

*The Study on Comprehensive Disaster Prevention
around Mayon Volcano*

DATA BOOK

IV : COST ESTIMATE

DT IV List of Unit Price (1/5)

(Unit : PHP)

Description of Work	Unit	Unit Price
Clearing and Grubbing	ha	59,192.92
Excavation (Road way & Drainage) Mech.	cu.m	80.55
Common Excavation (Manual)	cu.m	118.94
Structure Excavation (Dry)	cu.m	143.47
Structure Excavation (Hydro.)	cu.m	185.89
Embankment (Selected Borrow)	cu.m	182.66
Sub-grade Preparation	sq.m	8.10
Aggregate Sub-base Course	cu.m	234.13
Aggregate Base Course (Regravelling)	cu.m	338.32
Crushed Aggregate Base Course (Broken Stone)	cu.m	377.73
Aggregate Surface Course	cu.m	363.92
Bituminous Surface Treatment	ton	24,539.36
Asphalt Cement	ton	23,793.30
Reinforcing Steel	kg	35.09
Structural Concrete - Class A	cu.m	3,448.67
18" Diameter R.C. Pipes	lin.m.	875.73
24" Diameter R.C. Pipes	lin.m.	1,253.65
36" Diameter R.C. Pipes	lin.m.	1,573.65
Riprap/Grouted Riprap (T=0.3m)	cu.m	1,135.72
Stone Masonry (T=0.4m)	cu.m	1,197.47
Hand Laid Rock Embankment (Boulder Facing)	cu.m	628.53
Concrete Slope Protection (Concrete Facing)	cu.m	2,536.14
Reinforced Concrete Facing	cu.m	3,093.84
Curb and /or Gutter	lin.m.	317.67
Lined Canal with Mortor Finish	cu.m	1,147.48
Rubble Concrete Foundation	cu.m	2,424.64
Reinforced Concrete Foundation	cu.m	3,517.32
Dredging for Embankemnt	cu.m	75.18

Source: DPWH - ALBAY DISTRICT ENGINEERING OFFICE

DT IV List of Unit Price (2/5)

(Unit : PHP)

Description of Work	Unit	Unit Price
DREDGING	cu.m	76.95
LEVEE		
Excavation	cu.m	75.28
Clearing and Grubbing	sq.m	9.02
Stripping	sq.m	5.42
Embankment	cu.m	166.70
Gravel Metalling	cu.m	437.85
Sod Facing	sq.m	32.50
Grouted Riprap	sq.m	487.19
FLOODWALL		
Excavation	cu.m	58.65
Concrete, Roughening	cu.m	40.00
Concrete with Pumpcrete	cu.m	2,482.63
Direct Pouring	cu.m	2,482.63
Reinforcing Steel Bar	ton	19,962.00
Formworks	sq.m	176.88
Removal of Structures	sq.m	57.84

Source: Adjusted unit price as of January 1999 for Lower Agusan Project Phase I

DT IV List of Unit Price (3/5)

(Unit : PHP)

Description of Work	Unit	Unit Price
Earth Works		
Clearing and Grubbing	sq.m	10.50
Excavation Common	cu.m	165.10
Excavation Rock	cu.m	701.90
Structure Backfill	cu.m	140.00
Embankment Costruction & Compaction	cu.m	166.00
Gravel Base Course	cu.m	566.10
Concrete Structures		
Concrete Class "C"	cu.m	3,508.60
Concrete Class "A-3" Substructure	cu.m	6,385.50
Concrete Class "A-2" Superstructure	cu.m	6,629.30
Concrete Class "A-2" Miscellaneous concrete	cu.m	5,909.40
Concrete Class "A-2" Secondary concrete	cu.m	5,632.40
Concrete Joints and Joint Materials		
PVC waterstop 200mm x 6mm	lin.m	1,075.60
PVC waterstop 300mm x 7mm	lin.m	1,280.10
Elastic joint filler	sq.m	1,441.00
Joint sealant	lin.m	169.30
Dowel bar dia.=32mm, length=1.8m	nos.	846.30
Dowel bar dia.=25mm, length=1.0m	nos.	559.30
Reinforcing Steel Bar		
Furnish & stockpile	ton	25,606.20
Cut, bent & place	ton	13,395.80
Filter Drain, Weephole and PVC Pipe		
Gravel bedding, ungraded materials	cu.m	708.00
PVC weephole, dia.=100mm	nos.	22,707.10
PVC pipe, dia.=50mm	lin.m	266.50
PVC pipe, dia.=100mm	lin.m	659.70
PVC pipe, dia.=150mm	lin.m	1,441.30
Precast Concrete Pipes		
RC Pipe, dia.=600mm, Type A-2	lin.m	2,330.50
RC Pipe, dia.=600mm, Type A-1	lin.m	2,354.00
Piles and Piling Works		
Furnish RC pile 40x40 cm	lin.m	2,649.10
Driving RC pile 40x40 cm	lin.m	1,141.60
Masonry Works and Grouted Riprap		
CHB masonry, 150mm thick	sq.m	581.10
CHB masonry, 100mm thick	sq.m	492.00
Grouted riprap	cu.m	2,031.00
Stone Works		
Rubble masonry	cu.m	2,792.50
Rock/Boulder riprap (Dry)	cu.m	1,178.10
Gabion type riprap	cu.m	3,077.10
Sand bedding with graded materials	cu.m	463.70

Source: Successful Bidding Unit Price as of April 1998 for LADP Irrigation Project

DT IV List of Unit Price (4/5)

(Unit : PHP)

Description of Work	Unit	Unit Price
Earth Works		
Clearing and Grubbing, lightly vegetated area	sq.m	37.70
Structure Excavation Common	cu.m	34.80
Structure Excavation Rock	cu.m	118.07
Structure Backfill	cu.m	40.82
Disposal of Excavation Materials	cu.m	11.76
Concrete Structures		
Concrete Class "A" (210 kg/cm ² , 100 mm)	cu.m	3,244.94
Concrete Class "C" (210 kg/cm ² , 38 mm)	cu.m	2,742.69
Concrete Class "E" (90 kg/cm ² , 38 mm)	cu.m	2,346.82
Concrete Class "AA" (210 kg/cm ² , 19 mm)	cu.m	2,708.05
Concrete Class "F" (210 kg/cm ² , 19 mm)	cu.m	6,580.12
Concrete Class "D" (160 kg/cm ² , 100 mm)	cu.m	2,790.16
Concrete Joints and Joint Materials		
Water stop (Dumbbell type with center bulb, width=20 cm)	lin.m	535.80
Joints filler (thickness = 2 cm)	sq.m	1,526.60
Dowel bar	pcs.	104.70
Reinforcing Steel Bar	kg	19.71
Grouted riprap	cu.m	2,716.10
Steel sheets piles (U type, thickness = 11 cm)	kg	30.33
Aluminum guaging staff (Thickness = 1 mm, width = 15 cm)	lin.m	3,792.21
Handrail (dia. = 50 mm)	kg	77.02

Source: Successful Bidding Unit Price as of April 1997 for Pampanga Delta Development Project

DT IV List of Unit Price (5/5)

(Unit : PHP)

Description of Work	Unit	Unit Price
Clearing and grubbing, lightly vegetated area	sq.m	7.90
Excavation of diversion channel, common	cu.m	43.01
Excavation of diversion channel, rock	cu.m	103.80
Excavation of upstream and downstream of fixed weir, common	cu.m	55.37
Structure excavation, common	cu.m	47.76
Structure excavation, rock	cu.m	98.00
Structure backfill	cu.m	56.10
Embankment	cu.m	67.84
Diisposal of excavated materials	cu.m	43.21
Concrete Class "AA" (210 kg/cm ² , 19 mm)	cu.m	3,158.70
Concrete Class "A" (210 kg/cm ² , 38 mm)	cu.m	3,030.25
Concrete Class "B" (160 kg/cm ² , 38 mm)	cu.m	2,918.95
Concrete Class "C" (210 kg/cm ² , 100 mm)	cu.m	2,810.30
Concrete Class "D" (160 kg/cm ² , 100 mm)	cu.m	2,770.31
Concrete Class "E" (90 kg/cm ² , 38 mm)	cu.m	2,406.89
Concrete Class "F" (210 kg/cm ² , 19 mm)	cu.m	3,955.88
Concrete blocks for river bed protection	pcs.	8,712.25
Road surfacing	cu.m	555.34
Grouted riprap	cu.m	1,772.89
Gabion	cu.m	1,832.09
Gravel bed	cu.m	630.22
Weep hole type A, weir apron	pcs.	763.43
Weep hole type B, wall	pcs.	62.39
Weep hole type C, grouted riprap	pcs.	101.20
Steel sheet piles	ton	40,898.81
Reinforcing steel bars	ton	25,418.44
Dowel bar	pcs.	66.31
Joints filler	sq.m	605.28
Handrail	ton	37,022.94
Steel pipe for conduit of maintenance flow, D = 1.6m	lin.m	24,246.78
Steel ppipe for water level indicator, D = 0.7m	lin.m	5,086.27
Steel ladder rungs (Steel steps)	ton	27,735.96
Aluminum gauging staff	lin.m	216.89
Water stop	lin.m	681.95
Wooden pile	pcs.	1,868.68
Asphalt waterproof roofing	sq.m	581.80

Source: Engineer's Estimated Unit Price as of August 1996 for Pampanga Delta Development Project