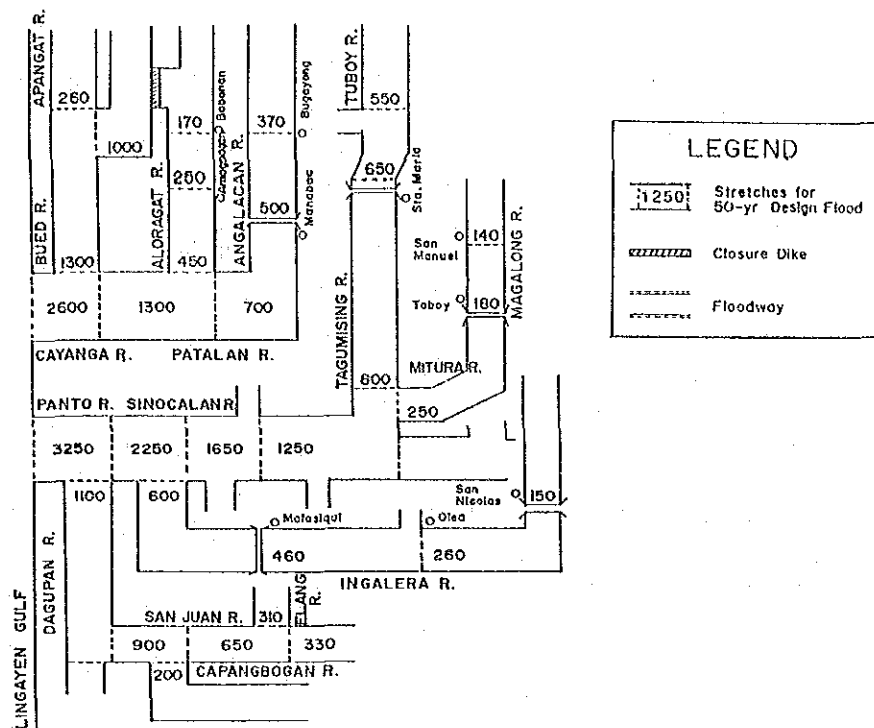
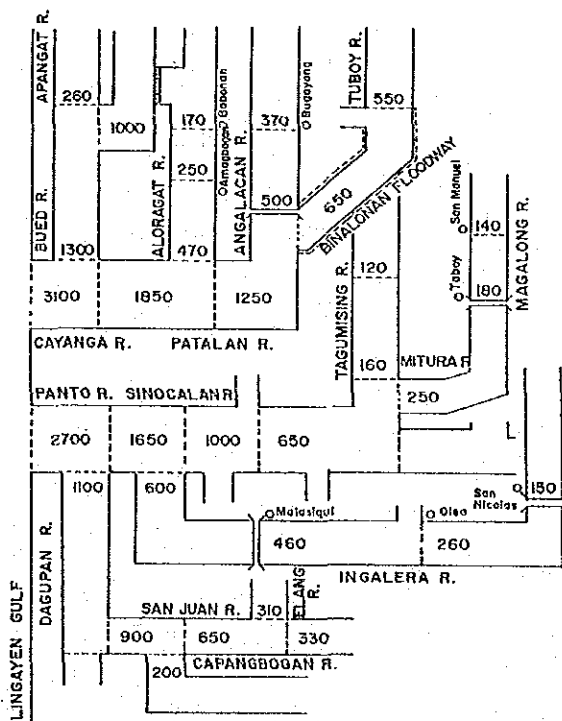


Fig. 10.2.1 DESIGN FLOOD DISCHARGE DISTRIBUTION OF ALTERNATIVE FRAMEWORK PLANS OF AGNO RIVER





CASE 1. RIVER IMPROVEMENT WITHOUT FLOODWAY



CASE 2. RIVER IMPROVEMENT WITH FLOODWAY

Fig. 10.2.2 DESIGN FLOOD DISCHARGE DISTRIBUTION OF ALTERNATIVE FRAMEWORK PLANS OF ALLIED RIVERS



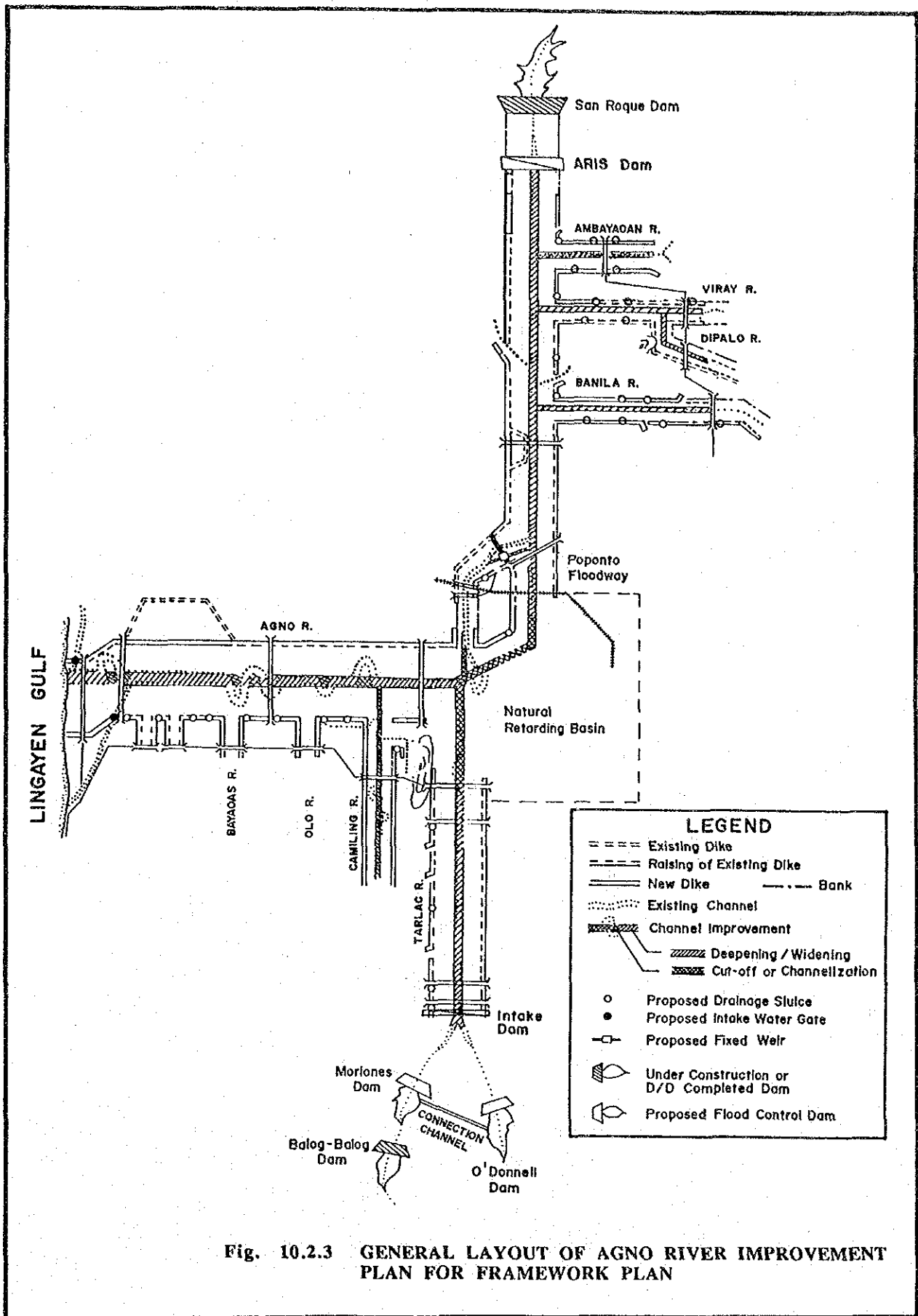
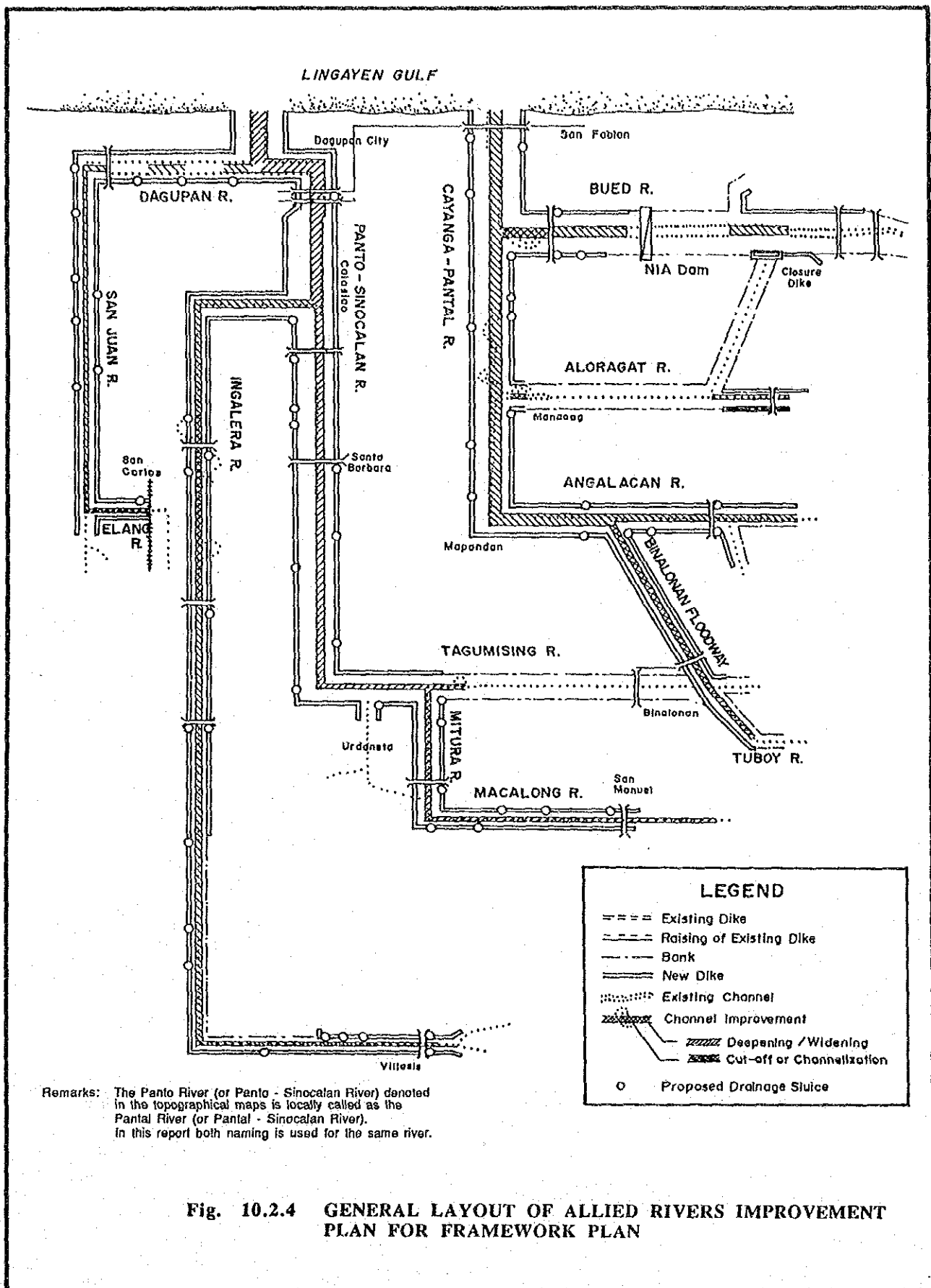


Fig. 10.2.3 GENERAL LAYOUT OF AGNO RIVER IMPROVEMENT PLAN FOR FRAMEWORK PLAN

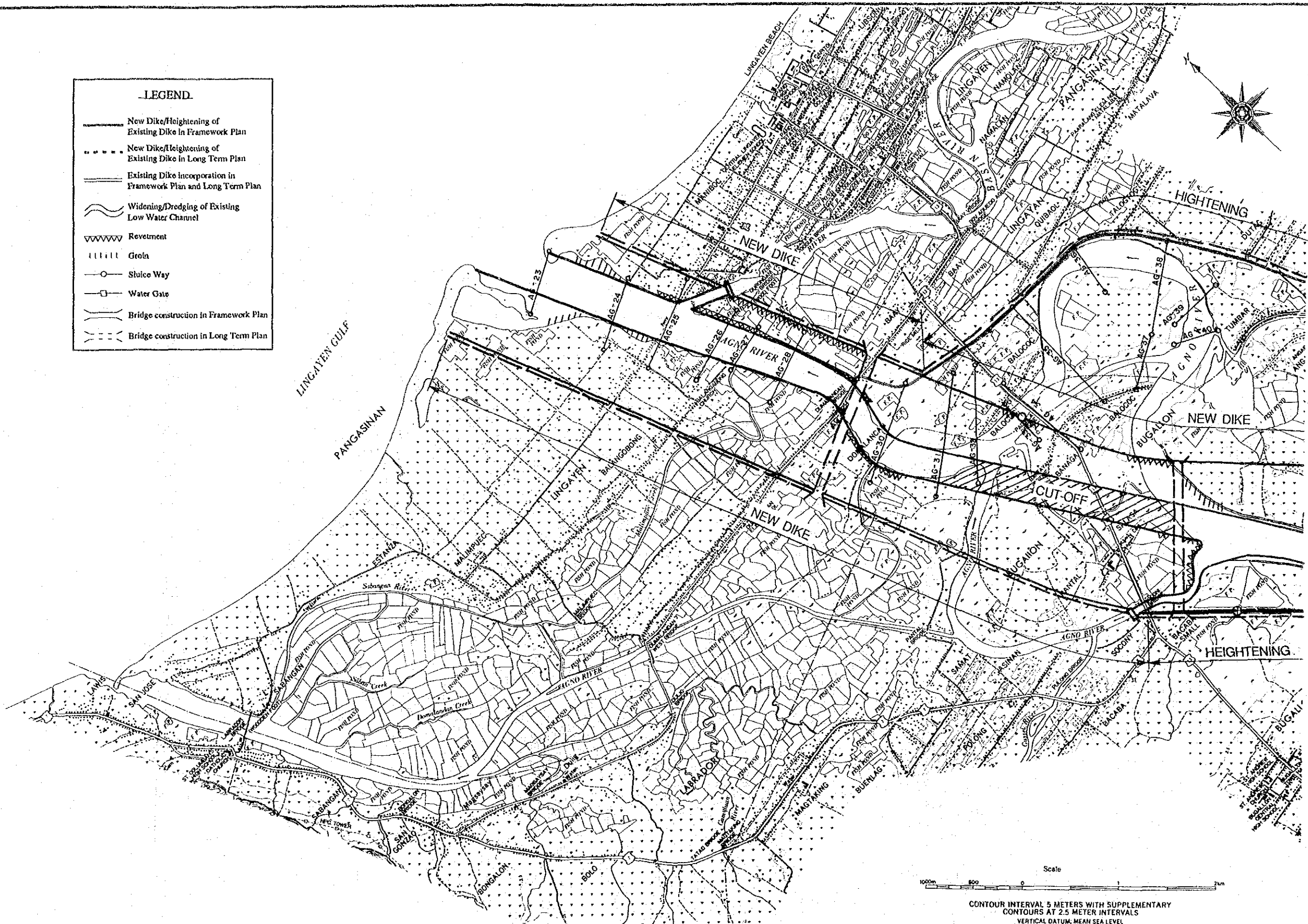
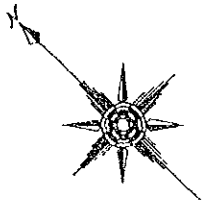




**Fig. 10.2.4 GENERAL LAYOUT OF ALLIED RIVERS IMPROVEMENT PLAN FOR FRAMEWORK PLAN**

**LEGEND.**

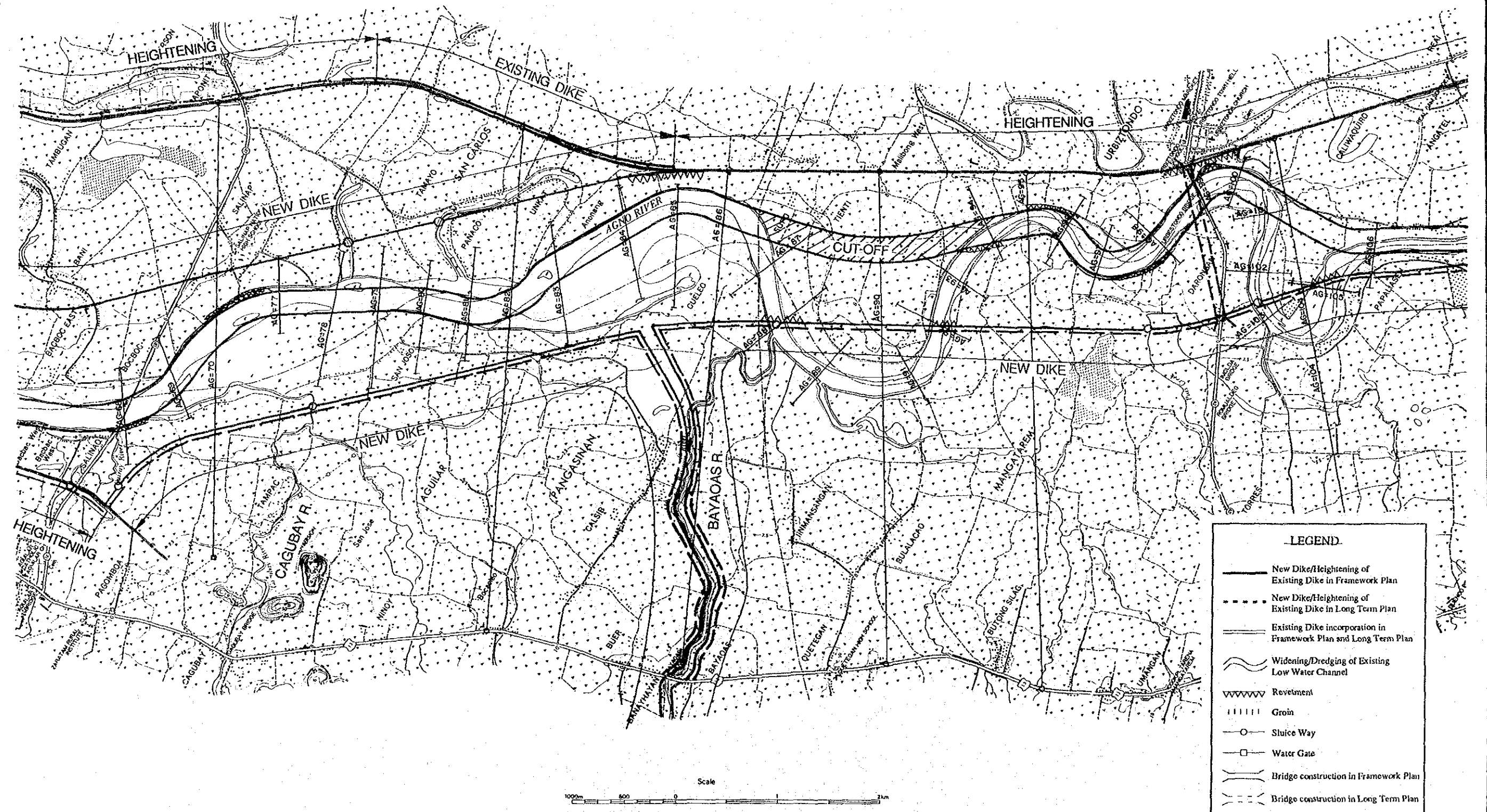
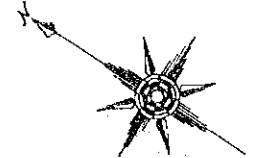
- New Dike/Heightening of Existing Dike in Framework Plan
- - - - New Dike/Heightening of Existing Dike in Long Term Plan
- ==== Existing Dike incorporation in Framework Plan and Long Term Plan
- ~~~~~ Widening/Dredging of Existing Low Water Channel
- ~~~~~ Revetment
- ||||| Groin
- Sluice Way
- Water Gate
- Bridge construction in Framework Plan
- - - - Bridge construction in Long Term Plan



**Fig. 10.2.5 DESIGN PLAN OF AGNO RIVER (1/10)**

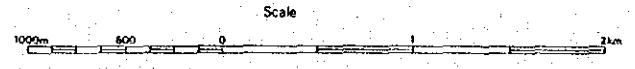






**LEGEND**

|  |  |
|--|--|
|  | New Dike/Heightening of Existing Dike in Framework Plan          |
|  | New Dike/Heightening of Existing Dike in Long Term Plan          |
|  | Existing Dike incorporation in Framework Plan and Long Term Plan |
|  | Widening/Dredging of Existing Low Water Channel                  |
|  | Revetment  |
|  | Groin  |
|  | Sluice Way   |
|  | Water Gate   |
|  | Bridge construction in Framework Plan                            |
|  | Bridge construction in Long Term Plan                            |



CONTOUR INTERVAL 5 METERS WITH SUPPLEMENTARY CONTOURS AT 2.5 METER INTERVALS  
 VERTICAL DATUM: MEAN SEA LEVEL

Fig. 10.2.5 DESIGN PLAN OF AGNO RIVER (3/10)

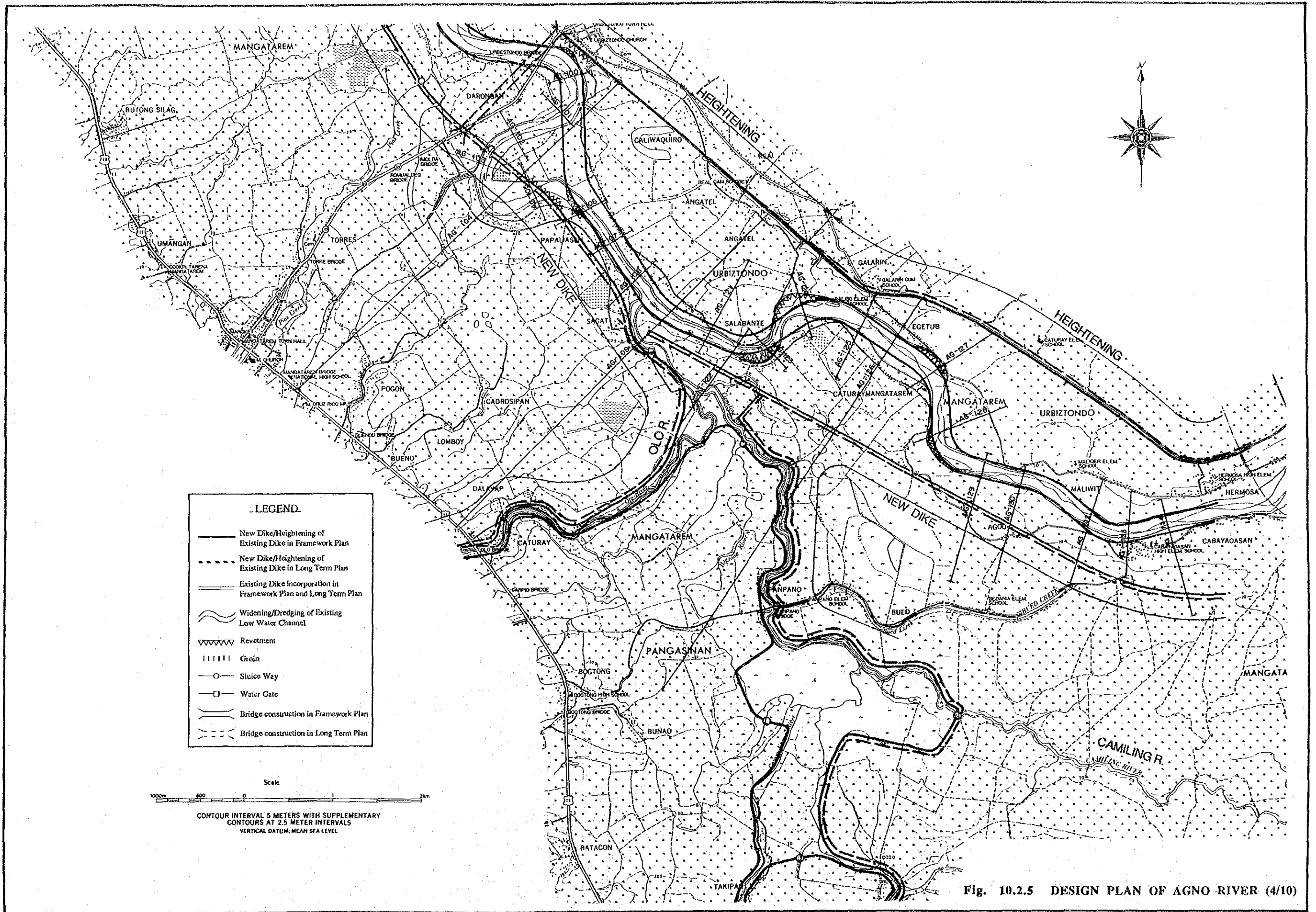
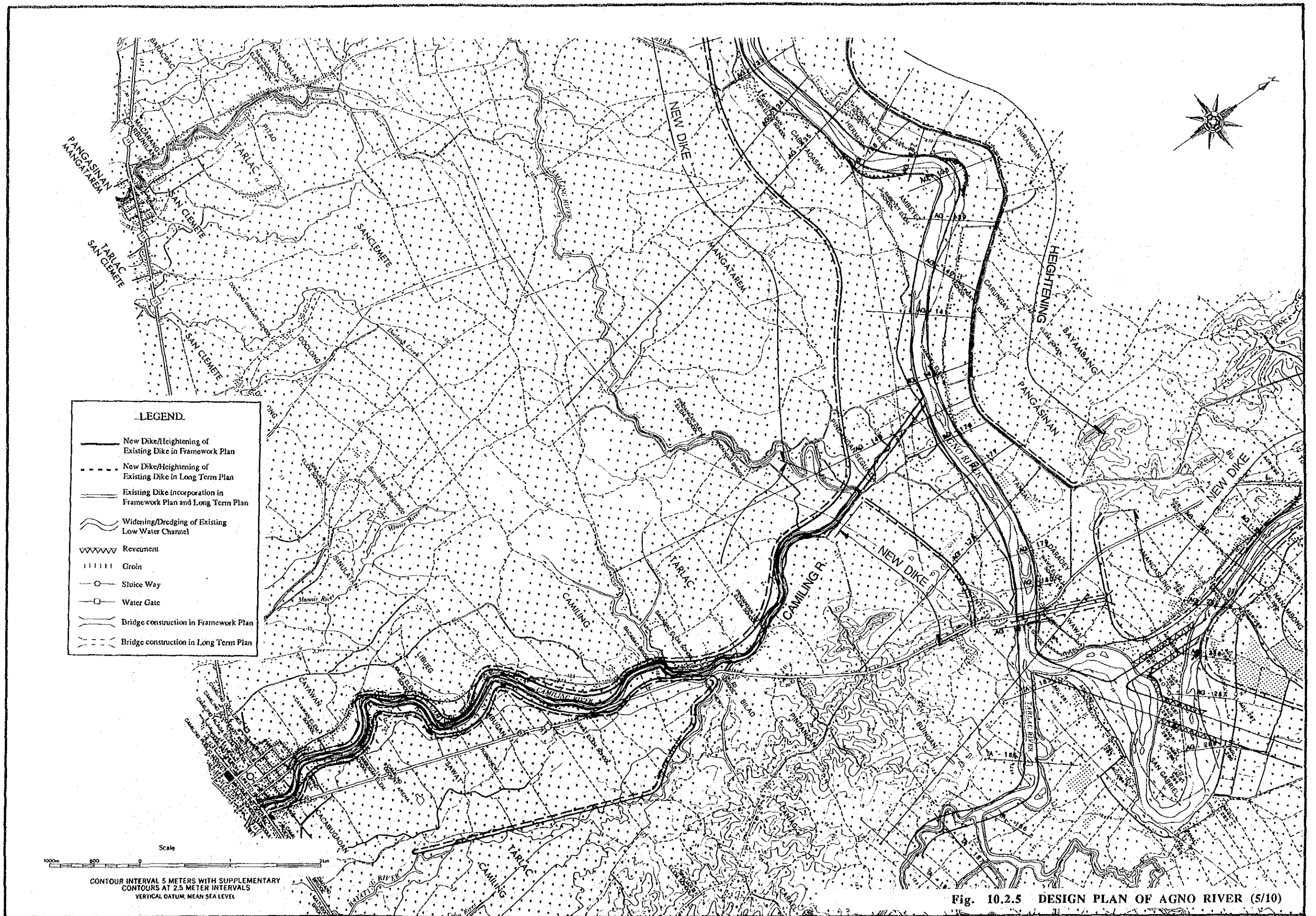
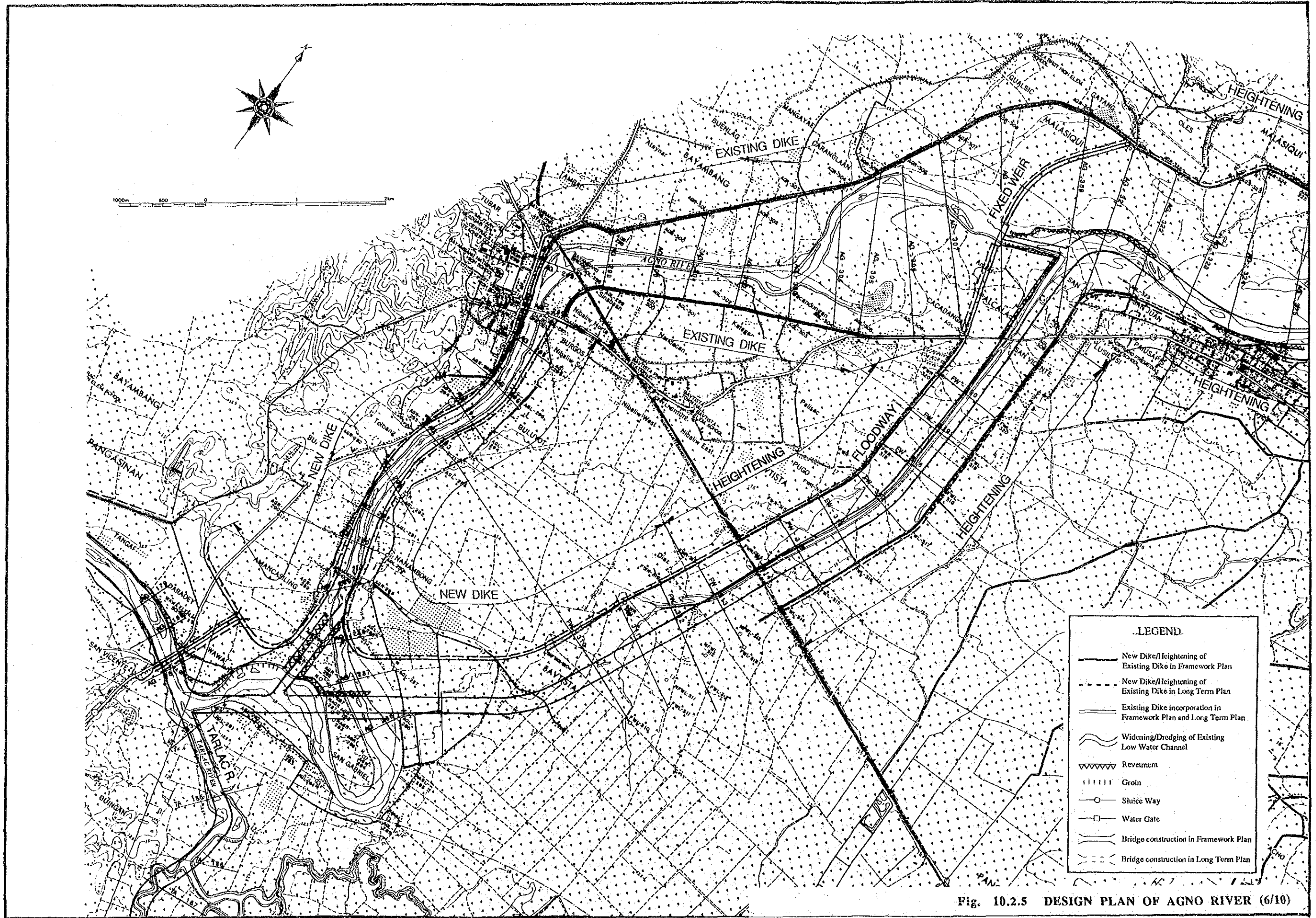


Fig. 10.2.5 DESIGN PLAN OF AGNO RIVER (4/10)







**LEGEND**

|  |  |
|--|--|
|  | New Dike/Heightening of Existing Dike in Framework Plan          |
|  | New Dike/Heightening of Existing Dike in Long Term Plan          |
|  | Existing Dike incorporation in Framework Plan and Long Term Plan |
|  | Widening/Dredging of Existing Low Water Channel                  |
|  | Revetment  |
|  | Groin  |
|  | Sluice Way   |
|  | Water Gate   |
|  | Bridge construction in Framework Plan                            |
|  | Bridge construction in Long Term Plan                            |

Fig. 10.2.5 DESIGN PLAN OF AGNO RIVER (6/10)

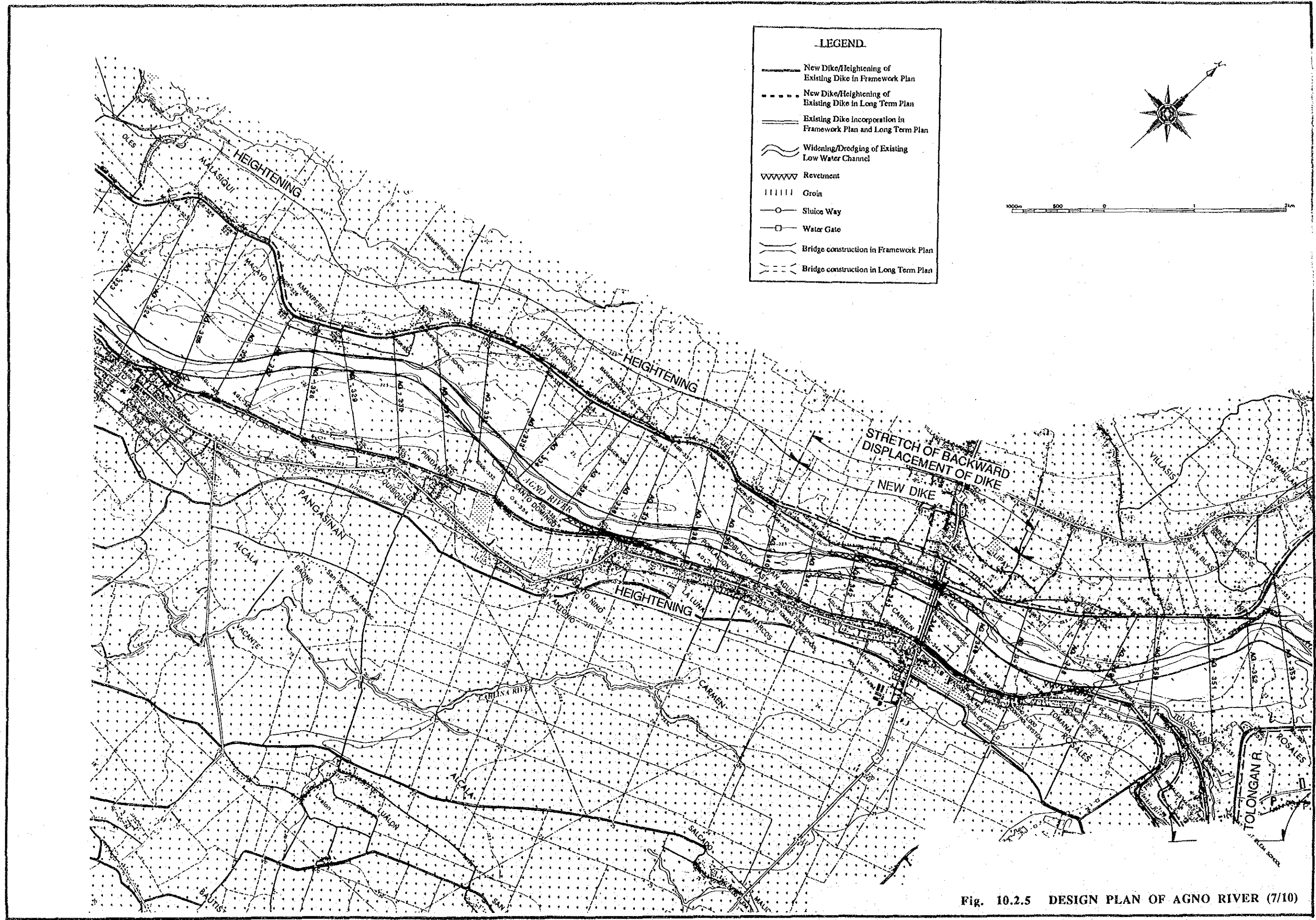
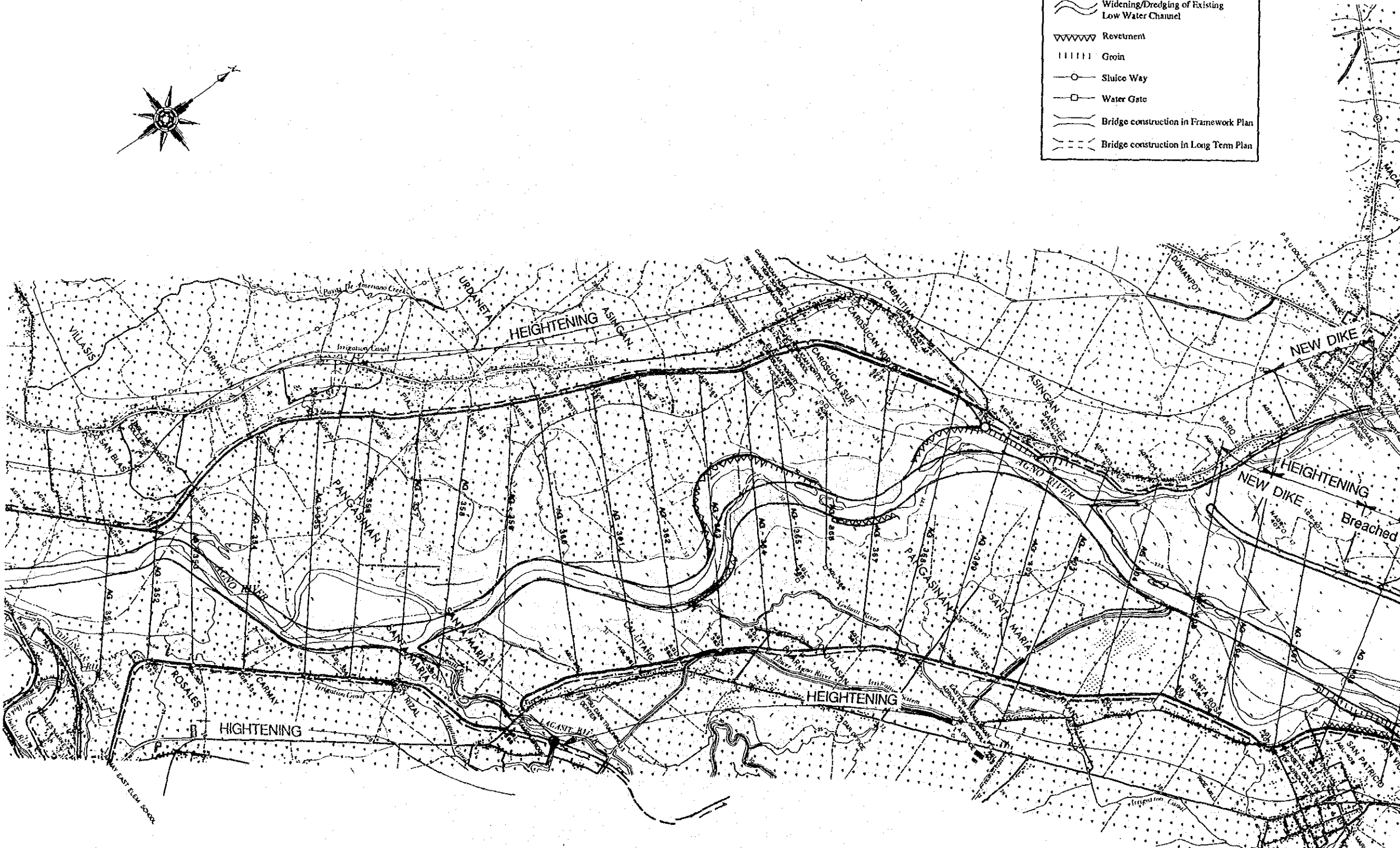


Fig. 10.2.5 DESIGN PLAN OF AGNO RIVER (7/10)



-LEGEND-

|  |  |
|--|--|
|  | New Dike/Heightening of Existing Dike in Framework Plan          |
|  | New Dike/Heightening of Existing Dike in Long Term Plan          |
|  | Existing Dike incorporation in Framework Plan and Long Term Plan |
|  | Widening/Dredging of Existing Low Water Channel                  |
|  | Revetment  |
|  | Groin  |
|  | Sluice Way   |
|  | Water Gate   |
|  | Bridge construction in Framework Plan                            |
|  | Bridge construction in Long Term Plan                            |

Fig. 10.2.5 DESIGN PLAN OF AGNO RIVER (8/10)

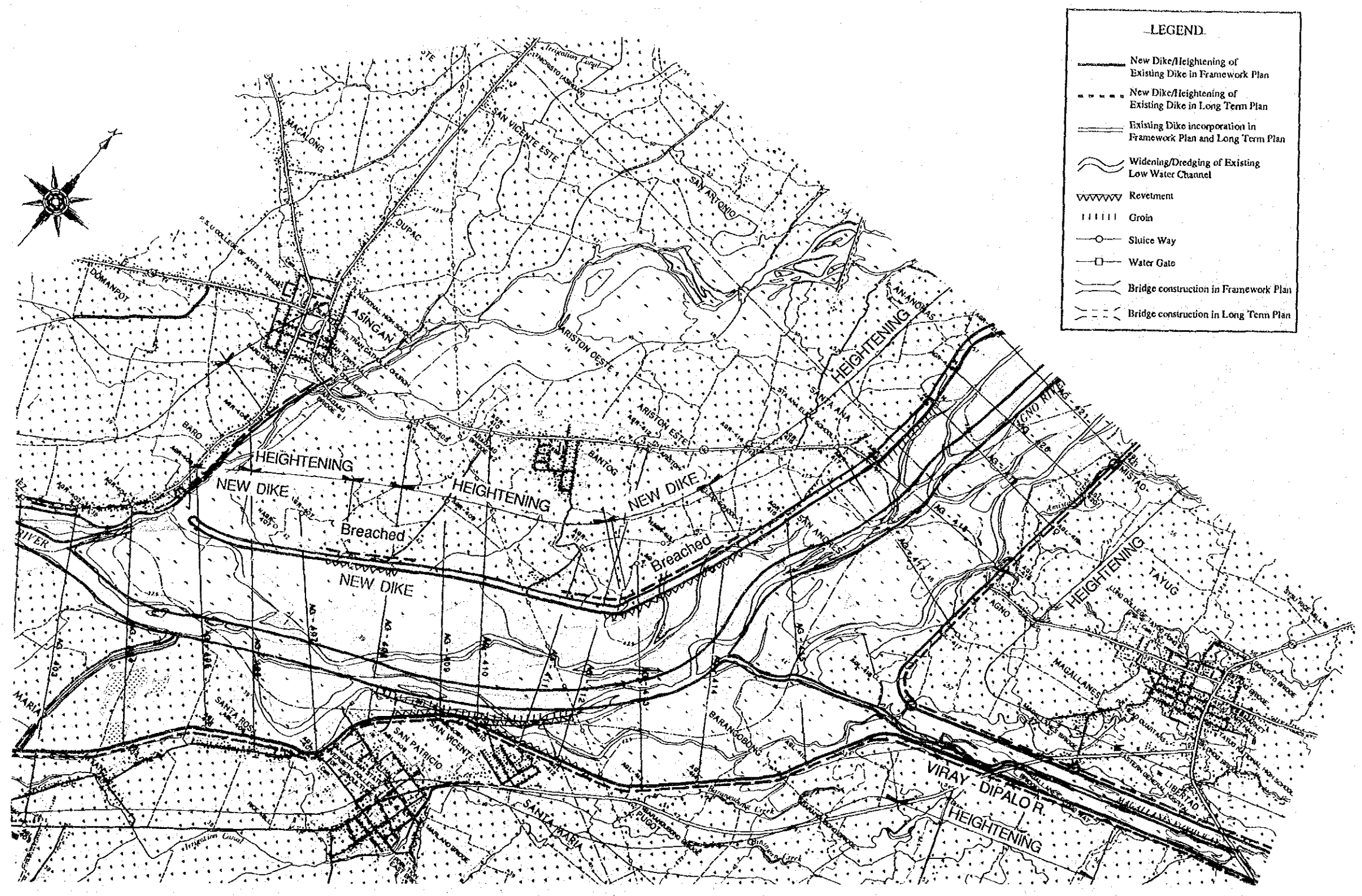


Fig. 10.2.5 DESIGN PLAN OF AGNO RIVER (9/10)





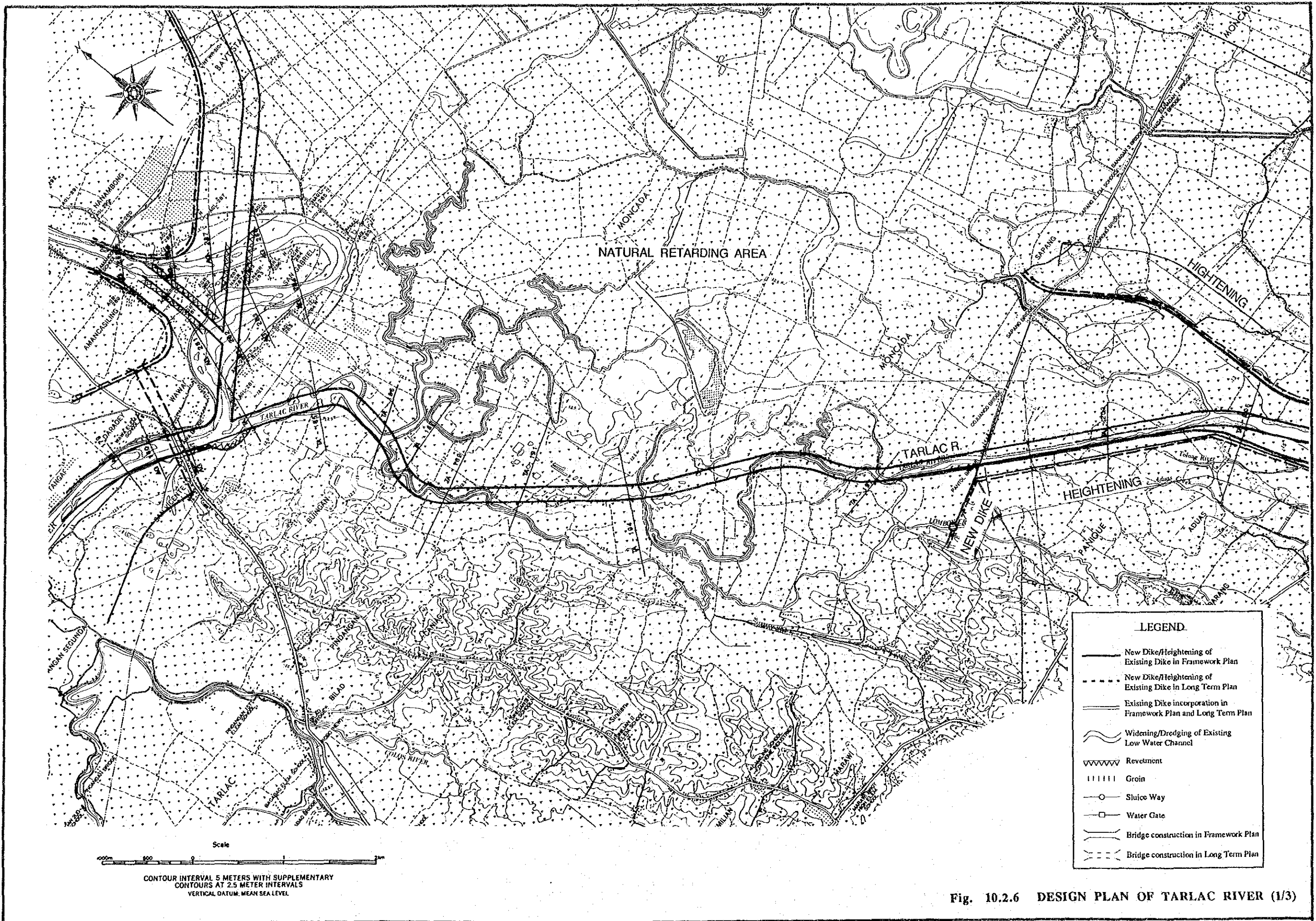


Fig. 10.2.6 DESIGN PLAN OF TARLAC RIVER (1/3)

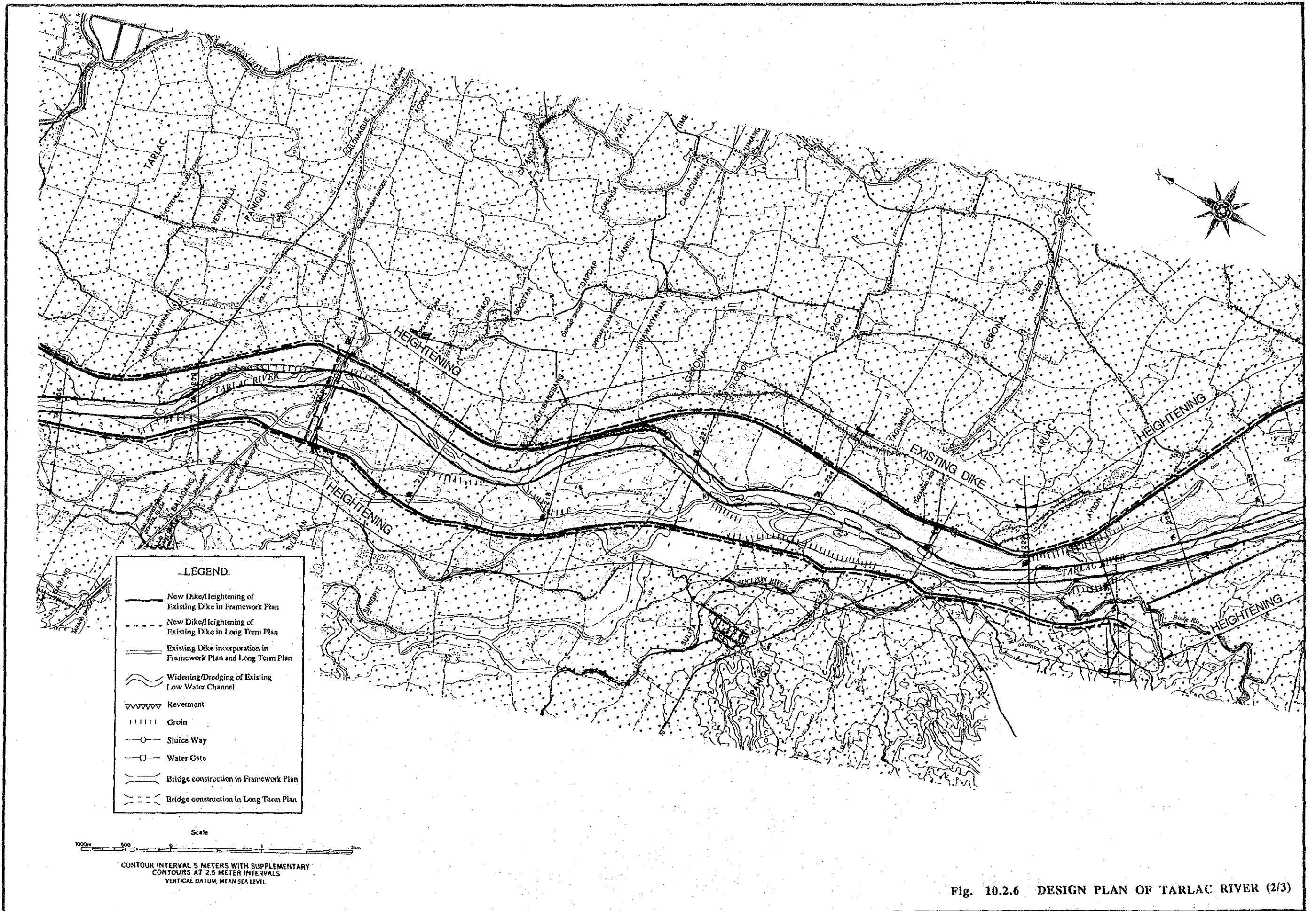
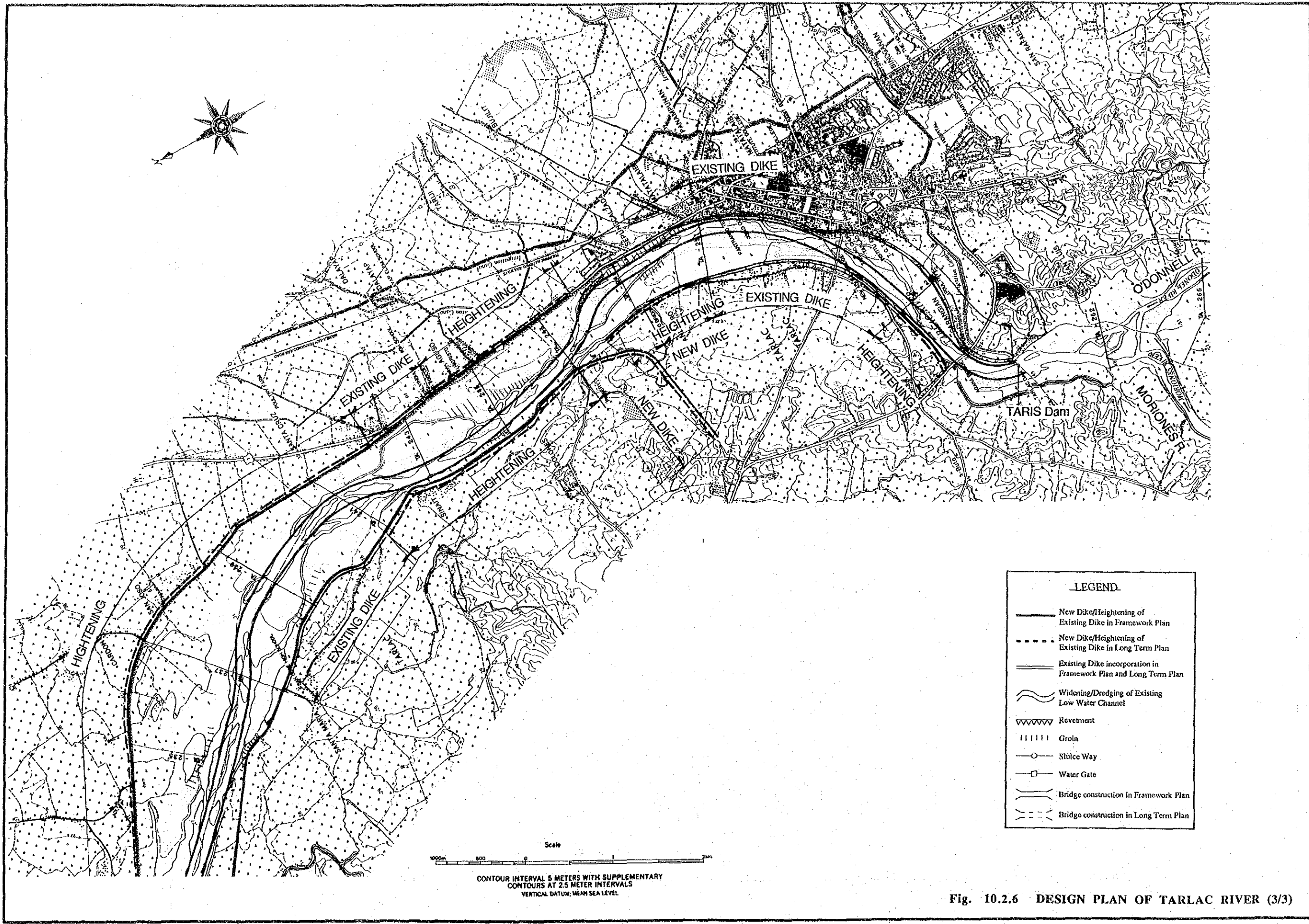


Fig. 10.2.6 DESIGN PLAN OF TARLAC RIVER (2/3)





Scale  
 0 500 1000m

CONTOUR INTERVAL 5 METERS WITH SUPPLEMENTARY  
 CONTOURS AT 2.5 METER INTERVALS  
 VERTICAL DATUM: MEAN SEA LEVEL

| LEGEND |  |
|--------|--|
|        | New Dike/Heightening of Existing Dike in Framework Plan          |
|        | New Dike/Heightening of Existing Dike in Long Term Plan          |
|        | Existing Dike incorporation in Framework Plan and Long Term Plan |
|        | Widening/Dredging of Existing Low Water Channel                  |
|        | Revetment  |
|        | Groin  |
|        | Sluice Way   |
|        | Water Gate   |
|        | Bridge construction in Framework Plan                            |
|        | Bridge construction in Long Term Plan                            |

Fig. 10.2.6 DESIGN PLAN OF TARLAC RIVER (3/3)

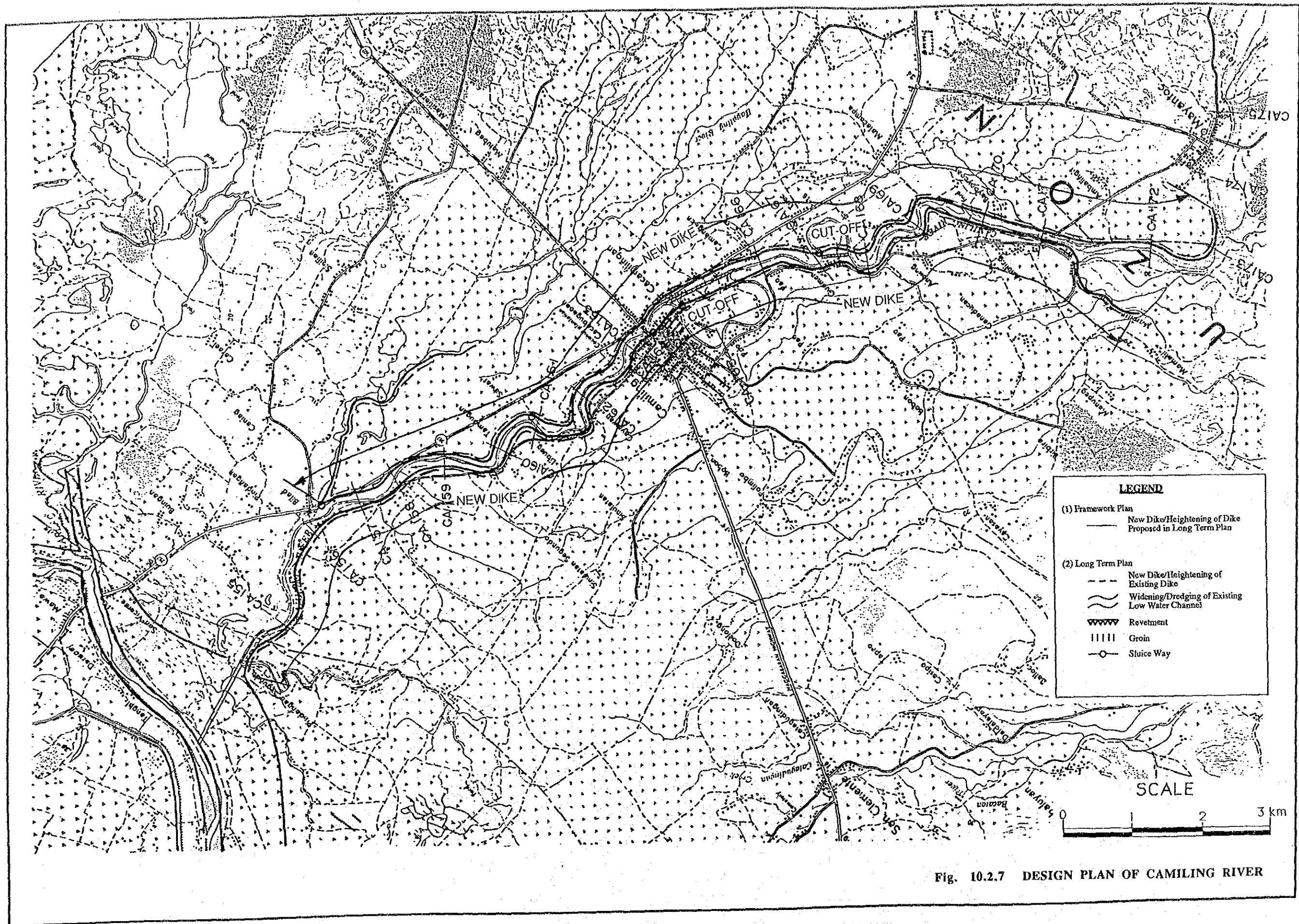
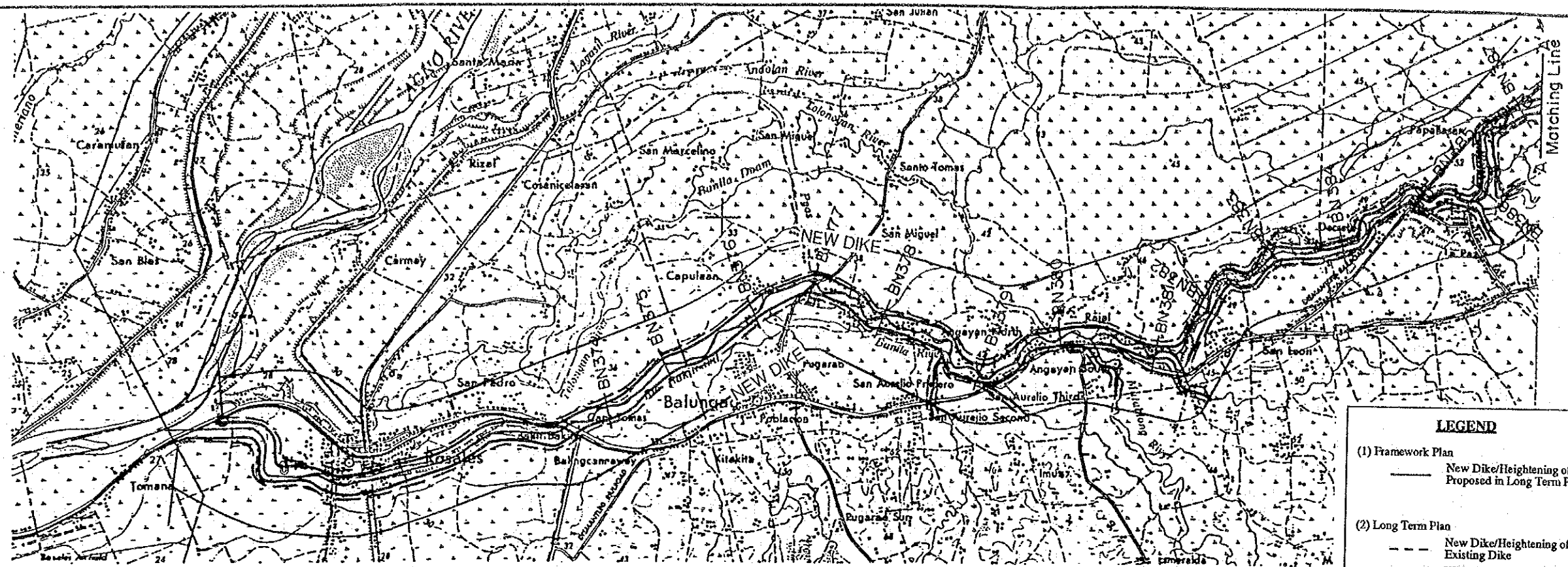


Fig. 10.2.7 DESIGN PLAN OF CAMILING RIVER



**LEGEND**

(1) Framework Plan  
 — New Dike/Heightening of Dike Proposed in Long Term Plan

(2) Long Term Plan  
 - - - Existing Dike  
 ~~~~~ Widening/Dredging of Existing Low Water Channel  
 WWWW Revetment  
 ||||| Groin  
 ○ Sluice Way

(3) +++++ Existing Dike incorporated in Long Term Plan and Framework Plan

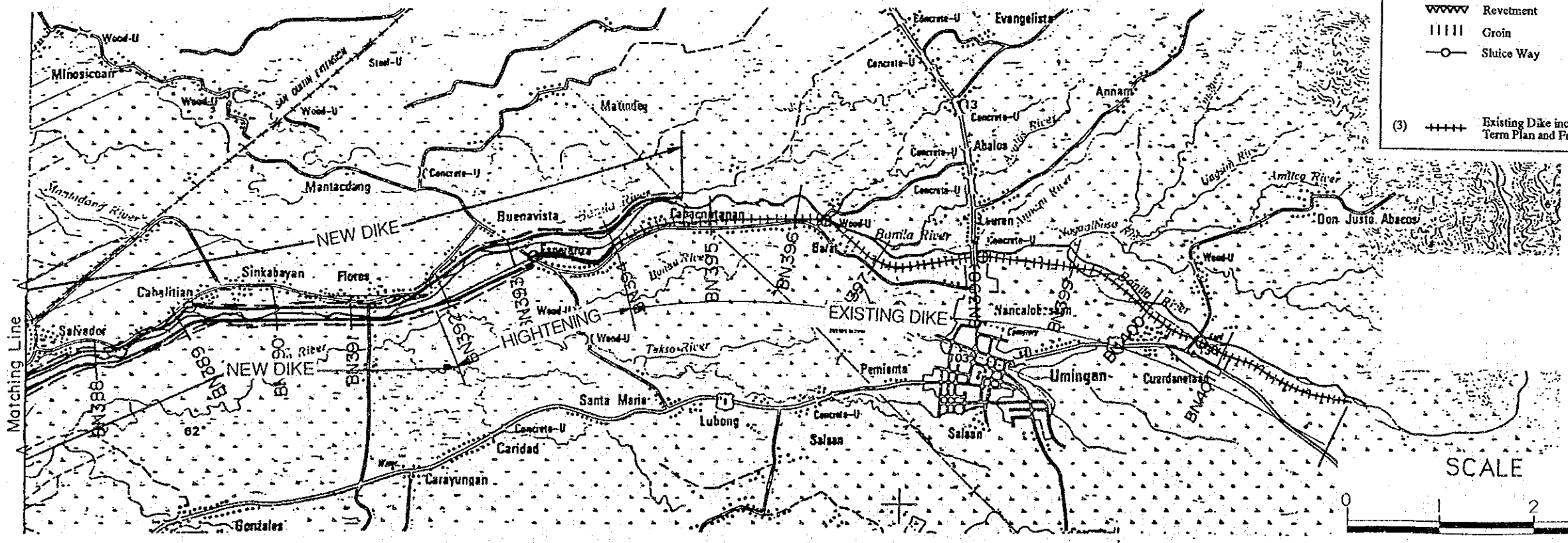


Fig. 10.2.8 DESIGN PLAN OF BANILA RIVER





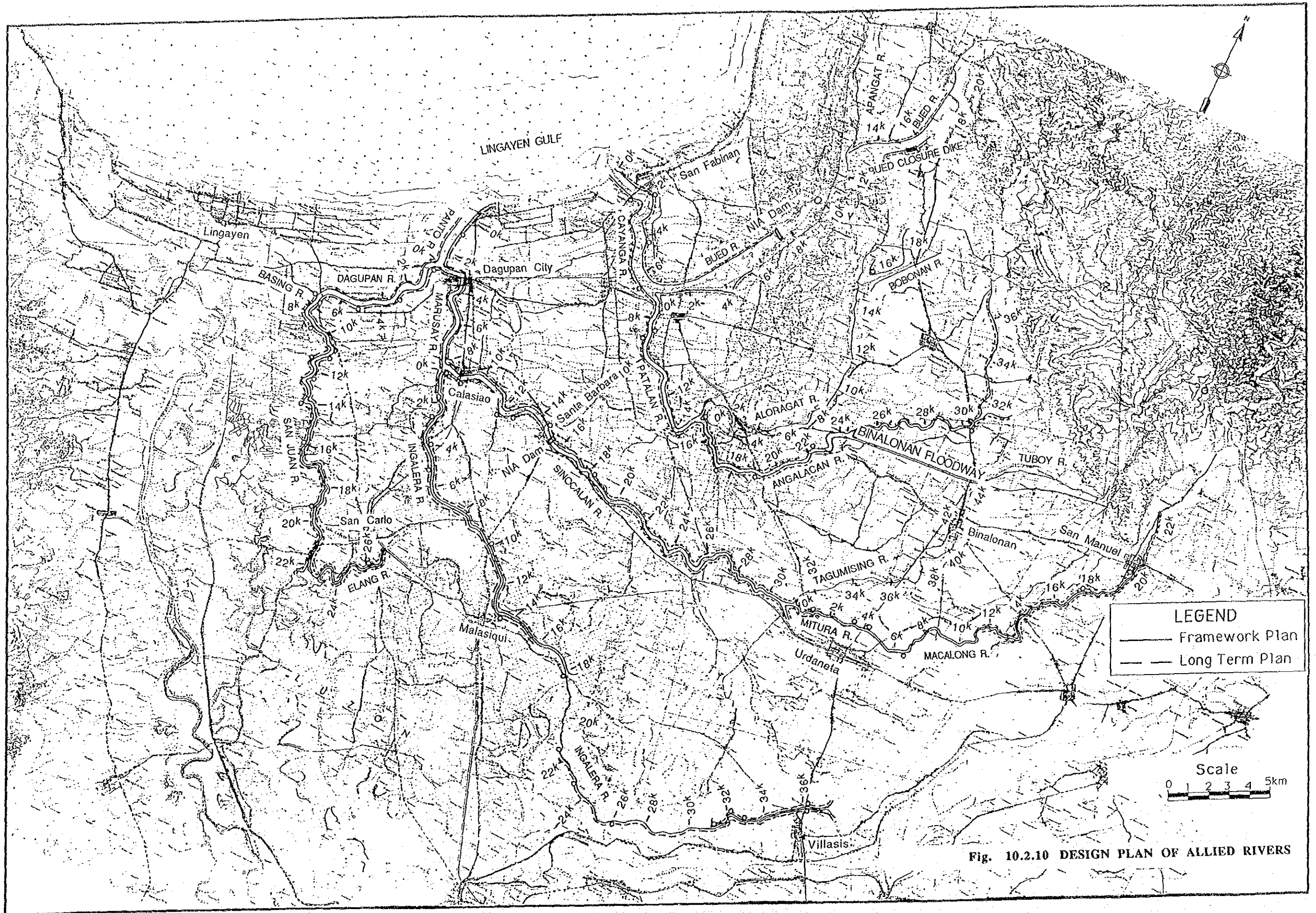
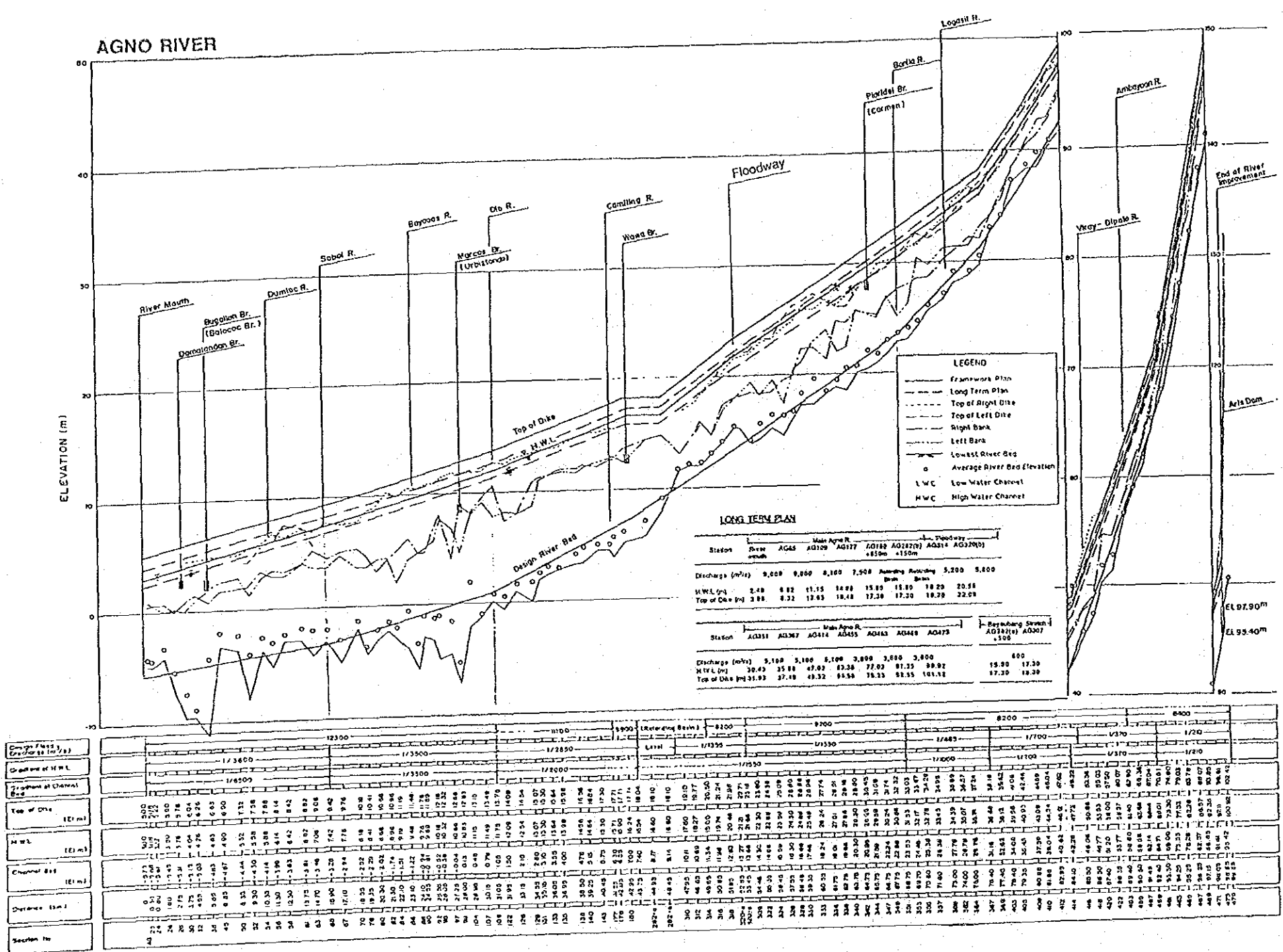
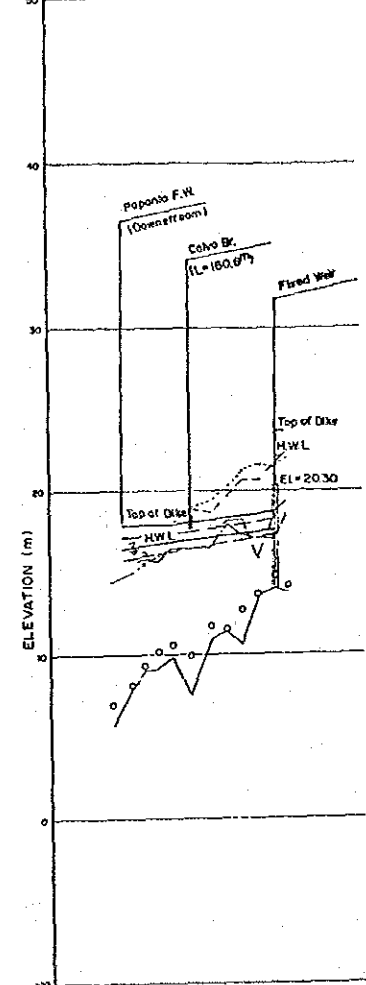


Fig. 10.2.10 DESIGN PLAN OF ALLIED RIVERS





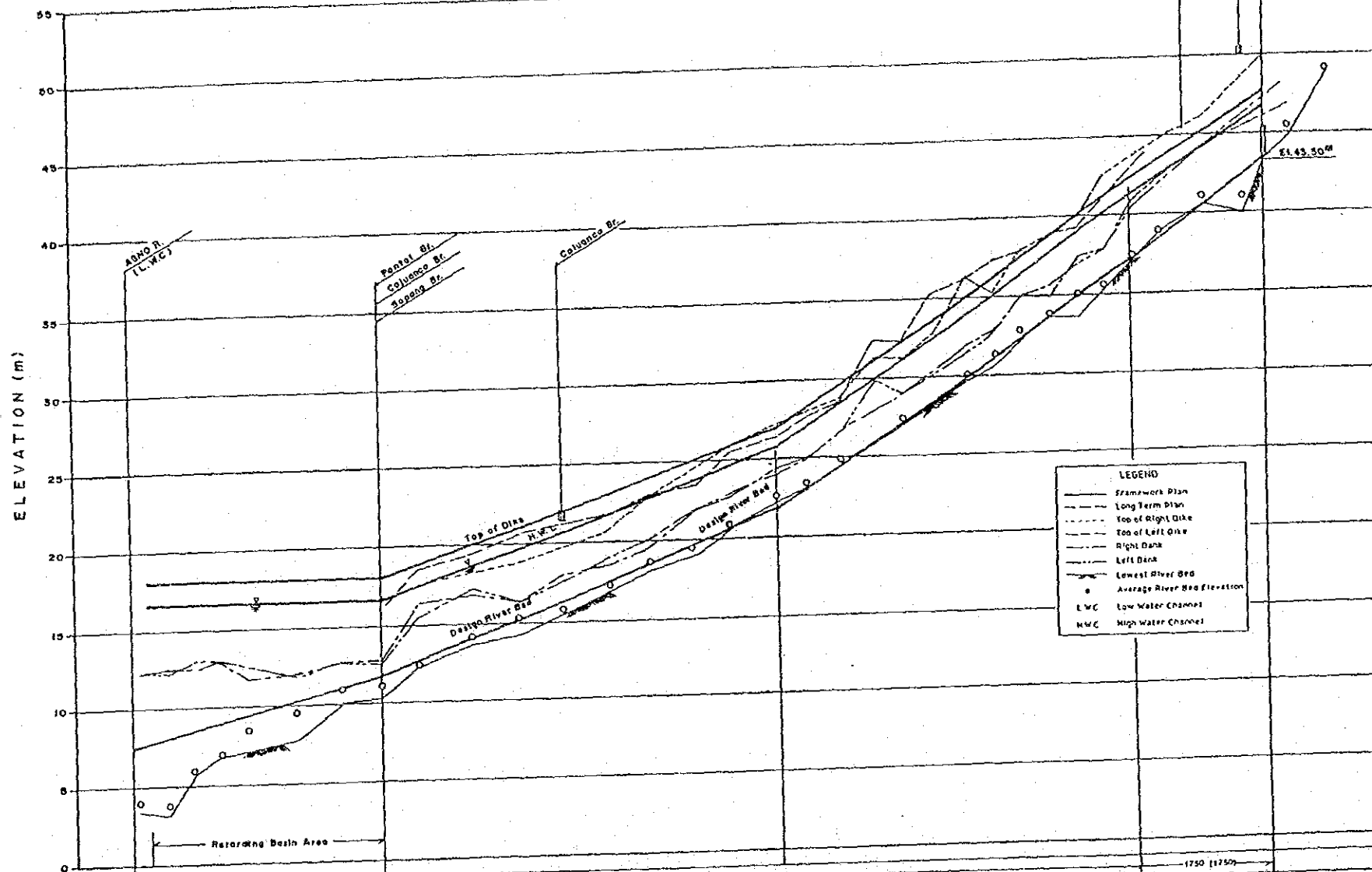
**BAYAMBANG STRETCH**



| Station No.                   | 282      | 283      | 284      | 285      | 286      | 287      | 288      | 289      | 290      |
|-------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Discharge (m <sup>3</sup> /s) | 1000     |          |          |          |          |          |          |          |          |
| Gradient of H.W.L.            | 1/8290   |          |          |          |          |          |          |          |          |
| Gradient of Channel Bed       | 1/1840   |          |          |          |          |          |          |          |          |
| Top of Dike (EL. m)           | 20.30    | 20.30    | 20.30    | 20.30    | 20.30    | 20.30    | 20.30    | 20.30    | 20.30    |
| H.W.L. (EL. m)                | 18.50    | 18.50    | 18.50    | 18.50    | 18.50    | 18.50    | 18.50    | 18.50    | 18.50    |
| Channel Bed (EL. m)           | 17.00    | 17.00    | 17.00    | 17.00    | 17.00    | 17.00    | 17.00    | 17.00    | 17.00    |
| Dipness (1/M)                 | 0.000116 | 0.000116 | 0.000116 | 0.000116 | 0.000116 | 0.000116 | 0.000116 | 0.000116 | 0.000116 |

Fig. 10.2.11 LONGITUDINAL PROFILE OF AGNO RIVER

TARLAC RIVER

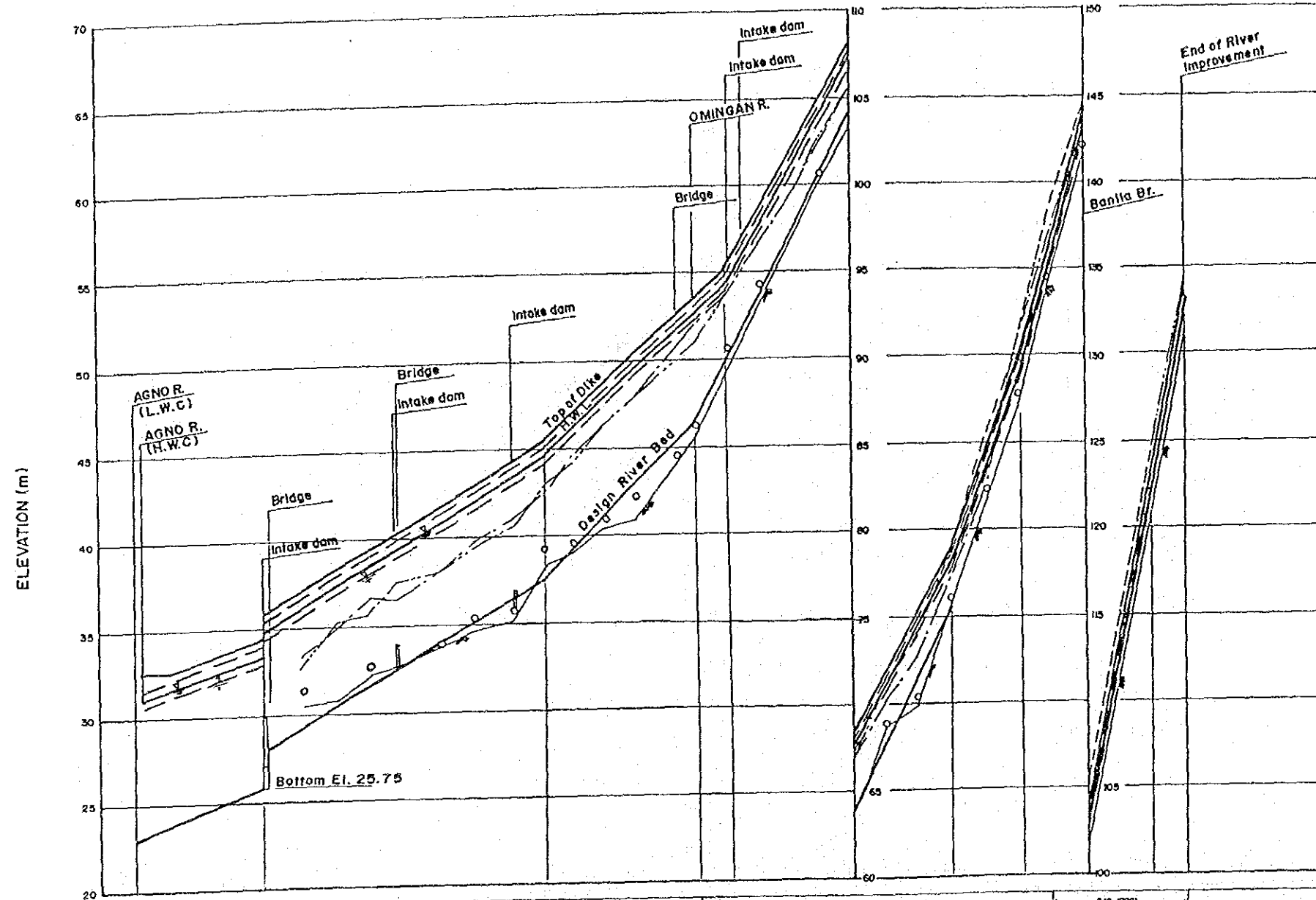


|                                            |             |      |      |      |      |      |      |      |      |      |        |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |             |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|--------------------------------------------|-------------|------|------|------|------|------|------|------|------|------|--------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Design Flood Discharge (m <sup>3</sup> /s) | 2600 (2600) |      |      |      |      |      |      |      |      |      |        |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       | 1750 (1750) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Gradient of H.W.L.                         | 1/1415      |      |      |      |      |      |      |      |      |      | 1/780  |      |      |      |      |      |      |      |      |       | 1/755 |       |       |       |       |       |             |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Gradient of Channel Bed                    | 1/1650      |      |      |      |      |      |      |      |      |      | 1/1300 |      |      |      |      |      |      |      |      |       | 1/780 |       |       |       |       |       |             |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| Top of Dike (E.L.m)                        | 7.40        | 7.54 | 7.68 | 7.82 | 7.96 | 8.10 | 8.24 | 8.38 | 8.52 | 8.66 | 8.80   | 8.94 | 9.08 | 9.22 | 9.36 | 9.50 | 9.64 | 9.78 | 9.92 | 10.06 | 10.20 | 10.34 | 10.48 | 10.62 | 10.76 | 10.90 | 11.04       | 11.18 | 11.32 | 11.46 | 11.60 | 11.74 | 11.88 | 12.02 | 12.16 | 12.30 | 12.44 | 12.58 | 12.72 | 12.86 | 13.00 | 13.14 | 13.28 | 13.42 | 13.56 | 13.70 | 13.84 | 13.98 | 14.12 | 14.26 | 14.40 | 14.54 | 14.68 | 14.82 | 14.96 | 15.10 | 15.24 | 15.38 | 15.52 | 15.66 | 15.80 | 15.94 | 16.08 | 16.22 | 16.36 | 16.50 | 16.64 | 16.78 | 16.92 | 17.06 | 17.20 | 17.34 | 17.48 | 17.62 | 17.76 | 17.90 | 18.04 | 18.18 | 18.32 | 18.46 | 18.60 | 18.74 | 18.88 | 19.02 | 19.16 | 19.30 | 19.44 | 19.58 | 19.72 | 19.86 | 20.00 | 20.14 | 20.28 | 20.42 | 20.56 | 20.70 | 20.84 | 20.98 | 21.12 | 21.26 | 21.40 | 21.54 | 21.68 | 21.82 | 21.96 | 22.10 | 22.24 | 22.38 | 22.52 | 22.66 | 22.80 | 22.94 | 23.08 | 23.22 | 23.36 | 23.50 | 23.64 | 23.78 | 23.92 | 24.06 | 24.20 | 24.34 | 24.48 | 24.62 | 24.76 | 24.90 | 25.04 | 25.18 | 25.32 | 25.46 | 25.60 | 25.74 | 25.88 | 26.02 | 26.16 | 26.30 | 26.44 | 26.58 | 26.72 | 26.86 | 27.00 | 27.14 | 27.28 | 27.42 | 27.56 | 27.70 | 27.84 | 27.98 | 28.12 | 28.26 | 28.40 | 28.54 | 28.68 | 28.82 | 28.96 | 29.10 | 29.24 | 29.38 | 29.52 | 29.66 | 29.80 | 29.94 | 30.08 | 30.22 | 30.36 | 30.50 | 30.64 | 30.78 | 30.92 | 31.06 | 31.20 | 31.34 | 31.48 | 31.62 | 31.76 | 31.90 | 32.04 | 32.18 | 32.32 | 32.46 | 32.60 | 32.74 | 32.88 | 33.02 | 33.16 | 33.30 | 33.44 | 33.58 | 33.72 | 33.86 | 34.00 | 34.14 | 34.28 | 34.42 | 34.56 | 34.70 | 34.84 | 34.98 | 35.12 | 35.26 | 35.40 | 35.54 | 35.68 | 35.82 | 35.96 | 36.10 | 36.24 | 36.38 | 36.52 | 36.66 | 36.80 | 36.94 | 37.08 | 37.22 | 37.36 | 37.50 | 37.64 | 37.78 | 37.92 | 38.06 | 38.20 | 38.34 | 38.48 | 38.62 | 38.76 | 38.90 | 39.04 | 39.18 | 39.32 | 39.46 | 39.60 | 39.74 | 39.88 | 40.02 | 40.16 | 40.30 | 40.44 | 40.58 | 40.72 | 40.86 | 41.00 | 41.14 | 41.28 | 41.42 | 41.56 | 41.70 | 41.84 | 41.98 | 42.12 | 42.26 | 42.40 | 42.54 | 42.68 | 42.82 | 42.96 | 43.10 | 43.24 | 43.38 | 43.52 | 43.66 | 43.80 | 43.94 | 44.08 | 44.22 | 44.36 | 44.50 | 44.64 | 44.78 | 44.92 | 45.06 | 45.20 | 45.34 | 45.48 | 45.62 | 45.76 | 45.90 | 46.04 | 46.18 | 46.32 | 46.46 | 46.60 | 46.74 | 46.88 | 47.02 | 47.16 | 47.30 | 47.44 | 47.58 | 47.72 | 47.86 | 48.00 | 48.14 | 48.28 | 48.42 | 48.56 | 48.70 | 48.84 | 48.98 | 49.12 | 49.26 | 49.40 | 49.54 | 49.68 | 49.82 | 49.96 | 50.10 | 50.24 | 50.38 | 50.52 | 50.66 | 50.80 | 50.94 | 51.08 | 51.22 | 51.36 | 51.50 | 51.64 | 51.78 | 51.92 | 52.06 | 52.20 | 52.34 | 52.48 | 52.62 | 52.76 | 52.90 | 53.04 | 53.18 | 53.32 | 53.46 | 53.60 | 53.74 | 53.88 | 54.02 | 54.16 | 54.30 | 54.44 | 54.58 | 54.72 | 54.86 | 55.00 |
| H.W.L. (E.L.m)                             | 7.40        | 7.54 | 7.68 | 7.82 | 7.96 | 8.10 | 8.24 | 8.38 | 8.52 | 8.66 | 8.80   | 8.94 | 9.08 | 9.22 | 9.36 | 9.50 | 9.64 | 9.78 | 9.92 | 10.06 | 10.20 | 10.34 | 10.48 | 10.62 | 10.76 | 10.90 | 11.04       | 11.18 | 11.32 | 11.46 | 11.60 | 11.74 | 11.88 | 12.02 | 12.16 | 12.30 | 12.44 | 12.58 | 12.72 | 12.86 | 13.00 | 13.14 | 13.28 | 13.42 | 13.56 | 13.70 | 13.84 | 13.98 | 14.12 | 14.26 | 14.40 | 14.54 | 14.68 | 14.82 | 14.96 | 15.10 | 15.24 | 15.38 | 15.52 | 15.66 | 15.80 | 15.94 | 16.08 | 16.22 | 16.36 | 16.50 | 16.64 | 16.78 | 16.92 | 17.06 | 17.20 | 17.34 | 17.48 | 17.62 | 17.76 | 17.90 | 18.04 | 18.18 | 18.32 | 18.46 | 18.60 | 18.74 | 18.88 | 19.02 | 19.16 | 19.30 | 19.44 | 19.58 | 19.72 | 19.86 | 20.00 | 20.14 | 20.28 | 20.42 | 20.56 | 20.70 | 20.84 | 20.98 | 21.12 | 21.26 | 21.40 | 21.54 | 21.68 | 21.82 | 21.96 | 22.10 | 22.24 | 22.38 | 22.52 | 22.66 | 22.80 | 22.94 | 23.08 | 23.22 | 23.36 | 23.50 | 23.64 | 23.78 | 23.92 | 24.06 | 24.20 | 24.34 | 24.48 | 24.62 | 24.76 | 24.90 | 25.04 | 25.18 | 25.32 | 25.46 | 25.60 | 25.74 | 25.88 | 26.02 | 26.16 | 26.30 | 26.44 | 26.58 | 26.72 | 26.86 | 27.00 | 27.14 | 27.28 | 27.42 | 27.56 | 27.70 | 27.84 | 27.98 | 28.12 | 28.26 | 28.40 | 28.54 | 28.68 | 28.82 | 28.96 | 29.10 | 29.24 | 29.38 | 29.52 | 29.66 | 29.80 | 29.94 | 30.08 | 30.22 | 30.36 | 30.50 | 30.64 | 30.78 | 30.92 | 31.06 | 31.20 | 31.34 | 31.48 | 31.62 | 31.76 | 31.90 | 32.04 | 32.18 | 32.32 | 32.46 | 32.60 | 32.74 | 32.88 | 33.02 | 33.16 | 33.30 | 33.44 | 33.58 | 33.72 | 33.86 | 34.00 | 34.14 | 34.28 | 34.42 | 34.56 | 34.70 | 34.84 | 34.98 | 35.12 | 35.26 | 35.40 | 35.54 | 35.68 | 35.82 | 35.96 | 36.10 | 36.24 | 36.38 | 36.52 | 36.66 | 36.80 | 36.94 | 37.08 | 37.22 | 37.36 | 37.50 | 37.64 | 37.78 | 37.92 | 38.06 | 38.20 | 38.34 | 38.48 | 38.62 | 38.76 | 38.90 | 39.04 | 39.18 | 39.32 | 39.46 | 39.60 | 39.74 | 39.88 | 40.02 | 40.16 | 40.30 | 40.44 | 40.58 | 40.72 | 40.86 | 41.00 | 41.14 | 41.28 | 41.42 | 41.56 | 41.70 | 41.84 | 41.98 | 42.12 | 42.26 | 42.40 | 42.54 | 42.68 | 42.82 | 42.96 | 43.10 | 43.24 | 43.38 | 43.52 | 43.66 | 43.80 | 43.94 | 44.08 | 44.22 | 44.36 | 44.50 | 44.64 | 44.78 | 44.92 | 45.06 | 45.20 | 45.34 | 45.48 | 45.62 | 45.76 | 45.90 | 46.04 | 46.18 | 46.32 | 46.46 | 46.60 | 46.74 | 46.88 | 47.02 | 47.16 | 47.30 | 47.44 | 47.58 | 47.72 | 47.86 | 48.00 | 48.14 | 48.28 | 48.42 | 48.56 | 48.70 | 48.84 | 48.98 | 49.12 | 49.26 | 49.40 | 49.54 | 49.68 | 49.82 | 49.96 | 50.10 | 50.24 | 50.38 | 50.52 | 50.66 | 50.80 | 50.94 | 51.08 | 51.22 | 51.36 | 51.50 | 51.64 | 51.78 | 51.92 | 52.06 | 52.20 | 52.34 | 52.48 | 52.62 | 52.76 | 52.90 | 53.04 | 53.18 | 53.32 | 53.46 | 53.60 | 53.74 | 53.88 | 54.02 | 54.16 | 54.30 | 54.44 | 54.58 | 54.72 | 54.86 | 55.00 |
| Channel Bed (E.L.m)                        | 7.40        | 7.54 | 7.68 | 7.82 | 7.96 | 8.10 | 8.24 | 8.38 | 8.52 | 8.66 | 8.80   | 8.94 | 9.08 | 9.22 | 9.36 | 9.50 | 9.64 | 9.78 | 9.92 | 10.06 | 10.20 | 10.34 | 10.48 | 10.62 | 10.76 | 10.90 | 11.04       | 11.18 | 11.32 | 11.46 | 11.60 | 11.74 | 11.88 | 12.02 | 12.16 | 12.30 | 12.44 | 12.58 | 12.72 | 12.86 | 13.00 | 13.14 | 13.28 | 13.42 | 13.56 | 13.70 | 13.84 | 13.98 | 14.12 | 14.26 | 14.40 | 14.54 | 14.68 | 14.82 | 14.96 | 15.10 | 15.24 | 15.38 | 15.52 | 15.66 | 15.80 | 15.94 | 16.08 | 16.22 | 16.36 | 16.50 | 16.64 | 16.78 | 16.92 | 17.06 | 17.20 | 17.34 | 17.48 | 17.62 | 17.76 | 17.90 | 18.04 | 18.18 | 18.32 | 18.46 | 18.60 | 18.74 | 18.88 | 19.02 | 19.16 | 19.30 | 19.44 | 19.58 | 19.72 | 19.86 | 20.00 | 20.14 | 20.28 | 20.42 | 20.56 | 20.70 | 20.84 | 20.98 | 21.12 | 21.26 | 21.40 | 21.54 | 21.68 | 21.82 | 21.96 | 22.10 | 22.24 | 22.38 | 22.52 | 22.66 | 22.80 | 22.94 | 23.08 | 23.22 | 23.36 | 23.50 | 23.64 | 23.78 | 23.92 | 24.06 | 24.20 | 24.34 | 24.48 | 24.62 | 24.76 | 24.90 | 25.04 | 25.18 | 25.32 | 25.46 | 25.60 | 25.74 | 25.88 | 26.02 | 26.16 | 26.30 | 26.44 | 26.58 | 26.72 | 26.86 | 27.00 | 27.14 | 27.28 | 27.42 | 27.56 | 27.70 | 27.84 | 27.98 | 28.12 | 28.26 | 28.40 | 28.54 | 28.68 | 28.82 | 28.96 | 29.10 | 29.24 | 29.38 | 29.52 | 29.66 | 29.80 | 29.94 | 30.08 | 30.22 | 30.36 | 30.50 | 30.64 | 30.78 | 30.92 | 31.06 | 31.20 | 31.34 | 31.48 | 31.62 | 31.76 | 31.90 | 32.04 | 32.18 | 32.32 | 32.46 | 32.60 | 32.74 | 32.88 | 33.02 | 33.16 | 33.30 | 33.44 | 33.58 | 33.72 | 33.86 | 34.00 | 34.14 | 34.28 | 34.42 | 34.56 | 34.70 | 34.84 | 34.98 | 35.12 | 35.26 | 35.40 | 35.54 | 35.68 | 35.82 | 35.96 | 36.10 | 36.24 | 36.38 | 36.52 | 36.66 | 36.80 | 36.94 | 37.08 | 37.22 | 37.36 | 37.50 | 37.64 | 37.78 | 37.92 | 38.06 | 38.20 | 38.34 | 38.48 | 38.62 | 38.76 | 38.90 | 39.04 | 39.18 | 39.32 | 39.46 | 39.60 | 39.74 | 39.88 | 40.02 | 40.16 | 40.30 | 40.44 | 40.58 | 40.72 | 40.86 | 41.00 | 41.14 | 41.28 | 41.42 | 41.56 | 41.70 | 41.84 | 41.98 | 42.12 | 42.26 | 42.40 | 42.54 | 42.68 | 42.82 | 42.96 | 43.10 | 43.24 | 43.38 | 43.52 | 43.66 | 43.80 | 43.94 | 44.08 | 44.22 | 44.36 | 44.50 | 44.64 | 44.78 | 44.92 | 45.06 | 45.20 | 45.34 | 45.48 | 45.62 | 45.76 | 45.90 | 46.04 | 46.18 | 46.32 | 46.46 | 46.60 | 46.74 | 46.88 | 47.02 | 47.16 | 47.30 | 47.44 | 47.58 | 47.72 | 47.86 | 48.00 | 48.14 | 48.28 | 48.42 | 48.56 | 48.70 | 48.84 | 48.98 | 49.12 | 49.26 | 49.40 | 49.54 | 49.68 | 49.82 | 49.96 | 50.10 | 50.24 | 50.38 | 50.52 | 50.66 | 50.80 | 50.94 | 51.08 | 51.22 | 51.36 | 51.50 | 51.64 | 51.78 | 51.92 | 52.06 | 52.20 | 52.34 | 52.48 | 52.62 | 52.76 | 52.90 | 53.04 | 53.18 | 53.32 | 53.46 | 53.60 | 53.74 | 53.88 | 54.02 | 54.16 | 54.30 | 54.44 | 54.58 | 54.72 | 54.86 | 55.00 |
| Distance (Km)                              | 0           | 0.25 | 0.50 | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 2.00 | 2.25 | 2.50   | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 4.25 | 4.50 | 4.75  | 5.00  | 5.25  | 5.50  | 5.75  | 6.00  | 6.25  | 6.50        | 6.75  | 7.00  | 7.25  | 7.50  | 7.75  | 8.00  | 8.25  | 8.50  | 8.75  | 9.00  | 9.25  | 9.50  | 9.75  | 10.00 | 10.25 | 10.50 | 10.75 | 11.00 | 11.25 | 11.50 | 11.75 | 12.00 | 12.25 | 12.50 | 12.75 | 13.00 | 13.25 | 13.50 | 13.75 | 14.00 | 14.25 | 14.50 | 14.75 | 15.00 | 15.25 | 15.50 | 15.75 | 16.00 | 16.25 | 16.50 | 16.75 | 17.00 | 17.25 | 17.50 | 17.75 | 18.00 | 18.25 | 18.50 | 18.75 | 19.00 | 19.25 | 19.50 | 19.75 | 20.00 | 20.25 | 20.50 | 20.75 | 21.00 | 21.25 | 21.50 | 21.75 | 22.00 | 22.25 | 22.50 | 22.75 | 23.00 | 23.25 | 23.50 | 23.75 | 24.00 | 24.25 | 24.50 | 24.75 | 25.00 | 25.25 | 25.50 | 25.75 | 26.00 | 26.25 | 26.50 | 26.75 | 27.00 | 27.25 | 27.50 | 27.75 | 28.00 | 28.25 | 28.50 | 28.75 | 29.00 | 29.25 | 29.50 | 29.75 | 30.00 | 30.25 | 30.50 | 30.75 | 31.00 | 31.25 | 31.50 | 31.75 | 32.00 | 32.25 | 32.50 | 32.75 | 33.00 | 33.25 | 33.50 | 33.75 | 34.00 | 34.25 | 34.50 | 34.75 | 35.00 | 35.25 | 35.50 | 35.75 | 36.00 | 36.25 | 36.50 | 36.75 | 37.00 | 37.25 | 37.50 | 37.75 | 38.00 | 38.25 | 38.50 | 38.75 | 39.00 | 39.25 | 39.50 | 39.75 | 40.00 | 40.25 | 40.50 | 40.75 | 41.00 | 41.25 | 41.50 | 41.75 | 42.00 | 42.25 | 42.50 | 42.75 | 43.00 | 43.25 | 43.50 | 43    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |





BANILA RIVER



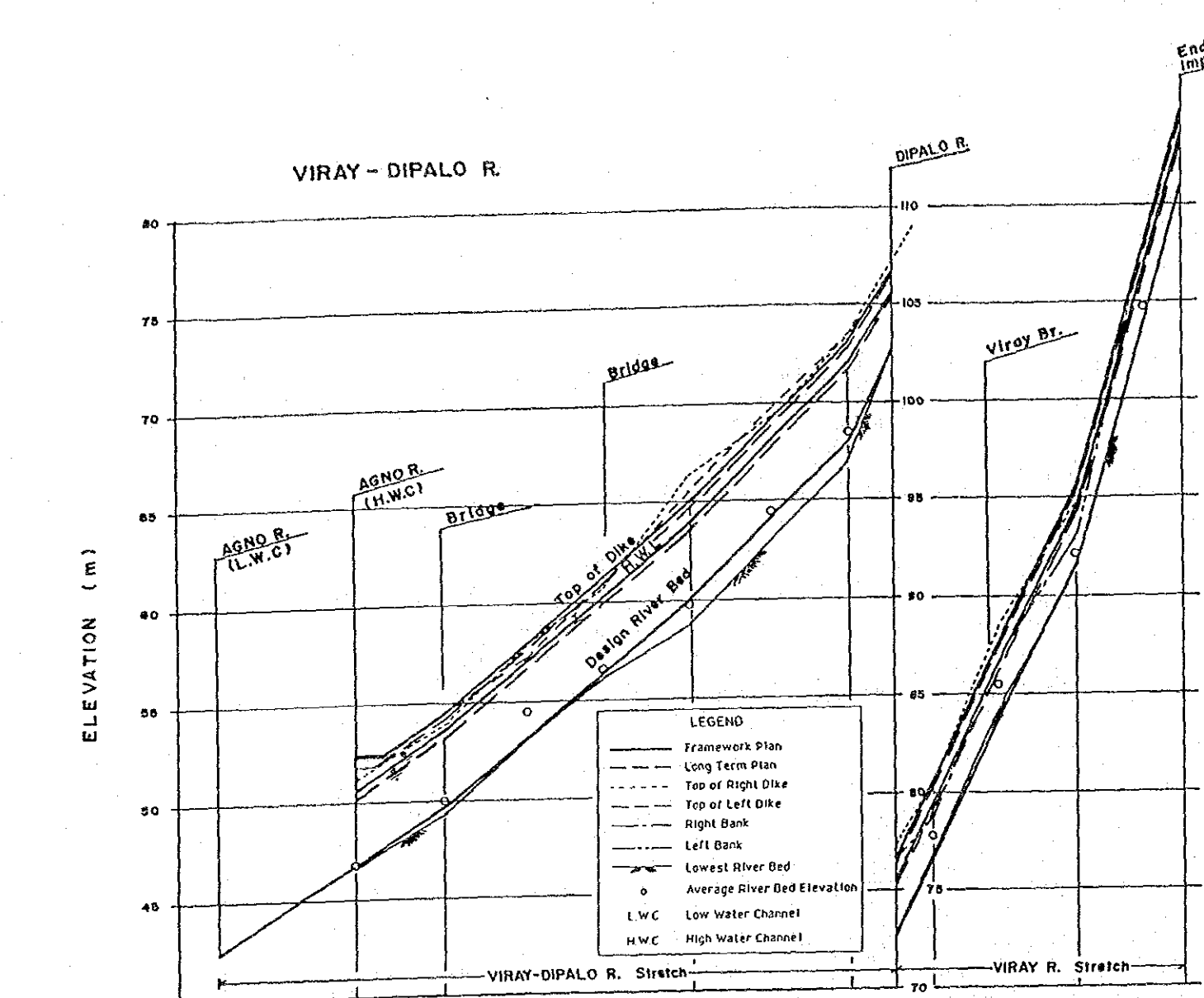
|                                            |             |                                                                  |           |           |
|--------------------------------------------|-------------|------------------------------------------------------------------|-----------|-----------|
| Design Flood Discharge (m <sup>3</sup> /s) | 1400 (1000) | 850 (550)                                                        | 440 (300) | 340 (230) |
| Gradient of HWL                            | 1/1650      | 1/835                                                            | 1/560     | 1/280     |
| Gradient of Channel Bed                    | 1/1295      | 1/835                                                            | 1/320     | 1/265     |
| Top of Dike (El. m)                        | 32.50       | 32.84 (32.84)<br>33.24 (33.24)<br>33.64 (33.64)<br>34.04 (34.04) | 37.40     | 36.60     |
| H.W.L. (El. m)                             | 31.00       | 32.84 (32.84)<br>33.24 (33.24)<br>33.64 (33.64)<br>34.04 (34.04) | 36.40     | 35.60     |
| Channel Bed (El. m)                        | 22.62       | 23.74 (23.74)<br>24.14 (24.14)<br>24.54 (24.54)<br>24.94 (24.94) | 29.40     | 28.60     |
| Distance (KM)                              | 0           | 3.70                                                             | 4.50      | 5.90      |
| Section No.                                | AC 345      | BN 374                                                           | 375       | 376       |

Note; ( ) : Long Term Plan

**LEGEND**

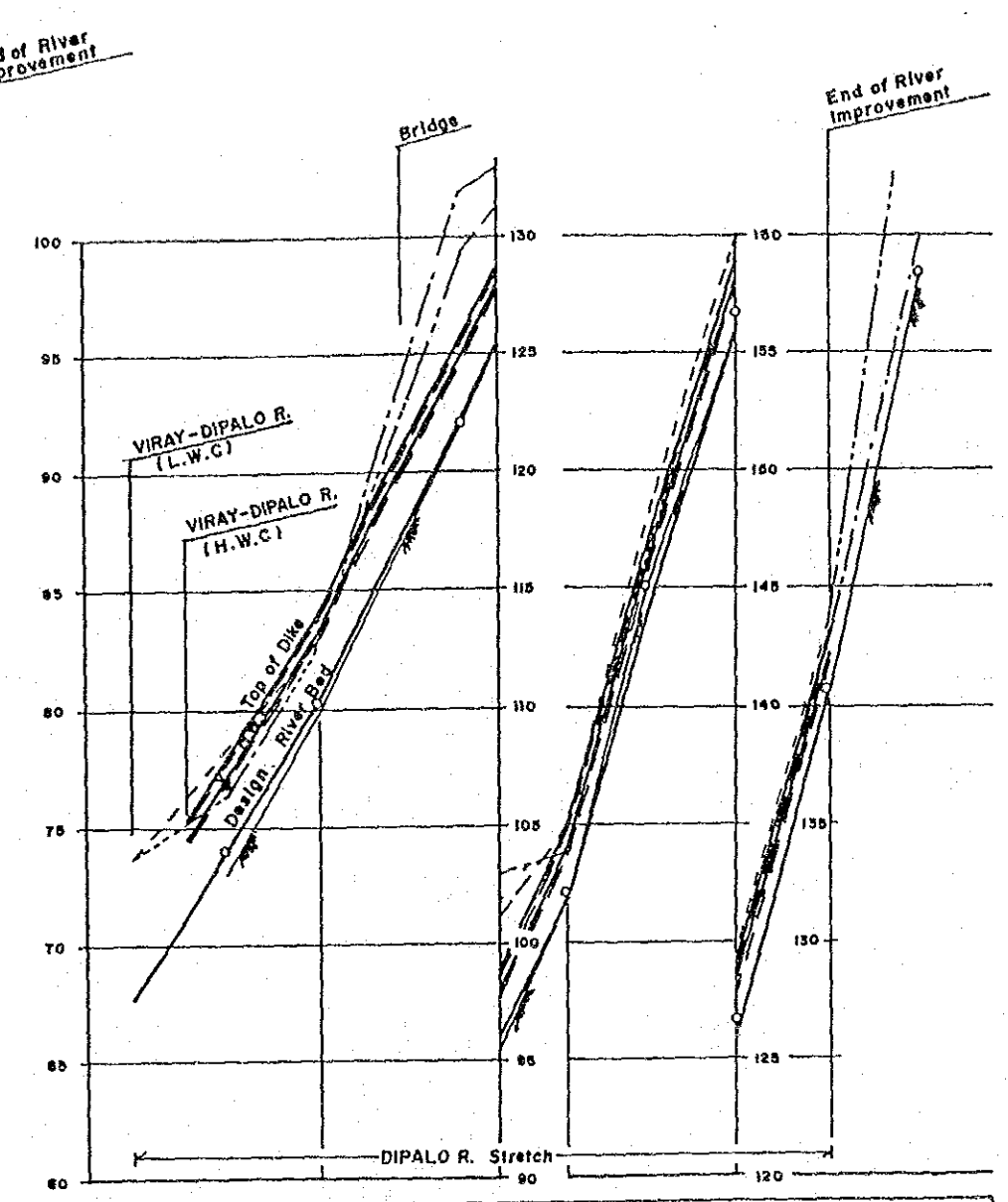
- Framework Plan
- - - Long Term Plan
- · - · - Top of Right Dike
- · - · - Top of Left Dike
- · - · - Right Bank
- · - · - Left Bank
- · - · - Lowest River Bed
- o Average River Bed Elevation
- L.W.C Low Water Channel
- H.W.C High Water Channel

Fig. 10.2.14 LONGITUDINAL PROFILE OF BANILA RIVER



|                                            |           |               |               |       |       |               |       |               |               |       |               |           |                 |
|--------------------------------------------|-----------|---------------|---------------|-------|-------|---------------|-------|---------------|---------------|-------|---------------|-----------|-----------------|
| Design Flood Discharge (m <sup>3</sup> /s) | 750 (550) |               |               |       |       |               |       |               |               |       |               | 370 (270) |                 |
| Gradient of H.W.L.                         | 1/387     |               | 1/300         |       |       | 1/250         |       | 1/241         |               | 1/127 |               | 1/78      |                 |
| Gradient of Channel Bed                    | 1/378     |               | 1/300         |       |       | 1/280         |       | 1/127         |               | 1/78  |               |           |                 |
| Top of Dike (EL. m)                        |           | 52.85 (51.86) | 54.70 (54.40) | 58.20 | 61.53 | 65.03 (64.73) | 68.23 | 73.03 (72.73) | 80.36 (80.06) | 87.48 | 95.22 (94.92) | 108.02    | 114.60 (114.30) |
| H.W.L. (EL. m)                             |           | 50.86 (50.56) | 53.70 (53.40) | 57.20 | 60.53 | 64.03 (63.73) | 68.23 | 73.03 (72.73) | 78.36 (78.06) | 87.48 | 94.92 (94.62) | 107.22    | 113.60 (113.30) |
| Channel Bed (EL. m)                        | 42.23     | 46.78         | 49.70         | 53.20 | 56.53 | 60.03         | 64.23 | 68.03         | 76.89         | 83.76 | 91.65         | 104.32    | 110.98          |
| Distance (Km)                              | 0         | 1.70          | 2.90          | 3.85  | 4.85  | 5.90          | 6.95  | 7.90          | 9.00          | 9.90  | 10.90         | 11.85     | 12.35           |
| Section No.                                | AD 414    | VD424         | VD425         | VD426 | VD427 | VD428         | VD429 | VD430         | VD431         | VD432 | VD433         | VD434     |                 |

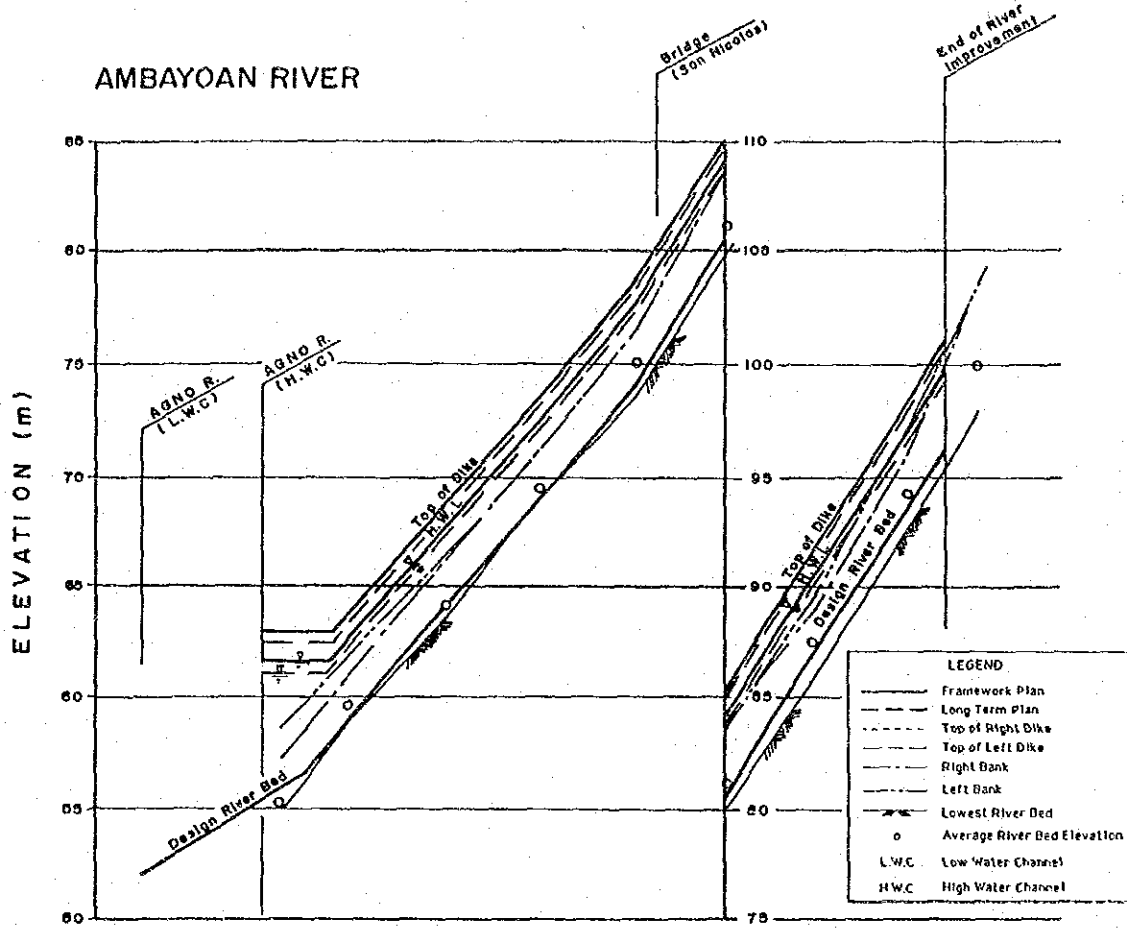
Note; ( ) : Long Term Plan



|                                            |               |       |       |               |               |                 |        |        |
|--------------------------------------------|---------------|-------|-------|---------------|---------------|-----------------|--------|--------|
| Design Flood Discharge (m <sup>3</sup> /s) | 350 (250)     |       |       |               | 210 (150)     |                 |        |        |
| Gradient of H.W.L.                         | 1/170         |       | 1/125 |               | 1/80          |                 | 1/68   |        |
| Gradient of Channel Bed                    | 1/170         |       | 1/128 |               | 1/80          |                 | 1/68   |        |
| Top of Dike (EL. m)                        | 74.32 (74.12) | 76.01 | 84.10 | 89.70 (89.50) | 94.80 (94.60) | 104.80 (104.60) | 116.30 | 124.30 |
| H.W.L. (EL. m)                             | 74.32 (74.12) | 77.81 | 83.30 | 88.90 (88.70) | 94.80 (94.60) | 104.00 (103.80) | 116.30 | 124.30 |
| Channel Bed (EL. m)                        | 68.03         | 74.21 | 80.30 | 85.90         | 92.30         | 101.30          | 114.00 | 125.80 |
| Distance (Km)                              | 0             | 0.60  | 1.05  | 2.10          | 2.80          | 4.75            | 5.75   | 6.70   |
| Section No.                                | VD430         | VD435 | VD436 | VD437         | VD438         | VD439           | VD440  | VD441  |

Fig. 10.2.15 LONGITUDINAL PROFILE OF VIRAY-DIPALO RIVER





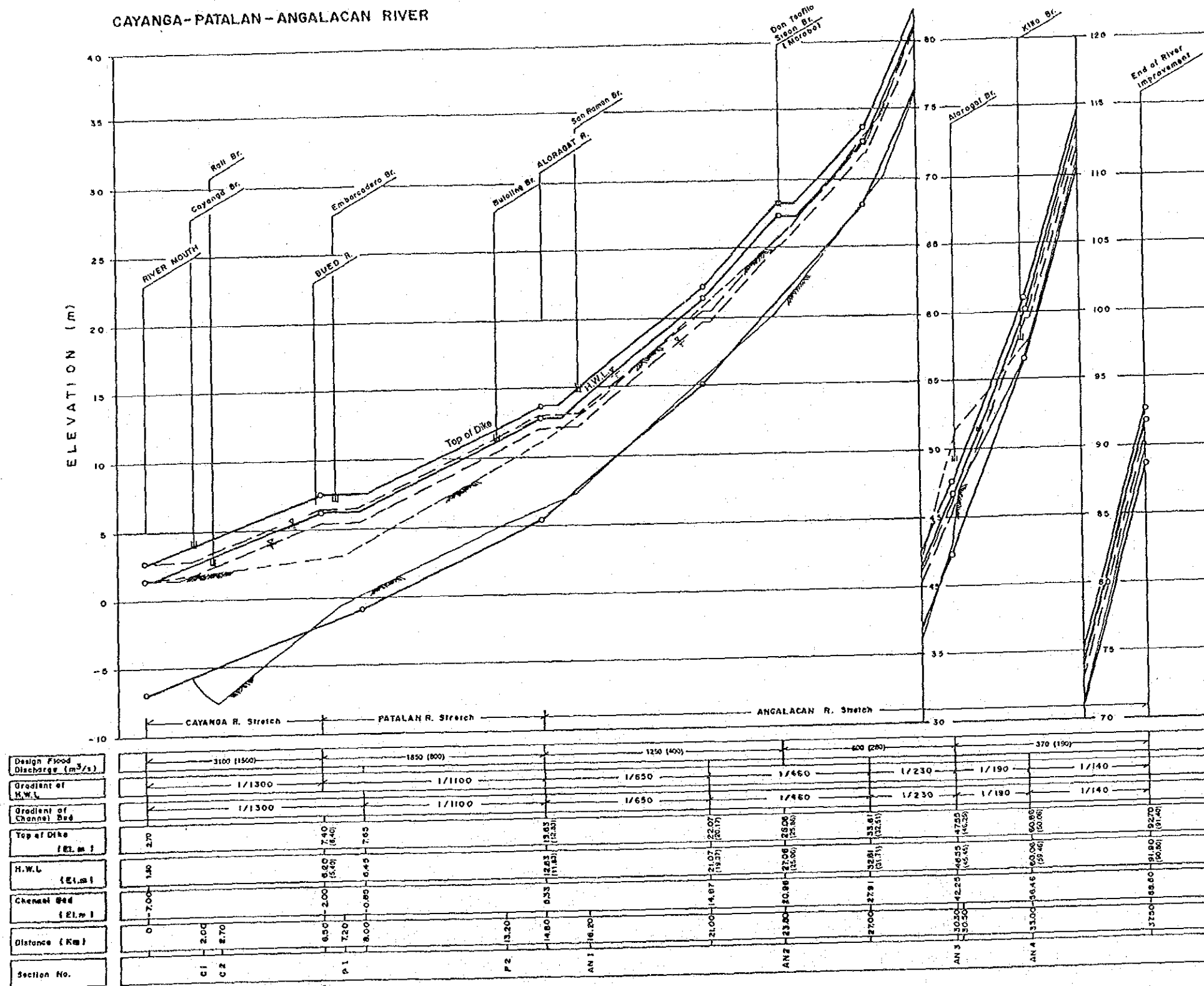
|                                            |             |                  |                  |                  |       |       |                  |       |       |       |                  |
|--------------------------------------------|-------------|------------------|------------------|------------------|-------|-------|------------------|-------|-------|-------|------------------|
| Design Flood Discharge (m <sup>3</sup> /s) | 1750 (1350) |                  |                  |                  |       |       |                  |       |       |       |                  |
| Gradient of H.W.L.                         | 1/200       |                  |                  |                  |       |       |                  |       |       |       |                  |
| Gradient of Channel Bed                    | 1/390       |                  |                  | 1/200            |       |       |                  | 1/150 |       |       |                  |
| Top of Dike (El.m)                         |             | 62.40<br>(62.54) | 62.50<br>(62.50) | 64.12<br>(62.52) | 66.74 | 73.63 | 75.74<br>(72.94) | 85.21 | 91.94 | 96.21 | 99.87<br>(90.57) |
| H.W.L. (El.m)                              |             | 60.00<br>(61.40) | 61.40<br>(60.00) | 62.85<br>(62.35) | 67.74 | 72.62 | 77.74<br>(77.44) | 84.21 | 90.59 | 97.21 | 99.87<br>(95.57) |
| Channel Bed (El.m)                         | 52.10       | 55.93            | 56.72            | 59.92            | 64.04 | 66.92 | 74.04            | 80.71 | 87.04 | 93.71 | 96.37            |
| Distance (Km)                              | 0           | 1.30             | 1.50             | 1.80             | 2.20  | 3.30  | 4.30             | 5.50  | 6.50  | 7.70  | 9.10             |
| Station No.                                | AM468       | AM444            | AM440            | AM440            | AM447 | AM448 | AM448            | AM448 | AM450 | AM451 | AM452            |

Note: ( ) : Long Term Plan

Fig. 10.2.16 LONGITUDINAL PROFILE OF AMBAYOAN RIVER



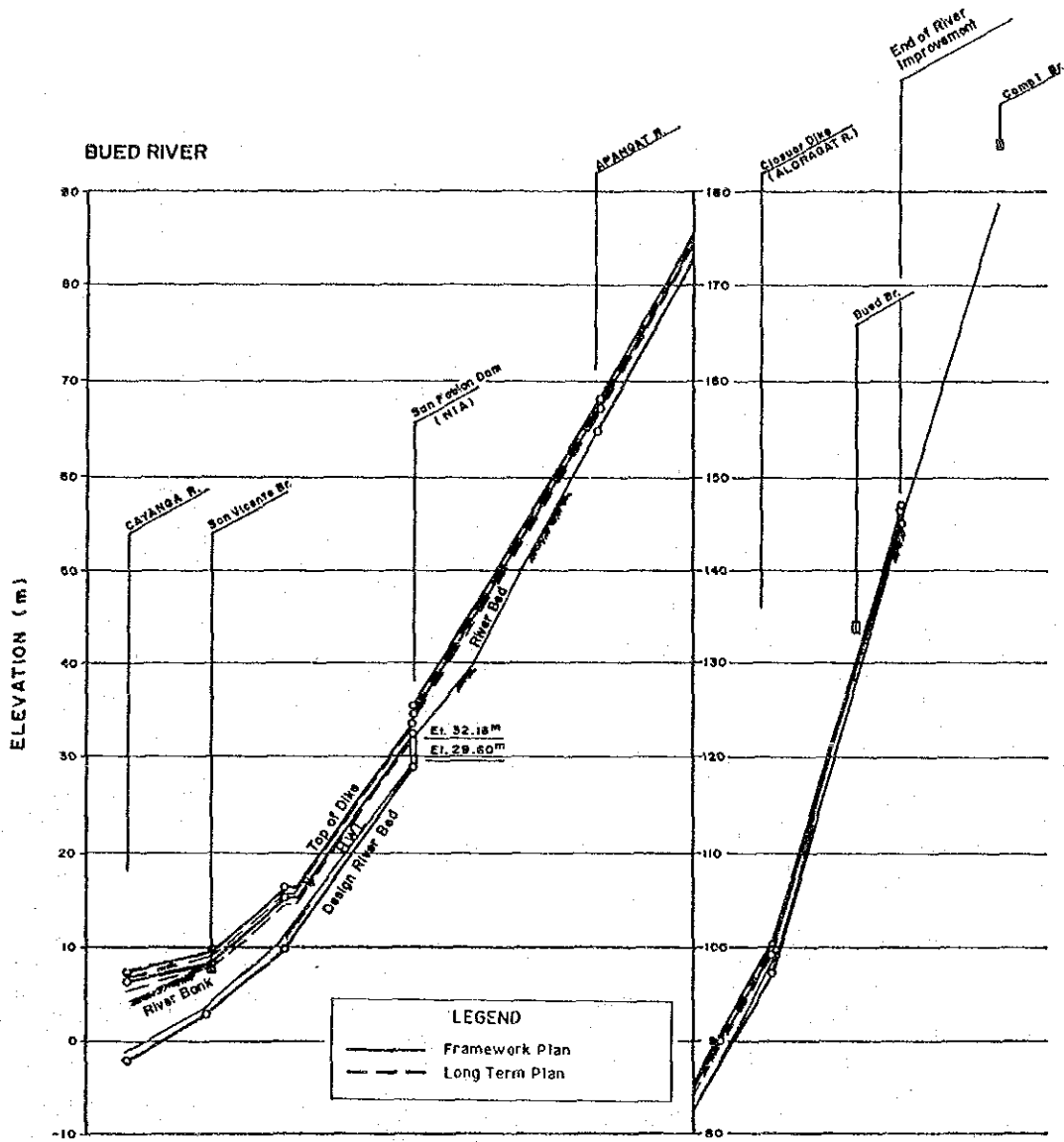
CAYANGA-PATALAN-ANGALACAN RIVER



Note; ( ) : Long Term Plan

Fig. 10.2.17 LONGITUDINAL PROFILE OF CAYANGA-PATALAN RIVER





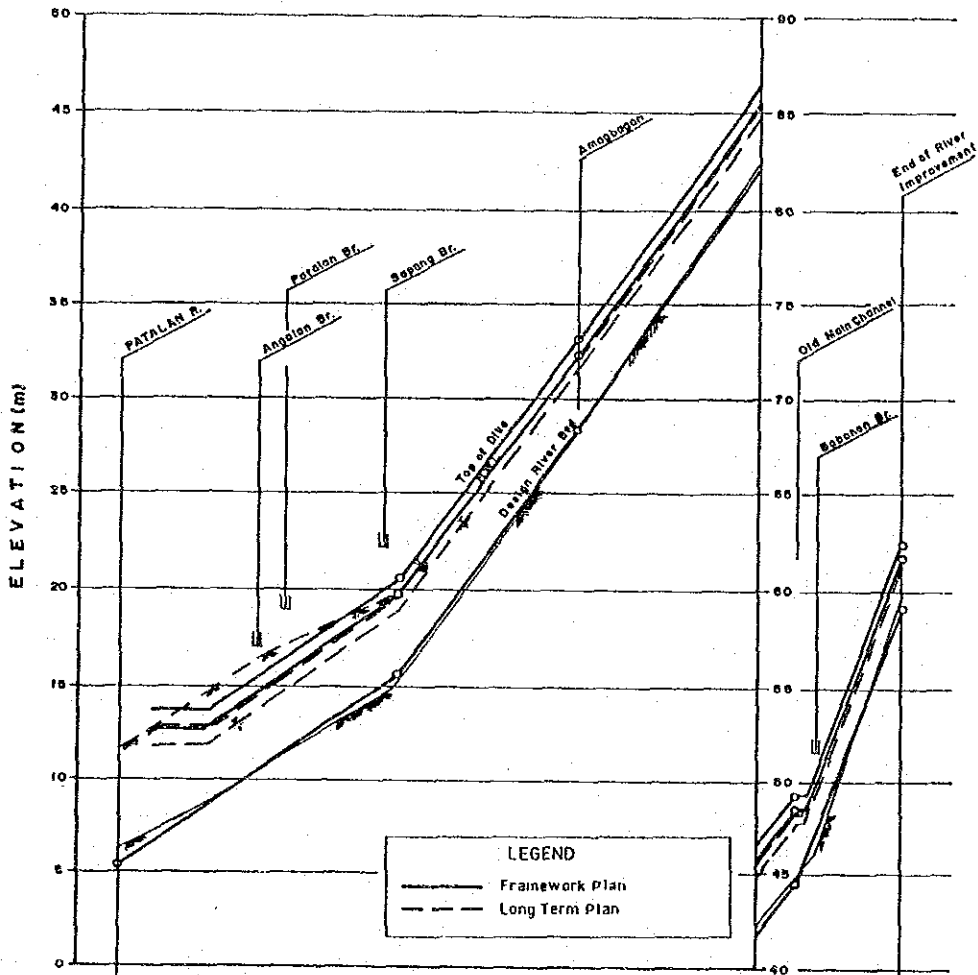
|                                            |             |             |               |                  |               |               |
|--------------------------------------------|-------------|-------------|---------------|------------------|---------------|---------------|
| Design Flood Discharge (m <sup>3</sup> /s) | 1300 (740)  |             |               |                  | 1000 (500)    |               |
| Gradient of H.W.L.                         | 1/770       | 1/280       | 1/170         | 1/143            | 1/140         | 1/70          |
| Gradient of Channel Bed                    | 1/400       | 1/280       | 1/170         | Existing (1/143) | 1/140         | 1/70          |
| Top of Dive (El. m)                        | 7.25 (6.25) | 9.66 (8.95) | 16.33 (14.50) | 22.7 (21.7)      | 32.65 (31.55) | 68.45 (67.95) |
| H.W.L. (El. m)                             | 6.05 (5.25) | 8.85 (7.95) | 14.33 (13.50) | 20.21 (19.31)    | 30.16 (29.26) | 64.25 (63.75) |
| Channel Bed (El. m)                        | -2.15       | 2.85 (2.10) | 9.83 (9.08)   | 29.33 (28.18)    | 34.58 (33.08) | 63.25 (62.75) |
| Distance (Km)                              | 0           | 2.00 (2.10) | 4.00 (4.50)   | 7.30 (7.50)      | 12.00 (12.50) | 18.80 (19.00) |
| Section No.                                | S1          |             | S2            |                  | S3            |               |

Note; ( ) : Long Term Plan

Fig. 10.2.18 LONGITUDINAL PROFILE OF BUED RIVER



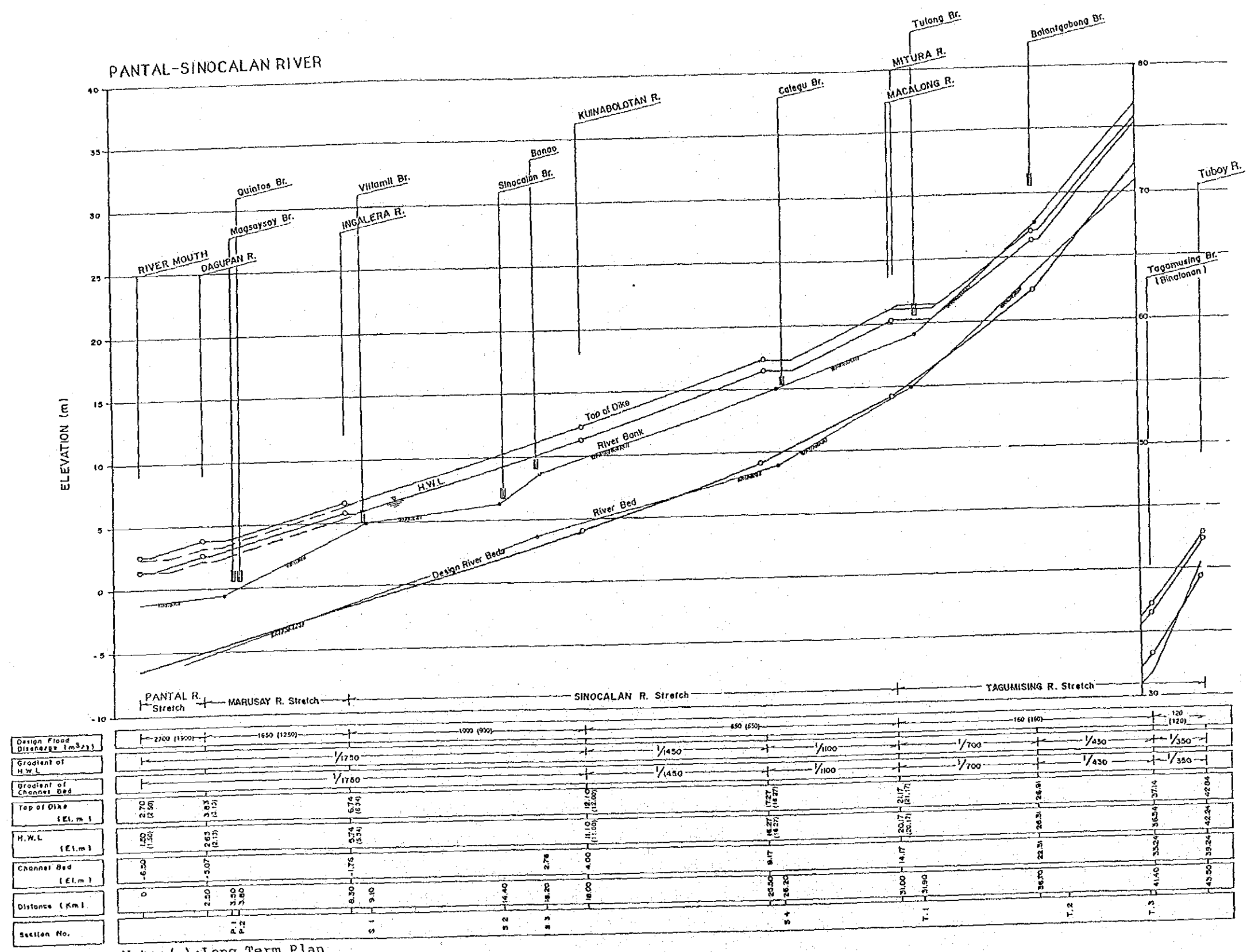
### ALORAGAT RIVER



|                                            |             |             |             |             |             |             |
|--------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Design Flood Discharge (m <sup>3</sup> /s) | 470 (300)   |             | 250 (150)   |             | 170 (100)   |             |
| Gradient of H.W.L.                         | 1/680       |             | 1/300       |             | 1/335       |             |
| Gradient of Channel Bed                    | 1/680       |             | 1/355       |             | 1/335       |             |
| Top of Dike (El.m)                         | 12.0 (11.8) | 12.5 (12.3) | 19.8 (19.6) | 20.0 (19.8) | 23.1 (22.9) | 42.5 (42.3) |
| H.W.L. (El.m)                              | 12.0 (11.8) | 19.8 (19.6) | 20.0 (19.8) | 23.1 (22.9) | 42.5 (42.3) | 65.4 (65.2) |
| Channel Bed (El.m)                         | 5.2         | 12.0 (11.8) | 19.8 (19.6) | 20.0 (19.8) | 23.1 (22.9) | 42.5 (42.3) |
| Distance (Km)                              | 0           | 3.2         | 3.0         | 6.0         | 7.0         | 11.0        |
| Section No.                                | AL-1        | AL-2        | AL-3        | AL-4        | AL-5        | AL-6        |

Note; ( ): Long Term Plan

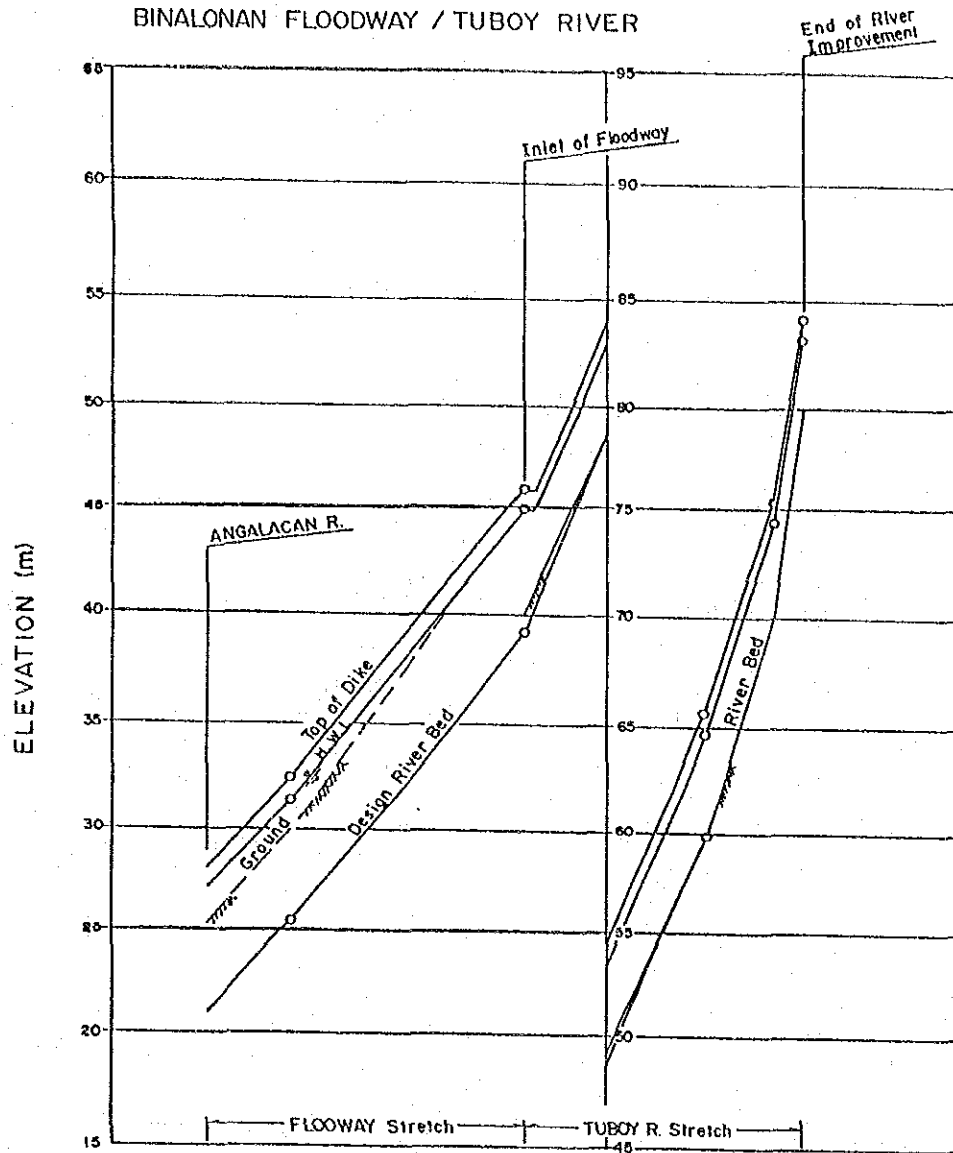
Fig. 10.2.19 LONGITUDINAL PROFILE OF ALORAGAT RIVER



Note: ( ) : Long Term Plan

Fig. 10.2.20 LONGITUDINAL PROFILE OF PANTAL-SINOCALAN RIVER



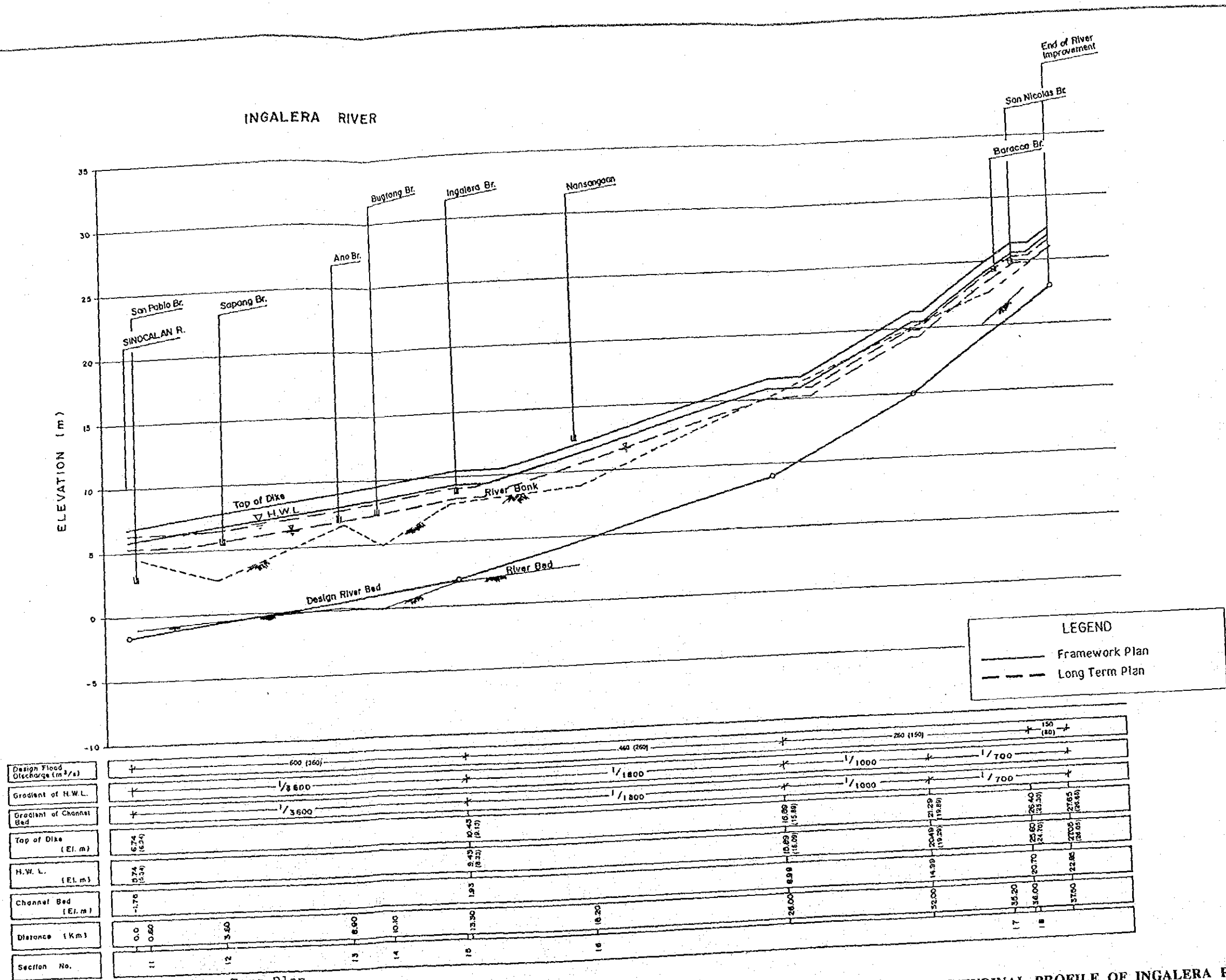


|                                            |       |         |       |          |       |
|--------------------------------------------|-------|---------|-------|----------|-------|
| Design Flood Discharge (m <sup>3</sup> /s) | 650   |         | 550   |          |       |
| Gradient of H.W.L.                         | 1/409 | 1/355.5 | 1/190 | 1/143    | 1/67  |
| Gradient of Channel Bed                    | 1/400 | 1/355.5 | 1/190 | Existing |       |
| Top of Dike (El.m)                         | 29.06 | 32.46   | 45.94 | 65.63    | 75.40 |
| H.W.L. (El.m)                              | 27.06 | 31.56   | 44.54 | 64.65    | 74.40 |
| Channel Bed (El.m)                         | 20.96 | 25.46   | 39.24 | 59.93    | 70.00 |
| Distance (km)                              | 0     | 1.80    | 6.70  | 10.60    | 12.50 |
| Section No.                                | AN 2  |         |       |          |       |

Fig. 10.2.21 LONGITUDINAL PROFILE OF BINALONAN FLOODWAY





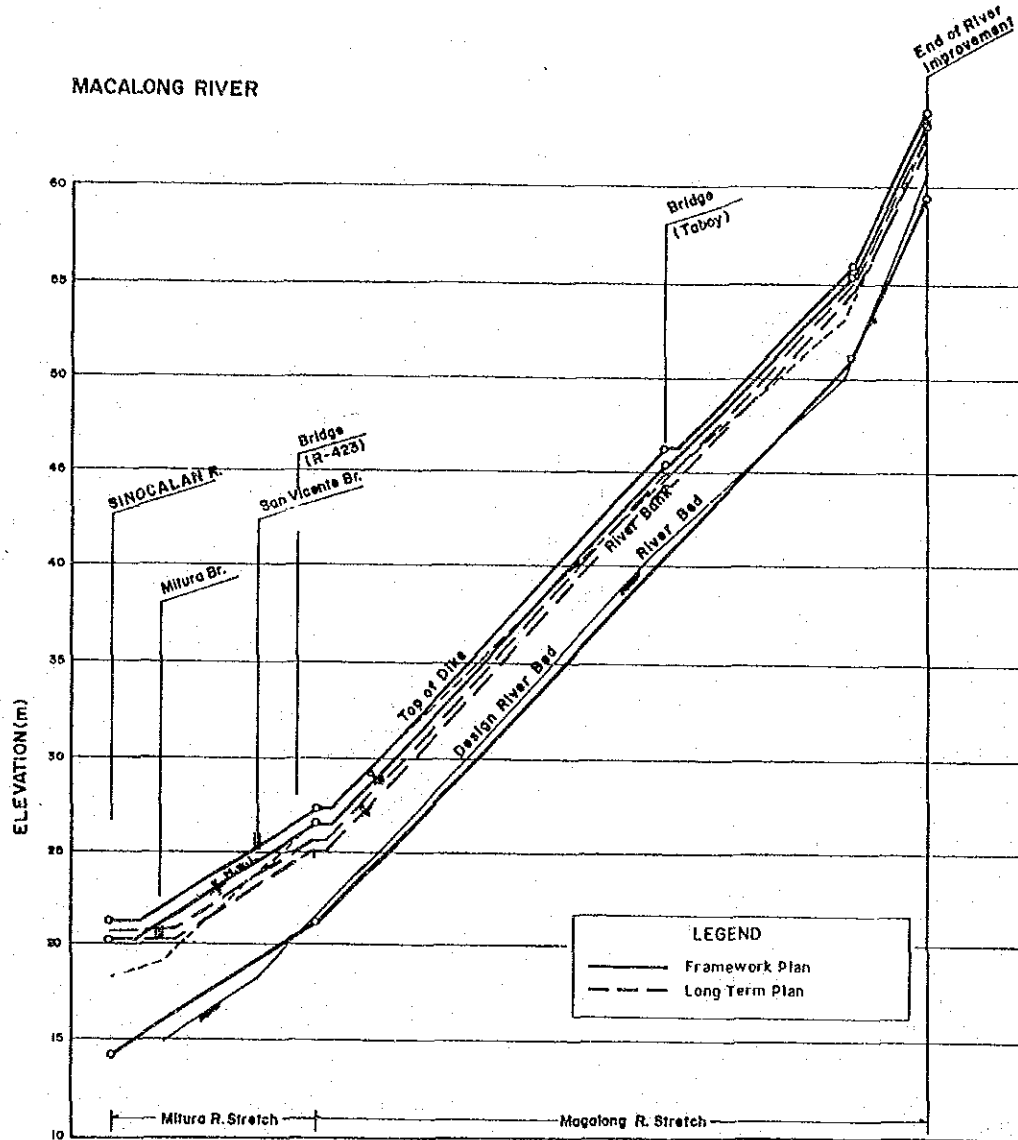


Note: ( ) : Long Term Plan

Fig. 10.2.23 LONGITUDINAL PROFILE OF INGALERA RIVER



MACALONG RIVER



|                                            |             |      |             |             |             |             |
|--------------------------------------------|-------------|------|-------------|-------------|-------------|-------------|
| Design Flood Discharge (m <sup>3</sup> /s) | 80 (10)     |      | 100 (10)    |             | 140 (10)    |             |
| Gradient of H.W.L.                         | Level       |      | 1/800       |             | 1/250       |             |
| Gradient of Channel Bed                    | 1/800       |      | 1/400       |             | 1/250       |             |
| Top of Dike (El.m)                         | 20.7 (21.7) | 22.7 | 22.5 (23.5) | 24.5 (25.5) | 26.5 (27.5) | 28.5 (29.5) |
| H.W.L. (El.m)                              | 20.7 (21.7) | 22.7 | 22.5 (23.5) | 24.5 (25.5) | 26.5 (27.5) | 28.5 (29.5) |
| Channel Bed (El.m)                         | 14.7        | 15.0 | 15.3        | 15.5 (16.5) | 16.5 (17.5) | 17.5 (18.5) |
| Distance (KM)                              | 0           | 1.0  | 2.0         | 3.0         | 4.0         | 5.0         |
| Section No.                                | III         |      | IV          |             | V           |             |

Note; ( ): Long Term Plan

Fig. 10.2.24 LONGITUDINAL PROFILE OF MITURA-MACALONG RIVER

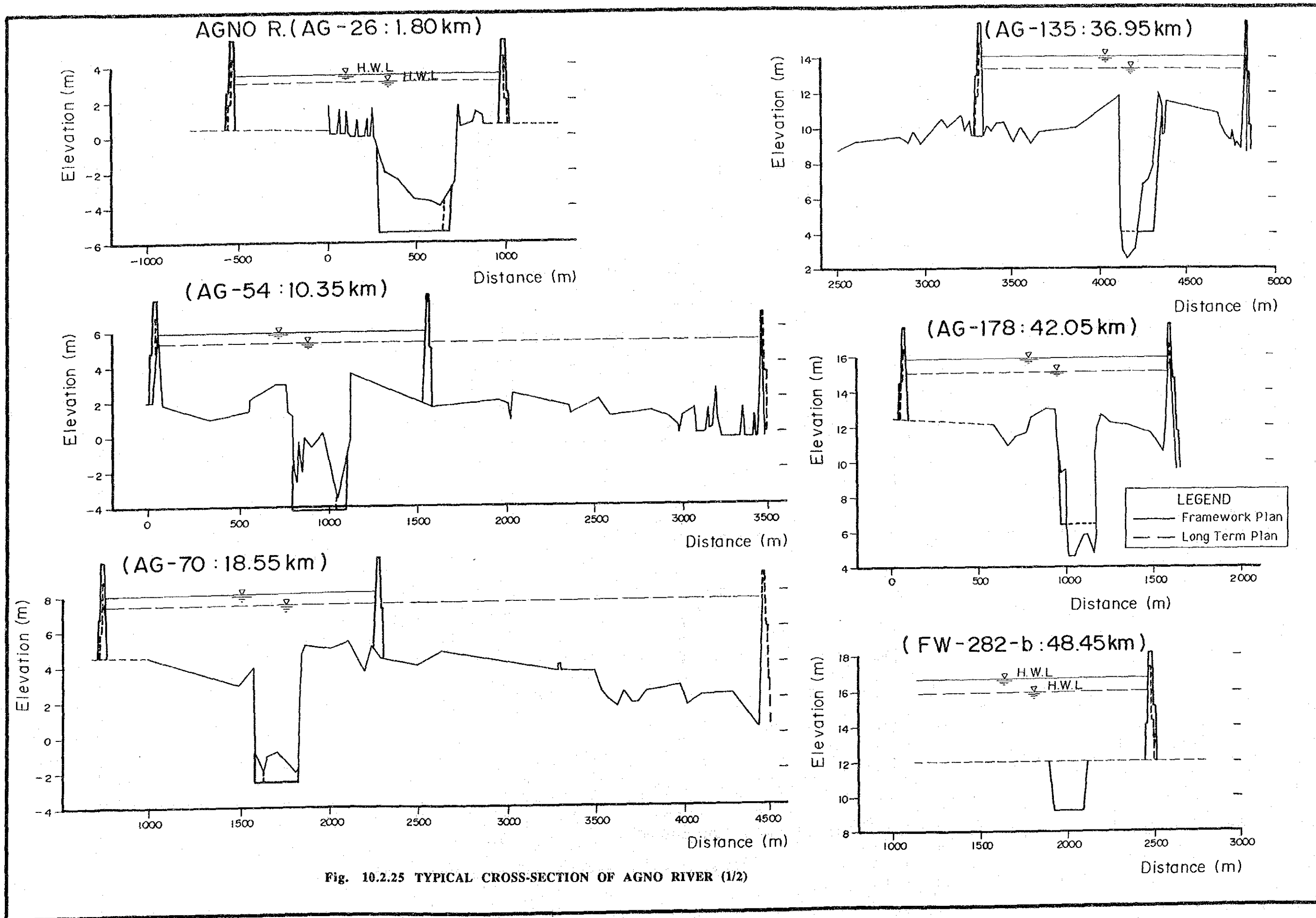


Fig. 10.2.25 TYPICAL CROSS-SECTION OF AGNO RIVER (1/2)

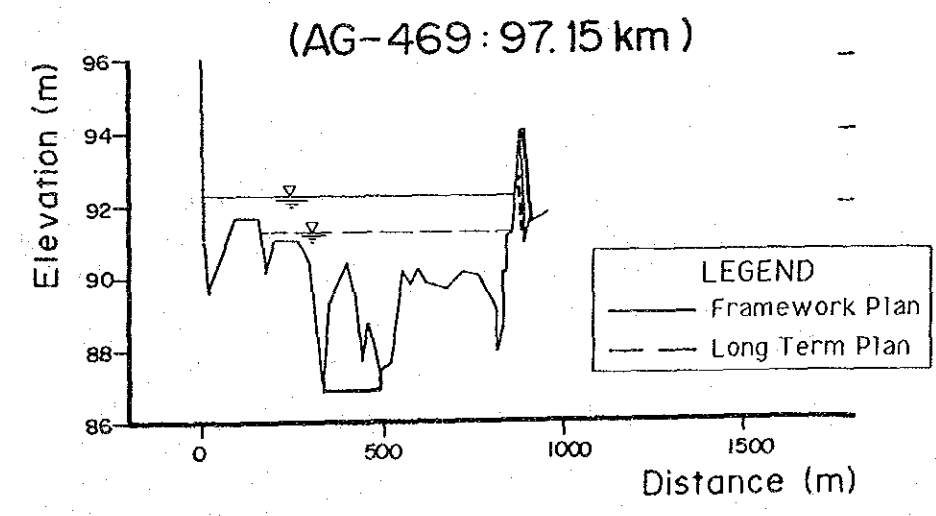
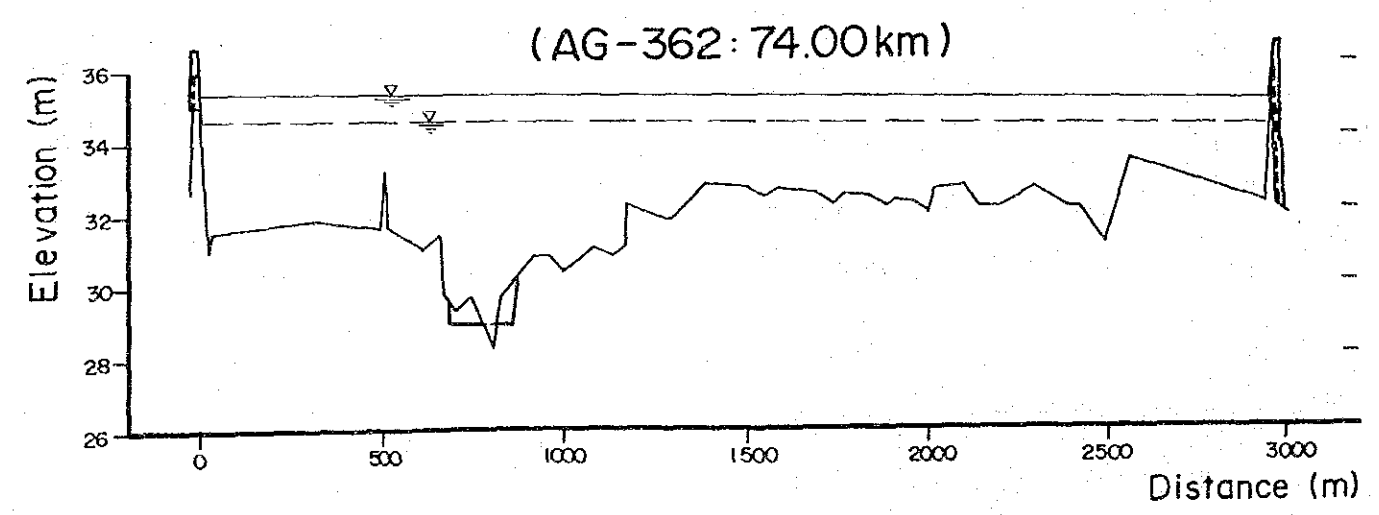
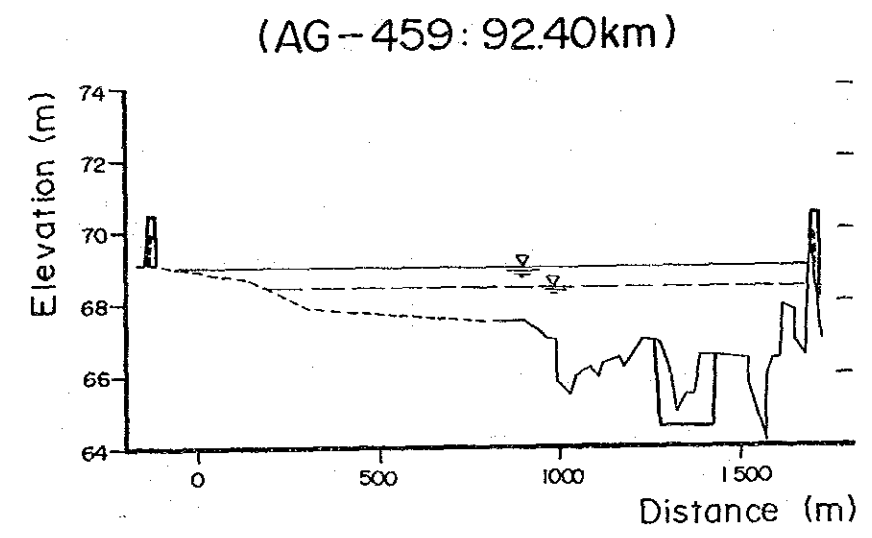
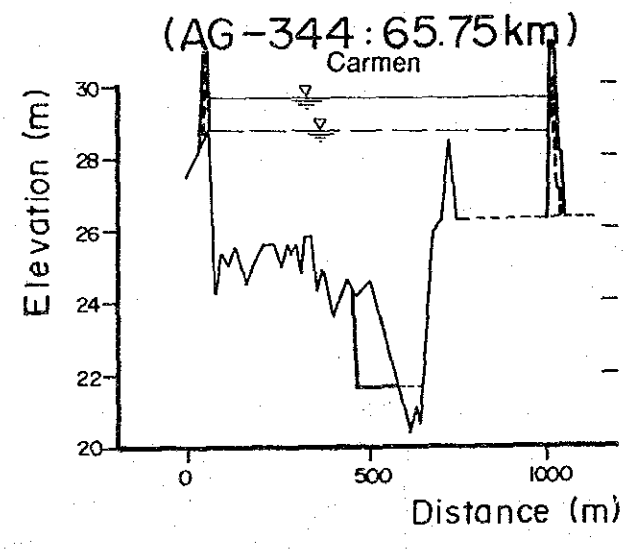
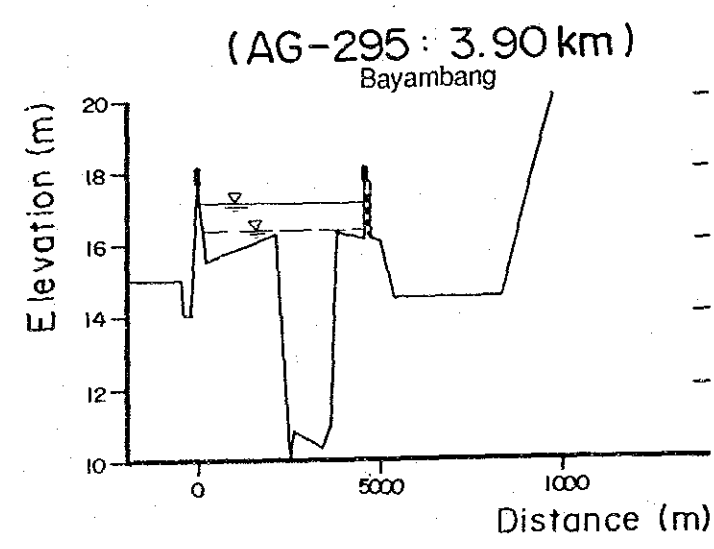
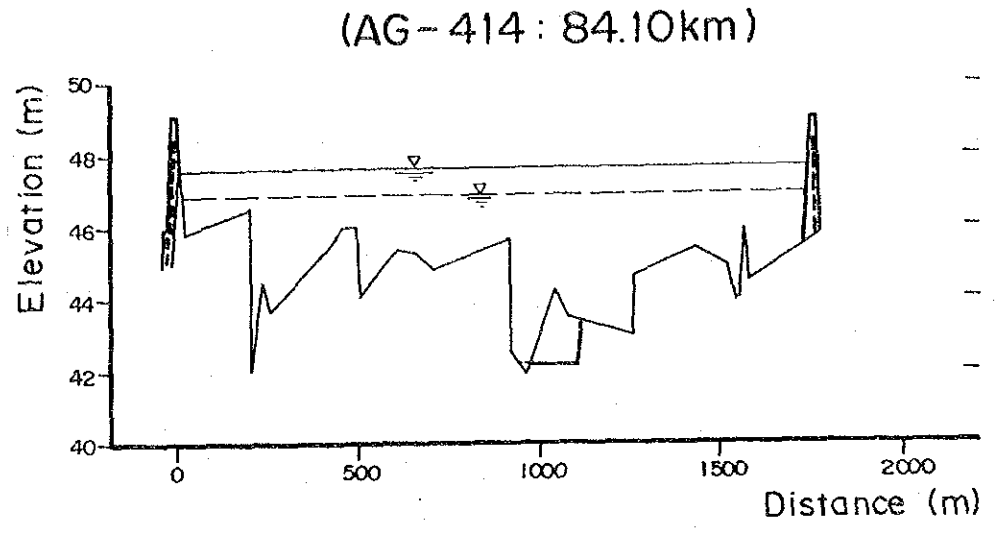
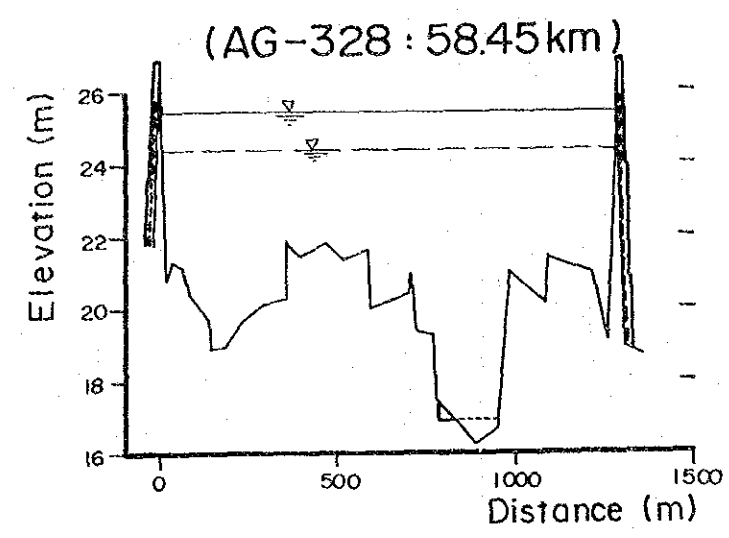
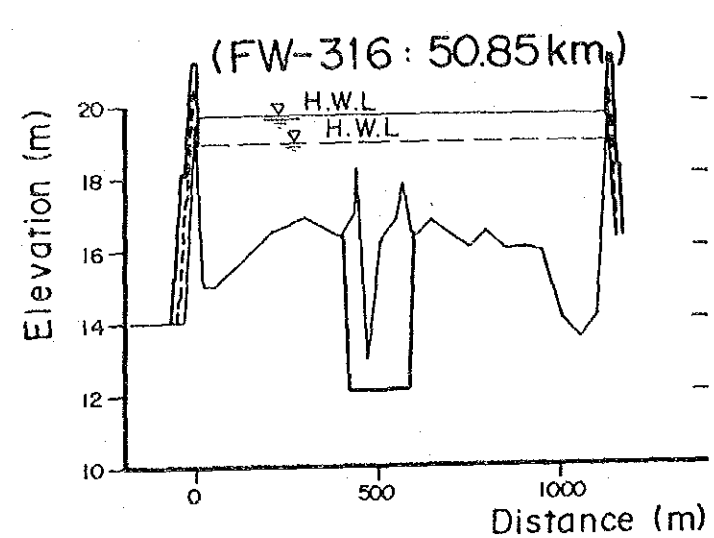


Fig. 10.2.25 TYPICAL CROSS-SECTION OF AGNO RIVER (2/2)

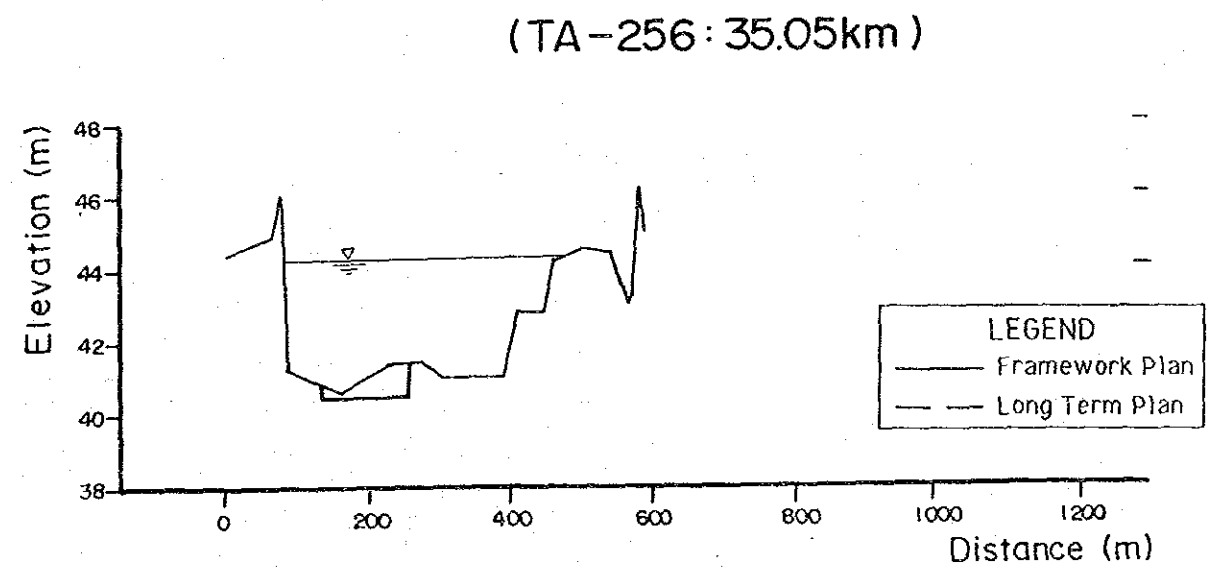
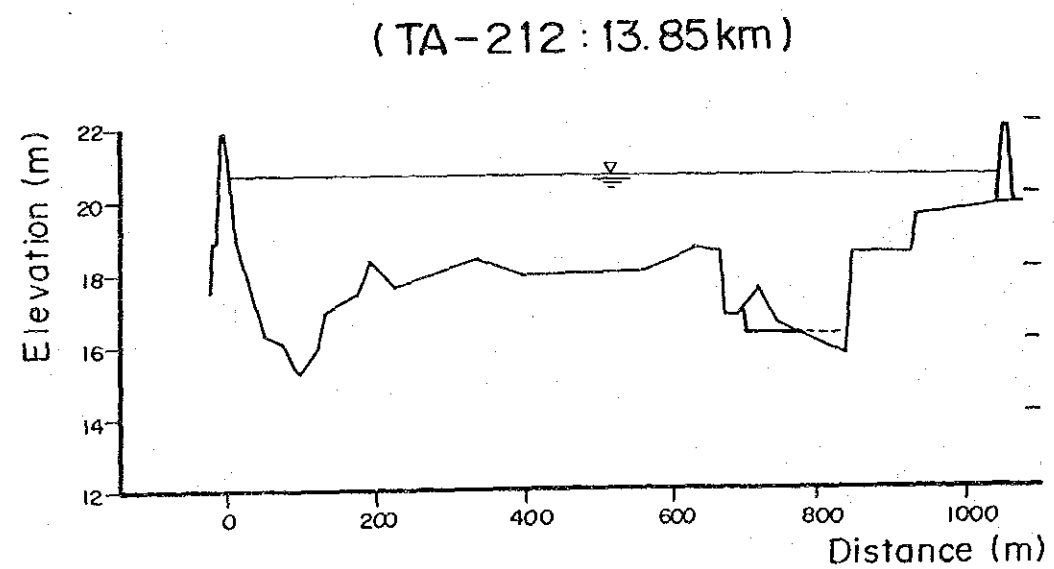
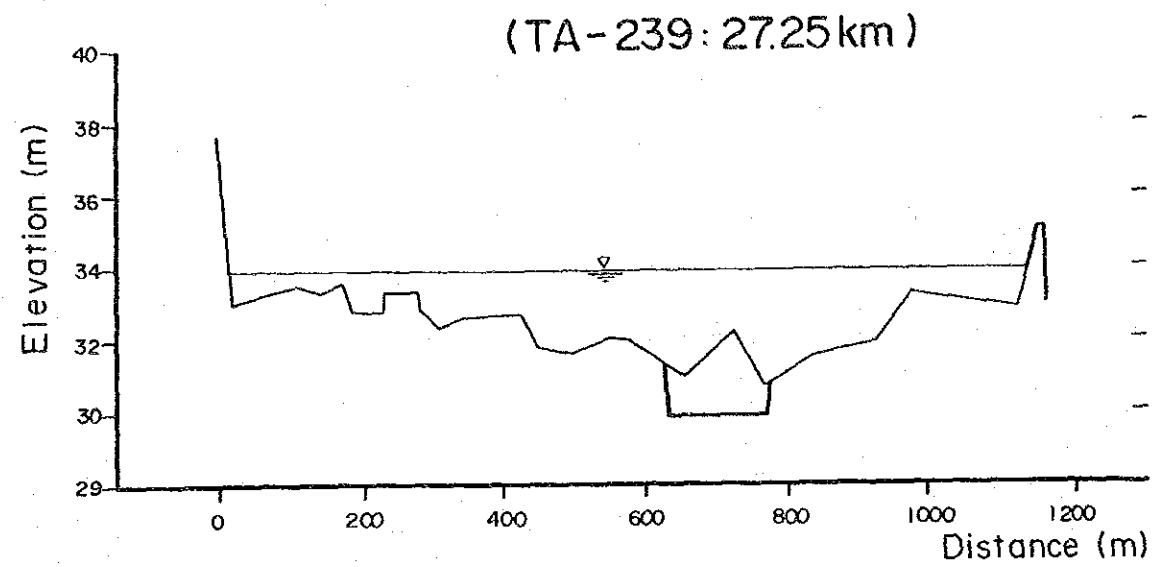
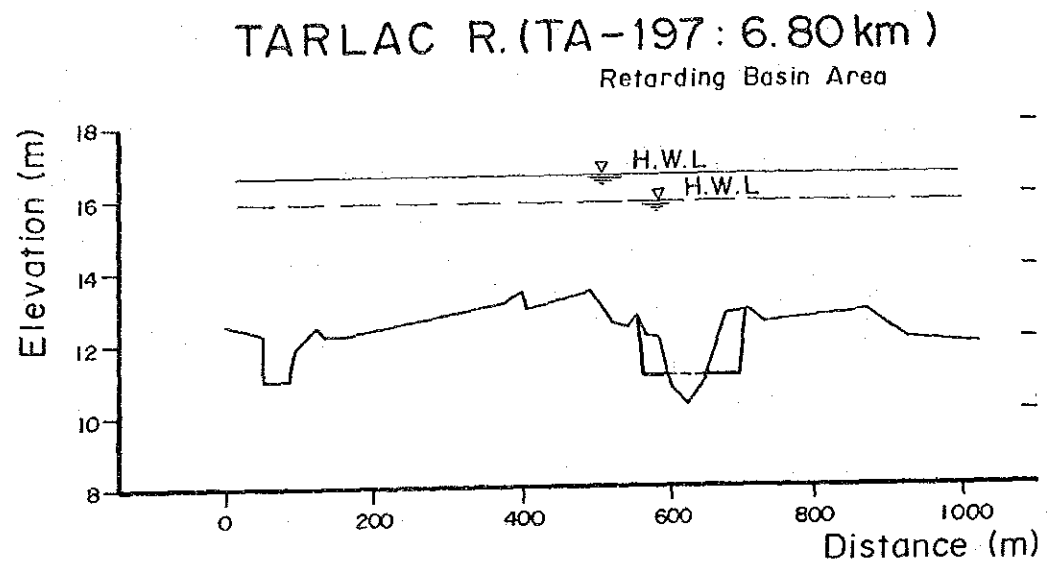


Fig. 10.2.26 TYPICAL CROSS-SECTION OF TARLAC RIVER

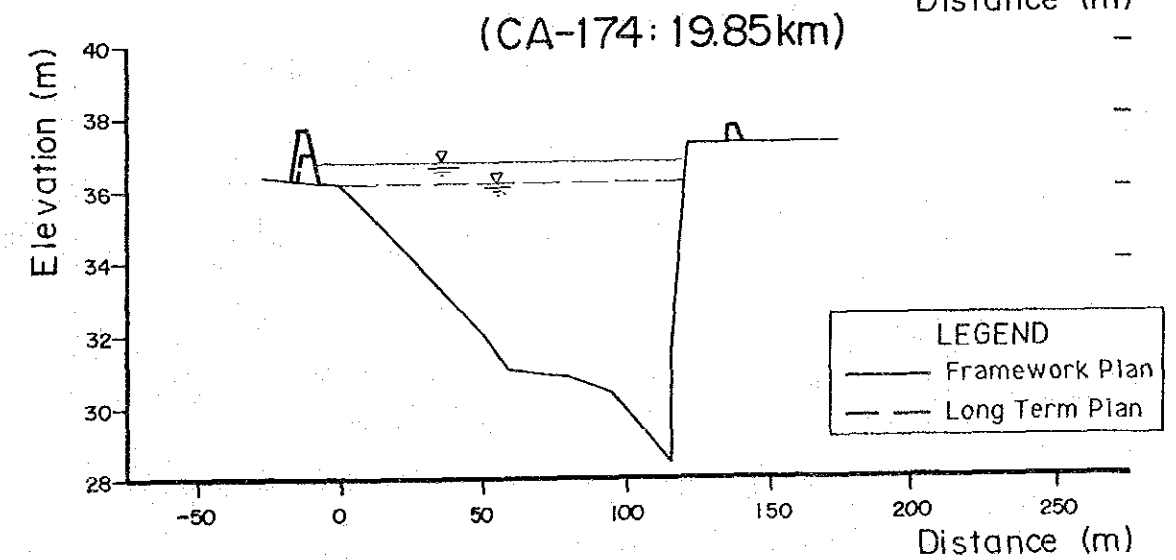
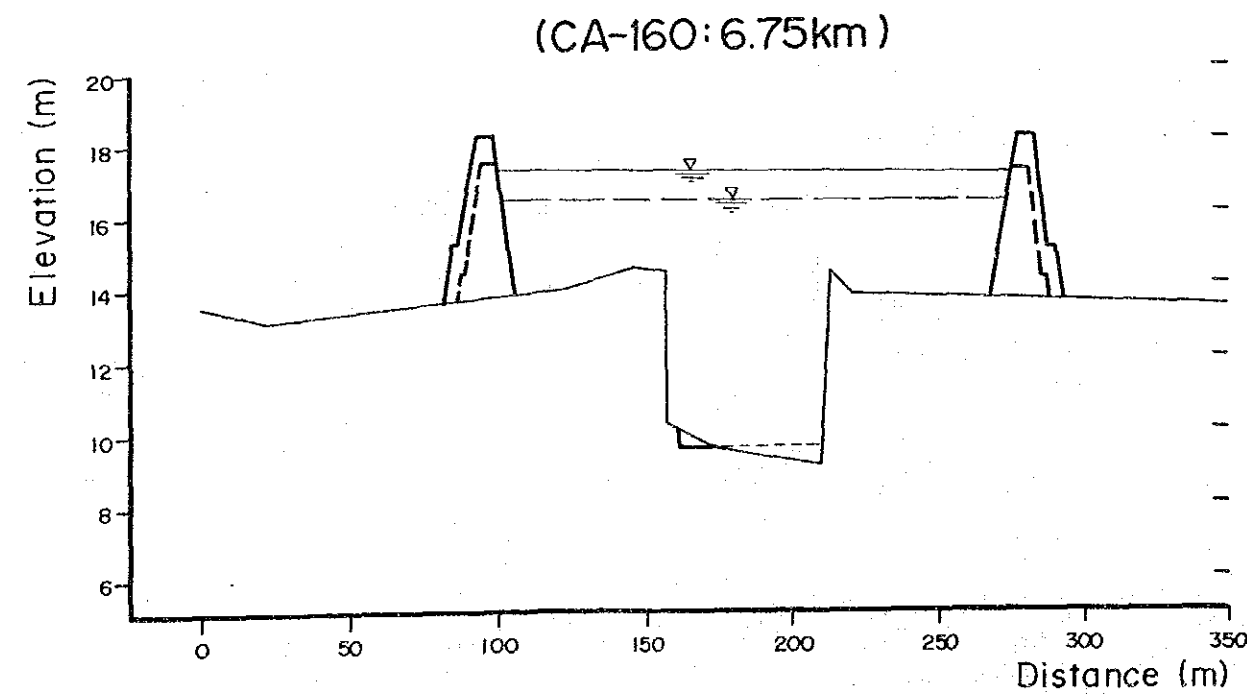
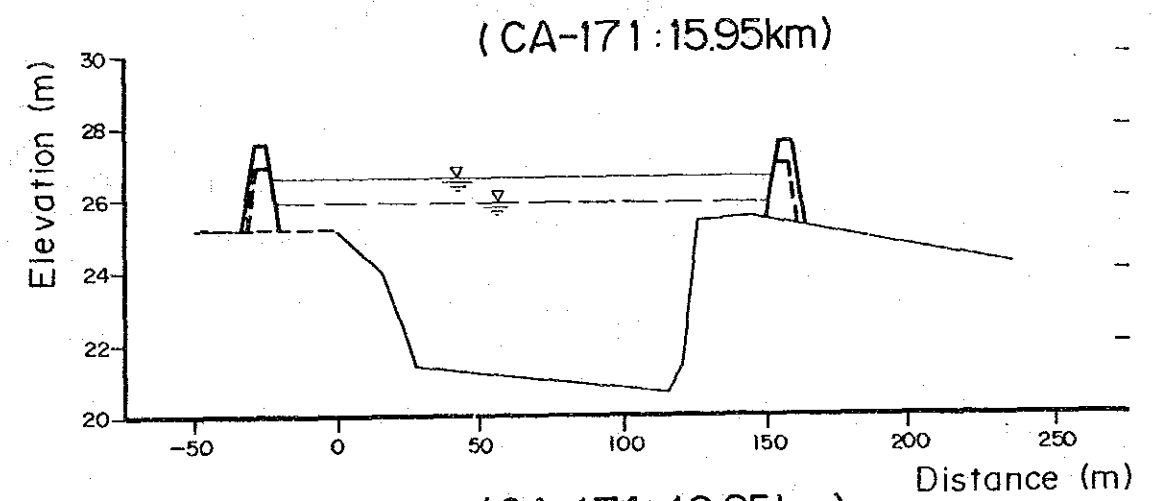
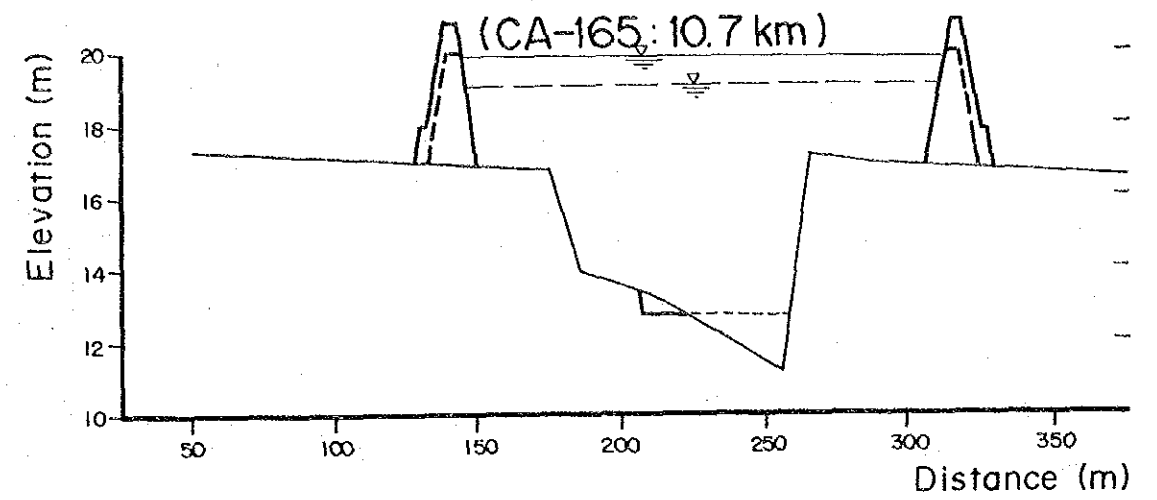
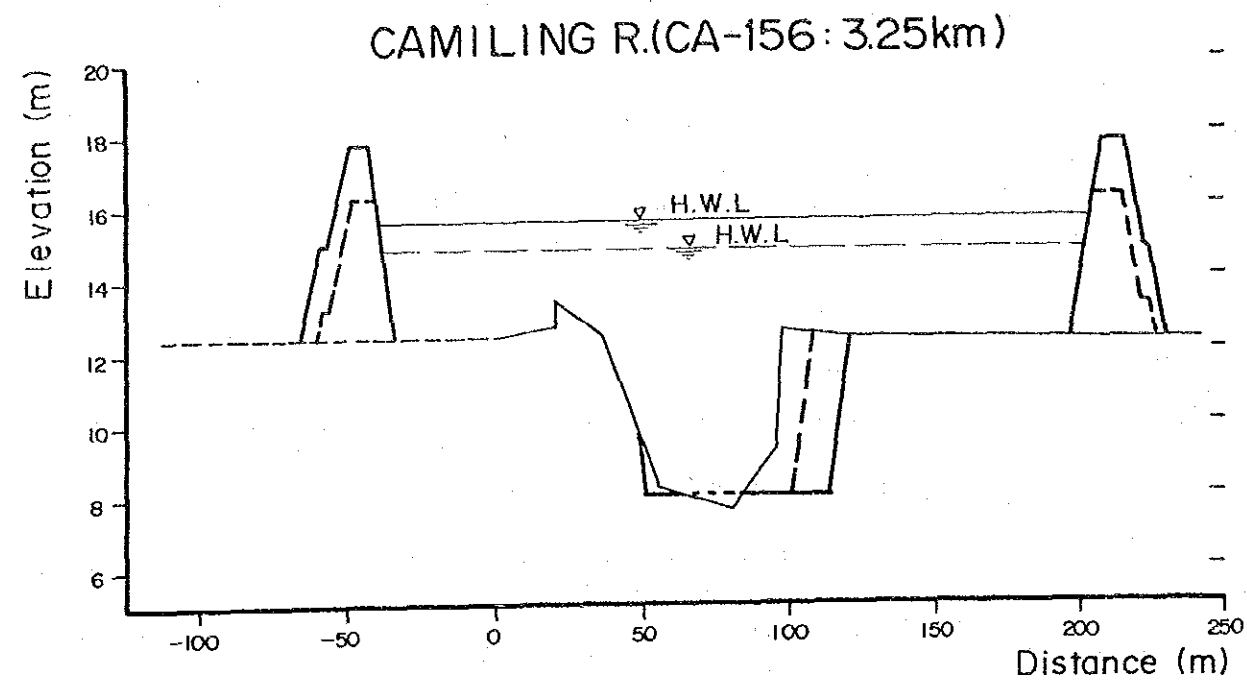


Fig. 10.2.27 TYPICAL CROSS-SECTION OF CAMILING RIVER



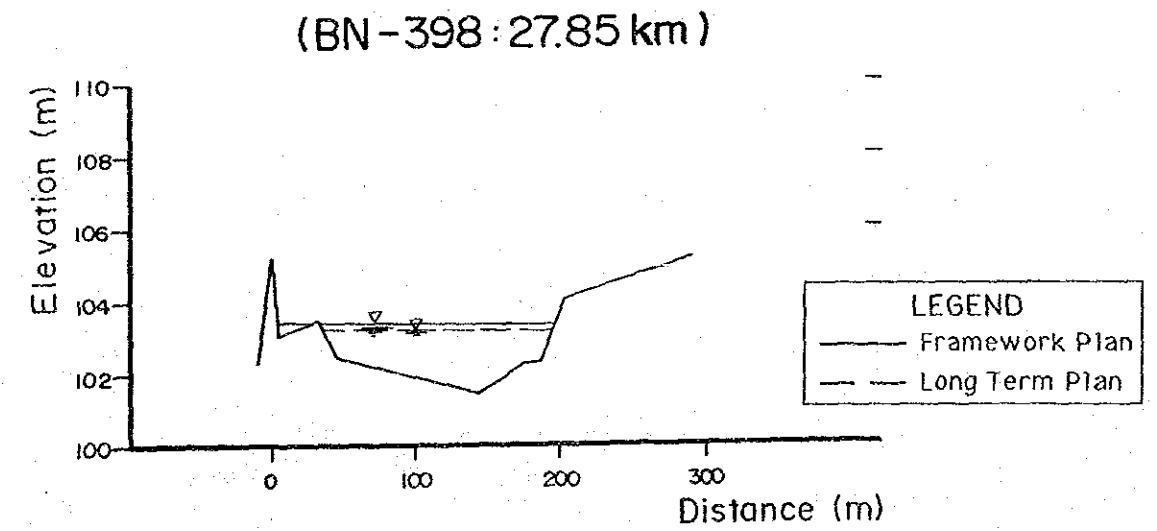
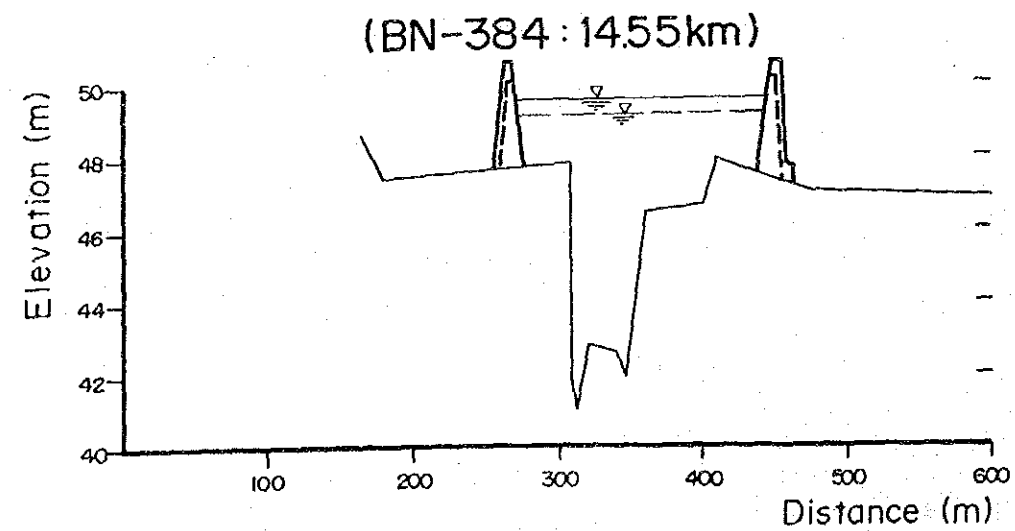
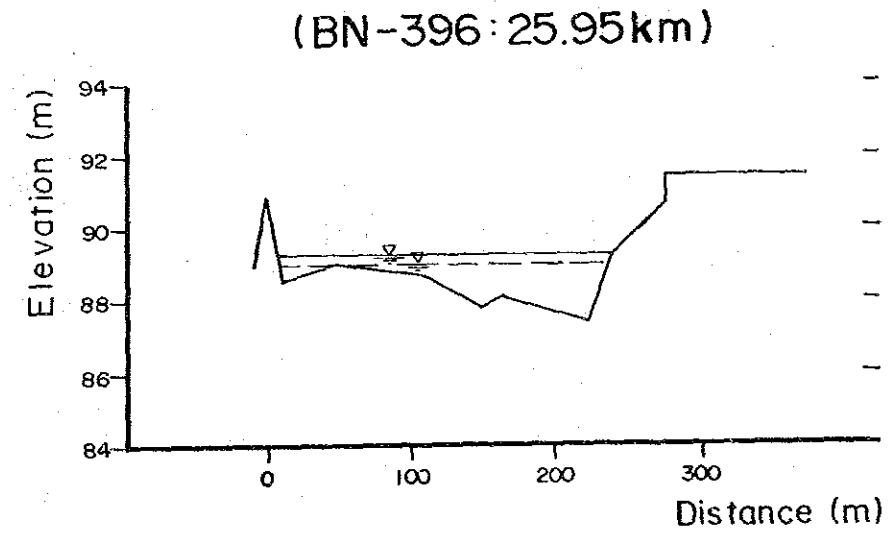
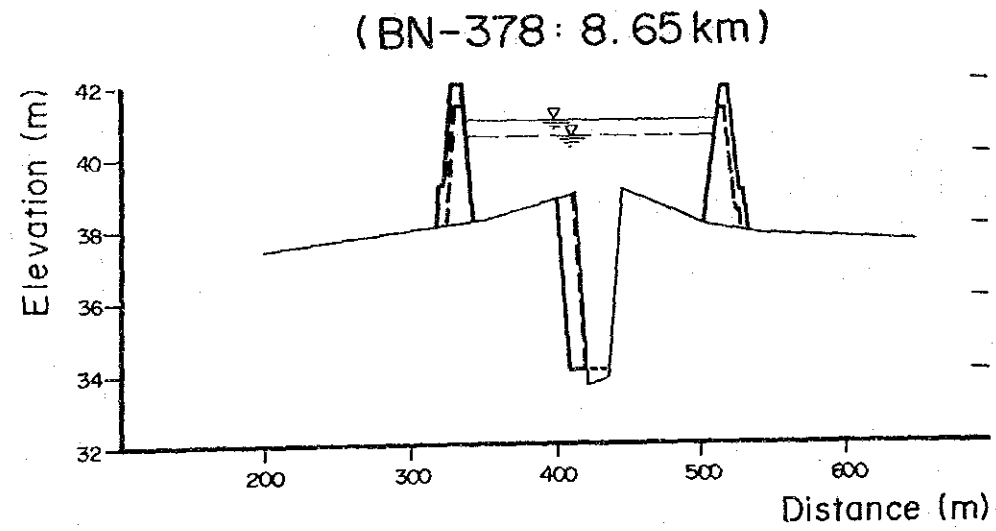
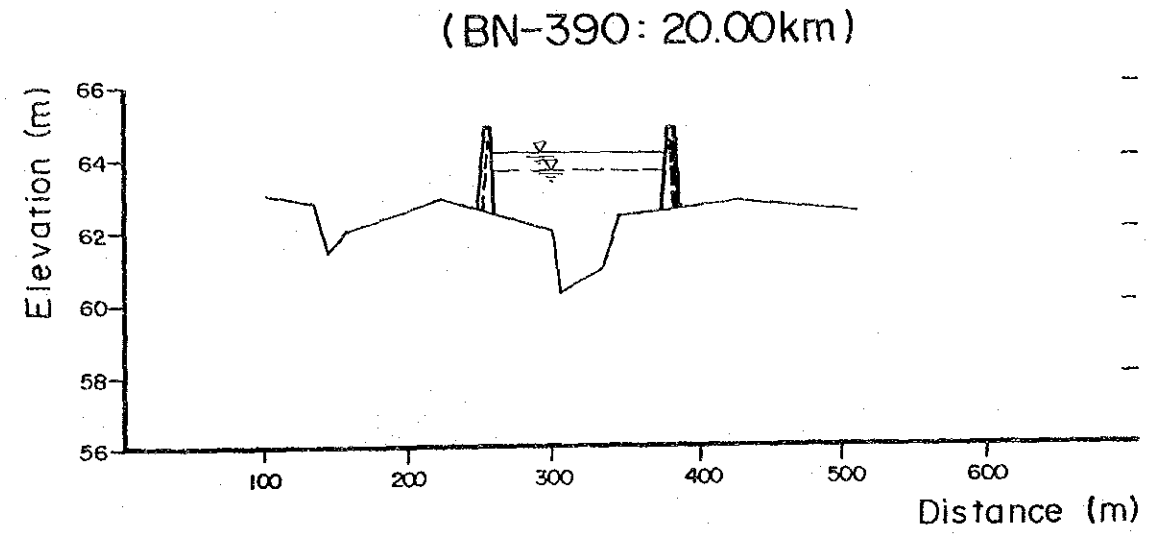
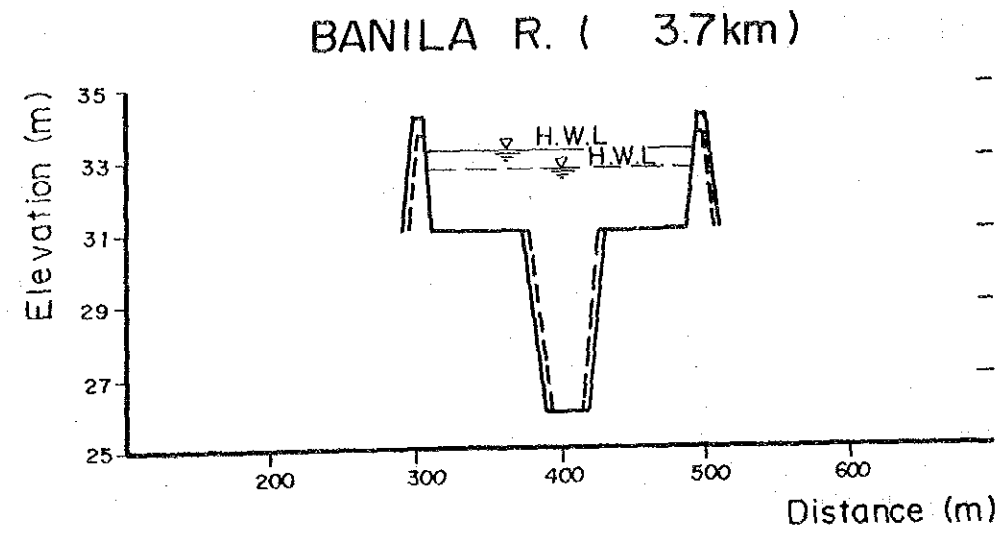


Fig. 10.2.28 TYPICAL CROSS-SECTION OF BANILA RIVER

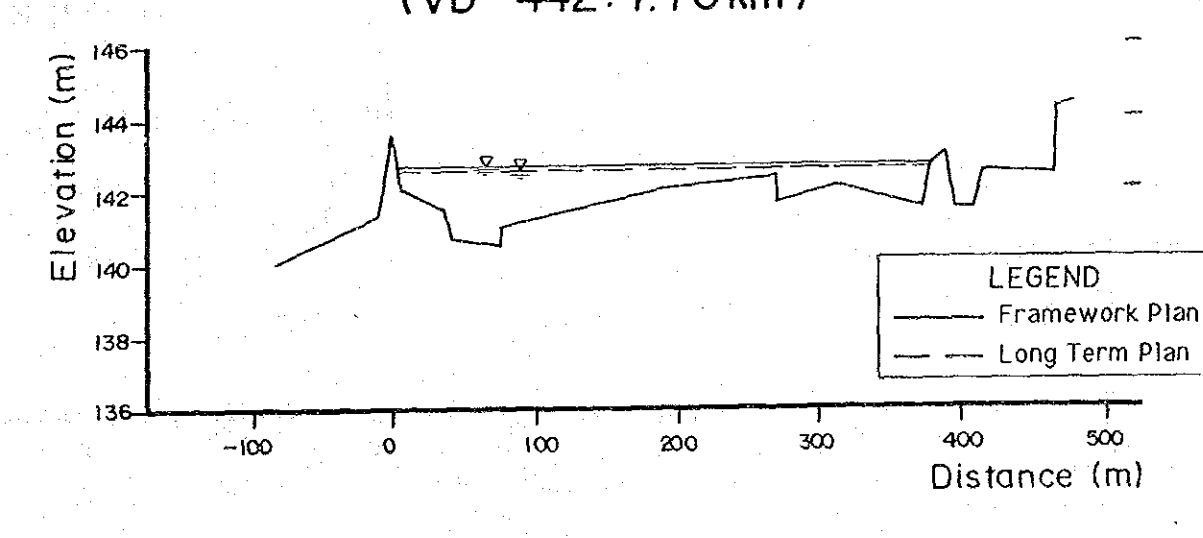
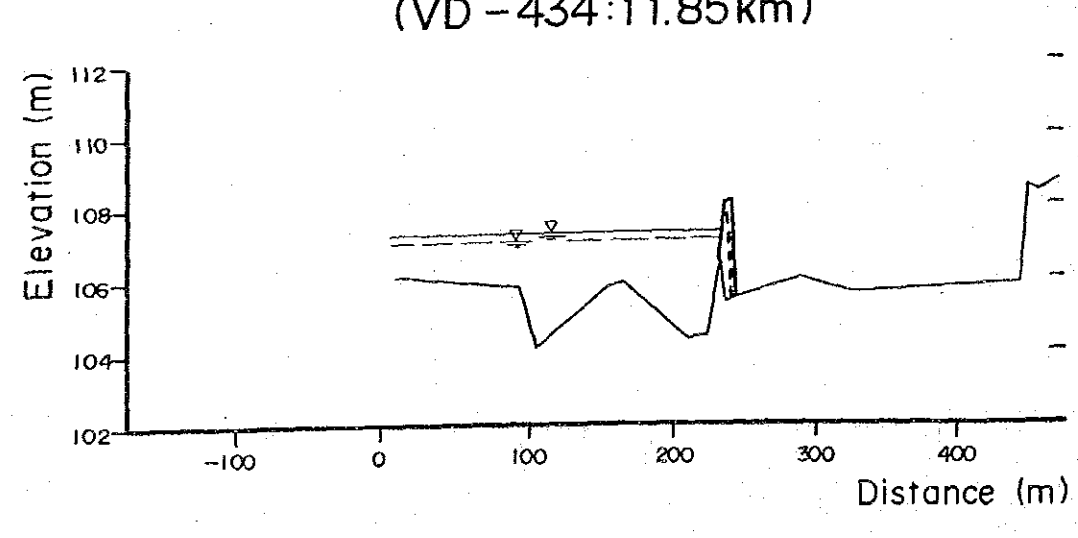
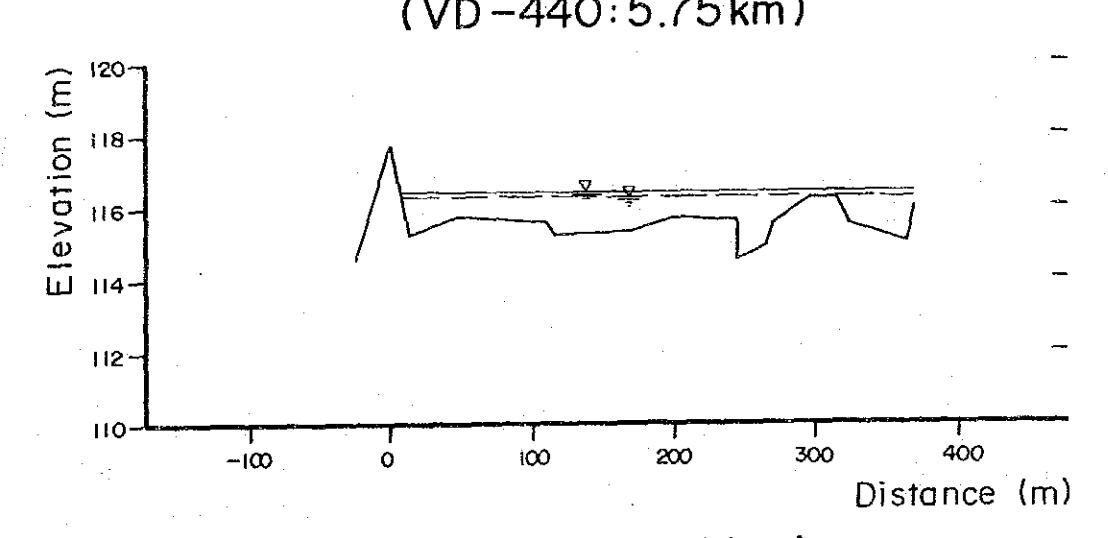
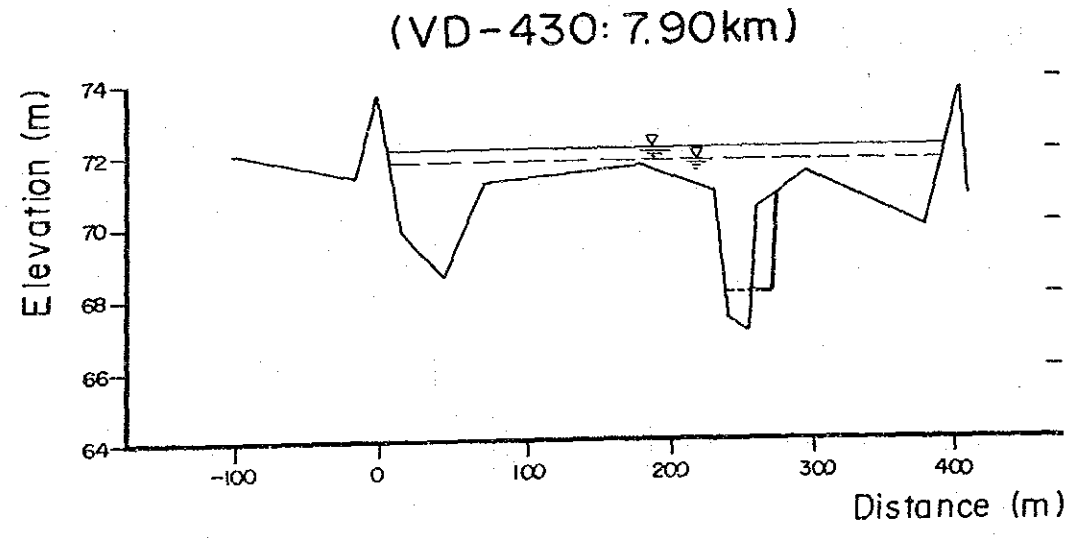
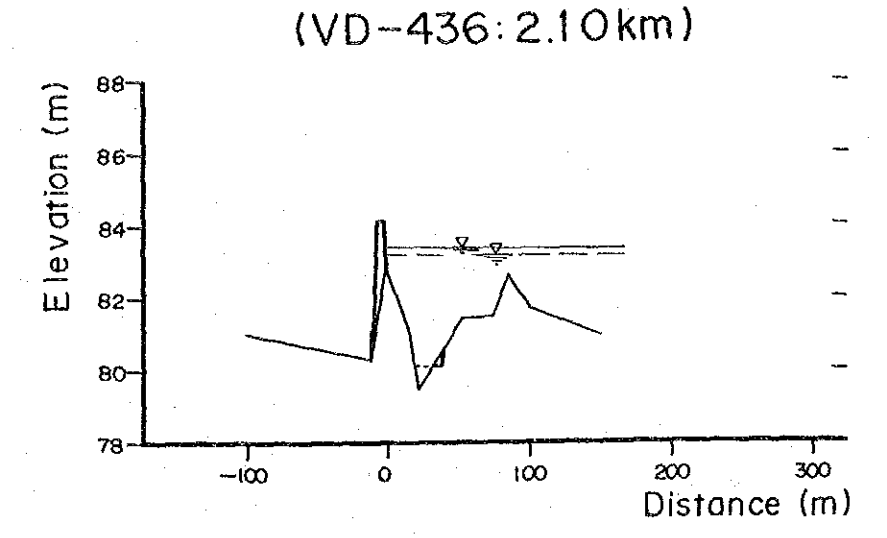
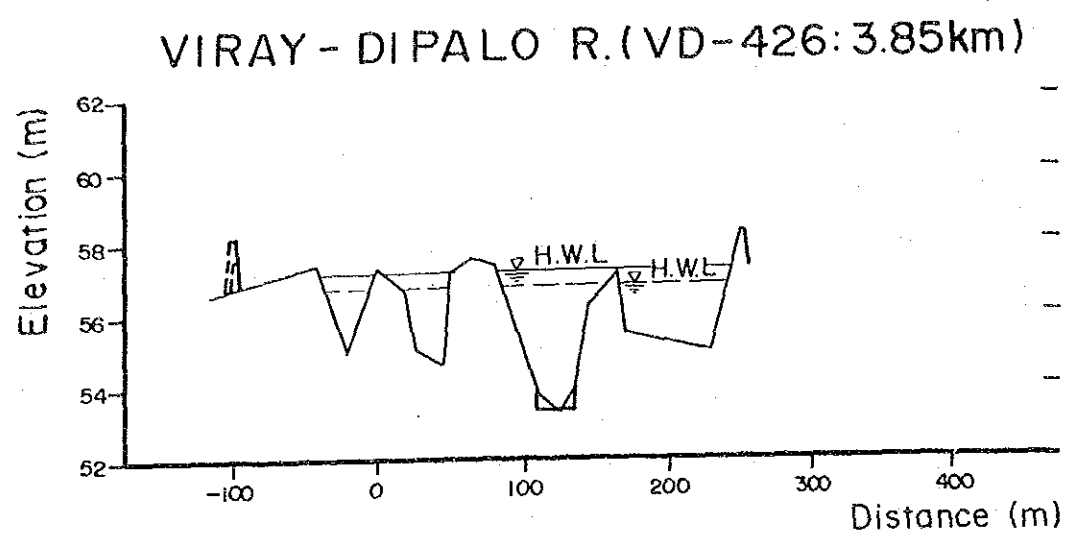


Fig. 10.2.29 TYPICAL CROSS-SECTION OF VIRAY-DIPALO RIVER

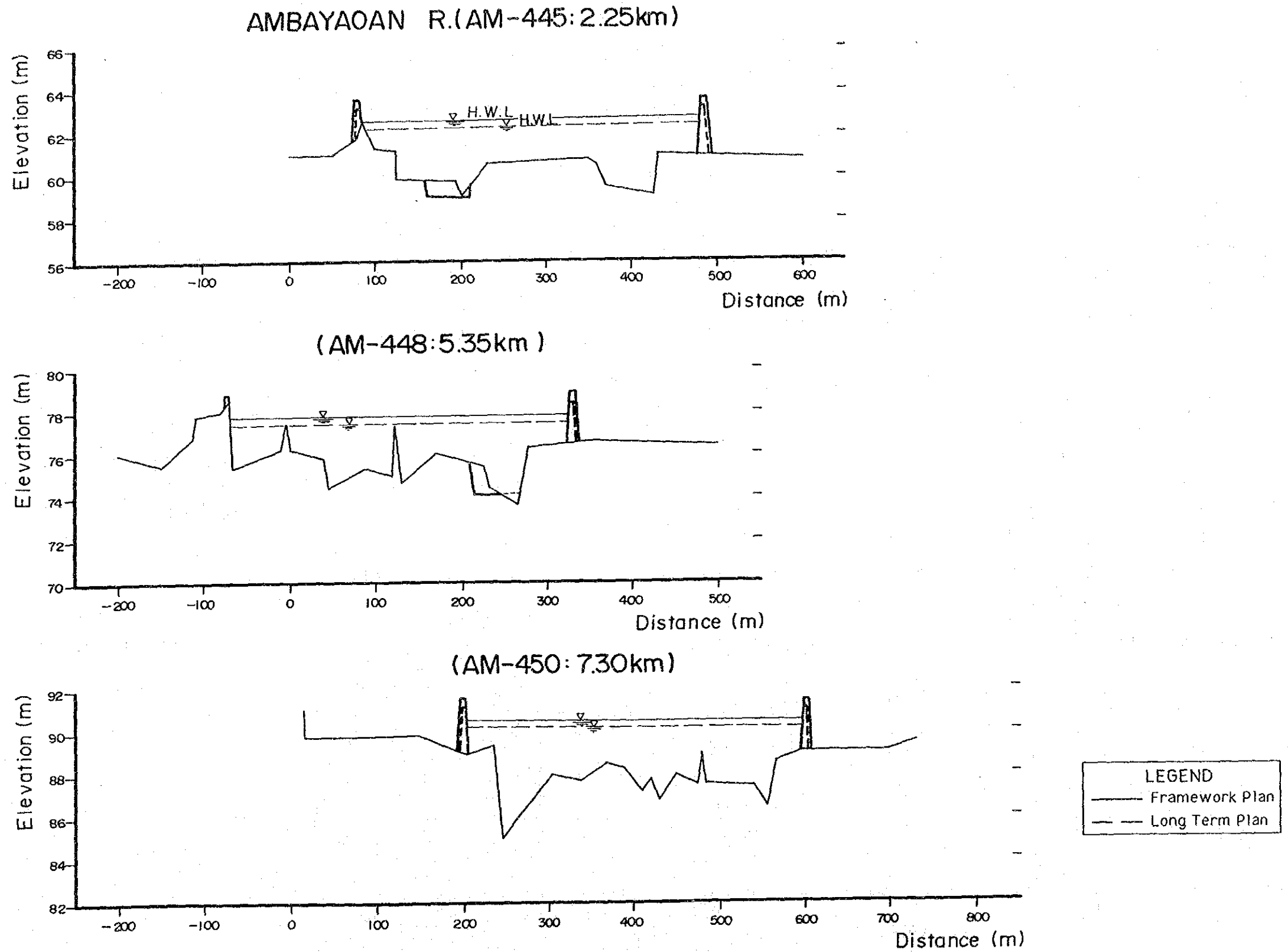


Fig. 10.2.30 TYPICAL CROSS-SECTION OF AMBAYOAN RIVER

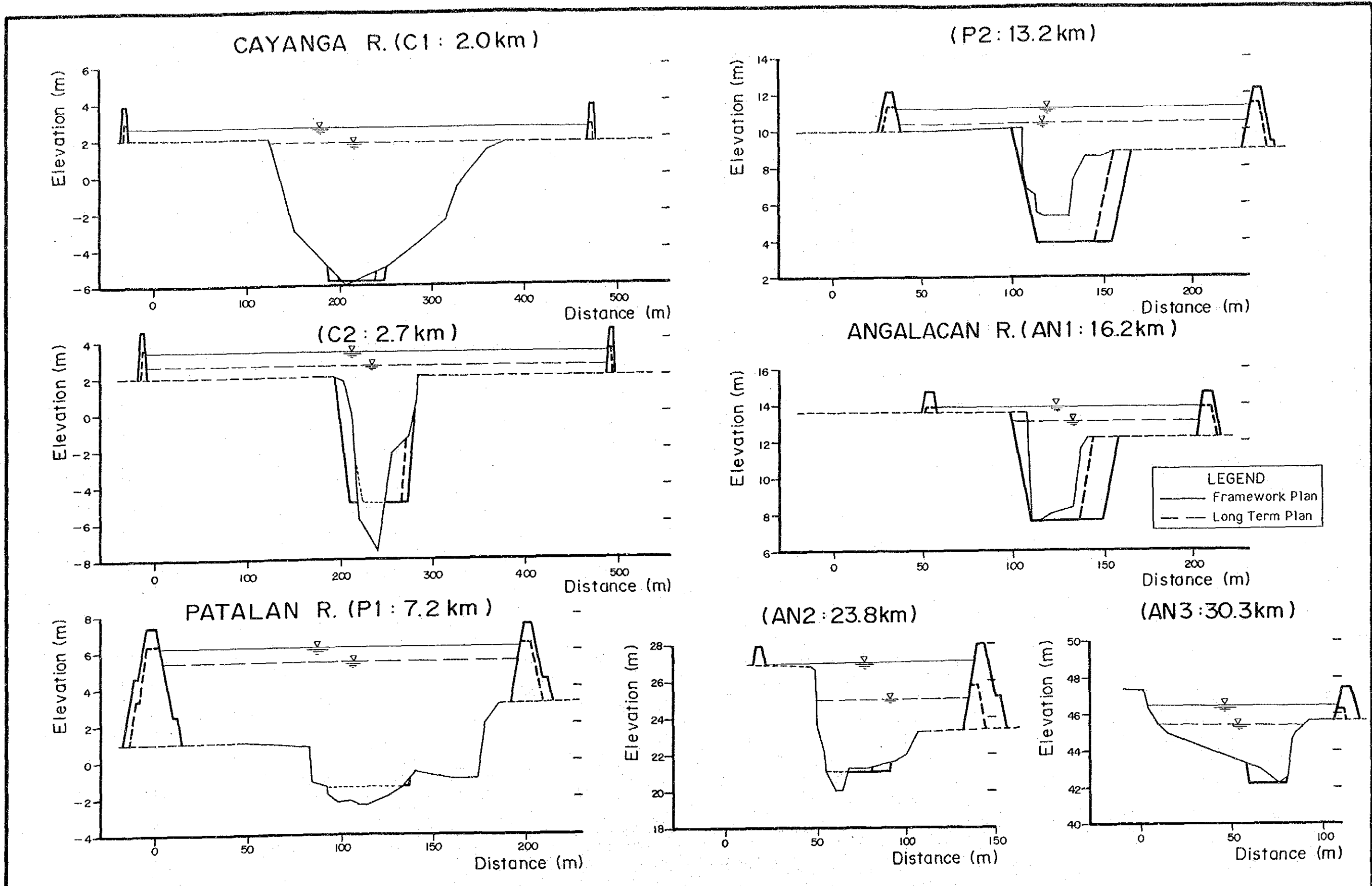
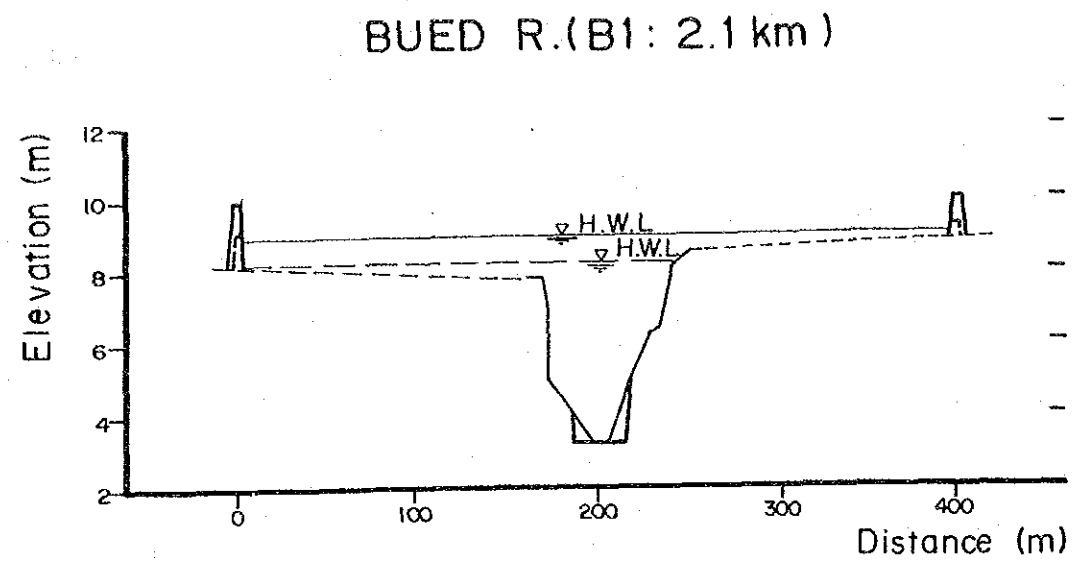
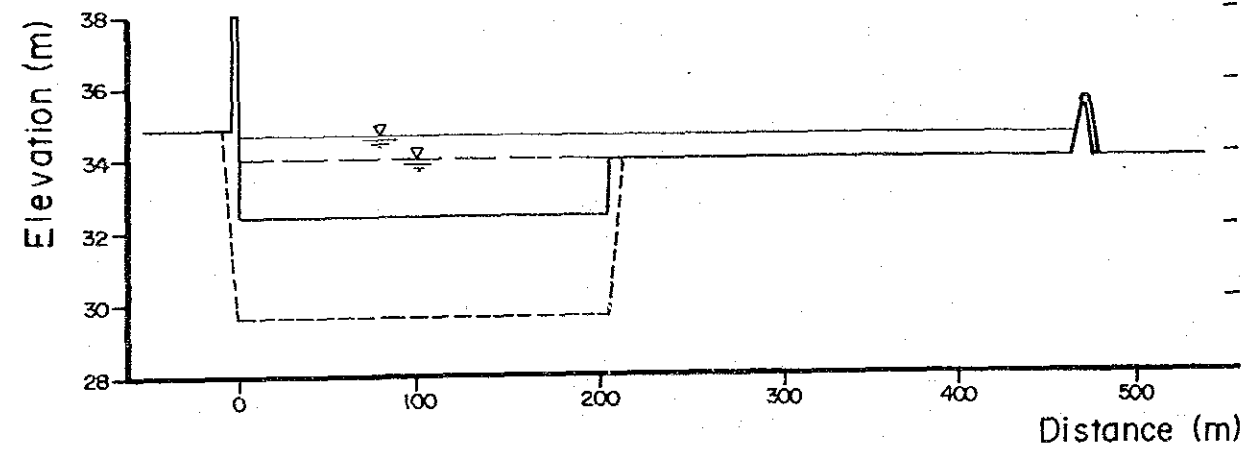


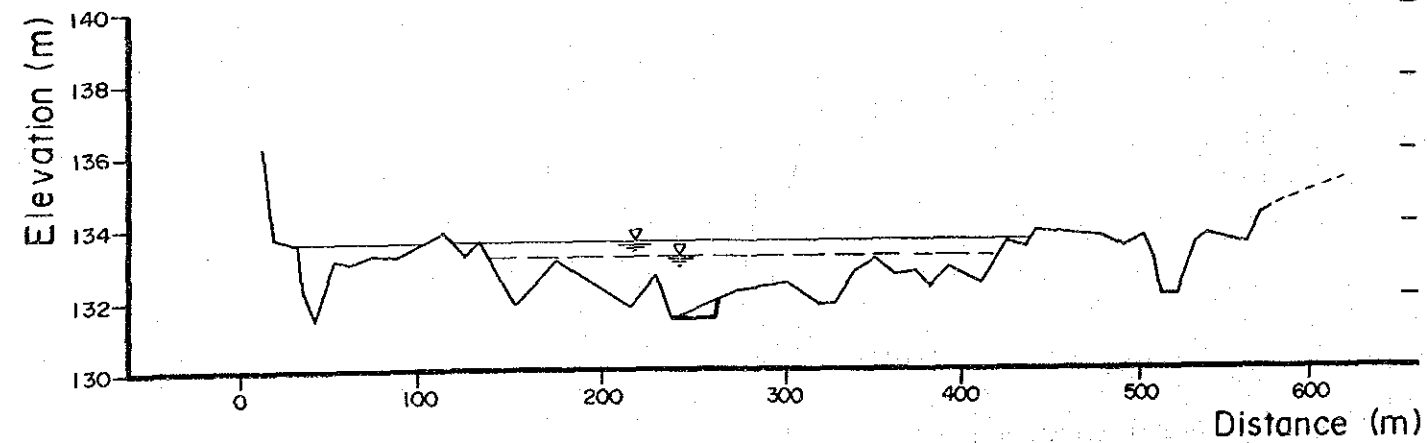
Fig. 10.2.31 TYPICAL CROSS-SECTION OF CAYANGA-PATALAN RIVER



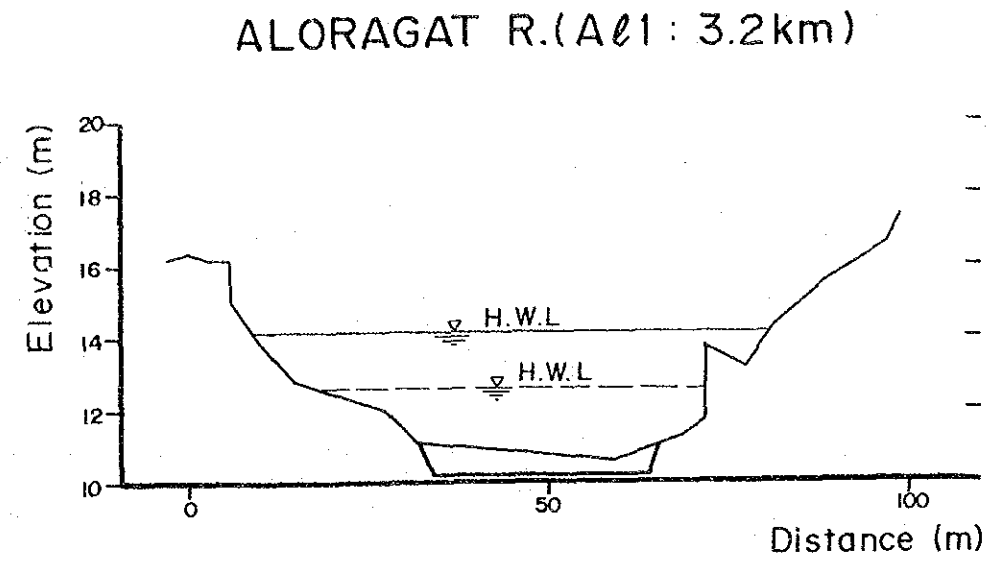
**(B2 : 7.3 km)**



**(B3 : 18.9 km)**



**Fig. 10.2.32 TYPICAL CROSS-SECTION OF BUED RIVER**



**LEGEND**  
 ——— Framework Plan  
 - - - Long Term Plan

**Fig. 10.2.33 TYPICAL CROSS-SECTION OF ALORAGAT RIVER**

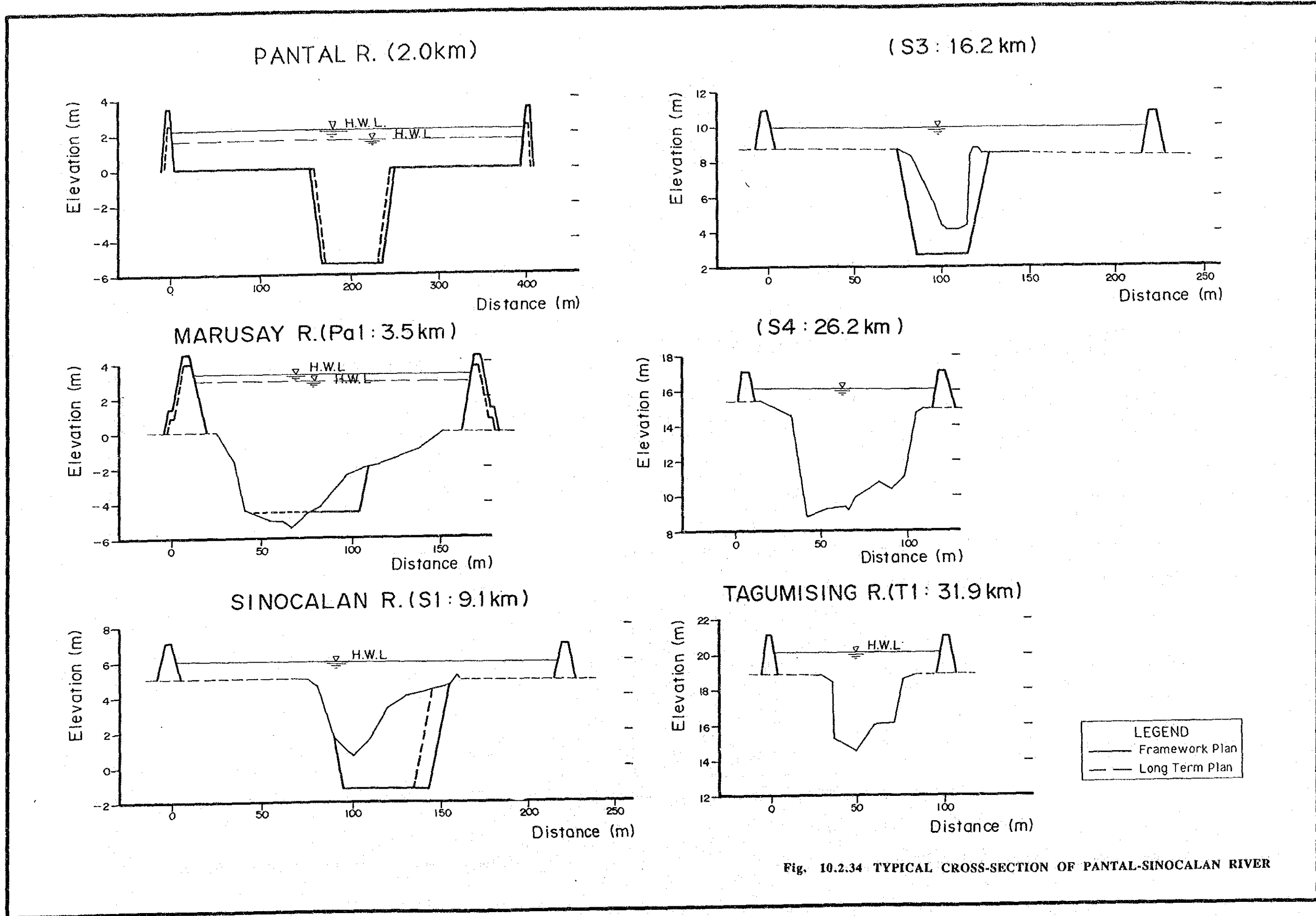
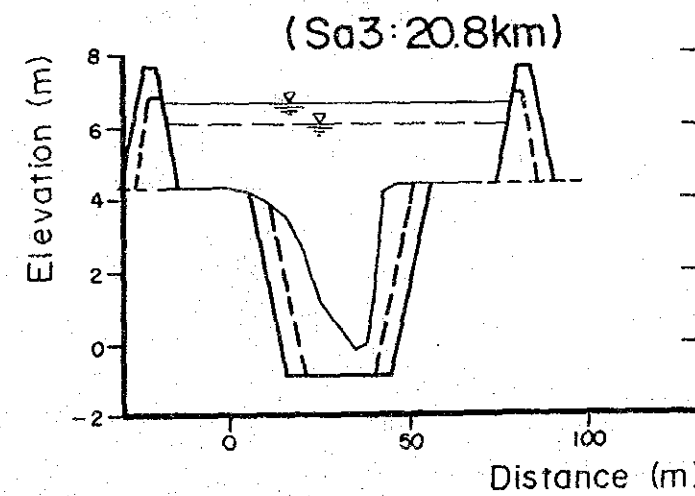
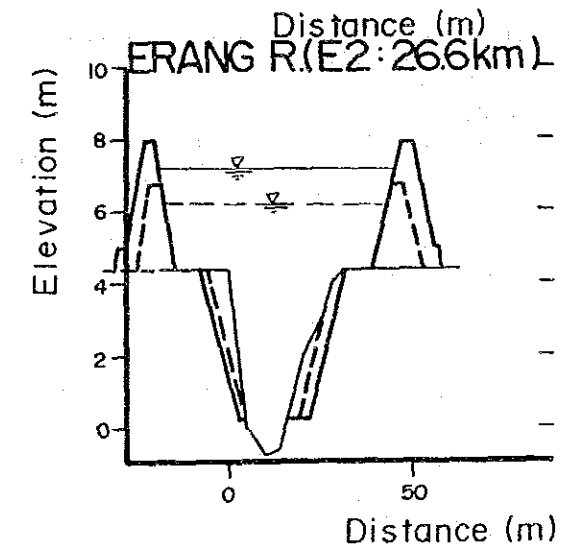
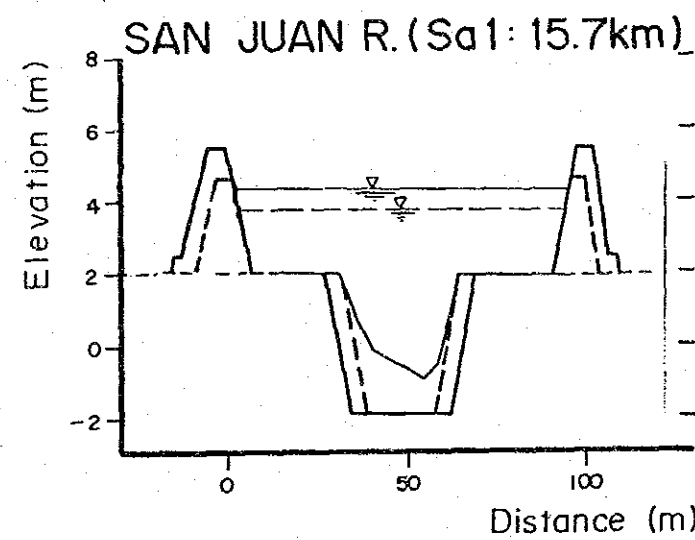
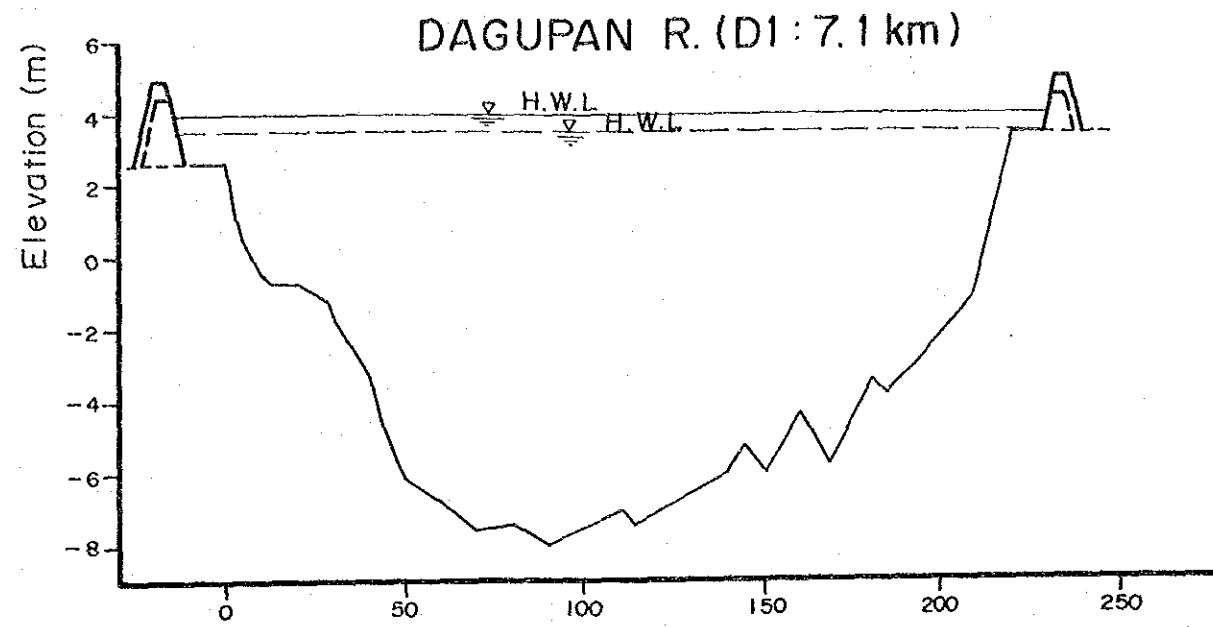
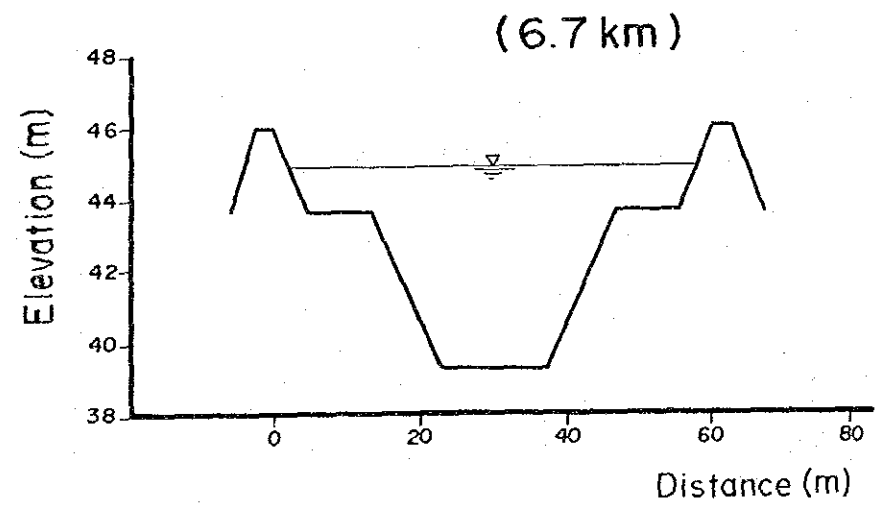
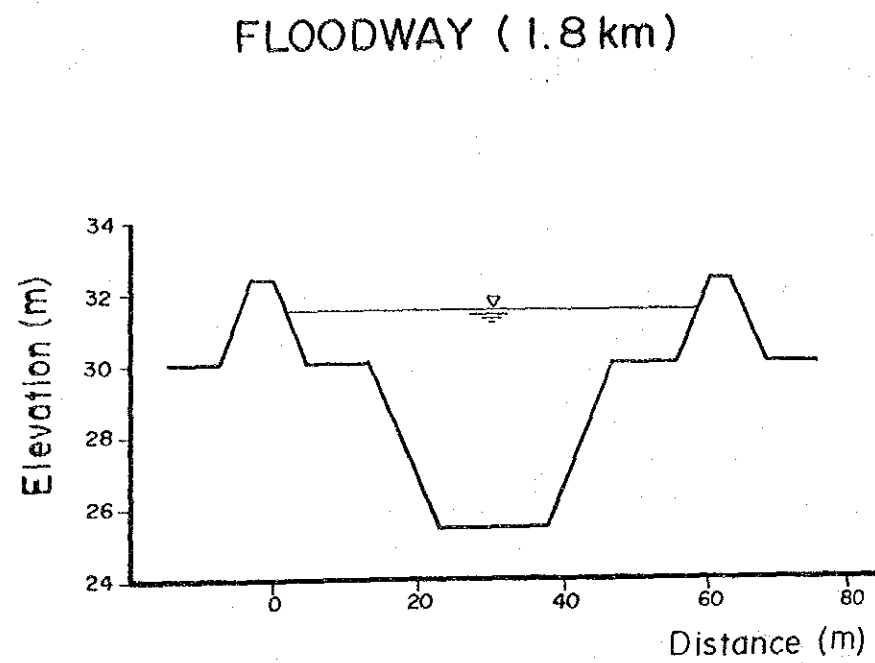


Fig. 10.2.34 TYPICAL CROSS-SECTION OF PANTAL-SINOCALAN RIVER



LEGEND  
 — Framework Plan  
 - - - Long Term Plan

Fig. 10.2.35 TYPICAL CROSS-SECTION OF BINALONAN FLOODWAY

Fig. 10.2.36 TYPICAL CROSS-SECTION OF DAGUPAN RIVER

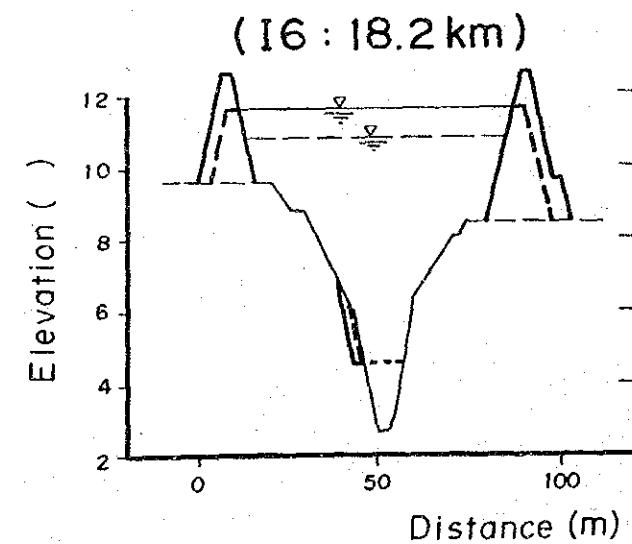
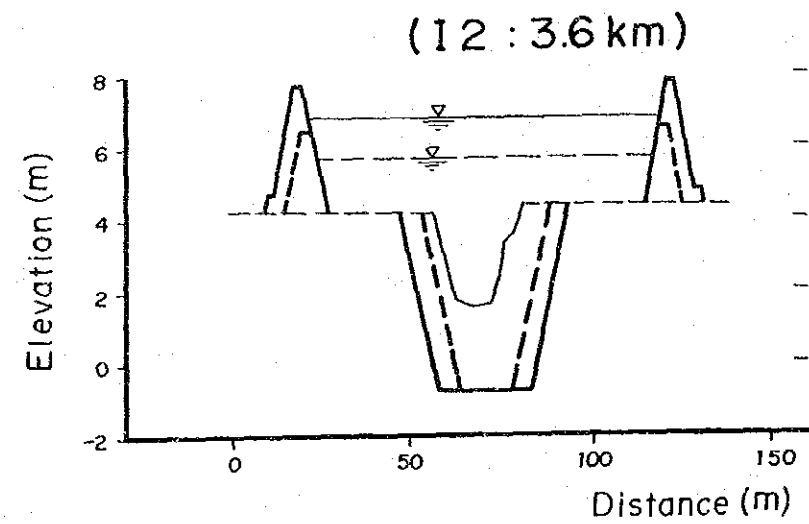
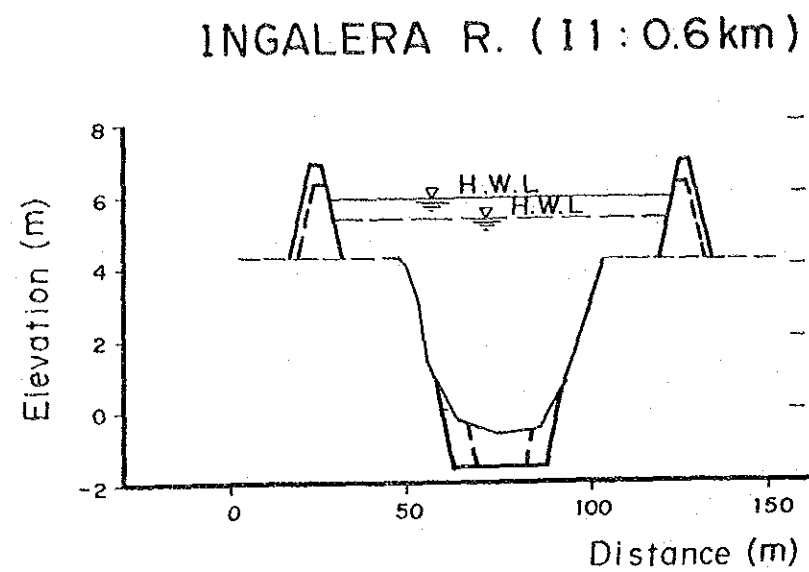


Fig. 10.2.37 TYPICAL CROSS-SECTION OF INGALERA RIVER

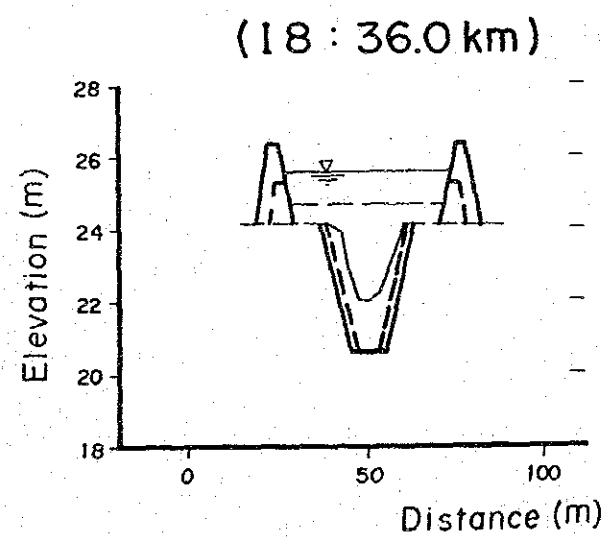
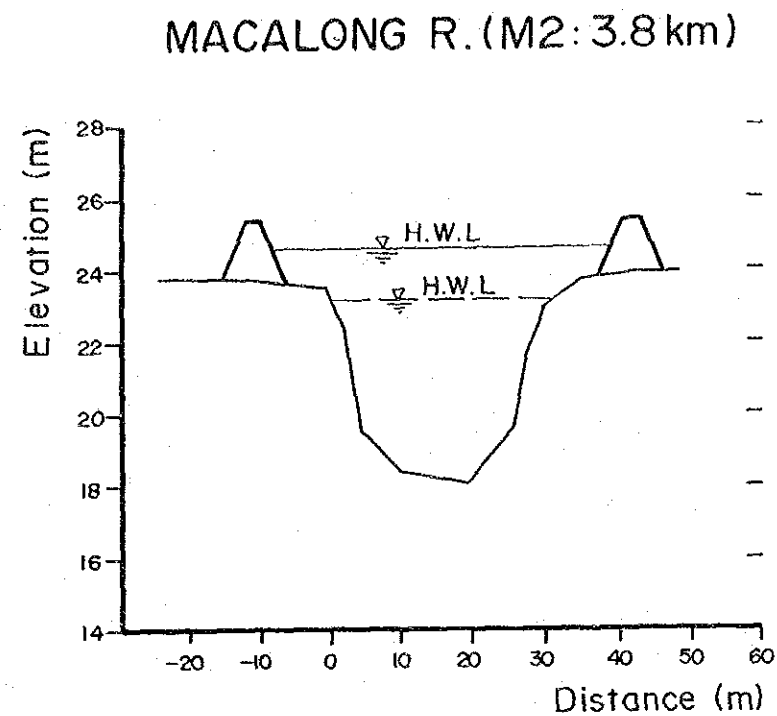
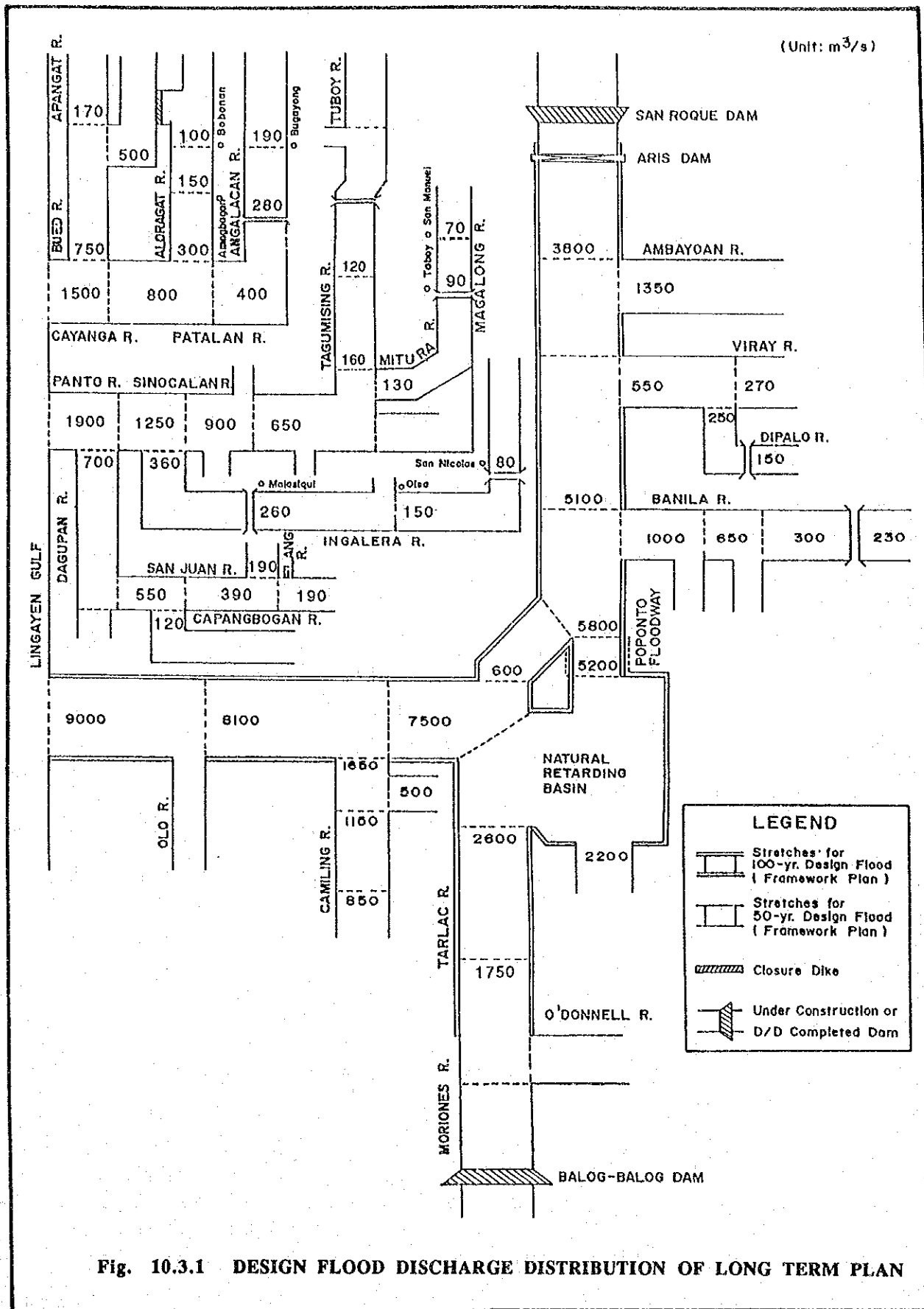


Fig. 10.2.38 TYPICAL CROSS-SECTION OF MITURA-MACALONG RIVER

LEGEND  
 — Framework Plan  
 - - - Long Term Plan









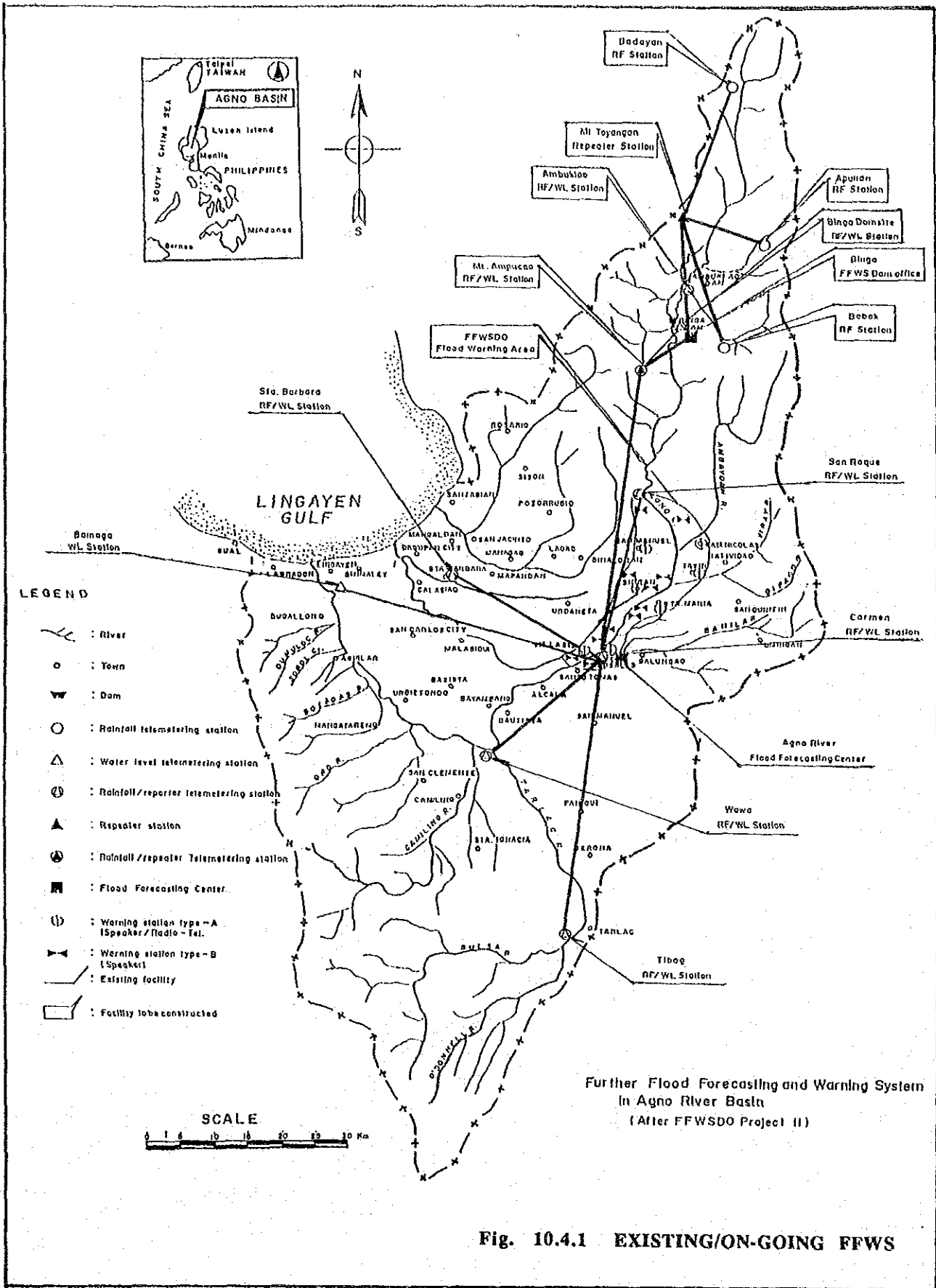
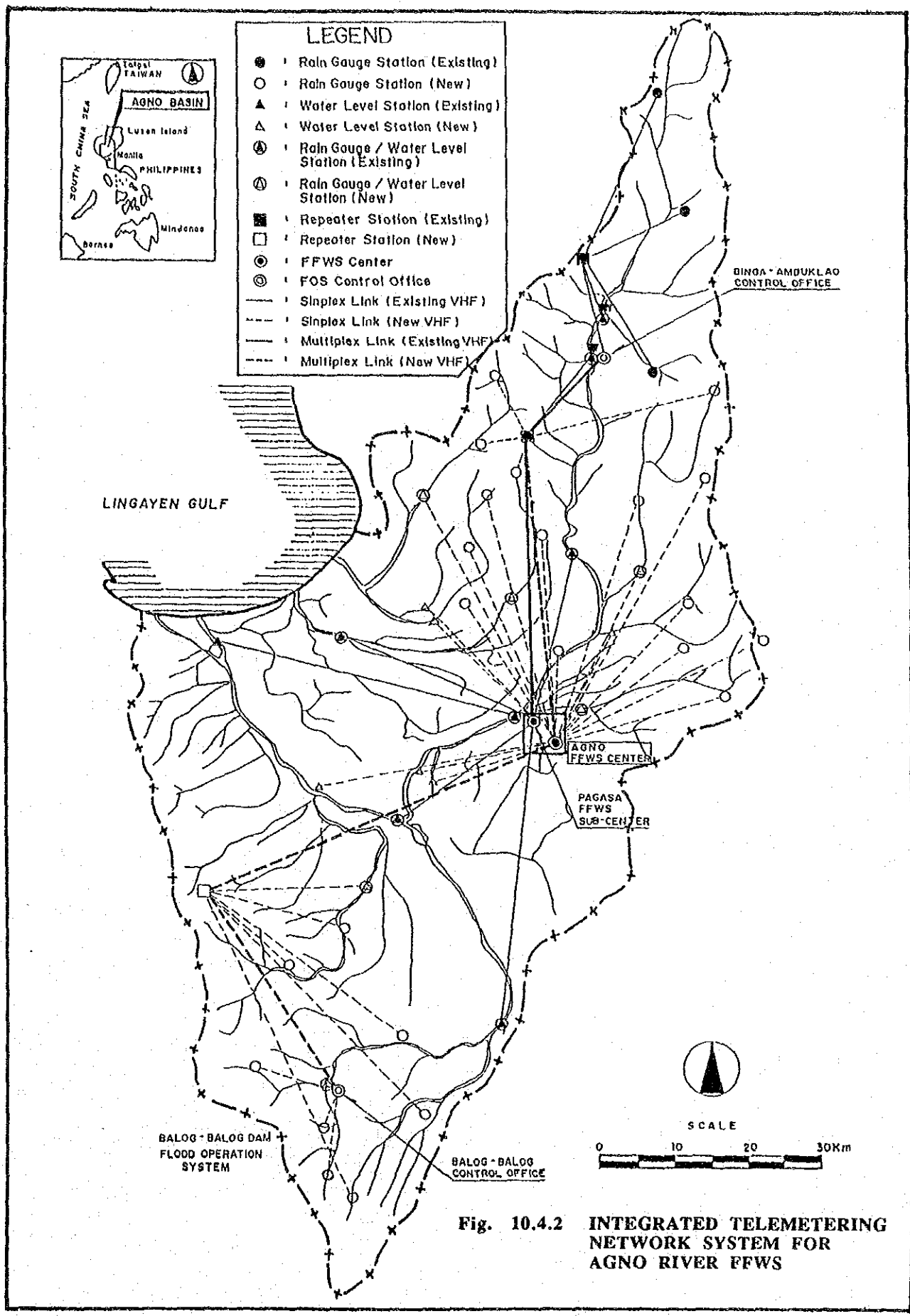


Fig. 10.4.1 EXISTING/ON-GOING FFWS





**Fig. 10.4.2 INTEGRATED TELEMETERING NETWORK SYSTEM FOR AGNO RIVER FFWS**



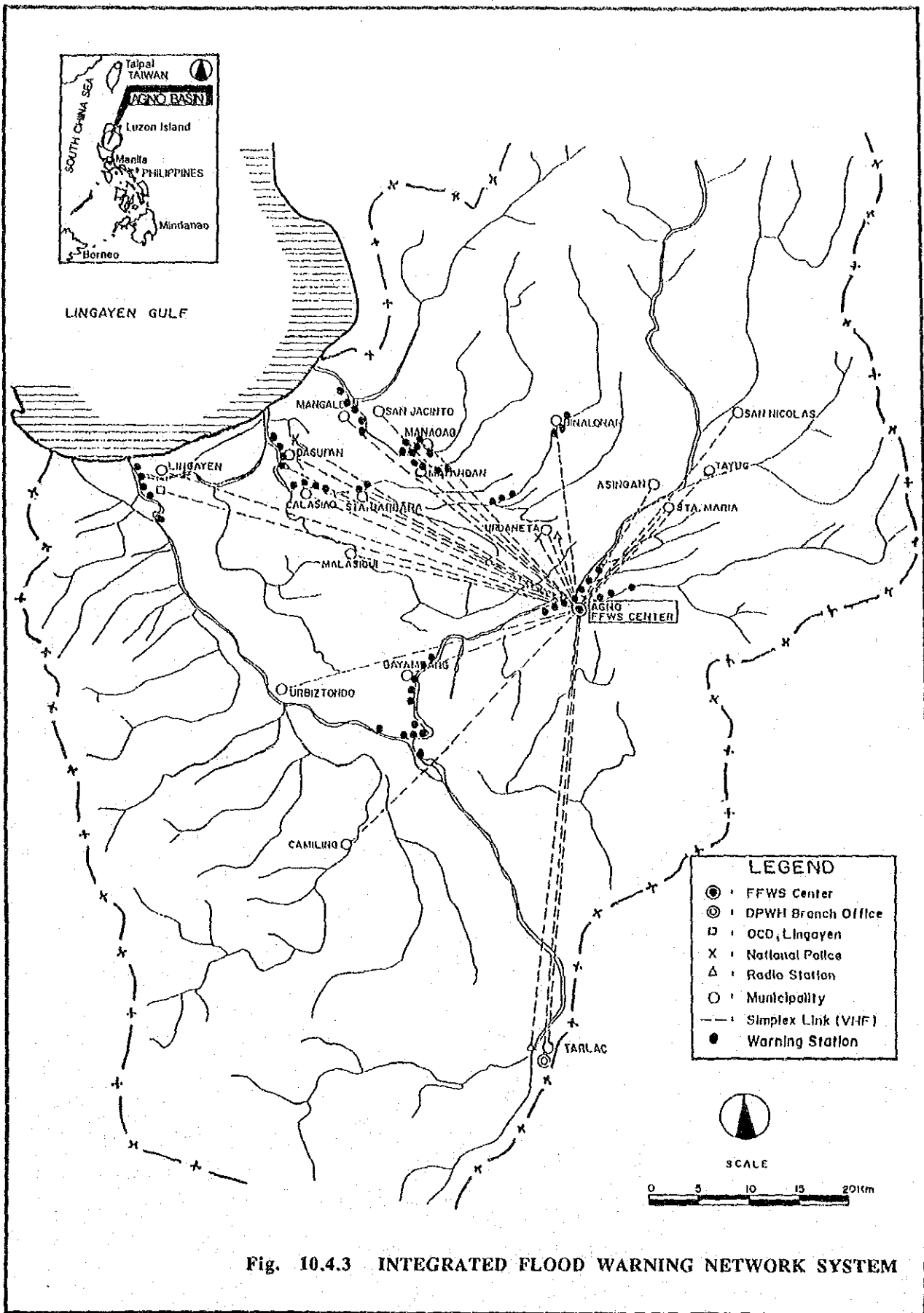


Fig. 10.43 INTEGRATED FLOOD WARNING NETWORK SYSTEM





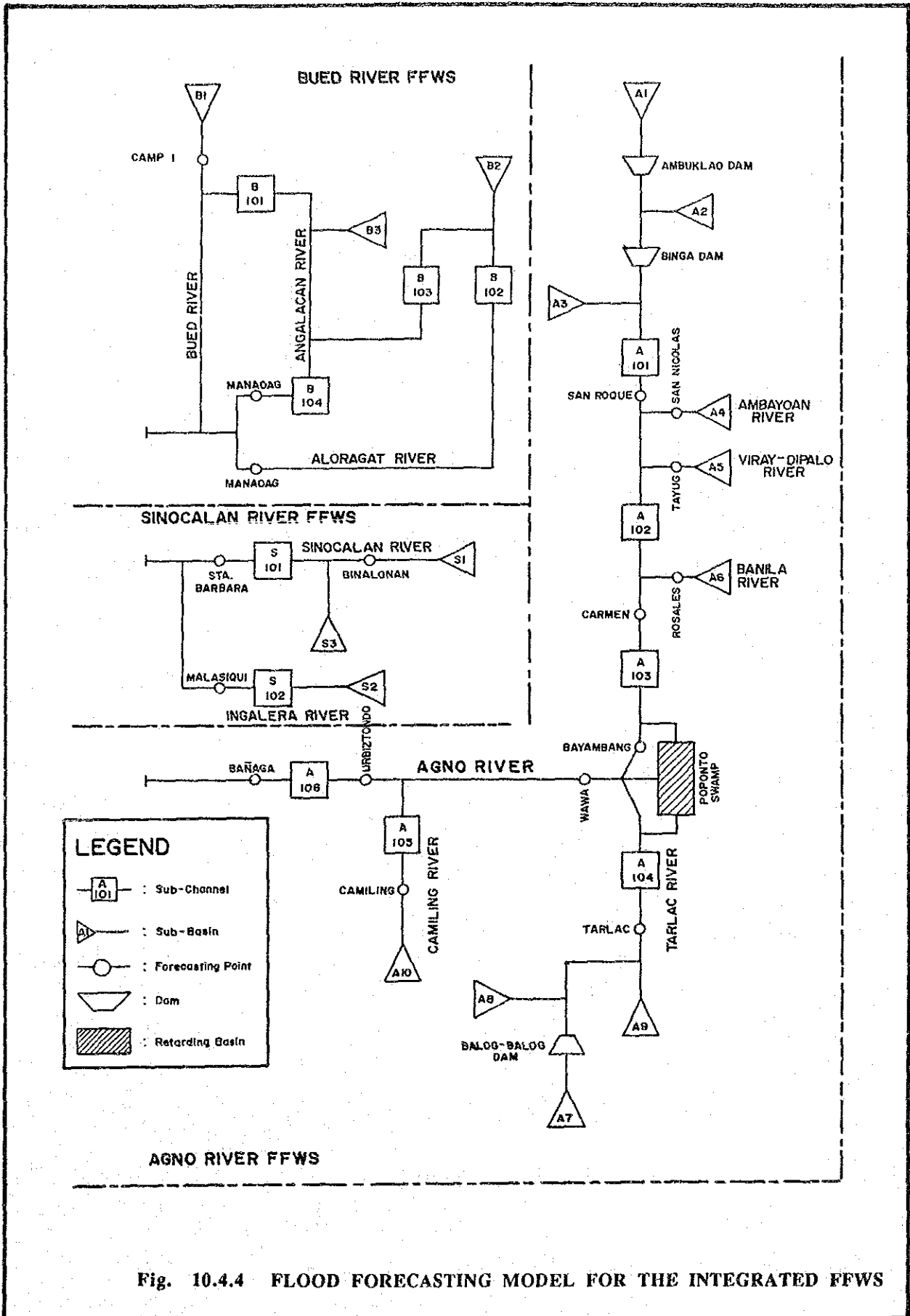


Fig. 10.4.4 FLOOD FORECASTING MODEL FOR THE INTEGRATED FFWS



**LEGEND**

⊙ : Directly Affected

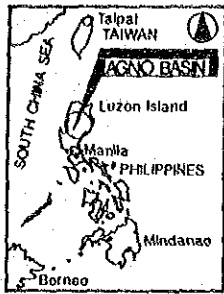
○ : Indirectly Affected

| FLOOD FORECASTING POINT |           |              |         |              |           |                |          |            |            |                    |                  |               |               |           |             |              |
|-------------------------|-----------|--------------|---------|--------------|-----------|----------------|----------|------------|------------|--------------------|------------------|---------------|---------------|-----------|-------------|--------------|
| AGNO RIVER BASIN        |           |              |         |              |           |                |          |            |            | ALLIED RIVER BASIN |                  |               |               |           |             |              |
| 1. SAN ROQUE            | 2. CARMEN | 3. BAYAMBANG | 4. WAWA | 5. URBIZONDO | 6. BANAGA | 7. SAN NICOLAS | 8. TAYUG | 9. ROSALES | 10. TARLAC | 11. CAMILING       | 12. STA. BARBARA | 13. BINALONAN | 14. MALASIQUI | 15. CAMPI | 16. MANAOAG | 17. MAPANDAN |

|                | MUNICIPALITY     | PROJECTED 1990 | POPULATION 2010 |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|----------------|------------------|----------------|-----------------|---|---|---|---|---|---|---|---|---|--|--|--|--|--|---|---|---|---|---|---|---|---|
| PANGASINAN     | 1. DAGUPAN       | 116,000        | 148,000         | ○ | ○ |   |   |   |   |   |   |   |  |  |  |  |  | ⊙ | ⊙ | ○ |   | ○ | ○ | ○ |   |
|                | 2. MANGALDAN     | 60,000         | 78,000          |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   | ⊙ | ⊙ | ○ | ○ | ○ |
|                | 3. BINMALEY      | 55,000         | 71,000          | ○ | ○ | ○ | ○ | ○ | ○ |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 4. LINGAYEN      | 71,000         | 98,000          | ○ | ○ | ○ | ○ | ○ | ○ | ⊙ |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 5. CALACIAO      | 59,000         | 81,000          | ○ | ○ |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 6. STA. BARBARA  | 43,000         | 55,000          | ○ | ○ |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 7. MANAOAG       | 46,000         | 66,000          | ○ |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 8. MAPANDAN      | 23,000         | 30,000          | ○ |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 9. POZORRUBIO    | 45,000         | 57,000          |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 10. LAOAC        | 24,000         | 33,000          | ○ |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 11. BINALONAN    | 40,000         | 48,000          | ○ |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 12. SAN MANUEL   | 34,000         | 44,000          | ⊙ |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 13. SAN NICOLAS  | 26,000         | 32,000          | ○ |   |   |   |   |   |   | ⊙ |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 14. TAYUG        | 30,000         | 37,000          | ⊙ |   |   |   |   |   |   | ○ | ⊙ |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 15. STA. MARIA   | 22,000         | 28,000          | ⊙ |   |   |   |   |   |   |   | ○ |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 16. SAN JACINTO  | 24,000         | 31,000          |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 17. ASINGAN      | 41,000         | 48,000          | ⊙ |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 18. BALUNGAO     | 20,000         | 26,000          |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 19. ROSALES      | 43,000         | 55,000          |   | ⊙ |   |   |   |   |   | ○ |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 20. VILLASIS     | 46,000         | 61,000          |   | ⊙ |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 21. URDANETA     | 87,000         | 116,000         | ○ |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 22. BUGALLON     | 46,000         | 60,000          |   | ○ | ○ | ○ | ○ | ○ | ⊙ |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 23. AGUILAR      | 26,000         | 34,000          |   | ○ | ○ | ○ | ○ | ○ |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 24. SAN CARLOS   | 117,000        | 153,000         |   | ○ | ○ | ○ | ○ |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 25. MALASIQUI    | 83,000         | 107,000         |   | ○ |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 26. BASISTA      | 20,000         | 26,000          |   | ○ |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 27. URBIZONDO    | 34,000         | 47,000          |   | ○ | ○ | ⊙ | ⊙ |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 28. BAYAMBANG    | 75,000         | 96,000          |   | ○ | ⊙ | ○ |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 29. BAUTISTA     | 21,000         | 27,000          |   | ⊙ | ⊙ |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 30. ALCALA       | 29,000         | 37,000          |   | ⊙ |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
| 31. STO. TOMAS | 10,000           | 12,000         |                 | ⊙ |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
| 32. SAN MANUEL | 16,000           | 20,000         |                 | ⊙ |   |   |   |   |   |   | ○ |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
| TARLAC         | 33. SAN CLEMENTE | 8,000          | 10,000          |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 34. CAMILING     | 60,000         | 69,000          |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 35. PANIQUI      | 62,000         | 73,000          |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 36. GERONA       | 61,000         | 79,000          |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |
|                | 37. TARLAC       | 152,000        | 206,000         |   |   |   |   |   |   |   |   |   |  |  |  |  |  |   |   |   |   |   |   |   |   |

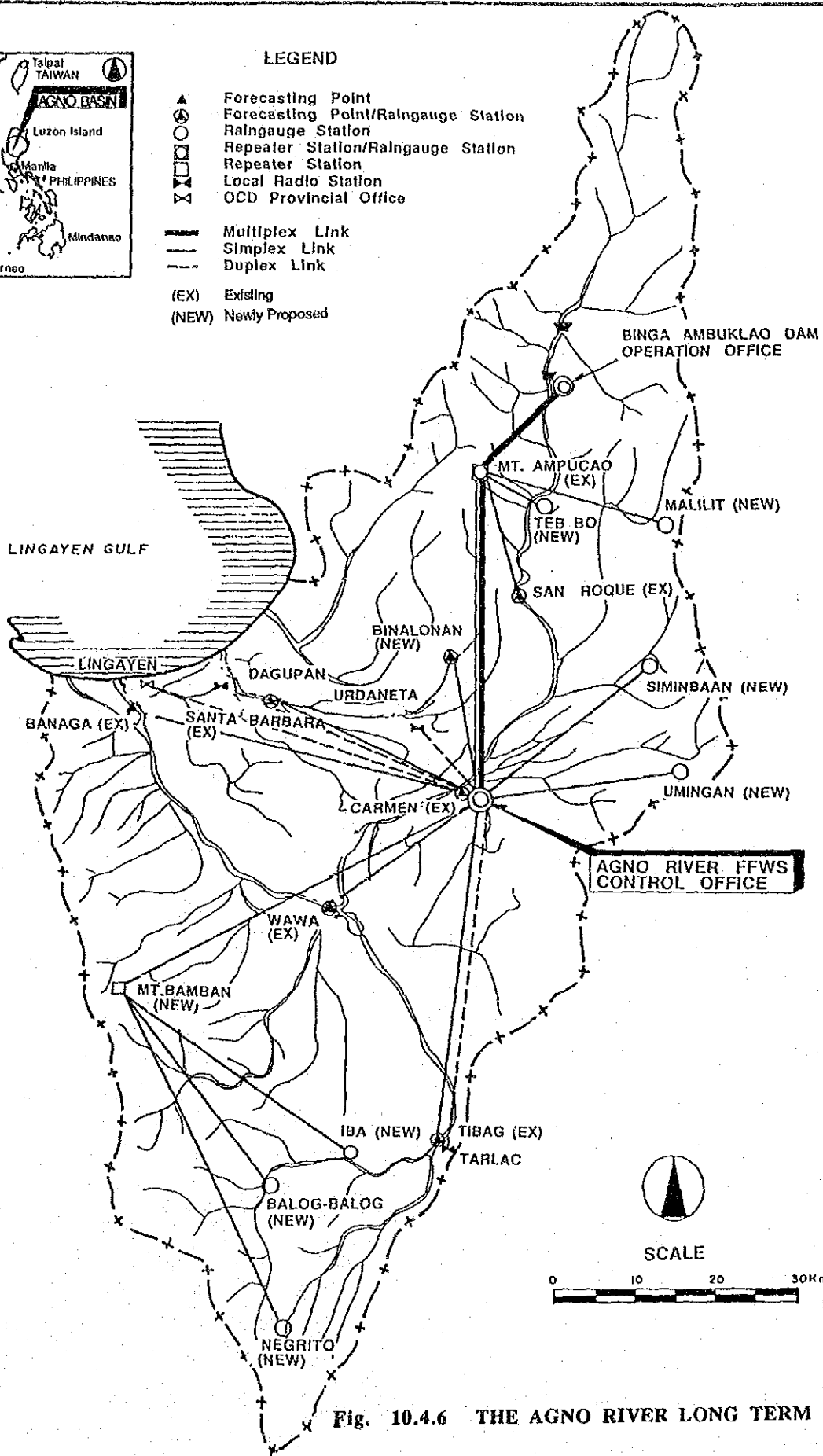
Fig. 10.4.5 RELATION BETWEEN FLOOD FORECASTING POINT AND AFFECTED MUNICIPALITY





**LEGEND**

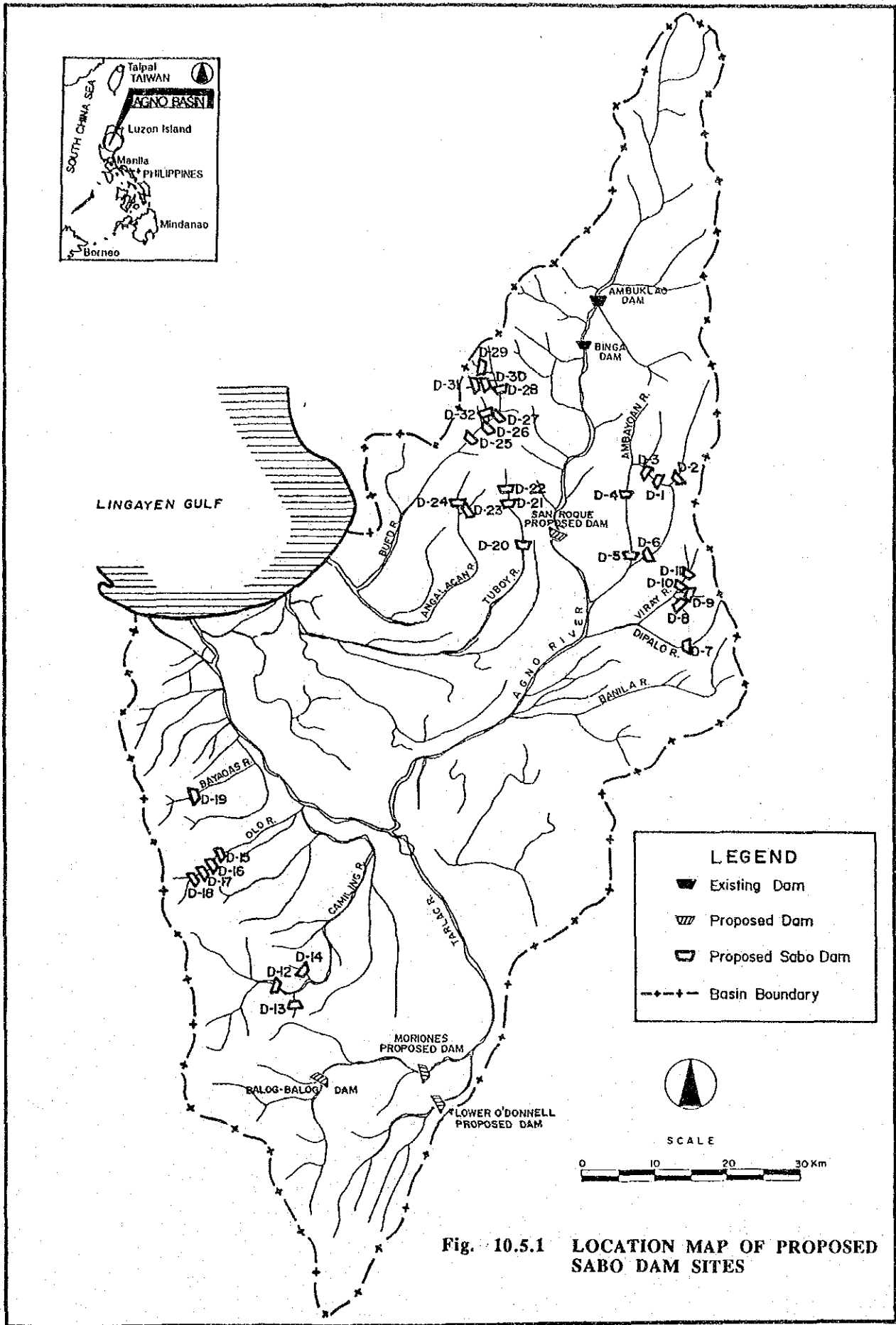
- ▲ Forecasting Point
- Forecasting Point/Raingauge Station
- Raingauge Station
- Repeater Station/Raingauge Station
- Repeater Station
- Local Radio Station
- OCD Provincial Office
- Multiplex Link
- - - Simplex Link
- · - · Duplex Link
- (EX) Existing
- (NEW) Newly Proposed



**Fig. 10.4.6 THE AGNO RIVER LONG TERM FFWS**









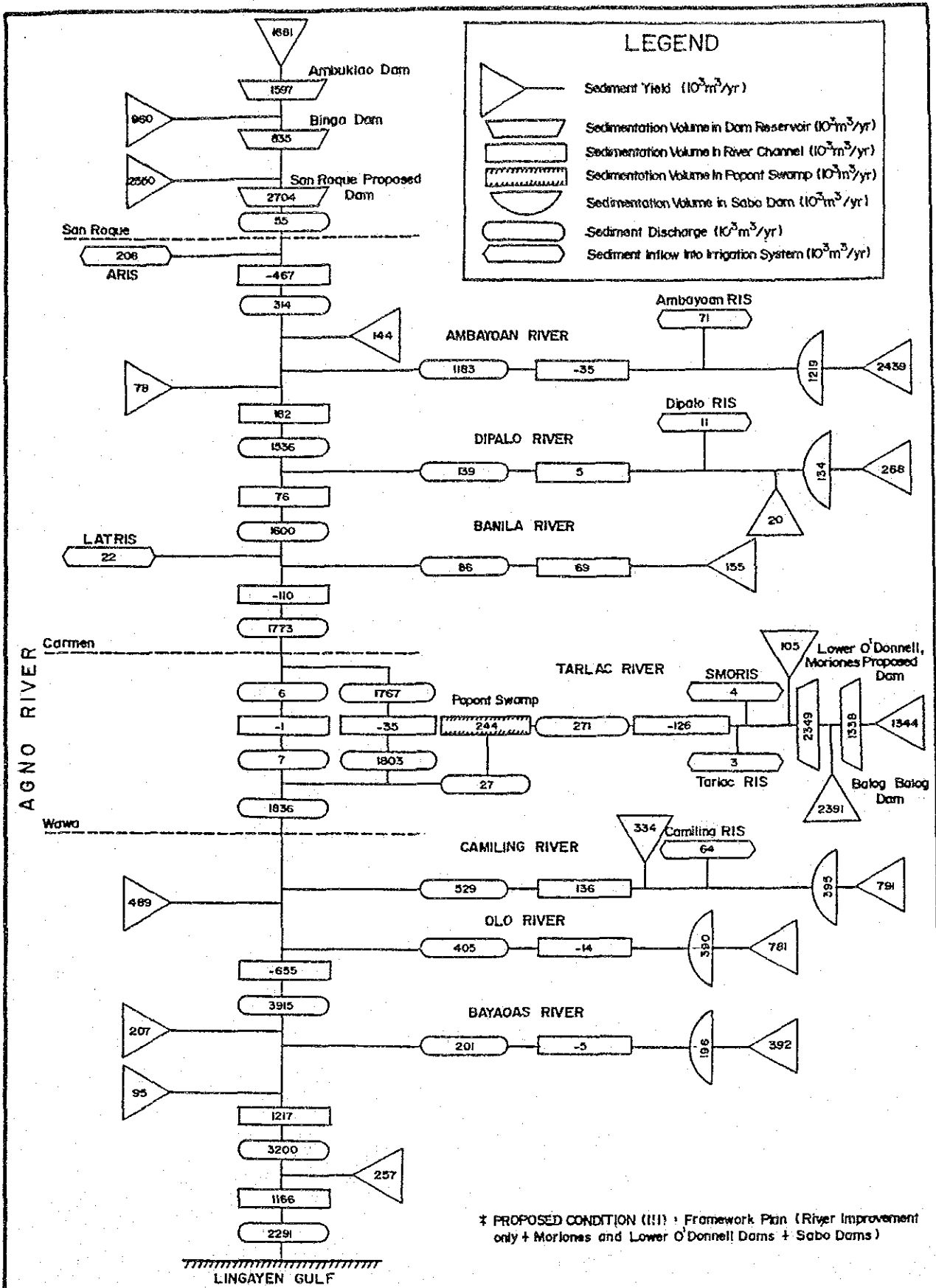


Fig. 10.5.2 ANNUAL SEDIMENT BALANCE UNDER PROPOSED CONDITION



## **11. COST ESTIMATES**

