

## E. Environmental Consideration

### 7.1 Environmental Management Plan for the proposed FMR sub-project

<b>Name of Road</b>	<b>: Construction and Upgrading of 7.95 km. Punawan-Sitio Pagaypayan-Sioton Farm to Market Road</b>
<b>Location</b>	<b>: Brgy. Punawan &amp; Brgy. Sioton, Mabuhay, Zamboanga Sibugay</b>
<b>Implementing LGU</b>	<b>: Municipality of Mabuhay, Zamboanga Sibugay</b>
<b>Estimated number of beneficiaries</b>	<b>: 1,724 Population and 307 Household</b>
<b>New or Rehab</b>	<b>: New Construction and Rehabilitation</b>
<b>Estimated Total Cost</b>	<b>: P 89,306,064.91</b>

#### A. Site and Design Consideration

The proposed Subproject is a combination of Construction and Rehabilitation of Punawan to Sioton which was opened thru the DPWH fund last 1970's. Due to insufficient fund of both BLGU and MLGU, the project was limited to Road Opening and left some portion earth road and a portion of graveled road only.

Since the Proposed Subproject is rehabilitation, the road does not encroach into or traverse any declared protected area of natural habitat but this project passes through a developed fishpond that will connect the two (2) barangays. Further it will not displace, disfigure or destroy any structure of cultural and historical significance.

#### B. Environmental Issues and Mitigation Measures

<b>Issue (Potential Impact)</b>	<b>Assessment (Sample assessments)</b>	<b>Mitigation Measure</b>	<b>Instrument of Implementation (POW, Contract, IDP, or O&amp;M Plan)*</b>
1. Temporary increase in sedimentation	[ √ ] Topography of the road alignment necessitate massive	[√ ] Earthmoving/cutting of slopes to be	DED/POW; Contract

Issue (Potential Impact)	Assessment (Sample assessments)	Mitigation Measure	Instrument of Implementation (POW, Contract, IDP, or O&M Plan)*
during construction	earthmoving and cutting of clayey or loose topsoils [ <input checked="" type="checkbox"/> ] Cut materials will consist mainly of hard rocks and are unlikely to generate significant sediments	done during dry months [ <input checked="" type="checkbox"/> ] Proper disposal and compaction of spoils [ <input type="checkbox"/> ] No measures required	
2. Potential contamination of surface and groundwater with oil/grease	[ <input checked="" type="checkbox"/> ] Waste oil and grease from equipment could contaminate surface water [ <input type="checkbox"/> ] There will be no or insignificant amount of waste oil/grease	[ <input checked="" type="checkbox"/> ] Proper handling and disposal of waste oil and grease	Contract
3. Potential contamination with human waste	[ <input checked="" type="checkbox"/> ] Construction workers would be temporarily housed in a base camp [ <input type="checkbox"/> ] Workers would be mostly locals and are expected to go home to their respective houses after works	[ <input checked="" type="checkbox"/> ] Set up adequate latrine/toilet facility at the base camp	Contract
4. Potential disruption of traffic flow	[ <input checked="" type="checkbox"/> ] 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 [ <input checked="" type="checkbox"/> ] The construction will not affect daily movement of residents and farmers	[ <input checked="" type="checkbox"/> ] Keep the road open to traffic flow and minimize disruptions along the access road and/or construction area; Provide adequate warning signs and traffic personnel when necessary; [ <input checked="" type="checkbox"/> ] Undertake regular maintenance measures on the passable portions of the roads [ <input type="checkbox"/> ] No measures needed	Contract

Issue (Potential Impact)	Assessment (Sample assessments)	Mitigation Measure	Instrument of Implementation (POW, Contract, IDP, or O&M Plan)*
5. Potential dust/mud nuisance during construction	Roads could become powdery during dry days and muddy during rainy days of the construction period <input type="checkbox"/> Access road and/or the construction/rehabilitation works passes through a populated area <input checked="" type="checkbox"/> Access road and/or construction/rehabilitation does not pass through any populated area	<input checked="" type="checkbox"/> Undertake sprinkling of road (including access roads) during dry days, and filling up of potholes during rainy days, especially in residential areas <input checked="" type="checkbox"/> Set up speed limits for vehicles, especially within residential areas  <input type="checkbox"/> No measures needed	Contract
6. Landslide/erosion of exposed road sides resulting in sedimentation of waterways	<input type="checkbox"/> The road will traverse a mountainous area necessitating deep cuts on mountainsides, particularly between station ____ and ____, etc (check DED for deep cuts)... <input checked="" type="checkbox"/> The exposed slopes will likely consist of highly erodible loose materials <input type="checkbox"/> The cut slopes will be hard materials that would resist erosion <input type="checkbox"/> The road passes through a relatively benign terrain, cuts will be minimal <input type="checkbox"/> The rehabilitation work does not involve additional road cuts	<input checked="" type="checkbox"/> Include slope protection works at the following stations: Punawan Segment: STA.0+820 to STA.0+840 Left side only Pagaypayan Segment: STA.1+220 to STA.1+360 both sides Sioton Segment: STA. 0+000 to STA. 0+450 both sides STA. 2+230 to STA. 2+290 both sides STA. 3+250 to STA. 3+330 both sides STA. 3+840 to STA. 3+870 both sides STA. 4+310 to STA. 4+350 both sides ..etc.. (Specify the type/s of slope protection to be	DED/POW  Or (if budget does not permit) LGU Commitment Letter

Issue (Potential Impact)	Assessment (Sample assessments)	Mitigation Measure	Instrument of Implementation (POW, Contract, IDP, or O&M Plan)*
		applied at each section- Consult with the Municipal Engineer: <input type="checkbox"/> Bioengineering with geomat and cover crop <input type="checkbox"/> Fast growing shrub species <input type="checkbox"/> Riprap <input type="checkbox"/> Gabions <input type="checkbox"/> Terracing <input type="checkbox"/> Concrete protection wall <input type="checkbox"/> Others _____)	
7. Inadequate drainage resulting in flooding or ponding	<input checked="" type="checkbox"/> The road will block runoff, resulting in flooding on one side of the road during rainy days. <input type="checkbox"/> Drainage issues unlikely	<input checked="" type="checkbox"/> Installation of cross drain between station Punawan Section: 0+298 0+355 0+817 0+840 Pagaypayan Section: 0+290 0+435 0+495 0+565 0+625 1+120 1+160 Sioton Section: 0+816 0+954 1+306 1+368 1+737 1+835 1+923 2+300	DED

Issue (Potential Impact)	Assessment (Sample assessments)	Mitigation Measure	Instrument of Implementation (POW, Contract, IDP, or O&M Plan)*
		2+465 3+300 3+725 4+330 4+555 4+660 4+990	
8. Potential increase use of pesticides due to intensification of cash crop production in the area	[ <input checked="" type="checkbox"/> ] There is an ongoing IPM program of DA in the service area [ <input type="checkbox"/> ] Farmers in the service area have not been trained on IPM	[ <input checked="" type="checkbox"/> ] DA to continue to support IPM program [ <input checked="" type="checkbox"/> ] LGU to Coordinate with DA on IPM training	Capacity Building Plan O&M Plan; Capacity Building Plan
9. Potential acceleration of denudation of the upland/hilly areas due to intensification of crop production	[ <input checked="" type="checkbox"/> ] 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. [ <input checked="" type="checkbox"/> ] The road connects only lowland farms to the market	[ <input checked="" type="checkbox"/> ] DA to coordinate with LGU for the introduction of sustainable upland farming systems in the area  [ <input type="checkbox"/> ] No measure required	O&M Plan; Capacity Building Plan
10. Potential increased in encroachments of human activities into the nearby public forest	[ <input type="checkbox"/> ] The proposed road will improve human access to the nearby public forest, resulting in increase slash and burn cultivation, illegal logging and poaching. [ <input checked="" type="checkbox"/> ] The proposed road does not improve access to a public forest	[ <input type="checkbox"/> ] Coordinate with DENR for the enactment of ordinance deputizing the local community to enforce forestry laws [ <input checked="" type="checkbox"/> ] No measure required	O&M Plan; Capacity Building Plan

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11. Local employment	[ <input checked="" type="checkbox"/> ] Construction will provide local employment opportunities	[ <input checked="" type="checkbox"/> ] Hiring priority shall be given to qualified local residents; Implement RI Manual on local hiring	Contract
	[ <input type="checkbox"/> ] Construction does not provide any local employment opportunities	[ <input type="checkbox"/> ] No measures required	
Other Issues			
1. Potential encroachments of human activities into the nearby Mangroves	[ <input type="checkbox"/> ] The proposed road rehab does not access to nearby mangroves though the road segment end on shoreline	[ <input type="checkbox"/> ] Coordinate with BLGU, MENRO, LCE, SB & DENR for the enactment of ordinance deputizing the local community to enforce forestry laws [ <input type="checkbox"/> ] Empower the PO under NRM component to perform their functions and duties [ <input type="checkbox"/> ] No measure required	Capacity Building Plan