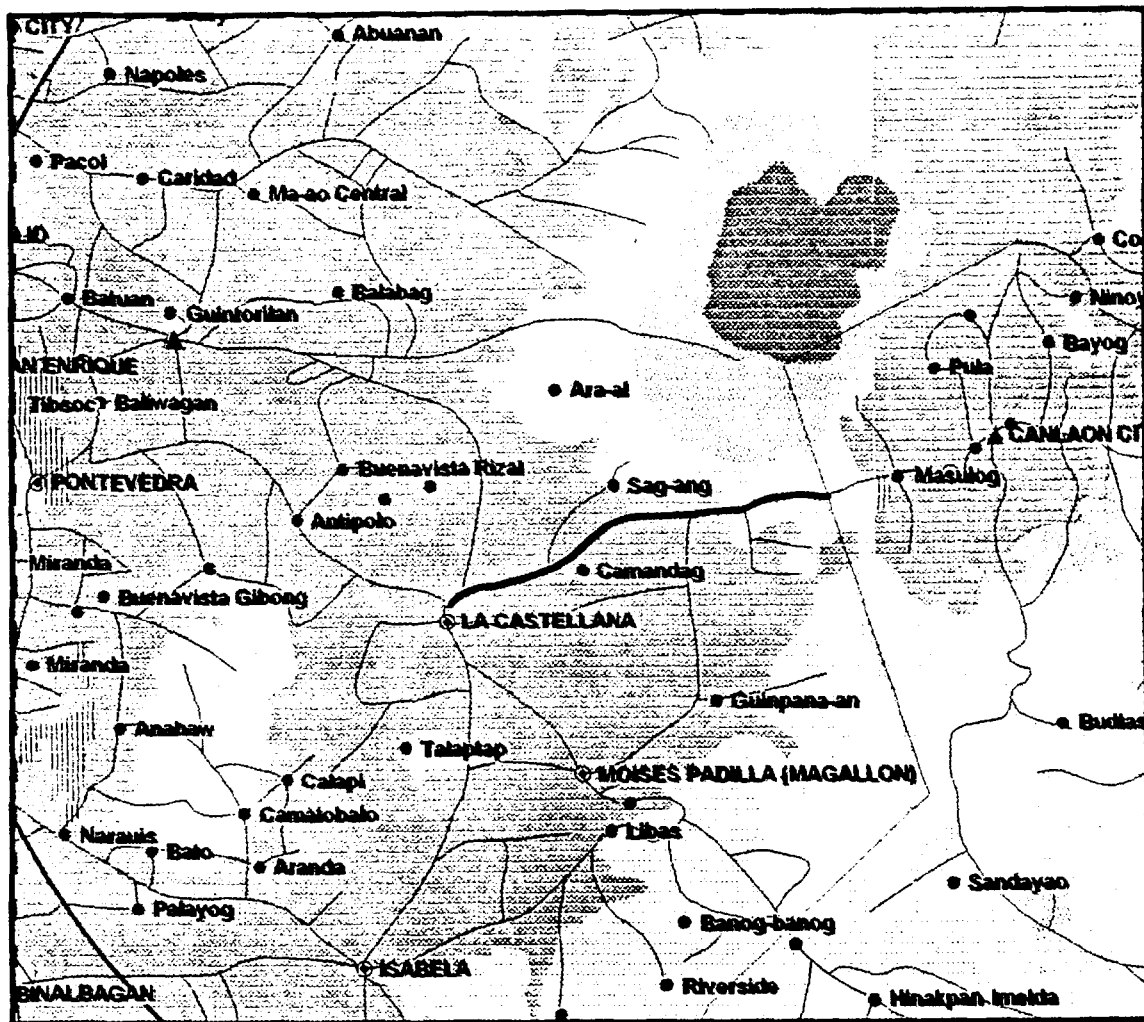


INITIAL ENVIRONMENTAL EXAMINATION

E-287

VOL. 4

RESTORATION OF SAN ENRIQUE - VALLEHERMOSO ROAD PROJECT



NRIMD Phase 1
PMO - IBRD

SCANNED

Department of Public Works and Highways
Manila, Philippines



Department of Public Works and Highways
Environmental Impact Assessment Project Office



in coordination with
Carl Bro International s/s

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Restoration of San Enrique - Vallehermoso Road Project
Province of Negros Occidental

Background

BACKGROUND

The Rehabilitation/Improvement of San Enrique-Vallehermoso Road has been conceived as a major step in the transport sector. It serves as a cross-island link connecting Negros Oriental & Occidental. It is classified as part of the country's arterial road network. The improvement of the project road would offer a distance savings of about 50 kilometers or vehicular trips between the provincial capitals of Bacolod City and Dumaguete City as compared to the alignment along the North Coastal Circumferential route. The road project covers mainly the town of La Castellana, Negros Occidental.

The provision of land transportation between Negros Oriental and Occidental was considered as a major step to accelerate the development of the towns of Negros Occidental which passes potential areas for agricultural activities: crop production of rice, corn, various root crops & sugar production which is considered the lifeblood of the majority of the local population.

The construction of San Enrique-Vallehermoso Road could also provide the people access to better health, educational facilities and other social services of urban areas, as well as development of the tourist potentials of the influence area which is naturally endowed with ecologically balanced flora and fauna.

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Executive Summary

EXECUTIVE SUMMARY

The Department of Public Works and Highways - Environmental Impact Assessment Project Office was given the task to undertake the preparation of Social and Environmental Impact Assessment for projects to be implemented under Year 2 implementation of National Road Improvement and Management Program (NRIMP) such as Malalag-Malita, Davao-Surigao Coastal Road, Hinobaan-Basay Section of the Kabankalan-Basay Road and San Enrique-Vallehermoso Road.

PROJECT DESCRIPTION

San Enrique-Vallehermoso Road

The road project lies in the municipality of La Castellana, province of Negros Occidental. The road project starts at the crossing of Bgy. Tabora, La Castellana Sta.65+660, which follows the existing gravel road alignment of San Enrique-Vallehermoso Road and ends at the Provincial Boundary of Negros Occidental and Negros Oriental. The main features of the project include the upgrading of approximately 23.60 km of existing gravel road with Portland Cement Concrete Pavement, construction of four (4) bridges & improvement of drainage facilities.

METHODOLOGY (DATA GATHERING)

Interviews, site inspection and field works, and collection of information from different government agencies such as DPWH Regional Offices, DPWH District Engineering offices, Community Environment and Natural Resources Office (CENRO), Bureau of Mines and Geo-Sciences, and offices of the different municipal government units are the common sources of data used in this study. Other data were taken from the EIAPO library and Geographical Information System. The Socio-Economic aspect data were gathered from Local Government Units (LGUs) thru the Municipal Planning & Development Coordinator's Office. Also, photographs of the project site were taken and presented as annexes. Endorsement from LGUs, specifically the Municipal Mayor, was obtained after brief presentation of the proposed project of which they did not interpose any objection to the project.

IMPACT AND MITIGATING MEASURES

With the rehabilitation/improvement of the existing gravel road, transport system in the project area will be improved. Vehicular traffic flow will be faster, agricultural production will increase, farm to market products will increase thereby enhancing the local economy by facilitating access for the export/import of goods produced and the local residents will be benefited by fast delivery of social services as a result of the project. Environmental checklist on physical, biological and socio-economic environment was prepared to identify which area has significant impacts. Discussions on the future development plan in the project area and the summary of significant impacts and recommended actions are evaluated and incorporated in this report.

PRE- CONSTRUCTION PHASE

Land Acquisition

There are about thirty (30) structures, which would be affected by the road project. Compensation package for encroaching the road-right-of-way of the affected structures will be based on the social policy agreed between DPWH & the World Bank. Since this is an existing national highway, no acquisition of the land is required.

Social Acceptability

As to social acceptability and public consultation, the residents of La Castellana have favorably endorsed (see Annex "A" attached Endorsements/Proof of Acceptability) the project, as these will improve the traffic flow and delivery of services, thus contributing to economic growth. They have been assured that environmental considerations are incorporated at all stages of the project. A Social Impact Assessment was conducted to determine the number of Project Affected Families (PAF's) and the structures that will be affected by the project. The following activities were conducted: 1) Linear Acquisition Assessment or Linear Mapping, delineating the improvements within the project area 2) Socio-Economic Survey, to determine the number of PAF's and prepare Resettlement Action Plan. Also, a 100% Timber Inventory was conducted jointly by DENR and DPWH.

Forested Area

The project will pass through a ten kilometer-protected area, however, only three kilometers of which is a forested area. Watershed is five to ten kilometers away from the project site

POST CONSTRUCTION PHASE

Tourism

If the project will be completed, the place is full of potential tourist spots like Kanlaon Volcano and vast water resources like Mambangon Springs, Mantuhod Springs, Badji-Badji Springs at Brgy. Cabacungan, Mandayao Falls at Brgy. Sag-ang, and Kanopoy Falls and Green Falls at Brgy. Mansalanao, all in the municipality of La Castellana. The project is of great help to the accessibility of these tourist spots.

Traffic

After the construction, it is expected that the traffic will increase by fifty percent, but no significant impacts are foreseen as to sensitive areas, i.e, school, except as to bird life as noise is expected from the buses, car, etc.

Section I

General Information

Section I: GENERAL INFORMATION

1. **Project's Name** : Restoration of San Enrique-Vallehermoso Road
2. **Project Location** : Province of Negros Occidental
3. **Project Proponent** : PMO-IBRD, Department of Public Works and Highways

Contact Person : Dir. FLORANTE SORIQUEZ
Designation : Project Director, PMO-IBRD
Address : 2nd St., Port Area, Manila
Tel/Fax # : 527-6590
4. **Project Category and Project Components** : The project consist of upgrading the existing gravel road with Portland Cement Concrete and replacement of six (6) bridges, rehabilitation of five (5) bridges, drainage facilities, slope protection works, and road safety features.
5. **Project Objectives** :
 1. To enhance the local economy in terms of trade, commerce and industry.
 2. To serve as cross-island link connecting Negros Oriental & Occidental.
 3. To support improvements in the deliveries with basic services, transport with people and goods and access to amenities.
6. **Project Cost** : P 400 Million (Estimated)
7. **Contract Start Date** : Year 2001

Section II

Description of

Existing Environment

Section II: DESCRIPTION OF EXISTING ENVIRONMENT

I. Physical Environment

Components / Parameters	Yes	No	Remarks
A. Does the road pass through flat terrain? (0-8% slope) In what portion?	√		Most of the road sections are relatively flat
B. Does the road terrain undulating to rolling? (8-18% slope)		√	
C. Does the road terrain rolling to moderately steep / steeply mountainous? (18-40% slope)		√	
D. Is the road terrain very steeply mountainous? (Above 50% slope)	√		
D. Is the road project near or with a forest reserve or a protected watershed area? If "Yes", Name of area and how near? ___ Meters	√		The project will pass about ten kilometers of the forest reserve area of Mt. Kanlaon National Park.
F. Will there be berthing or pier structure along the shoreline/tidal zone that is prone to storm/monsoon tidal surges? Does the road project pass through shoreline? If "Yes", how far? ___ Meters		√	
G. Is the project area prone to erosion? If so, what is the status; slight, moderate or severe		√	
H. Are there existing natural hazards on the area? e.g. landslides, gullying, subsidence. If "Yes" enumerate them?		√	
I. Are there natural drainage ways/creeks within the area		√	

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draining toward communities downstream?			
J. Is the road project within a recharge area of spring downstream?		√	
K. Is the road project prone to flooding? Storms surge area?		√	

II. Biological / Ecological Environment

Parameters	Yes	No	Remarks
a.) Is the road project adjacent to a natural ecosystem			Although the project will pass through ten kilometers of the forest reserve of Mt. Kanlaon Natural Park, impacts are addressed in the Environmental Management Plan, and considering this is an existing road.
1. Forest	√		
2. Coastal/marine		√	
3. Grassland		√	
4. Mangrove		√	
5. Agriculture		√	
6. Lake & river		√	
7. Others		√	
b.) Is there any wildlife that could be affected?	√		
c.) Are there trees that will be cut within the project site?	√		Minimal on the identified forest reserve.
d.) Is there vegetation with economic value within the project site that could be affected?	√		

III. Socio-Economic Environment

EXISTING SETTLEMENT WITHIN THE PROJECT SITE

Category/Description	Number	What will happen to them? (Effects of the project)
Total household affected	20	Structures severely affected, appropriate compensation packages will be given to Project-Affected Person
Land Owner	None	
Tenants	None	
Settlers	None	
Others (Specify)		

Profile of Population

Region VI	1990	1995
La Castellana	54,277	59,620

Source: (NSO)

FARMLOTS INSIDE THE PARK

LOCATION	AREA (Hectares)
Brgy. Masulog	98.01
Brgy. Biaknabato	214.19
Brgy. Cabagna-an	356.97
Brgy. Sag-ang	285.75
Brgy. Mansalanao	21.00
Total	975.92

Source: (Municipal Profile of La Castellana)

POPULATION INSIDE THE PARK

BARANGAY	TOTAL POPULATION	INSIDE THE PARK	% TO TOTAL BRGY. POP.
Masulog	2,322	490	21%
Biaknabato	2,652	1,270	47%
Cabagna-an	2,894	2,050	70%
Sag-ang	9,672	650	6%
Mansalanao	2,209	0	0%

Source: (Municipal Profile of La Castellana)

Are there Indigenous People within the Project Area?

None

PROJECT AFFECTED FAMILIES (PAFs) and STRUCTURES AFFECTED BY THE ROW

Structure		Location			Number of Household Members	Others
No.	Description	Distance (m) ↑ C/L	L/S or R/S	Stationing		
	Native Bamboo Waiting Shed	3.50 m	R/S	89 + 150.00		Dimension = 2.00 m x 2.00 m
	Riprap with Bamboo Fence	5.00 m	L/S	88 + 620.00 to 88 + 610.00		
	Wooden Shed	5.00 m	L/S	88 + 610.00		
	Wooden House	4.00 m	L/S	88 + 263.00	8	Dimension = 4.00 m x 3.00 m
	Wooden House	4.00 m	L/S	88 + 257.00	10	Dimension = 3.00 m x 3.00 m
	Wooden House	4.00 m	L/S	88 + 251.50	8	Dimension = 6.00 m x 5.00 m
	Wooden Comfort Room	2.50 m	L/S	88 + 238.50		Dimension = 1.50 m x 1.50 m
	Wooden House	3.50 m	L/S	88 + 228.00	8	Dimension = 4.00 m x 4.00 m
	Bamboo Waiting Shed	3.50 m	L/S	88 + 222.30		Dimension = 2.50 m x 2.50 m
	Wooden House	3.50 m	L/S	88 + 220.00	6	Dimension = 8.00 m x 5.00 m
	Entrance Gate (Masulog Elem. Sch.)	3.50 m	L/S	88 + 125.00		Steel Gate with Concrete Flooring
	Wooden House	4.40 m	L/S	82 + 052.00		
	Concrete House		L/S	79 + 934.00	7	Dimension = 6.00 m x 5.00 m
	Concrete/Wooden House		L/S	79 + 895.00	8	Dimension = 8.00 m x 6.00 m
	Wooden House	3.80 m	L/S	79 + 448.50	3	Dimension = 9.00 m x 6.00 m
	Wooden House	3.50 m	L/S	79 + 245.00	7	Dimension = 8.00 m x 4.00 m

TABULATION OF SIDE CUTS DUE TO WIDENING FOR ROAD RIGHT-OF-WAY (RROW)

Side Cut		Location		Limits		Others
No.	Description	Distance (m) ↑ C/L	L/S or R/S	From Stationing	To Stationing	
	Common with Boulders/Rock	4.90 m	L/S	88 + 584.00	88 + 500.00	Inner Lane (With Widening)
	Common	3.00 m	L/S	88 + 400.00	88 + 310.00	
	Rippable Rock	4.00 m ≈ 2.50 m	L/S	88 + 166.00	88 + 102.00	
	Common with Boulders/Rock	3.50 m	R/S	86 + 995.00	86 + 957.00	
	Common with Boulders/Rock	3.50 m	R/S	86 + 937.00	86 + 915.00	
	Soft Rock	4.00 m ≈ 2.00 m	L/S	85 + 950.00	85 + 750.00	
	Common/Soft Rock	3.00 m	L/S	82 + 527.00	82 + 505.00	
	Common/Soft Rock	3.00 m	L/S	82 + 483.00	82 + 480.00	
	Solid Hard Rock	3.00 m ≈ 1.50 m	L/S	81 + 445.00	81 + 304.00	
	Rippable Rock	3.00 m	L/S	81 + 295.00	81 + 266.00	
	Hard Rock	2.00 m	L/S	81 + 184.00	81 + 175.00	
	Hard Rock	2.50 m	L/S	81 + 110.00	81 + 087.00	
	Common	2.50 m	L/S	81 + 055.00	80 + 990.00	
	Common/Soft Rock	2.00 m ≈ 3.50 m	L/S	80 + 260.00	80 + 205.00	
	Rippable Rock	2.00 m ≈ 3.50 m	L/S	79 + 925.00	79 + 905.00	
	Common	2.00 m	L/S	79 + 455.00	79 + 400.00	
	Common with Boulders/Rock	2.50 m	L/S	79 + 358.00	79 + 250.00	

INVENTORY OF TREES AFFECTED BY THE PROJECT ROAD RIGHT-OF-WAY (RROW)

Tree No.	DBH (cm)	Location			Scientific Name	Local Name	Others
		Stationing	D (m) ↑ C/L	L/S or R/S			
1	30	89 + 150.00	3.80 m	R/S		Gemelina	
2	25	89 + 147.00	4.20 m	R/S		Gemelina	
3	25	89 + 146.00	4.20 m	R/S		Ipil	
4	15	89 + 145.50	4.70 m	R/S		Gemelina	
5	25	89 + 142.00	5.00 m	R/S		Gemelina	
6	50	88 + 735.00	3.00 m	L/S		Camachile	
7	65	88 + 723.00	3.00 m	L/S		Kapok	
8	30	88 + 721.00	2.80 m	L/S		Camachile	
9	30	88 + 711.50	2.50 m	L/S		Kapok	
10	15	88 + 713.00	3.00 m	L/S		Langka	
11	20	88 + 706.00	3.00 m	L/S		Talisay	
12	20	88 + 700.00	2.90 m	L/S		Kasoy	
13	25	88 + 694.00	2.60 m	L/S		Gemelina	
14	20	88 + 686.00	3.20 m	L/S		Guyabano	
15	35	88 + 675.50	3.20 m	L/S		Gemelina	
16	10	88 + 673.00	3.20 m	L/S		Langka	
17	25	88 + 665.00	3.20 m	L/S		Mango	
18	50	88 + 654.00	3.20 m	L/S		Gemelina	
19	10	88 + 652.00	3.00 m	L/S		Gemelina	
20	50	88 + 649.00	3.20 m	L/S		Gemelina	
21	10	88 + 635.90	3.00 m	L/S		Tsiko	
22	30	88 + 616.00	5.00 m	L/S		Anchuan	Inner Lane (Sharp Curve)
23	25	88 + 614.50	5.00 m	L/S		Camachile	Inner Lane (Sharp Curve)
24	20	88 + 589.00	4.80 m	L/S		Gemelina	Inner Lane (Sharp Curve)
25	25	88 + 545.40	4.60 m	R/S		Gemelina	Inner Lane (Sharp Curve)

Tree No.	DBH (cm)	Location			Scientific Name	Local Name	Others
		Stationing	D (m) ↑ C/L	L/S or R/S			
26	25	88 + 543.30	4.60 m	R/S		Gemelina	Inner Lane (Sharp Curve)
27	25	88 + 542.00	4.00 m	R/S		Gemelina	Inner Lane (Sharp Curve)
28	10	88 + 431.50	4.20 m	R/S		Gemelina	Inner Lane (Sharp Curve)
29	25	88 + 429.00	4.40 m	R/S		Gemelina	Inner Lane (Sharp Curve)
30	15	88 + 426.00	4.80 m	R/S		Gemelina	Inner Lane (Sharp Curve)
31	10	88 + 524.50	4.80 m	R/S		Gemelina	Inner Lane (Sharp Curve)
32	10	88 + 423.00	4.80 m	R/S		Gemelina	Inner Lane (Sharp Curve)
33	15	88 + 422.00	4.90 m	R/S		Gemelina	Inner Lane (Sharp Curve)
34	7	88 + 421.00	5.00 m	R/S		Gemelina	Inner Lane (Sharp Curve)
35	30	88 + 417.00	5.30 m	R/S		Gemelina	Inner Lane (Sharp Curve)
36	15	88 + 416.00	5.30 m	R/S		Gemelina	Inner Lane (Sharp Curve)
37	20	88 + 410.00	6.80 m	R/S		Anchuan	Inner Lane (Sharp Curve)
38	15	88 + 407.00	6.60 m	R/S		Ipil	Inner Lane (Sharp Curve)
39	8	88 + 406.00	6.50 m	R/S		Gemelina	Inner Lane (Sharp Curve)
40	20	88 + 402.00	5.80 m	R/S		Anchuan	Inner Lane (Sharp Curve)
41	10	88 + 398.00	6.10 m	R/S		Gemelina	Inner Lane (Sharp Curve)
42	15	88 + 395.00	6.10 m	R/S		Gemelina	Inner Lane (Sharp Curve)
43	12	88 + 393.50	6.10 m	R/S		Gemelina	Inner Lane (Sharp Curve)
44	8	88 + 392.00	6.10 m	R/S		Gemelina	Inner Lane (Sharp Curve)
45	70	88 + 385.00	6.50 m	R/S		Narra	Inner Lane (Sharp Curve)
46	20	88 + 386.00	6.50 m	R/S		Narra	Inner Lane (Sharp Curve)
47	10	88 + 387.50	6.40 m	R/S		Anchuan	Inner Lane (Sharp Curve)
48	15	88 + 372.00	8.20 m	R/S		Ipil	Inner Lane (Sharp Curve)
49	25	88 + 388.00	4.00 m	L/S		Anchuan	
50	10	88 + 245.00	1.50 m	L/S		Gemelina	

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Tree No.	DBH (cm)	Location			Scientific Name	Local Name	Others
		Stationing	D (m) ↑ C/L	L/S or R/S			
51	15	88 + 239.00	1.50 m	L/S		Gemelina	
52	30	88 + 232.50	1.00 m	L/S		Gemelina	
53	15	88 + 230.50	1.50 m	L/S		Guyabano	
54	10	88 + 230.00	1.00 m	L/S		Duhat	
55	40	88 + 222.30	3.50 m	L/S		Star Apple	
56	15	88 + 220.70	2.50 m	L/S		Ubod	
57	35	88 + 212.00	3.50 m	L/S		Langka	
58	25	88 + 200.00	4.00 m	L/S		Langka	
59	60	88 + 078.00	6.00 m	L/S		Camachile	
60	20	88 + 058.50	5.00 m	L/S		Kakawate	
61	8	88 + 013.00	4.30 m	R/S		Gemelina	
62	15	87 + 964.00	4.20 m	R/S		Ipil	
63	10	87 + 960.00	4.20 m	R/S		Ipil	
64	20	87 + 930.00	4.90 m	L/S		Anchuan	Inner Lane
65	25	87 + 910.00	3.90 m	R/S		Kapok	
66	15	87 + 861.00	4.10 m	R/S		Gemelina	
67	13	86 + 167.20	4.00 m	R/S		Bayuco	
68	20	86 + 033.00	4.00 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
69	15	85 + 997.50	4.00 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
70	25	85 + 993.50	3.50 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
71	15	85 + 991.00	3.50 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
72	30	85 + 987.00	3.50 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
73	25	85 + 981.60	3.50 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
74	15	85 + 978.00	3.00 m	L/S		Traong	Side Cut (Common/Soft Rock)
75	15	85 + 968.50	3.00 m	L/S		Gemelina	Side Cut (Common/Soft Rock)

Tree No.	DBH (cm)	Location			Scientific Name	Local Name	Others
		Stationing	D (m) ↑ C/L	L/S or R/S			
76	10	85 + 957.50	3.00 m	L/S		Bugnay	Side Cut (Common/Soft Rock)
77	20	85 + 945.00	4.00 m	L/S		Tabige	Side Cut (Common/Soft Rock)
78	35	85 + 936.00	3.50 m	L/S		Molave	Side Cut (Common/Soft Rock)
79	20	85 + 926.00	3.00 m	L/S		Tabige	Side Cut (Common/Soft Rock)
80	10	85 + 924.00	3.50 m	L/S		Tabige	Side Cut (Common/Soft Rock)
81	30	85 + 919.00	3.50 m	L/S		Brazilian Tree	Side Cut (Common/Soft Rock)
82	15	85 + 913.00	3.50 m	L/S		Acle	Side Cut (Common/Soft Rock)
83	10	85 + 905.50	3.50 m	L/S		Dita	Side Cut (Common/Soft Rock)
84	15	85 + 904.50	4.00 m	L/S		Mahogany	Side Cut (Common/Soft Rock)
85	25	85 + 901.00	3.50 m	L/S		Brazilian Tree	Side Cut (Common/Soft Rock)
86	20	85 + 902.00	3.50 m	L/S		Makaasim	Side Cut (Common/Soft Rock)
87	10	85 + 895.00	3.50 m	L/S		Acle	Side Cut (Common/Soft Rock)
88	5	85 + 889.00	3.00 m	L/S		Ipil	Side Cut (Common/Soft Rock)
89	25	85 + 881.00	2.00 m	L/S		Brazilian Tree	Side Cut (Common/Soft Rock)
90	20	85 + 876.00	2.50 m	L/S		Tabige	Side Cut (Common/Soft Rock)
91	20	85 + 868.00	3.50 m	L/S		Tabige	Side Cut (Common/Soft Rock)
92	10	85 + 862.00	3.00 m	L/S		Makopa	Side Cut (Common/Soft Rock)
93	20	85 + 848.00	2.00 m	L/S		Labinog	Side Cut (Common/Soft Rock)
94	13	85 + 836.00	3.50 m	L/S		Traong	Side Cut (Common/Soft Rock)
95	10	85 + 823.00	3.50 m	L/S		Labinog	Side Cut (Common/Soft Rock)
96	13	85 + 815.00	3.50 m	L/S		Tabige	Side Cut (Common/Soft Rock)
97	10	85 + 810.00	3.00 m	L/S		Tabige	Side Cut (Common/Soft Rock)
98	35	85 + 793.00	3.00 m	L/S		Anabyong	Side Cut (Common/Soft Rock)
99	10	85 + 791.00	3.00 m	L/S		Brazilian Tree	Side Cut (Common/Soft Rock)
100	15	85 + 786.00	4.00 m	L/S		Anchuan	Side Cut (Common/Soft Rock)

Tree No.	DBH (cm)	Location			Scientific Name	Local Name	Others
		Stationing	D (m) ↑ C/L	L/S or R/S			
101	35	85 + 785.50	4.00 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
102	30	85 + 784.00	4.00 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
103	35	85 + 781.50	4.00 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
104	40	85 + 780.00	4.00 m	L/S		Gemelina	Side Cut (Common/Soft Rock)
105	8	85 + 726.00	4.00 m	L/S		Langka	
106	10	85 + 264.50	4.00 m	R/S		Achuete	
107	10	81 + 379.00	3.00 m	L/S		Dao	Side Cut (Hard Rock)
108	15+10	81 + 364.50	3.00 m	L/S		Molave	Side Cut (Hard Rock)
109	15	81 + 362.00	3.00 m	L/S		Anabyong	Side Cut (Hard Rock)
110	10	81 + 359.00	3.00 m	L/S		Bayante	Side Cut (Hard Rock)
111	15	81 + 358.00	3.00 m	L/S		Bayante	Side Cut (Hard Rock)
112	15	81 + 357.00	3.00 m	L/S		Bayante	Side Cut (Hard Rock)
113	15+10	81 + 350.00	3.00 m	L/S		Balete	Side Cut (Hard Rock)
114	10	81 + 218.00	3.00 m	L/S		Isis	Side Cut (Hard Rock)
115	20	81 + 210.00	3.00 m	L/S		Malakape	Side Cut (Hard Rock)
116	35	80 + 632.00	3.20 m	L/S		Brazilian Tree	
117	40	80 + 252.00	3.20 m	L/S		Coconut	
118	15	80 + 230.00	2.80 m	L/S		Avocado	
119	25	80 + 214.00	3.50 m	L/S		Anabyong	Side Cut (Common)
120	15	80 + 066.00	1.50 m	L/S		Ipil	
121	10	80 + 064.00	2.50 m	L/S		Star Apple	
122	30	80 + 062.50	2.00 m	L/S		Langka	
123	25	80 + 058.50	2.00 m	L/S		Langka	
124	30	80 + 053.00	2.50 m	L/S		Langka	
125	30	80 + 009.50	3.50 m	L/S		Gemelina	

Tree No.	DBH (cm)	Location			Scientific Name	Local Name	Others
		Stationing	D (m) ↑ C/L	L/S or R/S			
126	40	80 + 009.00	2.00 m	L/S		Langka	
127	10	79 + 941.00	1.50 m	L/S		Brazilian Tree	
128	30	79 + 928.00	3.50 m	L/S		Gemelina	
129	20	79 + 926.00	3.00 m	L/S		Brazilian Tree	
130	30	79 + 918.00	4.00 m	L/S		Gemelina	Side Cut (Soft Rock)
131	20	79 + 915.00	2.50 m	L/S		Gemelina	
132	20	79 + 910.00	2.50 m	L/S		Gemelina	
133	10	79 + 903.00	4.00 m	L/S		Brazilian Tree	Side Cut (Soft Rock)
134	30	79 + 900.00	4.00 m	L/S		Gemelina	Side Cut (Soft Rock)
135	6	79 + 884.50	2.50 m	L/S		Atis	
136	10	79 + 883.00	3.00 m	L/S		Avocado	
137	65	79 + 865.00	4.00 m	L/S		Narra	Inner Lane (Sharp Curve)
138	50	79 + 861.40	3.50 m	L/S		Narra	Inner Lane (Sharp Curve)
139	80	79 + 857.50	3.50 m	L/S		Narra	Inner Lane (Sharp Curve)
140	20	79 + 843.50	4.00 m	L/S		Suha	Inner Lane (Sharp Curve)
141	40	79 + 837.00	4.50 m	L/S		Banaba	Inner Lane (Sharp Curve)
142	8	79 + 836.00	1.00 m	L/S		Star Apple	Inner Lane (Sharp Curve)
143	130	79 + 832.00	3.50 m	L/S		Narra	Inner Lane (Sharp Curve)
144	35	79 + 825.00	1.50 m	L/S		Gemelina	Inner Lane (Sharp Curve)
145	40+30	79 + 801.50	2.00 m	L/S		Narra	Inner Lane (Sharp Curve)
146	10	79 + 672.50	3.50 m	L/S		Langka	
147	8	79 + 671.40	3.50 m	L/S		Langka	
148	10	79 + 670.40	3.50 m	L/S		Mahogany	
149	10	79 + 661.60	4.00 m	L/S		Narra	
150	20	79 + 655.00	4.00 m	L/S		Santol	

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Tree No.	DBH (cm)	Location			Scientific Name	Local Name	Others
		Stationing	D (m) ↑ C/L	L/S or R/S			
151	40	79 + 486.30	3.50	L/S		Gemelina	
152	40	79 + 485.00	3.50	L/S		Gemelina	
153	10	79 + 481.50	4.00	L/S		Mahogany	
154	10	79 + 477.00	4.00	L/S		Cacao	
155	13	79 + 476.00	3.50	L/S		Aratiles	
156	30	79 + 452.00	3.00	L/S		Avocado	
157	15	79 + 439.00	3.50	L/S		Langka	
158	20	79 + 434.00	3.00	L/S		Kapok	
159	10	79 + 428.00	2.00	L/S		Kape	
160	20+10	79 + 418.00	2.00	L/S		Kapok	
161	30	79 + 406.00	2.00	L/S		Ipil	
162	20	79 + 400.00	1.50	L/S		Kapok	
163	20	79 + 400.00	3.00	L/S		Anabiong	
164	10	79 + 375.00	3.00	L/S		Achuete	
165	10+10	79 + 356.00	3.50	L/S		Kasoy	
166	10	79 + 353.00	2.00	L/S		Gemelina	
167	20	79 + 346.00	2.50	L/S		Avocado	
168	10	79 + 286.00	3.00	L/S		Langka	
169	10	79 + 284.50	3.00	L/S		Langka	
170	20	79 + 280.50	2.00	L/S		Narra	
171	15	79 + 277.00	2.00	L/S		Avocado	
172	10	79 + 276.50	2.00	L/S		Langka	
173	40	79 + 274.00	2.50	L/S		Kapok	
174	30	79 + 267.00	2.50	L/S		Narra	
175	20	79 + 264.50	2.00	L/S		Narra	

Tree No.	DBH (cm)	Location			Scientific Name	Local Name	Others
		Stationing	D (m) ↑ C/L	L/S or R/S			
176	15	79 + 262.00	2.50	L/S		Kapok	
177	10	79 + 260.00	2.50	L/S		Mahogany	
178	12	79 + 256.00	1.50	L/S		Langka	
179	30	79 + 255.00	2.00	L/S		Mahogany	
180	25	79 + 251.50	1.00	L/S		Palosanto	
181	10	79 + 250.50	1.00	L/S		Langka	
182	10	79 + 244.00	1.50	L/S		Langka	
183	6	79 + 243.10	1.50	L/S		Kape	
184	10	79 + 240.00	1.50	L/S		Mahogany	
185	12	79 + 237.50	1.00	L/S		Mahogany	
186	6	79 + 230.40	1.00	L/S		Mahogany	
187	10	79 + 208.50	2.50	L/S		Narra	
188	15	79 + 205.00	2.50	L/S		Kakawate	
189	20	79 + 203.00	2.50	L/S		Narra	
190	12	79 + 198.50	3.50	L/S		Narra	

TABULATION OF NARRA TREES AFFECTED BY THE PROJECT ROAD RIGHT-OF-WAY (RROW)

Tree No.	DBH (cm)	Location			Scientific Name	Local Name	Others
		Stationing	D (m) ↑ C/L	L/S or R/S			
45	70	88 + 385.00	6.50 m	R/S		Narra	Inner Lane (Sharp Curve)
46	20	88 + 386.00	6.50 m	R/S		Narra	Inner Lane (Sharp Curve)
137	65	79 + 865.00	4.00 m	L/S		Narra	Inner Lane (Sharp Curve)
138	50	79 + 861.40	3.50 m	L/S		Narra	Inner Lane (Sharp Curve)
139	80	79 + 857.50	3.50 m	L/S		Narra	Inner Lane (Sharp Curve)
143	130	79 + 832.00	3.50 m	L/S		Narra	Inner Lane (Sharp Curve)
145	40+30	79 + 801.50	2.00 m	L/S		Narra	Inner Lane (Sharp Curve)
149	10	79 + 661.60	4.00 m	L/S		Narra	
170	20	79 + 280.50	2.00	L/S		Narra	
174	30	79 + 267.00	2.50	L/S		Narra	
175	20	79 + 264.50	2.00	L/S		Narra	
187	10	79 + 208.50	2.50	L/S		Narra	
189	20	79 + 203.00	2.50	L/S		Narra	
190	12	79 + 198.50	3.50	L/S		Narra	

Section III

Environmental Impact

Checklist

Section III: ENVIRONMENTAL IMPACT CHECKLIST

Initial Environmental Examination							
Environmental Parameters	Positive Impact			No Impact	Negative Impact		
	High	Mod	Low		High	Mod	Low
	3	2	1		3	2	1
I. Physical							
Erosion							√
Drainage							√
Regional Hydrology / Flooding							√
Ground water table							√
Water quality							√
Waste water flow							√
Air quality							√
Land Conversion							√
Others: (Specify)							
II. Biological / Ecological							
Mangrove				√			
Coral reefs				√			
Endangered Species							√
Aquatic life				√			
Wildlife							√
Others: (Specify)							
III. Human Interest (Social)							
Labor & employment	√						
Housing & Social Services	√						
Population	√						
Culture & Lifestyle		√					
Transportation	√						
Public Health & Safety		√					
Vulnerable groups				√			
IP's				√			
Historical / Archeological Interest				√			

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Initial Environmental Examination							
Environmental Parameters	Positive Impact			No Impact	Negative Impact		
	High	Mod	Low		High	Mod	Low
	3	2	1		3	2	1
Tourism	√						
Others: (Specify)							

Summary of Significant Impacts and Recommended Actions

Significant Impacts	Recommended Actions
Erosion	<p>Cutting of the mountain slopes due to road widening will induce erosion. The design of the road should consider filling of the road to prevent cutting with appropriate materials.</p> <p>In the event that cutting the slope is unavoidable, the work should be done during the non-rainy seasons. The slope will be protected with engineering structures and/or with vegetation such as vertiver grass, kakawate and overlaid with coconut fiber.</p>
Water Quality	<p>Water quality of the rivers may be affected due to the following activities:</p> <ol style="list-style-type: none"> 1. Land clearing and filling of base and sub-base course will be undertaken during non-rainy days. Quarry sites should not be located in bodies of water and populated areas. Limit the depth in river quarrying. 2. Asphalt overlays shall be done during dry season or non-rainy days to avoid oil spill. 3. Stockyard and campsites should be located away from bodies of water.
Waste Water Flow	<p>Wastewater may come from labor camps, stockyards, crushing plants and construction equipment.</p>

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	<p>The contractor should provide latrine in the work camp site, proper disposal of solid waste such as waste cans, separating the biodegradable and degradable waste wastes and avoid spillage of oil, lubricant and other petroleum products. The above facilities should be located far from bodies of water, rivers, aquifer, and other sources of water from the community.</p>
Air Quality	<p>The road shall be sprinkled during construction to prevent dust generation.</p>
Noise	<p>Proper noise reduction device shall be installed in the construction equipment. Proper scheduling of work activities, preferably there will no work during night.</p>
Transportation	<p>During construction, one lane maybe temporarily closed, while the other will be open to traffic. It is expected that traffic will be heavy, however, a traffic personnel will be deployed especially during peak hours to be in-charge of the traffic flow. Detour bridge will be temporarily installed during bridge construction.</p>
Tourism	<p>Improved road will generate tourism. The place is full of potential tourist spots. The local government is working on the promotion of this place.</p>

Section IV

Environmental Conditions

With/Without the Project

Section IV: ENVIRONMENTAL CONDITIONS WITH/WITHOUT THE PROJECT

Environmental Conditions Without the Project

Rehabilitation and improvement of San Enrique-Vallehermoso road was a long awaited desire of the people living within the vicinity of the proposed road project. Without the project the road will continue to deteriorate. No investors will be attracted to the area considering the services of the government cannot be provided due to inaccessibility. Transportation will remain difficult especially during rainy seasons and dry seasons because the road is muddy and dusty. Accessibility and deliveries of public services and prime commodities will remain difficult. Transport of agricultural products and other commodities will remain slow, thus, income generation for the municipality will marginally improve. Market limitations due to slow phase may hamper inflow of trade and capital from neighboring municipalities, provinces and from Metro Manila. Consequently, economic activities within the project area will be stagnant.

Environmental Conditions With the Project

As early as construction stage of the project, economic benefits start pouring in at the project area. People living within the areas will have an additional income; tourists will flourish aside from the usual sources of income (farming), considering that the laborers will be hired locally. The project will introduce great business in tourism industry because of the potential tourist spots.

Temporarily, the residents will experience disturbances in terms of displacement, noise and air pollution, traffic flow disturbance. However, these adverse impacts can be minimized by proper mitigation measures as provided in the Environmental Management Plan.

Upon the completion of the project accessibility will be improved and transportation services will be faster and more convenient. Dusty and muddy roadway will be eliminated. The road will be passable even during rainy days especially on the

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mountain part of the project since proper design of box culvert and other drainage structures will be installed.

As a result of the increased accessibility and convenience to riding public, more investors will be attracted, thus, improving the economic status of Negros Occidental and its municipalities that will be traversed by the road. Deliveries of goods, social services, utilities will be easier and faster. Marketing of local products to other provinces will improve, as the movement of goods from farm to market or ports will be easier and more convenient.

Section V

Environmental

Management Plan

Section V: ENVIRONMENTAL MANAGEMENT PLAN

ISSUE	OBJECTIVE	TARGET	ACTIVITY	INDICATOR	RESPONSIBLE	TIMING	COST
Land acquisition and damage to property due to RROW. Loss of property.	To ensure that impact on property is avoided, mitigated or compensated.	All identified PAPs are properly compensated in accordance with the DPWH Resettlement Policy prior to construction. <u>Note:</u> All PAFs with tenurial rights will be assisted by the DPWH in rebuilding structures affected by the RROW backward away from the road but in the same location.	<ol style="list-style-type: none"> 1. Conduct linear mapping. 2. Conduct socio-economic survey. 3. Conduct Public Consultation about the compensation. 4. Conduct validation of compensation. 5. Adopt any feasible technical and economical changes in the design that would lessen the impact on PAPs. 6. Discuss the issues with the contractor. 7. Conduct investigation if PAPs were really compensated. 	<p>Number of complaints from PAPs about the compensation.</p> <p>Number and percentage of PAPs that were compensated.</p> <p>Total amount of compensation given to PAPs.</p>	DPWH, NHA and LGUs.	To be completed one month before construction works are commenced.	<p>Compensation and entitlement of Project Affected Families will be decided in the Resettlement Action Plan (RAP).</p> <p><u>Note:</u> Based on the inventory conducted by DPWH and MKNP Management Office, there are sixteen (16) structures with nine (9) PAFs affected by the RROW within MKNP.</p>
Possible increase in migration to the MKNP.	Ensure that the environmental pressure from settlements in the Mount Kanlaon National Park does not increase.	Maintain the present human settlement and occupancy in the MKNP.	<ol style="list-style-type: none"> 8. Conduct socio-economic survey of the area occupied by human settlements. 9. The DPWH will set up billboards informing the public about relevant regulations e.g. forbidding immigration and obligations of the public when entering 	<p>Number of new settlers along the road in the MKNP.</p> <p>Area occupied by human settlements.</p>	<p>Activity 8: The DPWH</p> <p>Activity 9: The DPWH</p>	<p>Activity 8: Pre-construction</p> <p>Activity 9: During construction</p>	<p>The cost of this item shall be shouldered by the DPWH and MKNP.</p> <p>In the Bill of Quantities a separate line item shall be inserted for</p>

ISSUE	OBJECTIVE	TARGET	ACTIVITY	INDICATOR	RESPONSIBLE	TIMING	COST
			the National Park.				production and setting up of the billboards.
Cutting of trees	To avoid or minimize cutting of trees	Ball and replant all affected young trees. (Plant 5 seedlings for every tree cut). <u>Note:</u> Based on the inventory conducted by the DPWH and MKNP Management Office, there are fourteen (14) Narra trees from a total of one hundred ninety (190) trees affected by the RROW.	10. The Engineer to instruct the contractor in the tree preservation scheme. 11. The contractor to carry out tree cutting, balling replanting and planting of seedlings. 12. The Engineer to inspect the tree preservation. 13. The MMT to monitor the tree cutting and planting of seedlings.	Number of trees being cut off. Visibility of newly planted trees	Activity 10: The Engineer. Activity 11: The MMT. Activity 12: The Engineer. Activity 13: The MMT.	Activity 10-11: Before construction. Activity 12-13: During construction.	In the Bill of Quantities a separate line item shall be inserted. For this line item, the Consultant shall prepare technical specifications for which the Contractor will include in the cost estimate.
Loss of vegetative cover	To minimize or restore the loss of vegetative cover due to construction related operations and undertakings	The vegetative cover is restored in a few months after clearing.	14. Monitor stockpiling. 15. Avoid stock piling of materials on vegetated roadside areas.	Visible growth of grasses/shrubs	Activity 14: The Engineer. Activity 15: The Contractor	Activity 14-15: During construction	The cost of compliance with the requirements shall be included in the Contractor's estimate.
Spoil and construction waste disposal	To ensure safe and proper disposal of spoil and construction waste. To minimize the generation of spoil and construction waste.	All excess soil generated by the project is either re-used or disposed at designated disposal sites. <u>Note:</u> Disposal sites will be located in Brgy. Cabagnaan, La Castellana.	16. Estimate the amounts and types of spoil and construction waste to be generated by the project. 17. Investigate whether other parties are interested in the waste materials. 18. Identify potential safe disposal sites close to the project. Investigate the	Amount of excess soil disposed at designated disposal sites. Incidents of waste materials dumped along the slope or into the gullies.	Activity 16: The Engineer Activity 17: The Contractor. Activity 18: The Engineer assisted by EIAPO	Activity 16: Design phase Activity 17-19: During construction.	A separate line item shall be included in the Bill of Quantities for excavation and environmentally safe disposal of xx m ³ of spoil and construction waste.

ISSUE	OBJECTIVE	TARGET	ACTIVITY	INDICATOR	RESPONSIBLE	TIMING	COST
	To optimize the reuse of spoil and construction waste.		environmental conditions of the disposal sites and prepare recommendation of most suitable and safest site(s). 19. Monitor the disposal of waste materials.		Activity 19: The MMT.		
Quarrying	To ensure environmental safe quarrying at designated sites. To ensure that no quarrying connected to the project takes place inside the Mount Kanlaon National Park.	All quarry activities are conducted in accordance with DPWH requirements and sound environmental practices. Quarrying is only conducted in designated quarry sites, and no quarrying inside the Mount Kanlaon Natural Park.	20. Estimate amounts and types of materials to be used in the project. 21. Identify potential quarry sites and investigate the environmental conditions and if they have the required permits and licenses. Designate potential quarry sites to the project. 22. Make agreement with MKNP and DENR-RO that excavation in connection with the project inside the park shall not be considered as a quarrying/mining activity. 23. Instruct the contractor not to quarry inside the MKNP. 24. Monitor extraction of rocks, gravel and sand from small rivers or streams.	Incidents of violations of sound environmental quarry practices. Incidents of illegal quarrying inside the MKNP.	Activity 20: The Engineer. Activity 21: The Engineer in cooperation with the EIAPO Activity 22: The Engineer in cooperation with the EIAPO Activity 23: The Engineer. Activity 24: The MMT	Activity 20-22: Design phase. Activity 23-24: During construction.	The cost of compliance with the requirements shall be included in the Contractor's cost estimate; or priced in a separate Environmental Management and Restoration (Quarries) line item. For this line item, the Consultant will prepare technical specifications for which the Contractor will include in the cost estimate.
Noise	People staying in the area surrounding the road experience safe sound levels	The noise emission from the construction works does not exceed the Limit Values.	25. The contractor shall only deploy equipment, which emits noise below the emission limit values for	Measurements of noise emission from the construction works.	Activity 25-26: The Contractor. Activity 27:	Activity 25-26: During construction.	The cost of compliance with the noise requirements shall be included in

ISSUE	OBJECTIVE	TARGET	ACTIVITY	INDICATOR	RESPONSIBLE	TIMING	COST
	<p>from traffic and road construction works.</p> <p>Wild animals and birds are not exposed to sounds that would cause significant and lasting changes in the population of the species.</p>	<p>The noise level caused by the road traffic does not exceed the limit values.</p>	<p>construction works, and the equipment shall be operated and scheduled to cause the least disturbance to people and wild life.</p> <p>26. All the contractor's equipment and machinery shall be fitted with noise dampening devices that are operating correctly.</p> <p>27. Conduct noise pollution modeling concerning traffic noise level after completion of road construction.</p> <p>28. Based on the results of the noise pollution modeling, speed-reducing measures such as speed bumps and traffic signboards shall be included and considered in the detailed design of the road section that runs through the MKNP.</p> <p>29. Conduct noise measurements during construction.</p>	<p>Results of noise pollution modeling.</p>	<p>The EIAPO.</p> <p>Activity 28: The Engineer.</p> <p>Activity 29: The MMT.</p>	<p>Activity 27: Design phase.</p> <p>Activity 28-29: During construction.</p>	<p>the Contractor's rates.</p> <p>Separate line items shall be included in the Bill of Quantities for speed reducing measures such as speed bumps and traffic signboards.</p>
Dust/Air Pollution	<p>People staying in the area along the road experience safe levels of dust and air pollutants.</p>	<p>The emission of particulate matter from the contractor's equipment is below the limit values.</p>	<p>30. The contractor shall only deploy equipment, which emits particulate matter below the specific emission limit values, and the equipment shall be</p>	<p>Complains about dust from the residents along the road.</p> <p>Visible dust at the</p>	<p>Activity 30-34: The Contractor.</p>	<p>Activity 30-34: During construction</p>	<p>The costs of complying with the equipment air pollution requirements shall be at the</p>

ISSUE	OBJECTIVE	TARGET	ACTIVITY	INDICATOR	RESPONSIBLE	TIMING	COST
			<p>operated and scheduled to cause the least disturbance to people and wild life.</p> <p>31. All heavy equipment shall be fitted with air pollution control and dampening devices that are operating correctly.</p> <p>32. Stockpiled sand and soil shall be slightly wetted before loading, particularly in windy conditions.</p> <p>33. Vehicles transporting sand and soil shall be covered with a tarpaulin.</p> <p>34. Spraying of bare areas with water.</p>	<p>construction site.</p> <p>Measurements of emission of particulate matter from the contractor's equipment.</p>			Contractor's own expense and should be included in the Contractor's rates.
Soil Erosion	To minimize soil erosion	<p>No landslides during the construction period.</p> <p>Slope protection measures are constructed in all areas prone to erosion.</p> <p>No serious incidents of scouring.</p>	<p>35. Adopt slope preventive measures like slope protection, gabions and mattresses, grouted riprap and other structure that will hold unstable soil.</p> <p>36. Planting Vertiver grass or equivalent along the slope.</p> <p>37. Tree planting on roadside.</p> <p>38. Slopes shall be planted with appropriate vegetation as soon as possible using previously stockpiled topsoil.</p> <p>39. Measures shall be taken to prevent ponding of surface water and scouring of slopes. Newly eroded</p>	<p>Construction of slope protection on sections prone to erosion</p> <p>Growing trees and Vetiver grass.</p> <p>Incidents of landslides.</p> <p>Incidents of scouring.</p>	Activity 35-39: The Contractor.	Activity 35-39: During construction.	<p>The surface area (xx m²) of exposed slopes to be stabilized and the types of vegetation to be planted shall be listed in the Bill of Quantities. It shall be stated that the plantations shall be maintained for a period of 12 months including watering.</p> <p>As an alternative, the contract for replanting and</p>

ISSUE	OBJECTIVE	TARGET	ACTIVITY	INDICATOR	RESPONSIBLE	TIMING	COST
			channels shall be backfilled and restored to natural contours.				maintaining the trees or vegetation can be awarded to local people or an NGO.
Siltation	To minimize siltation.	No incidents of significant increased siltation caused by the construction works.	<p>40. Stockpiling of earth fill shall in most cases not be permitted during the rainy season unless covered by a suitable material for reducing erosion or material loss.</p> <p>41. Stripped material shall not be stored where natural drainage will be disrupted.</p> <p>42. Avoid stock piling of materials on riverbanks that may cause soil erosion.</p>	<p>Location and operation of stockpiles.</p> <p>Incidents where runoff has carried soil from stockpiles or other construction related sites to nearby water bodies.</p> <p>The water level in certain water bodies within the project area.</p>	Activity 40-42: The Contractor.	Activity 40-42: During construction.	The cost of complying with the requirements shall be at the Contractor's own expense and should be included his rates.
Obstruction to traffic	To minimize nuisances caused by obstruction to traffic during construction.	Smooth flow of traffic during construction.	<p>43. Provide makeshift bridge to detour the passing vehicles</p> <p>44. Assign traffic controllers to direct the traffic at the construction sites.</p> <p>45. Schedule work to cause the least nuisances including traffic obstruction.</p>	<p>Deployment of traffic controllers.</p> <p>Complaints from traffickers.</p> <p>Occurrences of traffic congestion.</p>	Activity 43-45: The Contractor.	Activity 43-45: During construction.	The cost of traffic management during construction shall be at the Contractor's own expense and should be included in the estimates.
Birds and wild life protection	To help protect the bird and wild life species in MKNP.	No workers employed by the project are engaged in birds or wild life hunting in MKNP.	46. The overall responsibility for this issue lies with the MKNP-Management, and the issue shall be properly dealt with through the	<p>Sightings of birds and other wildlife in the area.</p> <p>Orientation of</p>	<p>Activity 46: The MKNP-Management.</p> <p>Activity 47:</p>	Activity 46: During and after construction.	The costs of management of the contractor's employees including training

ISSUE	OBJECTIVE	TARGET	ACTIVITY	INDICATOR	RESPONSIBLE	TIMING	COST
		Awareness about birds and wild life protection is raised among the workers.	<p>MKNP-Management Plan.</p> <p>47. The Contractor to educate the workers about wildlife protection and forest conservation and forbid his employees to hunt birds and wild life.</p> <p>48. Erection of observation towers for viewing birds (some endangered) & other wildlife.</p>	workers in wild life protection conducted.	<p>The Contractor.</p> <p>Activity 48: The Contractor assisted by the MKNP Management.</p>	Activity 47: During Construction.	shall be at the Contractor's own expense, and should be included in the cost estimate.
Work Camp Operation and Location	To ensure that the operation of work camps does not adversely impact the surrounding environment and residents in the area.	<p>Work camps are operated in accordance with DPWH requirements and sound environmental practices.</p> <p>Proper and environmental safe sites are identified for work camps.</p>	<p>49. Identify location of work camps in accordance with DPWH requirements and sound environmental practices. Work camps shall not be established inside the MKNP.</p> <p>50. Water and pit latrine facilities shall be provided for employees.</p> <p>51. Hazardous materials and wastes shall be stored on impervious ground under cover. Access to areas containing hazardous substances shall be restricted and controlled.</p> <p>52. Solid waste shall be managed according to the national and local regulations.</p> <p>53. All temporary structures, including office buildings, shelters and latrines, shall be removed. The site shall</p>	<p>Location of work camps.</p> <p>Incidents of non-compliance with DPWH requirements or sound environmental practices.</p>	<p>Activity 49: The Engineer assisted by the EIAPO and DPWH Region VI.</p> <p>Activity 50-53: The Contractor.</p> <p>Activity 54: The Engineer.</p>	<p>Activity 49: Design phase.</p> <p>Activity 50-54: During construction</p>	The cost of complying with the requirements shall be at the Contractor's own expense and should be included in the day work rates for labor; or priced in a separate Environmental Management and Restoration (Work Camp) line item. For this line item, the Consultant will prepare technical specifications for which the Contractor will include in the cost estimate.

ISSUE	OBJECTIVE	TARGET	ACTIVITY	INDICATOR	RESPONSIBLE	TIMING	COST
			<p>be restored to near natural or stable conditions.</p> <p>54. The Engineer shall report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of the works.</p>				
Health Sanitation	To prevent sickness and maintain a healthy workforce.	<p>To have clean, hygienic and sufficient environment for the workers.</p> <p>Solid waste is collected and disposed at designated disposal sites.</p> <p>Liquid waste is collected disposed in a hygienic and environmental safe way.</p>	<p>55. Identify environmentally safe solid waste disposal sites.</p> <p>56. Implement waste handling and disposal system.</p> <p>57. Conduct regular cleaning and maintenance of comfort rooms, kitchens and canteens.</p> <p>58. Provide clean drinking water for the workforce.</p>	<p>Presence of a functioning solid waste collection and disposal system for the waste generated by the project.</p> <p>Record of sickness of the workers.</p> <p>Presence of clean comfort rooms equipped with sewage treatment facilities.</p>	<p>Activity 55: The Engineer in cooperation with the LGUs and the EIAPO.</p> <p>Activity 56-58: The Contractor.</p>	<p>Activity 55: Design phase.</p> <p>Activity 56-58: During construction</p>	The cost of complying with the requirements shall be at the Contractor's own expense and should be included in the cost estimate.
Safety of workers	To ensure safety of workers	To reduce accident rate	<p>59. Provide adequate warning signs</p> <p>60. Provide workers with skull guard or hardhat especially those involved in earth works, bridge construction or working with heavy equipment.</p>	Occurrence of accidents	Activity 59-60: The Contractor.	Activity 59-60: During construction.	The cost of complying with the requirements shall be at the Contractor's own expense and should be included in the cost estimate.

ISSUE	OBJECTIVE	TARGET	ACTIVITY	INDICATOR	RESPONSIBLE	TIMING	COST
Recruitment of labor for the construction works.	To ensure that the local communities will benefit from the project.	As a minimum 70% of the unskilled labor force and 30% of the skilled labor force consist of local people.	61. The Contractor shall recruit, to the maximum possible extent, local persons for the labor force, and shall provide appropriate training where necessary. A minimum of 70% of the unskilled labor force and 30% of the skilled labor force shall be consisting of local people.	Percentage of unskilled and skilled local people in the work force.	Activity 61: The Contractor	Activity 61: Immediately prior to commencement of construction works.	All costs of recruiting, hiring and maintaining the labor force shall be at the contractor's own expense, and shall be included in the relevant item costs in the bill of quantities.
Eco-tourism Control	To better control the impacts of additional park visitors	Well-managed and well-regulated park with complete facilities for visitors	62. Erection of signs to inform and direct visitors on proper park rules and regulations. 63. Construction of restroom facilities. 64. Putting-up of trash cans on strategic locations.	No complaints from visitors regarding facilities in the park.	Activity 62-64: The Contractor & MKNP	Activity 62-64: During and after construction works.	Separate line items shall be included in the Bill of Quantities for the facilities and signs or billboards.
High Risk for Lahar and Floods	To anticipate or avoid surprise incidents due to an unpredicted eruption of Mt. Kanlaon Volcano	A well-coordinated populace in time of lahar slides or floods caused by volcanic eruptions	65. Coordinate with PHIVOLCS for a survey of areas more prone to risks of lahar and flooding specifically those near Calapnagan. 66. Recommend appropriate control(s) if needed.	Capability of the populace (civilians and government authorities) to react with mobility and coordination to such situations.	Activity 65-66: The DPWH & MKNP	Activity 65-66: Before and after construction works.	All appropriate controls recommended shall be included in the Bill of Quantities.

Section VI

Environmental

Monitoring Plan

Section VI: ENVIRONMENTAL MONITORING PLAN

TARGET	METHOD and INDICATORS	LOCATION & SCOPE	FREQUENCY	COSTS	RESPONSIBILITIES
<p>All affected young trees are balled and replanted.</p> <p>Five seedlings are planted for every tree cut.</p>	<p>Baseline survey and documentation of inventory of trees to be affected by the project.</p> <p>The Contractor shall document and record all tree cutting and planting.</p> <p>The Engineer shall conduct ocular inspection and review of recording of tree cutting and planting conducted by the Contractor.</p>	<p>Sites for planting and replanting of trees.</p> <p>Road sections where trees will be cut.</p>	<p>Baseline survey to be conducted before construction.</p> <p>Inspection of tree cutting during the clearing of land operations.</p> <p>The Engineer's inspection of tree planting sites shall be conducted monthly or quarterly as deemed necessary during construction.</p> <p>MMT Inspection of tree planting sites every 3 months during construction, and one year after construction.</p>	<p>Baseline survey: Travel/allowances for EIAPO staff.</p> <p>Inspection costs: Travel/allowances for EIAPO staff.</p> <p>The Engineer's inspection costs shall be part of the Construction Supervision.</p>	<p>EIAPO will conduct the baseline survey with assistance from the MKNP.</p> <p>The Contractor shall be responsible for recording and documenting all tree cutting, planting and replanting.</p> <p>The Engineer will be responsible for regular inspection of the tree cutting and planting.</p>
<p>The vegetative cover to be restored a few months after clearing.</p>	<p>Ocular inspection.</p> <p>The Contractor shall document clearing and restoration of vegetative cover using photos and plans.</p>	<p>Sites outside the future road width, where vegetation will be removed.</p>	<p>During the clearing of land phase.</p> <p>Monthly for a period of 5-7 months after measures to restore the vegetative cover has been completed.</p>		
<p>That all excess soil and waste generated by the project is either reused or disposed at designated</p>	<p>The Contractor shall keep a soil and construction waste disposal record (amounts of soil and construction waste</p>	<p>In general this is applicable to the whole road stretch, but with particular</p>	<p>Contractor's soil record shall be maintained and updated on a daily basis.</p>	<p>The Contractor shall cover all costs he may have to maintain the soil disposal records and</p>	<p>Maintenance of soil disposal records is the responsibility of the Contractor.</p>

TARGET	METHOD and INDICATORS	LOCATION & SCOPE	FREQUENCY	COSTS	RESPONSIBILITIES
disposal sites.	disposed, disposal sites and time of disposal). When earth works or demolition works are ongoing, the Engineer in coordination with the MMT shall inspect the work sites and check that soil and construction waste is disposed according to the EMP and in compliance with the ECC conditions.	attention to ongoing work sites and disposal sites.	The Engineer's review of the Contractor's soil records shall be conducted weekly during construction. The Engineer's site inspection shall be conducted on a daily or weekly basis during periods with earth or demolition works. The MMT shall conduct inspection of sites with ongoing earth works and disposal sites every 3 months during the construction period.	the Contractor should include all these costs in the bid. The cost of the Engineer's inspection shall be included in the Construction Supervision contract. MMT inspection: Travel and allowances for EIAPO staff.	Daily or weekly inspection of work sites and disposal sites is the responsibility of the Engineer. Checking the soil disposal records is the responsibility of the Engineer.
All quarry activities are conducted in accordance with DPWH requirements and sound environmental practices. Quarrying is only conducted in designated quarry sites, and no quarrying is conducted inside the MKNP.	The Contractor shall keep records of quarry sites used, amounts of material extracted, environmental management elements and measurements to be specified. The Engineer shall inspect quarry sites to check compliance with EMP and ECC requirements. The MMT shall conduct ocular inspection of quarry sites to evaluate compliance with ECC conditions and EMP requirements.	All quarry sites. The road through MKNP.	The Contractor's field journal shall be updated on a daily basis, and monthly reports shall be submitted to the Engineer. Inspection of quarry sites by the Engineer minimum every month. Inspection of the road through MKNP by the Engineer shall be conducted on a weekly basis. MMT inspection of quarry sites every 3 months.	The Contractor shall cover all costs he may have to maintain the Field Journals, and the Contractor should include all these costs in the bid. The cost of the Engineer's inspection shall be included in the Construction Supervision contract. MMT inspection: Travel and allowances for EIAPO staff.	he Contractor is responsible for the Field Journal. The Engineer is responsible for regular inspection of quarry sites and of the road through MKNP. The MMT is responsible for quarterly monitoring of the quarry sites.
The noise emission from the construction works does not exceed the limit	Noise measurements.	Work sites close to noise sensitive areas.	Every 3 months.	Rent of noise measurement equipment.	MMT shall be responsible.

TARGET	METHOD and INDICATORS	LOCATION & SCOPE	FREQUENCY	COSTS	RESPONSIBILITIES
values.					
The emission of particulate matter from the Contractor's equipment is below the limit values.	Measurements of particulate matter in the air.	Work sites close to residential areas.	Every 3 months.	Rent of measurement equipment.	MMT shall be responsible.
No landslides during the construction period. Slope protection measures are constructed in areas prone to erosion. No serious incidents of scouring	Ocular inspection.	Areas identified as prone to erosion.	Weekly or more often as deemed necessary.	The costs shall be incorporated in the Construction Supervision contract.	The Engineer shall be responsible for the regular inspection. The MMT shall include inspection of erosion prone areas in their quarterly site visits.

Section VII

Public Consultation and
Participation

Section VII: PUBLIC CONSULTATION AND PARTICIPATION

During the preparation of this Report, the EIAPO had coordinated with the concerned LGUs, and other government agencies and presented/discussed the importance of the project. The EIAPO is tasked to actively participate in the consultations with these sectors particularly project-affected families on the various impact issues of the project.

A socio-economic survey will be undertaken if necessary together with the DPWH Consultant to measure their awareness and their perception of its impact and identifying the properties to be affected so that PAPs will be properly compensated.

Based on our dialogue with the LGUs, the people of La Castellana favorably endorsed the project through their Municipal Mayors. (See attached endorsement).

If public consultation is necessary due to the request of the affected families and the LGUs concerned, EIAPO will conduct said consultation in coordination with DENR-Regional Office and CENRO.

Section VIII

Annexes and Attachments

Annex "A"



Accountability of the
Proponent and Preparers

ACCOUNTABILITY STATEMENT OF THE PROJECT PROPONENT

This is to certify that all information in the enclosed Initial Environmental Examination (IEE) in the Rehabilitation/Improvement of San Enrique-Vallehermoso Road Project are true, accurate and complete. Should we learn of any information which would make the enclosed IEE inaccurate, we shall bring said information to the attention of the Environmental Management Bureau (EMB) or the Environmental Management & Protected Areas Sector (EMPAS) of the appropriate DENR Regional Office.

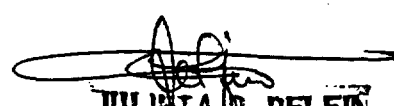
We hereby bind ourselves jointly and solidarily with the preparers for any penalties that may be imposed arising from any misrepresentations or failure to state material information in the enclosed IEE.

In witness whereof, we hereby set our hands this 8th day of Aug, 2000 at the city of Manila.


FLORANTE SORIOQUEZ
Project Director
IBRD-PMO
Project Proponent


SUBSCRIBED AND SWORN to before me this 8th day of Aug, 2000,
affiant exhibiting to me her Community Tax Certificate No. 09534977
issued on 1/13/2000 at Manila.

Doc. No. 445
Page No. 90
Book No. 061
Series of 2000

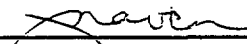
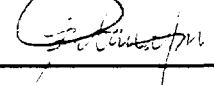
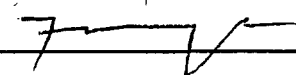

JULIETA D. DELFIN
NOTARY PUBLIC
UNTIL DEC. 31, 2001
TIN 132-094-775
PTR NO. H-150235
MANILA 216100

ACCOUNTABILITY STATEMENT OF EIA PREPARERS

This is to certify that all data or information contained in the enclosed Initial Environmental Examination (IEE) or Environmental Impact Statement (EIS) are true to the best of our knowledge and information and that an objective and thorough assessment of the project was undertaken in accordance with the dictates of reasonable and sound judgement. Should we learn of any information which would make the enclosed IEE/EIS inaccurate we shall bring said information to the attention of the Environmental Management Bureau (EMB) or the Environmental Management & Protected Areas Sector (EMPAS) of the appropriate DENR Regional Office.

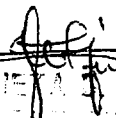
We hereby bind ourselves jointly and solidarily to answer any penalties that may be imposed for any misrepresentations or failure to state material information in the enclosed IEE/EIS.

In witness whereof, we hereby set our hands this 8th day of Aug., 2000 at the City of Manila

TEAM MEMBER	SIGNATURE AND EIA CERTIFICATE NO.
CRISTE Z. NAVIDA	 B2CZN0043
EMMA A. BANATAO	 C2EAB0021
FRANCISCO A. KALALO, JR.	

SUBSCRIBED AND SWORN to before me this 8th day of Aug., 2000, Affiant exhibiting to me his/her Tax Identification Number (TIN) and Community Tax Certificate No. 14317830 issued on 5/19/2000 at Rosario, Batangas.

Doc. No. 446
 Page No. 91
 Book No. 201
 Series of 1000


 JULIE A. BELFIN
 PUBLIC
 UNIT NO. 51, 2001
 TEL. NO. 894-775
 FAX NO. H-150235
 MANILA 1000

(Attached xerox copy of EIA Preparer Certification)



Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU



BE IT KNOWN THAT


Emma A. Banatao


Is an accredited

**EIS PREPARER
(Associate Environment Professional)**

having complied with all the requirements prescribed by the Department Administrative Order No. 37 Series of 1996 (DAO 96-37) Procedures for the accreditation of Environmental Impact Statement (EIS) Preparers and is entitled to practice as such in accordance with all the rights and privileges thereto appertaining, by and under the authority of the Environmental Management Bureau.

IN WITNESS WHEREOF, this Certificate No. C2EAB0021 is granted at Quezon City this 3rd day of February in the year of our Lord nineteen hundred and ninety eight.


MARLITO L. CARDENAS
Director and
Chairman, Accreditation Group


JULIAN D. AMADOR
Assistant Director and
Co-Chairman, Accreditation Group


Annex "B"

Endorsement of
Stakeholders/ (LGUs)
Local Government Units

**CERTIFICATION FROM THE LOCAL
GOVERNMENT UNIT**

This is to certify that the undersigned has read, understood the implications of the proposed / existing **SAN ENRIQUE-VALLEHERMOSO (La Castellana-Canlaon Section)** road projects of the Department Public Works and Highways (DPWH) on the surrounding areas.

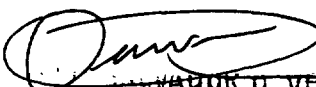
Further, I certify that I have consulted my respective constituents and that they interpose no objection whatsoever for the project. Done this 17th day of December, 1999 at Bacolod City.


By: **Rafael Coscolluella**

Provincial Governor
Negros Occidental

Subscribed and sworn to me this 17th day of December, 1999 at Bacolod City. Affiant exhibiting CTC # 04753674 issued on January 11, 1999, at Talisay, Negros Occidental.

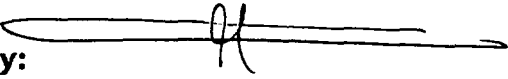
JOC. NO. 20;
PAGE NO. 4;
BOOK NO. XXVIII;
SERIAL OF 19 99


SALVADOR D. VERAY, JR.
NOTARY PUBLIC
DECEMBER 31, 2000
3162608
EXPIRES ON JAN. 31, 1999
LAW OFFICE

**CERTIFICATION FROM THE LOCAL
GOVERNMENT UNIT**

This is to certify that the undersigned has read, understood the implications of the proposed / existing San Enrique-Vallehermoso (La Castellana) Road Project of the Department of Public Works and Highways on the surrounding areas.

Further, I certify that I have consulted my respective constituents and that they interpose no objection whatsoever for the project. Done this 17th day of August 1999, at La Castellana, Neg. Occ.

By: 
DR. ENRICO R. ELUMBA
(Municipal Mayor)

Subscribed and sworn to me this 17th day of August, 1999, at La Castellana, Neg. Occ.

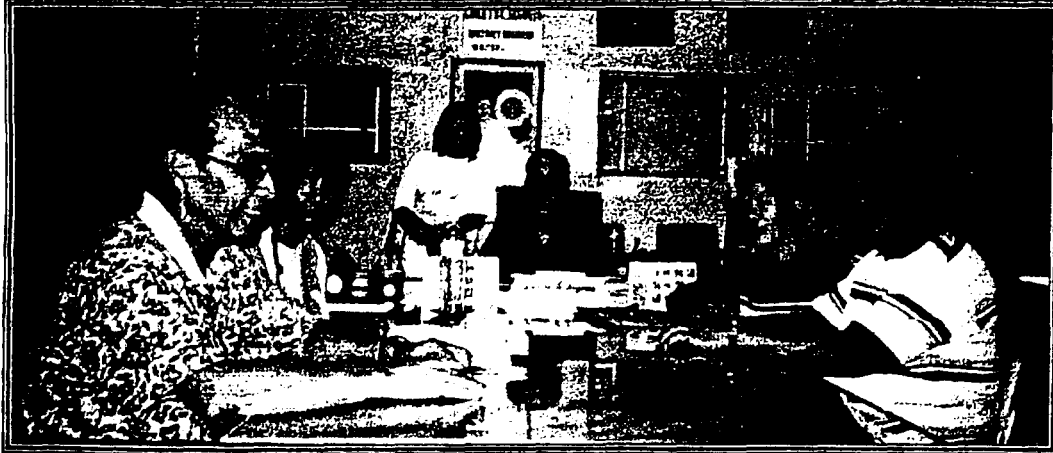
Affiant exhibiting to me his residence at Certificate No. 04711450 issued on January 12, 1999 at La Castellana, Neg. Occ.


AUGUSTUS C. RALLO
CITY PROSECUTOR
LA CASTELLANA CITY

Annex "C"

Photographs of the
Existing Road

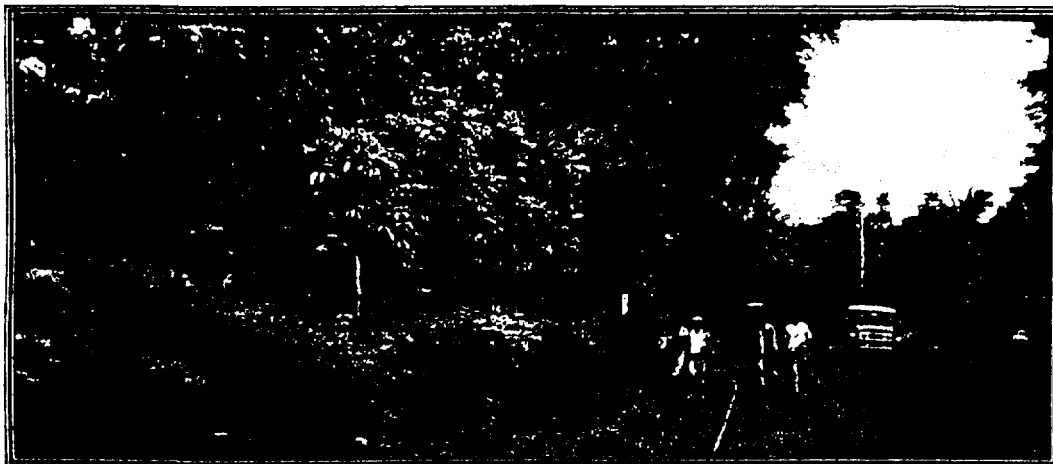
Restoration of San Enrique - Vallehermoso Road Project
Province of Negros Occidental



Conference/Meeting at the Office of the District Engineer, Binalbagan, Negros Occidental. Present were the District Engineer, the Assistant D.E., the Chief of Planning and Design Section, and the Chief of Construction Section



Affected Narra Tree, DBH = 130 cm, 3.50 m from C/L, Left Side, Sta 79 + 832.00



Affected Narra Trees in front of Cabagnaan Elementary School



Affected Narra Trees in front of Cabagnaan Elementary School



Side Cut, Left Side, Before Cabagnaan Bridge



Side Cut (Solid Hard Rock), 1.50m \approx 3.00m from C/L, Left Side, Sta 81 + 304.00 to Sta 81 + 445.00



Existing Biak na Bato Bridge #1, Sta 84 + 066.00



A Stretch of Existing Gravel Road near MKNP
Administrative Office at Biak na Bato, La Catellana with
Tall Trees (Hard Woods) lined beside the road.

Restoration of San Enrique - Vallehermoso Road Project
Province of Negros Occidental



Affected Houses and Other Structures (Wooden), Left Side,
Sta 88 + 220.00 to Sta 88 + 263.00



Typical Section of Existing Road along Sta 88 + 700.00 to
Sta 88 + 750.00. There is a ravine at right side and
trees at the other side.



Middle of ARMCO, boundary of Mt. Karlaon National Park



Native Bamboo Waiting Shed, 3.50 m from C/L, Right Side, Sta. 89 + 150.00



Side Cut at Left Side (Inner Lane) due to widening



Riprap plus Bamboo Fence, Left Side, Sta. 88 + 620.00 to 88 + 610.00



Affected Bamboo Fence at Right Side (Inner Lane) due to widening



Side Cut (Common with Boulders/Rock), 4.90 m from C/L,
Left Side, Sta 88 + 500.00 to Sta. 88 + 584.00



Side Cut (Common), 3.00 m from C/L,
Left Side, Sta 88 + 310.00 to Sta 88 + 400.00



Existing Gravel Road, Sta 88 + 300.00 to Sta 88 + 350.00



Side Cut (Rippable Rock), 4.00 m \approx 3.50 m from C/L,
Left Side, Sta 88 + 102.00 to Sta 88 + 166.00



Side Cut (Common with Boulders/Rock), 3.50 m from C/L,
Right Side, Sta 86 + 957.00 to Sta 86 + 995.00



Side Cut (Common with Boulders/Rock), 3.50 m from C/L,
Right Side, Sta 86 + 915.00 to Sta 86 + 937.00



Affected Store, 4.00 m from C/L, Right Side, Sta 86 + 734.00



A Stretch of Existing Gravel Road where the DPWH is restricted by the MKNP against widening beyond the existing road.



Tall Trees along a Stretch of Existing Road near the
Mount Karlaon Natural Park Administrative Office



Affected Wooden House with G. I. Roofing, 4.40 m from C/L,
Left Side, Sta 82 + 052.00

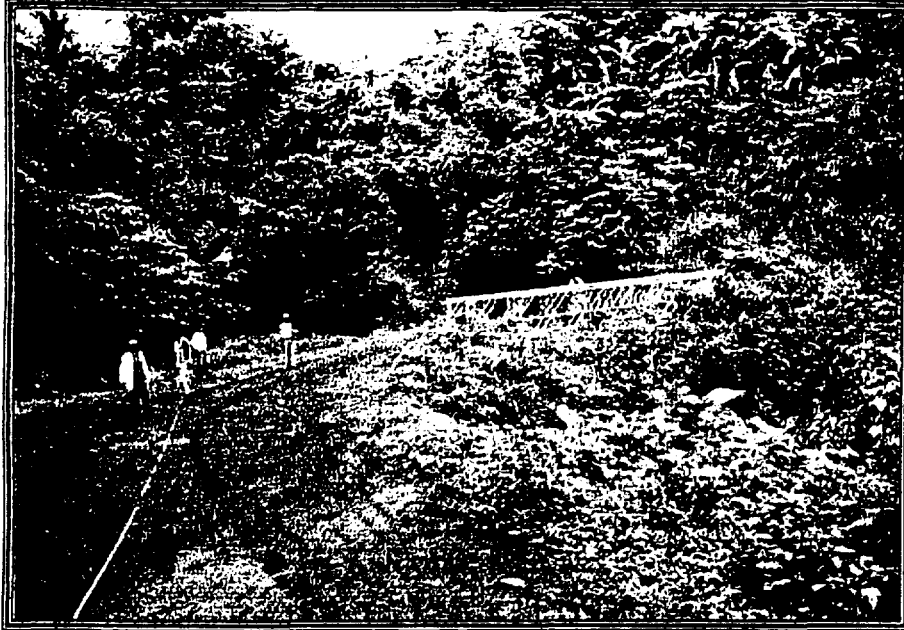


Affected Bamboo Fence and Store, 3.50 m \approx 2.50 m from C/L,
Right Side, Sta 81 + 858.50 to Sta 81 + 891.50



Side Cut (Solid Hard Rock), 1.50 m \approx 3.00 m from C/L,
Left Side, Sta 81 + 304.00 to Sta 81 + 445.00





Existing Calapnagan Bridge, Sta 81 + 158.00



Affected House (Concrete and Wood), Left Side, Sta 79 + 895.00



Affected Narra Trees, Left Side
Sta 79 + 832.00 (DBH = 130 cm) and Sta 79 + 801.50 (DBH = 40 cm + 30 cm)



Affected Wooden House, 3.80 m from C/L,
Left Side, Sta 79 + 448.50

Restoration of San Enrique - Vallehermoso Road Project
Province of Negros Occidental



Side Cut (Common), 2.50 m from C/L,
Left Side, Sta 79 + 250.00 to Sta 88 + 358.00



Affected Wooden House, 3.50 m from C/L,
Left Side, Sta 79 + 245.00



A stretch of Narrow Existing Road Outside the Mount Kanlaon Natural Park
where several Wooden Houses will be affected.

Annex "D"

Plans

PHILIPPINE ROAD FEASIBILITY STUDY II

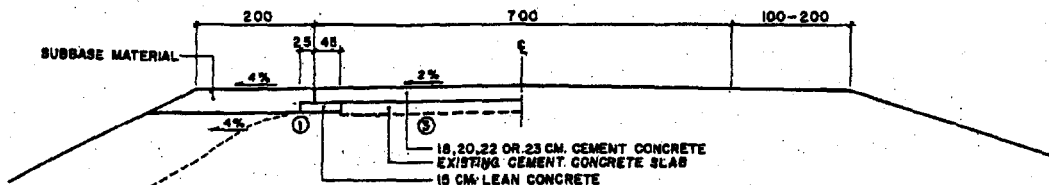
TYPICAL CROSS SECTIONS

Scale	1:50
Ver.	
Date	JAN. 1975
Sign.	Of
Appr.	
Drawing no.	938 F I

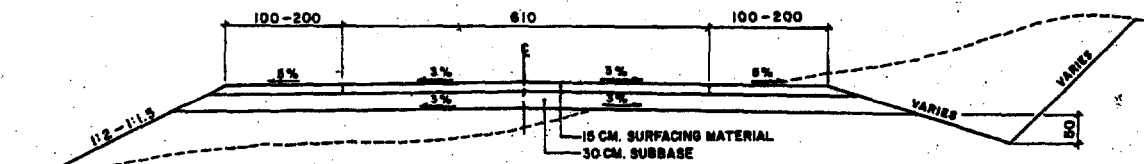
NORCONSULT A.S. in association with HOFF & OVERGAARD
 Consulting Engineers Architects and Surveyors Planning Consultants

NOTES:

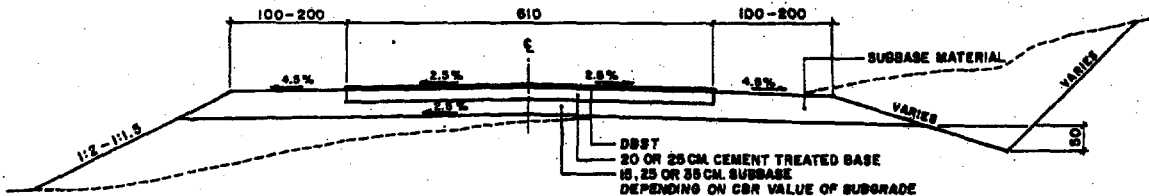
1. ALL DIMENTIONS ARE IN CM.
2. SHOULDER SHOULD GENERALLY BE CONSTRUCTED IN SUBBASE MATERIAL WITH ADDITIONAL BINDERS CORRESPONDING TO AN AGGREGATE COURSE
3. ① SCARIFY, RESHAPE AND COMPACT EXISTING GRAVEL OR BITUMINOUS SURFACE
4. ② LEVELLING COURSE OF ASPHALT CONCRETE TO CORRECT GRADE
5. ③ LEVELLING COURSE OF LEAN CONCRETE ON EXISTING CEMENT CONCRETE TO REPAIR DEFICIENCIES AND CORRECT GRADE IF REQUIRED ADD BASE OF LEAN CONCRETE IN LIEU OF GRANULAR MATERIAL IF LESS EXPENSIVE



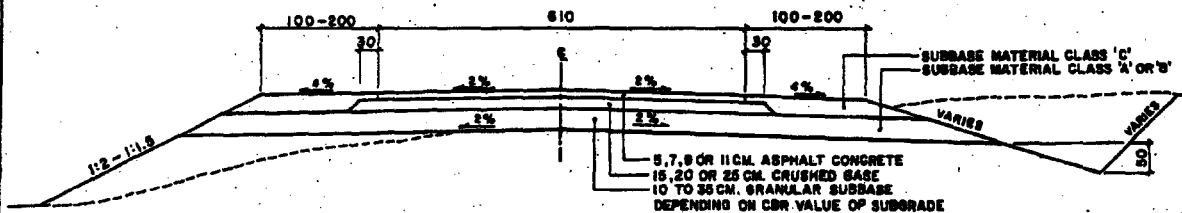
RECONSTRUCTION OF CEMENT CONCRETE TO 7m. RC-CC/7m.



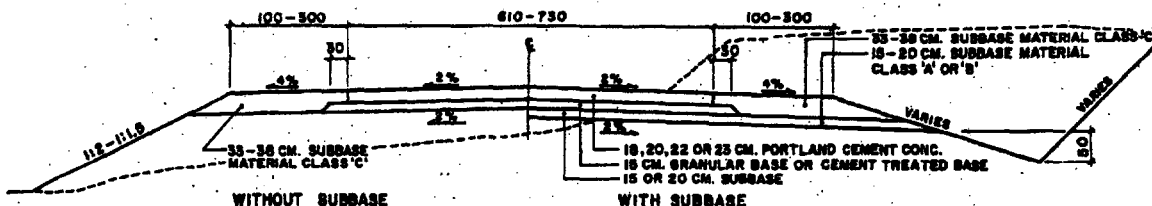
NEW CONSTRUCTION GRAVEL SURFACE NC-G



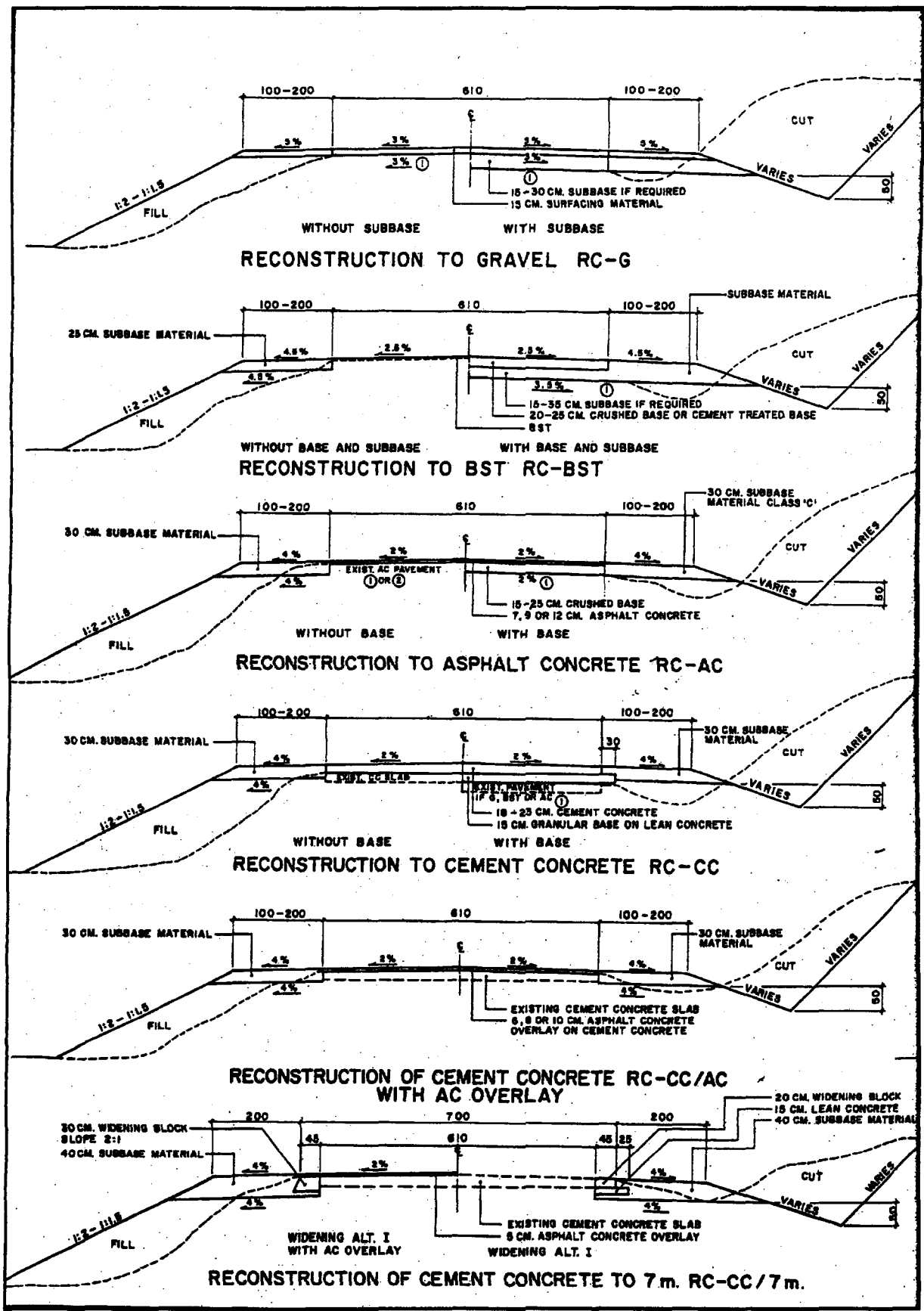
NEW CONSTRUCTION BITUMINOUS SURFACE TREATMENT NC-BST



NEW CONSTRUCTION OF ASPHALT CONCRETE NC-AC



WITHOUT SUBBASE WITH SUBBASE
 NEW CONSTRUCTION OF CEMENT CONCRETE NC-CC



RECONSTRUCTION TO GRAVEL RC-G

RECONSTRUCTION TO BST RC-BST

RECONSTRUCTION TO ASPHALT CONCRETE RC-AC

RECONSTRUCTION TO CEMENT CONCRETE RC-CC

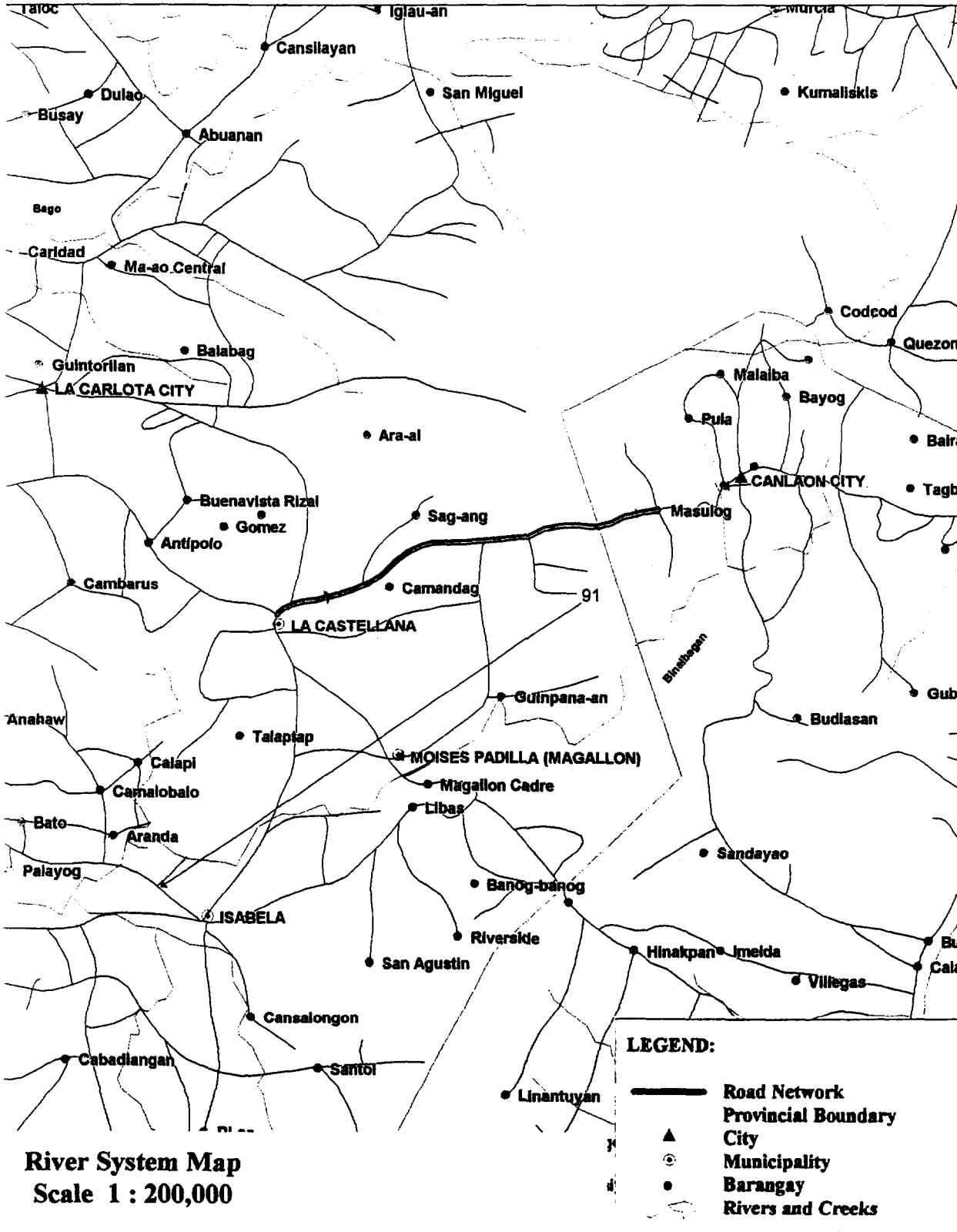
RECONSTRUCTION OF CEMENT CONCRETE RC-CC/AC WITH AC OVERLAY

RECONSTRUCTION OF CEMENT CONCRETE TO 7m. RC-CC/7m.

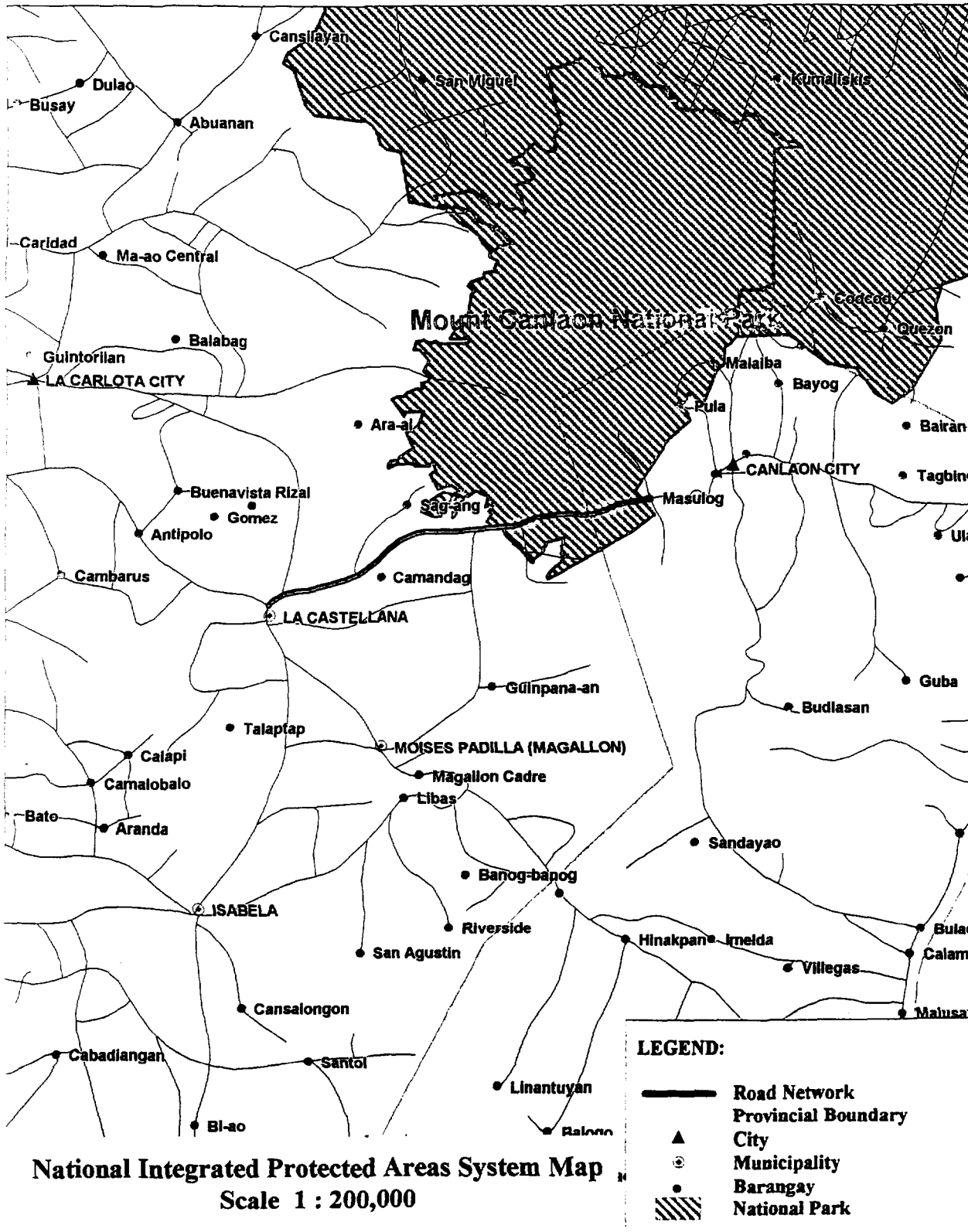
Annex "E"

Maps







Restoration of San Enrique-Vallehermoso Road (Province of Negros Occidental)



Restoration of San Enrique-Vallehermoso Road (Province of Negros Occidental)

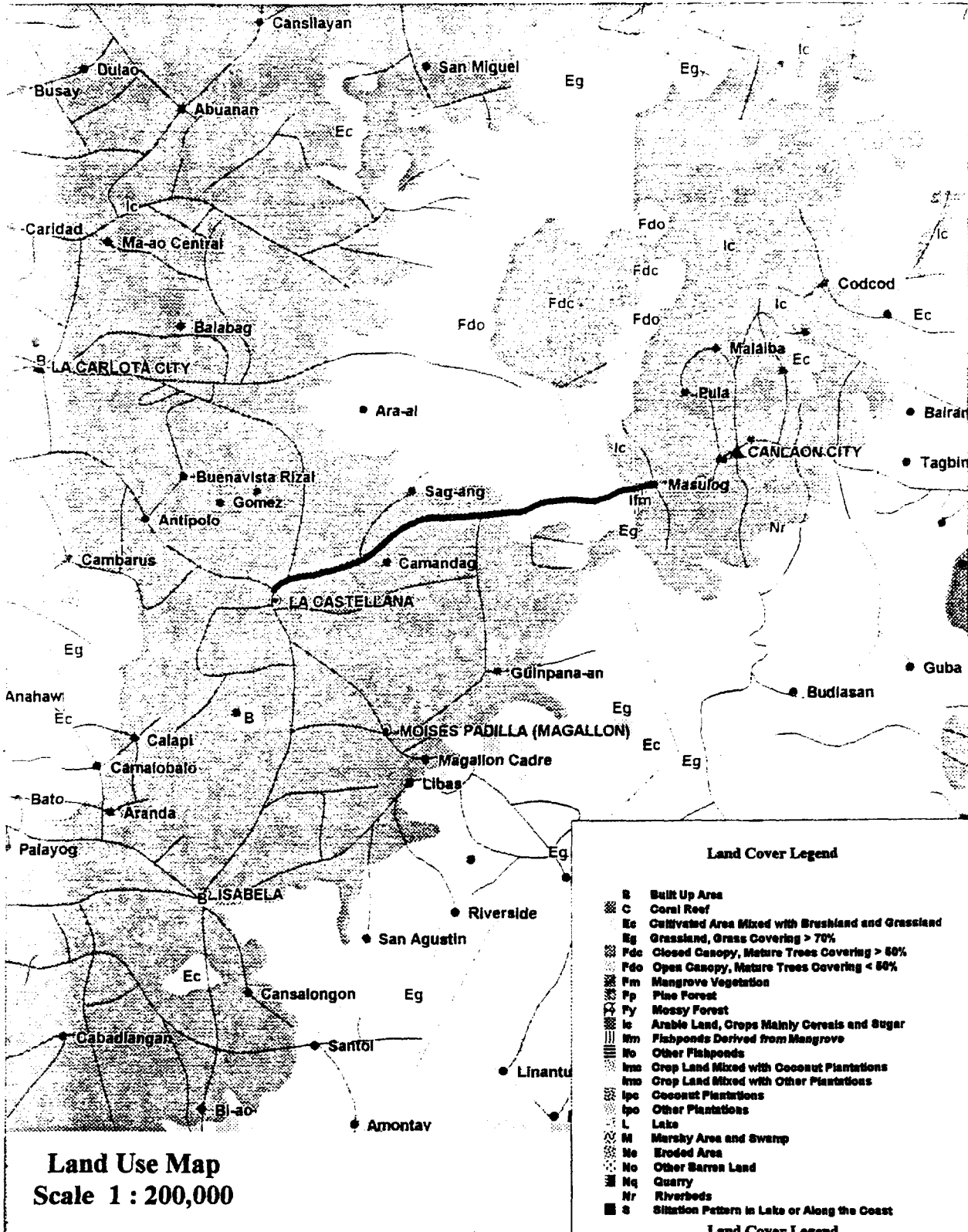


LEGEND:

-  Road Network
-  Provincial Boundary
-  City
-  Municipality
-  Barangay
-  National Park

National Integrated Protected Areas System Map
Scale 1 : 200,000

Restoration of San Enrique-Vallehermoso Road (Province of Negros Occidental)



Annex "F"

Abbreviations/Acronyms

Restoration of San Enrique - Vallehermoso Road Project
Province of Negros Occidental

LIST OF ABBREVIATIONS

CENRO	Community Environment and Natural Resources Office of DENR
DO	Departmental Order
DAO	Departmental Administrative Order
DENR	Department of Environment and Natural Resources
DENR - RO	Department of Environment and Natural Resources Regional Office
DPWH	Department of Public Works and Highways
ECA	Environmentally Critical Area
ECC	Environmental Compliance Certificate
ECP	Environmentally Critical Project
EIA	Environmental Impact Analysis
EIARC	Environmental Impact Assessment Review Committee
EIS	Environmental Impact Statement
EMB	Environmental Management Bureau of DENR
EMP	Environmental Management Plan
EMPAS	Environmental Management and Protected Areas Sector of DENR - RO
EO	Executive Order
EU	Environmental Unit
GIS	Geographical Information System
GPS	Geographical Positioning System
HLURB	Housing and Land Use Regulating Board
IBRD	International Bank for Reconstruction and Development
IEE	Initial Environmental Examination
LGU	Local Government Unit
MMT	Multipartite Monitoring Team
MO	Ministerial Order
MOA	Memorandum of Agreement
NEPC	National Environmental Protection Council
NWRB	National Water Resource Board
PD	Presidential Decree
PENRO	Provincial Environment and Natural Resources Office of DENR
PMO	Project Management Office
PCSD	Philippines Council for Sustainable Development
RA	Republic Act
RED	Regional Executive Director of DENR - RO
ROP	Republic of the Philippines
TOR	Terms of Reference

Annex "G"

Memorandum of Agreement

Between DENR and DPWH

MEMORANDUM OF AGREEMENT (MOA)

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR)

and

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH)

MEMORANDUM OF AGREEMENT

KNOW ALL MEN BY THESE PRESENT:

This Agreement, made and executed this 27th day of May, 1998 at Manila, Philippines, by and between:

The **Department of Environment and Natural Resources**, a government agency existing under the laws of the Republic of the Philippines, with main office at Visayas Avenue, Diliman, Quezon City, and represented by its Secretary, **ANTONIO H. CERILLES**, herein referred to as the "**DENR**";

~ and ~

The **Department of Public Works and Highways**, a government agency existing under the laws of the Republic of the Philippines, with main office at Bonifacio Drive, Port Area, Metro Manila, and represented by its Secretary **GREGORIO R. VIGILAR**, herein referred to as the "**DPWH**".

WITNESSETH THAT:

WHEREAS, in its effort to protect the environment and conserve the natural resources of the country, the Government issued in 1977 the Environmental Policy Decree (PD 1151) and in 1978 the "Philippine Environmental Impact Assessment (EIA) Law" (PD 1586), which require proponents of development projects to forecast the environmental impacts of such projects, determine and implement the appropriate preventive or mitigating measures to address adverse consequences and submit a report of their findings in the form of either an Initial Environmental Examination (IEE) or an Environmental Impact Statement (EIS);

WHEREAS, there is a need to streamline the procedures for processing applications for an Environmental Compliance Certificate (ECC);

WHEREAS, the integration of the EIS System early in the project development cycle will enhance and promote its desired function as a planning and management tool for sustainable economic development and for environmental conservation and enhancement;

WHEREAS, the DENR is the primary agency tasked with environmental protection, natural resources conservation and EIS administration;

WHEREAS, the DPWH is responsible for the planned and sound development of the infrastructure system of the country;

WHEREAS, the rational way of planning the national progress of the country is through sustainable development: the pursuit of higher levels of quality of life while preserving or even enhancing environmental quality;

WHEREAS, to ensure success in achieving national progress through sustainable development, there is a need to encourage more active participation of concerned government institutions in policy formulation and program implementation, and to strengthen collaboration among them through viable working arrangements;

WHEREAS, there is a need for line agencies to integrate the EIS System into their regular functions particularly those leading to the design and location of development projects that significantly affect the ecological balance in the area;

WHEREAS, in accordance with EO 291, series of 1996, an Environmental Impact Assessment (EIA) Office has been established in the Planning Service, DPWH, whose responsibility is to screen, check consistency and completeness of documentation requirements and evaluate DENR-ENFORM 1 documents prior to endorsement to Environmental Management Bureau (EMB) or concerned DENR Regional Office;

NOW, THEREFORE, for and in consideration of the foregoing premises, the PARTIES do hereby mutually agree and bind themselves as follows:

I. GENERAL PROVISIONS

1. An Initial Environmental Examination (IEE) document shall be prepared for those projects which traverse and/or are located in an Environmentally Critical Area (ECA) and with a rating of less than 5. An Environmental Impact Statement (EIS) document shall be prepared for those projects which traverse and/or are located in an ECA and with a rating of equal to or greater than 5. The calculation of the ECA Rating is made by totaling values assigned according to the following Table, where a value of 0 is given if the ECA is not applicable. The ECAs are defined in National Environmental Protection Council (NEPC) Circular No. 3, series of 1983.
2. The words or terms when used in discussing Environmentally Critical Projects in this Memorandum of Agreement shall mean as follows:
 - a) **"National highway/road"** means a way made for traveling by the general public using motorized land-based vehicles, which is under the administration of the national government through the DPWH, which includes pavements, shoulders, embankments, rights-of-way, bridges, ferries, drainage structures, signs, guardrails, and related protective structures.
 - b) **"Maintenance"** means the act of preserving and keeping each type of national highway/road as nearly as possible in its original condition as constructed or as subsequently improved. Maintenance does not include rehabilitation, betterment and improvement.
 - c) **"Rehabilitation"** means the act of restoring any type of national highway/road to its condition as originally constructed or as subsequently improved, when the national highway/road facility has so deteriorated that normal maintenance effort, procedures and expenditures are inadequate to accomplish this task.
 - d) **"Betterment"** means any work that substantially changes the nature, strength or quality of an existing national highway/road in spot locations such as flattening a corner, replacing a temporary bridge, raising the grade on a flooded section, and the like.

- e) **"Improvement"** means any work that substantially changes the nature, strength or quality of an existing national highway/road uniformly along the entire length of a road section such as widening, paving and the like.
 - f) **"Influence area"** means the area in which the project will cause an impact either in form of **direct impact** or **indirect impact**.
3. All proposed road projects that meet the following criteria shall be classified as ECPs under the EIS System. Flyover projects are not considered as Environmentally Critical Projects:
- a. **Construction of a new national highways/road, including major realignments.** Due to the magnitude of this type of construction, it is expected that significant adverse environmental impacts could occur if an EIS study is not used to plan and manage the construction and operation of the highway.
 - b. **Major realignments** - include road projects with major realignments exceeding the maximum length shown in the third column of the Table below for the corresponding shift in the horizontal alignment. The Table combines the shift in horizontal realignment measured in meters horizontally from the centerline of the existing road with the total distance over which the realignment(s) occurs. Where values exceed those contained in the Table, the road project is considered an ECP.

HORIZONTAL REALIGNMENT (m) FOR MOUNTAINOUS ROADS (>200 m above sea level)	HORIZONTAL REALIGNMENT (m) FOR LOWLAND ROADS (<200 m above sea level)	MAX TOTAL DISTANCE PERMITTED FOR NON-CRITICAL PROJECT (m)
0-1	0-2	1,000
1-2	2-5	500
2-5	5-10	100
5-10	10-20	50
>10	>20	ECP

- c. **Any road project where the widening will be ≥20%** measured in relation to the existing width of the paved area or travel width of gravel roads or where the widening will result in one or more additional lanes will be considered as an ECP.
- d. **Construction or improvement of any national highway/road that will significantly increase access to an area.** When access to the *influence area* of a road is foreseen to increase by 50% or more, as measured by an increase in the Annual Average Daily Traffic (AADT) over the first 5 year period, there exists the potential for adverse environmental impacts that will need to be mitigated. Potential impacts include deforestation, promotion of land uses and development activities that are not compatible with local natural resource systems, competition for land and natural resources between new migrants and local indigenous people, as well as air and noise pollution. For example:

 Pre-project AADT = 1,000 and projected AADT after 5 years = 1,400 means **non critical**
 Pre-project AADT = 1,000 and projected AADT after 5 years = 1,600 means **critical**
- e. **All water impoundment projects.** (Minimum of 20 Million Cu.m.)
- f. **Bridges of more than 4 spans and/or exceeding 80 meters.** This includes "betterment", "improvement" and replacement of existing bridges.

4. For non-critical proposed projects, not covered with the EIS System, an environmental management plan shall also be prepared;

Table 1 identifies the level of environmental management activities to be employed for each project category

Table 1. Summary of Environmental Management Procedures for Proposed Road Projects

Environmental Category	Principal EIA Document	Supporting Documentation
ECPs and projects in ECA ≥ 5	Scoping Document EIS	Environmental Management Plan* (EMP) Contract specifications

Projects within ECA < 5	Scoping Document IEE / Checklist	Mitigation and enhancement measures Contract specifications
Non-Critical Project	EMP/Standard Operational Procedures	Environmental Management Guidelines Contract specifications

*The Environmental Management Plan should include consideration of environmental concerns in project specifications, design documents, contract and tender documents, construction supervision, and monitoring requirements.

I. RIGHTS AND OBLIGATIONS OF THE DENR

The DENR shall:

1. Extend technical assistance to the DPWH in developing its EIA Office, on matters relating to environmental management by providing technical training on the EIS System and other capacity building measures;
2. Devise plans/mechanisms, in consultation with the DPWH, on the expeditious processing of all projects covered by the EIS System or needing DENR certifications;
3. Provide the DPWH relevant guidelines, procedures and regulations required under the EIS System;
4. Invite technical experts from the DPWH to serve as resource persons for the Environmental Impact Assessment Review Committee (EIARC) in the conduct of scoping, substantive review and evaluation of the EIS/IEE documents for which the DPWH is not the proponent;
5. Assist in gathering of information from key agencies and provide data for inclusion in the DPWH Geographical Information System (GIS) area mapping system for Environmentally Critical Areas (ECAs), referring to the General Provisions, Article I,1;
6. Agree that the DPWH shall implement the proposed DPWH EIA review process as outlined in the EIA Process Flowchart contained in Annex 2;
7. Create and establish in coordination with the DPWH a joint Technical Working Group (TWG) in the conduct of the following activities:
 - a. Define criteria and parameters to determine projects to be covered or not by the EIS System;
 - b. Determine which projects of the DPWH shall be required to establish a Multipartite Monitoring Team (MMT); and
8. Agree to review this Memorandum of Agreement after the first two years and annually thereafter.

III. RIGHTS AND OBLIGATIONS OF THE DPWH

The DPWH shall:

1. Develop its EIA Office to undertake functions related to environmental management of DPWH projects;
2. Provide technical training, consultation, direction, and support to Services, Project Management Offices, Bureaus, and Regional Offices of DPWH on such areas as concepts and principles of the EIS System, and the early integration of environmental consideration into project planning;
3. Undertake the drafting of internal environmental management guidelines for consideration in the design documents, contract and tender documents, construction supervision, and monitoring requirements for both environmentally critical and non-critical projects and disseminate these to Services, Project Management Offices, Bureaus, and Regional Offices and secure their use;
4. Initiate the preparation and development of the Initial Environmental Examination (IEE) Checklist for applicable DPWH projects in coordination with the DENR;
5. Conduct Initial Environmental Screening of its projects to determine those that are Non-Critical Projects, Environmentally Critical Projects (ECPs), or located in Environmentally Critical Areas (ECAs), in accordance with the approved and agreed-upon screening procedures and criteria by the parties hereto;
6. Participate in and provide inputs to the scoping, substantive review of the EIS documents particularly on the details of road and infrastructure activities and other aspects which the DPWH has expertise wherein the DPWH is not the proponent;
7. Obtain a review of the Process Documents by the relevant funding agency (IBRD, ADB, OECF, USAID, etc.) in accordance with the review procedures specified in the loan/grant agreement.
8. Coordinate with the DENR on the expeditious processing of environmental clearances and permits in coordination with LGUs, and other DENR attached agencies and Bureaus;
9. Ensure that appropriate post-assessment monitoring and reporting shall be conducted as required;
10. As a replacement to EGF, the DPWH shall ensure that Contractors' All Risk Insurance (CARI) is provided to cover expenses for the following; indemnification/compensation of damage to life and property that may be caused by the implementation of the projects and abandonment/decommissioning of the project facilities related to the prevention of possible negative impact.
11. Quick Response Fund (QRF) to supplement CARI

This fund will be used for emergency repairs/restorations of the critically damaged infrastructure facilities after calamity in order to restore mobility and ensure safety in the affected areas.

12. Allocate funds, subject to government accounting and auditing rules and regulations, to cover expenses for the a) review of the identified EIA issues on the DPWH projects carried out by the DENR - EIA Review Committee (EIARC); and b) monitoring and evaluation of the effects of projects to the environment during the construction, and

operation of the project to be conducted by the Multipartite Monitoring Team (MMT) for all applicable DPWH projects; and for the c) operation and implementation of Contractor's All Risks Insurance (CARI) and Quick Response Fund (QRF), in case of calamities, as a source of fund for contingency and clean-up activities for applicable DPWH projects to cover expenses for the following: further environmental assessments; indemnification/compensation of damage to life and property that may be caused by the implementation of the projects; abandonment/decommissioning of the project facilities related to the prevention of possible negative impacts;

13. Build and maintain a GIS database, in cooperation with the DENR and other relevant government agencies, to be used in determining ECA spatial boundaries;
14. Agree to implement the EIA review process as outlined in the process flowchart contained in Annex 2; and
15. Agree to review this Memorandum of Agreement after the first two years and annually thereafter.

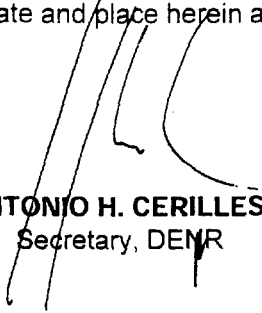
IV. AMENDMENTS

1. No modifications of this Memorandum of Agreement (MOA) or any part thereof shall be made except after the execution of a written agreement duly signed by both parties;
2. Should circumstances necessitate the revision of any item embodied in this MOA the concerned parties shall, prior to such revision, coordinate in the process of revision and grant a reasonable grace period for the implementation of such revision.


V. EFFECTIVITY

This Memorandum of Agreement shall take effect immediately after being signed by the parties herein.

IN WITNESS THEREOF, the parties, through their duly authorized representatives, have hereunto entered into this Agreement and affixed their signatures on the date and place herein above-mentioned.



ANTONIO H. CERILLES
Secretary, DENR



GREGORIO R. VIGILAR
Secretary, DPWH

WITNESSES:




RAMON P. PAJE
Undersecretary, DENR



TEODORO T. ENCARNACION
Undersecretary, DPWH



PETER ANTHONY A. ABAYA
Director, EMB
DENR



LINDA M. TEMPLO
Director III, Planning Service
DPWH

ANNEX 1**Environmentally Sensitive/ Critical Areas Values**

1. National Parks /watersheds/sanctuaries	5
2. Aesthetic potential tourist spots	2
3. Endangered species	4
4. Unique historic / archeological/scientific areas	3
5. Indigenous culture communities	5
6. High incidence of natural hazards	1
7. Critical slopes > 40%	5
8. Prime agricultural land	3
9. Recharge areas for aquifer	2
10. Protected water bodies	2
11. Mangrove areas	4
12. Coral reefs	5

(e.g. A road project that cuts through a national park and is located in a catchment area draining to a river that may transport sediment to a coral reef would have an ECA Rating of 10. A road project passing in the vicinity of a site of unique historical value, would have an ECA Rating of 2. The ECA Rating of 10 indicates that an EIS document would be required for the road project through the national park, because the environmental management issues in this case are likely to be quite complex. An IEE document would be required in the second example of an ECA Rating of 2, since the issues are well defined and can be addressed through mitigation).

Annex 2

Environmental Impact Assessment (EIA) Preparation and Review Procedures

1. To implement the requirements of the EIS System, the DPWH will first conduct the Initial Screening process prior to EIA scoping to identify critical projects from non-critical projects, based on DAO 96-37 and the corresponding DENR-EIA procedural manual;
2. Critical Projects covered by the EIS System are those projects that are classified as Environmentally Critical Projects (ECPs), or projects located in Environmentally Critical Areas (ECAs). Projects which are Non-Critical are not covered by the EIS System. Criteria used to identify Critical and Non- Critical Projects are discussed in the **I. General Provisions**. **ENFORM I** will be prepared for all projects and will be placed on file in the DPWH EIA Office;
3. A Scoping activity shall be conducted in coordination with the DENR. It shall include inputs from the local/affected communities, DENR-Regional Offices, LGUs, and other concerned project stakeholders;
4. A Scoping Report shall be prepared, prior to the conduct of an EIA activity for all DPWH ECPs and projects located in ECAs. The said report shall be signed by the DENR and whenever applicable reviewed and approved by the relevant funding agency (IBRD, ADB, OECF, USAID, etc.). This shall be done in order to:
 - a) Identify the significant environmental management issues to be addressed/resolved in the conduct of environmental impact assessment; formulation of mitigating/enhancement measures and implementation of environmental management activities;
 - b) Serve as the terms and conditions of work submitted to the DENR and to be reviewed by the members of the EIA Review Committee (EIARC), barring exceptional or unforeseen changes in local conditions at the proposed project site;
5. The DPWH EIA Office and / or project proponent consultants shall:
 - a) Prepare Terms of Reference (TOR) and contracts for the preparation of IEEs and EISs;
 - b) Monitor consultants' work, and shall review the IEEs and EIS prepared by consultants prior to submission to DENR;
 - c) Obtain a review of the IEE or EIS by the concerned funding agency (IBRD, ADB, OECF, USAID, etc.), where applicable, prior to submitting the document to the DENR. In these cases, the funding agency representative may either sign the Proponent's Accountability Statement or provide a Statement indicating that all factors are in accordance with the criteria and procedures identified;
6. The environmental impact assessment process discussed in Annex 2 is described schematically in the attached EIA Process Flowchart (Annex 3).

ANNEX 3 - ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FLOWCHART

