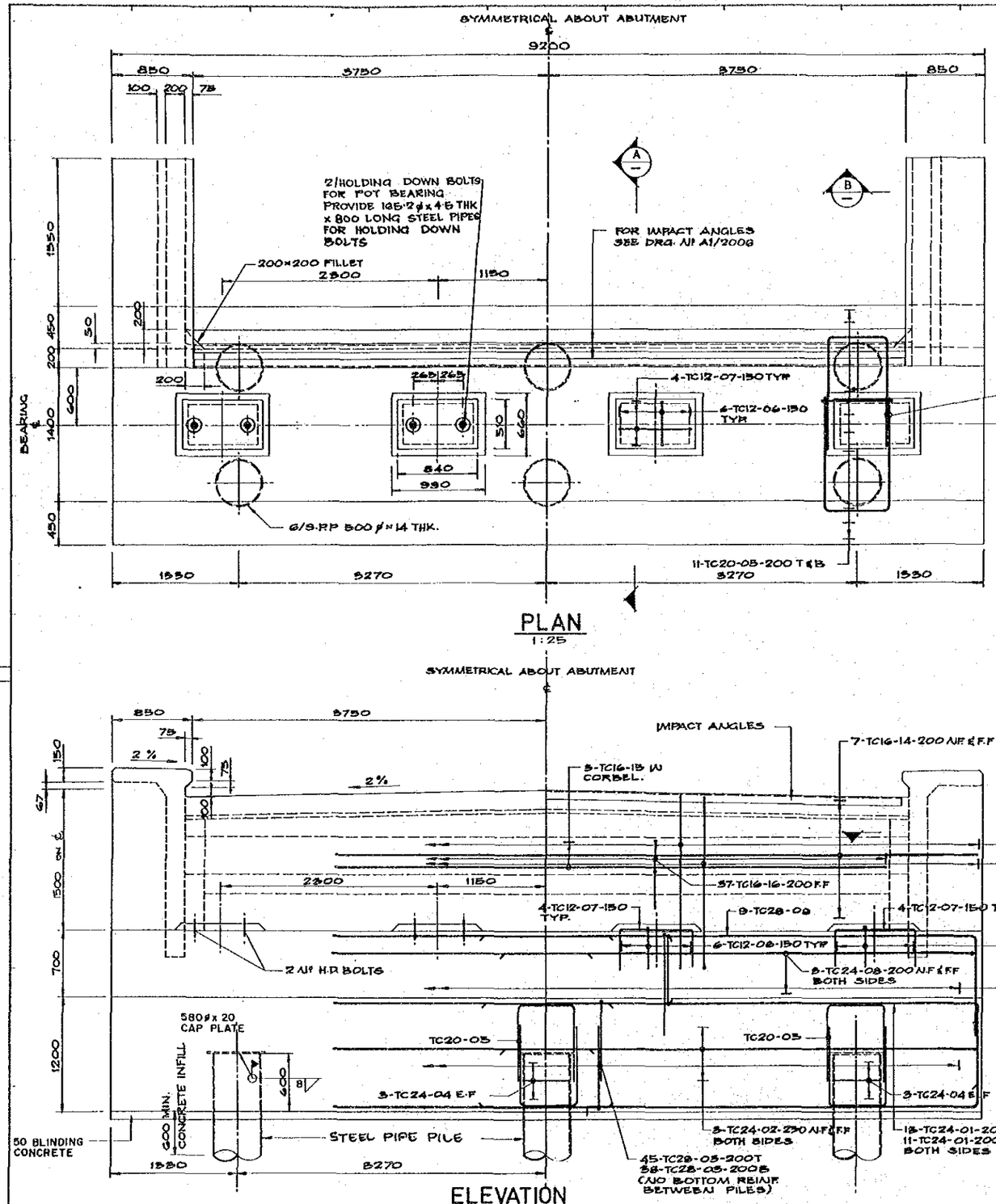
SCALES

SHEET 263 OF 281

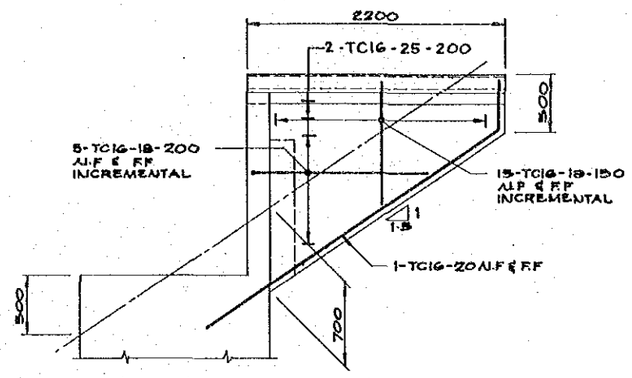
PROJECT No. S.C.120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.2 - AGOBINO BRIDGE
GENERAL ARRANGEMENT.
PAPUA NEW GUINEA DEPARTMENT OF WORKS

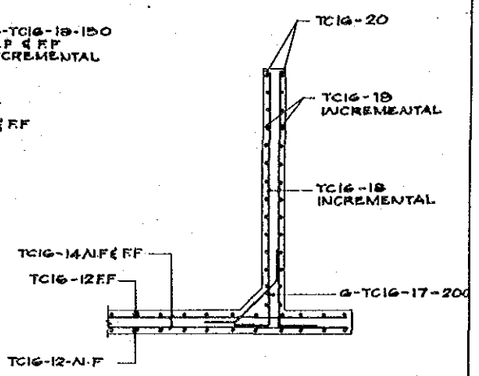
DRAWING No. A1 88021



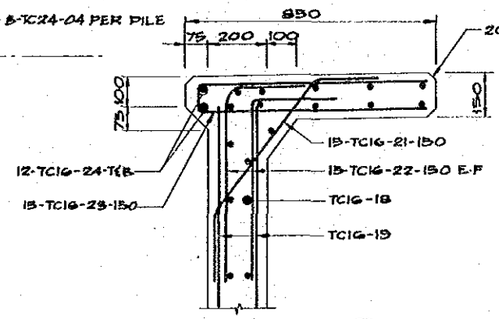
PLAN
1:25



TYPICAL WINGWALL VIEW (D)
1:25



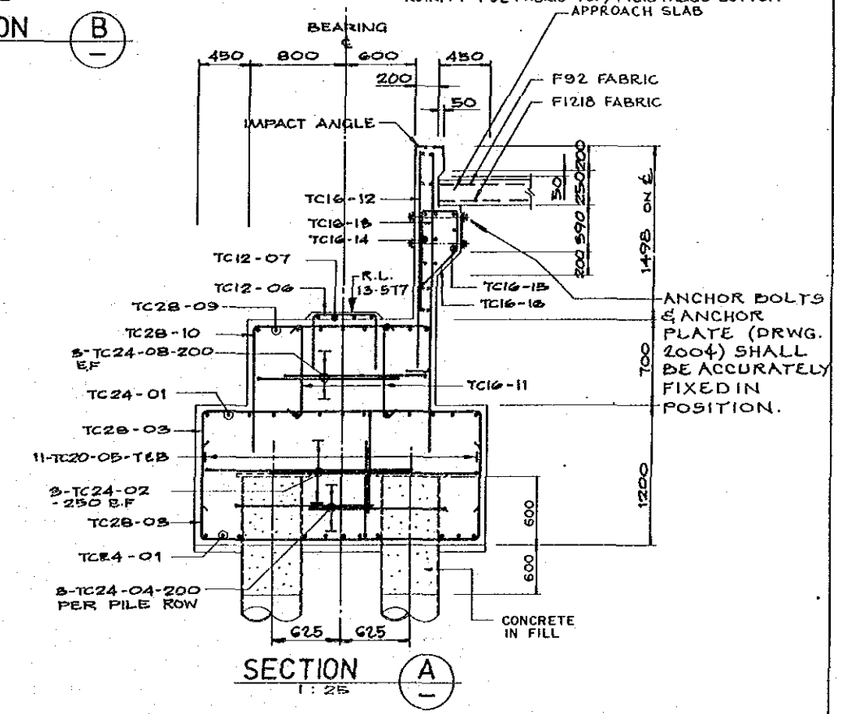
SECTION (C)
1:25



SECTION (B)
1:10

NOTE:
1. BACKFILL TO ABUTMENT WALL PROVIDE MIN. 500 FREE DRAINING FILL MATERIAL.
2. APPROACH SLAB EXTENDING 3000 FROM ABUTMENT 230 THICK
REINF. :- F92 FABRIC TOP, F1218 FABRIC BOTTOM

ELEVATION
1:25



SECTION (A)
1:25

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK REF.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — J. Malicsi — 25 Sep. 1989 — Principal — Date

DRAWN: C.K M.S — CHECKED — DESIGNED — CHECKED

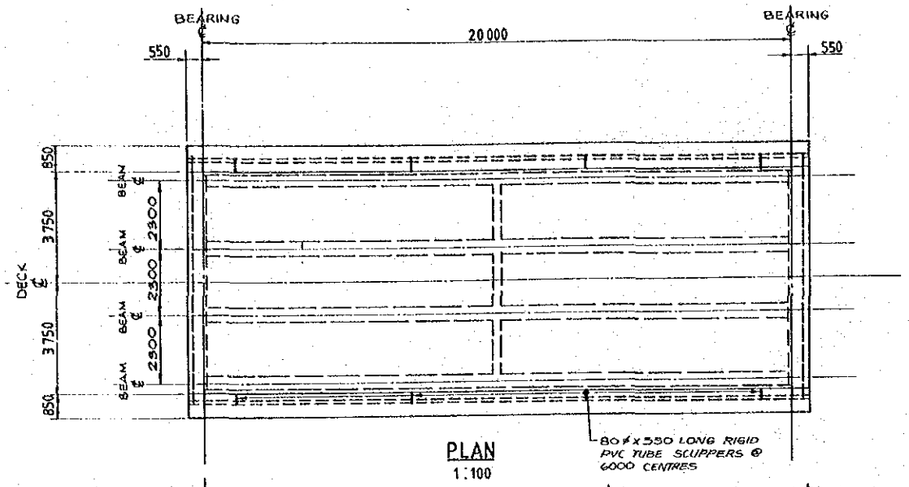
PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER — APPROVED — SECRETARY

SCALES

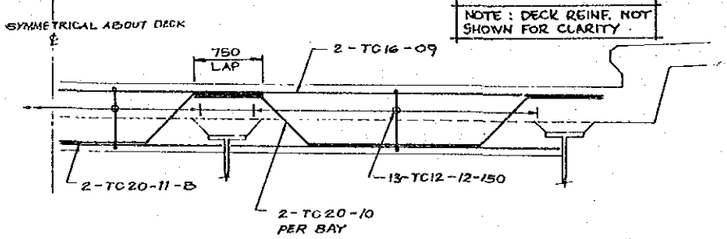
SHEET 264 OF 281 — PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.2 - AGOBINO BRIDGE
ABUTMENT DETAILS
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 88022 — REV

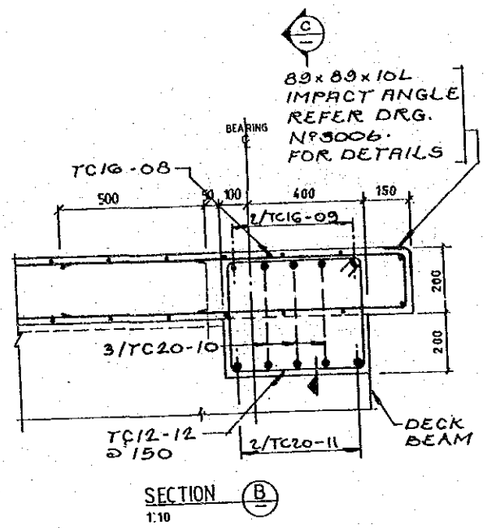


PLAN
1:100

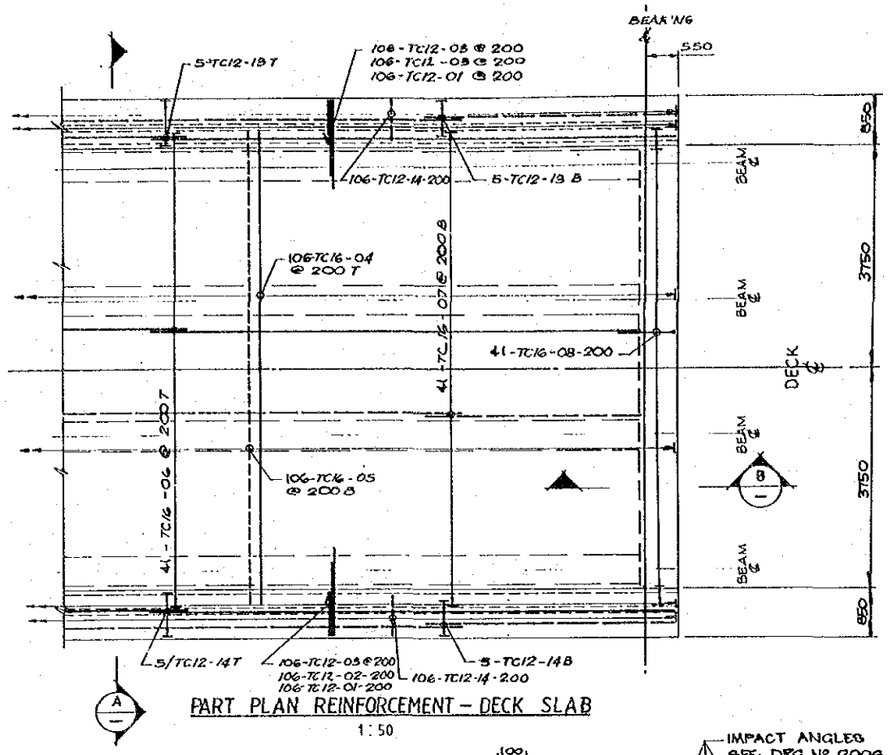
NOTE : DECK REINF. NOT SHOWN FOR CLARITY



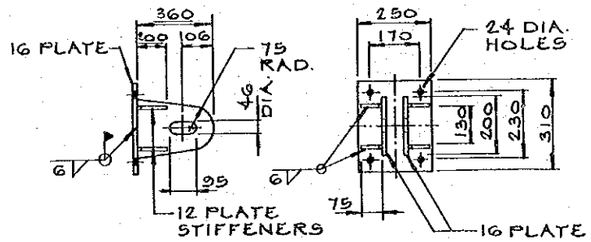
SECTION C-C
1:20



SECTION B
1:10

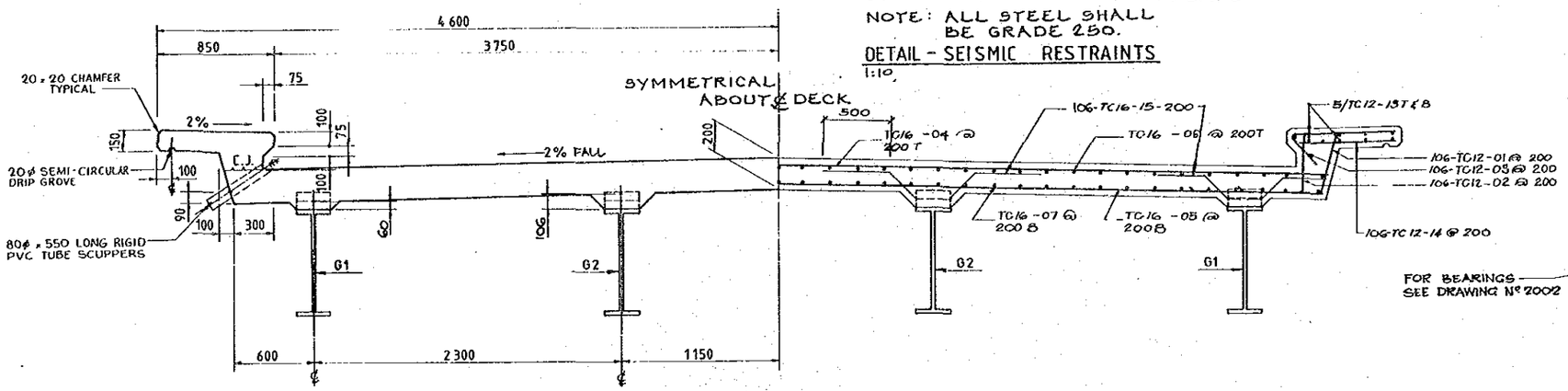


PART PLAN REINFORCEMENT – DECK SLAB
1:50

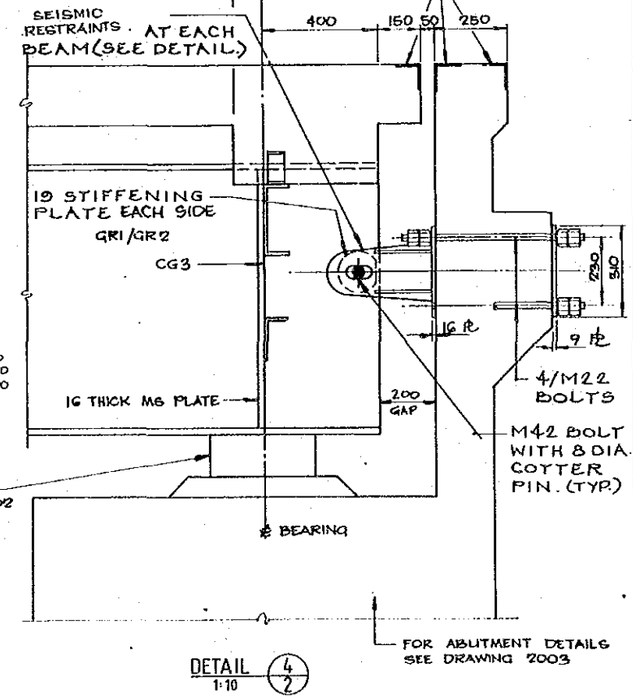


NOTE: ALL STEEL SHALL BE GRADE 250.

DETAIL - SEISMIC RESTRAINTS
1:10



SECTION A-A
1:20



DETAIL 4/2
1:10

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK Nº.6

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN: M.S
CHECKED
DESIGNED: M. Shimizu
CHECKED

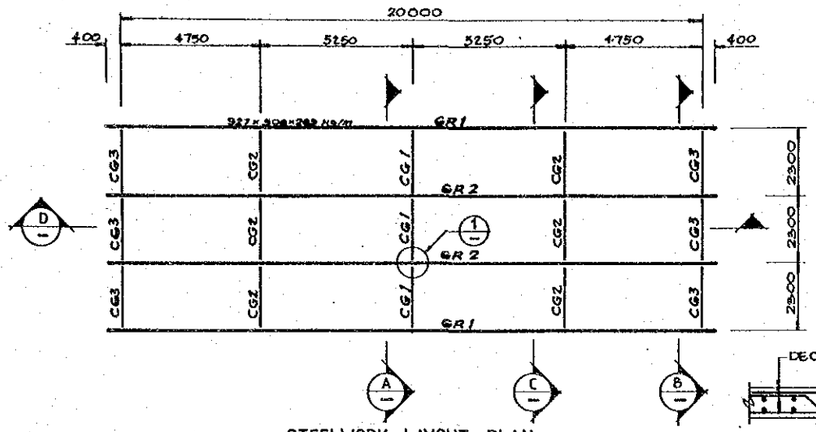
PROJECT ENGINEER — 1/11/89
EXECUTIVE ENGINEER — 1/11/89

RECOMMENDED: PRINCIPAL ENGINEER
APPROVED 1-11-89: SECRETARY

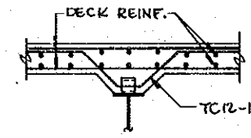
SCALES

SHEET 265 OF 281
PROJECT No. S.C.120-33-814/A

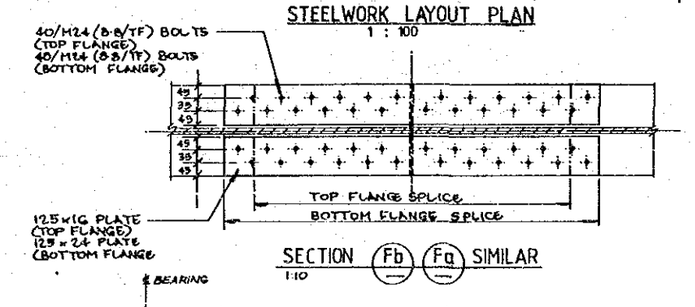
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.2 - AGOBINO BRIDGE
CONCRETE DECK DETAILS
PAPUA NEW GUINEA DEPARTMENT OF WORKS
DRAWING No. A1/ 88023 — Rev.



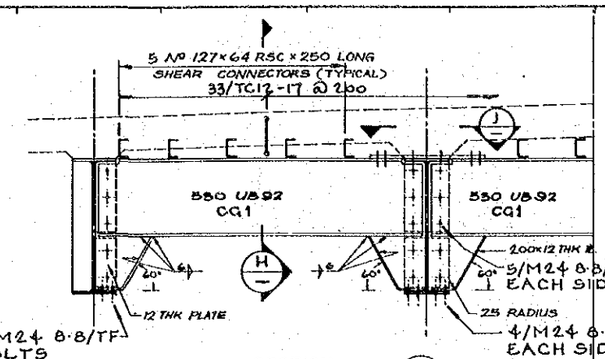
STEELWORK LAYOUT PLAN
1 : 100



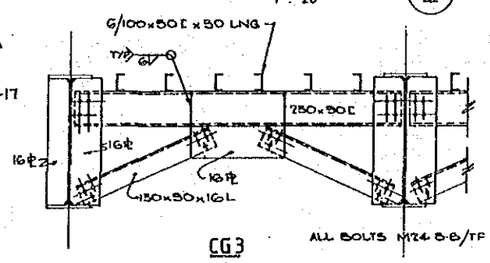
SECTION H
1:20



SECTION Fb Fa SIMILAR
1:10

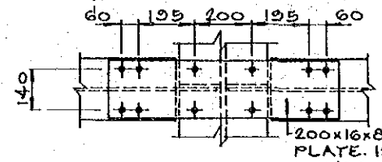


SECTION A
1 : 20

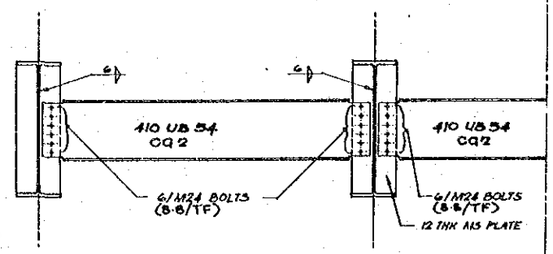


CG3

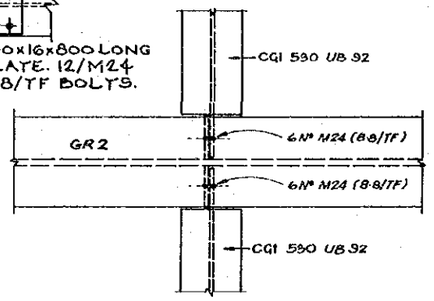
SECTION B
1 : 20



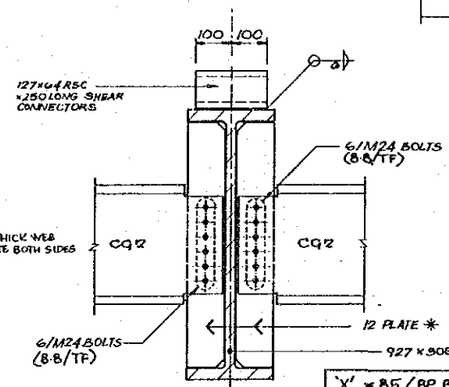
VIEW J
1:10



SECTION C
1 : 20

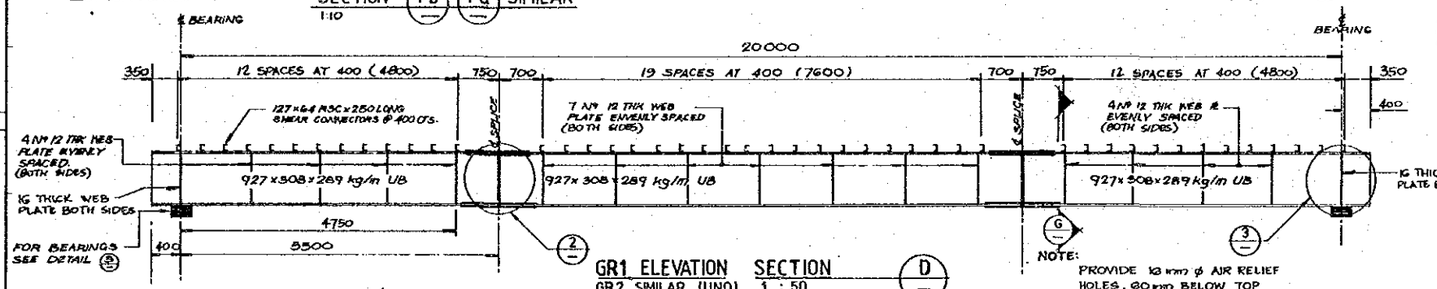


DETAIL 1
1 : 10



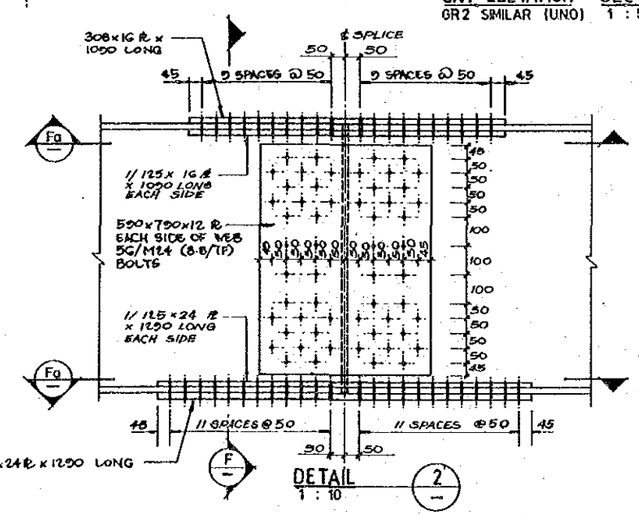
SECTION G
1 : 10

* THESE PLATES SHALL BE FILLETED 30 x 30 AS SHOWN. PLATES SHALL BE FITTED TO TOP AND BOTTOM FLANGES - NO WELDS.

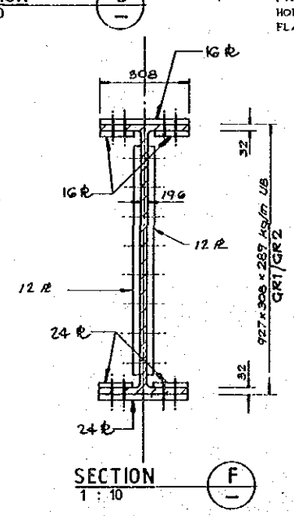


GR1 ELEVATION
GR2 SIMILAR (UNO)
1 : 50

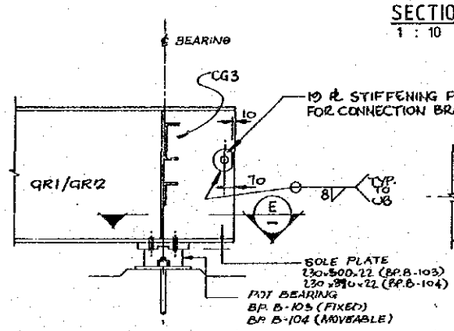
SECTION D
1 : 50



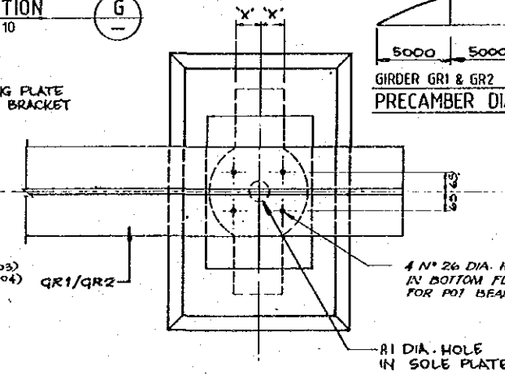
DETAIL 2
1 : 10



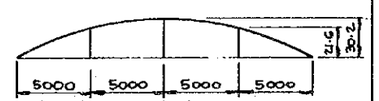
SECTION F
1 : 10



DETAIL 3
1 : 20



SECTION E
1 : 10



PRECAMBER DIAGRAM

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM:
SURVEY BOOK Nº:

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
J. Galvez — Principal — 25 Sep. 1989 — Date

DRAWN: M·S
CHECKED:
DESIGNED: Y. Shimizu
CHECKED:

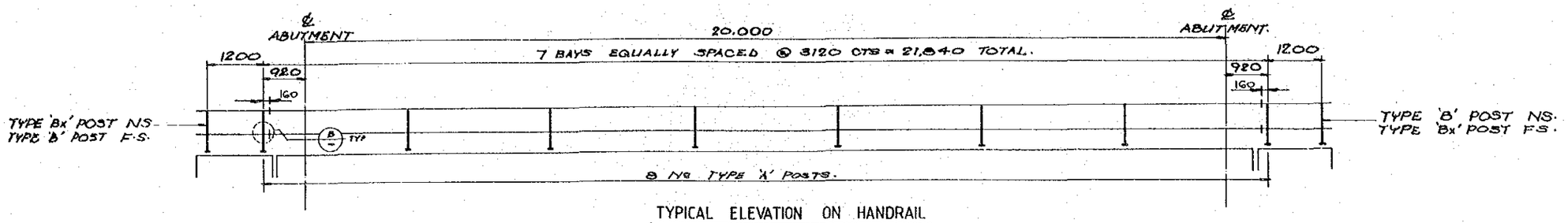
PROJECT ENGINEER — 1/11/89
EXECUTIVE ENGINEER — 1/11/89

RECOMMENDED: PRINCIPAL ENGINEER — 1.11.89
APPROVED: SECRETARY

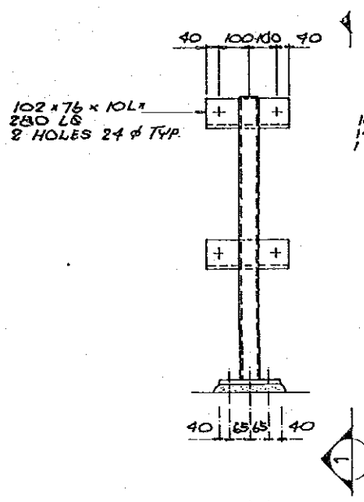
SCALES

SHEET 266 OF 281
PROJECT No. S.C. 120-33-814/A

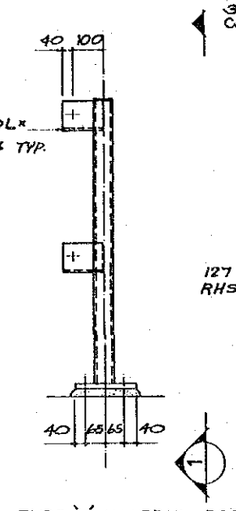
CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No. 2 - AGOBINO BRIDGE
STEEL WORK DETAILS
PAPUA NEW GUINEA
DEPARTMENT OF WORKS
DRAWING No. A1/88024
REV.



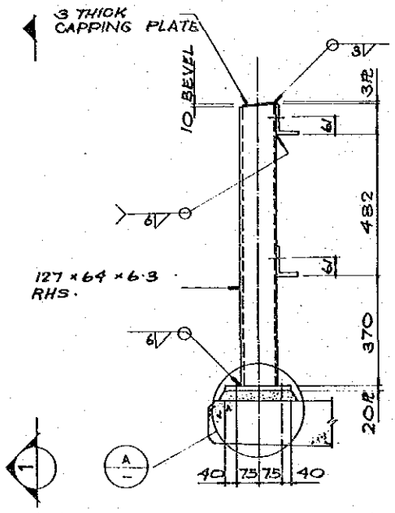
TYPICAL ELEVATION ON HANDRAIL
1:50



TYPE 'A' HANDRAIL POST
1:10

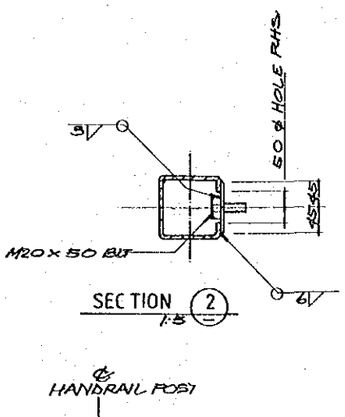


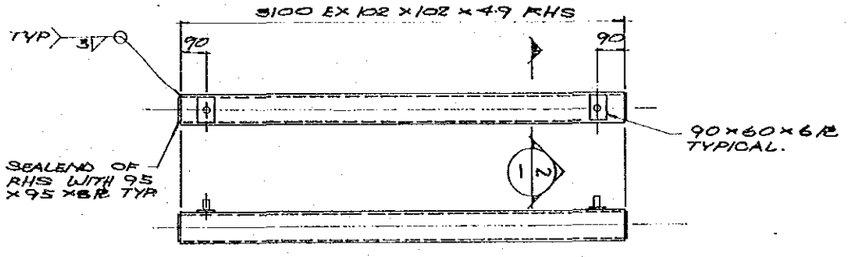
TYPE 'B' HANDRAIL POST
1:10



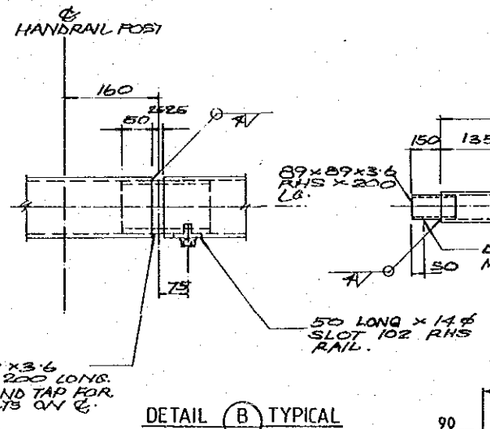
SECTION (1)
1:10

NOTE: ALL BOLTS TO BE M20

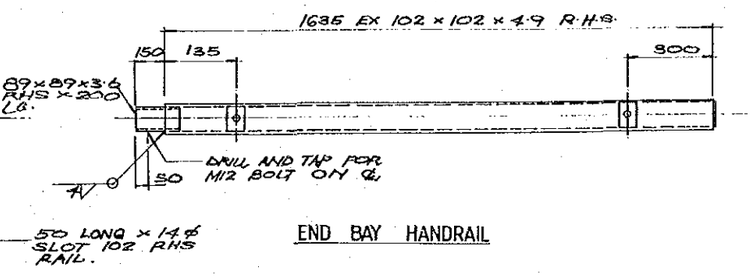




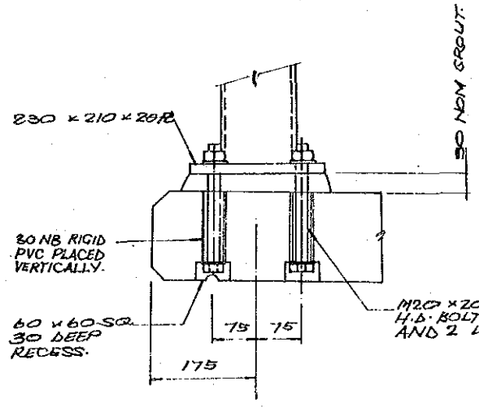
INTERNAL BAY HANDRAIL



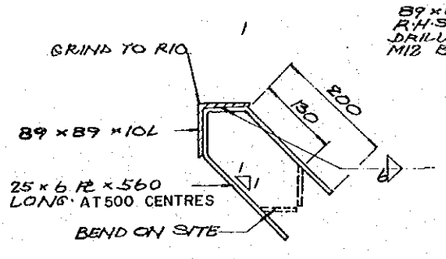
DETAIL (B) TYPICAL
1:5



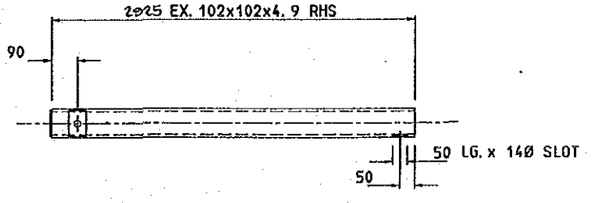
END BAY HANDRAIL



DETAIL (A)
1:5



DETAIL - IMPACT ANGLE
1:5



PENULTIMATE BAY HANDRAIL

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM
SURVEY BOOK No.'s

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY
Principal — 25 Sep. 1989 Date

DRAWN: P.G.M.S
CHECKED
DESIGNED
CHECKED

PROJECT ENGINEER 1/11/89
EXECUTIVE ENGINEER 1/11/89

RECOMMENDED 1/11/89 PRINCIPAL ENGINEER
APPROVED 1.11.89 ENG(S)A SECRETARY

SCALES

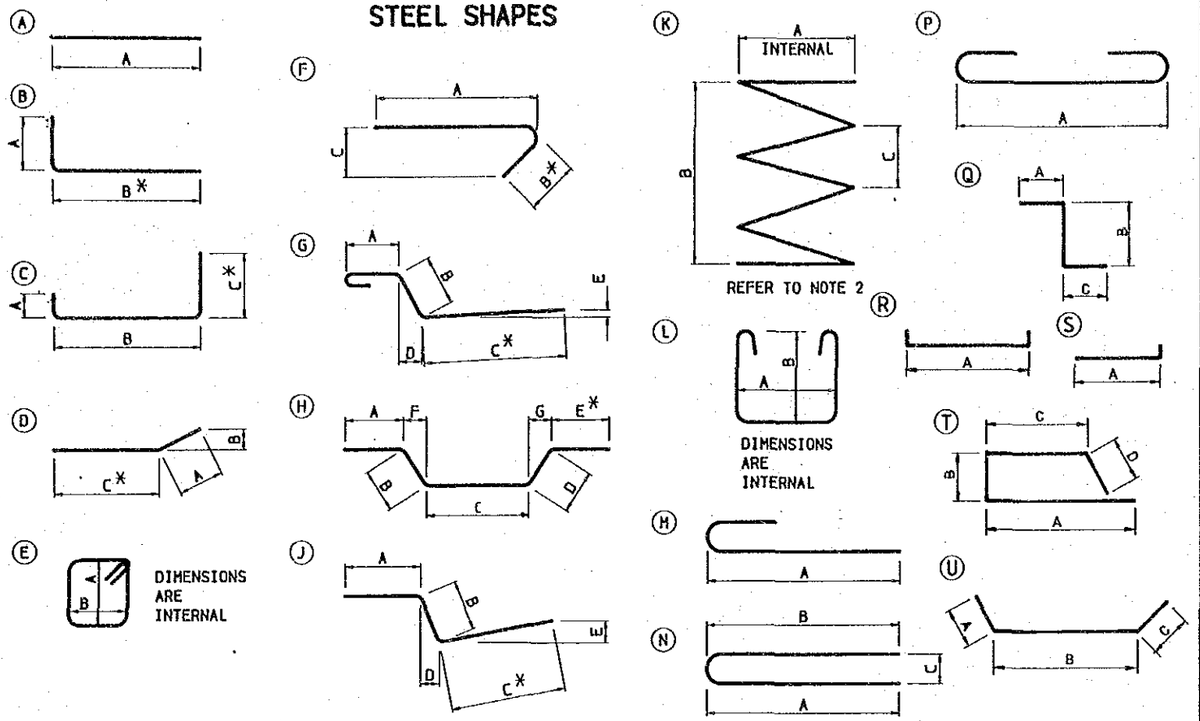
SHEET 267 OF 281

PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.2 - AGOBINO BRIDGE
HANDRAILING / IMPACT ANGLE DETAILS
PAPUA NEW GUINEA DEPARTMENT OF WORKS

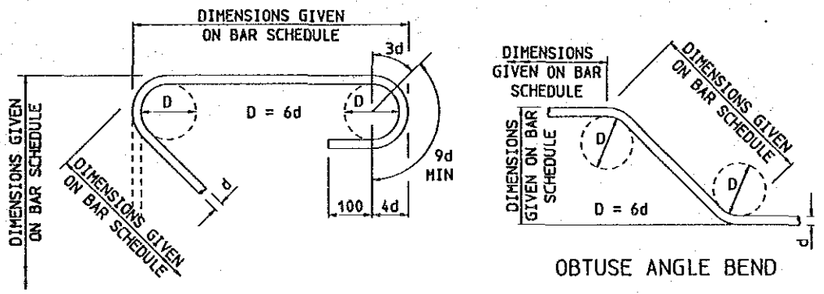
DRAWING No. A1/88025 REV.

STEEL SHAPES



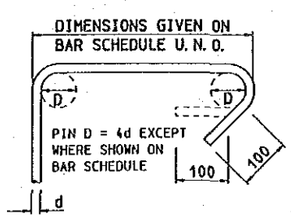
DIMENSIONS ARE INTERNAL

STANDARD HOOKS AND BENDS

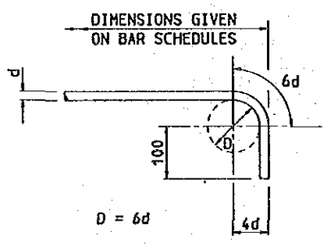


ACUTE ANGLE AND 90° BEND

OBTUSE ANGLE BEND



BENDS AND HOOKS FOR STIRRUPS AND LIGATURES (ENCOMPASSING)



RIGHT ANGLE BEND

NOTES

1. EXPLANATION OF BAR MARKS
   e.g. 40 - TC32 - 07 - 250 - B
   - 40 — No. OFF
   - TC32 — TYPE / BAR DIAMETER
   - 07 — LOCATION MARK
   - 250 — SPACING
   - B — BAR MARK
2. SPIRAL LENGTH HAS BEEN CALCULATED ASSUMING WELDED LAP SHOWN ON DRG. 86052
3. DIMENSIONS ARE OUTSIDE TO OUTSIDE OF BARS UNLESS NOTED OTHERWISE
4. * DENOTES TOLERANCE TO BE TAKEN UP ON THIS DIMENSION WHICH IS OMITTED FROM THE BAR BENDING SCHEDULE
5. ** DENOTES NO ALLOWANCE HAS BEEN MADE FOR LAPS
6. ALL HOOKS AND BENDS ARE TO BE IN ACCORDANCE WITH THE STANDARD DETAILS
7. OMISSION OF DIMENSION FOR PARTS OF STANDARD SHAPES IN THE SCHEDULE SHALL *INDICATE DELETION OF THOSE* PARTS
8. REINFORCING BARS TO BE EITHER
   a) DEFORMED TEMPCORE (T.C.) BARS GRADE 410
   b) PLAIN ROUND (R) BARS GRADE 230

TEMPCORE GRADE DEFORMED

TYPE & DIA	MARK	No. OFF	A	B	C	D	E	F	G	CUTTING LENGTH (mm)	MASS (kg)	SHAPE CODE	REMARKS
TC24	01	96	850	525 *						6076	2071·3	B	
TC24	02	24	1770	5020 *						6766	576·6	B	
TC28	03	166	850	2400	850 *					4044	3245·1	C	
TC24	04	86	1150	600	1150 *					2852	864·6	C	
TC20	05	182	850	648	850					2308	751·3	C	
TC12	06	48	450	500	450 *					1376	58·6	C	
TC12	07	32	450	800	450					1676	47·6	C	
TC24	08	24	1220	5020 *						6216	529·8	B	
TC28	09	36	1070	5250 *						6292	1094·9	B	
TC28	10	90	1070	1500	1070 *					3984	1559·3	C	
TC16	11	180	775							1135	322·5	P	
TC16	12	94	1875							1875	278·2	A	
TC16	13	94	200	1575 *						1759	261·1	B	
TC16	14	28	9100							9100	402·3	A	
TC16	15	6	7150							7150	67·7	A	
TC16	16	74	740	920	330	450				1808	211·3	T	
TC16	17	24	200	550	200					950	56	U	
TC16	18	40	600	300 *		TOTAL	LENGTH = 66.00 m			884	78·2	B	
	TO	(8 sets of 5)	2100	300 *		TOTAL	WEIGHT = 104·168 kg			2384	210·8	B	INCREMENTAL = 300
TC16	19	104	583			TOTAL	LENGTH = 117·832 m			583	87·5	A	
	TO	(8 sets of 13)	1738			TOTAL	WEIGHT = 186·057 kg			1738	284·6	A	INCREMENTAL = 100
TC16	20	8	3043	2500	400 *					3443	43·5	D	
TC16	21	60	200	500	200					900	85·2	U	
TC16	22	120	250	600 *						834	158·	B	
TC16	23	60	750	750	90					1526	144·6	N	
TC16	24	48	2100							2100	159·1	A	
				TOTAL	TONNAGE =		13.420 tonnes.		2 Nº ABUTMENTS				
TC12	01	212	400	440	570 *	165				1410	265·4	J	
TC12	02	212	675	410	365 *					1418	266·9	Q	
TC12	03	212	700	300 *						1000	188·2	F	
TC16	04	106	8100							8460	1415·0	P	
TC16	05	106	8000							8000	1338·5	A	
TC16	06	41	19900							19900	1288·3	A	**
TC16	07	41	19900							19900	1288·3	A	**
TC16	08	82	1170	1170	130					2389	283·4	N	
TC16	09	4	8000							8000	50·5	A	
TC20	10	18	750	370	1300	370	750 *	225	225	3540	157·1	H	
TC20	11	12	2200							2200	65·1	A	
TC12	12	78	310	415						1605	111·1	E	
TC12	13	20	21000							21000	372·9	A	**
TC12	14	212	675							675	127·1	A	
TC16	15	212	500	280	200	280	500 *	200	200	1760	589·1	H	
TC16	16	212	500	220	200	220	300 *	150	150	1440	482·0	H	
TC12	17	33	500	220	180	220	500 *	150	150	1620	414	H	
			TOTAL	TONNAGE =		8·337 tonnes		1 Nº DECK					

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK Nº.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — Principal — 25 Sep. 1969 Date

DRAWN: M·S — CHECKED — DESIGNED: M. Shinjo — CHECKED

PROJECT ENGINEER — 1/11/69 — EXECUTIVE ENGINEER — 1/11/69

RECOMMENDED — PRINCIPAL ENGINEER

APPROVED 1. 11. 69 — FAS(TS) SECRETARY

SCALES

SHEET 268 OF 281

PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES

TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION

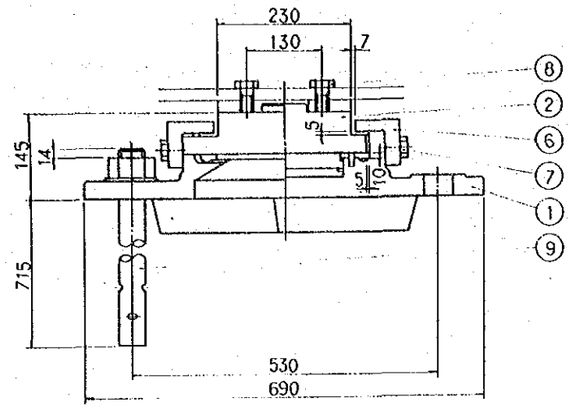
BRIDGE No.2 - AGOBINO BRIDGE

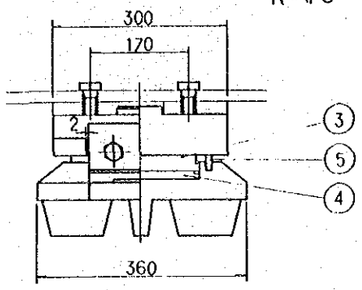
BAR BENDING SCHEDULE

PAPUA NEW GUINEA DEPARTMENT OF WORKS

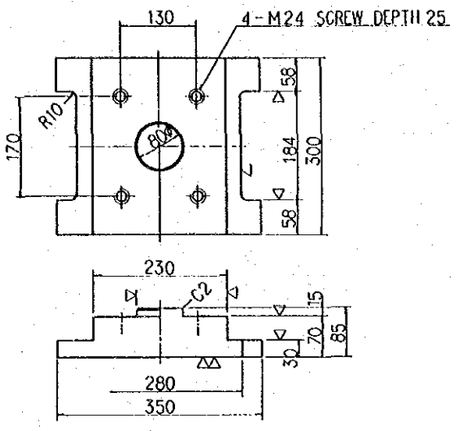
DRAWING No. A1 88026

R=75TON Fix BEARING





② ∼ (▽ ▽▽) SS41



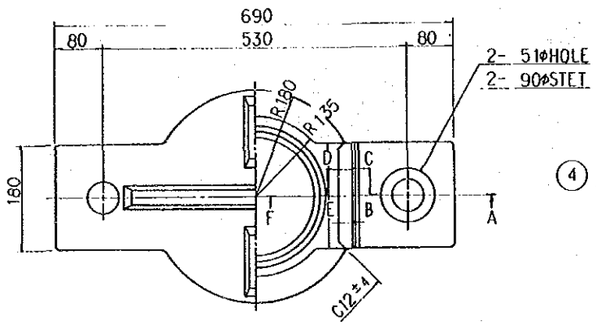
DESIGN CONDITION

TOTAL REACTION	R	54.0 ton
DEAD LOAD REACTION	Rd	14.7 ton
LIVE LOAD REACTION	R(l+i)	39.3 ton
LONGITUDINAL FORCE (FRICTION)	RH1f	5.4 ton
LONGITUDINAL FORCE (EARTHQUAKE)	RH1e	13.1 ton
TRANSVERSE FORCE (EARTHQUAKE)	RH2e	6.2 ton
UPLIFT (EARTHQUAKE)	V	1.5 ton
SEISMIC COEFFICIENT	KH	0.42
FRICATIVE COEFFICIENT	f	0.1
BEARING STRESS OF CONCRETE	σba	80 kg/cm²

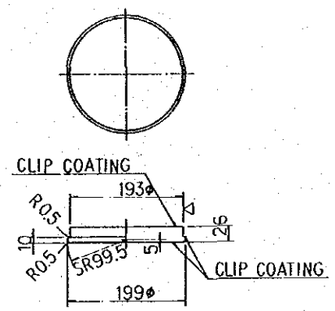
MATERIAL LIST

MARK	NAME	MATERIAL	NO	WEIGHT	NOTE
1	LOWER BEARING	SC46	1	67.7	
2	UPPER BEARING	SS41	1	43.6	
3	MIDDLE PLATE	SS41	1	6.1	
4	RUBBER PLATE	CHLOROPRENE RUBBER	1	0.6	
5	SEAL RING	CHLOROPRENE RUBBER	1	0.3	
6	SIDE BLOCK	SS41	2	8.4	
7	BOLT	SS41	4	0.7	M20×50 (S=46)
8	BOLT	SS41	4		M24× (S=54)
9	ANCHOR BOLT·NUT	SS41	2	22.4	
TOTAL WEIGHT (kg)				149.8	

① ∼ (▽ 12.5S ▽▽) SC46



③ 12.5S ▽▽ (▽) SS41



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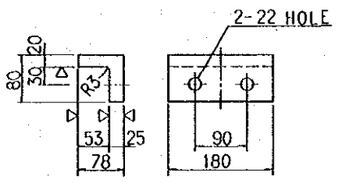

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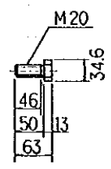
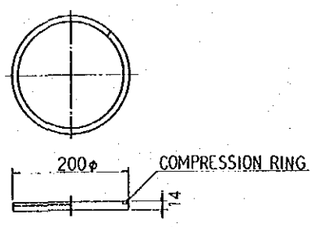


④ ∼ CHLOROPRENE RUBBER



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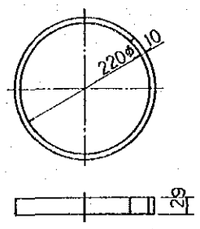

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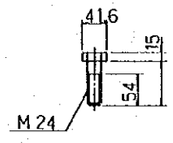

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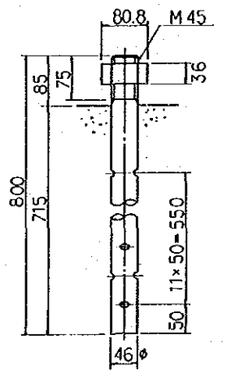
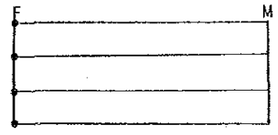


PLAN



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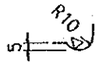
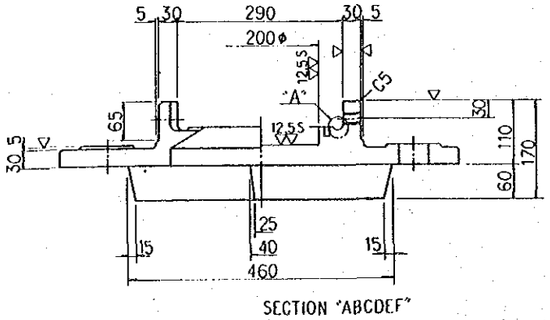
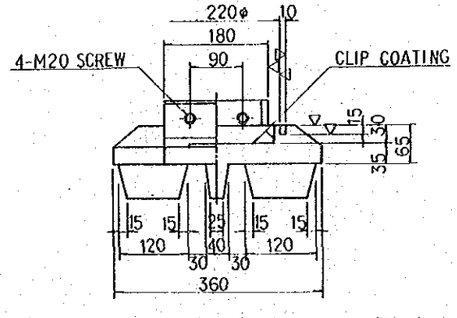




SECTION "ABCDEF"



REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK NO.

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — Principal — 25 Sep. 1989 Date

DRAWN: M·S — CHECKED — DESIGNED: H. Shimizu — CHECKED

PROJECT ENGINEER — EXECUTIVE ENGINEER

RECOMMENDED — PRINCIPAL ENGINEER

APPROVED — SECRETARY

SCALES

SHEET 269 OF 281

PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES

TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION

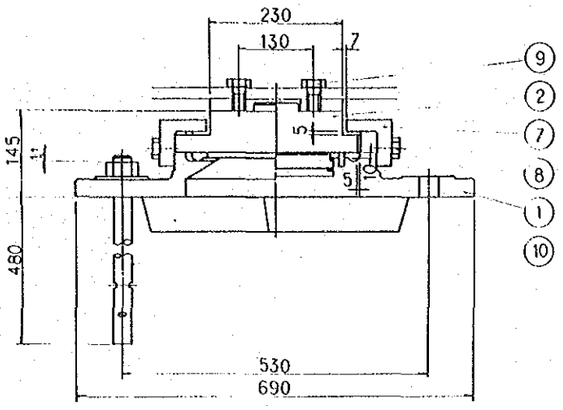
BRIDGE No.2 - AGOBINO BRIDGE

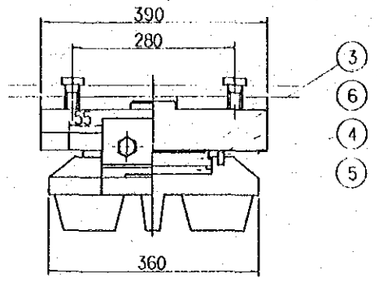
BEARING BP-B-103 (FIXED)

PAPUA NEW GUINEA DEPARTMENT OF WORKS

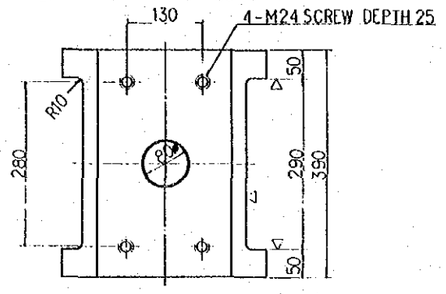
DRAWING No. A1/88027

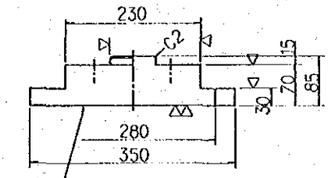
R=75 TON M_{ov} BEARING



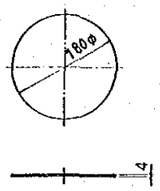


② ▽ ▽▽▽ SS41





③ ∼ PTFE



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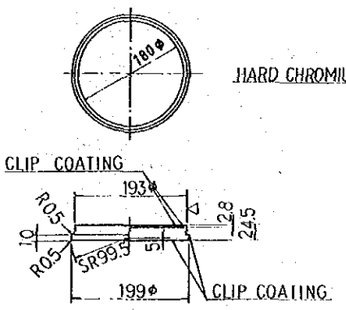

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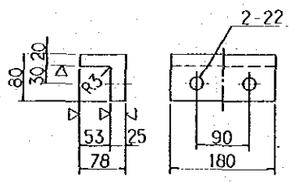

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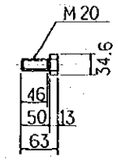
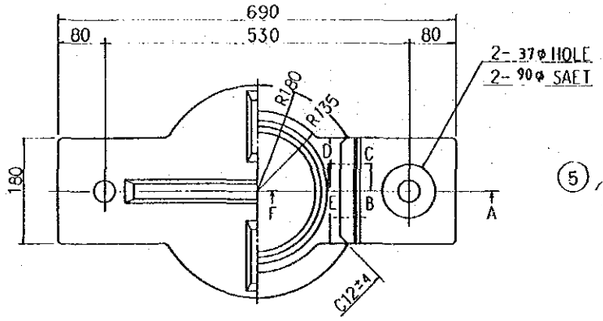
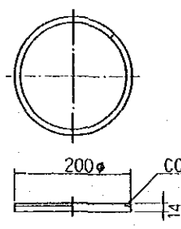


① ∼ (▽ 12.5S ▽▽) SG46



⑤ ∼ CHLOROPRENE RUBBER



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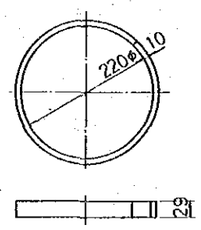

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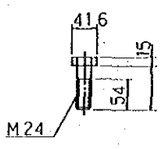

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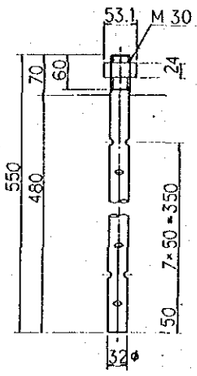

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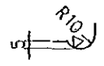

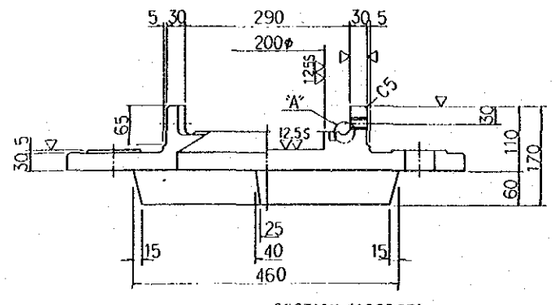

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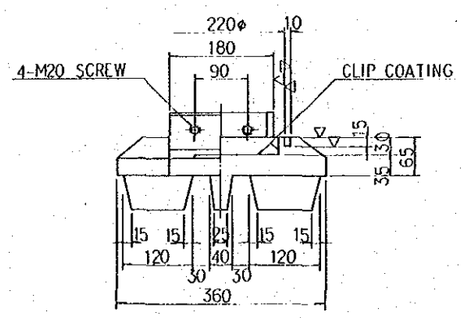
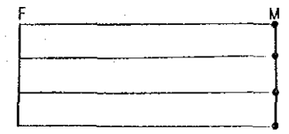


PLAN



DESIGN CONDITION

TOTAL REACTION	R	53.3	ton
DEAD LOAD REACTION	Rd	16.4	ton
LIVE LOAD REACTION	R(l+i)	36.9	ton
LONGITUDINAL FORCE (FRICTION)	Rllf	5.3	ton
LONGITUDINAL FORCE (EARTHQUAKE)	Rlle	6.9	ton
TRANSVERSE FORCE (EARTHQUAKE)	Rl2e	6.9	ton
UPLIFT (EARTHQUAKE)	V	1.6	ton
MOVABLE LENGTH	e1	50	mm
DESIGNED LENGTH	e2	70	mm
TOTAL LENGTH	e	110	mm
SEISMIC COEFFICIENT	Kh	0.42	
FRICATIVE COEFFICIENT	f	0.1	
BEARING STRESS OF CONCRETE	σ_{ba}	80	kg/cm^2

MATERIAL LIST

MAKE	NAME	MATERIAL	NO	WEIGHT	NOTE
1	LOWER BEARING	SC46	1	68.2	
2	UPPER BEARING	SS41	1	55.8	
3	GLIDE PLATE	PTFE	1	0.2	
4	MIDDLE PLATE	SS41	1	5.3	
5	RUBBER PLATE	CHLOROPRENE RUBBER	1	0.6	
6	SEAL RING	CHLOROPRENE RUBBER	1	0.3	
7	SIDE BLOCK	SS41	2	8.4	
8	BOLT	SS41	4	0.7	M20×50 S:46
9	BOLT	SS41	4		M24×54 S:54
10	ANCHOR BOLT-NUT	SS41	2	7.4	
	TOTAL WEIGHT (kg)			146.9	

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.s

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — Principal — 25 Sep. 1989 Date

DRAWN: M.S — CHECKED — DESIGNED — CHECKED

RECOMMENDED: PROJECT ENGINEER 1/11/89 — PRINCIPAL ENGINEER

APPROVED: EXECUTIVE ENGINEER 1/11/89 — FAS(TA) SECRETARY

SCALES

SHEET 270 OF 281

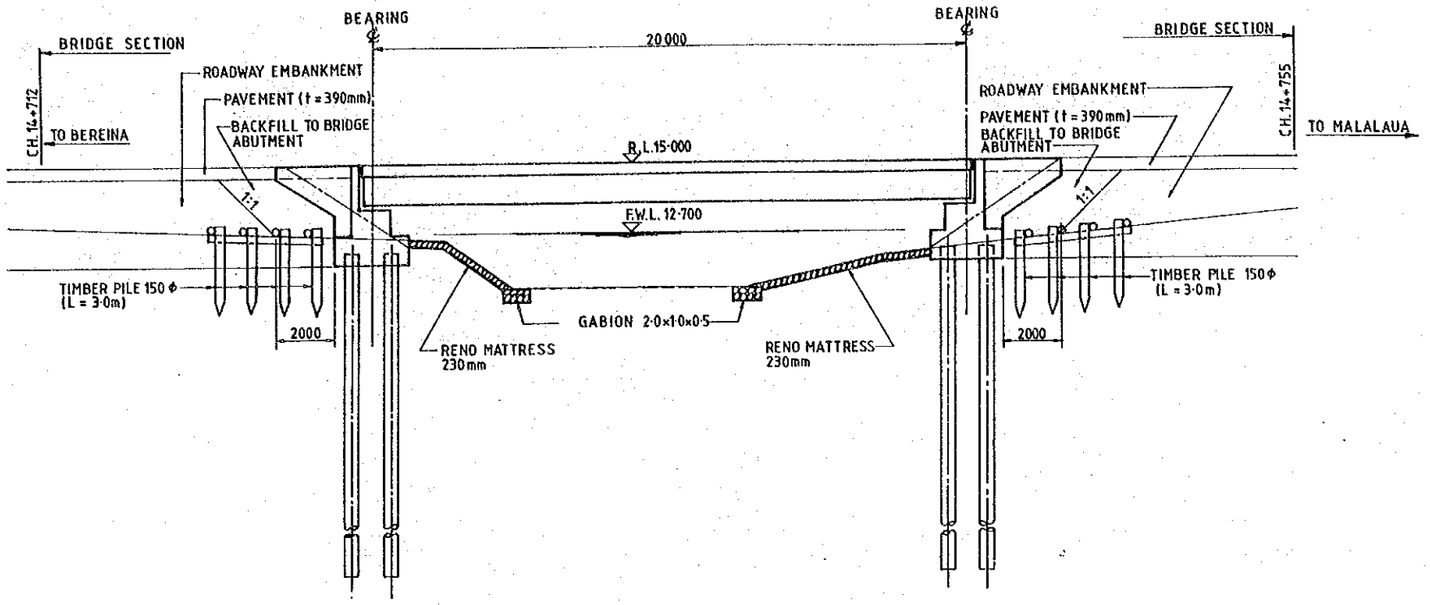
PROJECT No. S.C. 120-33-814/A

CENTRAL / GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No.2 - AGOBINO BRIDGE
BEARING BP-B - 104 (MOVABLE)

PAPUA NEW GUINEA DEPARTMENT OF WORKS

DRAWING No. A1/ 88028

REV.



ELEVATION
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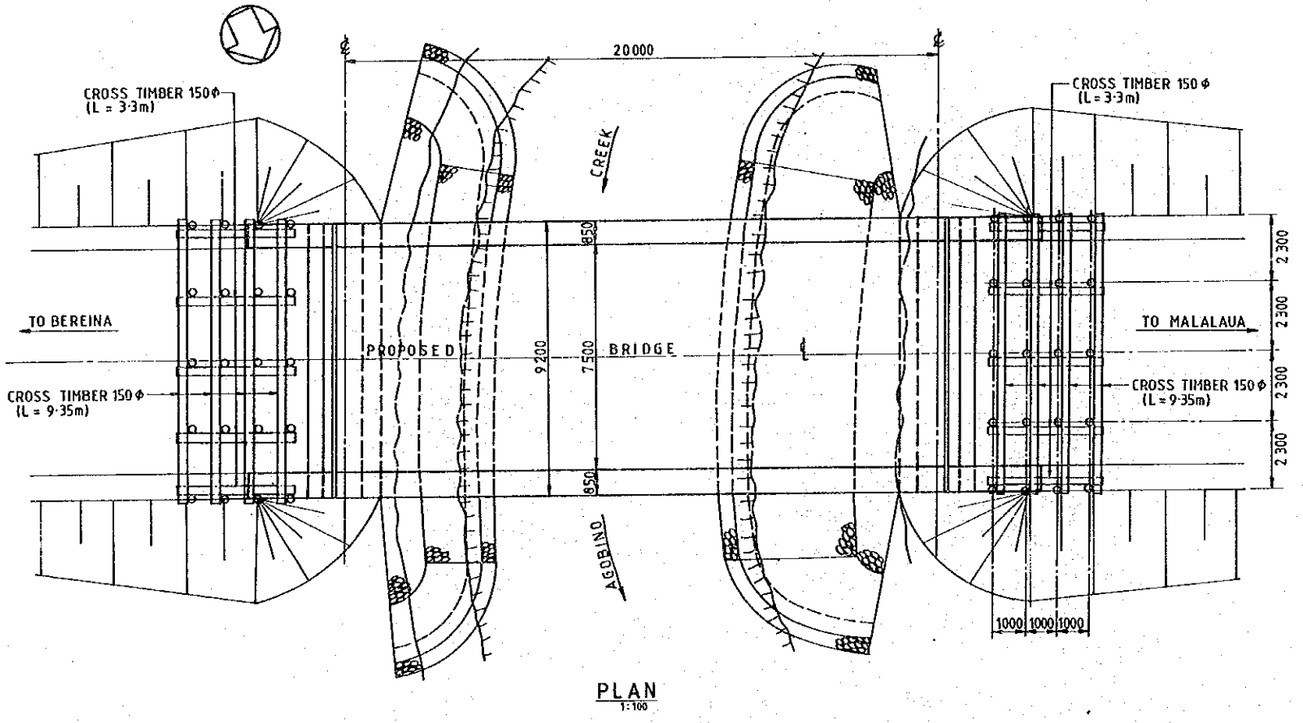

PLAN
1:100

TABLE OF QUANTITIES

DESCRIPTION		UNIT	QUANTITY	REMARKS
CLEARING AND GRUBBING AT BRIDGE SITE		ha	0·1	
EXCAVATION FOR STRUCTURAL FOUNDATIONS	TYPE C	m³	0	
	TYPE D	m³	64	
BACKFILL TO EXCAVATIONS FOR STRUCTURAL FOUNDATIONS		m³	28·5	
BACKFILL TO BRIDGE ABUTMENT		m³	218	
ROADWAY EMBANKMENT		m³	502	
BEARING UNITS	TIMBER PILE	m	120·0	150 ϕ
	CROSS TIMBER	m	107·8	150 ϕ
SAND MAT		m³	0	
EXCAVATION FOR BANK PROTECTION WORKS (TYPE D)		m³	70·3	
EXCAVATION FOR RIVER CHANNEL ALIGNMENT (TYPE D)		m³	0	
GABIONS		m³	24·3	
RENO MATTRESSES (TYPE B)		m²	200·0	t = 230mm

NOTES:
1. PAVEMENT, ROAD SIGNS AND EXCAVATION FOR THE ROADWAY EMBANKMENT ARE INCLUDED IN ROAD WORKS.

REV.	AMENDMENTS	BY	APP'D	DATE

SURVEY: JICA — Date — VERTICAL DATUM: MEAN SEA LEVEL — HORIZONTAL DATUM — SURVEY BOOK No.S

DESIGN: JAPAN INTERNATIONAL CO-OPERATION AGENCY — Principal — 25 Sep. 1989 Date

DRAWN: M·S — CHECKED — DESIGNED — CHECKED

PROJECT ENGINEER 1/11/89 — EXECUTIVE ENGINEER 1/11/89

RECOMMENDED — PRINCIPAL ENGINEER

APPROVED 1. 11. 89 — SECRETARY

SCALES

SHEET 271 OF 281

PROJECT No. S.C. 120-33-814/A

CENTRAL GULF PROVINCES
TRANS-ISLAND HIGHWAY BEREINA-MALALAUA SECTION
BRIDGE No. 2. – AGOBINO BRIDGE
RIVER BANK PROTECTIONS, BEARING UNITS, BACKFILL TO BRIDGE ABUTMENTS AND OTHERS.
PAPUA NEW GUINEA
DEPARTMENT OF WORKS

DRAWING No. A1 88029