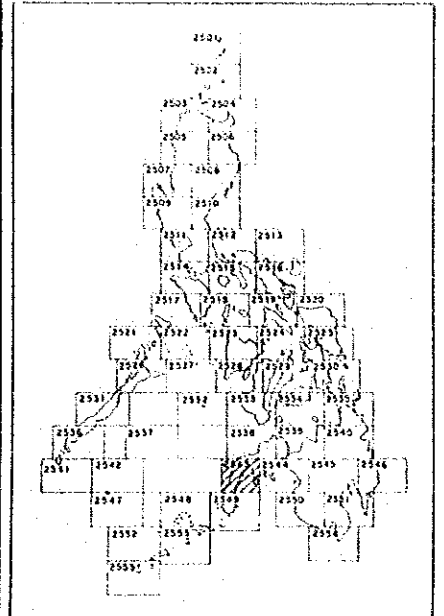


S U L U S E A

Scale 1/500,000

TRANSVERSE MERCATOR PROJECTION
EARTH'S SURFACE 1960
EARTH'S SURFACE 1960
UNITED STATES DEPARTMENT OF AGRICULTURE



LEGEND:




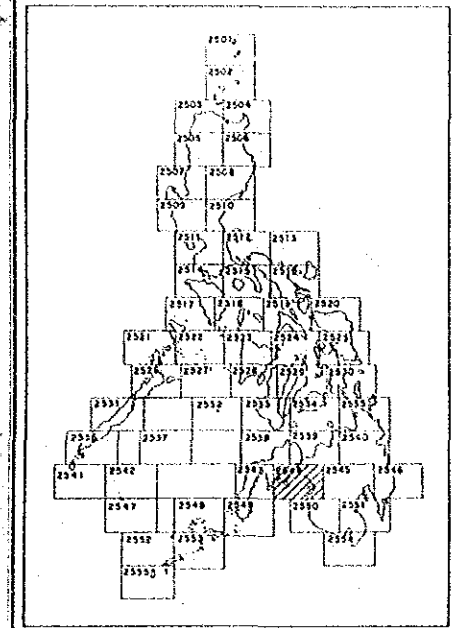
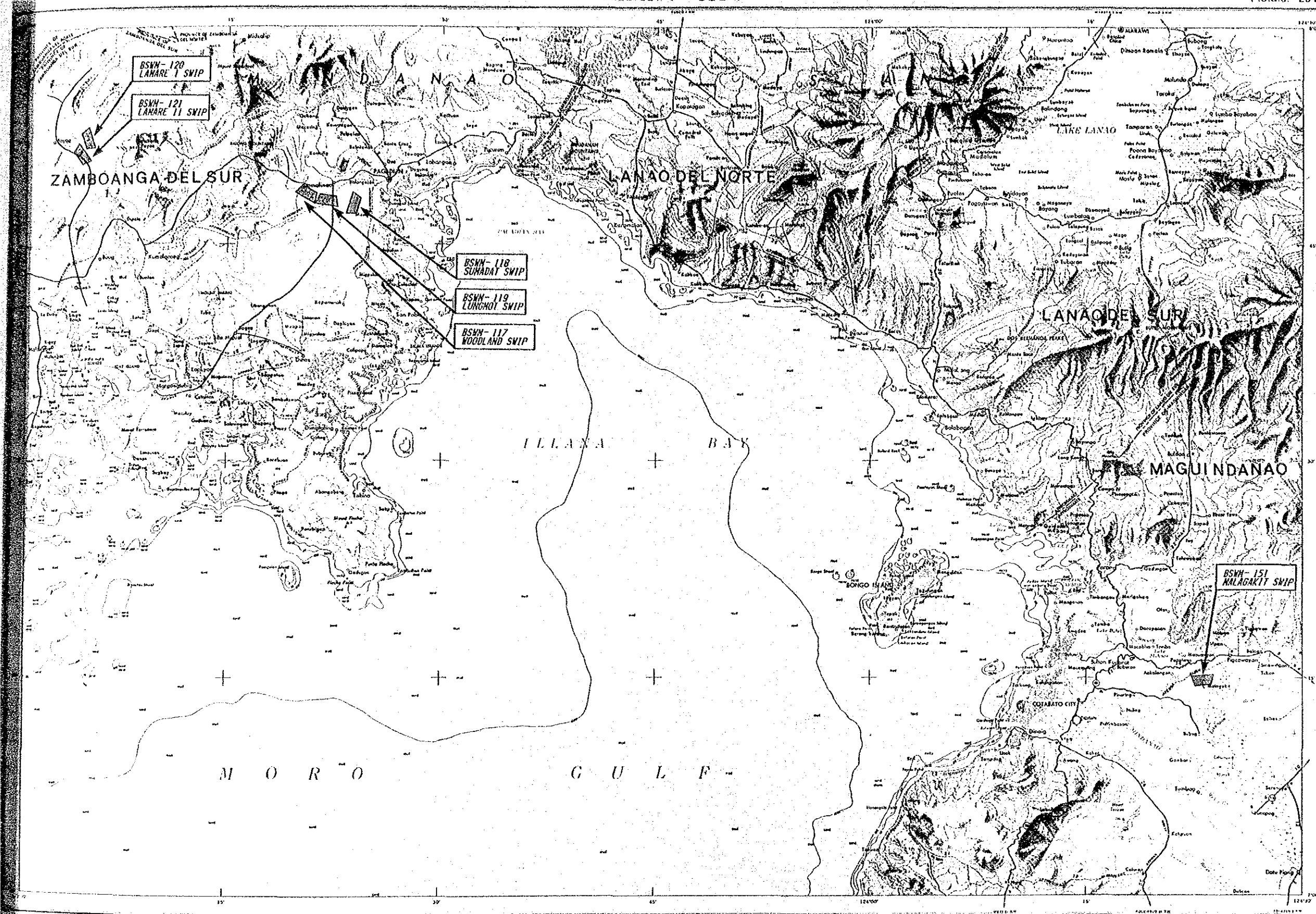



-  : proposed SWIM projects by BSM
-  : proposed SWIM projects by NIA
-  : proposed SWIM projects by BSM
- DPWH : Department of Public Works and Highways
- N I A : National Irrigation Administration
- B S W M : Bureau of Soils and Water Management

Fig. 29 Location Map of Qualified SWIM Projects (29/34)



- LEGEND:**
-  : proposed SWIM projects by DPM
 -  : proposed SWIM projects by NIA
 -  : proposed SWIM projects by BSM
 - D P W H : Department of Public Works and Highways
 - N I A : National Irrigation Administration
 - B S W N : Bureau of Soils and Water Management

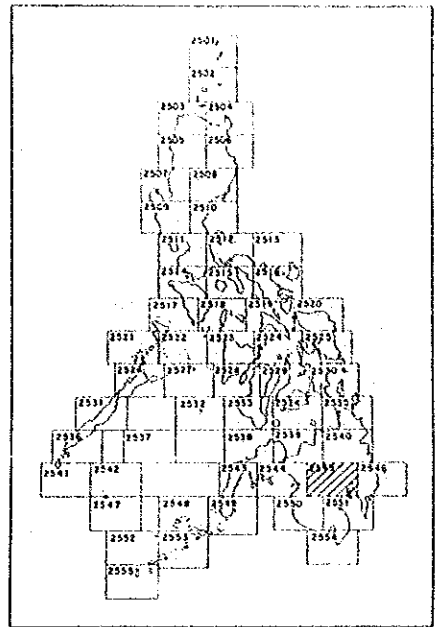
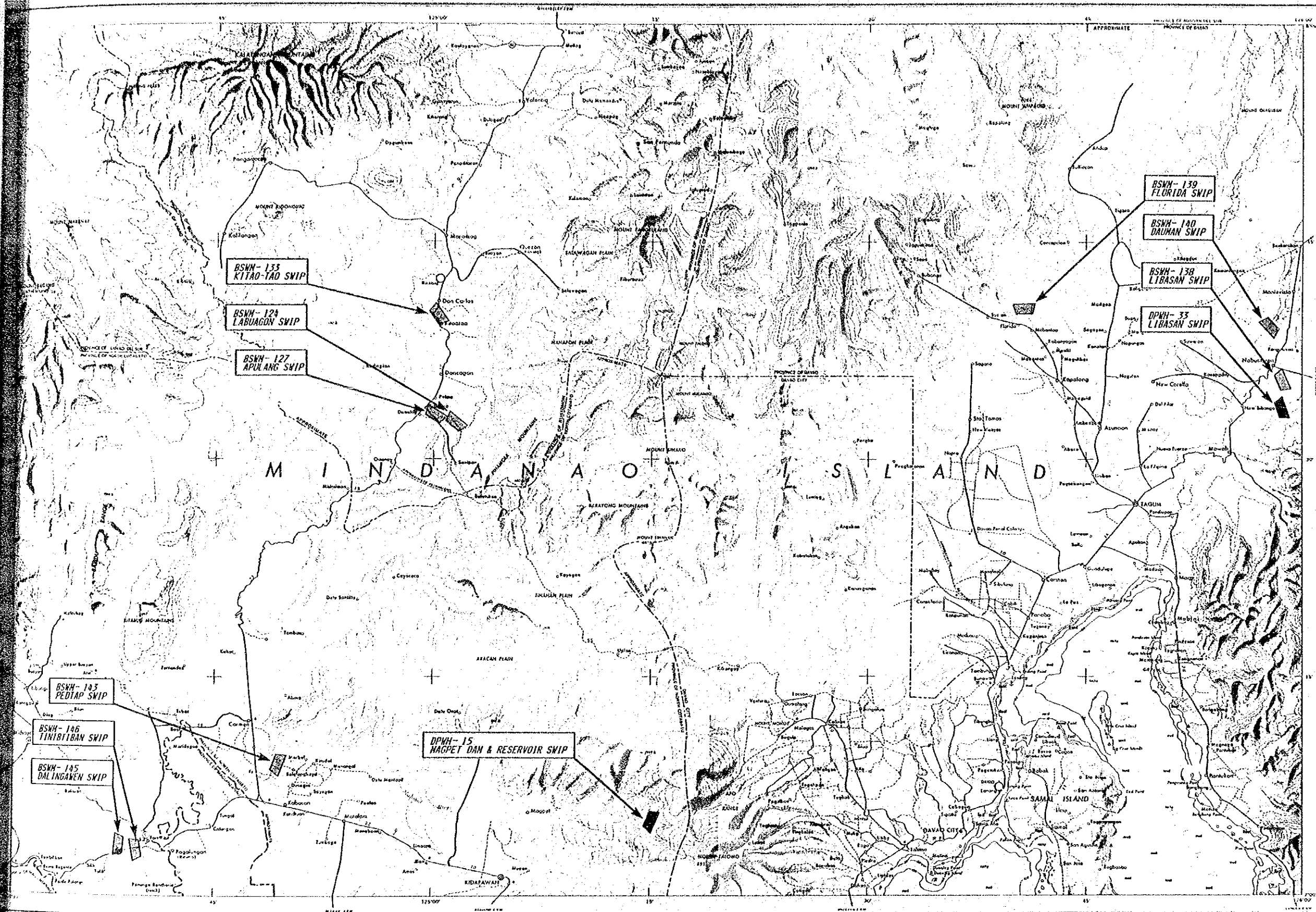
Scale 1/500,000




TRANSVERSE MERCATOR PROJECTION
 CLARKE SPHEROID 1866 LUSON DATUM
 ELEVATIONS IN METERS ABOVE MEAN SEA LEVEL
 INTERVAL OF APPROXIMATE CONTOURS 100 METERS

Fig. 30 Location Map of Qualified SWIM Projects (30/34)

DAVAO CITY

PCGS. 2545

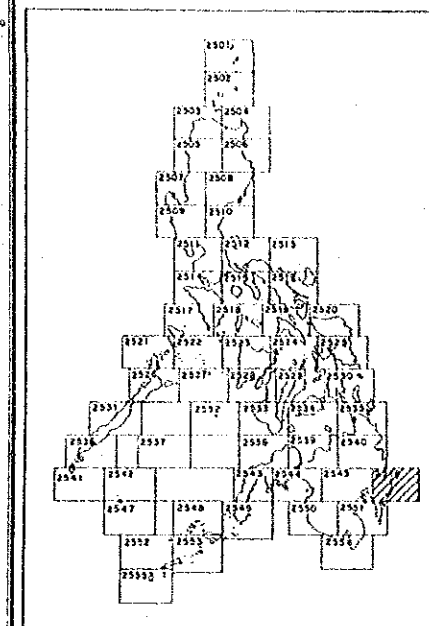
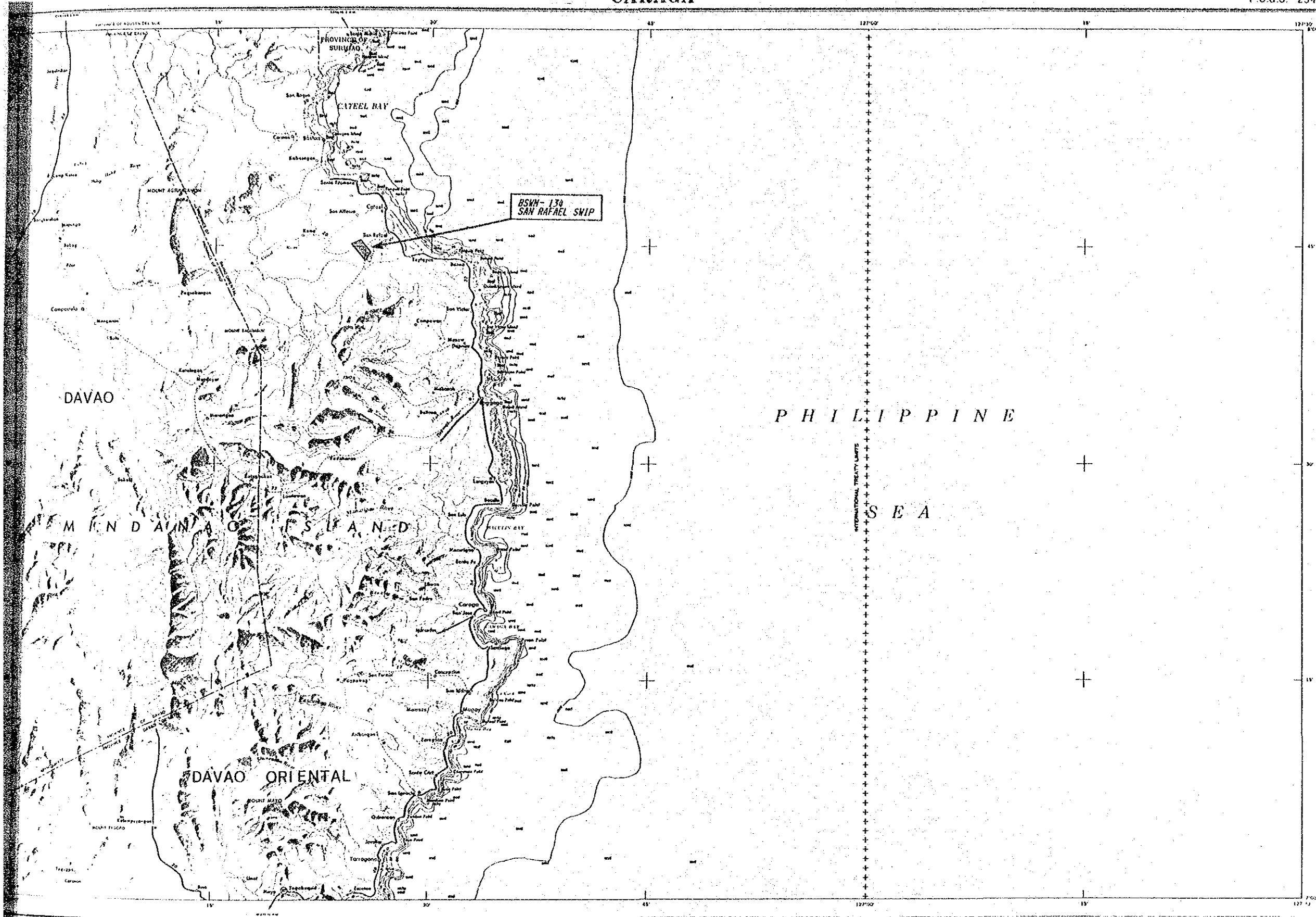


- LEGEND:**
-  : proposed SWIM projects by DPMH
 -  : proposed SWIM projects by NIA
 -  : proposed SWIM projects by BSM
 - DPWH : Department of Public Works and Highways
 - NIA : National Irrigation Administration
 - BSM : Bureau of Soils and Water Management

Scale 1/500,000

TRANSVERSE MERCATOR PROJECTION
 CLAUDE STRONG 1866 LUZON DATUM
 ELEVATIONS IN METERS ABOVE MEAN SEA LEVEL
 INTERVAL OF APPROXIMATE CONTOURS 100 METERS

Fig.31 Location Map of Qualified SWIM Projects (31/34)

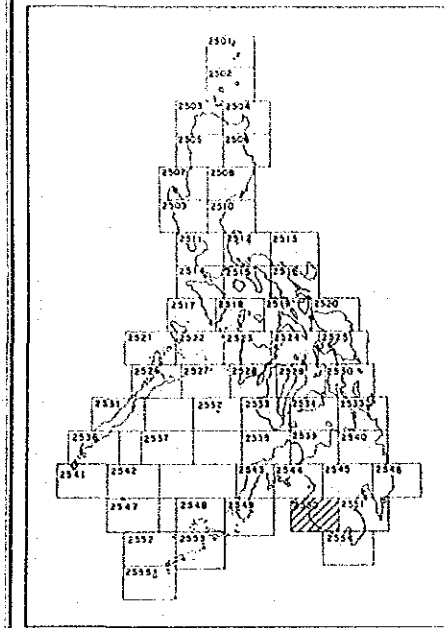
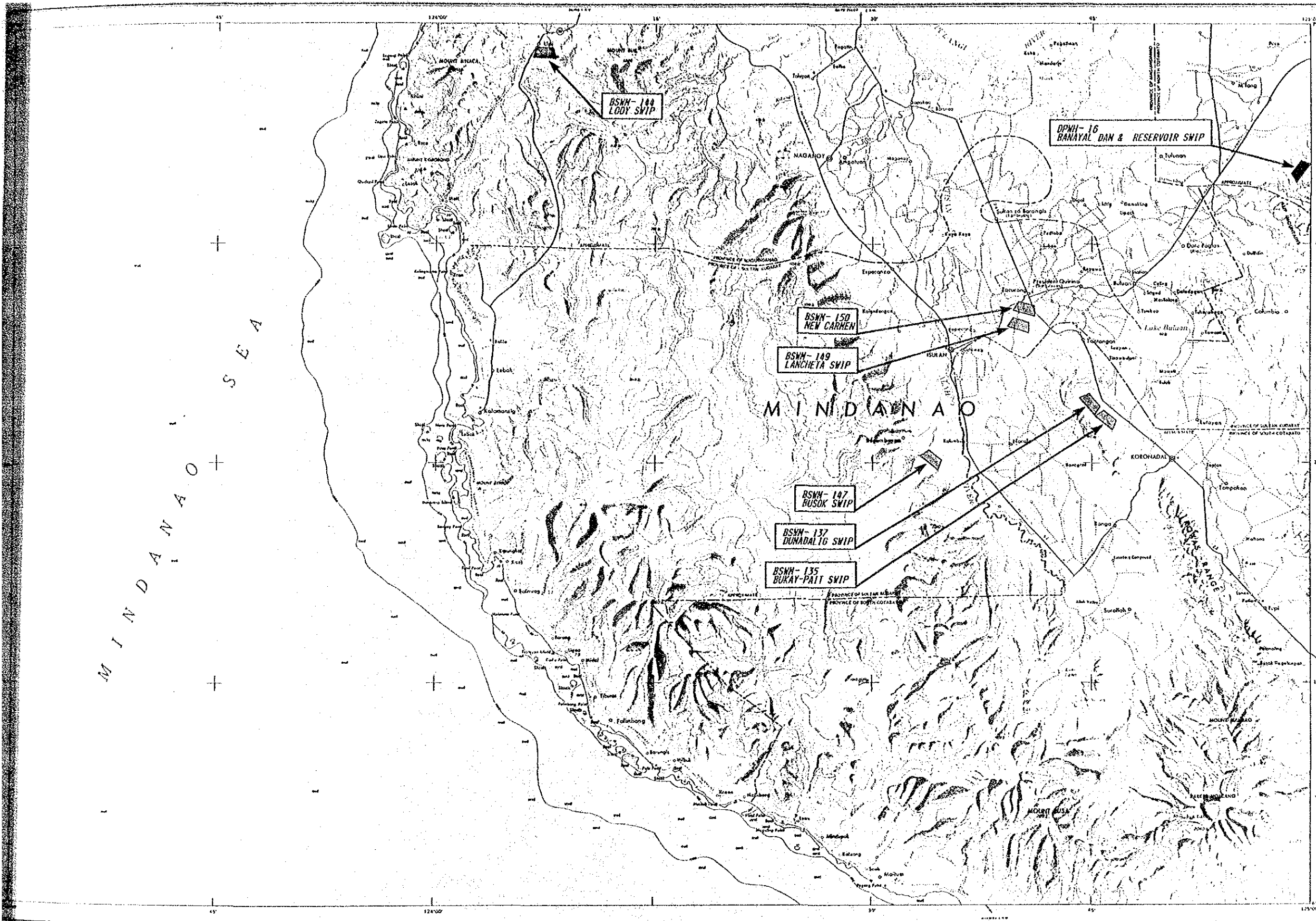


- LEGEND:
- : proposed SWIM projects by DPMH
 - : proposed SWIM projects by NIA
 - : proposed SWIM projects by BSMN
 - DPMH : Department of Public Works and Highways
 - NIA : National Irrigation Administration
 - BSMN : Bureau of Soils and Water Management

Scale 1/500,000

TRANSVERSE MERCATOR PROJECTION
 CLARKE SPHEROID 1866 LUZON DATUM
 ELEVATIONS IN METERS ABOVE MEAN SEA LEVEL
 INTERVAL OF APPROXIMATE CONTOURS 100 METERS

Fig. 32 Location Map of Qualified SWIM Projects (32/34)



LEGEND:

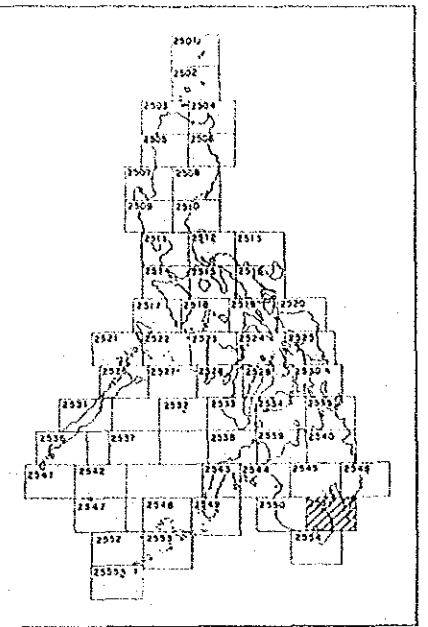
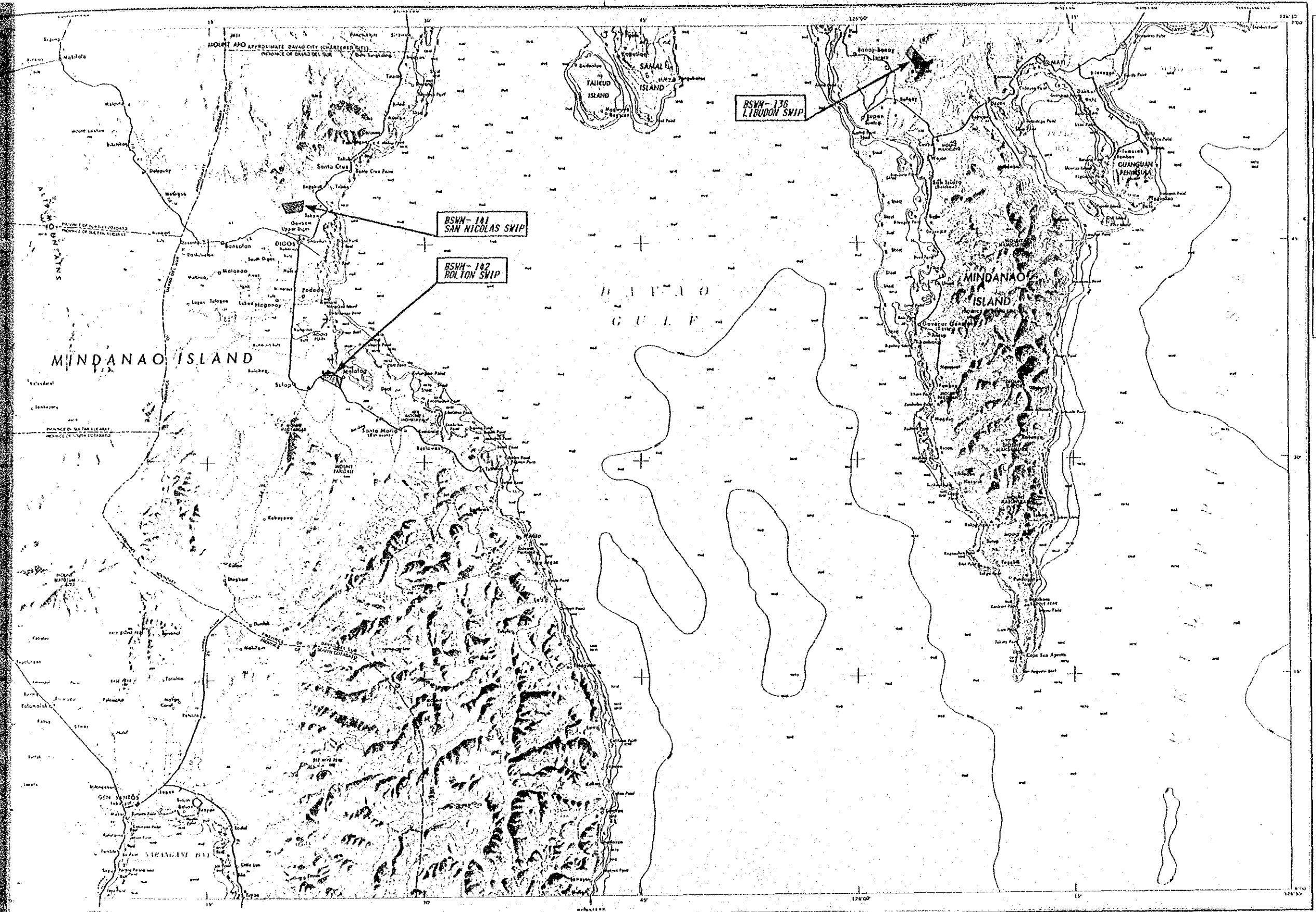
- : proposed SWIM projects by DPM
- : proposed SWIM projects by NIA
- : proposed SWIM projects by BSM

D P W H : Department of Public Works and Highways
 N I A : National Irrigation Administration
 B S M : Bureau of Soils and Water Management

Scale 1/500,000

TRANSVERSE MERCATOR PROJECTION
 CLAUDE STRONG 1866 LIGNUM DATUM
 ELEVATIONS IN METERS ABOVE MEAN SEA LEVEL
 INTERVAL OF APPROXIMATE CONTOURS 100 METERS

Fig. 33 Location Map of Qualified SWIM Projects (33/34)



- LEGEND:**
- : proposed SWIM projects by TRM
 - : proposed SWIM projects by NIA
 - : proposed SWIM projects by BSMN
 - DPWH : Department of Public Works and Highways
 - NIA : National Irrigation Administration
 - BSMN : Bureau of Soils and Water Management

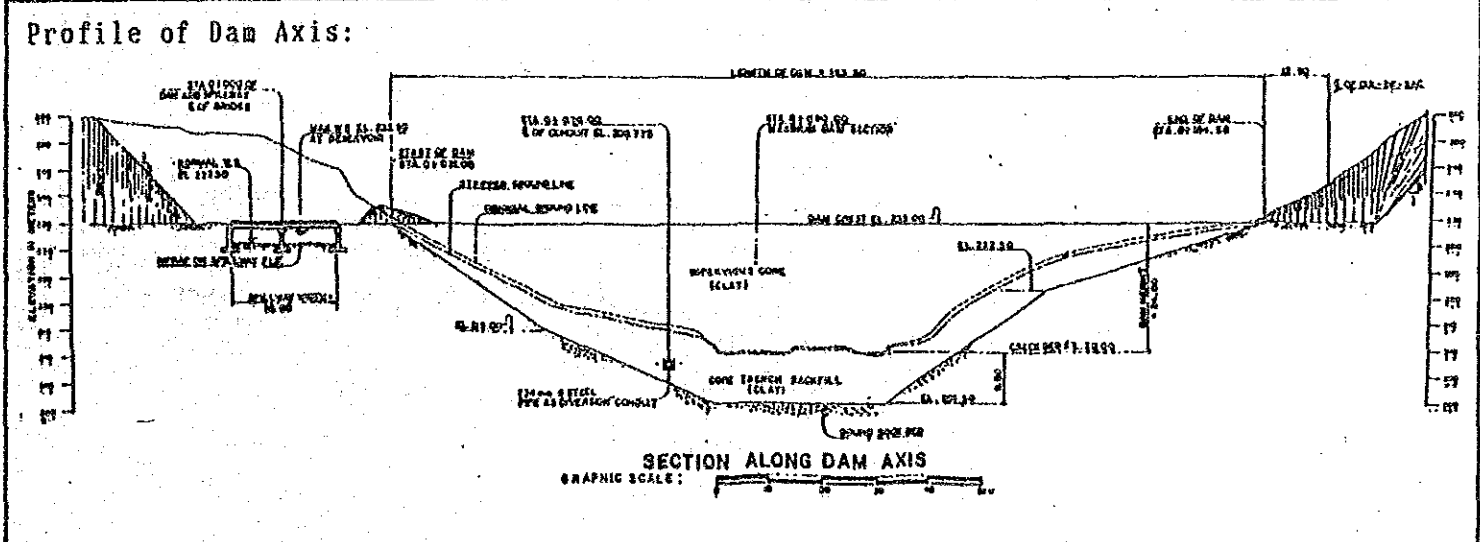
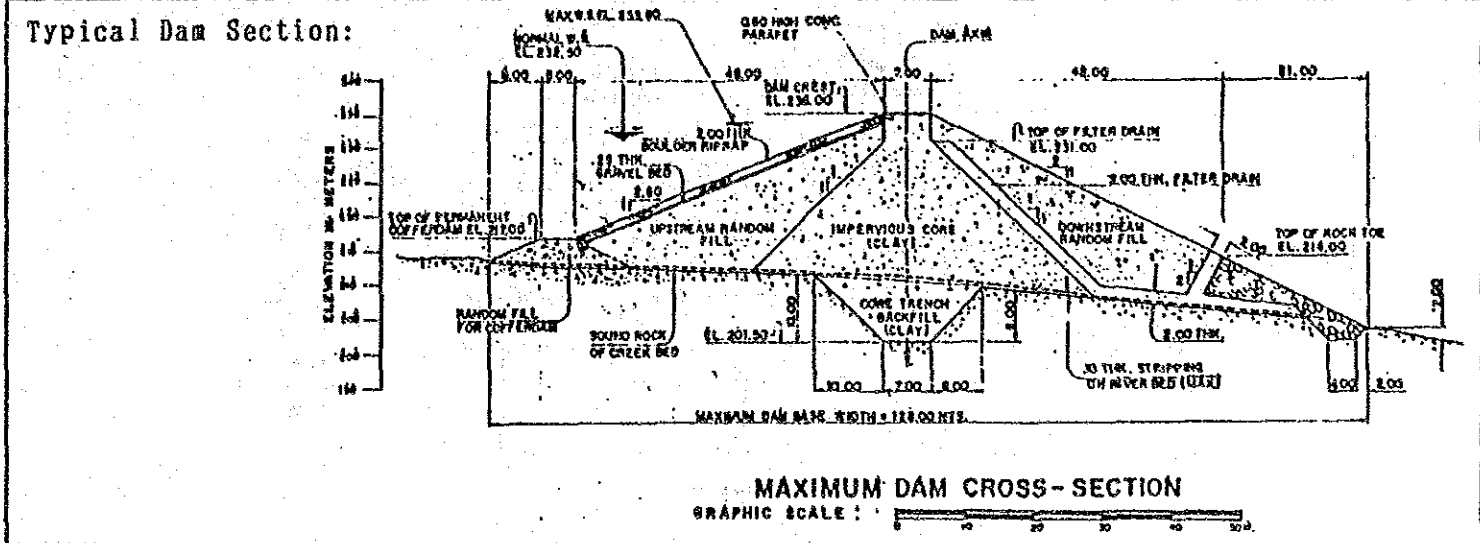
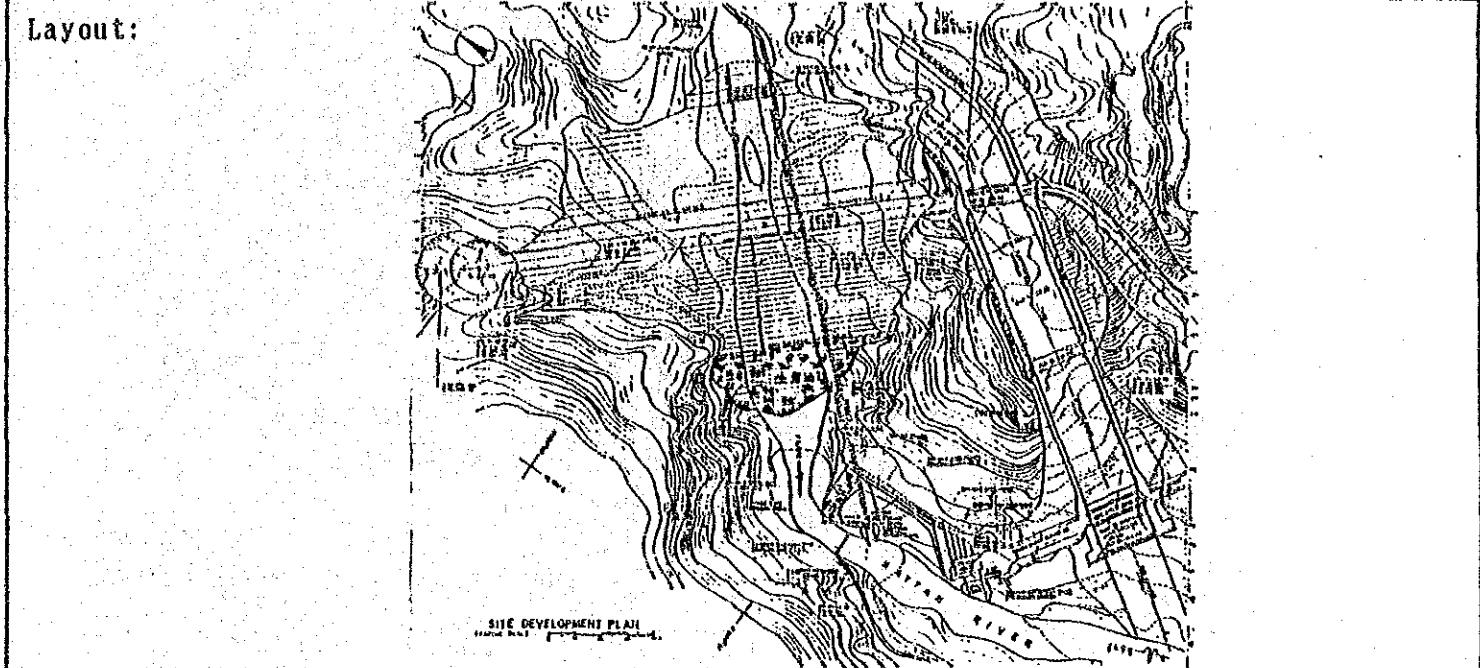
Scale 1/500,000

TRANSVERSE MERCATOR PROJECTION
 CLARKE SPHEROID 1856 LUZON DATUM
 ELEVATIONS IN METERS ABOVE MEAN SEA LEVEL
 INTERVAL OF APPROXIMATE CONTOURS 100 METERS

Fig. 34 Location Map of Qualified SWIM Projects (34/34)

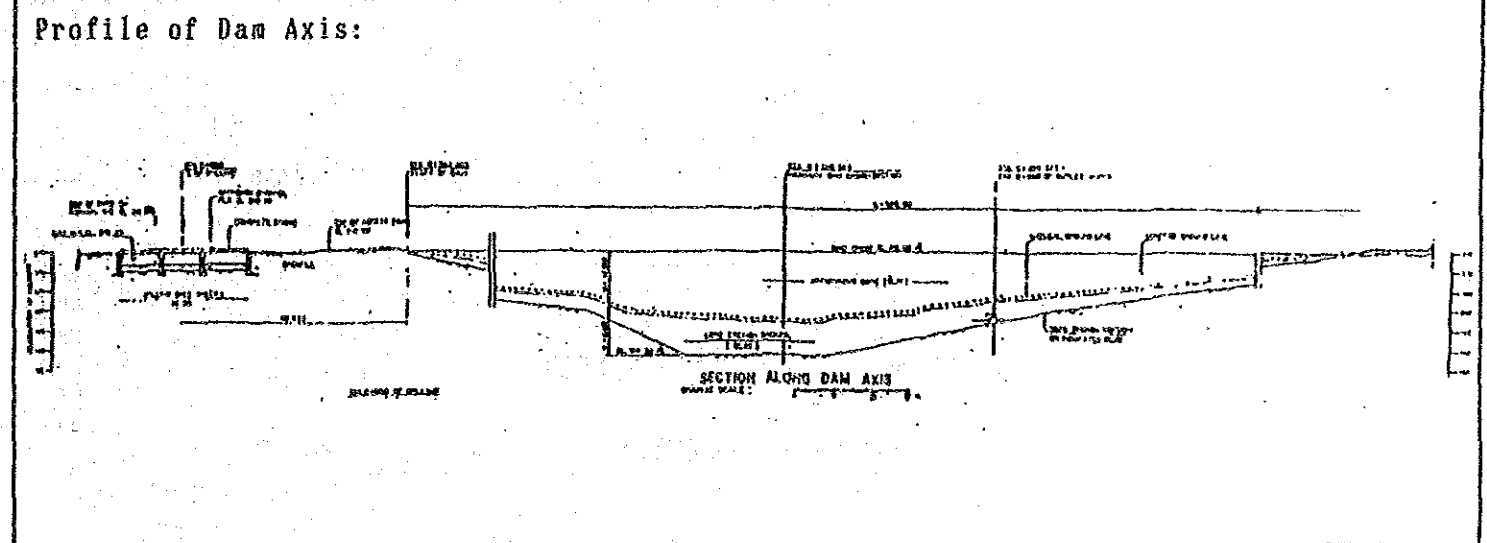
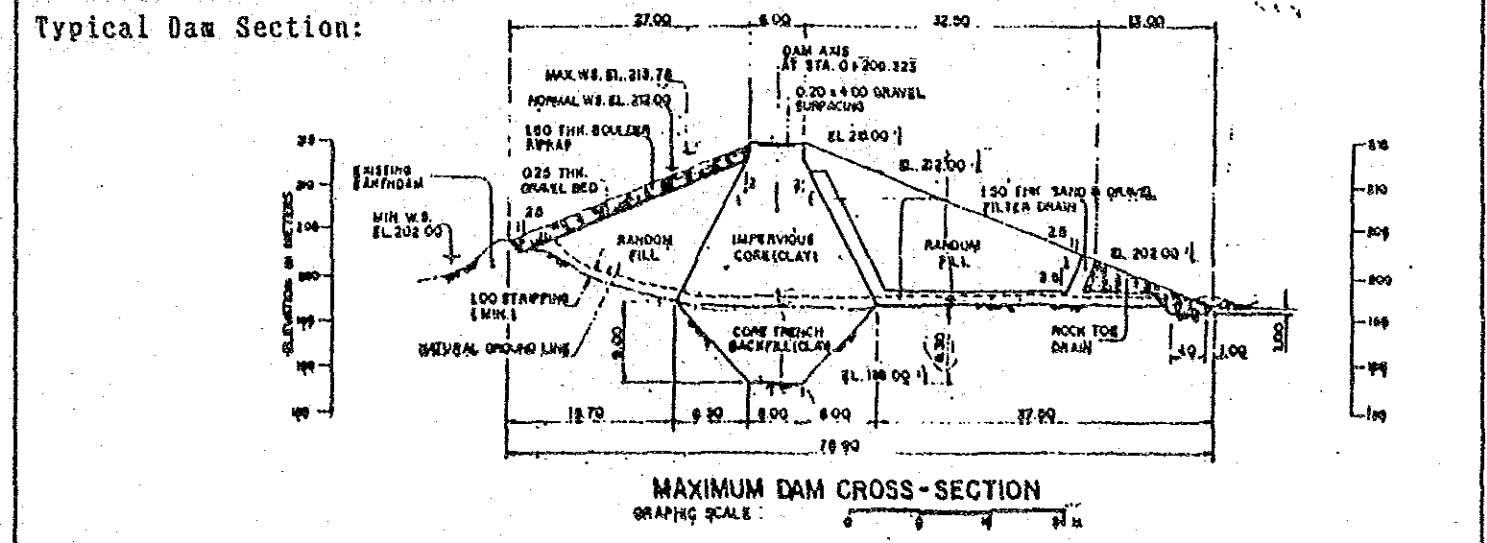
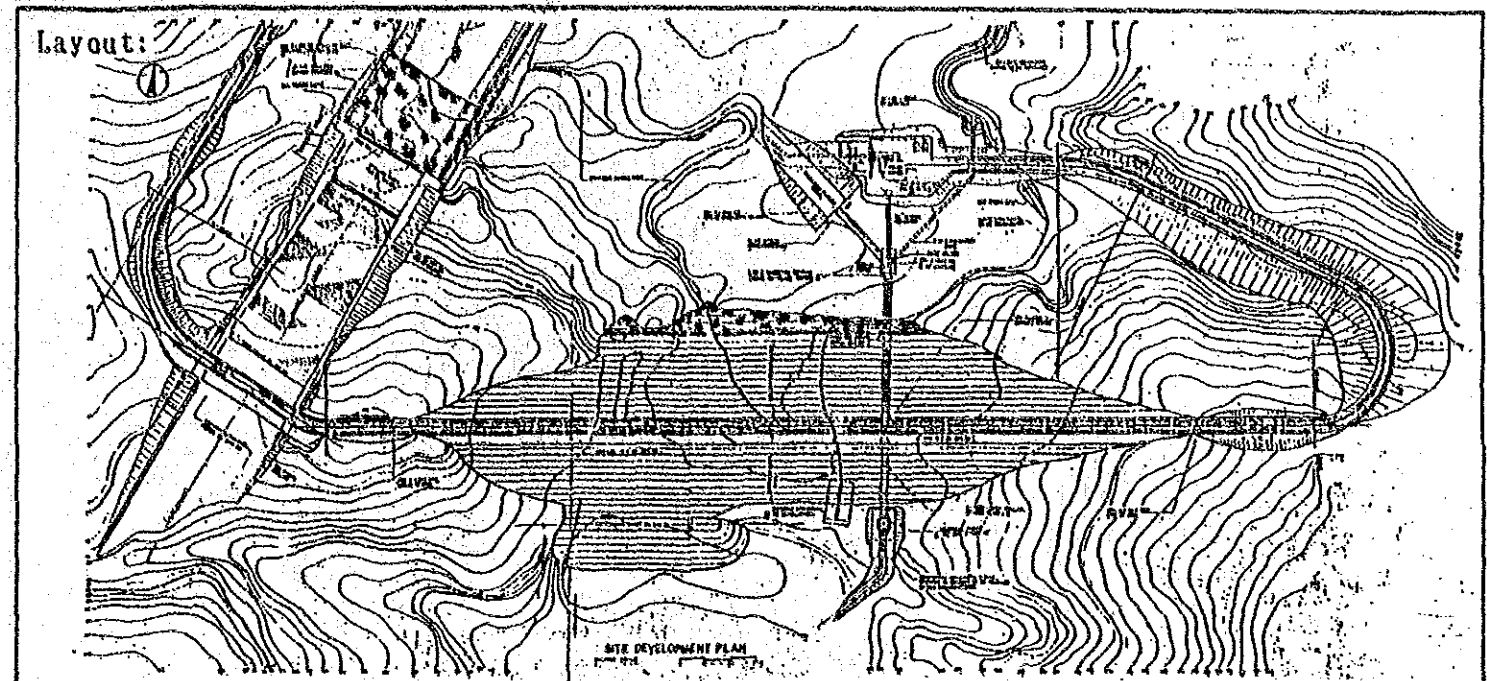
SWIM PROJECT PROFILE

SWIM PROJECT PROFILE		File No. : 1
Regist. No. : Agency No. : DPWH-1	Name: SAYTAN DAM & RESERVOIR SWIP	
Region: 1	Province: LA UNION	Municipality: SAYTAN, PUGO
Present Status: 1. Pre-F/S() ② F/S(1983) ③ D/D(-)		
Purpose: Major : Irrigation Incidental : IF, FG, MH		
Project Feature:		
1. Dam	Dam Type : ZONED EARTHFILL	
	Dam Height : 24 m	
	Effective Storage Capacity : 284,000 m ³	
	Embankment Volume : 134,000 m ³	
	Design Flood Discharge : 70 m ³ /sec.	
2. Irrigation	Irrigation Area : 100 ha	
3. Mini-hydropower	Installed Capacity : 120 kW	
4. Watershed Man.	Watershed Protection Area : 0 ha	
5. Water Supply	Design Supply Capacity : 0 m ³ /day	
6. Inland Fishery	Annual Production : 5 ton/year	
Technical Assessment:		
1. Survey and Investigation: Geological structure shall be clarified besides bearing capacity and permeability. Quarry site of filter material in zoning shall be investigated. Soil mechanical test for the dam embankment materials shall be carried out.		
2. Planning Mini-hydro. benefit and annual production of inland fishery are over-estimated. Project planning shall be re-formulated.		
3. Design Form and depth of core trench should be decided after investigation of the dam foundation. In case of rock foundation, grouting works is necessary to prevent the percolation through cracks in the foundation. Some design modification of spillway and outlet works are necessary.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 323	EIRR : -0.3 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 0	Group : B
4. Construction		Implementation Schedule:
Dam	: 33,125	Review : 1993
Irrigation	: 2,219	F/S : Completed
Mini-hydropower	: 4,937	D/D : Completed
Water Supply	: 0	Construction: Jan. 2000; 12 months
Watershed Protection	: 0	
5. Grand Total	: 40,605	



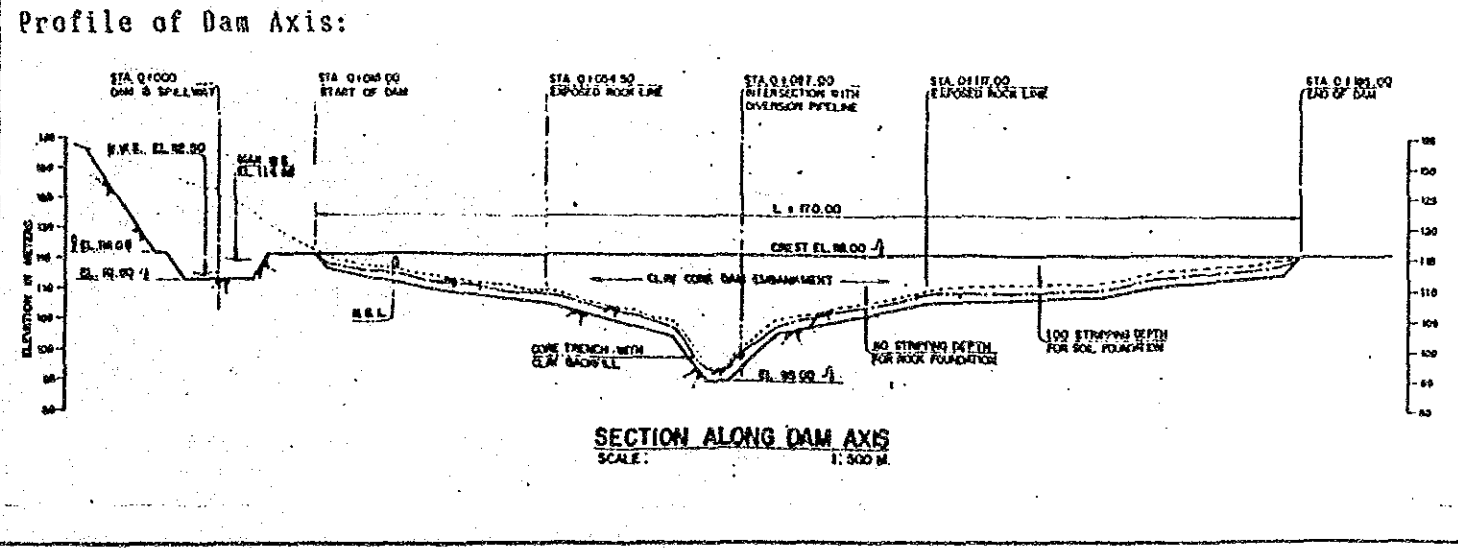
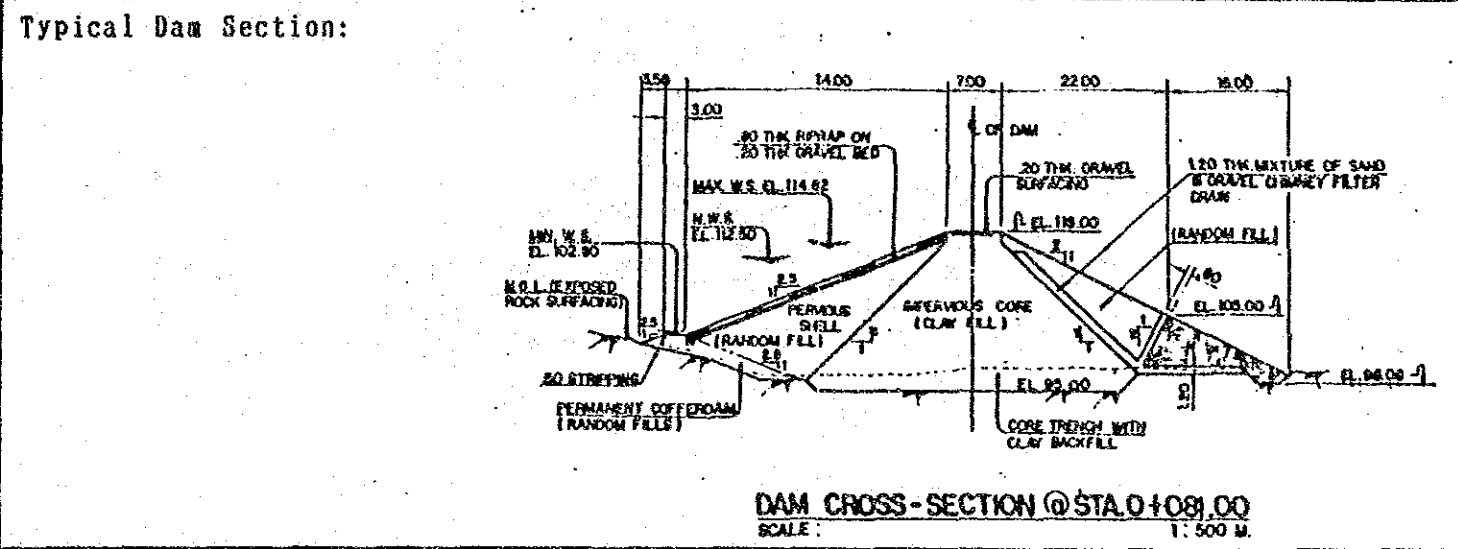
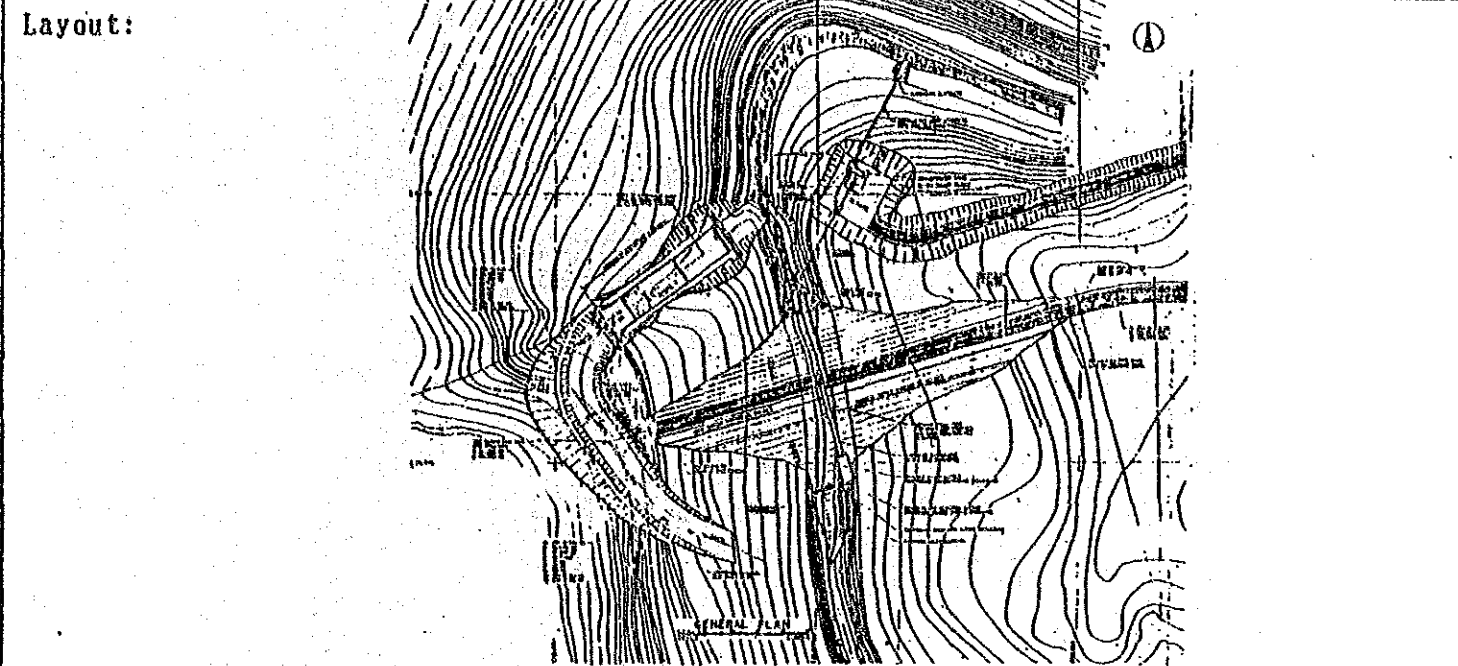
Note:
The foundation material is assumed to be impervious.

SWIM PROJECT PROFILE		File No. : 2
Regist. No. : Agency No. : DPWH-2	Name: BOLO DAM & RESERVOIR SWIP	
Region: CAR	Province: KALINGA-APAYAO	Municipality: TABUK
Present Status: 1. Pre-F/S() ② F/S(-) ③ D/D(-)		
Purpose: Major : Irrigation Incidental : IF, FC, MH		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 17 m
	: Effective Storage Capacity	: 1,400,000 m ³
	: Embankment Volume	: 167,200 m ³
	: Design Flood Discharge	: 193 m ³ /sec.
2. Irrigation	: Irrigation Area	: 430 ha
3. Mini-hydropower	: Installed Capacity	: 178 kW
4. Watershed Man.	: Watershed Protection Area	: 0 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 42 ton/year
Technical Assessment:		
1. Survey and Investigation: Permeability and bearing capacity of the dam foundation shall be measured. Soil mechanical test for the dam embankment shall be conducted. Excavation materials of the spillway can be used for the dam embankment.		
2. Planning Mini-hydro benefit and annual production of inland fishery are over-estimated.		
3. Design Inlet of the outlet works is recommended to be located outside of the dam embankment. Width of the supercritical flow section is recommended to be uniform.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 17.1 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 0	Group : A
4. Construction	: 32556	(OECF Candidate)
Dam	: 9541	Implementation Schedule:
Irrigation	: 5586	Review : -
Mini-Hydropower	: 0	F/S : Completed
Water Supply	: 0	D/D : Completed
Watershed Protection	: 0	Construction: within 1st 5 years
5. Grand Total	: 47693	



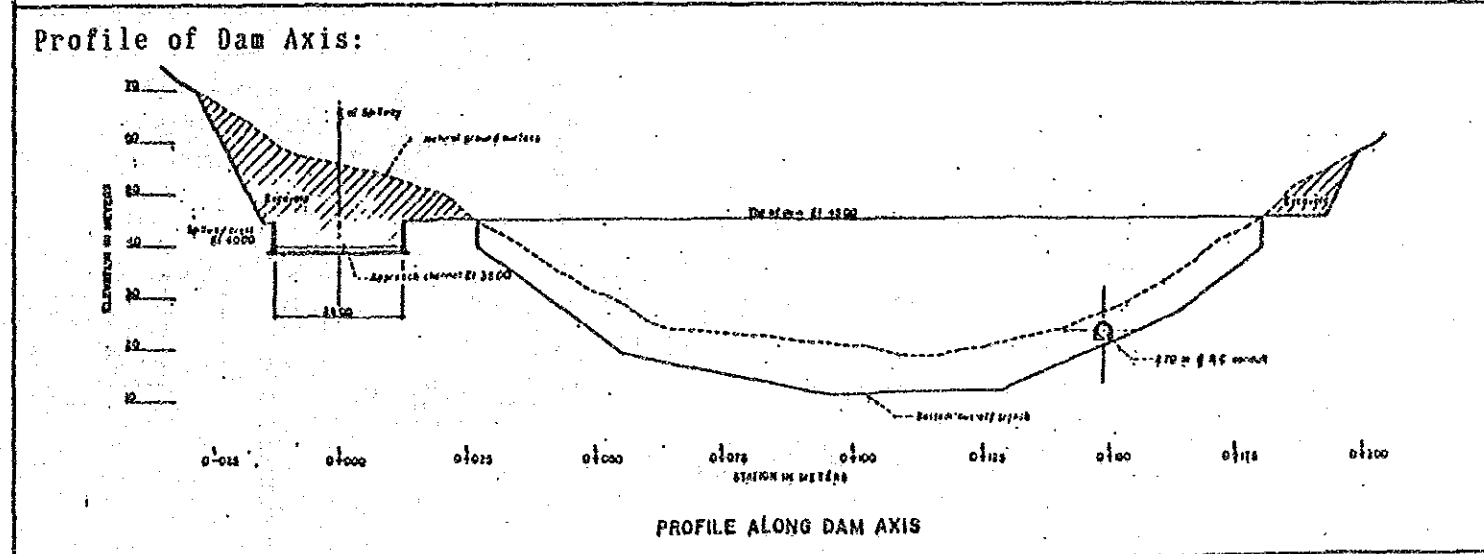
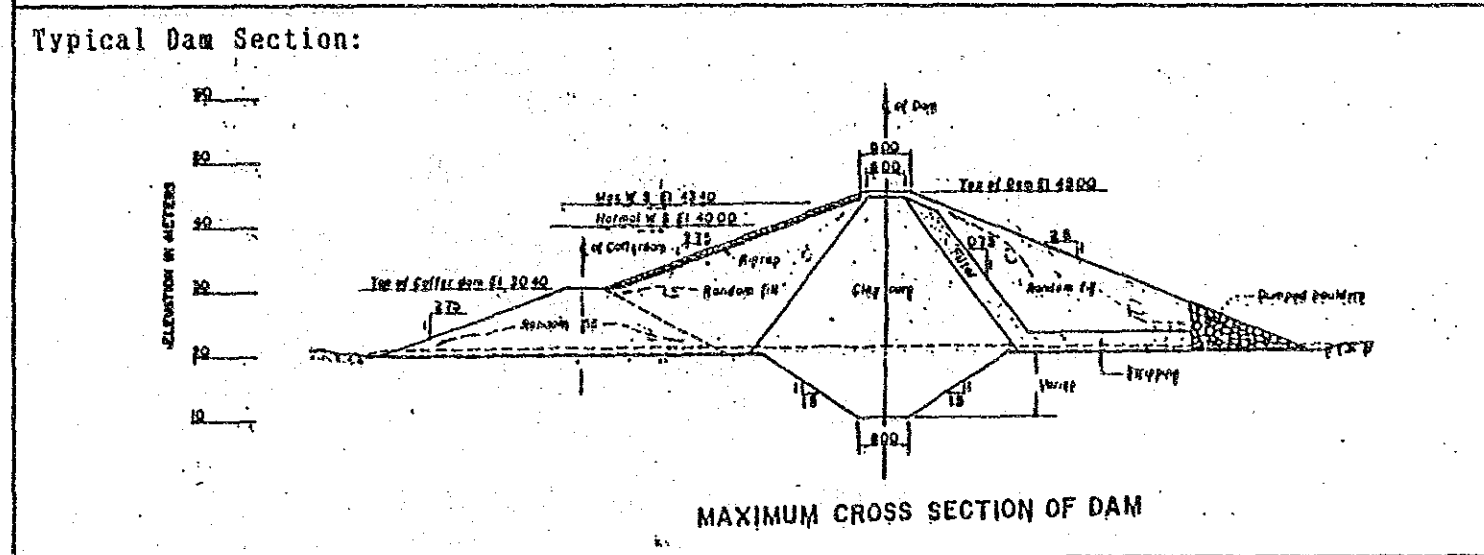
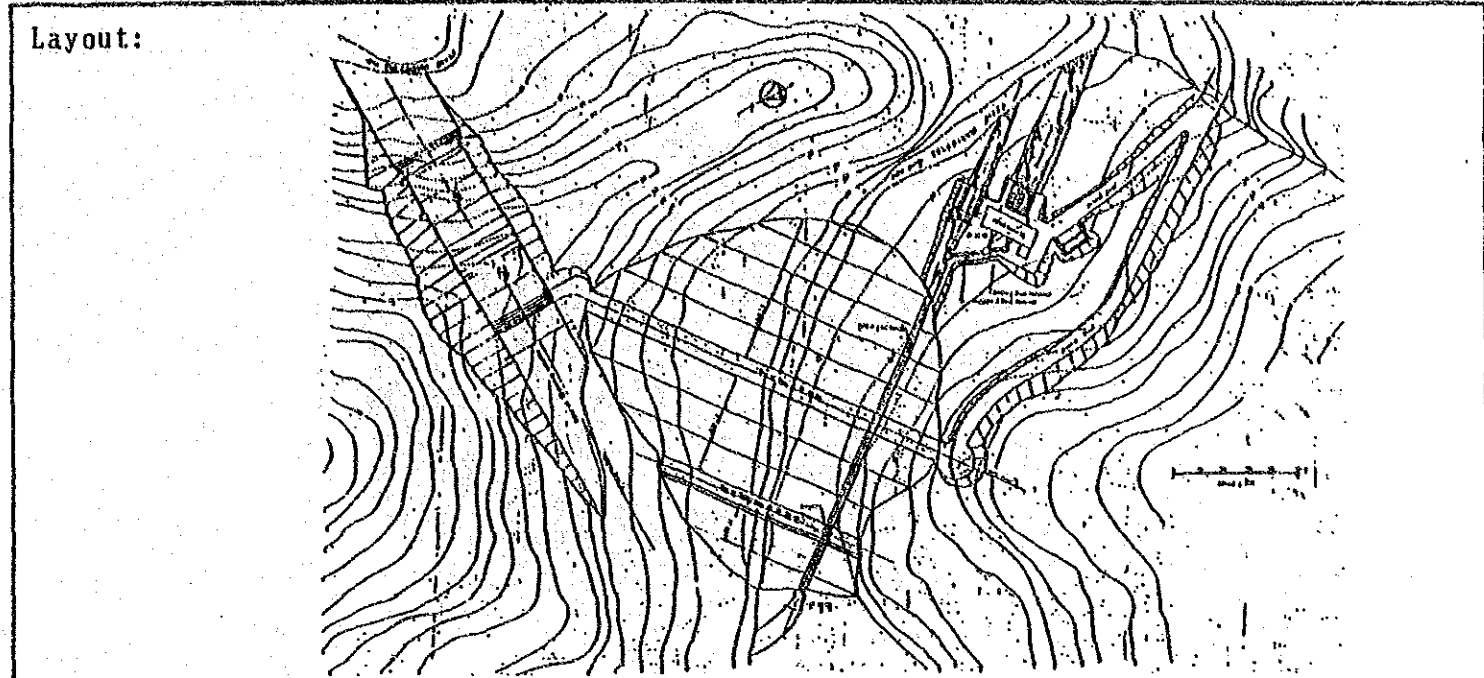
Note:
The foundation is assumed to be relatively impervious ($K < 10^{-5}$ cm/sec) underlying the river story deposits with 4.3 m depth, which is suitable against percolation.

SWIM PROJECT PROFILE		File No. : 3
Regist. No. : Agency No. : DPWH-3	Name: SACRIFICE VALLEY DAM & RESERVOIR SWIP	
Region: 3	Province: BATAAN	Municipality: HERMOSA
Present Status: 1. Pre-F/S() 2. F/S(1985) 3. D/D()		
Purpose: Major : Water Supply Incidental : IF, FC, WM		
Project Feature:		
1. Dam	Dam Type : ZONED EARTHFILL	
	Dam Height : 19 m	
	Effective Storage Capacity : 182,000 m ³	
	Embankment Volume : 46,690 m ³	
	Design Flood Discharge : 72 m ³ /sec.	
2. Irrigation	Irrigation Area : - ha	
3. Mini-hydropower	Installed Capacity : - kW	
4. Watershed Man.	Watershed Protection Area : 105 ha	
5. Water Supply	Design Supply Capacity : 409 m ³ /day	
6. Inland Fishery	Annual Production : 8 ton/year	
Technical Assessment:		
1. Survey and Investigation: Scale of topographic map for the dam site shall be more than 1/500. No permeability test is conducted. Available volume for the dam embankment shall be estimated before construction.		
2. Planning Water distribution system in water supply plan is not formulated. Annual production of inland fishery is over-estimated. Watershed management plan is not formulated. Project planning shall be re-formulated.		
3. Design Excavation line near the river bed shall be slightly changed to avoid differential settlement. Blanket grouting in the outcropped river bed is required to prevent the percolation in the foundation. Pier of bridge for access to the tower shall be planned on the natural ground. Diversion discharge is not mentioned.		
4. Operation and Maintenance Not studied		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 175	EIRR : 7.0 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 1,205	Group : B
4. Construction	:	Implementation Schedule:
Dam	: 15,524	Review : 1993
Irrigation	: 0	F/S : Completed
Mini-Hydropower	: 0	D/D : 1998
Water Supply	: 7,264	Construction: Jan. 2000; 8 months
Watershed Protection	: 3,160	
5. Grand Total	: 27,329	



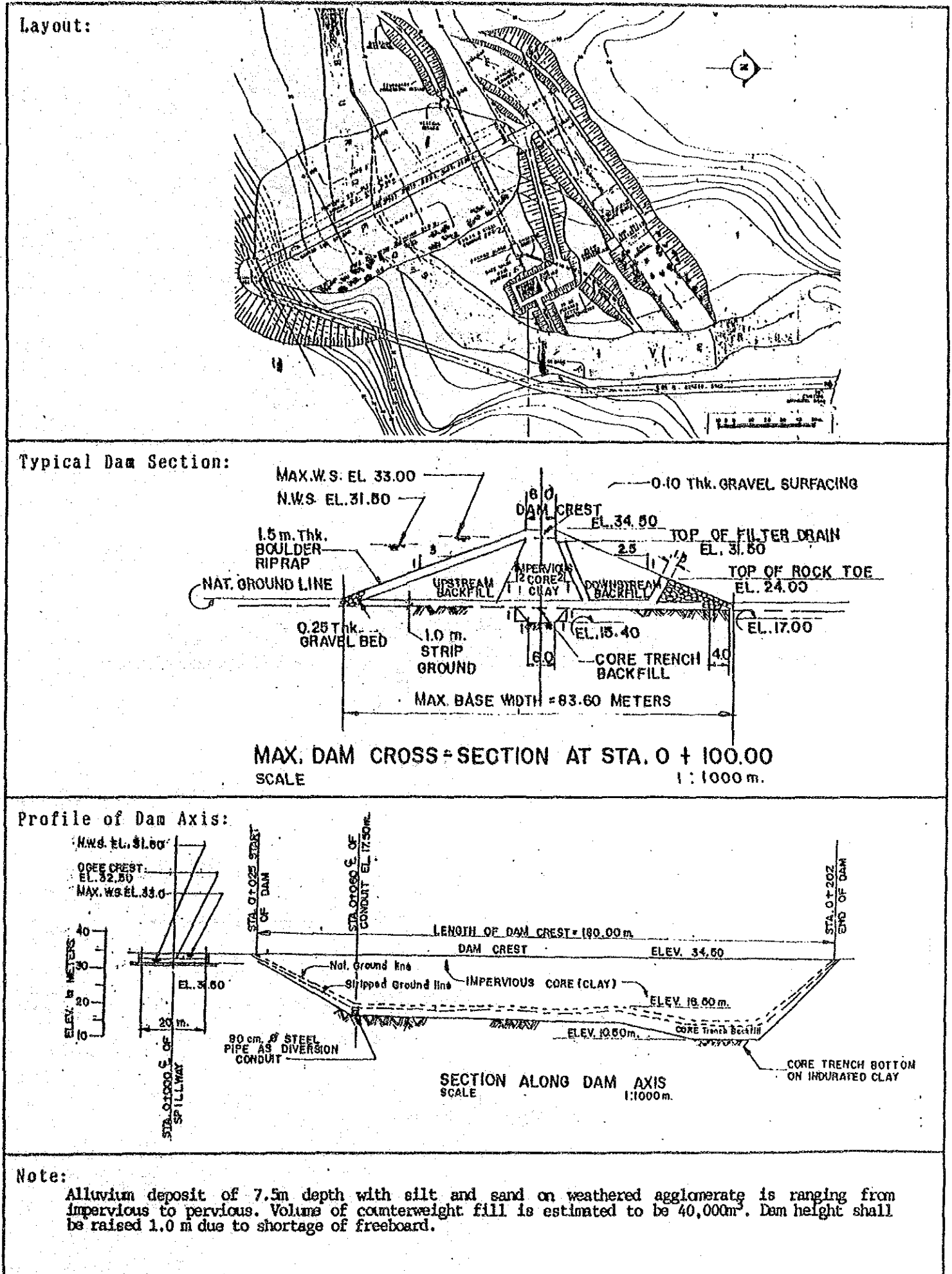
Note:
Slope of excavation line near the riverbed shall be changed to be moderately (additional excavation volume is about 23,000 m³). Grouting under blanket (grouting length is about 350 m) is necessary.

SWIM PROJECT PROFILE		File No. : 4
Regist.No. : Agency No. : DPWH-6	Name: TULARIQUIN DAM & RESERVOIR SWIP	
Region: 4	Province: PALAWAN	Municipality: ROXAS
Present Status: 1. Pre-F/S() ② F/S(1983) ③ D/D(-)		
Purpose: Major : Watershed Management Incidental : IF, FC, WM		
Project Feature:		
1. Dam	Dam Type : ZONED EARTHFILL	
	Dam Height : 25 m	
	Effective Storage Capacity : 1,910,000 m ³	
	Embankment Volume : 197,000 m ³	
	Design Flood Discharge : 358 m ³ /sec.	
2. Irrigation	Irrigation Area : - ha	
3. Mini-hydropower	Installed Capacity : 600 kW	
4. Watershed Man.	Watershed Protection Area : 1,235 ha	
5. Water Supply	Design Supply Capacity : 0 m ³ /day	
6. Inland Fishery	Annual Production : 46 ton/year	
Technical Assessment:		
1. Survey and Investigation: Scale of the topographic maps shall be more than 1/500 for the dam site and 1/2,000 for the reservoir site. Additional boring is necessary for bearing capacity in sandy silt layer. Soil mechanical test for the dam embankment materials shall be conducted. Subsurface investigation is not enough for alluvium stratum.		
2. Planning Mini-hydro. benefit and annual production of inland fishery are over-estimated. Watershed management plan is not formulated. Project planning shall be re-formulated.		
3. Design Drainage of seepage water in core trench is difficult in proposed 10 m depth. Inlet of outlet works is recommended to be located in outside of the dam embankment.		
4. Operation and Maintenance Not studied.		
Fund Requirement:(1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 560	EIRR : 5.3 %
2. Feasibility Study	: 0	
3. Detailed Design	: 0	Priority Rating:
4. Construction	:	Group : B
Dam	: 48,497	Implementation Schedule:
Irrigation	: 0	Review : 1991
Mini-Hydropower	: 21,548	F/S : Completed
Water Supply	: 0	D/D : Completed
Watershed Protection	: 18,010	Construction: Jan.1999;21 months
5. Grand Total	: 88,615	

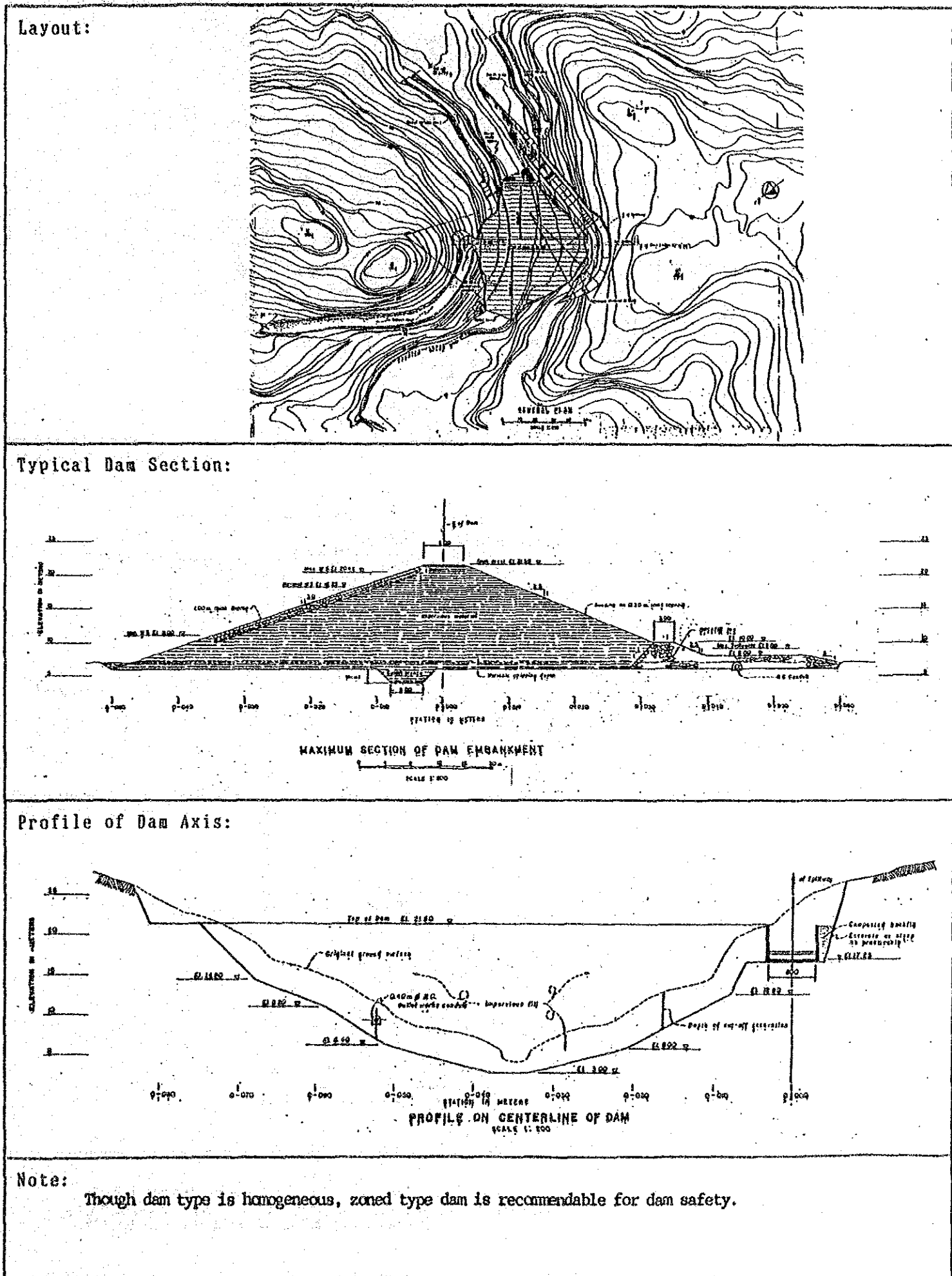


Note:
Grouting under core trench in case of trench depth being less than 5m, and cut-off upstream in case of trench depth being more than 5m are recommended for sound construction.
(Grouting length=4,500m, excavation volume for upstream=38,400 m³)

SWIM PROJECT PROFILE		File No. : 5
Regist. No. : Agency No. : DPWH-7	Name: BURDEOS RIVER SWIP	
Region: 4	Province: QUEZON	Municipality: BURDEOS, POLILLO ISLAND
Present Status: 1. Pre-F/S() ② F/S(1984) ③ D/D(-)		
Purpose: Major : Irrigation Incidental : IF, FC, MH, WM		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 19 m
	: Effective Storage Capacity	: 730,000 m ³
	: Embankment Volume	: 157,509 m ³
	: Design Flood Discharge	: 239 m ³ /sec.
2. Irrigation	: Irrigation Area	: 250 ha
3. Mini-hydropower	: Installed Capacity	: 400 kW
4. Watershed Man.	: Watershed Protection Area	: 370 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 21 ton/year
Technical Assessment:		
1. Survey and Investigation: Bearing capacity and permeability in alluvium river bed shall be measured. Soil mechanical test for the dam embankment materials shall be conducted.		
2. Planning Agricultural benefit, mini-hydro. benefit and annual production of inland fishery are over-estimated. Watershed management plan is not formulated. Construction cost is not properly estimated. Project planning shall be re-formulated.		
3. Design Impermeable blanket cut-off in upstream are recommendable and counterweight is necessary to prevent sliding on soft foundation. Freeboard is not enough for 200 years' flood. Transition of energy dissipator in downstream is not smooth. Inlet of outlet works is recommended to be located in outside of the dam embankment.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 965	EIRR : 1.8 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 0	Group : B
4. Construction	:	Implementation Schedule:
Dam	: 41,399	Review : 1982
Irrigation	: 5,547	F/S : Completed
Mini-Hydropower	: 13,221	D/D : Completed
Water Supply	: 0	Construction: Jul. 1989; 18 months
Watershed Protection	: 10,800	
5. Grand Total	: 71,932	



SWIM PROJECT PROFILE		File No. : 6
Regist.No. : Agency No. : DPWH-8	Name: SAN JOSE DAM & RESERVOIR SWIP	
Region: 4	Province: RIZAL	Municipality: MORONG
Present Status: 1. Pre-F/S() (2) F/S(1983) (3) D/D(-)		
Purpose: Major : Irrigation Incidental : IF, FC		
Project Feature:		
1. Dam	: Dam Type	: HOMOGENEOUS EARTHFILL
	: Dam Height	: 17 m
	: Effective Storage Capacit	: 255,000 m3
	: Embankment Volume	: 28,750 m3
	: Design Flood Discharge	: 45 m3/sec.
2. Irrigation	: Irrigation Area	: 21 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 0 ha
5. Water Supply	: Design Supply Capacity	: 0 m3/day
6. Inland Fishery	: Annual Production	: 8 ton/year
Technical Assessment:		
1. Survey and Investigation: Additinal investigation for Metro-Hydro shall be conducted. Permeability test in the dam foundation shall be conducted. Soil mechanical test for the dam embankment materials shall be conducted.		
2. Planning Agricultural production of inland fishery is over-estimated. Project planning shall be re-formulated.		
3. Design Zoned type with impervious blanket is recommended instead of proposed homogenous type. Some measures against percolatdion failure on the contact face between embankment and spillway shall be considered. Centerline of the conduit of outlet works is recommended to be straight.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 140	EIRR : 1.4 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 0	Group : B
4. Construction	: 8,309	Implementation Schedule:
Dam	: 542	Review : 1993
Irrigation	: 0	F/S : Completed
Mini-Hydropower	: 0	D/D : Completed
Water Supply	: 0	Construction: Jul.1999;9 months
Watershed Protection	: 0	
5. Grand Total	: 8,991	

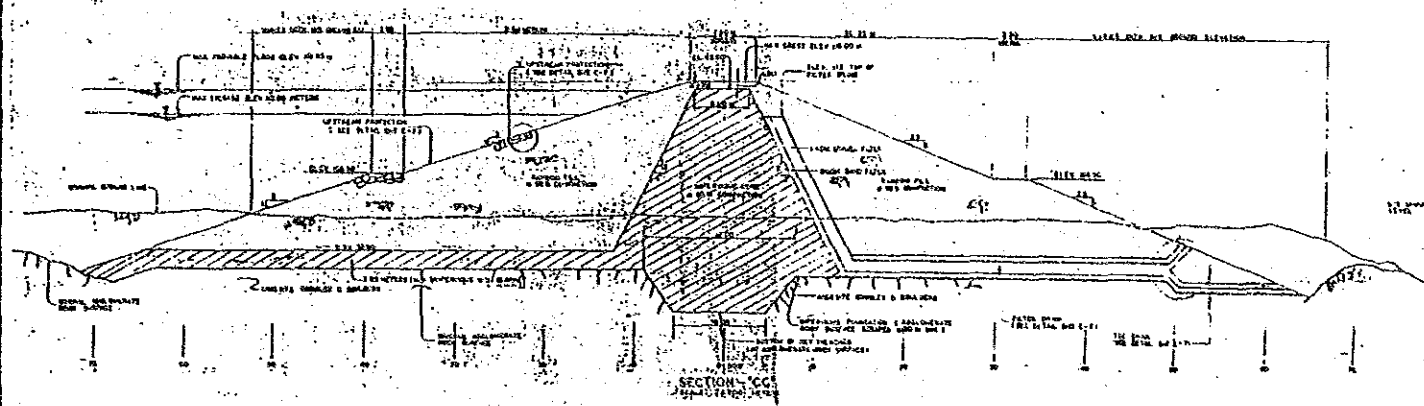


SWIM PROJECT PROFILE		File No. : 7
Regist.No. : Agency No. : DPWH-9	Name: CUBACUB DAM & RESERVOIR SWIP	
Region: 4	Province: RIZAL	Municipality: PILILLA
Present Status: 1. Pre-F/S() ② F/S(1981) ③ D/D(-)		
Purpose: Major : Irrigation Incidental : FC, MH		
Project Feature:		
1. Dam	Dam Type : ZONED EARTHFILL	
	Dam Height : 28 m	
	Effective Storage Capacity : 402,000 m ³	
	Embankment Volume : 102,424 m ³	
	Design Flood Discharge : 211 m ³ /sec.	
2. Irrigation	Irrigation Area : 450 ha	
3. Mini-hydropower	Installed Capacity : - kW	
4. Watershed Man.	Watershed Protection Area : 0 ha	
5. Water Supply	Design Supply Capacity : 0 m ³ /day	
6. Inland Fishery	Annual Production : 10 ton/year	
Technical Assessment:		
1. Survey and Investigation:		
Investigation for Meteo-hydro shall be conducted.		
Scale of topographic map for reservoir site shall be more than 1/2,000.		
Depth of cobbles and boulders shall be clarified.		
Soil mechanical test for the dam embankment materials shall be conducted.		
2. Planning		
Run-off analysis and determination of reservoir capacity are not properly studied.		
Environmental conservation plan is not formulated.		
Construction cost and economic evaluation are not properly estimated.		
3. Design		
Continuous underground wall joining with the blanket is recommended instead of the core trench.		
Spillway is recommended to be changed from drop inlet type to chute type one.		
Freeboard in the spillway is slightly small comparing with its water depth.		
Design of appurtenant structures is not conducted.		
4. Operation and Maintenance		
Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 377	EIRR : 11.0 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 0	Group : A
4. Construction		(OECF Candidate)
Dam	: 36,969	Implementation Schedule:
Irrigation	: 9,984	Review : within 1st 5 years
Mini-Hydropower	: 0	F/S : Completed
Water Supply	: 0	D/D : Completed
Watershed Protection	: 0	Construction: within 1st 5 years
5. Grand Total	: 47,330	

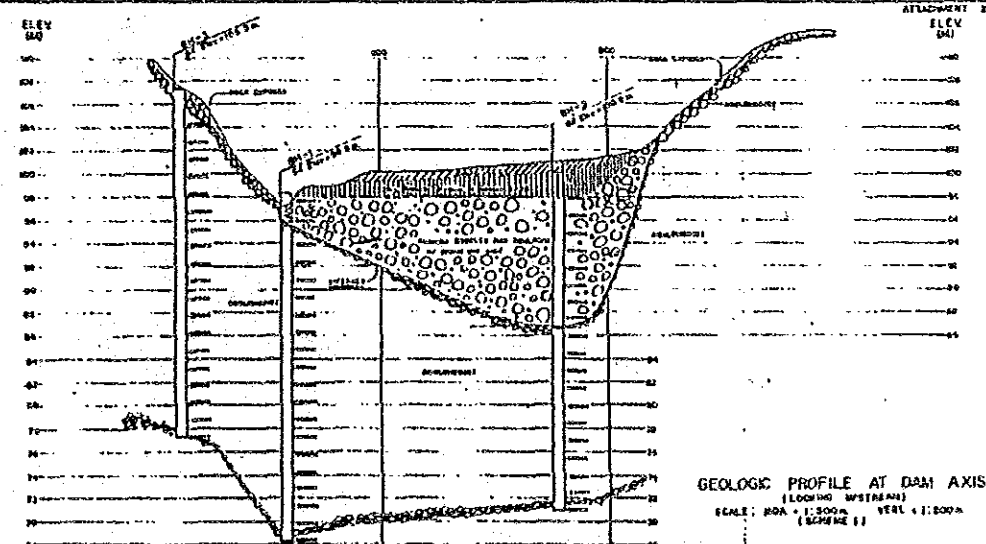
Layout:



Typical Dam Section:



Profile of Dam Axis:

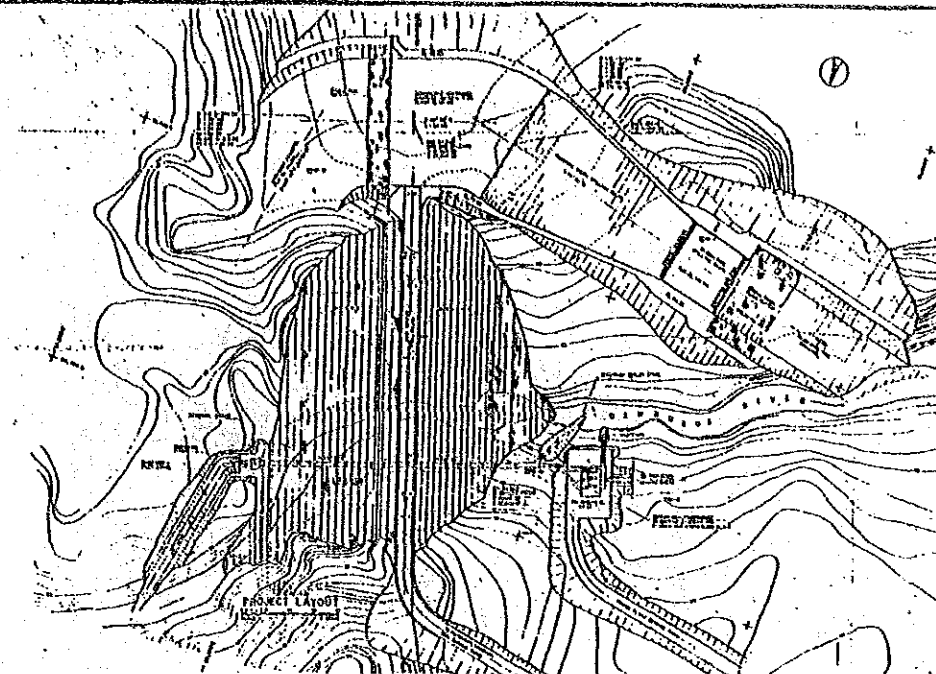


Note:

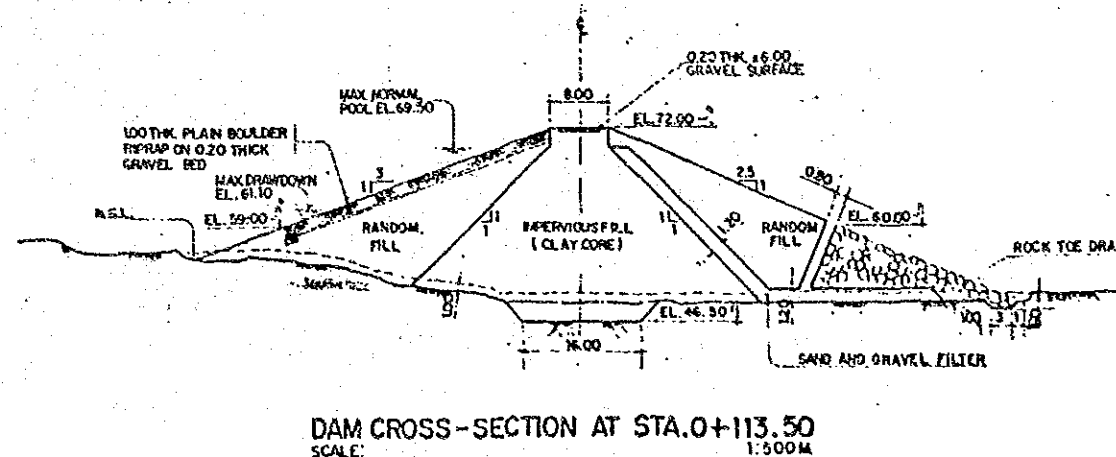
Eleven meter's deep layer of sand and gravel with permeability ($k=3 \times 10^{-2}$ cm/sec) covers river bed. Continuous underground wall, of which area is roughly 620 m² is estimated. Dam height shall be raised 0.5 m because of freeboard shortage.

SWIM PROJECT PROFILE		File No. : 8
Regist.No. : Agency No. : DPWH-11	Name: DEBESMAC DAM & RESERVOIR SWIP	
Region: 5	Province: MASBATE	Municipality: MANDAON
Present Status: 1. Pre-F/S() ② F/S(1986) 3. D/D()		
Purpose: Major : Mini-hydropower Incidental : IF, FC, IR, WS, WM		
Project Feature:		
1. Dam	Dam Type : ZONED EARTHFILL Dam Height : 22 m Effective Storage Capacity : 2,350,000 m3 Embankment Volume : 132,610 m3 Design Flood Discharge : 245 m3/sec.	
2. Irrigation	Irrigation Area : 200 ha	
3. Mini-hydropower	Installed Capacity : 350 kW	
4. Watershed Man.	Watershed Protection Area : 1,855 ha	
5. Water Supply	Design Supply Capacity : 800 m3/day	
6. Inland Fishery	Annual Production : 78 ton/year	
Technical Assessment:		
1. Survey and Investigation: Topographic maps shall be coverd the whole project area in a scale of 1/500. Scale of the topographic map for reservoir site is not mentioned. Soil mechanical test for the dam embankment materials shall be conducted.		
2. Planning Scale of mini-hydropower is not suitable. Mini-hydro. beniefit is over-esitimated. Water supply plan and watershed management plan are not formulated.		
3. Design Contact clay shall be laid on the base of core trench to prevent the percoliation failure through the contact face. Width of supercritical flow section in the spillway should be uniform.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 12.1 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 2,766	Group : B
4. Construction	:	Implementation Schedule:
Dam	: 35,175	Review : -
Irrigation	: 4,639	F/S : Completed
Mini-Hydropower	: 12,305	D/D : 1995
Water Supply	: 0	Construction: Jul.1996;12 months
Watershed Protection	: 19,880	
5. Grand Total	: 74,765	

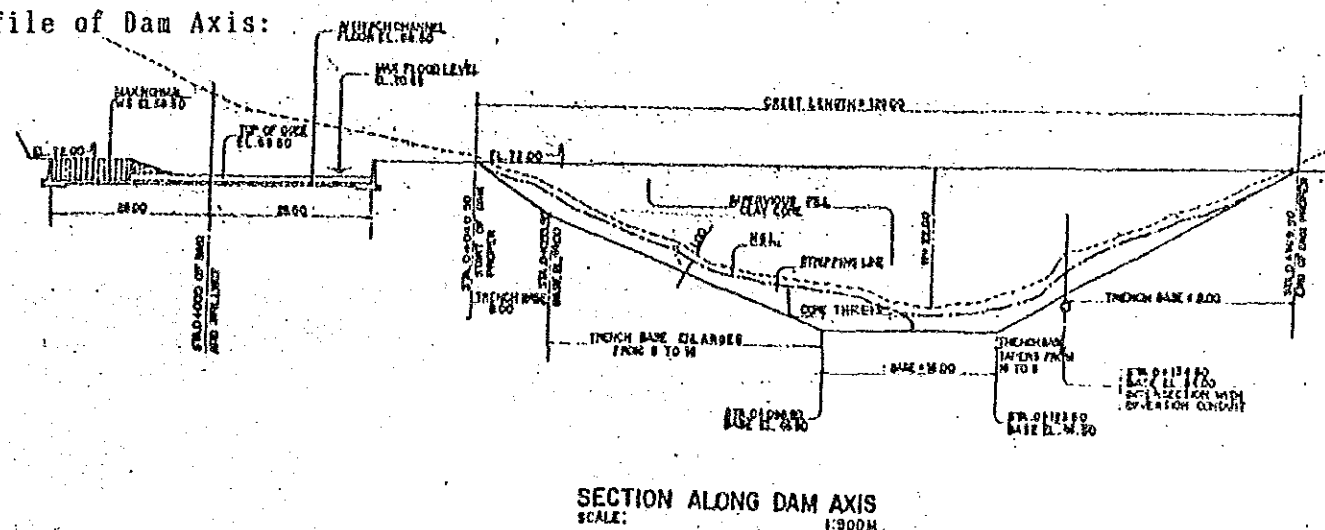
Layout:



Typical Dam Section:



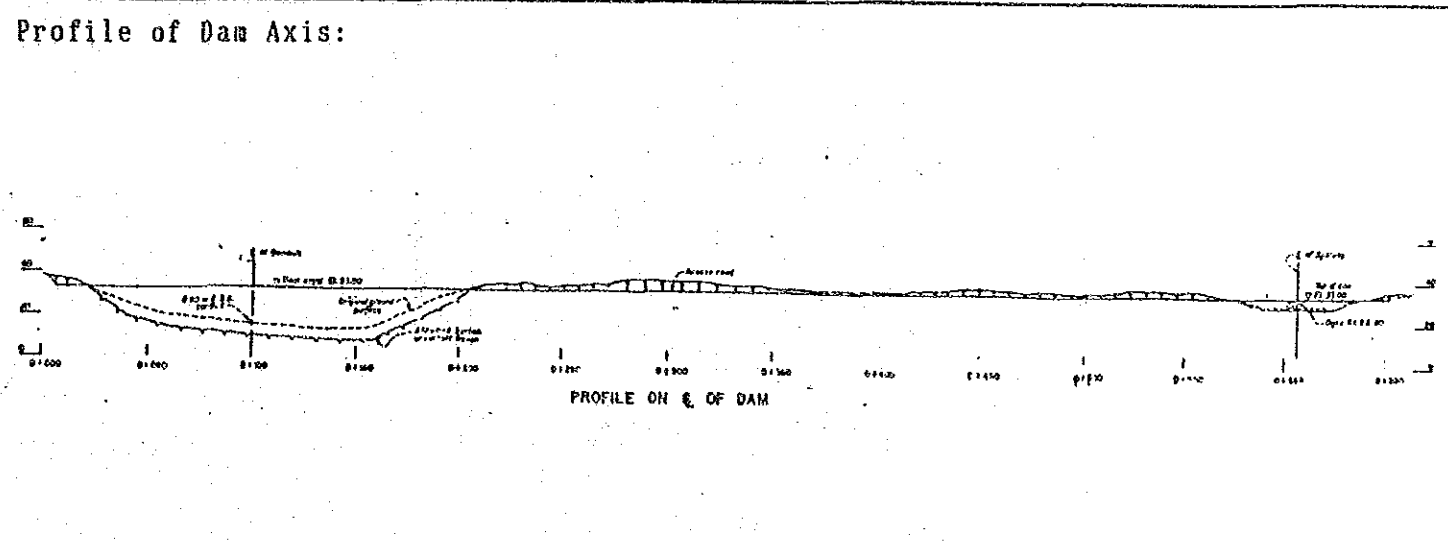
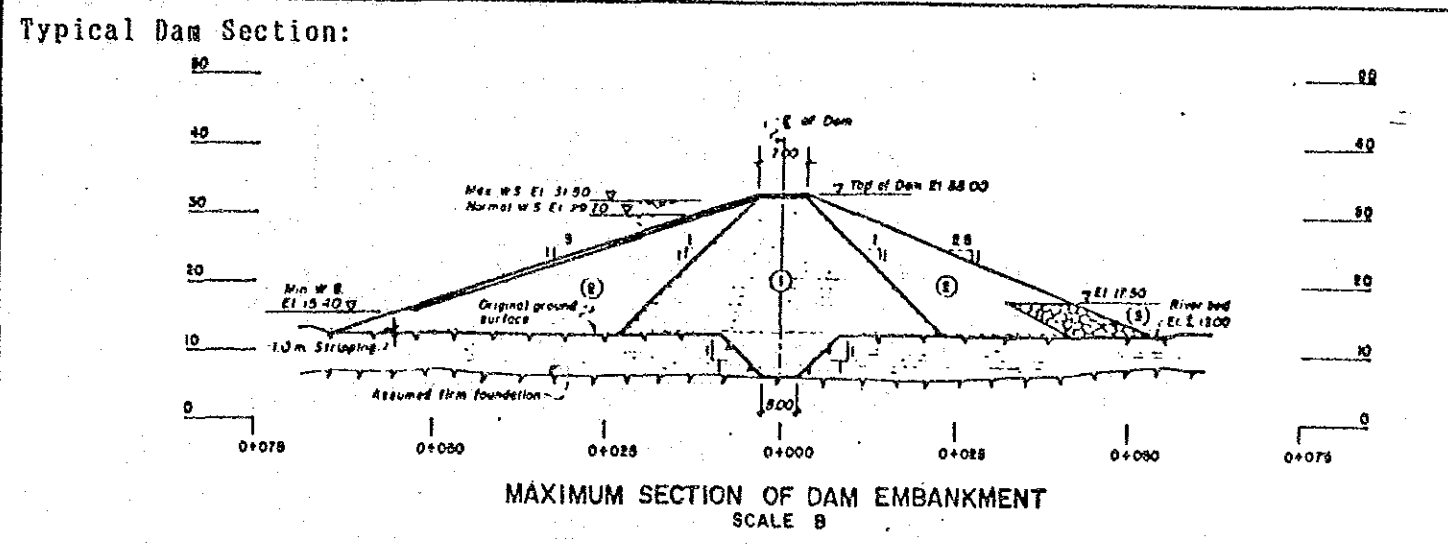
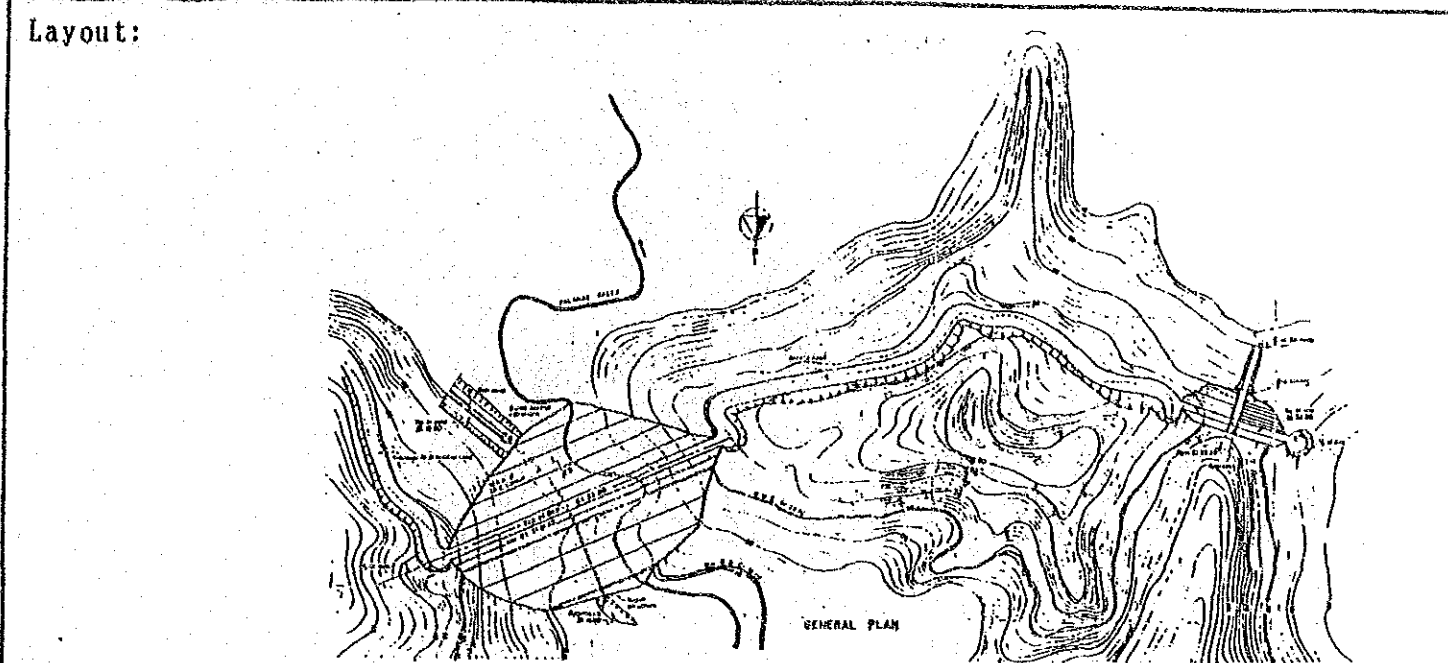
Profile of Dam Axis:



Note:

High weathered clay covering in reservoir area could function effectively as natural blanket.

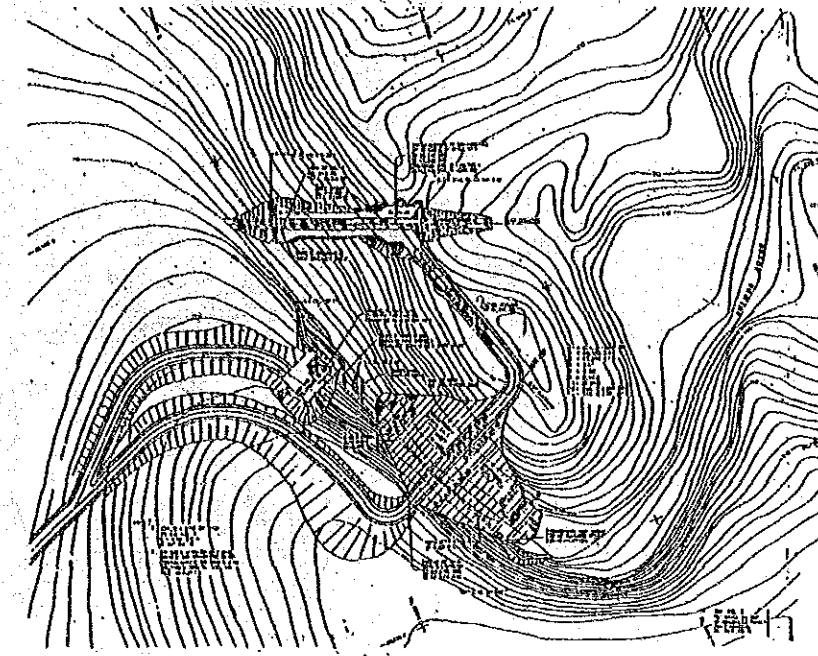
SWIM PROJECT PROFILE		File No. : 9
Regist. No. : Agency No. : DPWH-13	Name: SAN JUAN DAM & RESERVIOR SWIP	
Region: 8	Province: NORTHERN SAMAR	Municipality: MONDRAGON
Present Status: 1. Pre-F/S() ② F/1981 ③ D/D(-)		
Purpose: Major : Irrigation Incidental : IF, FC		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 20 m
	: Effective Storage Capacity	: 1,700,000 m ³
	: Embankment Volume	: 111,550 m ³
	: Design Flood Discharge	: 18 m ³ /sec.
2. Irrigation	: Irrigation Area	: 210 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 0 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 32 ton/year
Technical Assessment:		
1. Survey and Investigation: Scale of the topographic map for the dam site should be more than 1/500. Soil mechanical test for the dam embankment materials shall be conducted.		
2. Planning Agricultural benefit is over-estimated. Environmental conservation plan is not formulated.		
3. Design Permeability of the dam foundation is $1-5 \times 10^{-4}$ cm/sec, but top clay soil act for reducing seepage. Careful compaction is needed near the spillway to prevent the percolation failure. Contact clay shall be laid on the base of core trench. Centerline of conduit of outlet works is recommended to be straight.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 15.0 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 0	Group : B
4. Construction	: 18,815	Implementation Schedule:
Dam	: 18,815	Review : -
Irrigation	: 4,659	F/S : Completed
Mini-Hydropower	: 0	D/D : Completed
Water Supply	: 0	Construction: Jan. 1996; 18 months
Watershed Protection	: 0	
5. Grand Total	: 23,474	



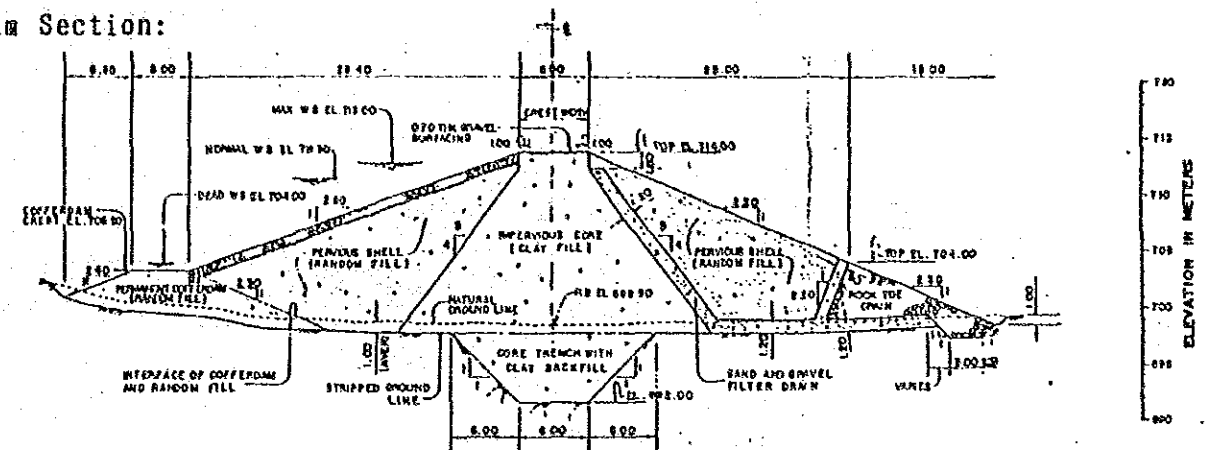
Note:
High weathered clay with 2.0 m depth covering the dam site is effective to minimize percolation loss. This foundation has less problem, since river deposits are few.

SWIM PROJECT PROFILE		File No. : 10
Regist.No. : Agency No. : DPWH-14	Name: GUIMBA DAM & RESERVOIR SWIP	
Region: 12	Province: LANA DEL SUR	Municipality: MARAWI CITY
Present Status: 1. Pre-F/S() (2) F/S(1984) (3) D/D(-)		
Purpose: Major : Irrigation Incidental : IF, FC, MH, WM		
Project Feature:		
1. Dam	Dam Type : ZONED EARTHFILL Dam Height : 16 m Effective Storage Capacity : 488,100 m3 Embankment Volume : 26,860 m3 Design Flood Discharge : 15 m3/sec.	
2. Irrigation	Irrigation Area : 60 ha	
3. Mini-hydropower	Installed Capacity : 90 kW	
4. Watershed Man.	Watershed Protection Area : 112 ha	
5. Water Supply	Design Supply Capacity : 0 m3/day	
6. Inland Fishery	Annual Production : 19 ton/year	
Technical Assessment:		
1. Survey and Investigation: Drilling survey (Length=20 m) in river bed is essential to observe the bearing capacity and permeability. Top soil with 2.5 m depth can be used for a part of embankment materials. Quarry site of contact clay, filter and concrete's aggregate shall be mentioned.		
2. Planning Formulation of irrigation development plan is not mentioned. Scale of mini-hydropower is not reasonable. Mini-hydro. benefit and annual production of inland fishery are over-estimated. Watershed management plan is not formulated.		
3. Design Additional boring is necessary in river bed for permeability and N value. Contact clay shall be laid on the base of core trench. Careful compaction is needed near spillway to prevent the percolation failure. Inlet of outlet works is recommended to be located outside of the dam embankment.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review : 0		EIRR : 15.0 %
2. Feasibility Study : 0		Priority Rating:
3. Detailed Design : 0		Group : B
4. Construction :		Implementation Schedule:
Dam : 5,749		Review : -
Irrigation : 1,331		F/S : Completed
Mini-Hydropower : 3,062		D/D : Completed
Water Supply : 0		Construction: Jul.1996;6 months
Watershed Protection : 2,996		
5. Grand Total : 13,138		

Layout:

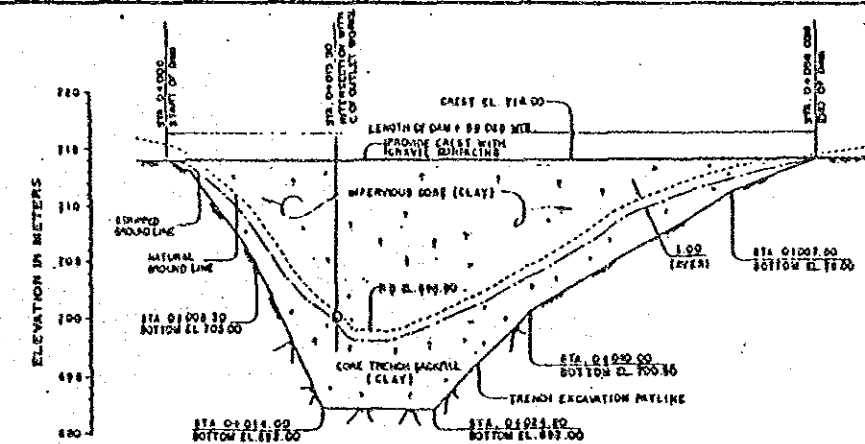


Typical Dam Section:



DAM CROSS-SECTION AT STA. 0+18.50
SCALE 1:250 M.

Profile of Dam Axis:

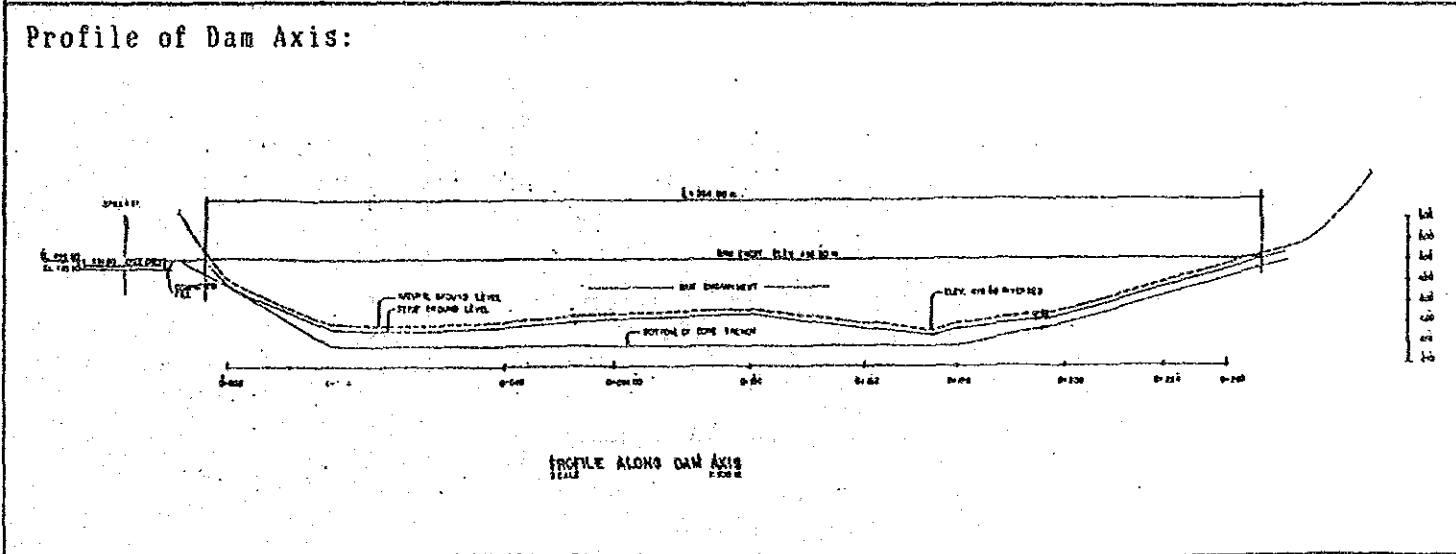
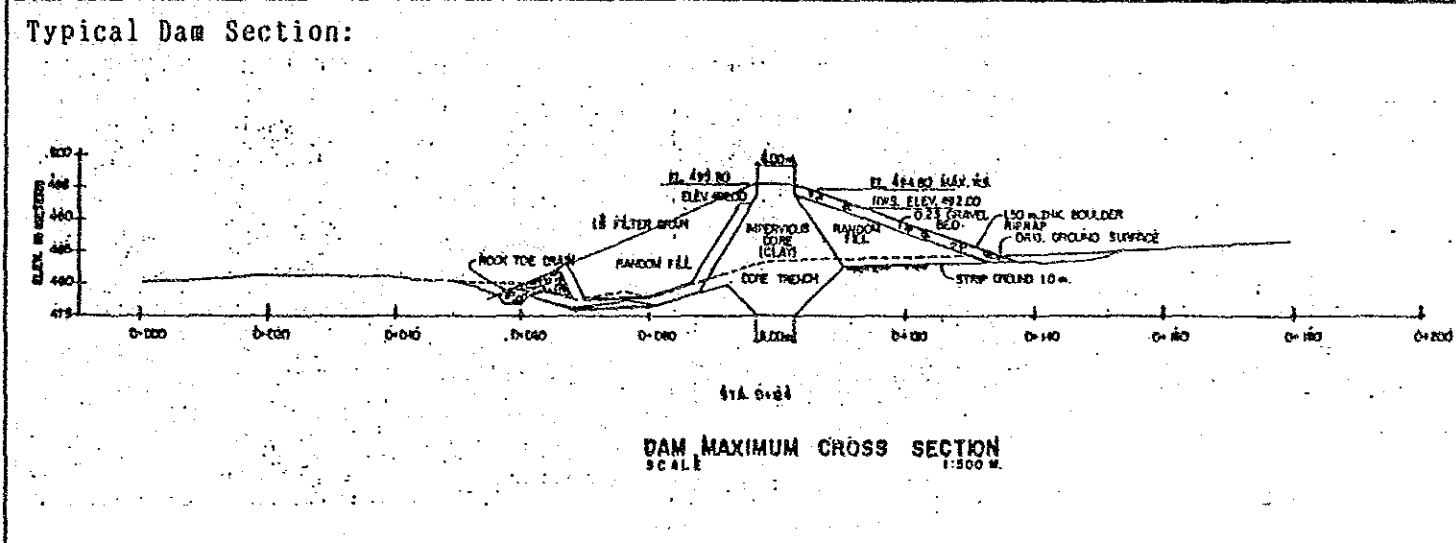
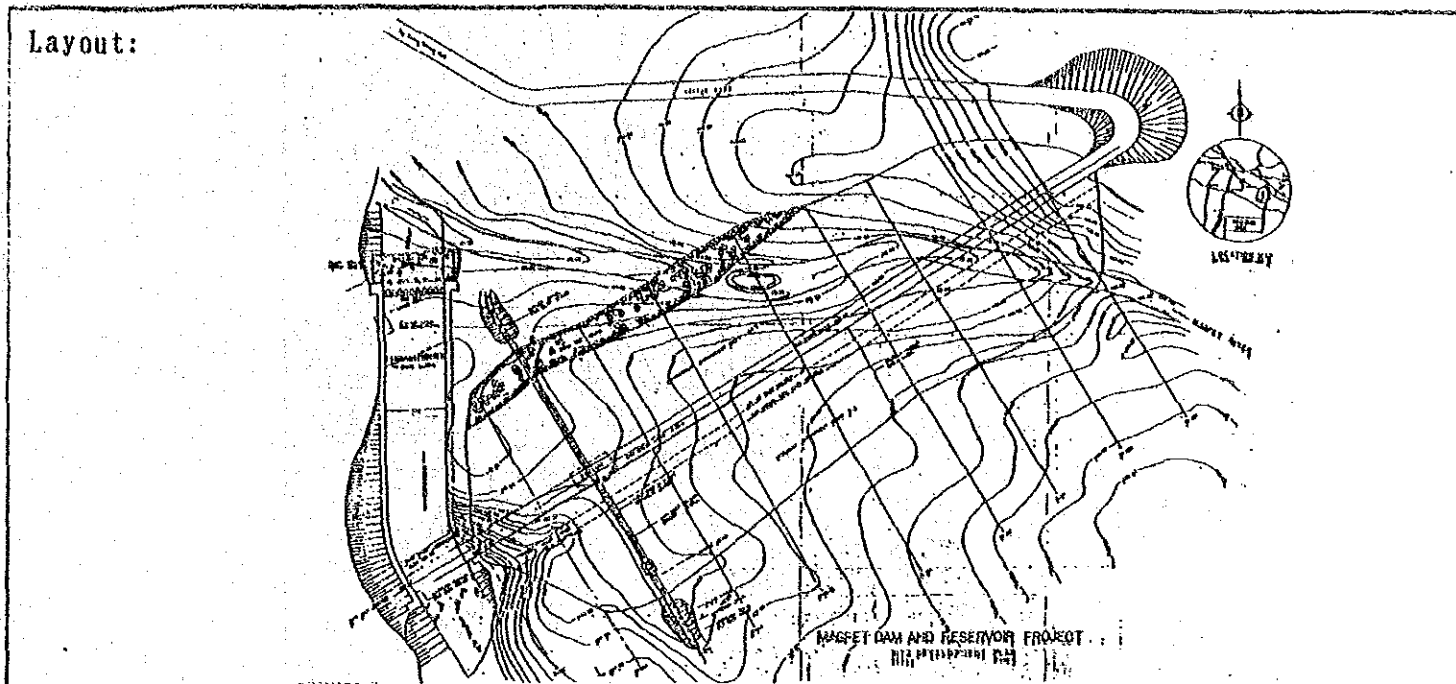


SECTION ALONG DAM AXIS
SCALE 1:250 M.

Note:

High weathered agglomerate and weathered agglomerate in surface layer with 2.5 m depth could be used for embankment materials. Borrow area for contact clay, filter and concrete's aggregate shall be secured.

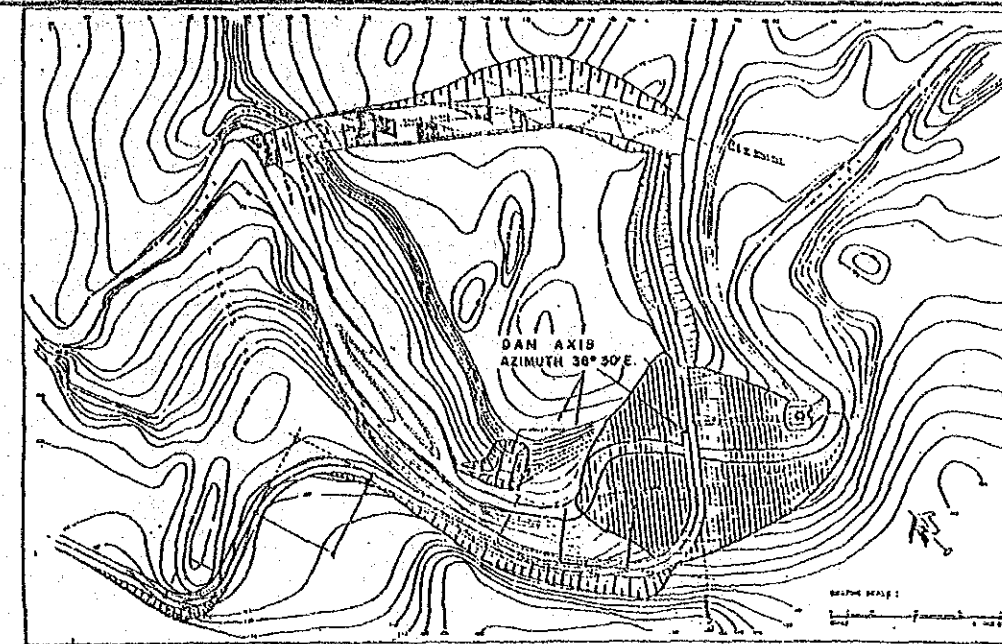
SWIM PROJECT PROFILE		File No. : 11
Regist. No. : Agency No. : DPWH-15	Name: MAGPET DAM & RESERVOIR SWIP	
Region: 12	Province: NORTH COTABATO	Municipality: MAGPET
Present Status: 1. Pre-F/S() (2) F/S(1984) (3) D/D(-)		
Purpose: Major : Irrigation Incidental : IF, FC, MH, WS, WM		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 17 m
	: Effective Storage Capacity	: 755,000 m ³
	: Embankment Volume	: 232,640 m ³
	: Design Flood Discharge	: 144 m ³ /sec.
2. Irrigation	: Irrigation Area	: 500 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 180 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 11 ton/year
Technical Assessment:		
1. Survey and Investigation: Scale of topographic map the dam site should be more than 1/500. Permeability and bearing capacity shall be measured. Soil mechanical test for the dam embankment materials shall be conducted.		
2. Planning Agricultural production and annual production of inland fishery are over-estimated. Watershed management plan is not formulated.		
3. Design Permeability and N value in high weathered tuff are necessary for the determination of excavation line. Foundation treatment shall be designed in consideration of the test results. Location of weir in spillway should be shifted to upstream side. Inlet of the outlet works should be located outside of the dam embankment.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 15.3 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 0	Group : A
4. Construction	: 38,299	(OECF Candidate)
Dam	: 11,094	Implementation Schedule:
Irrigation	: 0	Review : -
Mini-hydropower	: 0	F/S : Completed
Water Supply	: 4,830	D/D : Completed
Watershed Protection	: 54,223	Construction: within 1st 5 years
5. Grand Total		



Note:
Restudy on excavation line in riverbed are necessary after confirmation of permeability and bearing capacity in high weathered tuff.

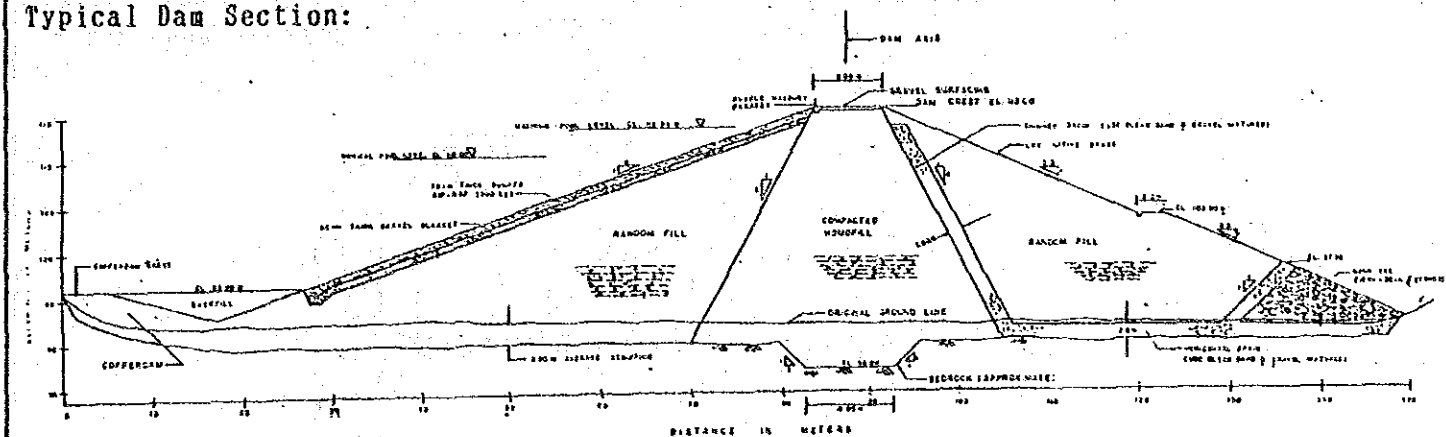
SWIM PROJECT PROFILE		File No. : 12
Regist.No. : Agency No. : DPWH-16	Name: BANAYAL DAM & RESERVOIR SWIP	
Region: 12	Province: NORTH COTABATO	Municipality: TULUNAN
Present Status: 1. Pre-F/S() (2) F1985) 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FC, MR, WM		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 24 m
	: Effective Storage Capacit	: 1,070,000 m3
	: Embankment Volume	: 92,250 m3
	: Design Flood Discharge	: 254 m3/sec.
2. Irrigation	: Irrigation Area	: 450 ha
3. Mini-hydropower	: Installed Capacity	: 300 kW
4. Watershed Man.	: Watershed Protection Area	: 363 ha
5. Water Supply	: Design Supply Capacity	: 0 m3/day
6. Inland Fishery	: Annual Production	: 24 ton/year
Technical Assessment:		
1. Survey and Investigation: Scale of the topographic map for dam site shall be more than 1/500. Bearing capacity should be measured. Permeability test is required for the study of leakage amount, grouting necessity and breadth of core trench. Soil mechanical test for the dam embankment materials shall be conducted.		
2. Planning Mini-hydro. benefit is over-estimated. Watershed management plan is not formulated.		
3. Design Supercritical flow section in the spillway should be straight. Inlet of the outlet works shall be located in outside of the dam embankment. Diversion discharge 21.7 cm ³ /sec would be reasonable in the light of the construction period.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 13.0 %
2. Feasibility Study	: 0	Priority Rating:
3. Detailed Design	: 3,488	Group : B
4. Construction	:	Implementation Schedule:
Dam	: 46,080	Review :
Irrigation	: 10,438	F/S : Completed
Mini-Hydropower	: 9,344	D/D : 1995
Water Supply	: 0	Construction: Jul.1996;12 months
Watershed Protection	: 9,997	
5. Grand Total	: 79,347	

Layout:



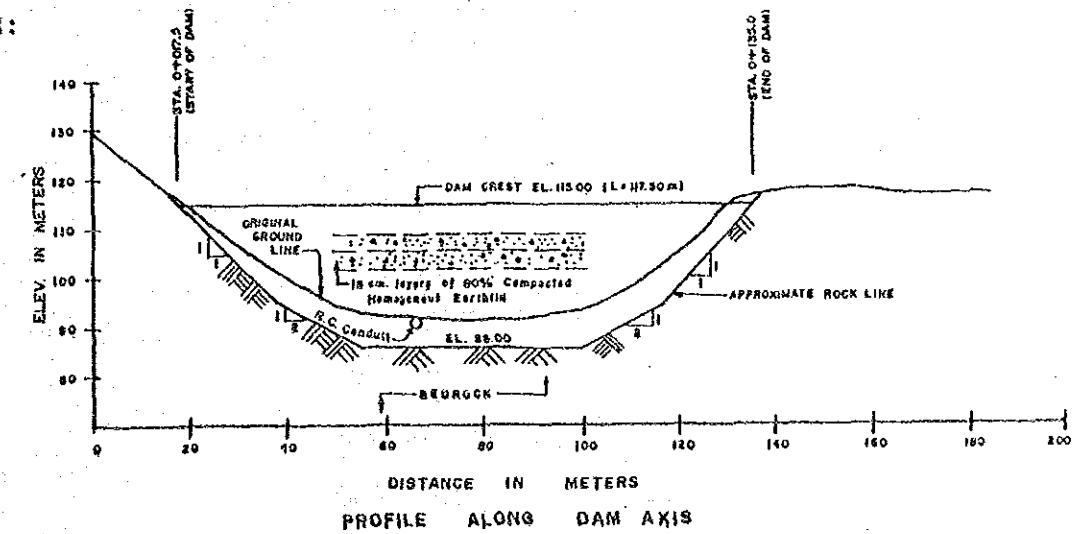
LAYOUT OF DAM & APPURTENANT STRUCTURES

Typical Dam Section:



MAXIMUM DAM SECTION

Profile of Dam Axis:



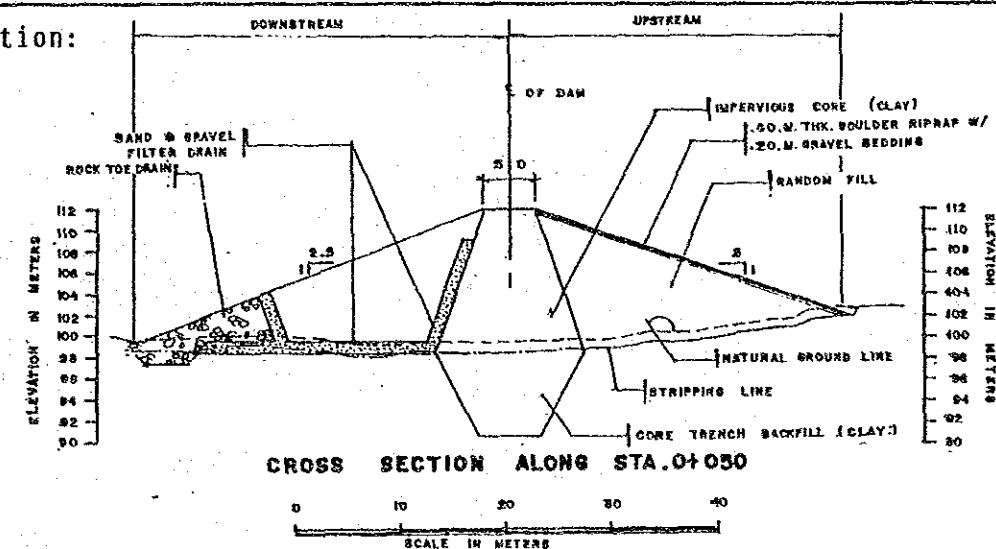
Note:

The proposed excavation line seems to be deep. It must be studied in D/D stage.

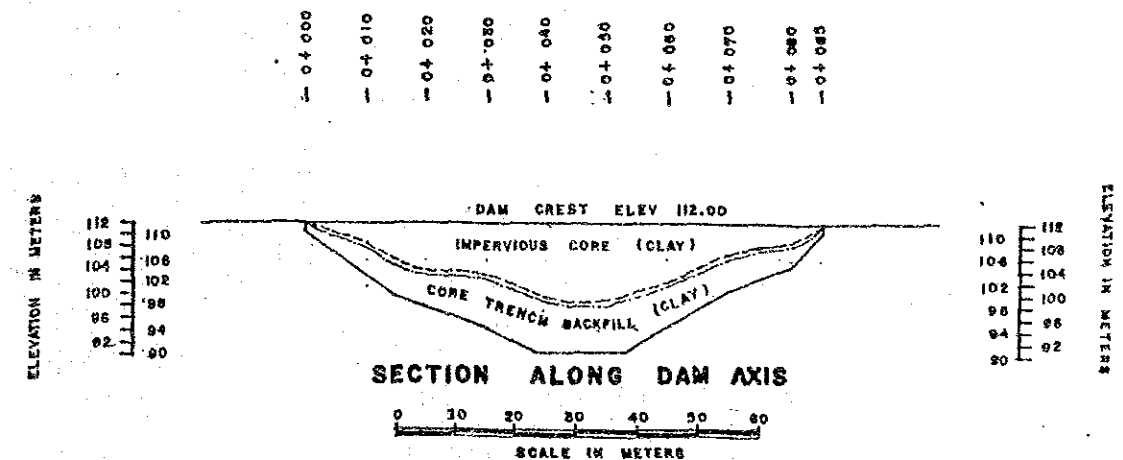
SWIM PROJECT PROFILE		File No. : 13
Regist. No. : Agency No. : DPWH-17	Name: ACOP DAM & RESERVOIR SWIP	
Region: 1	Province: PANGASINAN	Municipality: ROSALES
Present Status: ① Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FC		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 12 m
	: Effective Storage Capacity	: 414,000 m ³
	: Embankment Volume	: 31,950 m ³
	: Design Flood Discharge	: 110 m ³ /sec.
2. Irrigation	: Irrigation Area	: 200 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 0 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 10 ton/year
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning Feasibility study shall be conducted.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 19.1%
2. Feasibility Study	: 347	Priority Rating:
3. Detailed Design	: 695	Group : A
4. Construction	:	Implementation Schedule:
Dam	: 8,618	Review : -
Irrigation	: 4,570	F/S : 1993
Mini-Hydropower	: 0	D/D : 1994
Water Supply	: 0	Construction: Jan. 1995; 6 months
Watershed Protection	: 0	
5. Grand Total	: 14,232	

Layout:

Typical Dam Section:



Profile of Dam Axis:



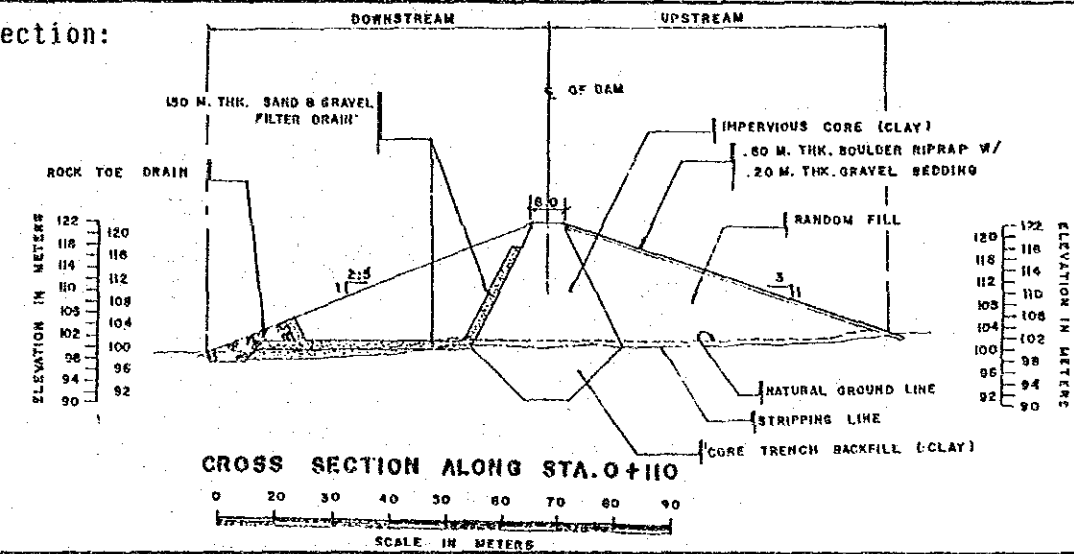
Note:

Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.

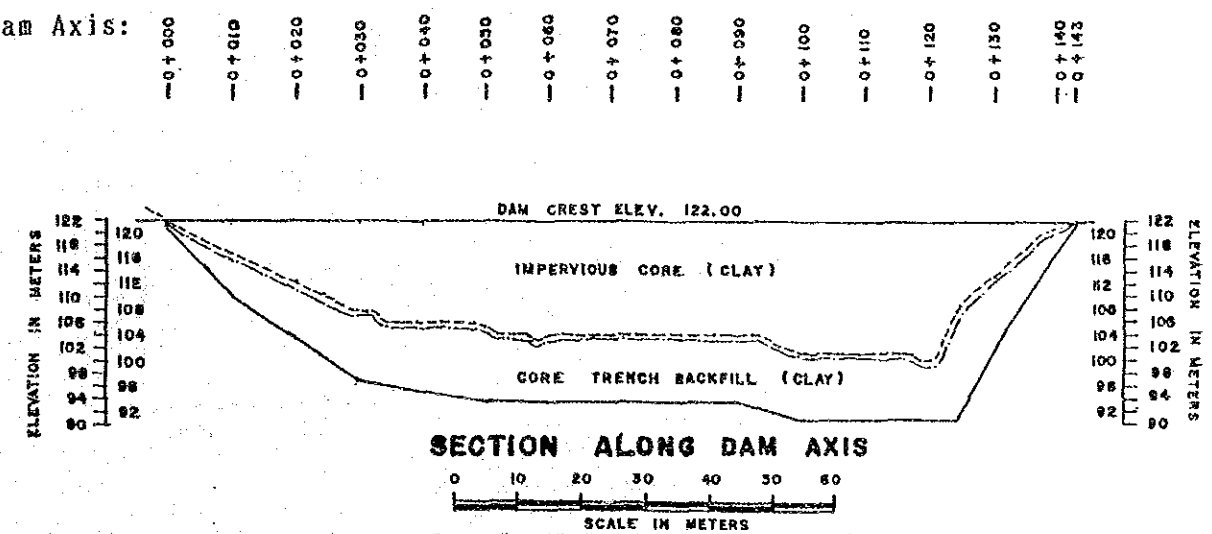
SWIM PROJECT PROFILE		File No. : 14
Regist.No.:	Name: CALITLITAN DAM & RESERVOIR SWIP	
Agency No.: DPWH-18		
Region: 1	Province: PANGASINAN	Municipality: UMINGAN
Present Status: ① Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FC		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 21 m
	: Effective Storage Capacity	: 785,000 m ³
	: Embankment Volume	: 138,088 m ³
	: Design Flood Discharge	: 115 m ³ /sec.
2. Irrigation	: Irrigation Area	: 150 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 0 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 13 ton/year
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning EIRR is less than 10 %. Project planning shall be re-formulated.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement:(1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 110	EIRR : 7.5 %
2. Feasibility Study	: 790	
3. Detailed Design	: 1,580	Priority Rating:
4. Construction		Group : B
Dam	: 26,266	Implementation Schedule:
Irrigation	: 3,631	Review : 1991
Mini-Hydropower	: 0	F/S : 1996
Water Supply	: 0	D/D : 1997
Watershed Protection	: 0	Construction: Jan.1998;15 months
5. Grand Total	: 32,377	

Layout:

Typical Dam Section:



Profile of Dam Axis:



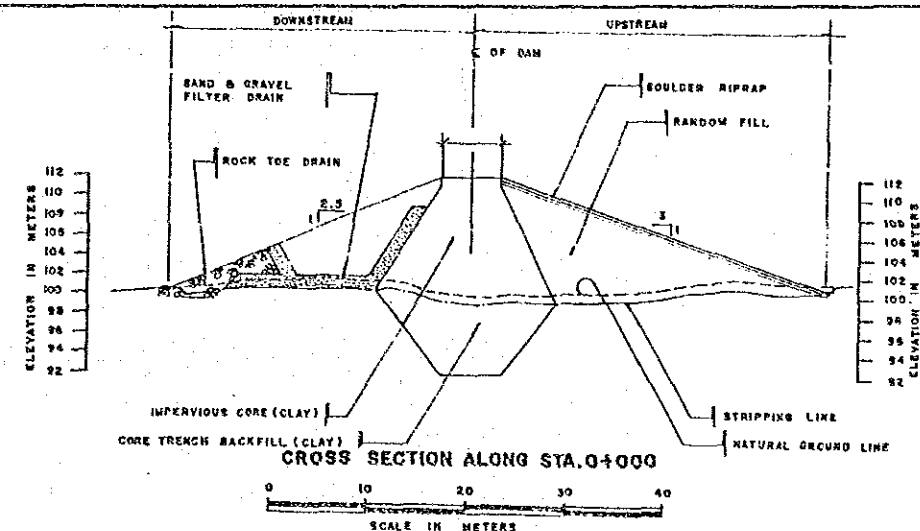
Note:

Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.

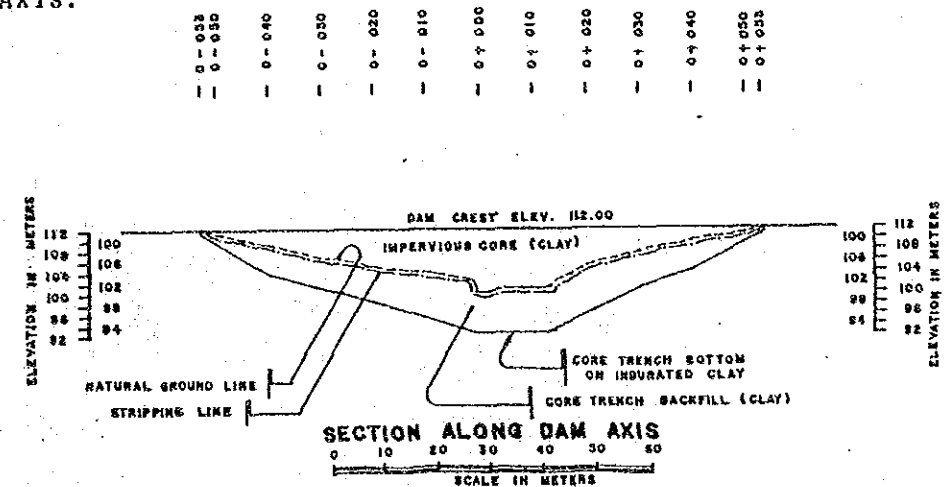
SWIM PROJECT PROFILE		File No. : 15
Regist. No. : Agency No. : DPWH-19	Name : KITA-KITA DAM & RESERVOIR SWIP	
Region : 1	Province : PANGASINAN	Municipality : BALUNGAO
Present Status : ① Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FC, WM		
Project Feature:		
1. Dam	Dam Type : ZONED EARTHFILL	
	Dam Height : 12 m	
	Effective Storage Capacity : 351,000 m3	
	Embankment Volume : 25,789 m3	
	Design Flood Discharge : 72 m3/sec.	
2. Irrigation	Irrigation Area : 150 ha	
3. Mini-hydropower	Installed Capacity : - kW	
4. Watershed Man.	Watershed Protection Area : 95 ha	
5. Water Supply	Design Supply Capacity : 0 m3/day	
6. Inland Fishery	Annual Production : 16 ton/year	
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning Feasibility study shall be conducted.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement:(1,000 Pesos)		Project Evaluation:
1. Fund for Review : 7		EIRR : 28.8 %
2. Feasibility Study : 197		Priority Rating:
3. Detailed Design : 395		Group : A
4. Construction :		Implementation Schedule:
Dam : 4,948		Review : -
Irrigation : 2,670		F/S : 1992
Mini-Hydropower : 0		D/D : 1993
Water Supply : 0		Construction: Jan.1994;6 months
Watershed Protection : 2,374		
5. Grand Total : 10,584		

Layout:

Typical Dam Section:



Profile of Dam Axis:



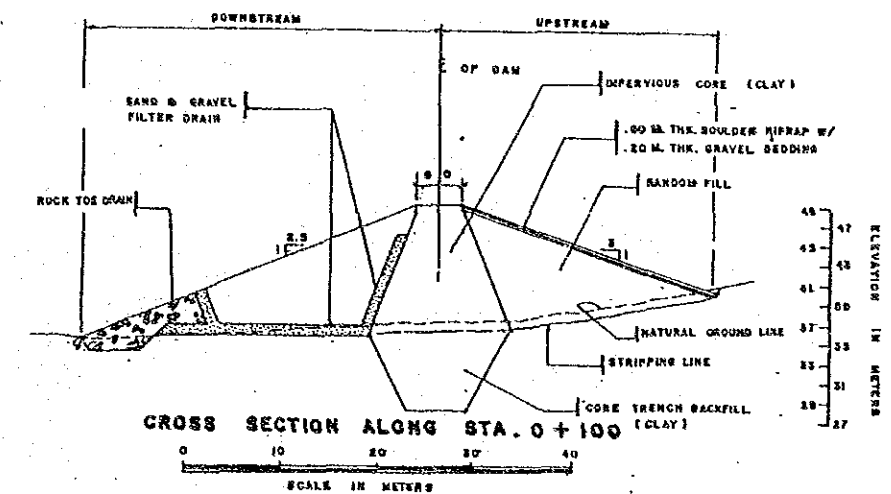
Note:

Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.

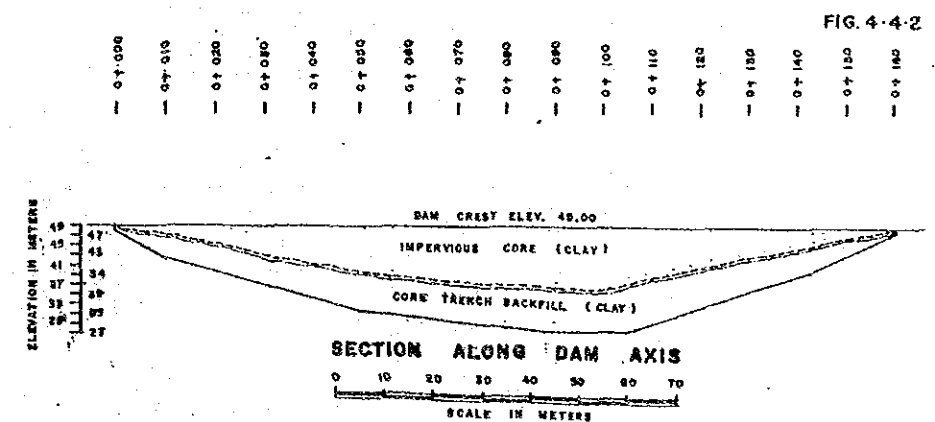
SWIM PROJECT PROFILE		File No. : 16
Regist.No.:	Name:	
Agency No.: DPWH-20	SALVACION DAM & RESERVOIR SWIP	
Region:	Province:	Municipality:
I	PANGASINAN	ROSALES
Present Status: ① Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FC, WM		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 13 m
	: Effective Storage Capacity	: 459,000 m ³
	: Embankment Volume	: 58,366 m ³
	: Design Flood Discharge	: 80 m ³ /sec.
2. Irrigation	: Irrigation Area	: 125 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 60 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 8 ton/year
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning Feasibility study shall be conducted.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 14.9 %
2. Feasibility Study	: 294	Priority Rating:
3. Detailed Design	: 588	Group : A
4. Construction		Implementation Schedule:
Dam	: 8,304	Review : -
Irrigation	: 2,856	F/S : 1993
Mini-Hydropower	: 0	D/D : 1994
Water Supply	: 0	Construction: Jan.1995; 9 months
Watershed Protection	: 1,609	
5. Grand Total	: 13,651	

Layout:

Typical Dam Section:



Profile of Dam Axis:



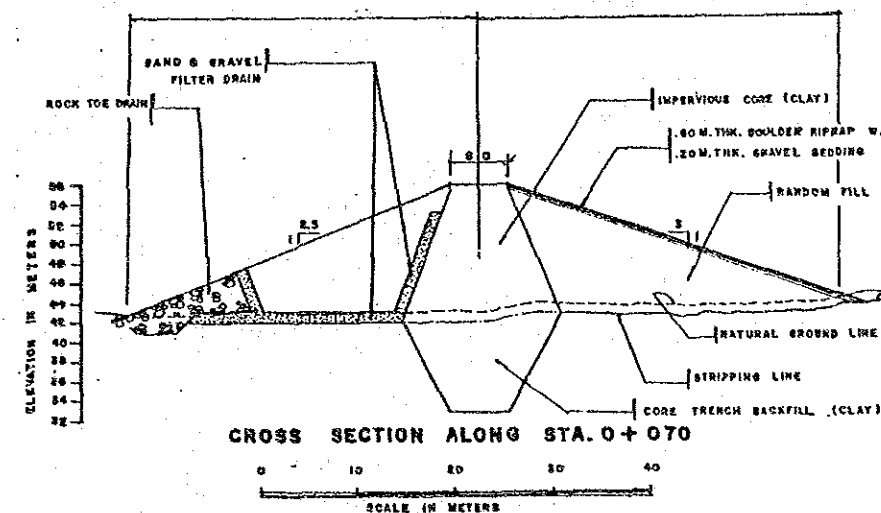
Note:

Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.

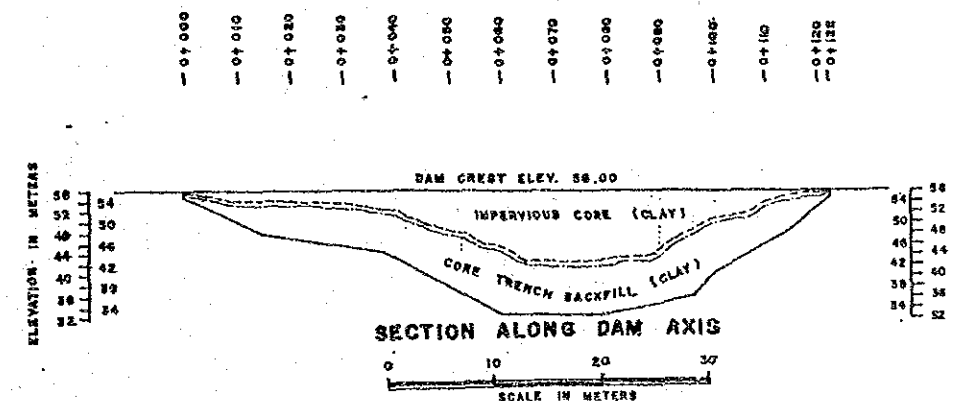
SWIM PROJECT PROFILE		File No. : 17
Regist.No. : Agency No. : DPWH-21	Name: SAN ANGEL DAM & RESERVOIR SWIP	
Region: 1	Province: PANGASINAN	Municipality: ROSALES
Present Status: ① Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FC		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHPILL
	: Dam Height	: 13 m
	: Effective Storage Capacity	: 261,000 m ³
	: Embankment Volume	: 35,640 m ³
	: Design Flood Discharge	: 120 m ³ /sec.
2. Irrigation	: Irrigation Area	: 150 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 0 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 16 ton/year
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning Feasibility study shall be conducted.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 20.8 %
2. Feasibility Study	: 291	Priority Rating:
3. Detailed Design	: 581	Group : A
4. Construction	:	Implementation Schedule:
Dam	: 7,698	Review : -
Irrigation	: 3,429	F/S : 1991
Mini-Hydropower	: 0	D/D : 1991
Water Supply	: 0	Construction: Jul.1992;9 months
Watershed Protection	: 0	
5. Grand Total	: 11,998	

Layout:

Typical Dam Section:



Profile of Dam Axis:



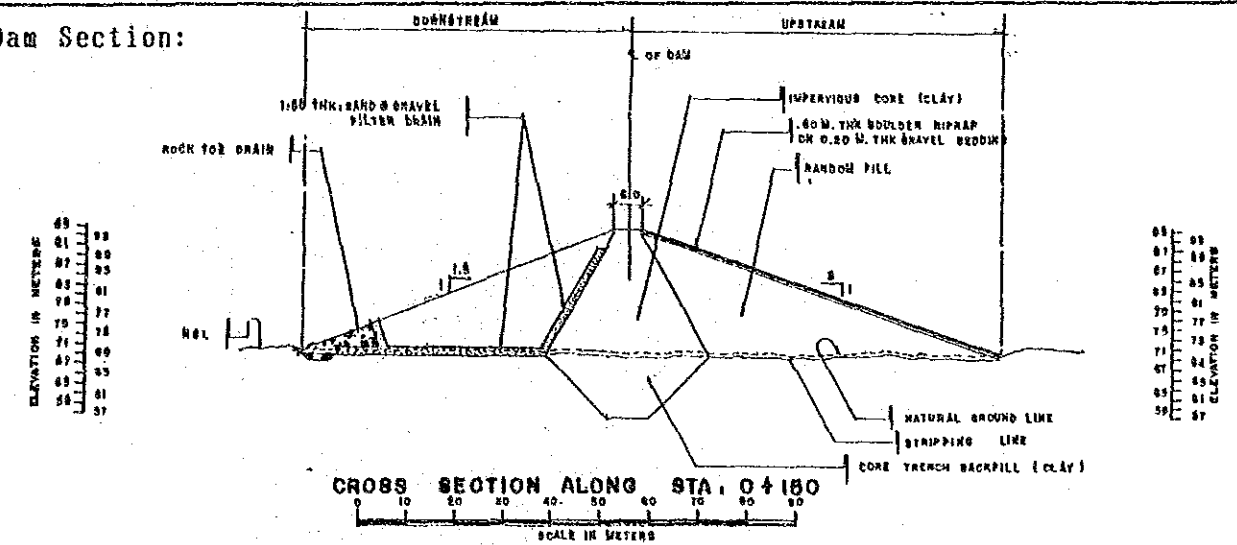
Note:

Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.

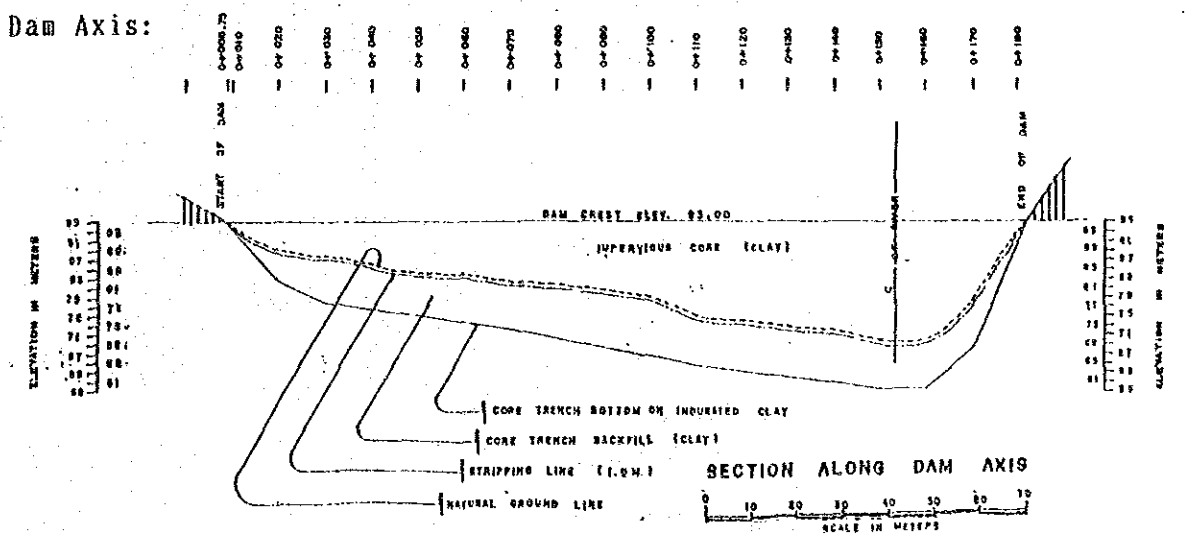
SWIM PROJECT PROFILE		File No. : 18
Regist.No. : Agency No. : DPWH-22	Name: LIGTOS SWIP	
Region: 6	Province: ILOILO	Municipality: IGBARAS
Present Status: ① Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FC, WM		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 25 m
	: Effective Storage Capacity	: 1,602,000 m ³
	: Embankment Volume	: 175,652 m ³
	: Design Flood Discharge	: 108 m ³ /sec.
2. Irrigation	: Irrigation Area	: 200 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 1,385 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 16 ton/year
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning EIRR is less than 10 %. Project planning shall be re-formulated.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 165	EIRR : 5.7 %
2. Feasibility Study	: 1,187	Priority Rating:
3. Detailed Design	: 2,375	Group : B
4. Construction	:	Implementation Schedule:
Dam	: 40,068	Review : 1991
Irrigation	: 4,841	F/S : 1997
Mini-Hydropower	: 0	D/D : 1997
Water Supply	: 0	Construction: Jul.1998;18 months
Watershed Protection	: 14,847	
5. Grand Total	: 63,483	

Layout:

Typical Dam Section:



Profile of Dam Axis:

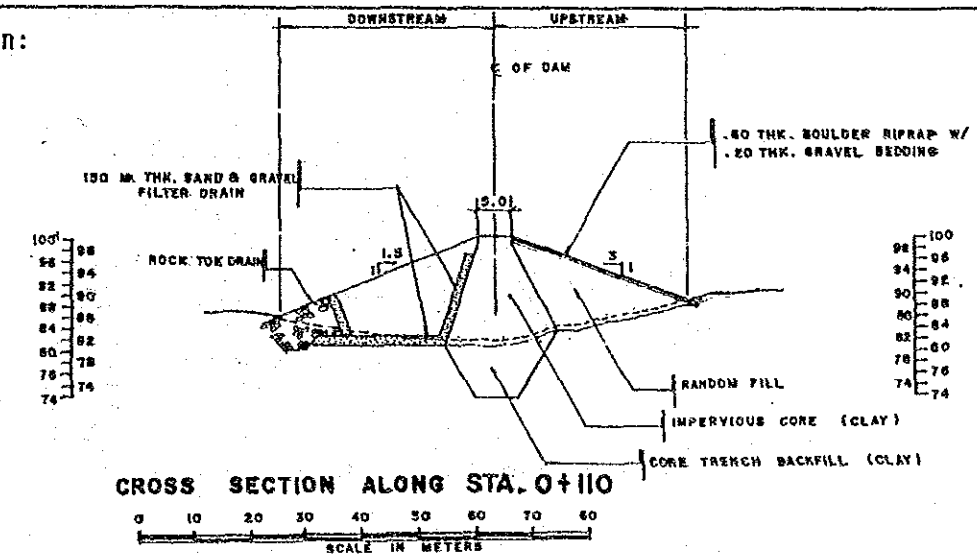


Note: Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.

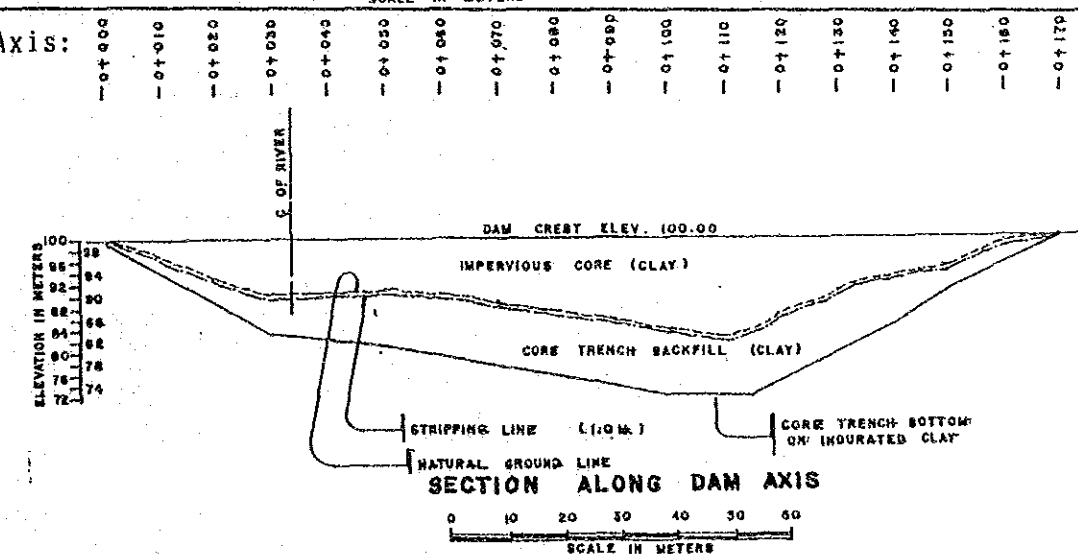
SWIM PROJECT PROFILE		File No. : 19
Regist. No. : Agency No. : DPWH-25	Name : ABIAN SWIP	
Region : 2	Province : NUEVA VIZCAYA	Municipality : BAMBANG
Present Status : ① Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FC, WM		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 20 m
	: Effective Storage Capacity	: 1,386,000 m ³
	: Embankment Volume	: 75,074 m ³
	: Design Flood Discharge	: N.D. m ³ /sec.
2. Irrigation	: Irrigation Area	: 100 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 265 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 8 ton/year
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning Feasibility study shall be conducted.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 10.8 %
2. Feasibility Study	: 379	Priority Rating:
3. Detailed Design	: 757	Group : B
4. Construction	:	Implementation Schedule:
Dam	: 11,927	Review : -
Irrigation	: 2,420	F/S : 1995
Mini-Hydropower	: 0	D/D : 1995
Water Supply	: 0	Construction: Jul. 1996; 12 months
Watershed Protection	: 7,036	
5. Grand Total	: 22,520	

Layout:

Typical Dam Section:



Profile of Dam Axis:



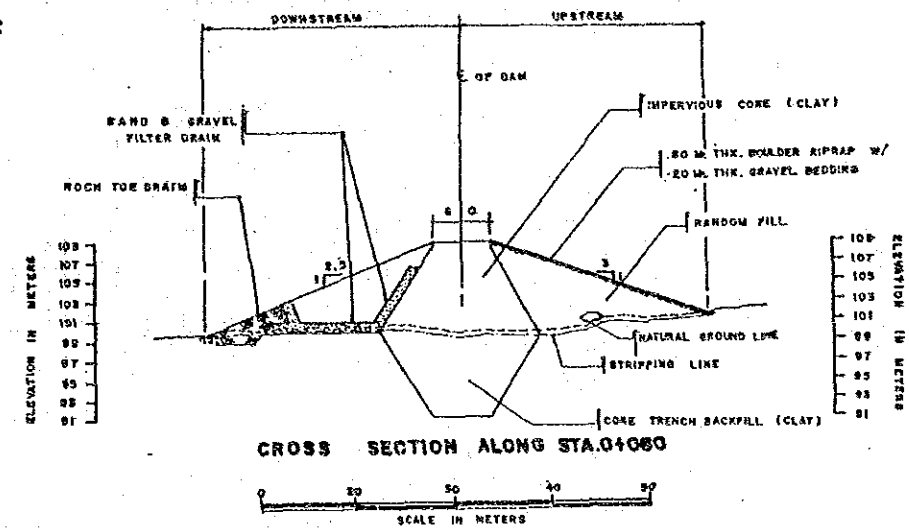
Note:

Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.

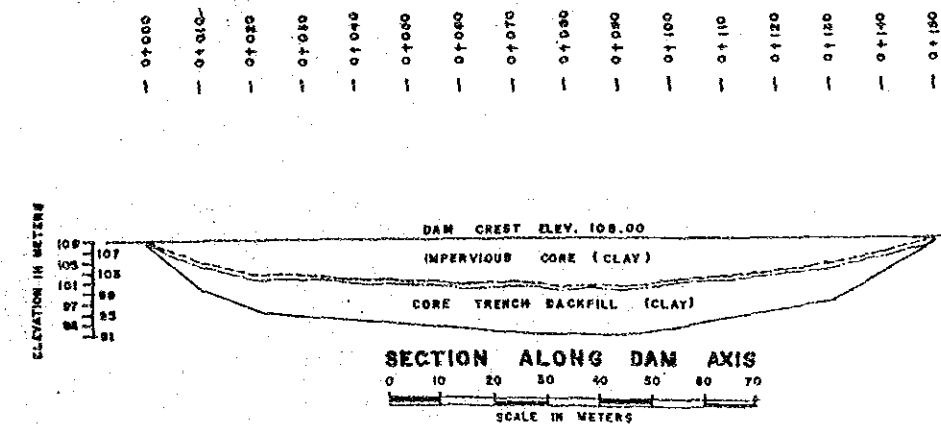
SWIM PROJECT PROFILE		File No. : 20
Regist. No. : Agency No. : DPWH-26	Name : CATTEBAGAN SWIP	
Region : 2	Province : ISABELA	Municipality : ANIG, DELFIN ALBANO
Present Status : (1) Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FC, WM		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 11 m
	: Effective Storage Capacity	: 292,500 m ³
	: Embankment Volume	: 35,494 m ³
	: Design Flood Discharge	: N.D. m ³ /sec.
2. Irrigation	: Irrigation Area	: 130 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 278 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 11 ton/year
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning Feasibility study shall be conducted.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 21.2 %
2. Feasibility Study	: 268	Priority Rating:
3. Detailed Design	: 536	Group : A
4. Construction	:	Implementation Schedule:
Dam	: 7,076	Review : -
Irrigation	: 3,147	F/S : 1991
Mini-Hydropower	: 0	D/D : 1992
Water Supply	: 0	Construction: Jan.1993;6 months
Watershed Protection	: 7,100	
5. Grand Total	: 18,126	

Layout:

Typical Dam Section:



Profile of Dam Axis:



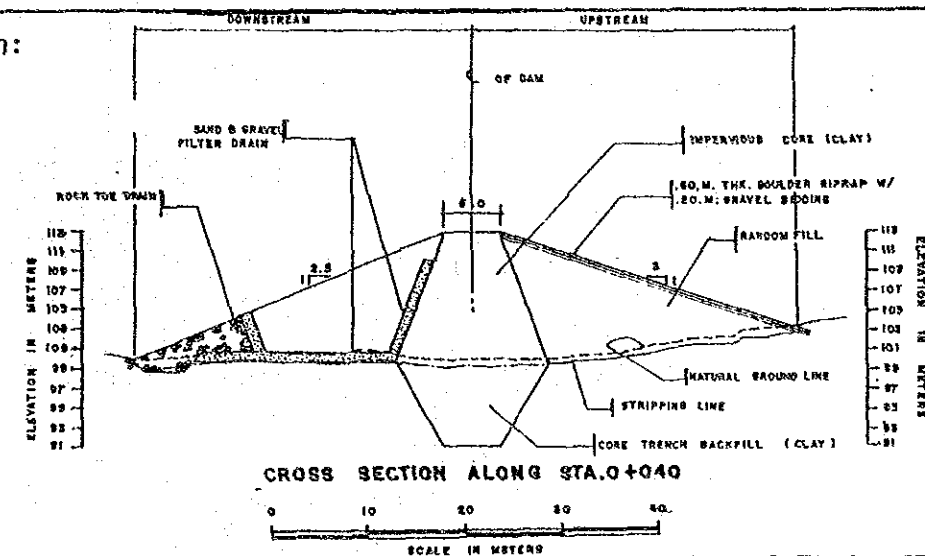
Note:

Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.

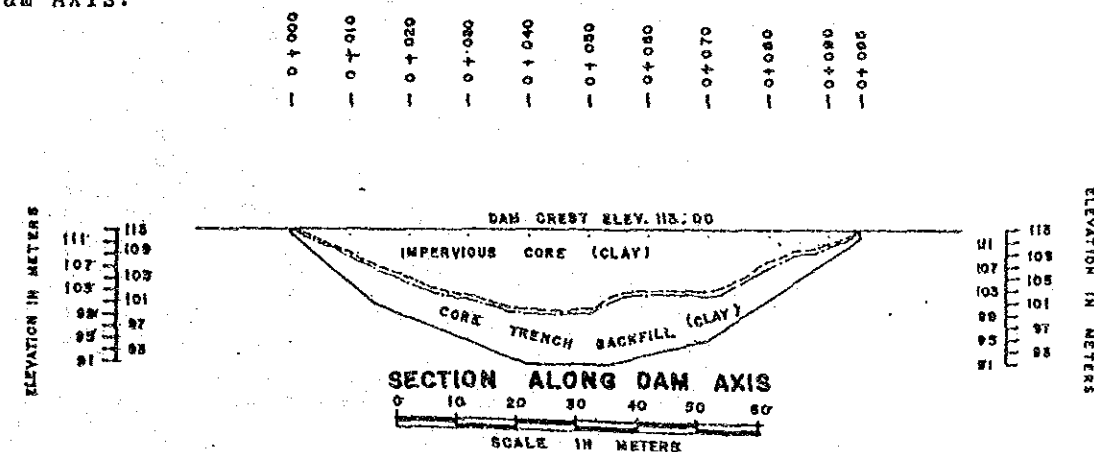
SWIM PROJECT PROFILE		File No. : 21
Regist. No. : Agency No. : DPWH-27	Name: MALALINTA SWIP	
Region: 2	Province: ISABELA	Municipality: SAN MANUEL
Present Status: ① Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation Incidental : IF, FG, WM		
Project Feature:		
1. Dam	: Dam Type	: ZONED EARTHFILL
	: Dam Height	: 13 m
	: Effective Storage Capacity	: 315,000 m ³
	: Embankment Volume	: 42,339 m ³
	: Design Flood Discharge	: N.D. m ³ /sec.
2. Irrigation	: Irrigation Area	: 75 ha
3. Mini-hydropower	: Installed Capacity	: - kW
4. Watershed Man.	: Watershed Protection Area	: 795 ha
5. Water Supply	: Design Supply Capacity	: 0 m ³ /day
6. Inland Fishery	: Annual Production	: 8 ton/year
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning Feasibility study shall be conducted.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 0	EIRR : 12.1 %
2. Feasibility Study	: 287	Priority Rating:
3. Detailed Design	: 575	Group : A
4. Construction	:	Implementation Schedule:
Dam	: 9,103	Review : -
Irrigation	: 1,815	F/S : 1993
Mini-Hydropower	: 0	D/D : 1993
Water Supply	: 0	Construction: Jul.1994; 0 months
Watershed Protection	: 11,592	
5. Grand Total	: 23,372	

Layout:

Typical Dam Section:



Profile of Dam Axis:



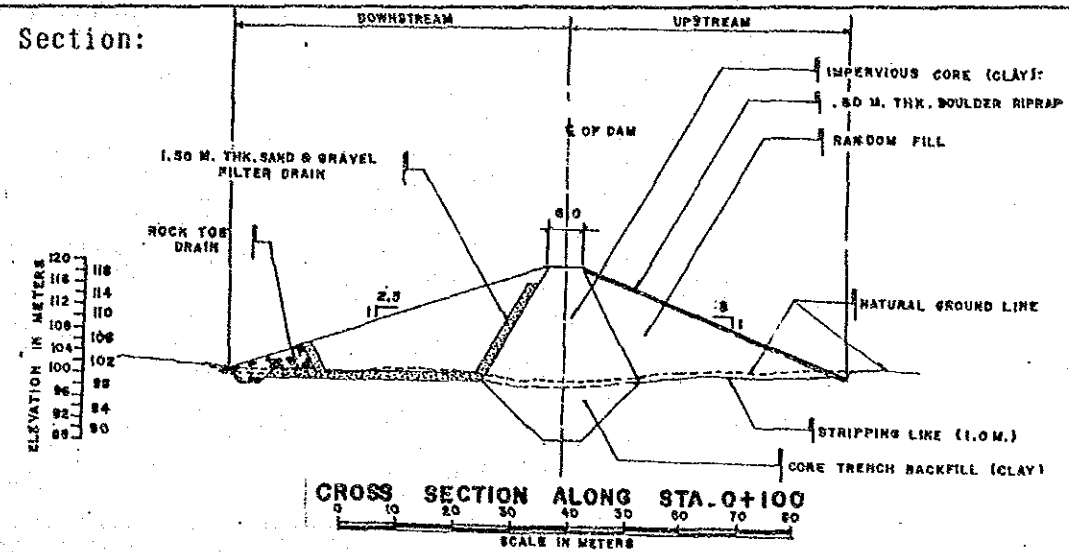
Note:

Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.

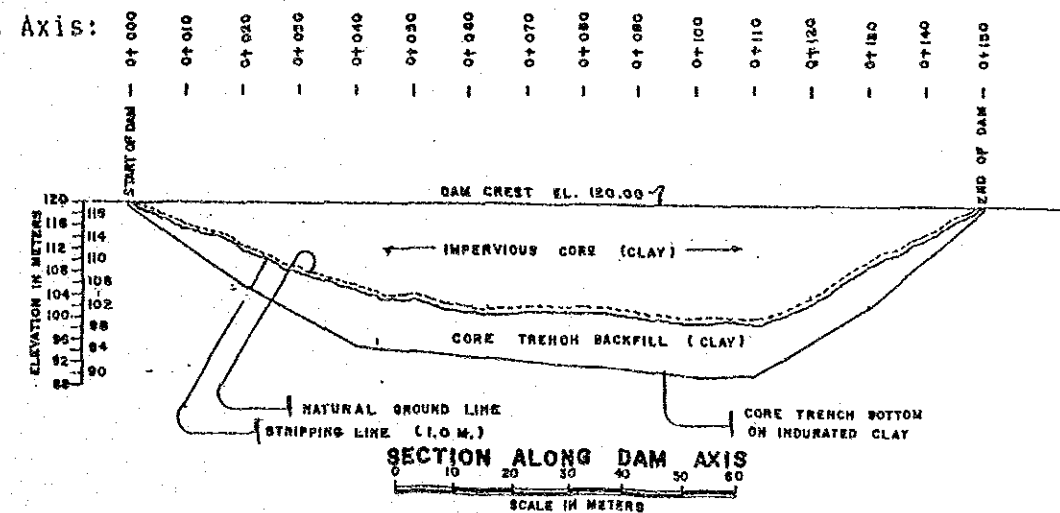
SWIM PROJECT PROFILE		File No. : 22
Regist. No. : Agency No. : DPWH-28	Name: CALUBAYAN SWIP	
Region: 4	Province: ORIENTAL MINDORO	Municipality: SOCORRO
Present Status: ① Pre-F/S(1989) 2. F/S() 3. D/D()		
Purpose: Major : Irrigation, Mini-hydropower, Water Supply Incidental : IF, FC, WM		
Project Feature:		
1. Dam	Dam Type : ZONED EARTHFILL	
	Dam Height : 20 m	
	Effective Storage Capacity : 504,000 m ³	
	Embankment Volume : 162,678 m ³	
	Design Flood Discharge : 135 m ³ /sec.	
2. Irrigation	Irrigation Area : 200 ha	
3. Mini-hydropower	Installed Capacity : - kW	
4. Watershed Man.	Watershed Protection Area : 500 ha	
5. Water Supply	Design Supply Capacity : 0 m ³ /day	
6. Inland Fishery	Annual Production : 13 ton/year	
Technical Assessment:		
1. Survey and Investigation: Detailed survey and investigation are not conducted.		
2. Planning EIRR is less than 10 %. Project planning shall be re-formulated.		
3. Design Detailed design is not conducted.		
4. Operation and Maintenance Not studied.		
Fund Requirement: (1,000 Pesos)		Project Evaluation:
1. Fund for Review	: 133	EIRR : 8.0 %
2. Feasibility Study	: 959	Priority Rating:
3. Detailed Design	: 1,918	Group : B
4. Construction		Implementation Schedule:
Dam	: 31,431	Review : 1991
Irrigation	: 4,841	F/S : 1996
Mini-Hydropower	: 0	D/D : 1996
Water Supply	: 0	Construction: Jul. 1997; 18 months
Watershed Protection	: 7,287	
5. Grand Total	: 46,569	

Layout:

Typical Dam Section:



Profile of Dam Axis:



Note:

Dam type might be refined through the investigation on materials. Form and depth of core trench shall be decided after sub-surface geological study. If pervious layer is deep, impervious blanket instead of core trench is planned in the upstream.