



Republic of the Philippines  
Department of Environment and Natural Resources  
**ENVIRONMENTAL MANAGEMENT BUREAU**  
DENR Compound, Visayas Avenue, Diliman, Quezon City 1116  
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APR 24 2003

**Vicente P. Perez**  
OIC-Project Director  
**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS**  
Philippine-Japan Highway Loan Project Office  
2<sup>nd</sup> Street, Port Area, Manila

**Subject:** ECC Extension of the DPWH Plaridel, Cabanatuan, & San Jose Bypass Road Project  
(ECC Ref. Nos.: 0205-381-208, 0205-382-208 & 0205-383-208)

Dear Mr. Perez,

This has reference to your request for extension of the validity of the Environmental Compliance Certificates (ECC) issued for the Cabanatuan Bypass Road Project (ECC Ref No. 0205-381-208), San Jose Bypass Road Project (ECC Ref No. 0205-382-208) and Plaridel Bypass Road Project (ECC Ref No. 0205-383-208) all issued on November 19, 2002.

Your request for extension of the ECC validity for the abovementioned projects is hereby granted, subject to commencement of the construction phase of the project within two (2) years and conduct of environmental baseline monitoring of the critical parameters identified in the Environmental Impact Statements (EIS).

Very truly yours,

  
**JULIAN D. AMADOR**  
Director



Republic of the Philippines  
Department of Environment and Natural Resources  
Visayas Avenue, Diliman, Quezon City 1110  
Tel. Nos.: (632) 929-66-26 to 29 • (632) 929-65-52  
929-66-20 • 929-66-33 to 35  
929-70-41 to 43

Department of Public Works and Highways  
3/F, DPWH Central Office, Bonifacio Drive  
Port Area, Manila

NOV 19 2002

Attention : Mr. Faustino Sta. Maria  
Project Manager III

Subject : Environmental Compliance Certificate  
Ref. Code: 0205-381-208 (Cabanatuan Bypass Road)  
0205-382-208 (San Jose Bypass Road)  
0205-383-208 (Plaridel Bypass Road)

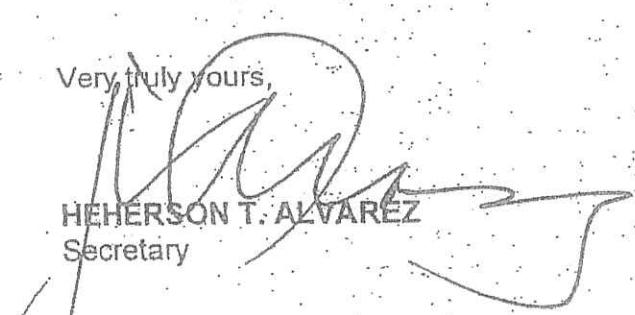
Dear Mr. Sta. Maria:

This refers to your application for an Environmental Compliance Certificate (ECC) for the Upgrading of Inter-Urban Highway System (Plaridel, Cabanatuan and San Jose Bypass Road Project) along the Pan Philippine Highway.

After evaluation of the documents submitted, this Office has decided to issue an Environmental Compliance Certificate (ECC) for the abovementioned project.

You may proceed with project implementation after securing the necessary permits from other pertinent government agencies. Please be advised however, that this Office will be conducting periodic and on-the-spot monitoring to ensure your compliance with stipulations cited in the attached document. Further, any expansion or modification of the currently approved operations will be subject to the Environmental Impact Assessment requirements.

Very truly yours,

  
HEHERSON T. ALVAREZ  
Secretary

Cc: The EMB Regional Director  
Region III

Let's Go Green!



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NOV 19 2002  
**ENVIRONMENTAL COMPLIANCE CERTIFICATE**  
0205-383-208

The Department of Environmental and Natural Resources (DENR) through the Environmental Management Bureau (EMB) hereby grants this Environmental Compliance Certificate (ECC) to the proposed Upgrading of Inter-Urban Highway System (Plaridel Bypass Road Project) of the *Department of Public Works and Highways*, after complying with the Environmental Impact Assessment (EIA) requirement, as prescribed in the promulgated guidelines implementing Section 3 (b) of P.D. 1121 and P.D. 1586.

This Certificate is being issued subject to the following conditions:

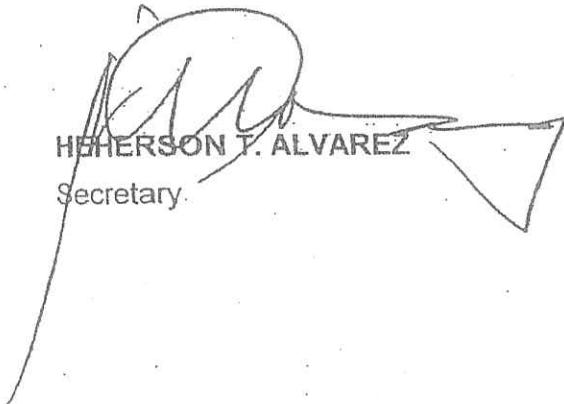
1. This Certificate is valid only for the construction of a 21.870 kilometer bypass road traversing the Municipalities of Balagtas, Guiguinto, Plaridel, Bustos, and San Rafael Bulacan;
2. Proponent shall make formal representation in writing to the Local Government Unit's (LGU's) concerned not to allow the conversion of agricultural land traversed by the bypass road project to prevent the proliferation of linear urban development along the road side, maintain light road side friction and avoid traffic congestion that would reduce designed road speed (80 kph);
3. A separate ECC for the concrete mixing plants shall be secured from the EMB Region Office;
4. Utilization of trees within the access roads shall be in accordance with the existing Forestry Laws, Rules and Regulations. Timber and other forestry products shall not be cut or utilized unless covered by a valid permit from the Forest Management Sector, DENR and all other permits required by other government agencies shall be secured prior to construction;
5. All commitments, mitigating measures and monitoring requirements, especially those contained in the Environmental Impact Statement (EIS) particularly in the Environmental Management and Monitoring Plans, including all its modifications and additional information as approved by the EMB shall be instituted to minimize any adverse impact of the project on the environment throughout the project implementation including the following:
  - 5.1 Just compensation, in accordance with the provisions of R.A. 8974, shall be fully paid to all affected landowners, tenants, and other affected parties, before start of construction. A Resettlement Action Plan (RAP) to include computations of said just compensation shall be submitted to the EMB six (6) months after the completion of the parcellary survey. In addition, proofs of payment verified by the EMB Regional Office must be submitted six (6) months after completion of ROW acquisition;

- [Handwritten signature]*
- NOV 19 2002
- 5.2 The proponent shall design and undertake a continuing Information, Education and Communication Program (IEC) throughout the pre-construction, construction and operational phases of the project. The IEC program should be specifically implemented in the affected municipalities, a formal report shall be submitted to EMB Central Office 6 months after issuance of the ECC;
  - 5.3 A workable Traffic Management Program to include schedule of construction activities, specific alternative re-routing plan, traffic schemes (i.e., posting of road signs/ warning lights) shall be implemented in coordination with relevant government agencies, a formal report shall be submitted to EMB CO 6 months after issuance of the ECC;
  - 5.4 Provide a mechanism to implement its Social Development Program (SDP) in order to ensure workability and sustainability of essential components of livelihood projects, such as training of Project Affected Persons (PAPs) whose only source of income will be permanently removed. The DPWH shall enter into a Memorandum of Agreement (MOA) with the DECS-TESDA to conduct such training. Said MOA shall embody the conditions upon which the provision of skills training to aforesaid PAPs will be successfully carried out. A copy of the draft MOA shall be submitted to EMB CO 6 months after issuance of the ECC;
  - 5.5 The Proponent shall require their contractors to formulate a doable construction safety and hazard control measures and a contingency response plan to minimize occupational risk and health hazards to workers, residents and passers-by and shall ensure that its contractors properly comply with the relevant conditions of this Certificate;
  - 5.6 Appropriate design shall be incorporated to prevent or mitigate flooding of areas affected by the bypass roads and to ensure continuous flow of irrigation water;
  - 5.7 Drainage structures such as ditches, culverts and pipe drains including silt traps and similar structures shall be installed to divert surface water run-off away from the construction site. The planting of available indigenous vegetation to protect the slopes from soil erosion and reduce siltation in the adjoining creeks shall be implemented;
  - 5.8 All construction spoils, stripped vegetation, discarded construction materials and debris shall be regularly collected, stockpiled and stored at a DENR approved site before disposal;
  - 5.9 Proper handling, collection and disposal of oil/lubricants, worn-out tires, and other used/discharged parts used by heavy equipment shall be strictly effected;
  - 5.10 Adequate vegetated buffer zone along the proposed bypass road shall be undertaken to mitigate the impacts of road use and improve the aesthetic value of the area;
  - 5.11 Regular maintenance of drainage facilities in the proposed bypass road shall be undertaken to prevent frequent occurrence of flooding in the area;
  - 5.12 Quarterly submission of monitoring reports to the FMR CO and RO shall

6. The proponent shall ensure that contractor's All Risk Insurance (CARI) is provided to cover expenses for the indemnification/compensation of damage to life and property that may be caused by the implementation of the project facilities related to the prevention of possible negative impact;
7. To supplement CARI, a Quick Response Fund (QRF) shall also be set up by the proponent to be used for emergency repairs/restoration of critically damaged infrastructure facilities after calamity in order to restore mobility and ensure safety in the affected areas;
8. This Certificate is considered automatically revoked if the project has not commenced within a period of five (5) years after the issuance hereof;
9. The transfer of ownership of this project carries it with the responsibility of complying with all the conditions of the Certificate, the EMB of which shall be informed of said transfer through a written notification to the DENR-EMB within (15) days from such transfer.

Non-compliance with any of the above stipulations will be sufficient cause for the suspension or cancellation of this Certificate and/or fine in the amount not to exceed Fifty Thousand Pesos (PHP 50,000) for every violation thereof, at the discretion of the Environmental Management Bureau (section 9 of P.D. 1586).

Granted this NOV 19 2002

  
JEFFERSON T. ALVAREZ

Secretary.



Republic of the Philippines  
Department of Environment and Natural Resources  
ENVIRONMENTAL MANAGEMENT BUREAU  
Visayas Avenue, Diliman, Quezon City 1116

## **CERTIFICATE OF NON-COVERAGE**

**CNC-CO-0801-019-5020**

The Environmental Management Bureau, Central Office hereby grants this Certificate of Non-Coverage (CNC) to the additional 2.5 Kilometers alignment of Package 4, Plaridel Bypass road project under the Arterial road bypass project of the Department of Public Works and Highways starting at Km. 049+055 and ends at km. 61+000 in the Municipality of San Rafael, Bulacan, after it is found to be among those projects not covered by the purview of Presidential Decree No. 1586 and the provisions of DENR Administrative Order No. 2003-30.

However, this does not preclude the proponent to secure the required clearance/permits/licenses by other government agencies/instrumentalities before the start of the project implementation/operation

Given This MAR 17 2010

**THIS CERTIFICATE SHALL NOT BE CONSTRUED AS A PERMIT**

Approved by:

  
**JULIAN D. AMADOR**  
Director, EMB

Amount: PHP 600.00  
O.R. No: 6915520  
Date: 09 September 2009



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Department of Environment and Natural Resources  
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APR 2 2003

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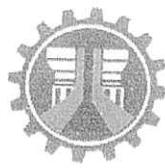
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Approved by:

JULIAN D. AMADOR  
Director, EMB

Amount : PhP 600.00  
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Date : 09 September 2009



Republic of the Philippines  
DEPARTMENT OF PUBLIC WORKS AND  
HIGHWAYS  
Central Office

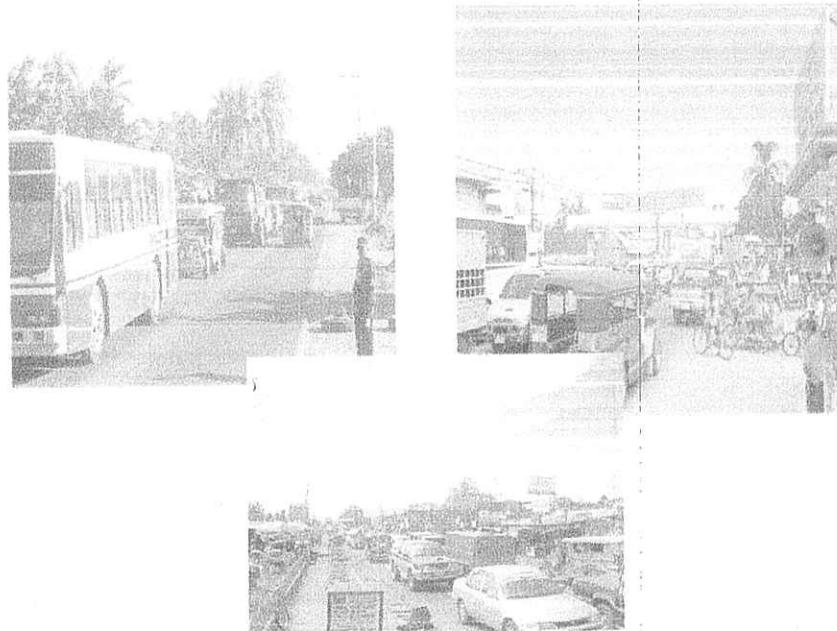
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# PROJECT DESCRIPTION

## (Package 4 Additional Alignment)

### PLARIDEL BYPASS ROAD PROJECT

Under Arterial Bypass Road Funded by Japan Bank  
for International Cooperation Agency Formerly JBIC



**SEPTEMBER 2009**

With assistance from Katanira Engineers International (KEI)  
Manila, Philippines

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## EXECUTIVE SUMMARY

This report is presented in a form of Project Description (PD) of the proposed **Construction of Plaridel Bypass Road Realignment Section** located along Contract Package IV (Sta.049+625 to Sta. 057+365.733) in San Rafael, Bulacan of the Arterial Road Bypass Project, Phase I, and prepared by the Environmental and Social Services Office (ESSO) of the Department of Public Works and Highways (DPWH) with technical assistance of Katahira Engineers International (KEI). The preparation of this report is in accordance with the criteria of DENR Administrative Order No. 30 series of 2003 (DAO-03-30) under which projects or undertakings introducing new technologies that have indeterminate environmental impacts will be required to submit a Project Description to EMB-DENR for a subsequent issuance of Certificate of Non-Coverage (CNC). The CNC is required by the National Economic and Development Authority (NEDA) specifically, the NEDA – ICC for possible funding under the Japan International Cooperation Agency (JICA, formerly JBIC).

The compliance certificate in the form of CNC is one of the covenant requirements of the National Economic and Development Authority (NEDA) - Investment Coordinating Committee (ICC) Technical Board prior to endorsement to the funding institution stated above.

The Arterial Road Bypass Project, Phase I (Plaridel Bypass Road Section) starts at Sta. 033+025 to Sta. 055+ 672 while the proposed realignment section in Contract Package IV starts at Sta. 051+589.82 to Sta. 057+ 365.733 ( $L= 5.78$  kms). The overall total length of the project including the on-going implementation of Contract Package I is  $L= 24.61$  km. The proposed construction is made up of PCCP with a carriage way width of 3.5 meters per lane for a total of 7.0 meters for two lanes at initial stage.

The following activities will be undertaken: clearing and grubbing, survey works, site investigation, foundation investigation, soils and materials investigation, preparation of design and project plans, preparation of specifications, quantity and cost estimates, program of works, proposed construction schedule and estimated cash flow. More importantly to address the social impacts due to Road Right-of-Way Acquisition (RROW), a proper coordination with the municipal and barangay level consultations were conducted throughout the project phases whenever and wherever necessary.

## Project Description, Plaridel-Bypass Road Realignment Section

Permit to cut should be secured from the DENR if for unavoidable cutting of trees prior to Construction Phase or civil works implementation.

During Construction Phase, immediately after the DPWH issuance of the Notice to Proceed to the Contractor, the Proponent and the Contractor should be in proper meeting of the mind, discuss each and every responsibility stipulated in the contract.

The initial activities required for mobilization of the required equipment, personnel and necessary materials should be properly guided by the Contractor in consideration of environmental health & safety at the job site. Construction of temporary facilities including campsite, bunkhouse, warehouse and stockroom will follow the same environmental cleanliness. The construction period is based on the work schedule to be prepared by the proponent.

During civil work activities, the Contractor will be required to install all the safety measures during construction such as the posting of the necessary danger signs, the wearing of helmets, safety shoes, and the like.

Traffic Management Plan should be prepared prior to civil works implementation to avoid traffic problems which cause the delays in the delivery of goods & services.

At present, there is no significant adverse impact observed in the project area. However, during excavation works, negative impacts are foreseen specifically on air, dust and noise, solid waste generation which are short-term in nature and can be avoided thru proper mitigation.

The following hazards that may be encountered during Construction Stage include solid waste generation, Right of Way Acquisition, Air pollution due to dust and fine particles. Mitigation of these hazards are indicated in the Environmental Management Plan (EMP).

An Environmental Monitoring Plan is also presented in this report, which is intended for the continued observation and evaluation of the impacts during the entire phase of the project cycle.

## Section 1. Project Description

### A. Project Rationale

The primary objectives of the project are to improve road and traffic capacity and to answer the growing traffic demand by widening the road, to strengthen socio-economic linkage in the province of Bulacan & other neighboring provinces and the reduction of growing heavy traffic along Maharlika Highway in the Municipality of Plaridel. The project implementation will also greatly improve the farmer's access to markets enabling them to sell their products more effectively.

The DPWH Road Development Project aims to provide structurally sound permanent bridges along all national roads to improve basic social, industrial and agricultural activities and provide safe and faster transport effectively utilizing the existing road systems.

### B. Project Location

The **Plaridel Bypass Road** is located in the province of Bulacan in the central part of mainland Luzon. It will run for about 24.61 kms., starting from the North Luzon Expressway in the Municipality of Balagtas, passing through the municipalities of Guiguinto, Plaridel and ends in the Municipality of San Rafael.

The Arterial Road Bypass Project, Phase I, under Supplemental Agreement No. 2 is composed of three (3) contract packages, namely, Contract Package II which starts at Sta. 39 + 625 and ends at Sta. 47 + 400 with a total length of 7.78 kms. inclusive of the construction of 7 bridges, Contract Package III, which starts at Sta. 47 + 400 and ends at Sta. 49 + 625 with a total length of 2.22 kms inclusive of the construction of 2 bridges and Contract Package IV, which starts at Sta. 49 + 625 and ends at Sta. 57 + 365. 733 with a total length of 7.74 kms inclusive of 2 bridges.

### *Objective of the Project*

The Philippine-Japan Friendship Highway suffers serious traffic congestion in the urban sections, particularly in Plaridel, Bulacan, Region III. The project aims to achieve the following objectives by constructing a bypass in Plaridel .

1. To restore the road function of the PJFH which is the most important arterial road in the country;
2. To provide fast, cheap, safe, comfortable and reliable means of transportation;
3. To mitigate serious traffic congestion at existing urban sections.

The road project serves as alternate route and to decongest the existing Pan Philippine Highway Road. Likewise, it aims to promote an inter-regional linkage between Cagayan Valley Region (Region II) and Central Luzon (Region III).

### C. The Project

#### C.1 Project Information

- C.1.1 Project Name : Proposed Road Construction of Plaridel Bypass Road, Realignment Section, Region 3
- C.1.2 Project Proponent : **MAXIMO L. CARVAJAL**  
Director, PJHL-PMO
- C.1.3 Contact Person : **WILFREDO F. GALANG**  
e-mail address : [wilfg@hotmail.com](mailto:wilfg@hotmail.com)  
Tel No : 023043287
- C.1.4 Designation : Engineer III, DPWH-ESSO
- C.1.5 Address : Bonifacio Drive, Port Area, Manila

**D. Description of Project Phases:**

**Pre-Construction Phase**

During Pre-construction Phase the following activities are expected to be undertaken: survey, site investigation, foundation investigation, soils and materials investigation, preparation of design and project plans, preparation of specifications, quantity and cost estimates, program of works, proposed construction schedule and estimated cash flow. More importantly to address the social impacts due the Road-Right-Of-Way Acquisition, the EIA Team conducted a series of public consultation in municipal and barangay levels.

As part of the pre-construction activities, location of work camps shall be determined in cooperation with the Local Government Units (LGUs) and the location shall be subject to the approval of the DPWH and LGUs concerned. If possible, camps shall be located far from drinking water supply. Water and latrine facilities shall be provided for employees.

Permit to cut shall be secured from the DENR if cutting of trees is unavoidable.

Used oil lubricant shall be recovered and reused or removed from the site by the Contractor in full compliance with National and Local regulations. Oil waste must not be burned.

**Construction Phase**

Immediately after the DPWH issuance of the Notice to Proceed to the Contractor, a meeting between the Proponent and the Contractor will be held to discuss each and every responsibility stipulated in the contract.

The initial activities will be to mobilize the required equipment, personnel and necessary materials to start the project at the job site. Construction of temporary facilities including campsite, bunkhouse, warehouse and stockroom will follow. The construction period is based on the work schedule to be prepared by the proponent.

## Project Description, Plaridel-Bypass Road Realignment Section

### **Safety Measures**

During dredging and other related civil works activities, the Contractor will be required to install all the safety measures during construction such as the posting of the necessary danger signs, the wearing of helmets, safety shoes, and etc.

### **Operation and Maintenance**

To avoid flooding, garbage should not be disposed near the river or existing drainage. The District Engineering Office should maintain a pool of skilled labor and equipment for the repair and maintenance of drainage on a regular basis. Annual appropriation for the operation and maintenance is provided in the DPWH budget. The maintenance of this road will be undertaken by the District Engineering Office. This will involve periodic inspection and make necessary repairs for the structures to remain sound.

### **Abandonment**

Upon completion of civil works, the drainage and river system should be maintained regularly, if necessary. Application of the existing City Solid Waste Management should be put into practice by the concerned barangays. The LGUs & NGOs are in close coordination with each other on solid waste management issues.

Project Description, Plaridel-Bypass Road Realignment Section

Table I Impact Assessment

ENVIRONMENTAL ACTION FEATURE	EFFECTS on ENVIRONMENT	CHARACTERISTICS				IMPACT ASSESSMENT		
		Positive/ Negative	Duration	Scale	Reversibility	Insignificant	Moderate	Significant
<b>1. Physical Environment</b>								
Air quality-dust from working areas	Potential temporary problem throughout construction area until a) paved b.) grassed	-	Short	Localized	Yes			*
Noise and vibration	Temporary impact during dredging construction	-	Short	Localized	N/A	*		
Water - interruption of groundwater	Drainage construction may intercept groundwater, affecting slopes stability and spring	-	Permanent	Localized	No			*
- Change to surface water flow	Civil works preparation such as dredging & drainage will alter & control local flows: some cross-flows important for irrigation, water supply	+	Permanent	Localized	Yes			*
- Silting	Sediment from earthworks and spoil may affect water courses and -downstream users should be reduced	+/-	Short	Wide spread	Difficult			*
- Other contamination	Localized pollution from camp sewage, used oils possible unless controlled	-		Localized	Yes	*		
Soils - erosion from fills, quarries, spoils dumps	Erosion, siltation until stabilized	-	Medium	Wide spread	Difficult			*
-spoil disposal	Spoil disposal a major problem due to steep, sensitive terrain	-	Short	Wide spread	Difficult			*
Construction Materials - aggregates	Land take, erosion, safety hazards from quarries, borrow pits	-	Short	Localized	No	*		
<b>2. Biological Environment</b>								
Habitat - alignment through or near vegetation	The project will affect mostly agricultural lands	-	Medium	Localized	Very Difficult			*
-fire risks	Burning of vegetation; risk from workers in all areas	-	Medium	Localized	Yes		?	
<b>3. Socio-economic Environment</b>								
Property	Permanent land take for rehabilitation	-	Temp. &	Moderate	No			*

Project Description, Planidel-Bypass Road Realignment Section

ENVIRONMENTAL ACTION FEATURE	EFFECTS on ENVIRONMENT	CHARACTERISTICS				IMPACT ASSESSMENT		
		Positive/ Negative	Duration	Scale	Reversibility	Insignificant	Mode rate	Significant
-land take for works, quarries, borrow pits, contractor's facilities	will be very limited unless road is widened except in narrow portions where expansion is needed		Permanent					
-services	Damage to roadside & cross-road infrastructure likely, especially water supplies	-	Short	Localized	Yes	No		*
-structures/hipa houses	Approximately more than 200 Affected Families	-	Permanent	Few		Moderate	No	*
Livelihoods -loss of fields, houses	Impacts of loss of fields etc. depends on economic status of family affected and level and type of compensation paid	-	Permanent	High	N/A			*
-employment	Potential major temporary benefit of project, although may disrupt agricultural labour supply	+/-	Temporary					*
-interruption of traffic	Uninterrupted use of road important for economic, social reasons	-	Intermittent	Moderate	N/A			*
-price inflation	Ready availability of cash from employment could drive up price of essential goods beyond reach of poorest	-	Temporary	?	Yes	?	?	?
Dissadvantage Groups. Gender Issues -children	Attraction of adult labor to road works could increase pressure for child labor on vegetable farms, which is already a serious social problem	-	Temporary	?	N/A			
-female-headed households	Potentially beneficial through easing transport and improving accessibility to social/educational/health service	-	Permanent	Wide-spread	N/A			*
Cultural Heritage -social values	Conflicts with outside labor possible	-	3 years	Localized	No			*
Built heritage	No heritage building in vicinity of road	-	N/A	N/A	N/A			*
-archaeology	No archaeological sites identified by reconnaissance survey.	-	N/A	N/A	N/A			*
-cultural landscapes	No cultural landscape in vicinity of the road	-	Permanent	N/A	No			*
-aesthetic	Upon the civil work construction, the DPWH Contractor should improve the	+	Permanent	22 km	N/A			*

Project Description, Pilaridel-Bypass Road Realignment Section

ENVIRONMENTAL ACTION FEATURE	EFFECTS on ENVIRONMENT	CHARACTERISTICS				IMPACT ASSESSMENT	
		Positive/ Negative	Duration	Scale	Reversibility	Insignificant	Mode Significant rate
	vicinity appearance, especially slope stabilization and bioengineering works application	-	-	22 km	N/A	-	-
Health & Safety	Accident risk from and nuisance value of construction likely to be high	-	3 years	-	-	-	*
-hazard from construction traffic	Risks to pedestrians due to civil works implementation	-	3 years	22 km	Yes	-	*
-hazards to normal traffic	Moderate nuisance and possible health effects residents	-	3 years	Localized	Yes	-	*
-dust & noise	Low risk of malaria, non-lethal faecal/oral diseases from poor sanitary practices at camps; moderate risk of spread of STDs from prostitution	-	3 years	Localized	No	-	?
-health impacts of construction camps/labour							

### Environmental Management Plan (EMP) and Environmental Monitoring Plan (EmoP)

The purpose of the Environmental Management Plan is to enhance the beneficial impacts and to lessen effects of adverse impacts. The EMP serves as guide to ensure proper implementation of mitigation measures. Failure to do so may result in the cancellation of the ECC and project may be stopped with a cease and desist order. The impact and corresponding mitigation measures are presented below.

### Environmental Monitoring Plan

The Monitoring Plan is intended for the continued observation and evaluation of the mitigation impacts during construction and operation and operation phases. The proponent will closely coordinate with the DENR and the LGUs on the monitoring activities. For a smooth implementation of the project, the proponent will appoint a monitoring team for proper coordination with the DENR and the LGUs.

**Table 2**  
**ENVIRONMENTAL MANAGEMENT PLAN**

Project Phases and Area of Concern	Impact Description	Mitigation Measures	Cost	Schedule	Institutional Plan	Guarantees
<b>PRE-CONSTRUCTION PHASE</b>						
Geologic (structural stability)	Project benefits impaired	• Incorporation of geological consideration in detailed design	Covered by the contract cost of the Technical Consultant	During planning and detailed engineering design	DPIWH/ Technical Consultant	Include in the Feasibility and Detailed Engineering Design for the project.
Vegetation loss during	Loss of grasses and ornamental plants	• Depends on selected site; minimal since area is relatively developed (only insect / small animals will be displaced)	Minimal	During surveying and site clearing activities	DPIWH/ Technical Consultant/ Contractor	Include in the Feasibility Study for the project
Right of Way Acquisition (ROW) Just Compensation for affected assets	Loss/damage to properties of affected households	• Public Consultation and preparation of applicable RAP and SDP for affected community	> To be based on actual cost (estimates is not final)	During Planning Stage and site clearing	DPIWH/ LGUs	Public Consultation Reports, Proof of Social Acceptability from Barangay, Homeowners Association I
Proper negotiation process as stated in RA 8974	Public acceptance of the project	• Public hearing and consultation should be conducted to address the concerns of the stakeholders	Covered by the contract cost of the Technical Consultant	During planning stage or pre-construction	DPIWH/ Technical Consultant/ LGUs/ Other concerned agencies	Public Consultation Reports, Proof of Social Acceptability

Project Description, Plaridel-Bypass Road Realignment Section

Project Phases and Area of Concern	Impact Description	Mitigation Measures	Cost	Schedule	Institutional Plan	Guarantees
<b>CONSTRUCTION PHASE</b>						
1. Threat of Environmental hazards	Soil and water pollutions	Adherence to RA 6969/Good Housekeeping/ Adherence to sound engineering practices	Covered by the contract cost of the contractor	During the entire period of the construction phase	D PWH/ Contractor	Included in the conditions of civil works contract
2. Disposal of dredged materials	Soil and water pollution; health hazard	Adherence to RA 6969/Good Housekeeping/ Adherence to sound engineering practices	Covered by the contract cost of the contractor	During the entire period of the construction phase	D PWH/ Contractor	Included in the conditions of civil works contract
3. Effects on waster quality	Surface and ground water pollution	Provision Portalets; No direct discharged of domestic waste water	To be determined	During the entire period of the construction phase	D PWH/ Contractor	Included in the conditions of civil works contract
4. Effect on air quality	Dust generation and emission of gaseous pollutants	Proper maintenance of heavy equipment. Regular sprinkling of water to exposed areas (when applicable)	To be determined	During the entire period of the construction phase	D PWH/ Contractor	Included in the conditions of civil works contract
5. Noise/sonic environment	Unavoidable noise increase generated from different construction equipment	Suspend construction activities during nighttime; use of mufflers for heavy equipment and vehicles	To be determined	During the entire period of the construction phase	D PWH/ Contractor	Included in the conditions of civil works contract
6. Disposal of solid waste from rivers and drainage mains	Threat of Environmental pollution (soil and water pollution)	Strict adherences to provisions of RA 9003 or ecological Solid Waste Management Act	Covered by the contract cost of the contractor	During the entire period of the construction phase	D PWH/ Contractor	Included in the conditions of civil works contract
7. Effect of odors	Air pollution; odor nuisance and irritation to nearby communities	Employ proper construction techniques, management of spoils and application of odor reducers	Covered by the contract cost of the contractor	During the entire period of the construction phase	D PWH/ Contractor	Included in the conditions of civil works contract

Project Description, Plaridel-Bypass Road Realignment Section

Project Phases and Area of Concern	Impact Description	Mitigation Measures	Cost	Schedule	Institutional Plan	Guarantees
8. Effects on Aesthetics	Visual eyesores	Maintenance of the orderliness and cleanliness at the site construction		During the entire period of the construction phase	D PWH/ Contractor/ LGUs	Included in the conditions of civil works contract
9. Population Dynamics	Potential increase of population during construction phase	Prioritize local labor; ensure adequate stock of housing units for shelter needs	Covered by the contract cost of the contractor	Prior to construction phase	D PWH/ Contractor	Site inspection Report
10. Employment and income opportunities during construction phase	Economic benefits; but may not be fully realized because of imposed bidding conditions	Advance notice of hiring should be advertised in the community	To be determined	Prior to construction phase	D PWH/ Contractor	Data of Hired personnel
11. Occupation health and public safety	Occurrence of work-related accidents	Compliance with Department of Labor and Employment (DOLE) regulations on Occupational Safety and Health Hazard Standards	To be determined	During the entire period of the construction phase	D PWH/ Contractor	Included in the conditions of civil works contract
12. Vehicular traffic and public safety	Traffic congestion and road accidents	Adopt a comprehensive Traffic Management Plan (TMP); install signage's and warning devices at the construction site	To be determined	During the entire period of the construction phase	D PWH/ Contractor/ LGUs	Included in the conditions of civil works contract
<b>OPERATION AND MAINTENANCE (O &amp; M) PHASE</b>						
1. Physico-Chemical Related Impacts	Concerned efforts among local people, NGOs and concerned	To be determined	During the entire period of the construction and	D PWH/ LGUs	Included in the Feasibility Study for the project, ECC	

Project Description, Phariel-Bypass Road Realignment Section

Project Phases and Area of Concern	Impact Description	Mitigation Measures	Cost	Schedule	Institutional Plan	Guarantees
	wastewaters which can cause water pollution, and affect public health and safety	government agencies to regulate disposal of domestic solid waste and wastewater to maintain cleanliness and sanitation in the area and protect public health and safety.	maintenance (O & M) phase			conditionality
2. Public Safety and Health Safety	Project benefits will be impaired	• The key mitigation measures is the sound and effective operation and maintenance (O & M)	To be determined	During the entire period of the construction and maintenance (O & M) phase	DPWH/ LGUs	Included in the Feasibility Study for the project; ECC conditionality
3. Local Economy, Labor and Employment			To be determined	During the entire period of the construction and maintenance (O & M) phase	DPWH/ LGUs	Included in the Feasibility Study for the project; ECC conditionality
4. Land Values, People, Living Condition			To be determined	During the entire period of the construction and maintenance (O & M) phase	DPWH/ LGUs	Included in the Feasibility Study for the project; ECC conditionality
5. Vehicular Traffic			To be determined	During the entire period of the construction and maintenance (O & M) phase	DPWH/ LGUs	Included in the Feasibility Study for the project; ECC conditionality

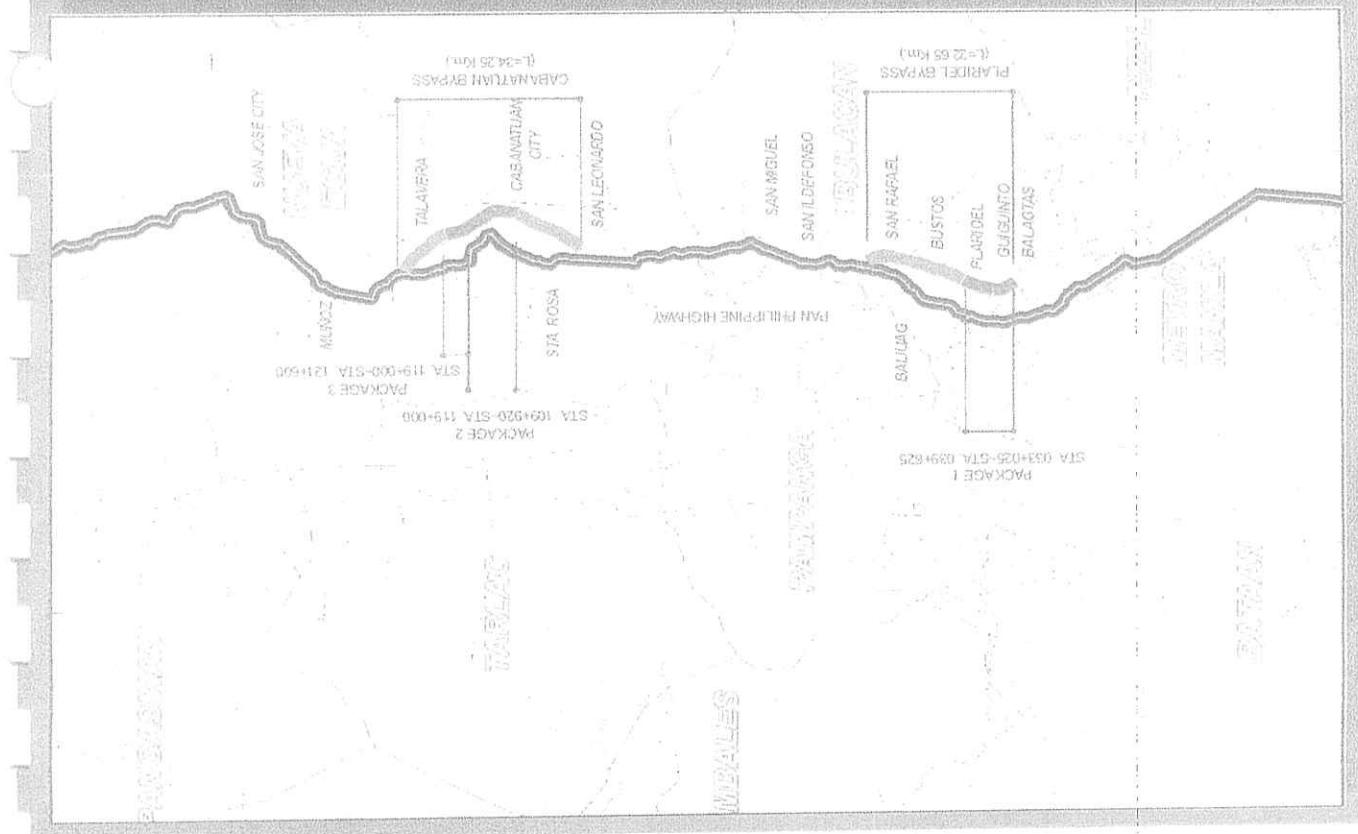
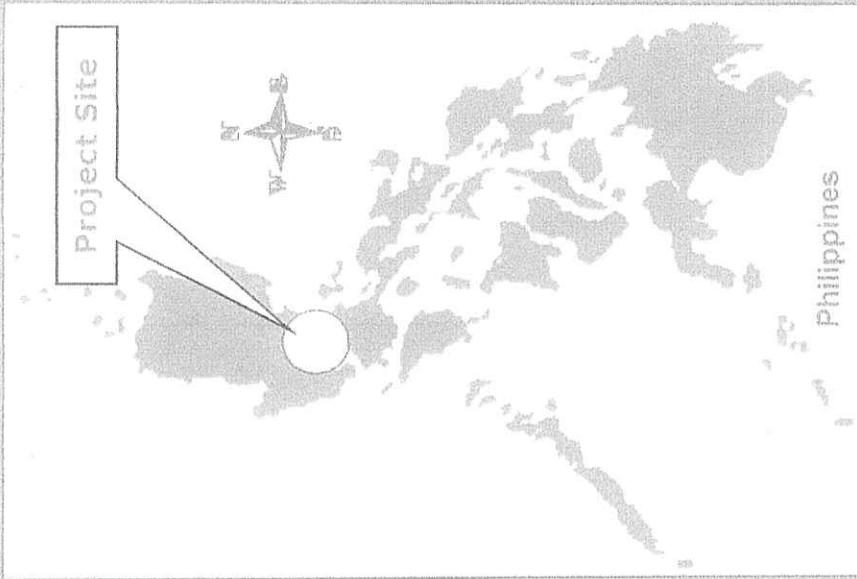
**Table 3**  
**Environmental Monitoring Plan**

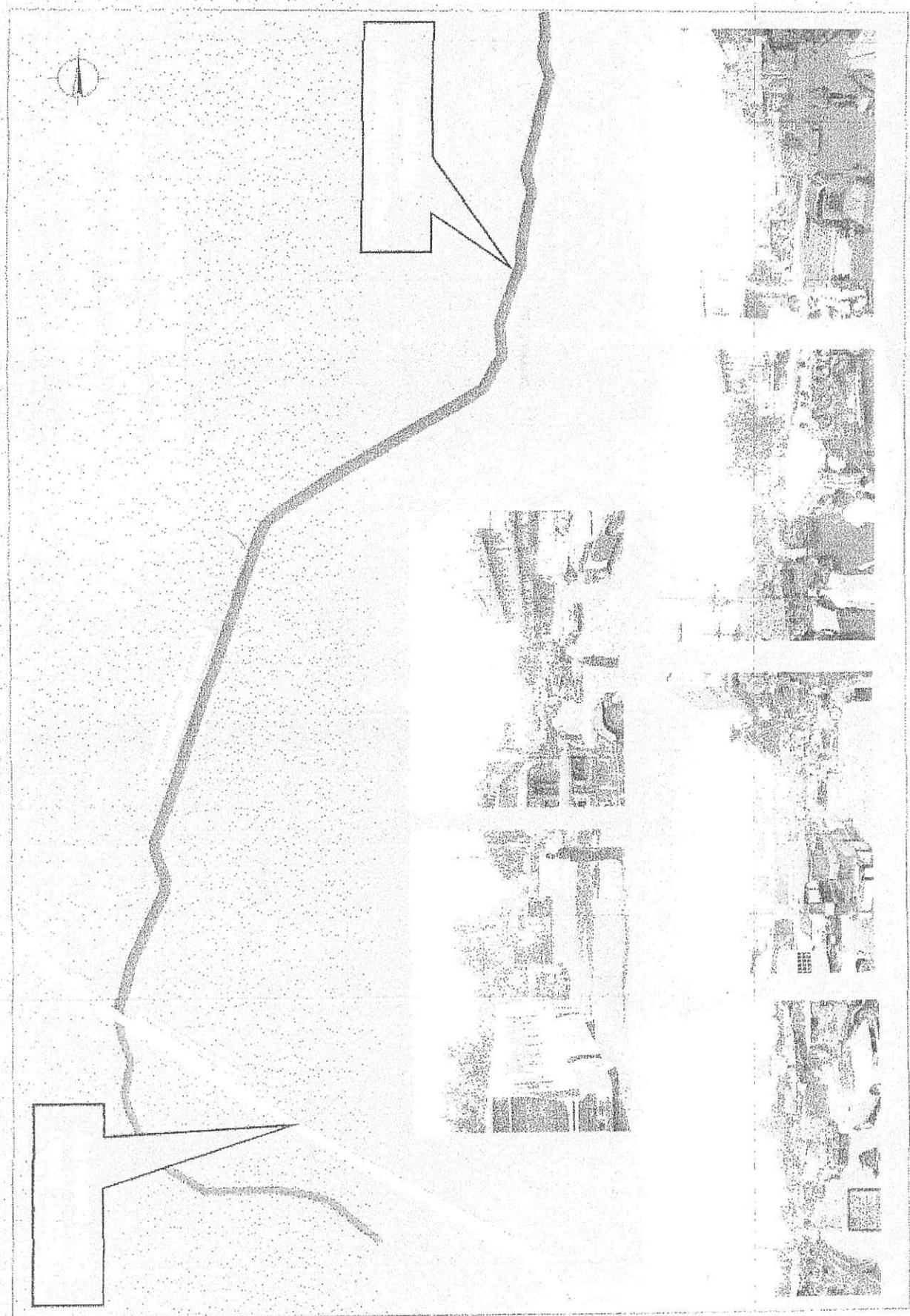
Project Phases and Area of Concern	Parameters	Procedure	Location	Frequency	Responsibility	Cost (P)
<b>A. CONSTRUCTION PHASE</b>						
1. Air Quality and Noise	Select sampling points Fugitive dust during earthmoving and Total Suspended Particulate (TSP), offensive odors, and fumes from vehicles emission-NO <sub>2</sub> and NO <sub>2</sub> , noise meter	Statistical data for NO <sub>2</sub> and SO <sub>2</sub> , noise meter	The same sampling point (as with this study)	Twice a year	Project Proponent/ Contractor	To be determined
2. Solid Waste Generation	Volume of Solid wastes from construction area; Checking on the proper disposal and collection of solid wastes in Adherence to RA 9003	Visual observation; Statistical data on solid waste	Construction site	Daily	Project Proponent/ Contractor	Part of the Contractor's contract
3. No. of local workers (living in the project area/hired for the project)	Ratio of hired workers (local residents vs migrant workers)	Statistical data on hired workers	Hiring offices	During hiring period	Project Proponent/ Contractor	Part of the Contractor's contract
4. Occupancy Health and Safety	Job related accident's / sickness	Statistical data on job related accidents and sickness	Construction site	Daily	Project Proponent/ Contractor	Part of the Contractor's contract
5. Vehicular Traffic and Public Safety	Traffic volume (all kinds of vehicles); project and traffic related accidents	Periodic report by contractor/count of passing vehicles per hour and related accidents	Construction site	Daily	Project Proponent/ Contractor	Part of the Contractor's contract
<b>B. OPERATION AND MAINTENANCE (O &amp; M) PHASE</b>						
1. Water Quality	Samples to be tested for conventional parameters (pH, D.O, sanity, BOD,	Water sampling and laboratory	Same sampling stations	Semi-annual	Monitoring Team	

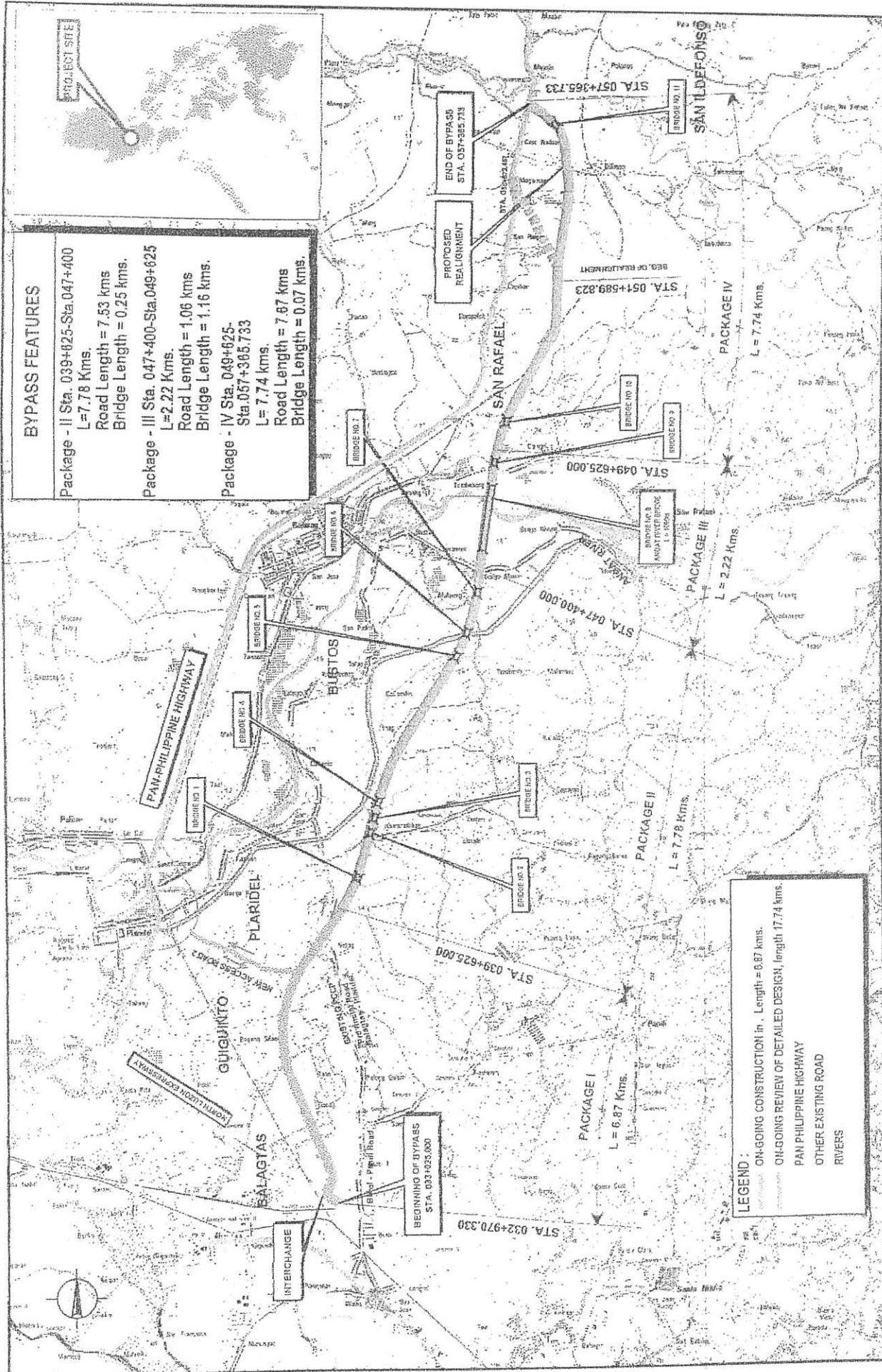
Project Description, Phariel-Bypass Road Realignment Section

Project Phases and Area of Concern	Parameters	Procedure	Location	Frequency	Responsibility	Cost (P)
COD, TDS, TSS, pH, color, oil & grease, PO <sub>4</sub> <sup>3-</sup> , total N, Cr <sup>6+</sup> , and Total Coliform,	analysis	identified during the pre-construction phase				
6 Offensive Odor	Foul stinky odor	Physical observation and sense of smell		As required	Monitoring Team	Cost should be allocated By DPWH Budget for Monitoring
7. Solid Waste Generation	Volume of solid wastes from ; Checking on the proper disposal and collection of solid wastes adherence to RA 9003	Spot checking / Visual observation	Along the drainage route and its vicinity	As required	Monitoring Team	
8 . Informal Settlers (if any)	Number of shanties/ squatters proliferated along drainage line	Statistical data on number off squatters	Along the drainage route and its vicinity	Daily	Monitoring Team in	Part of the regular O & M funds of the DPWH.
9 Public Health	Project related illness such as water-borne diseases	Statistical data on water-borne diseases outbreak	Within the vicinity of the Project Area (Workers and nearby residents)	Daily	Monitoring Team	Part of the regular O & M funds.

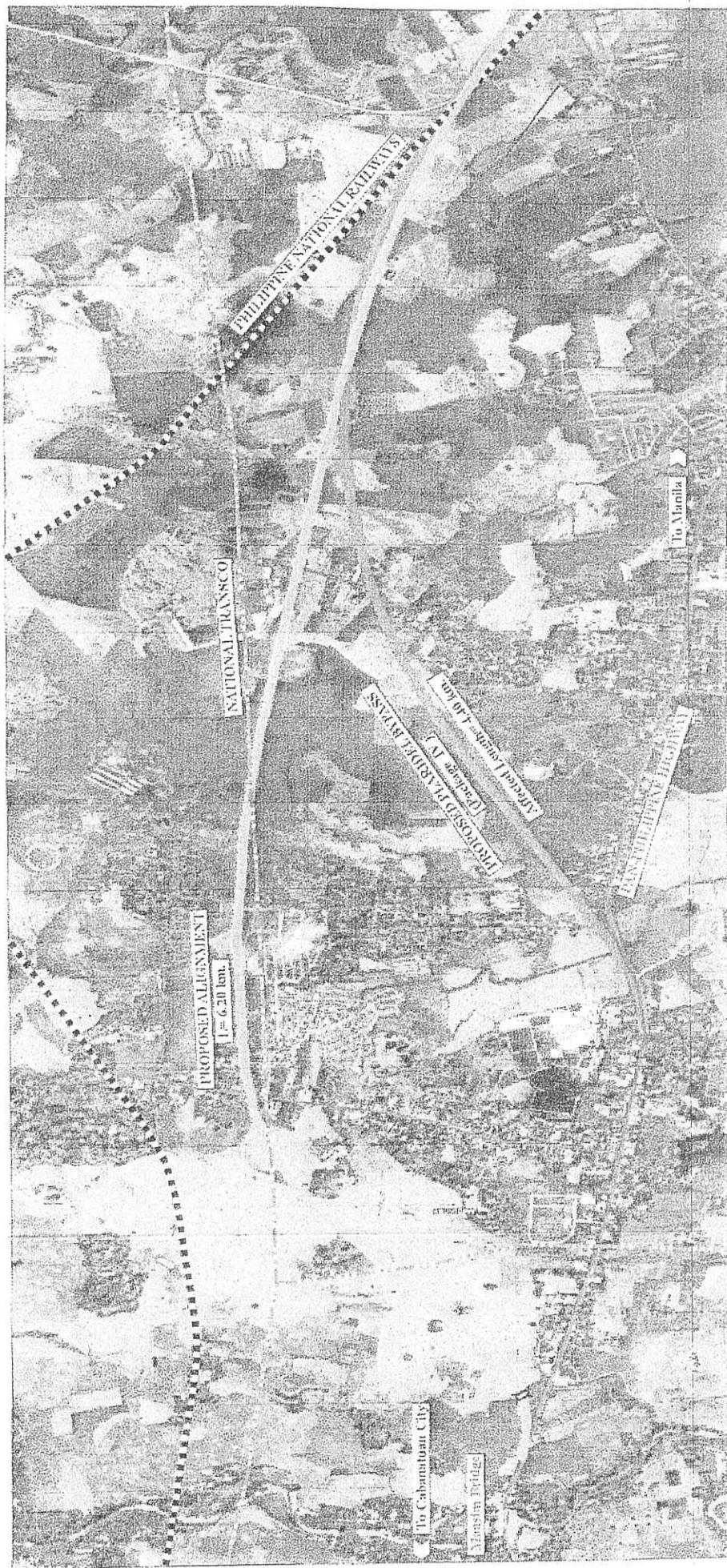
## **Location Map of the Project**







GENERAL ALIGNMENT PLAN OF PLARIDEL BYPASS



Proposed Realignment of End of Bypass Road  
Manila Bypass Package IV