Philippine Rural Development Project

SOCIAL AND ENVIRONMENTAL SAFEGUARDS ASSESSMENT

A.	Project Title	:	**Rehabilitation of Imbang Grande- Tagubong – Gemumua Agahon – Agtabo FMR**
B.	Project Location	:	Passi City, Province of Iloilo
C.	Project Category (rehabilitation Or new construction)	:	Rehabilitation of the existing road
D.	Project Scale/Dimension	:	28.003kms. with two overflows
E.	Project Proponent	:	Provincial Governmentof Iloilo and City Government of Passi
F.	Implementing Unit	:	Iloilo Provincial Government through the Provincial Engineer's Office
G.	Project Beneficiaries within the RIA	:	19,187 population M= 9,983 ; F= 9,204 4,080 households
H.	Total Project Cost and Cost Sharing	:	**Php 264,013,219** WB Loan (80%) : Php211,210,575 GoP (10%) : Php 26,401,322 LGU Equity (10%) : Php:26,401,322

I. Social Analysis

I.1 Project Beneficiaries

The Road Influence Area is composed of ten (10) barangays with a total population of 19,187 persons, 9,983 are males and 9,204 are females. The proposed farm-to-market road will traverse eight (8) barangays with its population considered as the primary beneficiaries. The total number of primary beneficiaries is 16,390 persons; 8,538 are males and 7,852 are females with a total number of households of 3,485. The remaining two barangays which will not be directly traversed by the proposed farm-to-market road with its population considered to be the secondary beneficiaries. The secondary beneficiaries are 2,797 persons; 1,445 are males and 1,352 are females with a number of households of595. The annual growth rate in the road influence area is at 1.36% and has of 36.3 % of the total population classified as economically active. The proposed sub-project has long been the dream and desire of the people in the area. The road section which serves as the lifeline in transporting their farm produce and farm inputs.

Table 1 - No. of primary and secondary project beneficiaries by barangay.

Barangay	Primary Beneficiaries		Total	No. of HH	Secondary Beneficiaries		Total	No. of HH	Total No. of HH
	Male	Female			Male	Female			
Alimono	1,319	1,248	2,567	515					
GemumuaAgah	1,554	1,435	2,989	636					
on	367	308	675	146					
Imbang Grande	1,367	1,240	2,607	552					
Jagumitan	1,402	1,278	2,680	587					
Salngan	891	839	1,730	396					
Tagubong	826	772	1,598	337					
Dalicanan	812	732	1,544	350					
Agtabo									
Sub-total(pop.)	8,538	7,852	16,390				**16,390**		

Sub-total (HH)				3,519					**3,519**
Magdungao Talongonan					770 675	732 620	1,502 1,295	289 272	
Sub-total (pop.)					1,445	1,352	**2,797**		
Sub-total(HH)								561	**561**
	Total						**19,187**		**4,080**

Source: PPDO & CPDO total enumeration survey – CY 2014

Several barangay public consultations were conducted in the ten (10) barangays within the RIA. It was attended by the majority of the people that will be affected by the project. The people expressed their desire to have a concrete road that would make the transportation of their goods easier and cheaper for them. It has been their desire for decades.

Passi City Mayor Jesry T. Palmares together with a couple of staff from the PPMIU introduced the project. Subsequently, the people were consulted if they agree that the project be constructed in their place. In response, they express their support and approval by raising their hands. All who attended raised their hands as a manifestation of their support and approval. The barangay officials passed a resolution of support relative to the project.

I.2 Indigenous Cultural Community/Indigenous Peoples (ICC/IP)

The site of the proposed Farm to Market Road – Sub –Project is not situated within or will pass through any Ancestral Domain. It will not affect any extant IP/ICC community. There are identified Indigenous People locally known as “Ati” in the RIA located in barangay Salngan, Passi City. There are nine (9) persons that were identified, but they are not permanent residents of the barangay. They are considered as temporary residents, they work as farm-laborers and they only visit barangay Salngan whenever the harvest season of sugarcane is on. They are permanent residents of Barangay Nagpana in the Municipality of Barotac Viejo in the northern part of the Province of Iloilo. The “Ati” were also present during the barangay consultation that was conducted last June 30, 2014 at nine o’clock in the morning. It was attended by about 150 residents of the barangay. The PRDP and the proposed FMR-SP were presented to them as the solution for their decade long problem of bad road. The “Ati” are part of those present during the consultation that manifested their approval and support to the proposed FMR-SP. The Iloilo Provincial Government had submitted to NCIP all the required documents needed prior to the conduct of FPIC. (*Please see attached barangay consultation attendance, minutes and other related documents*)

I.3 Site and Right-of-Way acquisition

The proposed sub-project is along an existing provincial road. The existing provincial road has a road right of way of fifteen (15) meters and has been existence and is being used by the residents for decades. The original length of the proposed sub-project was 25.993 kilometers. It was extended up to 28.003 kilometers to cover two more barangays within the Road Influence Area. The additional two (2) kilometers and 10 meters road length is still within an existing provincial road and barangay road. The result of the Inventory and Entitlement of Project Affected Persons survey has shown that there is no need to acquire a new right of way. (*Please see the attached Inventory and Entitlement of Project Affected Persons)*

I.4 Damage to standing crops, houses and/or properties

The road formation width of the proposed sub-project is ten (10) meters, which is less than the existing provincial road right of way of fifteen (15) meters. The proposed sub-project will involve the rehabilitation of the existing provincial road. During the

rehabilitation activity no damage to standing crops, houses and/or properties will occur since rehabilitation will only limit to ten (10) meters wide.

However, there are 30 PAPs with a total of 717 fruit trees that will be affected by the project as shown in the result of the Inventory and Entitlement of Project Affected Persons survey. The Community Environment and Natural Resources Officer (CENRO) based in the Municipality of Barotac Nuevo which has jurisdiction over the City of Passi has issued a Cutting Tree Permit for the trees that will affected by the project. The City of Passi will be responsible to cut the trees and the lumber will be given to the owner of the trees to settle for the entitlement. At the same time all the owners of the trees have executed Waiver of Quit Claim for the trees to be cut. (Please see the attached **ANNEX B** *(Inventory and Entitlement of Project Affected Persons survey, Cutting Tree Permit and Waiver of Quit Claim attached in the Social and Environmental Safeguards)*

Table No. 2 – No. Project Affected Persons (PAPs)

No. of Households	Total Landholdings Sq. m.	No. of fruit trees lost	Total Waived Entitlement (in pesos)
30	4,416,622	717	71,395.00

I.5 Physical displacement of persons

The result of the Inventory and Entitlement of Project Affected Persons survey has shown that there will be no physical displacement of persons, or relocation of houses of farmers /residents during the rehabilitation of the proposed sub-project since all structures are observed to be standing outside the road formation width of ten (10) meters. No structures were observed to have encroached inside the road formation width of the existing provincial road of fifteen (15) meters.

I.6 Economic displacement of persons

The result of the Inventory and Entitlement of Project Affected Persons survey, have shown that there will be no economic displacement of persons along the proposed sub-project. It is noted that since the road formation width of the sub-project which is ten (10) meters is within the existing fifteen meters wide road formation width.

I.7 Grievance Redress Mechanism

A Grievance Redress Mechanism (GRM) will be established. It is an integral project management element that intends to seek feedback from beneficiaries and resolve of complaints on project activities and performance. The mechanism will ensure that (i) the public within the project influence are aware of their rights to access, and shall have access to, the mechanism free of administrative and legal charges; (ii) that these rights and interests are protected from poor project performance, especially of beneficiaries and/or affected persons; and (iii) concerns arising from project performance in all phases are addressed effectively.

The Provincial Local Government Unit (PLGU) will make the public aware of the GRM through public awareness campaigns, training and capacity building in I-SUPPORT. Any person who has feedback or complaints regarding the performance or activities of the project and its subprojects during pre-implementation, implementation and operation phases, shall have access to the GRM.

Contact details in support of the mechanism will be publicly disclosed and posted in the offices of concerned communities and in strategic places in the project's area of influence.

These will also be incorporated in PRDP information materials, such as Project brochures, flyers and posters.

The Governor has designated one of the officers to be a Grievance Point Person (GPP) for project-related issues. The GPPs will be responsible for the initial screening of feedbacks and complaints, as well as, the organization of preliminary meetings with concerned parties to establish the critical path to resolution. A registry of feedback or grievances received will be maintained by the GPPs for reporting to the NPCO and the World Bank, specifically for associated follow-up, resolution or non-resolution of issues. Feedback/grievance registries will be consolidated by the NPCO for discussions on how to further enhance PRDP systems based on the feedback and complaints.

Households or groups of households wishing to provide feedback and/or economic well-being, spiritual life, environmental quality, or any other assets of their lives shall make their complaint using the standard complaint form provided by the GPPs. The Grievance Investigation and Resolution process are outlined below:

Step 1: Feedback/Complaint Form will be accomplished by beneficiaries, affected persons (APs), households (AHs) or groups of households and sent to the GPP of the relevant body (PSOs, RPCOs or LGUs).

Step 2: Feedbacks and complaints will be recorded in the registry. In cases of complaints, the GPP will assess the validity of the grievance. If evaluated as valid, within 10 days from the date the complaint is received, the relevant LGU's GPP will organize meetings with the relevant agencies/contractors to discuss how to resolve the matter. All meetings will be recorded and copies of the minutes of meetings will be provided to beneficiaries or APs/AHs.

Step 3: The relevant LGU Governor/Mayor's Office shall take such mitigation measures as agreed in meetings from step 2 within 10 days, or some other period acceptable to the parties referred to in step 2.

Step 4: When the complaint is resolved, the Complaint Form shall be signed by complainant/head of household, the relevant LGU Mayor's Office and annotated at each stage of process by the relevant LGU with copies to be sent to the concerned RPCO.

Step 5: If no understanding or amicable solution is reached, or if no response is received from the relevant LGU Governor/Mayor's Office within 15 days after the registration of complaint, the APs/AHs can appeal to the relevant LGU Council (Sangguniang Bayan, Panglungsod or Panlalawigan). The relevant local council will decide and take mitigation measures within one month of receiving the appeal.

Step 6: If no understanding or amicable solution is reached, or if no decision or mitigation measure is received from the relevant LGU Council within 15 days after the registration of complaint, the APs/ AHs can appeal to the relevant RPCO GPP. The concerned RPCO will decide and take mitigation measures within one month of receiving the appeal.

Step 7: When the complaint is resolved, the Complaint Form shall be signed by the complainant / head of household, the relevant LGU, the RPCO, and annotated at each stage of the process by the GPP of the PSO.

Step 8: If no understanding or amicable solution is reached, or if no response is received from the relevant RPCO within 15 days after the registration of complaint, the APs/ AHs can appeal to the PSO GPP. The PSO will provide a decision and take mitigation measures within one month of receiving the appeal.

Step 9: When the complaint is resolved, the Complaint Form shall be signed by the complainant / head of household, the relevant LGU, the PSO and annotated at each stage of the process by the GPP of the NPCO.

Step 10: If no understanding or amicable solution is reached, or if no response is received from the relevant PSO within 15 days after the registration of complaint, the APs/ AHs can appeal to the NPCO GPP. The NPCO will provide a decision and take mitigation measures within one month of receiving the appeal.

Step 11: When the complaint is resolved, the Complaint Form shall be signed by the complainant / head of household, the relevant LGU, and the NPCO with copies to be sent to WB.

Step 12: If the AP/AH is still not satisfied with the decision of the PSO in the absence of any response within the stipulated time, the AP/AH as a last resort may submit his/her case to the court, in which decision is final.

II. Environmental Analysis

II.1 Natural Habitat

The sub-project is a farm –to-market road located at Passi City. It traverses the barangays of Imbang Grande, Jaguimitan, Alimono, Salngan, Magdungao, Tagubong, Gemumua Agahon, Dalicanan and Agtabo.

The present vegetative cover of Passi City comprises of natural fragmented forest and brush land. The forest is generally located at the rolling to moderately steep areas. The open areas are cultivated with a wide range of agricultural crops. Alienable and disposable lands generally use for agriculture. Low lying areas are planted with rice, cash crops and coconut, bamboo and orchard. Corn and sugar are usually planted in the undulating to rolling areas. Areas with lower slope are devoted to agriculture and built up areas. Below is the breakdown of land cover:

Table 3 -Passi City land cover

Vegetation (Has.)	PASSI CITY
Residual Forest	904.21
Grassland	264.81
Cultivated area	1.310.05
Perennial cropland	317.68
Total	2,796.75

Source: PENRO Province of Iloilo

Bird species in the area are those species commonly found in brush lands and grasslands such as Maya, Sunbirds and Robins. The dwindling bird life community is a direct consequence of the absence of appreciable forest covers in the area and the threat of human population over the years.

There are no endemic flora and fauna species with high vulnerability risk existing in the area.

The proposed quarry sites are existing river quarry sites and the riparian areas are cultivated with agricultural crops.

The existing vegetation and natural grown trees will not be affected/disturbed by the quarrying activities. Tree planting along the river embankment is done to prevent soil erosion.

II.2 Physical Cultural Resources

The project area is typical of a provincial setting where calmness of nature can be felt. There are no considerable structures, monuments or Physical Cultural Resources that are present that could be affected by the project.

II.3 Chance Archaeological/Paleontological Finds

Upon discovery of any archaeological/paleontological artifacts, bones or other objects of interest, the procedure stipulated in the PRDP – Chance Archaelogical/Paleontological Finds Procedure for Subprojects shall immediately be followed. The findings shall immediately be reported consistent with RA 8492 to the National Museum.

II.4 Terrain, Soil Types and Rain Fall

The headwaters of the Lamunan River are in the mountainous parts of Brgy. Magdungao, Brgy. Tagubong, Brgy. Gemumua Agahon and Brgy. Dalicanan with Pinangliwan creek, Agbariri creek, Batuyanan Creek, Binaliwan Creek, Putdan Creek, Magsiping Creek and Mabang Sapa Creek as its major tributaries. The water from the creeks drains to the Lamunan River passing three (3) overflows and 3 bridges from Brgy. Gemumua Agahon to Brgy. Salngan.

The South Balabago Resources, Inc. (SBRI), a private water system company is managing water drawn from the aquifer of Barangays Bacuranan and Sablogon. Presently they are serving 9 barangays with 1,962 household consumers.

Passi City's landscape is dominated by rolling to moderately steep hills and narrow valley plains, with a slope mostly from 0-18 percent and more than 200 meters above sea level respectively. There are areas that are moderately sloping to relatively flat stretch along the riparian zone going down to urban areas.

The physical feature of the project area (from Barangay Imbang Grande to Gemumua Agahon can be described as undulating- rolling to moderately steep with the highest elevation at 170 meters above sea level and 7.6 percent slope reckoned from the highest point of the existing provincial road located at Barangay Tagubong. The area is vegetated with grass, varieties of trees, and agricultural crops like rice, vegetables and perennial crops. The rolling areas are planted with sugar and the moderately sloping is planted with corn.

Generally, the soil type distribution in these areas regardless of land area Imbang Grande, Jaguimitan, Magdungao, Alimono, Salngan and Talonganan; Faraon clay in portion of Brgys. Jaguimitan, Tagubong, Magdungao, Alimono and Talonganan; Alimodian Btac. Complex found in Barangays Agtabo, Delicanan and portion of Brgys. Tagubong while the Luciana loam is found in the upper part of Gemumua Agahon.

The loamy soil contains retains lots of water, but also drains enough water. Clay soil is referred to as "heavy soil" because it has very small particles with tiny pore spaces in which the soil absorbs and retains more water. This makes the soil poorly aerated and poorly drained. Clay has poor drainage in the soil. It tends to compact and become cloddy when it is tilled, walked on, or worked when it is wet. Clay loam is a soil mixture that contains more clay than other types of rock or minerals. The soil tends to be heavy, because they are so dense. When the soil is very wet, it swells to retain water that makes it difficult to work with.

Passi City belongs to the third type climate region, characterized by no distinct dry and wet season. Though it does not belong to the typhoon belt areas, it is affected by typhoons that occasionally visit the province.

II.5 Drainage Situations and Flooding Potential

Generally, flood prone areas are confined in riparian zones when creeks and river overflows. Since the terrains of the sites are mostly steep to sloping the water usually runs to the rice fields and on lowlands. A canal is recommended for drainage in areas where there is surface runoff coming from a steep slope.

II.6 Hazard/Risk assessment

II.6.1 Impacts During Construction

Land development shall conform to the natural topography of the area – detailed topographic survey and elevation profiling shall be undertaken to arrive at sound schematic plan with less earth moving activities and preservation of growing trees.

Steep slope in construction areas shall be cut through benching method to minimize and stabilize the slope and mitigate soil erosion. A drainage canal shall be provided along the steep slope to lessen sedimentation discharge to creeks and streams. Enhancement of the overflows will generate sedimentation, thus, a settling pond shall also be provided to address silt that would be carried by surface runoff.

Noise during the construction phase is inherent in any construction work. Appropriate planning of construction schedules, such as the working hours, scheduling of hauling and delivery of materials will minimize noise emission. Residential type muffler shall be provided for all noise generating equipment to reduce noise. Moreover, maintenance and routine check-up of the mufflers will be done regularly to increase its efficiency.

Dust generated in this particular activity ranges from insignificant to moderate; insignificant during rainy days or when the soil and masonry materials are wet and moderate during hot days or when the soil and masonry materials are dry and powdery.

Table 23 shows the expected noise level from the different equipment in dB(A) while Table 2 the DENR Standards for noise based on applicable dominant land use classification (section 78, Chapter IV, Article 1, NPCC Rules and regulations, 1978).

Table 4 - Expected Noise Level from the Different Equipment in dB(A)

SOURCE	DISTANCE	FROM	SOURCE	(METER)	
	15	30	60	120	240
Front loader	75	69	62	57	51
Dump truck	91	85	79	73	67
Concrete Mixer	82	76	70	64	58
Generator	78	72	66	60	54

Source: environmental Impact assessment, Canter, 2nd Ed 1996

Table 5- DENR Standards for Noise, dB(A)

Class/Time	Daytime (0900H-1800H)	Morning (0500H-0900H) Evening (1800H-2200H)	Nighttime (2200H-0500H)
Class AA (Areas 100 m away from schools, church, hospitals, etc.	50	45	40

Class A (Residential Areas)	55	50	45
Class B (Commercial Areas	65	60	55
Class C (Light Industrial areas	70	65	60
Class D (Heavy Industrial Areas	75	70	65

Source: PENRO Province of Iloilo

II.6.2 Specific actions to minimize noise:

- Initial mufflers on all equipment as much as practicable and preventive maintenance should be undertaken monthly or as necessary.

- Construction activities shall be restricted from 7AM to 6PM at areas proximate to the houses to avoid disturbing their rest time.

- Impose speed limits to hauling trucks at 20 kph.

- Use and movement of heavy machinery should be minimized at night. Daytime hours should be optimized when conducting noise-generating activities.

- Trucks, construction equipment and heavy machinery should be fitted with an exhaust muffler whenever possible.

- Workers shall be provided guidance on risk of hearing loss. They shall be required to wear earplugs and earmuffs around heavy equipment. Non-compliance should be strongly discouraged.

- Locations within a project site that are too noisy to conduct a normal conversation would be considered risk areas. Signs should be posted identifying areas where noise protection should be worn at all times.

- Under no circumstances should persons be deliberately exposed to impulsive or continuous noise exceeding 140 dBA without protection.

  All solid waste materials like woods, steel bars, plywood and other construction debris/leftovers will be placed in a proper location to be sorted and sold as scrap or taken to the material recovery facility/depot of the contractor. Garbage receptacles will be placed at all strategic places for proper waste disposal. Hauling of un-usable construction debris shall be coordinated with barangay officials for the collection, secondary segregation, and disposal.

II.7 Status of Environmental Clearances –*CNC/ECC*

An Environmental Compliance Certificate ECC, numbered ECC-R6-1501-0041-5020 was issued by the Environmental Management Bureau on February 2, 2015. This ECC was issued for the proposed Rehabilitation of Imbang Grande – Tagubong – GemumuaAgahon – Agtabo Farm to Market Road and was approved and signed by Atty. Jonathan P Bulos, Regional Director, DENR – Regional Office 6.

II.8 Pest Management

Several crops can be found within the RIA, these are rice with a total area of 1,230.55 has. with 3,341 farmers cultivating these farms, corn with a total area of 352.7 has. cultivated by 415 farmers, other crops are vegetables, bananas, root crops, coconut and assorted fruit trees, however, these crops are grown in small scale and in backyard areas.

An Integrated Pest Management (IPM) program (KASAKALIKASAN) is being implemented in the RIA by the City Agriculture's Office (CAO) of the City of Passi in partnership with the Department of Agriculture (DA) Regional Office VI. These two offices had conducted several trainings focused on capacitating farmers with the knowledge and skills required to properly and effectively apply IPM in crop production.

About sixty five (65) percent of the total number of farmers were able to attend season long training on Integrated Pest Management (IPM) on Rice, Corn and Vegetables. Out of these numbers of farmers who were able to undergo training, almost seventy five (75) percent adopted the IPM that was introduced to them. They were able to understand the hazards of chemical pesticides to humans, natural enemies and our local environment.

II.9 Social and Environmental Impacts

II.9.1 Site and Design Consideration

The road does not encroach or traverse any declared protected area or natural habitat.

The subproject will not displace, disfigure or render inoperable/inaccessible any monument or physical structure of known cultural and historical significance.

II.9.2 Environmental Issues and Mitigation Measures

Table 6 - Environmental Issues and Mitigation Measures

Issue (Potential Impact)	Assessment	Mitigation Measures	Schedule/Duration of the Mitigation Measures	Instrument of Implementation	Responsible Unit
A. Pre-construction Phase					
1. Delivery of construction materials; transport of mechanical equipment to site.	Construction wastes (e.g sacks, cans, plastic, scrap lumber and steel will have a moderate impact to the environment	a. Segregation at source and regular disposal of construction residuals to the City dumpsite b. Collect cement sacks, excess steel bars and lumber for disposal to MRF c. Provide trash can in the project site d. Monitor litters of waste within the project site	Pre-operation phase Pre –project phase, Implementation phase	By administration	PEO, Supplier
	Dust and Noise pose a moderate impact to the environment	a. Limit works at daytime b. Decelerate trucks near busy intersections and narrow streets c. Proper supervision of filling and construction works d. Cover hauling trucks with canvass or any equivalent materials.	Implementation phase		PEO, Contractor

2. Grievance during construction.	Complaints and Issues can hamper the implementation of the project.	Establish Grievance Redress Mechanism	Implementation Phase	Grievance & Redress Mechanism	LGU Governor, RPCO
3. Possible loss of economic trees during construction.	A number of fruit bearing and forest trees will be cut prior and during construction.	The Local Government Unit (LGU) will be responsible for the cutting of trees and the lumber will be turned-over to the owner. A notarized waiver of quite claim was signed by the owner of the affected trees. A Cutting Tree Permit was issued by the CENRO with all the requirements for compliance included.	Prior, during and after construction	Notarized waiver of quite claim signed by the owner trees. Cutting Tree Permit	LGU
Construction Phase					
1.Domestic wastes	The wastes generated by construction workers will have a moderate impact to the nearby environment Construction wastes will have a moderate impact	a. Segregation at source and regular disposal of residuals to the city dumpsite. b. Collect cement sacks, excess steel bars and lumber and place in the MRF	Construction phase	By administration	PEO
2. Temporary increase in sedimentation	Alteration in identified landscape and elevation due to excavation to minimize the slope and mitigate soil erosion	a. Earthmoving/cutting of slopes to be done during dry months. b. Generated soil/spoil materials will be stockpiled in small mounds and buttressed appropriately with bunds and provided with drainage canal and siltation ponds. c. Slope should be planted with grasses to prevent erosion	Construction Phase	By Contract	Contractor
3. Potential Contamination of surface and ground water with oil and grease	Waste oil and grease from equipment could moderately contaminate surface water	a. Check equipment for leaks and repair as necessary b. Observe proper storage of fuel materials	Construction phase	By Contract	Contractor
4. Potential contamination with human waste	Workers would be mostly locals and are expected to go home to their respective houses after work	Set up adequate toilet facility at the base camp	Construction phase	By contract	Contractor
5. Potential disruption of traffic flow	The access road and/or segments to be rehabilitated need is vital to daily activities of the residents and farmers and need to be kept open to traffic during construction	a. Keep the road open to traffic flow and minimize disruptions along the access road and/or construction area b. Provide adequate warning signs and traffic personnel when necessary	Construction Phase	By contract	Contractor

6. Potential dust/mud nuisance during construction	Roads could become powdery during dry days and muddy during rainy days of the construction period Access road and/or the construction rehabilitation works passes through a populated area	a. Undertake sprinkling of road (including access roads) during dry days, and filling up of potholes during rainy days, especially in residential areas b. Set up speed limits	Construction Phase	By contract	Contractor
7. Landslide/erosion of exposed road sides resulting in sedimentation of waterways	The road passes through a relatively benign terrain, cuts will be minimal	a. Include slope protection works at the following stations: **Segment A** Sta 03+795-Sta 03 + 835 Slope Protection at Right Side (40LM) Sta 15+780-Sta 15+920Slope Protection at Right Side (140LM) **Segment B** Sta 04+850-Sta 05+180Slope Protection at Both Side (330LM) **Segment C** Sta 00+338-Sta 00+378Slope Protection at Both Side (40LM) Sta 01+410-Sta 01+430Slope Protection at both side (20LM) Sta 02+270-Sta02+300 Slope Protection at Both Side (30LM) Sta 03+855-Sta 03+875Slope Protection at Both Side (20LM) Sta 03+950-Sta 03+970Slope Protection at Both Side (20LM) b. Bioengineering with geomat with cover crop or grasses.	Construction Phase	By contract	Contractor
8. Inadequate drainage resulting in flooding or ponding	The road will block run-off, resulting in flooding on one side of the road during rainy days	Drain at stations: **Segment A** (cross drain) Sta 01+713 Sta 02+733.50 Sta 03+520 Sta 03+929.40 Sta 04+896 Sta 04+951 Sta 05+236 Sta 05+296	Construction phase	By Contract	Contractor

		Sta 07+660 Sta 11+512 Sta 11+773 Sta15+625 Sta 15+795 Sta 15+848 Sta 16+129 Sta 16+240 Sta 16+311 Sta 16+669 Sta 03+781(box culvert) **Segment B**(cross drain) Sta 00+768 Sta 01+048 Sta 01+357 Sta 01+694 Sta 01+700 Sta 01+927 Sta 01+995 Sta 02+198 Sta 02+624 Sta 02+822.6 Sta 02+986.9 Sta 04+915 Sta 04+960 Sta 05+796 Sta 06+035 Sta 06+808.5 Sta 06+852 Sta 07+697 Sta 03+989 to 04 + 004- overflow bridge Sta 07+030 to 07 + 048 – box culvert **Segment C** (cross drain) Sta 00+221 Sta 00+358 Sta 00+589 Sta 02+286 Sta 02+611 Sta 02+719 Sta 02+737 Sta 02+893 Sta 03+354 Sta 03+865 Sta 03+959 Sta 04+385 Sta 01+419 to 01 + 422 – box culvert			
9. Local Employment	Construction will provide local employment opportunities.	Hiring priority shall be given to qualified local residents.	Construction Phase	By Contract	Contractor
10.Potential damage to existing road due to hauling of quarry materials	Transportation of quarry materials from source to FMR will cause damage to existing roads.	Regular maintenance and repair of existing road.	All throughout the construction duration	By Contract	Contractor
11. Possible discovery of artifacts, bones, and other objects of interest during construction of the road.	Discovery of artifacts bones and other objects of interest within 10 meter radius.	Suspension of the activities and immediately report to the PLGU and RPCO SES Focal Person.	All throughout the construction duration	Finds Procedures	Contractor, LGU, PPMIU
12. Possible impacts of quarrying activities in the quarry sites.	Over extraction of quarry materials in the quarry sites and the possible negative impact in the surrounding area.	The Provincial Environment and Natural Resources Office (PENRO) is mandated through its officer in-charge of	The mitigation measure is a regular function of PENRO and it will be conducted	PENRO function	PENRO

		quarry sites to regularly monitor quarrying activities and ensure that the volume of materials extracted does not exceed on what is indicated in the quarry permit issued.	during construction.		
13. Possible contamination of soil and water from the waste water of the batching plant operation.	Waste water from the operation of the batching plant will moderately contaminate the water and soil in the area.	Constant monitoring of the engineer in-charge on the operation of the batching plant.	During Batching Plant operation	Regular function of the field engineer assigned to the project	PEO
14. Possible long term impact of waste water from the project.	Moderate impact of waste water from the project and possible impact would be temporary.	Provide proper area for disposal of waste water from the construction.	During construction	By Contract	Contractor
Post -Construction Phase					
1. Potential increase use of pesticides due to intensification of cash crop production in the area	There is an ongoing IPM program of City Agriculture's Office (CAO) and DA in the service area	CAO & DA to continue to support IPM program	Ongoing even before construction	Capacity Building Plan O&M Plan; Capacity Building Plan	CAO & DA
2. Potential acceleration of denudation of the upland/hilly areas due to intensification of crop production	The proposed road will connect to the market an upland/hilly area where farmers are currently practicing erosive farming techniques. The road could help accelerate the denudation of the upland/hillsides rendering them unproductive in a few years.	The OPA and PENRO will introduce sustainable upland farming systems in the area	Post-Construction Phase	O & M Plan, capacity building Plan	OPA, PENRO
3. Potential increased in encroachments of human activities into the nearby forest	The proposed road will improve human access to the nearby public forest, resulting in increased slash and burn cultivation	DENR will deputize the local community to enforce forestry laws	Post-Construction Phase	Capacity building plan	DENR, PENRO

Source: PENRO – Province of Iloilo