

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

CIANJUR EASTERN RING ROAD DEVELOPMENT

CIANJUR REGENCY - WEST JAVA PROVINCE

EXECUTIVE SUMMARY

Telah diteliti dan disyahkan
Tgl. Pembahasan : 19 Mei 2004

No. SK. Pengesahan : 01/AMDAL/JALIN
TIM/CJR/2004
Tgl. SK. Pengesahan : 21 Juni 2004

Tentang : Andal Jalan Lingkar Timur
Cianjur.

April 2004



Pemerintah Kabupaten Cianjur
Kantor Analisis Dampak Lingkungan
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P R E F A C E

Environmental Impact Assessment document of Cianjur Eastern Ring Road Development is made to meet requirement of Law No. 23 year 1997 concerning Living Environmental Management, which is among others states that every activity probably can cause large and significant impact on environment, should be completed with Environmental impact Assessment (EIA).

Formulation of the mentioned EA document ent is conducted referring to Term of Reference for EIA study approved by AMDAL Evaluation Committee of Cianjur Regency. while document format referring to Guidelines for AMDAL formulation inserted in Appendix II of Head of BAPEDAL Decree No. 09 year 2000 concerning Preparation of Environmental Impact Assessment Study.

Essence of the mentioned EIA document is briefly explained in this Executive **Summary** report.

We are very appreciate to all parties who had given contribution in preparing the EIA document.

It is hoped that this EIA document can be implemented to realize sustainable and environmentally friendly Cianjur Eastern Ring Road Development.

Cianjur, April 2004
Proponent of EIA Study.

Kantor ANDAL Kabupaten Cianjur

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CHAPTER I INTRODUCTION

1.1 Background

During the last several years, Cianjur City which is located on major traffic line (primary **arterial** road) between two metropolitan cities, Jakarta and Bandung, has been very fast grown, either population growth, local and regional economic and social growth, **or urban** physical growth.. in 2002, population number of this city is amounting to 356.475 persons with the population density of 2.895 person/km². This had **resulted in** increase of traffic flow **in the city, so** that traffic congestion occurs at several **major road links**. At **certain hour traffic jam disturbs** public socio-economic activities. **This condition is deteriorated by mixing of local traffic and inter urban traffic at primary arterial road links, either from Jakarta, Bogor, Sukabumi, or Bandung and vice versa**

To divert inter urban traffic flow from inner city, Cianjur Eastern Ring Road will be constructed soon, connecting Cianjur — Bandung highway and Cianjur — Sukabumi highway with the total length of 7,50 km. For that purpose, in 2003 Directorate of Engineering, Directorate General of Urban and Rural Development, Ministry of Settlement and Regional Infrastructure had carried out feasibility study of the mentioned road link. From three studied alternatives route, (see Figure 1.1), alternative II was recommended as the best alternative with its RR value of 24,1 %. This alternative is in accordance with Cianjur City Detail Spatial Plan. Construction plan of the mentioned road is being proposed to be financed by World bank loan through SRIP (*Strategic Road Infrastructure Project*) program.

1.1.1 Objective and Use of Project

Cianjur Eastern Ring Road development is aimed to increase transportation services by providing road infrastructure in the frame work of Cianjur City regional development, especially to speed traffic in Cianjur City, and also to quicken inter city and inter province traffic flow.

The advantage of this project is to make easier accessibility and mobility of inter city and inter province goods transportation, and to make easier people accessibility in performing their daily socio-economic activities.

1.1.2 Environmental Management Policy

Development activity is a conscious effort to manage and use natural resources, to increase human life quality. However, natural resources management should be implemented wisely in order to environmental sustainability and natural resources to be used can be maintained continuously.

Therefore, wise development should be based on sustainable principle to reach sustainability and to give guaranty for present and future generation.

On the other hand, Cianjur City has also regional and local policy on environmental management implementation. Among others are:

- **Cianjur** City as affected areas of Bandung City as center of Bandung Regional Development, is hoped to be able to act as buffer zone for Bandung City urbanization process and its service dependency to Bandung City.
- Cianjur City development is directed to the whole city area, which will be regulated in accordance with its land capability.
- Regulation of city planning should apply environmental sustainability principle.
- Development of road networks system and traffic circulation of Cianijur City includes among others development of primary system road networks (North — South route, either **in West or East part of the city) to support** increase of **movement flow** service of Bandung — Jakarta cities through Sukabumi, due to function lowering of Cianjur — Puncak - Bogor road link as primary collector road.

The Cianjur Eastern Ring Road development plan, will acquire 30 ha of land, and passes several sensitive areas, so it probably will cause large and significant impacts on the environment. Therefore, based on the environmental regulation, it should be completed with Environmental Impact Assessment document including EIA report, Environmental Management Plan, and Environmental Monitoring **Plan**,

1.2 Project Activity Plan

1.2.1 Project Location

The Cianjur Eastern Ring Road development plan is looted in Cianjur City, which is the capital of Cianjur Regency, West Java Province. This road route started from Cianjur — Bandung highway at Bojong Village, Karangtengah Subdistrict, and ended at Cianjur — Sukabumi Highway at Sirnagalih Village, Cilaku Subdistrict (see Figure 1.2). This route passes sensitive areas mostly technical irrigated paddy field, and small part of settlement area, grave, school, and steep slope area at Cisarua Gede river bank (see Figure **1.3**).

1. 2.2 Description of Project Activity

The mentioned project activity includes broadly the following works:

- 1) Construction of primary arterial road with the total length of 7,500 m. and ROW width 40 m, pavement width of fast lanes 2 x 7.50 m, slow lanes 2 x 6.00 m, and median width 3.00 m (see Figure 1.4).
- 2) Construction of several bridges crossing rivers and irrigation canals with varies span from 5 to 40 m
- 3) Construction of two over passes crossing Cianjur Pandang Sapi road link and rail road;
- 4) Construction of six reinforced concrete box culverts:
- 5) Setting out pipe culverts made of reinforced concrete with varies diameter from 60 cm to 100 cm, which will be placed at required locations especially for irrigation flow. Distance between each culvert more or less 200 m.
- 6) Construction of road complementary structures such as road side ditch, fence, sidewalk and road lighting,
- 7) Setting out road mark and traffic signal.

Project activity components which will cause large and significant impacts on the environment, during pre-construction, construction and post construction stages, are as follow:

a. Pre-construction Stage

During this stage, 30 ha of land will be acquired which is covering mostly (± 90 %) of technical irrigated paddy field. The land acquisition process had been started in 2003, with out any social impact occurred, and it is hoped to be finished *in 2004*.

b. Construction Stage

Construction activity includes the following types of work:

- 1) Mobilization of man powers;
- 2) Land clearing and preparation;
- 3) Earthwork including excavation and embankment;
- 4) Construction of road foundation and pavement;
- 5) Transportation of soil and building materials;
- 6) Erection and operating base camp including AMP and stone crusher;

- 7) Furnish and driving of pre-cast pre-tensioned concrete pile for bridge foundation;
- B) Solid waste disposal and construction site rehabilitation, and minor works.

Table 1.1 shows several estimated quantities of the mentioned works.

Table 1.1 Estimated Quantity of Construction Works of Cianjur Eastern Ring Road

No.	Activity	Unit	Volume
1.	Land clearing	m ²	300.000
2.	Earth work <ul style="list-style-type: none"> • Common excavation • Road embankment • Structure excavation 	m ³ m ³ m ³	75.000 405.000 12.000
3.	Sub Grade, Sub base and Base <ul style="list-style-type: none"> • Sub-grade preparation • Aggregate Sub base Class B • Aggregate Base Class A 	m ² m ³ m ³	300.000 67.500 45.000
4.	Bituminous Pavement <ul style="list-style-type: none"> • Bituminous prime coat • Asphalt treated base course 10 cm • Asphalt concrete binder course 6 cm • Asphalt concrete surface course 5 cm 	Kg Ton Ton Ton	225.000 27.000 20.000 20.000
5.	Concrete Structure <ul style="list-style-type: none"> • Structural concrete class A – 1 • Reinforce steel 	m ³ Kg	1.935 541.800
6.	Stone masonry	m ³	2.160

c. Post Construction Stage

Project activity during post construction stage includes the following works:

- 1) Road operation;
- 2) Road maintenance including routine and periodic maintenance.

1.2.3 Project Implementation Stages

Implementation of the Cianjur Eastern Ring Road development is planned in two stages, as follow:

Stage I : On the first ten years, the new road will be built by 7 m width, shoulder 2 m width, including side ditch. pipe and box culvert. bridge and over pass, and other complementary structures. Construction work for this stage is proposed to be started in 2005. Typical cross section of the first stage development is shown in Figure 1.5

Stages II : On the second ten years the construction will be widened to the adjacent side along the road of the stage I with the same dimension

Scope of this EIA study covers the stage I development only.

1.3 Implementation Schedule

Pre-construction activity including feasibility study, detail engineering design, and land acquisition had been started since 2003. and it is hoped will be finished in 2004. Furthermore, stage 1 construction works will be implemented in 2006. Tentative schedule of the whole activities is shown in Figure 1.6.

1.4 Project Proponent

- a. Name of Institution : Directorate of Urban and Rural Central Region, Directorate General of Urban and Rural Development, Ministry of Settlement and Regional Infrastructures.
- b. Address : Jl. Pattimura No.20 Kebayoran Baru, Jakarta Selatan
Telephone (021) 72797175-6 — (021) 7395566
Pax (021) 7261939 - 72797178
- c. Responsible Person : Ir. M. Rachmat Karnadi, M.T.
- d. Position : Director.

Meanwhile, the EIA study of this project is conducted by Cianjur Regency Government through Kantor ANDAL Kabupaten Cianjur.

LARGE AND SIGNIFICANT IMPACTS ON THE ENVIRONMENT

2.1 Pre-construction Stage

Land acquisition amounting to 30 ha which is dominated by technical irrigated paddy field owned by 240 families, will cause social impacts such as;

- a) Disturbance on farmer job opportunity and income especially and tenant of 50 families;
- b) Disturbance on housing area. where 15 houses should be removed, and 5 house buildings should be demolished partly;
- c) Disturbance on public facility including 1 primary school building in Sirnagalih should be demolished, and 3 locations of grave should also be removed.
- d) Change **of land** use especially decrease of technical irrigated paddy field amounting to 27 ha, so that rice production will also decrease.

2.2 on truction Stage

2.2.1 Preparation of Construction Works

1) *increase of job opportunity and social jealousy*

Man power mobilization can cause positive impact on job opportunity, but negative impact probably occur too, such as social jealousy or conflict between local laborer and other laborer mobilized from outside project area, if most of them are mobilized from outside project area. This will cause disturbance on social order and project activities.

2) *Increase of local economic activity*

Mobilization of heavy equipment **and** procurement of building material will cause positive impact such as increase of local economic activity especially construction services including heavy equipment rental and building material supply. Building **material to be needed, among others are:**

- Aggregate 112.500 m³
- Asphalt 67.225 ton
- Reinforce steel 541.800 kg

12.2 Implementation of Construction Works

a. At Project Site

1) *Air pollution and noise*

Using of heavy equipment such as bulldozer, excavator, dump-truck, etc, for earth work and road pavement will cause air pollution especially dust and increase of noise.

This impact will cause further impact on social health at settlement area around the project site.

2) *Change of landform and ,slope stability*

Earth work (excavation and embankment) will cause change of local landform. Change of earth surface slope which is steeper than the original, potentially will cause erosion and land slide.

3) *River water pollution*

Soil erosion due to earthwork activity furthermore will cause negative impact on river water quality and sedimentation on the river bed, at the rivers crossed by the road route. *Mud* which is carried by rain water (run off) will enter into the mentioned rivers, and cause increase of turbidity, suspended solid and dissolved solid.

4) *Disturbance on public facility and utility*

Land caring and earth work will cause disturbance on existing public facility and utility such as road and rail road; irrigation canals, and electricity and telephone networks. Besides, disturbance on education facility (one school building should be demolished), and two locations of public grave should be removed.

5) *Disturbance on traffic*

The Cianjur Eastern Ring Road route cross six existing local road links with their traffic condition vary between high and low density. Construction activity at the crossing area will cause disturbance on traffic flow at the mentioned road links.

5) *Decrease of terrestrial flora population*

Land clearing will cause negative impact on terrestrial flora, especially decrease of population. Affected flora mostly is Cultivated vegetation such as paddy and fruit trees having economical value, ornamental plants, and protective plants.

b. At Transportation Route

1) Air pollution and noise

Transportation of soil and building material such as sand, stone, aggregate, cement, reinforce steel, to project site will cause air pollution especially dust, and noise. These will cause further impact on social health and amenity at settlement area along road links passed by the project vehicles.

2) Disturbance on traffic

Transportation of soil and building material such as sand, stone, aggregate, cement, reinforce steel, to project site will also cause disturbance in traffic flow along the road links passed by the project vehicles. Traffic jam and also traffic accident probably will occur too.

3) Public road damage

Transportation of soil and building material such as sand, **stone, aggregate, cement**, reinforce steel, to project site will also cause road damage along the road links passed by the project vehicles.

2.3 Post Construction Stage

2.3,1 At the Existing Road Route

1) Change of traffic flow

Operation (**utilization**) of **constructed Cianjur Eastern Ring Road** will cause change of traffic flow along severe existing which is so long passed by inter city and inter province bus. Bus traffic will move to the eastern ring road, so that traffic volume along the mentioned road links will decrease. This will cause some positive impacts on physical aspect such as:

- a) decrease of Air pollution and noise;*
- b) decrease of road damage:*

2) Increase of social health and amenity

Decrease of air pollution and noise and decrease of road damage along road links that so long are passed by inter city bus, will cause further impact such as increase of social health and amenity of the people living along the mentioned road sides.

2.3.2 At Eastern Ring Road Corridor

1) *Air pollution and noise*

Operating the new road with traffic volume of about 30,000 PCU / day will cause air pollution and noise.

2) *Increase of economic activity*

Existence of Cianjur Eastern Ring Road, besides has advantage to make inter urban and urban traffic more smoothly, it will also stimulate various types of economic activities such as trade, industry, transportation services, and other services along road corridor. This will cause further impact of increase of job opportunity and consequently increase of social income, and increase of Domestic Original Income of Cianjur Regency as well.

3) *Change of land use*

The existence of Cianjur Eastern Ring Road will stimulate local peoples and also immigrants from outside project site, to carry out various economic activities along the new road corridor. This will cause change of land use along right and left road sides. The formerly paddy field may change into various use such as housing, shopping center, office building, etc.

If the such kind change of land use is not well managed, further impact is disturbance on traffic flow along the new road, due to many vehicles entering into and / or out of the mentioned road.

Unused Right of Way (as open space) also will stimulate illegal occupation including road side trader (*pedagang kaki lima*), to occupy this land for house and/or business place, without permit from authorized institution.

Both matters, if do not strictly controlled, will cause disturbance on traffic flow, even traffic congestion possibly occur, so that the ring road can not function as primary arterial road.

4) *Disturbance on traffic*

During operating stage of Cianjur Eastern Ring Road, disturbance on traffic flow probably occur at crossing points with the existing local road links. This is negative impact either for smoothly of the new arterial road or the existing local road links.

Disturbance on traffic flow along the new road possibly will occur also during maintenance work. Operating of heavy equipment during maintenance work will hamper traffic flow, especially if maintenance activity is done in the daytime during peak hour.

CHAPTER III

ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

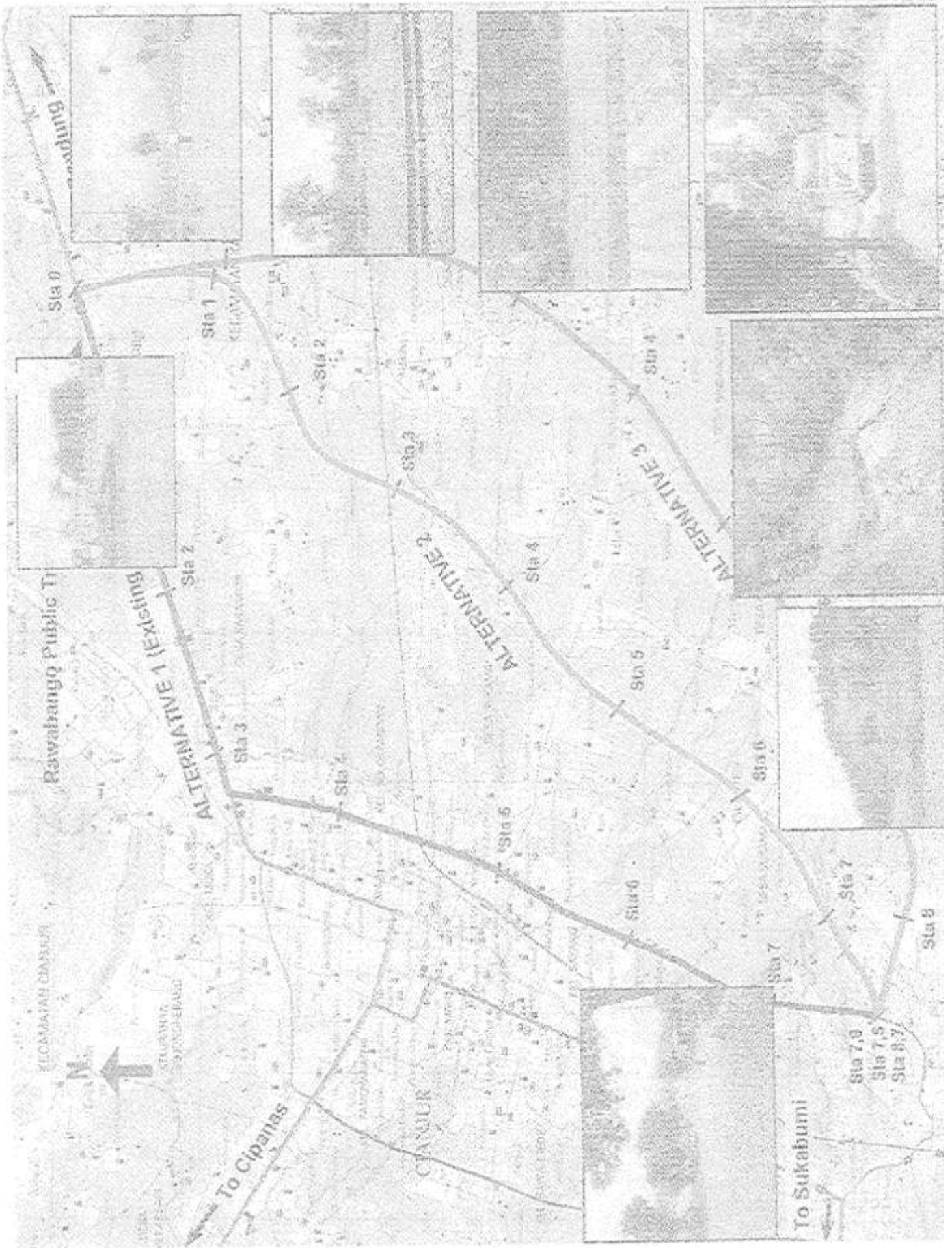
3.1 Environmental Management Plan

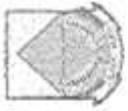
To mitigate all of the large and significant impacts mentioned in Chapter II, Environmental Management Plan or RKL (*Rencana Pengelolaan Lingkungan*) document has been formulated, as described briefly in Appendix 1.

3.2 Environmental Monitoring Plan

To ensure that all of the environmental management plan stated in RKL document really implemented by project proponent or other related institutions, Environmental Monitoring Plan or RPL (*Rencana Pemantauan Lingkungan*) has been formulated as described briefly in Appendix 2.

Gambar 1.1 Alternatif Rute Rencana Jalan Lingkar Timur Cianjur





PEMERINTAH KABUPATEN CIANJUR
KANTOR ANDAL

PEKERJAAN:

STUDI ANDAL JALAN LINGKAR TENGAH
KOTA CIANJUR

LEGENDA:

- Swah
- Air
- Kampung/Perumahan
- Jalan
- Sungai
- Jalan Karet Asli
- Titik Jalan Lingkar Tengah Cianjur

UTARA



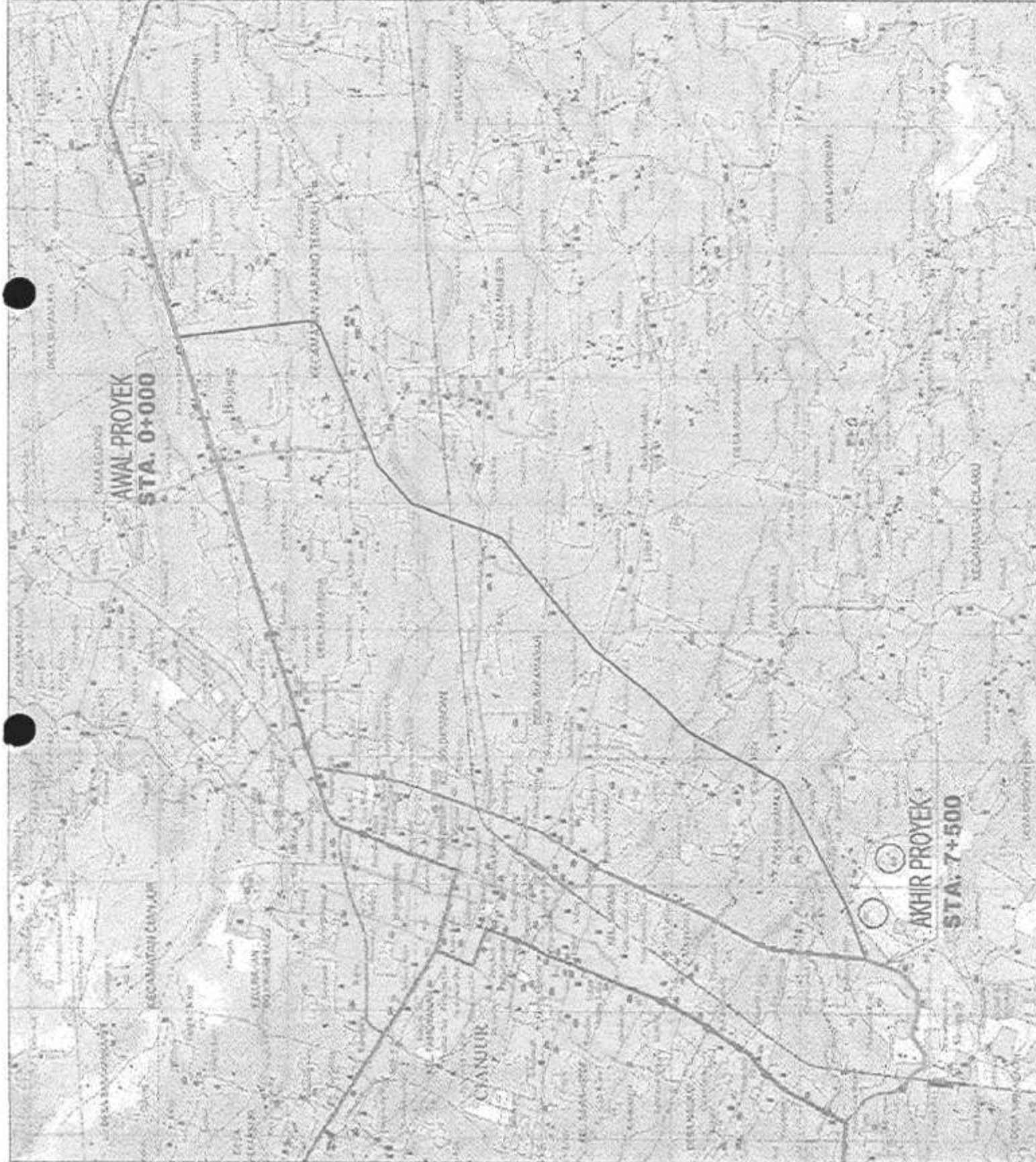
PETA LOKASI

Rencana Jalan Lingkar Tengah
Cianjur

NO. GAMBAR NO. LEMBAR

1.2

01





PEMERINTAH KABUPATEN CILACAP
KANTOR ANDAL

PERENCANAAN :

STUDI ANDAL JALAN LINGKAR TAYUR
KOTA CILACAP

LEGENDA :

- : Sewah
- : Kubun
- : Kampung/Perumahan
- : Jalan
- : Sungai
- : Jalan Kereta Api
- : Trotoir Jalan Lingkaran Timur Kota Cilacap
- : Sekolah
- : Masjid
- : Kuburan

UTARA



AREAL SENSITIF
SEKITAR TRASE RENCANA
JALAN LINGKAR TAYUR CILACAP

NO. GAMBAR | NO. LEMBAR

1.3

01



Figure 1.4 Typical Cross Section of Cianjur Eastern Ring Road

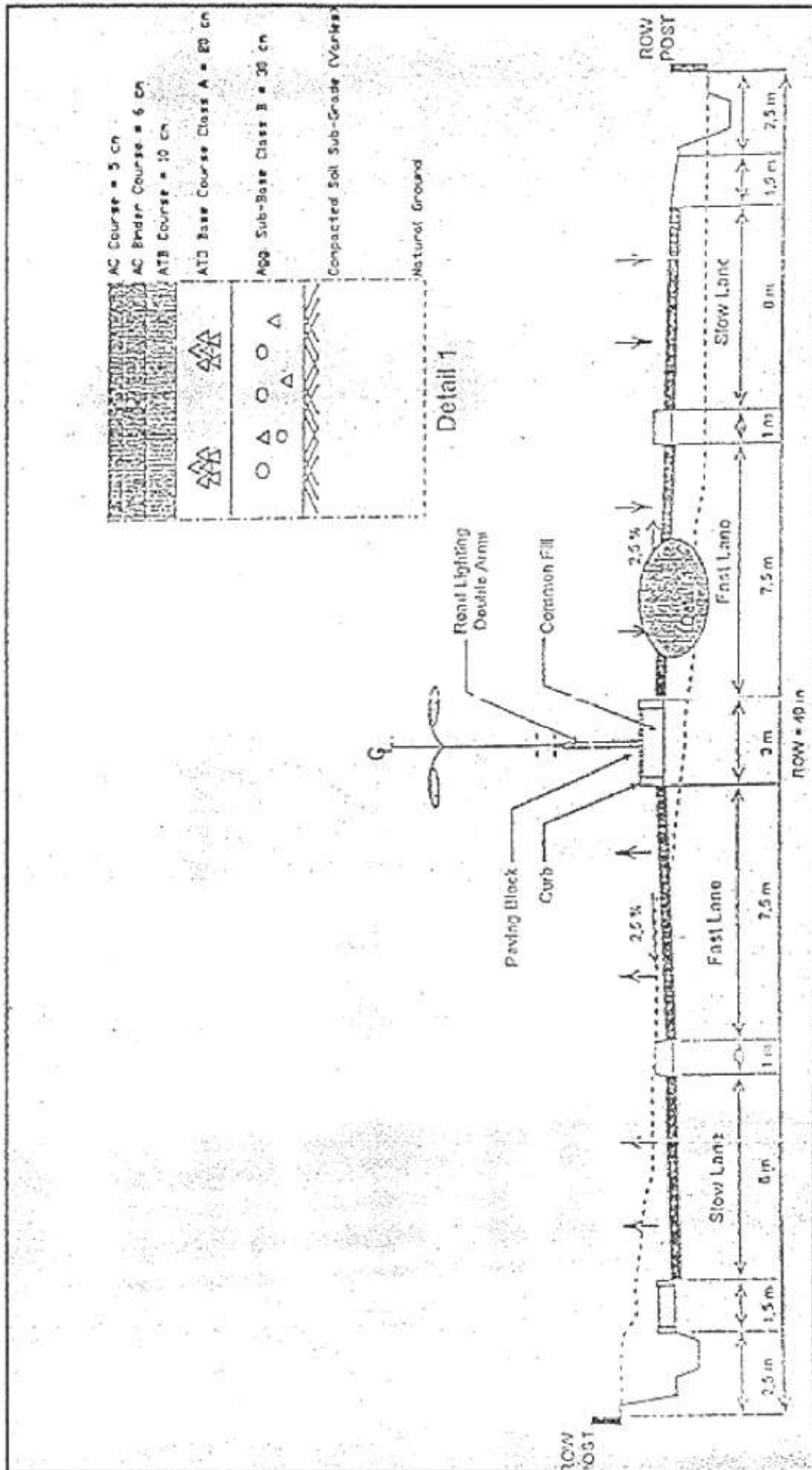


Figure 1.5

Typical Cross Section Of The First Stage Development of Cianjur Eastern Ring Road

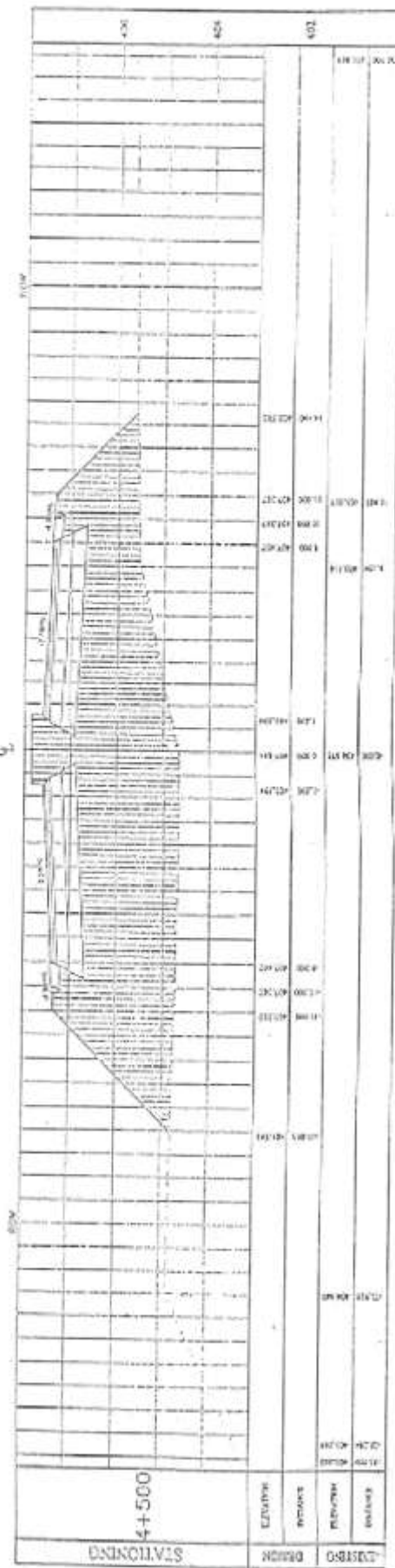
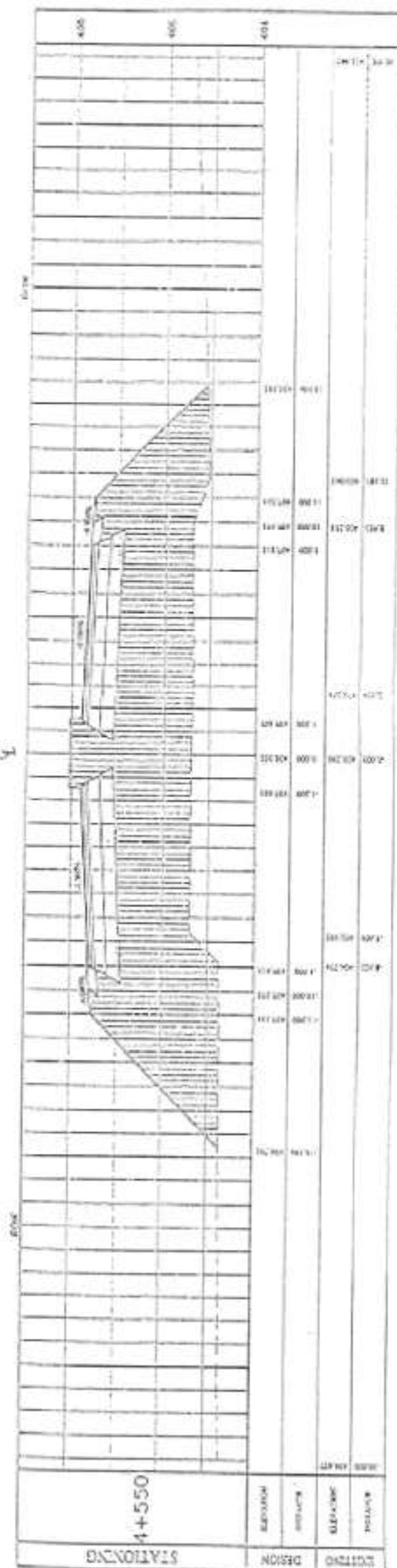
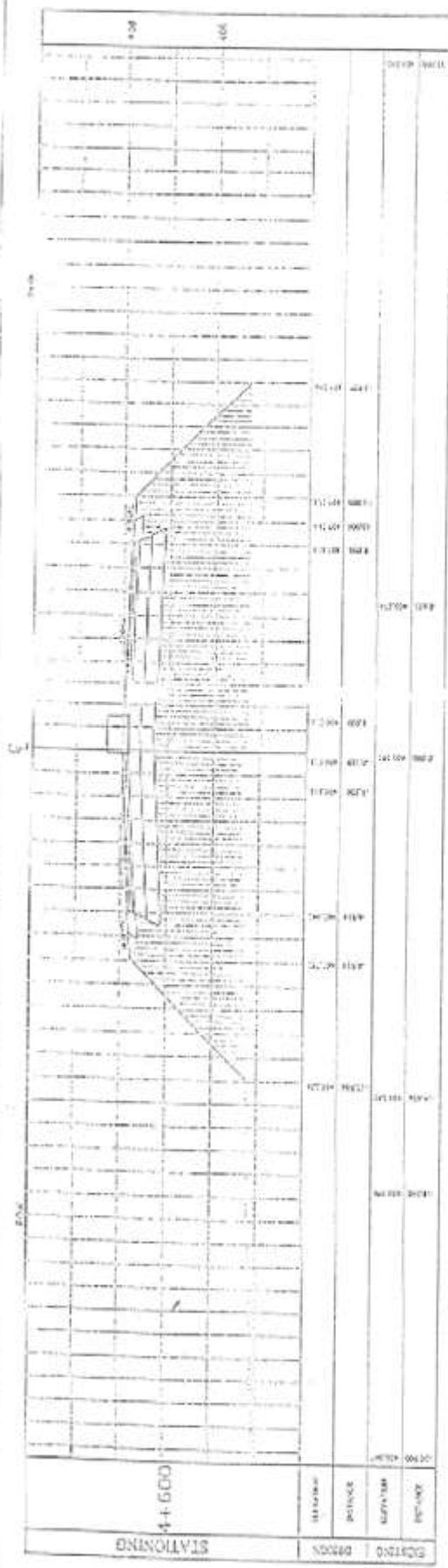



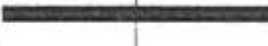






Figure 1.6
Tentative Schedule for Cianjur Eastern Ring Road Development (Stage I)

Activity	2004				2005	2006
1. AMDAL Study						
2. LARAP Study						
3. Design Review						
4. Finishing Land Acquisition						
5. Preparing Tender Document for Construction Works						
5. Construction Works Bidding						
6. Preparation of Construction Works						
7. Implementation of Construction Works						

Appendix I

Table of Environmental Management Plan For Cianjur Eastern Ring Road Development

Appendix 1: Table of Environmental Management Plan for Cianjur Eastern Ring Road Development

No	Type of Impact to be Managed	Source of Impact	Impact Criteria	Objective of Environmental Management	Environmental Management Plan	Environmental management Location	Management Period	Environmental Management Institution		
								Executor	Supervisor	Report Receiver
(1)	(2)	(3)	(4)	(5)	(5)	(7)	(8)	(9)	(10)	(11)
1. PRE-CONSTRUCTION STAGE										
1.	Disturbance on job opportunity and income of farmers especially land tenants	Land acquisition of 30 ha for road ROW	Decrease of affected people family income	Recovery of affected people family income, minimum same with the previous condition.	<ul style="list-style-type: none"> • Give sufficient compensation for acquired assets. • Provide new paddy field as substitution for the acquired land • Give guidance and aid on job opportunity, such as job / business opportunity in project implementation, technical guidance, soft loan, farming intensification, etc. • More detail study on affected people profile as target group. 	In 9 affected villages especially peoples affected by land acquisition.	<ul style="list-style-type: none"> • Compensation should be finished before starting construction works; • Socio-economic guidance and aid can be continued in construction stage. 	<ul style="list-style-type: none"> • Bappeda in coordination with Agricultural Services, Project proponent, and Social Services, and Bank. • Detail study on target group socio-economic condition, may involves University, NGO or Consultant. 	<ul style="list-style-type: none"> • Secretary of Cianjur Regency Government • Bawasda (Local Supervisory Board) 	<ul style="list-style-type: none"> • Bupati of Cianjur Regency; • Cianjur DPRD; • Ditjen. TPTP, Dept. Kimpraswil • Kantor ANDAL, Kab. Cianjur
2.	Decrease of agricultural area and rice production	Land acquisition of 30 ha for road ROW	Decrease of paddy field 28.4 Ha, and decrease of rice product of 2,0 % in 9 affected villages	Prevent decrease of rice production	Provide new irrigated paddy field to substitute acquired land for road development	Along road route corridor / acquired land	During construction stage, and it is hoped to be finish within 2 years.	Agricultural Services & Project proponent in coordination with Bappeda, Dinas SDA, BPN, Bag, Tapem	<ul style="list-style-type: none"> • Secretary of Cianjur regency • Bawasda (Local Supervisory Board) 	<ul style="list-style-type: none"> • Bupati of Cianjur Regency; • DPRD Cianjur; • Ditjen. TPTP, Dept. Kimpraswil • Kantor ANDAL, Kab. Cianjur
3.	Disturbance on settlement facility and social asset	Land acquisition of 30 ha for road ROW	Number of house to be removed or demolished	Recovery of social facility condition	<ul style="list-style-type: none"> • Give sufficient compensation • Prepare aid for socio-economic rehabilitation • Detail study on socio-economic profile of affected people. 	In 9 villages of social study area, especially affected people by land acquisition.	<ul style="list-style-type: none"> • Compensation or resettlement should be finished before construction stage; • Guidance can be conducted continuously during construction stage. 	<ul style="list-style-type: none"> • Government Administration Division in coordination with Social Services and Bappeda; • Base-line study of target group and guidance can involve University, NGO / Consultant 	<ul style="list-style-type: none"> • Secretary of Cianjur Regency • Bawasda 	<ul style="list-style-type: none"> • Bupati of Cianjur Regency; • DPRD Cianjur; • Ditjen. TPTP, Dept. Kimpraswil • Kantor ANDAL, Kab. Cianjur

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
4.	Disturbance on learning and teaching process	Land acquisition of 30 ha for road ROW	Effectiveness of learning and teaching process	Recovery of learning and teaching process condition	Remove whole school building to other location which is technically, environmentally, and economically feasible.	At Sta 7+ 550; (Pasir Nangka, Simagalih Village)	Construction of substitution buildings should be finished before construction stage.	Education Services and Project proponent, in coordination with Government Administration Division and Bappeda	<ul style="list-style-type: none"> Secretary of Cianjur Regency Bawasda Pasir Nangka School Board 	<ul style="list-style-type: none"> Bupati of Cianjur Regency; DPRD Cianjur; Dijen. TPTP, Dept. Kimpraswil Kantor ANDAL Kab. Cianjur
5.	Disturbance on public infrastructure and utility	Land acquisition of 30 ha for road ROW	Performance of public infrastructure and utility function	Recovery of public infrastructure and utility condition	<ul style="list-style-type: none"> Provide infrastructure and utility substitution as soon as possible Recovery of damage public infrastructure and utility 	At acquired land	Before demolishing existing infrastructure and utility	Education Services, PLN, Telkom, Social Services, Water Resources Management Office)	Assistant for Development Cianjur Regency.	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Dinas Bina Marga
6.	Social anxiety and negative perception	Land acquisition of 30 ha for road ROW	Social complain and resistance on project activity	Prevent social resistance on project activities	<ul style="list-style-type: none"> Sufficient public socialization; Land acquisition to be conducted transparently Involve public participation in project implementation process 	In 9 villages of social study area, especially around proposed road route	<ul style="list-style-type: none"> During construction works, Socialisation should be conducted as early as possible 	Bappeda, Government Administration Division, Land Acquisition Committee, project proponent	<ul style="list-style-type: none"> Secretary of Cianjur Regency Bawasda Pasir Nangka School Board 	<ul style="list-style-type: none"> Bupati of Cianjur Regency; DPRD Cianjur; Dijen. TPTP, Dept. Kimpraswil Kantor ANDAL Kab. Cianjur
II. CONSTRUCTION STAGE										
A. PREPARATION OF CONSTRUCTION WORKS										
1.	Increase of job opportunity	Man power mobilization	Mobilized local man power in project implementation	<ul style="list-style-type: none"> Decrease unemployment in around project site; Increase public participation in development process 	Give priority on job opportunity to local laborers	In 9 villages of social study area, especially around proposed road route	During construction stage	Project proponent, / contractor in coordination with local Chief of Village	<ul style="list-style-type: none"> Man Power Services Dinas Bina Marga 	<ul style="list-style-type: none"> Bupati of Cianjur regency; DPRD Cianjur; Dijen. TPTP, Dept. Kimpraswil Kantor ANDAL Kab. Cianjur
2.	Social jealousy	Man power mobilization	Social complain and resistance on project activity	Prevent social conflict and social disorder	<ul style="list-style-type: none"> Inform man power need and requirement to local people Give priority on job opportunity to local people in project implementation 	In 9 villages of social study area, especially around proposed road route	During construction stage	Project proponent / Contractor in coordination with local Chief of Village	<ul style="list-style-type: none"> Man Power Services Dinas Bina Marga 	<ul style="list-style-type: none"> Bupati of Cianjur Regency; DPRD Cianjur; Dijen. TPTP, Dept. Kimpraswil Kantor ANDAL Kab. Cianjur

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
B. CONSTRUCTION IMPLEMENTATION										
3.	Air pollution and noise									
a.	Decrease of air quality	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Transportation of building Operation of base camp 	Air quality standard (Gov. Regulation No. 41/1999 and Decree of West Java Governor No. 660.31/SK/624/SK/PMD/82)	Air quality control (dust and CO)	<ul style="list-style-type: none"> Good maintenance of heavy equipment Periodic spraying with water Good base camp management Keeping building material property; Good maintenance of heavy equipment Transported building material to be covered properly with canvas or plastic sheet To clean road passed by material transportation; To clean dump-truck wheel transporting building material through urban road; 	<ul style="list-style-type: none"> Project site Location of base camp 	During construction works	Contractor	<ul style="list-style-type: none"> Supervisory Consultant Project Manager 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Dinas Bina Marga
b.	Increase of noise	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Transportation of building material Driving of foundation pole Operation of base camp 	Noise standard (KepMen LH No. 48 / 1996, and Decree of West Java Governor Jabar No. 660.31/SK/624/SK/PMD/82)	Noise control not exceed quality standard	<ul style="list-style-type: none"> Good maintenance of heavy equipment Construction work to be done at day time 	<ul style="list-style-type: none"> Project site, especially bridge location Location of base camp 	During construction works	Contractor	<ul style="list-style-type: none"> Supervisory Consultant Project Manager 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Dinas Bina Marga
4.	Change of landform and disturbance on slope stability	<ul style="list-style-type: none"> Earthwork Exploitation of quarry/borrow area 	Erosion and / or land slide	Protect slope stability	<ul style="list-style-type: none"> Slope protection by sodding or other structure type 	Location of soil excavation / embankment with steep slope	During construction works	Contractor	<ul style="list-style-type: none"> Supervisory consultant Project Manager 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Dinas Bina Marga

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
5.	Disturbance on surface/irrigation water	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Road foundation work and pavement 	Flood or drought	To control change of water flow pattern	<ul style="list-style-type: none"> Good construction procedure Construction of sufficient culverts and irrigation/drainage canals 	Along road route corridor	During construction works	Contractor	<ul style="list-style-type: none"> Supervisory Consultant Project Manager 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Water Resources Management Office, Agricultural Services and Bina Marga
6.	River water pollution	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Operation of base camp 	Water quality standard (Decree of West Java Governor NO. 39/2000)	Control water quality, not exceed quality standard	<ul style="list-style-type: none"> Soil embankment to be protected from rain water (run off) Provide vessel for liquid waste sedimentation process Used oil should be collected and keep in special vessel 	<ul style="list-style-type: none"> At project site Location of base camp 	During construction works	Contractor	<ul style="list-style-type: none"> Supervisory Consultant Project Manager 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Dinas Bina Marga
7.	Disturbance on public infrastructure and utility	<ul style="list-style-type: none"> Land clearing and preparation Earth work 	Performance on infrastructure and utility function	Maintain infrastructure and utility function condition	<ul style="list-style-type: none"> Good construction procedure Remove affected public infrastructure and utility Rehabilitation of damage infrastructure and utility 	Around construction site	Before and during construction works	Contractor	<ul style="list-style-type: none"> Supervisory Consultant Project Manager 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Dinas Bina Marga
8.	Public road damage	<ul style="list-style-type: none"> Transportation of soil and building material 	Performance of public road condition and function	Maintain public road condition	<ul style="list-style-type: none"> Using dump-truck in accordance with road capacity Strengthen road and bridge condition if necessary Rehabilitation of road damage 	<ul style="list-style-type: none"> Along material transportation route 	During construction works	Contractor	<ul style="list-style-type: none"> Supervisory Consultant Project Manager 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Dinas Bina Marga
9.	Disturbance on traffic	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Transportation of building material 	Performance of traffic flow (traffic jam)	Prevent disturbance on traffic flow condition	<ul style="list-style-type: none"> Traffic flow management; Material transportation is not carried out during peak hour Periodic road maintenance 	At existing road crossed by proposed project, and along material transportation route	During construction works	Contractor	<ul style="list-style-type: none"> Supervisory Consultant Project Manager 	<ul style="list-style-type: none"> Dirjen. TPTP Dept. Kimpraswil Kantor ANDAL Kab. Cianjur. Dinas Bina Marga

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
10.	Increase of public economic activities	Whole construction works	<ul style="list-style-type: none"> Number of business unit involve in project activities 	Increase project contribution on local economy	Establish policy on preference for using local building material and man power / enterprises in project implementation.	Especially in 3 Sub-district of study area, and generally in Cianjur Regency.	During construction works	Cianjur Regency Government in coordination with project proponent, Local Chamber of Commerce and Industry, Contractor Association	<ul style="list-style-type: none"> Bappedda Man Power Services Dinas Bina Marga Chamber of Commerce and Industry/ Contractor Association 	<ul style="list-style-type: none"> Bupati of Cianjur regency; DPRD Cianjur; Diijen. TPTP, Dept. Kimpraswil Kantor ANDAL Kab. Cianjur
11.	Disturbance on social health	<ul style="list-style-type: none"> Operation of base camp Land clearing and preparation Earthwork Transportation of building material 	Number of people suffering acute respiratory infection, eye and stomach diseases.	<ul style="list-style-type: none"> Control air quality not exceed quality standard Control domestic waste produce by project laborers 	<ul style="list-style-type: none"> Periodic spraying with water; Proper storing of building material; Good maintenance of heavy equipment Transported material especially soil should be covered with canvas or plastic sheet; To clean urban road from poured out soil; To clean dump-truck wheels before passing urban road; Provide temporary septic tank for construction laborers; 	<ul style="list-style-type: none"> Project site Material transportation route Location of base camp 	During construction works	Contractor	<ul style="list-style-type: none"> Project Manager Supervisory Consultant 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Dinas Bina Marga Diijen. TPTP Dept. Kimpraswil

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
III. POST CONSTRUCTION STAGE										
1.	Air pollution and noise									
a.	Air pollution	Operation of Eastern Ring Road	Air quality standard (Gov. Regulation No. 41/1999 and Decree of West Java Governor No. 660.31/SK/624 / BKPMMD/82	Air quality control, not exceed quality standard	<ul style="list-style-type: none"> Planting of protective trees with dense leaves Exhaust emission testing campaign 	Along road corridor	During operation stage	<ul style="list-style-type: none"> Dinas Bina Marga Cianjur Regency Communication Services 	Dinas Pertamanan Kabupaten Cianjur	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Assistant for Development, Cianjur Regency
b.	Decrease of noise	Operation of Eastern Ring Road	Noise standard (KepMen LH No. 48 / 1996 and Decree of West Java Governor No. 660.31/SK/ 624 / BKPMMD/82	Noise control, not exceed quality standard	<ul style="list-style-type: none"> Planting of protective trees with dense leaves Exhaust noise testing campaign 	Along road corridor	During operation stage	<ul style="list-style-type: none"> Dinas Bina Marga Cianjur Regency Communication Services 	Dinas Perbencanaan Kab. Cianjur	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Ass. Pembangunan Kab. Cianjur
2.	Increase of food potential and disturbance on irrigation supply	Insufficient maintenance of drainage system	Flood or drought	Surface water flow system management	<ul style="list-style-type: none"> To control condition of culverts and irrigation/drainage canals Repair damage of culverts and irrigation/drainage canals 	Location of culverts and drainage / irrigation canals, along road corridor	During rainy season	Dinas Bina Marga Cianjur regency	Water Resources Management Office	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur. Ass. Pembangunan Kab. Cianjur
3.	Change of land use	Operation of Eastern Ring Road	Land use not in accordance with Detail Spatial Plan of Cianjur City	Land use control based on land use plan in accordance with detail Spatial plan of Cianjur City	<ul style="list-style-type: none"> Revise Detail Spatial Plan of Cianjur City, and public socialization; Land use control; Law enforcement 	Along Eastern Ring Road corridor	Periodically	<ul style="list-style-type: none"> Bappeda Dinas Cipta Karya Cianjur Regency National Land Services 	<ul style="list-style-type: none"> Bappeda Kab. Cianjur Kantor ANDAL Kab. Cianjur 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Bupati Cianjur
4.	Traffic congestion and accident	Operation of Eastern Ring Road	Increase of traffic accident frequency per year (20 %)	Prevent traffic jam and accident	<ul style="list-style-type: none"> Provide crossing bridge or Zebra cross Traffic management 	Along Eastern Ring Road corridor	During operation stage	Communication Service in coordination with local Police	<ul style="list-style-type: none"> Cianjur Police Secretary of Cianjur Regency 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Bupati Cianjur
5.	Increase of public economic activities	Operation of Eastern Ring Road	Number of business units	Develop public economic activities especially small and medium enterprise	<ul style="list-style-type: none"> Development of economic scheme especially for small and medium enterprises Land use planning and regulating 	Along Eastern Ring Road corridor	During operation stage	Bappeda in coordination with State Minister of Cooperation	Secretary of Cianjur Regency	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Bupati Cianjur

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
5.	Disturbance on social health	Operation of Eastern Ring Road	Social complain due to disturbance on health and amenity caused by air pollution and noise	Air quality and noise control. Not exceed quality standard	<ul style="list-style-type: none"> • Planting of protective trees with dense leaves • Exhaust gas mission test campaign ◦ Exhaust noise test campaign 	Along road corridor	During post construction stage	<ul style="list-style-type: none"> • Highway (Bina Marga) Services • Communication Services 	Dinas Pertamanan Kab. Cianjur	<ul style="list-style-type: none"> • Kantor ANDAL Kab. Cianjur. • Secretary of Cianjur Regency

Appendix

Table f Environmental Monitoring Plan For Cianjur Eastern Ring Road Development

Appendix 2 : Table of Environmental Monitoring Plan for Cianjur Eastern Ring Road

No	Type of Impact to be Monitored	Source of Impact	Objective of Environmental Monitoring	Environmental Monitoring Plan				Environmental Monitoring Institution		
				Method of Data Collection	Location	Monitoring Period	Method of Analysis	Executor	Supervisor	Report Receiver
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. PRE-CONSTRUCTION STAGE										
1.	Decrease of technical irrigated paddy field and rice product	Land acquisition of 30 Ha (dominated by technical irrigated paddy field).	<ul style="list-style-type: none"> To know planting and harvesting areas, and rice production level; To know performance of impact mitigation has been done. 	<ul style="list-style-type: none"> Field survey Interview with local people 	<ul style="list-style-type: none"> In 9 villages within social study area, especially around project site Location of substitution land 	Every planting and harvesting season during land acquisition stage, and continue 2 years after.	Comparative analysis with condition before land acquisition	Bappeda in coordination with Agricultural Services and Water Resources Management Services	Secretary of Cianjur regency, Kantor ANDAL and Bawasda (Local Supervisory Board)	<ul style="list-style-type: none"> Bupati Kab. Cianjur DPRD Kab. Cianjur Kantor ANDAL Kab. Cianjur
2.	Disturbance on farmer job opportunity and income	Land acquisition of 30 Ha.	<ul style="list-style-type: none"> To know economic activity condition and income level of affected people To know performance of impact mitigation has been done 	Basic social survey using questionnaire for household respondents of 20 – 40 % of population number	In 9 villages within social study area, and resettlement site (if any)	1 year after land acquisition	Comparative analysis with condition before land acquisition	Bappeda, assisted by University or Consultant	Secretary of Cianjur regency, Kantor ANDAL and Bawasda (Local Supervisory Board)	<ul style="list-style-type: none"> Bupati Kab. Cianjur DPRD Kab. Cianjur Bawasda (Local Supervisory Board)
3.	Disturbance on Settlement facility and social asset of affected people	Land acquisition of 30 Ha.	<ul style="list-style-type: none"> To know housing and living condition of affected people To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> Field survey Interview with affected people 	<ul style="list-style-type: none"> Around project site New settlement area 	1 year after land acquisition	Comparative analysis with condition before land acquisition	Bappeda in coordination with Social Service	Secretary of Cianjur regency, Kantor ANDAL and Bawasda (Local Supervisory Board)	<ul style="list-style-type: none"> Bupati Kab. Cianjur DPRD Kab. Cianjur Bawasda (Local Supervisory Board)
4.	Disturbance on learning and teaching process	Land acquisition at Sragalah Village	<ul style="list-style-type: none"> To know learning and teaching process condition of Pasir Nangka primary school To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> Field survey Interview with head of Pasir Nangka primary school and students 	Location of Pasir Nangka primary school and substitution area	Every 6 months along 2 year, started after land acquisition	Comparative analysis with condition before land acquisition	Education Services in coordination with Government Administration Division of Cianjur regency	Secretary of Cianjur regency, Kantor ANDAL and Bawasda (Local Supervisory Board) and Pasir Nangka primary school board	<ul style="list-style-type: none"> Bupati Kab. Cianjur DPRD Kab. Cianjur Bawasda (Local Supervisory Board)
5.	Disturbance on public infrastructure and utility (electricity, telephone, irrigation networks)	Land acquisition of 30 Ha.	To know further impact of disturbance on public facility and utility	<ul style="list-style-type: none"> Field survey Interview with affected people 	Location of affected public facility and utility	Every 3 months during land acquisition process and construction stage.	Descriptive, quantitative and qualitative	PLN, Telkom and Water Resources Management Services	Secretary of Cianjur regency, and Kantor ANDAL	<ul style="list-style-type: none"> Pemda Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur
6.	Social anxiety and negative perception	Land acquisition of 30 Ha.	To know resistance level of Affected people on project activity plan	<ul style="list-style-type: none"> Field survey Interview with affected people 	In 9 villages within social study area, especially around project site	Every 3 months during land acquisition process and construction stage.	Table analysis and qualitative description	Government Administration Division and Social Services	Bupati Cianjur, Kantor Setwilda, Bawasda, dan Kantor ANDAL Kabupaten Cianjur	<ul style="list-style-type: none"> Bupati Kab. Cianjur DPRD Kab. Cianjur Ditjen TRTF Dinas Krimprovisi

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
II. CONSTRUCTION STAGE										
A. CONSTRUCTION PREPARATION										
1.	Increase of job opportunity	Man power mobilization	To know local man power involved in project activities	<ul style="list-style-type: none"> Field survey Interview with project laborers, contractor, and local Chief of village 	Project site, base camp and quarry	2 times during man power mobilization schedule, and every 3 months during construction stage	Descriptive, quantitative and qualitative	Project Manager	Dinas Tenaga Kerja dan Kantor ANDAL Kab. Cianjur	<ul style="list-style-type: none"> Bupati Kab. Cianjur DPRD Kab. Cianjur
2.	Social jealousy	Man power mobilization	<ul style="list-style-type: none"> To know social conflict indication and disturbance on social order To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> Field survey Interview with affected people 	<ul style="list-style-type: none"> Around project site In 9 villages of study area 	2 times during man power mobilization schedule, and every 3 months during construction stage	Descriptive, quantitative and qualitative	Project Manager	Dinas Tenaga Kerja dan Kantor ANDAL Kab. Cianjur	<ul style="list-style-type: none"> Bupati Kab. Cianjur DPRD Kab. Cianjur
B. CONSTRUCTION IMPLEMENTATION										
3.	Air pollution and noise									
a.	Decrease of air quality	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Operation of base camp Material transportation 	<ul style="list-style-type: none"> To know air pollution level To know performance of impact mitigation has been done 	Air quality sampling using dust sampler	4 locations (Watas Wotan, Bumi Pasir, Cikaret bridge and Cisarua)	Every 3 months during construction stage	In accordance with Government regulation No. 41 year 1999	Project Manager	Kantor ANDAL Kabupaten Cianjur	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur
b.	Increase of noise	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Operation of base camp Driving of foundation pole Material transportation 	<ul style="list-style-type: none"> To know noise level To know performance of impact mitigation has been done 	Direct field observation	At air quality sampling sites (4 location)	Every 3 months during construction stage	Referring to KepMen LH No. 48/MENLH/11/1996	Project Manager	Kantor ANDAL Kabupaten Cianjur	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur
4.	Change of landform and disturbance on slope stability	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Quarry exploitation 	<ul style="list-style-type: none"> To know impact due to change of landform To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> Field survey Direct observation 	<ul style="list-style-type: none"> Along proposed road corridor Quarry site 	Every 3 months during construction stage	Descriptive	Project Manager	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Sub Dinas Pertambangan Kb. Cianjur 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
5.	Disturbance on surface / irrigation water flow	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Construction of road foundation and pavement 	<ul style="list-style-type: none"> To know change of surface /irrigation water flow pattern To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> Field survey Direct observation 	Along proposed road corridor	Every 1 month during rainy season	Descriptive	Project Manager	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Water Resources Management Services 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur
6.	River water pollution	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Operation of base camp 	<ul style="list-style-type: none"> To know river water pollution level To know performance of impact mitigation has been done 	Water quality sampling for laboratory analysis	At crossing site of proposed road and rivers (8 locations)	Every 3 months during construction stage	Refer to Decree of West Java Governor No. 39/2000	Project Manager	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Water Resources Management Services 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur
7.	Disturbance on public infrastructure and utility	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Road pavement 	<ul style="list-style-type: none"> To know public facility and utility condition To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> Field survey Interview with affected people 	Along proposed road corridor	Every 1 month during construction activity	Descriptive	Project Manager	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Dinas PSDA , PLN, Telkom 	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur
8.	Disturbance on traffic	<ul style="list-style-type: none"> Land clearing and preparation Earthwork Road pavement 	To know traffic congestion level	Direct observation	Existing roads and railway crossed by proposed ring road	Every 3 months in 1 year		<ul style="list-style-type: none"> Project Manager Dinas Bina Marga 	<ul style="list-style-type: none"> Communication Services Cianjur Police Bapedalda Kab. Cianjur 	<ul style="list-style-type: none"> Communication Services Kantor ANDAL Kab. Cianjur
9.	Disturbance on terrestrial flora	Land clearing	To know vegetation coverage	Field survey	Along ring road alignment	6 month after construction activity		<ul style="list-style-type: none"> Project Manager Dinas Bina Marga 	<ul style="list-style-type: none"> Dinas Pertamanan Kab. Cianjur Kantor ANDAL Kab. Cianjur LPM masing-masing kabupaten 	<ul style="list-style-type: none"> Dinas Pertamanan Kab. Cianjur Kantor ANDAL Kab. Cianjur
10.	Disturbance on traffic	Transportation of building material	To know traffic congestion level	Direct observation	Road links passed by material transportation vehicles	Every 3 month in 1 year	Pertilungan volume kecepatan	<ul style="list-style-type: none"> Project Manager Dinas Bina Marga 	<ul style="list-style-type: none"> Communication Services Kab. Cianjur Cianjur Police Kantor ANDAL Kab. Cianjur 	<ul style="list-style-type: none"> Communication Services Kab. Cianjur Kantor ANDAL Kab. Cianjur

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
11.	Public road damage	Transportation of soil and building material	<ul style="list-style-type: none"> To know public road condition To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> Field survey Interview with local people 	Building material transportation route (4 locations)	Every month during building material transportation activity	Descriptive	Project Manager	Kantor ANDAL Kab. Cianjur	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur
12.	Increase of public economic activity	Whole construction activities	<ul style="list-style-type: none"> To know public economic activities related with construction sector To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> Field survey Interview with business performers related with construction sector Economic survey 	Within study area (3 Kecamatan)	Every 6 month during construction stage, and 1 year after construction.	Statistical analysis and descriptive qualitative	Bappeda in coordination with Statistical Office	Secretary of Cianjur Regency and Bawasda (Local Supervisory Board)	<ul style="list-style-type: none"> Bupati Kab. Cianjur DPRD Kab. Cianjur Kantor ANDAL Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur
13.	Disturbance on social health and amenity	Air pollution and noise due to various construction activities	<ul style="list-style-type: none"> To know amenity level and disease occurrence indication To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> Field survey Interview with affected people 	Settlement location around project site and along material transportation route	Every 3 months during construction stage	Descriptive quantitative and qualitative	Project Manager	Kantor ANDAL Kabupaten Cianjur	<ul style="list-style-type: none"> Health Services Kabupaten Cianjur Kantor ANDAL Kab. Cianjur Dinas Bina Marga Kabupaten Cianjur
III. POST CONSTRUCTION STAGE										
1.	Air pollution and noise									
a.	Decrease of air quality	Operation of Eastern ring road	<ul style="list-style-type: none"> To know air pollution level To know performance of impact mitigation has been done 	Air quality sampling	4 location (Rawa Bango, Bojong Kidul, Cikaret and Cisarua Hilir)	Every 6 months	Refer to Government regulation No. 41/1999 and Decree of West Java Governor No. 660.31/SK/624/BKPM D/B2	Dinas Bina Marga Kabupaten Cianjur	Kantor ANDAL Kab. Cianjur	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Bupati Cianjur
b.	Increase of noise	Operation of Eastern ring road	<ul style="list-style-type: none"> To know noise level To know performance of impact mitigation has been done 	Direct observation	4 locations same with air quality sampling site	Every 6 months	Refer to KeptMen LH No. 48/1996	Dinas Bina Marga Kabupaten Cianjur	Kantor ANDAL Kab. Cianjur	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Bupati Cianjur
2.	Increase of flood and disturbance on irrigation supply	Operation of Eastern ring road	To know impact on surface water /irrigation condition	<ul style="list-style-type: none"> Field survey Interview with local people 	All irrigation and drainage canals crossed by ring road	Every month during wet season	Descriptive	<ul style="list-style-type: none"> Water Resources Management Services Agricultural Services 	Kantor ANDAL Kab. Cianjur	<ul style="list-style-type: none"> Kantor ANDAL Kab. Cianjur Bupati Cianjur

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
3	Change of traffic flow in existing road	Operation of Eastern ring road	To know traffic condition at existing roads	Traffic survey	<ul style="list-style-type: none"> • Jl. Muwardi • Jl. Rahman Hakim • Jl. Rawabango • Jl. Raya Halte Maleber • Jl. Dick Prawira Kusuma • Jl. KH. Saleh 	Every 6 month along 2 year	Comparison with existing condition	Communication Services and Dinas Bina Marga Kabupaten Cianjur	<ul style="list-style-type: none"> • Communication Services • Cianjur Police • Kantor ANDAL Kab. Cianjur 	<ul style="list-style-type: none"> • Communicator Services • Kantor ANDAL Kab. Cianjur
4	Change of land use	Operation of Eastern ring road	<ul style="list-style-type: none"> • To know land use type and condition • To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> • Field survey • Photography 	Along ring road corridor	Every 6 months	Compare with Detail Spatial Plan of Cianjur City	<ul style="list-style-type: none"> • Bappeda Kab. Cianjur • Dinas Cipta karya Kabupaten Cianjur • Nasional Land Office (BPN) 	Kantor ANDAL Kab. Cianjur	<ul style="list-style-type: none"> • Kantor ANDAL Kab. Cianjur • Bappeda Kabupaten Cianjur • Bupati Cianjur
5	Traffic congestion and accident	Operation of Eastern ring road	To know traffic service quality	Traffic survey	Along ring road route	Every 6 months within 2 years	Table analysis and descriptive causative	Dinas Bina Marga Kabupaten Cianjur	<ul style="list-style-type: none"> • Communication Services • Cianjur Police • Kantor ANDAL Kab. Cianjur 	<ul style="list-style-type: none"> • Dinas Perhubungan & Pariwisata Kab. Cianjur • Kantor ANDAL Kab. Cianjur
6	Increase of public economic activity	Operation of Eastern ring road	<ul style="list-style-type: none"> • To know public economic activities grow along new road corridor • To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> • Field survey • Economic survey 	Along eastern ring road corridor	Every 6 months or at least every year	Statistical and comparative analysis	Bappeda in coordination with Statistical Office of Kabupaten Cianjur	Secretary of Cianjur Regency and Bawasda (Local Supervisory Board)	<ul style="list-style-type: none"> • Kantor ANDAL Kab. Cianjur • Bupati Cianjur
7	Disturbance on social health and amenity	Operation of Eastern ring road	<ul style="list-style-type: none"> • To know existence of disease along new road corridor • To know performance of impact mitigation has been done 	<ul style="list-style-type: none"> • Field survey • Interview with local people 	Along ring road corridor	Every 6 months or at least every year	Table and descriptive causative analysis	Health Services in coordination with Kantor ANDAL Kabupaten Cianjur	Secretary of Cianjur regency and Bawasda (Local Supervisory Board)	<ul style="list-style-type: none"> • Kantor ANDAL Kab. Cianjur • Bupati Cianjur