3.3 相手国側分担事業の概要

本計画が実施される場合の「イ」国側の負担事項は以下のとおりである。

公共事業省道路総局

- 本計画実施責任機関
- 環境管理計画・環境モニタリング計画の管理
- 日本に開設する銀行口座に必要な手数料の負担
- 本計画に従事する日本人および実施に必要な物品／サービス購入の際の課税免除手続
- 本計画に従事する日本人が「イ」国へ入国、および滞在するために必要な法的措置

西ヌサトゥンガラ州政府

- プロジェクト対象道路の小橋建設（６橋: BR-10(Labihe I), BR-11(Labihe II), BR-12(Labihe III), BR-14(Mone II), BR-17(Telonang II), BR-21(Bon Jati)
- プロジェクト対象道路の急勾配区間の舗装（合計約 3km）
- プロジェクト対象道路の補修
- 対象橋梁建設後の維持管理

スンバワ県および西スンバワ県

- 本計画の実施に必要な用地の取得、および工事開始前までに用地内物件の撤去と整地（表 3.2-3　用地取得リスト参照）
- 迂回路用地、キャンプ、資材置き場等の仮設工事用地の確保（資料 6 仮設迂回路計画参照）

3.4　プロジェクトの運営維持管理計画

(1) 運営・維持管理体制

協力対象橋梁は州道に架かっているため、完成後の維持管理は西ヌサトゥンガラ州政府公共事業局によって実施される。西ヌサトゥンガラ州政府公共事業局は、道路・橋梁の清掃・点検・簡易補修等の日常維持管理は直営方式により、定期維持管理等の比較的大規模な補修工事は請負方式により実施している。西ヌサトゥンガラ州政府公共事業局は、道路・橋梁維持管理のためのスタッフおよび機材を所有している。

(2) 維持管理作業の内容

対象橋梁の維持管理作業は次のとおりである。

日常維持管理

・清掃：橋面および集水桝の清掃、取付道路側溝の清掃、路肩の草刈り等
・点検：路面クラック、橋梁構造の変形・破壊、法面崩壊、防護工流失等の有無の確認
・補修：舗装クラックのシール、ポットホールのパッチング、路肩整正、蛇篭の補修等

定期維持管理

・点検で確認された問題ヶ所の修復工事（再塗装、橋梁部材の補修等）

(3) 維持管理実施上の留意点

対象橋梁の維持管理作業は、現在実施されている維持管理体制に組み込まれ実施される。対象橋梁の維持管理実施上の主な留意点は次のとおりである。

・日常維持管理が確実に実施され、舗装や橋梁の損傷が大きくならないうちに、補修されることが重要である。損傷が放置されると時間が経過するに従って補修コストが大きくなる。
・「イ」国では、一般に河川管理が行われておらず、護岸工が設置されている区間は一部である。このため洪水により河岸が浸食され河道が変化する場合がある。橋梁の上流域の河道変化が生じた場合は、河道変化が橋梁位置まで及ばぬよう水制工等を設置して、河道変化を制御することが必要である。
・対象道路は 20%程度の急勾配区間が多数ある。車両が安全に通行できるためにはこれら急勾配区間がマカダム舗装またはコンクリート舗装され、適切に維持管理される必要がある。
・雨水による法面浸食防止の目的で、法面は芝張りされるが、芝が根付くまでは散水等の手入が必要である。

3.5　プロジェクトの概算事業費

3.5.1　協力対象事業の概算事業費

本協力対象事業を実施する場合に必要となる事業費総額は11.78億円(日本側9.84億円､｢イ｣国側1.94億円) となり、先に述べた日本と｢イ｣国との負担区分に基づく双方の経費内訳は、下記(3)に示す積算条件によれば、次のとおりと見積もられる。ただし、この額は交換公文上の供与限度額を示すものではない。

(1)　日本側負担経費

概算総事業費　：　約　984 百万円

事業内容：スンバワ島環状道路タタール～ルニュック間に架かる 10 橋の建設

費　用			概算事業費（百万円）
施設	橋梁工	下部工	318
		上部工	460
		護岸工	54
		取付道路	75
実施設計・施工監理			77
合　計			984

(2)　｢イ｣国側負担経費 187.1 億ルピア(約 1.94 億円)

公共事業省負担

・銀行手数料　　50 百万ルピア

西ヌサトゥンガラ州政府負担

・小橋建設６橋	6,000 百万ルピア
・急勾配区間道路舗装	7,500 百万ルピア
・道路補修維持管理	5,000 百万ルピア
	18,500 百万ルピア

スンバワ県地方政府負担

・用地取得費	150 百万ルピア
・借地費	10 百万ルピア
	160 百万ルピア

積算条件

① 積算時点：平成 23 年 11 月

② 為替交換レート：１ルピア＝0.0104 円

③ その他：積算は、日本国政府の無償資金協力の制度を踏まえて行うこととする。

3.5.2　運営・維持管理費

本プロジェクトで建設される 10 橋の維持管理に必要な概算年間費用は 155 百万ルピアと見積もられる。主な維持管理項目と年間費用の内訳を表 3.5-1 に示す。

表 3.5-1　協力対象橋梁の維持管理項目と年間費用

維持管理作業			実施頻度（回／年）	1 回当たり費用（Rp /回）	年間平均費用（Rp /年）
日常維持管理	清掃	橋面	1回／1年	13,000,000	13,000,000
		集水桝			
		取付道路側溝			
		路肩の草刈り			
	点検	路面（クラック）	1回／1年	90,000,000	10,000,000
		橋梁部材（変形・破損）			
		法面崩壊（すべり）			
		浸食防護工（流失、破損）			
	補修	舗装ｸﾗｯｸのｼｰﾙ	1回／2年	70,000,000	35,000,000
		舗装ﾎﾟｯﾄﾎｰﾙのﾊﾟｯﾁﾝｸﾞ			
		砂利表層のﾊﾟｯﾁﾝｸﾞ			
		蛇篭の補修			
定期維持管理	補修	マカダム再舗装	1回／10年	420,000,000	42,000,000
		砂利表層再施工	1回／5年	170,000,000	34,000,000
		鋼桁再塗装	1 回／50年	600,000,000	12,000,000
		橋梁部材の補修	1 回／50年	85,000,000	1,700,000
		蛇篭／浸食防護工の補修	1 回／20年	86,000,000	4,300,000
		側　溝	1 回／20年	40,000,000	2,000,000
		ガイドポスト	1 回／20年	20,000,000	1,000,000
合　計					155,000,000

協力対象の 10 橋の年間維持管理費用は、西ヌサトゥンガラ州公共事業局の 2010 年道路・橋梁維持管理予算の 約 0.25%であるため、財政上の問題はないと判断される。

3.6　協力対象実施に当たっての留意事項

協力対象事業を円滑に実施するために、特に留意すべき事項は以下のとおりである。

- 本プロジェクトの責任実施期間は公共事業省道路総局である。道路総局は、事業実施にあたっては、工事管理および関連機関との調整のために、第１次事業実施時と同様に、西スンバワ州にプロジェクトマネジメント事務所を設置することが望まれる。
- 「イ」国側の負担事項は適時に実施されなければならない。特に、用地取得、工事障害物の移設・撤去は、Ｅ／Ｎ締結から着工までの期間に、スンバワ県により完了される必要がある。工事期間中も住民と調整が必要となることが予想されることから、県の本プロジェクトに関する責任者が指名され、施工者および施工監理者と綿密な調整が継続的に行われることが望まれる。
- 本プロジェクトサイトは遠隔地であるため医療施設が整っていない。安全対策が十分とられると共に、事故発生の場合の緊急医療体制が整備されている必要がある。
- プロジェクト実施にあたっては、承認された環境管理計画および環境モニタリング計画が遵守されるとともに、本報告書で提案した環境影響緩和策が実行されるよう、関係者が管理・確認する。

第４章　プロジェクトの妥当性の検証

4.1　プロジェクトの効果

プロジェクト実施による直接効果および間接効果を下表に示す。

表 4.1-1　プロジェクト実施による直接効果および間接効果

現状と問題点	協力対象事業での対策	直接効果・改善程度	間接効果・改善程度
南リング道路は、2002 年には一旦全線開通されたものの、渡河施設がスピルウエー仮橋であったため、越流水深が大きい増水時には渡河できず、また、簡易な蛇篭スピルウエーであった場所は短期間の後に破壊・流失して渡河できない状態となっている。現在、ルニュック側の平地区間以外は、一般車両の通行は困難な状態である。このため、スンバワ島南部地域の東西方向の住民移動および物流はほとんどできず、地域住民は公共サービスへのアクセスが困難な現状である。また、対象道路沿道は、入植移住政策が推進されているが、道路事情が改善されない場合は入植移住政策が頓挫することになる可能性がある。	比較的大規模で建設が困難な 10 橋の建設（道路部分の改修および小規模橋梁・カルバートは「イ」国側が実施する。）	① 本プロジェクトが実施されれば、南リング道路の全区間が良好な状態となり、通行不能であった一般車両（２輪駆動車）が通年交通可能となる（２輪駆動車の通行不能期間が年間 12ヶ月から0ヶ月へ短縮される）。 ② トンゴロカ～ルニュク区間の通行には、これまで通行可能時においても４輪駆動車で４時間 30 分要していたが、約３時間に短縮される。	① 住民の移動、物資の輸送が容易かつ効率的にできるようになるため、地域の経済活動が活性化し、住民の生活条件が向上する。ひいては地域の社会経済の発展に寄与する。 ② 生活条件の向上等の結果、入植地住民が定着・増加することとなり、入植事業の発展に寄与する。 ③ スンバワ島南リング道路が全線開通することにより、北部区間で道路土砂崩れ等の災害時に迂回路が確保される。

4.2　課題・提言

4.2.1　相手国側の取り組むべき課題・提言

プロジェクトの効果を十分に発現・持続させるために「イ」国が取り組むべき課題は次のとおりである。

① 本プロジェクト対象道路であるスンバワ南リング道路を、一般車両が通年通行可能とするためには、対象橋梁が建設されると共に、急勾配区間の舗装、対象外の小橋の建設および側溝や路面状態の不良箇所の補修が実施されることが必要である。本プロジェクト完成までにこれら道路整備がインドネシア側により実施されることが必要である。

② 維持管理を十分に行うこと。定期点検で補修が必要な箇所が発見された場合は、早急に補修することが補修コストを抑えるとともに施設の耐用年数を延ばす上で重要である。事業

実施中の啓発活動等を通じ、事業終了後の日常管理について政府のみならず利用者・近隣住民の参加を促してゆくことが望ましい。

なお、本プロジェクトに関し、技術協力は計画されていない。

4.3 プロジェクトの妥当性

以下の点から、我が国の無償資金協力により協力事業を実施することは妥当であると判断される。

① 本プロジェクトの直接受益者は南スンバワ地域住民の約 12 万人であり、間接受益者はスンバワ島の人口約 120 万人と多数である。

② 対象道路は一旦開通されたものの、永久橋が建設されなかったため現在は通行できない状態であるが、比較的大規模で建設が困難な橋梁が我が国の協力により建設され、比較的小規模な橋梁および道路部分が「イ」国側により建設されることにより、スンバワ島の南リング道路が通年通行可能とすることができる。

③ 本プロジェクト実施により、交通条件が改善されるのみならず、道路沿線住民の生活条件の向上、地域経済の発展、入植政策への支援等、多大な効果が期待できる。

④ 橋梁完成後の維持管理は現地側により確実に実施することができる。

⑤ 国家開発計画の目標である、社会経済基盤が整備されていないため開発が遅れている地域への社会経済基盤を整備することによる社会経済的格差是正に合致するものである。

⑥ スンバワ島のリング道路が形成されることになるため、土砂崩れ等の災害時に迂回路が確保される。

⑦ 本プロジェクト実施による環境社会面の負の影響がほとんどない。

4.4 結論

本プロジェクトは、前述のような多大な効果が期待されると同時に、広く住民の生活改善に寄与するものであるため、協力対象事業に対して、我が国の無償資金協力を実施することの妥当性が確認された。また、本プロジェクトの運営・維持管理についても、「イ」国の体制は、人員・資金ともに十分であり問題ないと考えられる。

資　料

1. 調査団員氏名・所属
2. 調査行程
3. 関係者（面会者）リスト
4. 討議議事録（M/D）
5. テクニカルノート
6. 迂回路計画
7. 参考資料

1. 調査団員・氏名

担　当	氏　名	所　属
総　括	松永　啓	JICA インドネシア事務所
業務主任／橋梁設計／環境社会配慮	大下副武	(株)片平ｴﾝｼﾞﾆｱﾘﾝｸﾞ・ｲﾝﾀｰﾅｼｮﾅﾙ
施工計画／積算	山宿　壮	(株)片平ｴﾝｼﾞﾆｱﾘﾝｸﾞ・ｲﾝﾀｰﾅｼｮﾅﾙ

2. 調査行程

1	13-Nov-Sun	From Tokyo (11:20 JL725) to Jakarta
2	14-Nov-Mon	Meeting with DGH, JICA, EOJ
3	15-Nov-Tue	From Jakarta to Mataram, Meeting with NTB
4	16-Nov-Wed	Meeting with BLHP, From Mataram to Sumbawa Besar
5	17-Nov-Thu	Site survey
6	18-Nov-Fri	Meeting with Sumbawa Regency and Sumbawa Barat Regency
7	19-Nov-Sat	Site survey
8	20-Nov-Sun	From Maluk to Mataram
9	21-Nov-Mon	Meeting with NTB Provincial Government
10	22-Nov-Tue	From Mataram to Jakarta
11	23-Nov-Wed	Meeting with DGH
12	24-Nov-Thu	Report ot EOJ & JICA , From Jakarta (22:05 JL726) to Tokyo
13	25-Nov-Fri	Arrive at Tokyo

Note: JICA: Japan International Cooperation Agency, EOJ: Embassy of Japan, DGH: Directorate General of Highways, BLHP: Environmental Agency

3. 関係者（面会者）リスト

Directorate General of Highways, Ministry of Public Works（公共事業道路省道路総局）	
Mr. Harris H. Batubara	Director of Planning
Mr. Slamet Muljono	Head of Sub-Directorate of Policy and Strategy
Mr. Iwan Zarkasih	Head of Sub-Directorate of Bridge Engineering
Mr. Herry Vaza	Head of Sub-Directorate of Environmental Affairs & Road Safety
Mr. Dedy Gunawan	Sub-Directorate of Policy and Strategy
Mr. Fajar Eko Antono	Sub-Directorate of Policy and Strategy
Mr. Arie Arnady	Sub-Directorate Region II C
Ms. Mardiarini	Sub-Directorate of Environmental Affairs & Road Safety
Mr. Yuji Ikeda	JICA Expert on Road Policy
Provincial Government of Nusa Tonggara Barat（西ヌサトゥンガラ州政府）	
Mr. H. Azhar	Head of Road and Bridge Division, Directorate of Public Works
Local Government of Sumbawa Regency（スンバワ県）	
Mr. Saad Abdullah	Head of Public Works
Local Government of Sumbawa Barat Regency（西スンバワ県）	
Mr. Syafruddin	Head of Bridge
BLHP（NTB 州環境管理事務所）	
Mr. Tadjuddin Erfandy	Head of EIA Office, NTB Province
Embassy of Japan（在インドネシア日本国大使館）	
Ms. Chikako Sado	Second Secretary, Economic Section
JICA Indonesia Office（JICA インドネシア事務所）	
Mr. Akira Matsunaga	Senior Representative
Ms. Kanae Mayuzumi	Representative

4. 討議議事録

MINUTES OF DISCUSSIONS
ON
THE PREPARATORY SURVEY
ON
THE PROJECT FOR CONSTRUCTION OF BRIDGES IN THE PROVINCE OF NUSA TENGGARA BARAT (PHASE-3)
IN INDONESIA

The Government of Indonesia (GOI) has listed "Construction of Bridge for Regional Development" for grant aid project in the Blue Book 2004-2009. For implementation of the Project, 8 bridges were constructed under the Project for Construction of Bridges in the Province of Nusa Tenggara Barat from 2007 to 2009 (Phase-1) with grant aid of the Government of Japan.

Subsequently, the Basic Design Study on the Project for Construction of Bridges in the Province of Nusa Tenggara Barat (Phase-2) was conducted in 2008 and the construction of 4 bridges was recommended as Phase-2 and the construction of 11 bridges was recommended as Phase-3. The Phase 2 was implemented from 2010 to 2011.

Based on the above conditions, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), in consultation with the Government of Japan, decided to conduct a Preparatory Survey (hereinafter referred as to "the Survey") on the Project for Construction of Bridges in the Province of Nusa Tenggara Barat (Phase-3) (hereinafter referred to as "the Project").

JICA sent to Indonesia the Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Mr. Akira MATSUNAGA, Senior Representative, JICA Indonesia Office, and is scheduled to stay in the country from 13th to 24th November, 2011.

The Team held discussions with the related officials of the Government of Indonesia and conducted a field survey at the study area.

In the course of discussions and field survey, both sides have confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey Report.

Jakarta, 29 November, 2011.

Mr. Akira MATSUNAGA
Leader
Preparatory Survey Team
Japan International Cooperation Agency

Ir. Djoko Murjanto, M.Sc.
Director General of Highways
Ministry of Public Works
Republic of Indonesia

ATTACHMENT

1. Objective of the Project

The objective of the Project is to construct bridges from the end point of the Phase-2 (Tatar: approximately 17 kilometer east of the end point of the Phase-1 (Tongoloka River)) to Lunyuk section in Sunbawa Island in the Province of Nusa Tenggara Barat (NTB).

2. Project site

The site of the Project is shown in Annex-1

3. Objective of the Survey

3-1. To review the Project cost estimation, prepared on the basis of the Basic Design Study for "the Project for Construction of Bridges in the Province of Nusa Tenggara Barat, Phase-2" conducted in 2008 (hereinafter referred to as "the B/D Study"), with consideration of current socio-economic situation of Indonesia.

3-2. To review the implementation schedule and the design specification of the B/D Study, with consideration of current situation of the Project site.

3-3. To review the issues of environmental and social considerations through the site survey.

4. Components of the Project

Both Indonesian side and Japanese side agreed and accepted in principle the contents of the B/D Study explained by the Team. However both sides confirmed BR-29 (Liang Bagik) was already constructed by the Indonesian side. As the result of the Survey, both sides agreed and accepted BR-29 should be eliminated from the Project, and 10 bridges described in Annex-2 are covered by the Project.

5. Responsible and Implementing Agency

5-1. The Responsible Agency for executing the Project is the Ministry of Public Works (MPW).

5-2. The Implementing Agency is the Directorate General of Highways (DGH).

5-3. The organization charts of MPW and DGH are shown in Annex-3-1 and 3-2.

6. Japan's Grant Aid Scheme

6-1. Indonesian side understood the Japan's Grant Aid scheme explained by the Team, as described in Annex-4.

6-2. Indonesian side shall take the necessary measures, as described in Annex-5, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

7. Schedule of the Study

7-1. JICA will prepare the draft report in English and explain to Indonesian side about its contents, especially key changes from the B/D Study by January 2012.

7-2. When the contents of the report are accepted in principle by the Government of Indonesia, JICA will complete the final report and send it to the Government of Indonesia by March 2012.

8. Environmental and Social Considerations

8-1. The Indonesian side agreed to deal appropriately with matters of Environment and Social Considerations based on the B/D Study, continuously, in accordance with the JICA Guidelines for Environmental and Social Considerations (April 2004, hereinafter called 'JICA Guidelines).

8-2. Both Indonesian side and Japanese side confirmed the environmental management plan (Upaya Pengelolaan Lingkungan Hidup, UKL) and environmental monitoring plan (Upaya Pemantauan Lingkungan Hidup, UPL) of the Project submitted to Regional Environmental Agency of NTB in 2008 are effective.

8-3. Monitoring for Environmental and Social considerations will be conducted by DGH (National Road Implementation Work Unit Region II, NTB Province) in accordance with the Monitoring Plan for the Project described in the Preparatory Study Report. The results of monitoring will be provided to JICA as before, during and after construction by filling in the Monitoring Form attached as Annex-6.

8-4. DGH agreed that JICA may disclose the monitoring results as shown in Annex-6 conducted by DGH (National Road Implementation Work Unit Region II, NTB Province). JICA explained that JICA will disclose further information, when third parties request, but it is subject to approval of DGH.

8-5. The environmental and social considerations including major impacts and mitigation measures for the Project are summarized in the Environmental Checklist attached as Annex-7.

8-6. Sumbawa Regency Government shall execute land acquisition at BR-32 (Petain III), BR-33 (Molong), BR-34 (Emang) and BR-35 (Kalbir) and temporary land rent for construction at BR-34 and BR-35 as confirmed and stated in the Minutes of Discussions in the Basic Design Study in 2008. MPW shall monitor the progress and procedure as the responsible ministry. Indonesian side shall complete the land acquisition and land rent before commencement of the construction works.

9. Other Relevant Issues

9-1. The Indonesian side shall responsible for the following work as confirmed and stated in the Minutes of Discussions in the Basic Design Study in 2008. The work is scheduled to be completed before the end of 2013.

(1) Construction of 6 small bridges: BR-10 (Labihe I), BR-11 (Labihe II), BR-12 (Labihe III), BR-14 (Telonang II), BR-21 (Bon Jati)

(2) Improvement of the Project road section from KM15 to KM35 (about 20 km) which

includes the following work:

-Pavement on very steep road sections with a total length of about 3 km

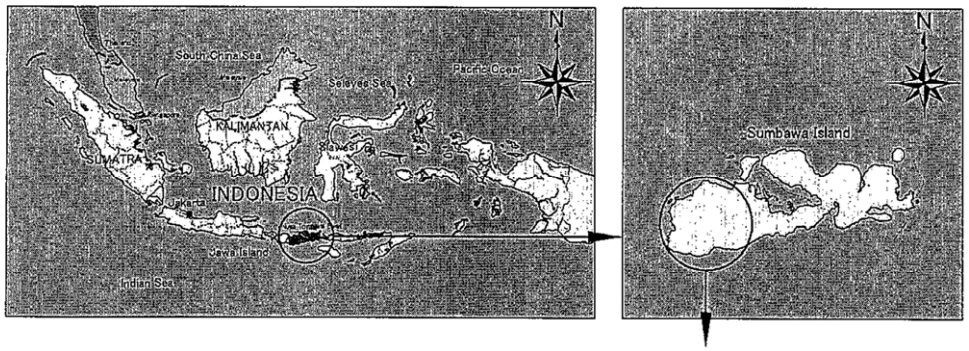
-Repair/maintenance of muddy road sections

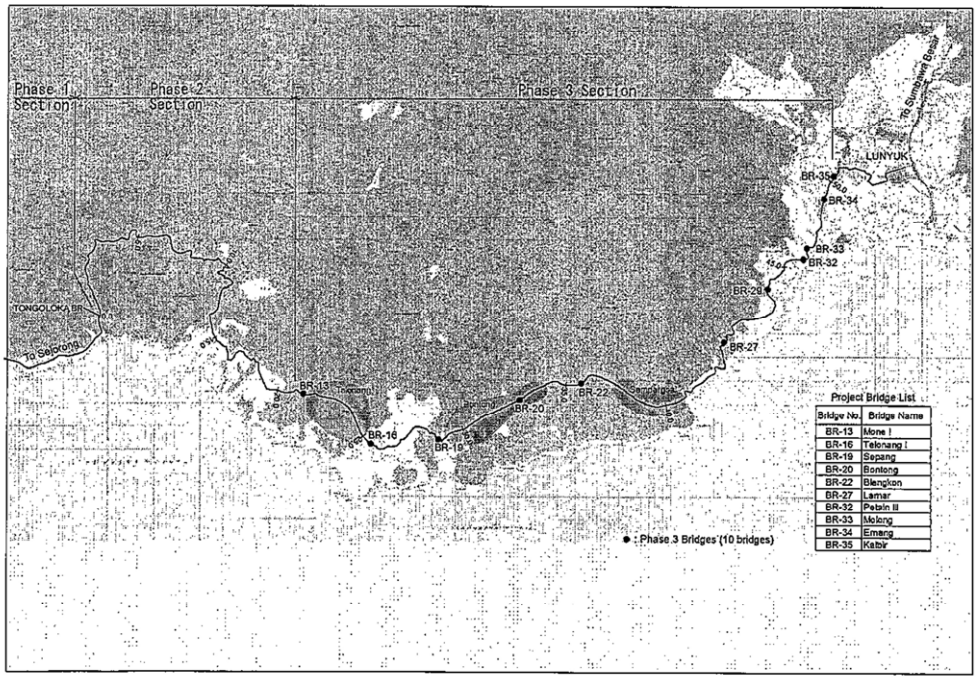
9-2. Indonesian side shall secure enough budget and personnel necessary for maintenance of the bridges constructed by the Project.

(end)

Annex-1

The Project Site





Annex-2

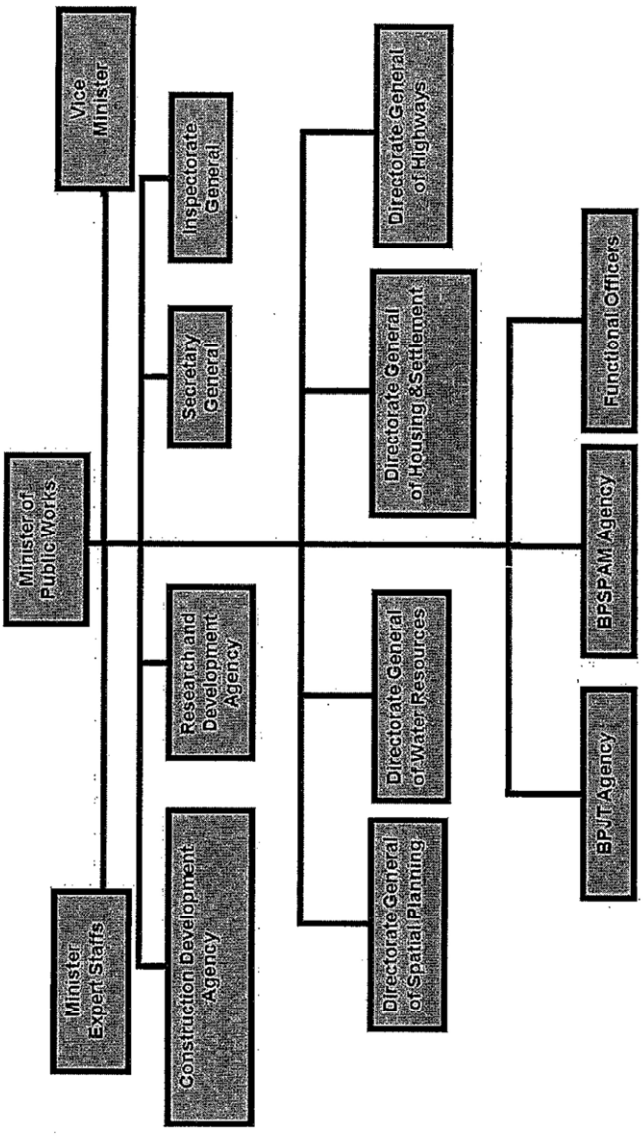
Covered Bridges for the Project

No	Bridge No.	Bridge Name	Bridge Length (m)	No. of Span	Carriageway Width (m)	Superstructure Type	Foundation Type	Approach Road Length (m)
1	BR-13	Mone I	20.0	1	4.5	RC Girder	Spread Footing	109.5
2	BR-16	Telonang I	50.0	2	4.5	Plate Girder	Steel Tubular Pile	119.5
3	BR-19	Sepang	40.0	1	4.5	Plate Girder	Steel Tubular Pile	148.0
4	BR-20	Bontong	20.0	1	4.5	RC Girder	Spread Footing	130.0
5	BR-22	Blengkon	20.0	1	4.5	RC Girder	Spread Footing	120.0
6	BR-27	Lamar	55.0	2	6.0	Plate Girder	Steel Tubular Pile + Shallow Caisson	149.7
7	BR-32	Petain III	20.0	1	6.0	RC Girder	Spread Footing	108.9
8	BR-33	Molong	20.0	1	6.0	RC Girder	Spread Footing	140.0
9	BR-34	Emang	45.0	2	6.0	Plate Girder	Steel Tubular Pile	97.8
10	BR-35	Kalbir	25.0	1	6.0	Plate Girder	Steel Tubular Pile	97.3
Subtotal			315.0	14	—	—	—	1220.7

Note: BR-13, 16, 19, 20 and 22 are proposed with 4.5m wide carriageway since they are located in the mountainous section. However, their foundations are corresponding to 6.0 m wide carriageway for the future widening.

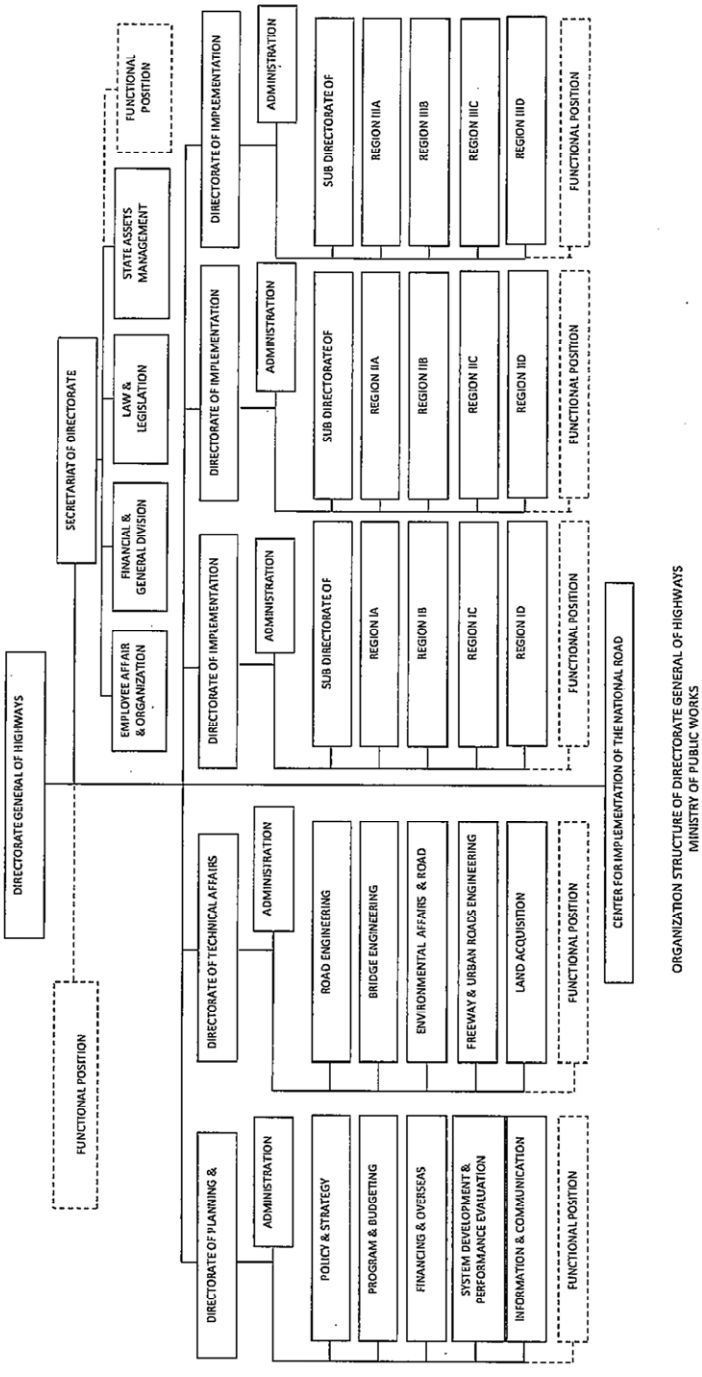
Annex-3-1

Organization Chart of Ministry of Public Works



Annex-3-2

Organization Chart of Directorate General of Highways



ORGANIZATION STRUCTURE OF DIRECTORATE GENERAL OF HIGHWAYS
MINISTRY OF PUBLIC WORKS

JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures :

・Preparatory Survey
- The Survey conducted by JICA

・Appraisal &Approval
-Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet

・Authority for Determining Implementation
-The Notes exchanged between the GOJ and a recipient country

・Grant Agreement (hereinafter referred to as "the G/A")
-Agreement concluded between JICA and a recipient country

・Implementation
-Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a

technical, financial, social and economic point of view.

- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of a outline design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Outline Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as "the E/N") will be singed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant Aid, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

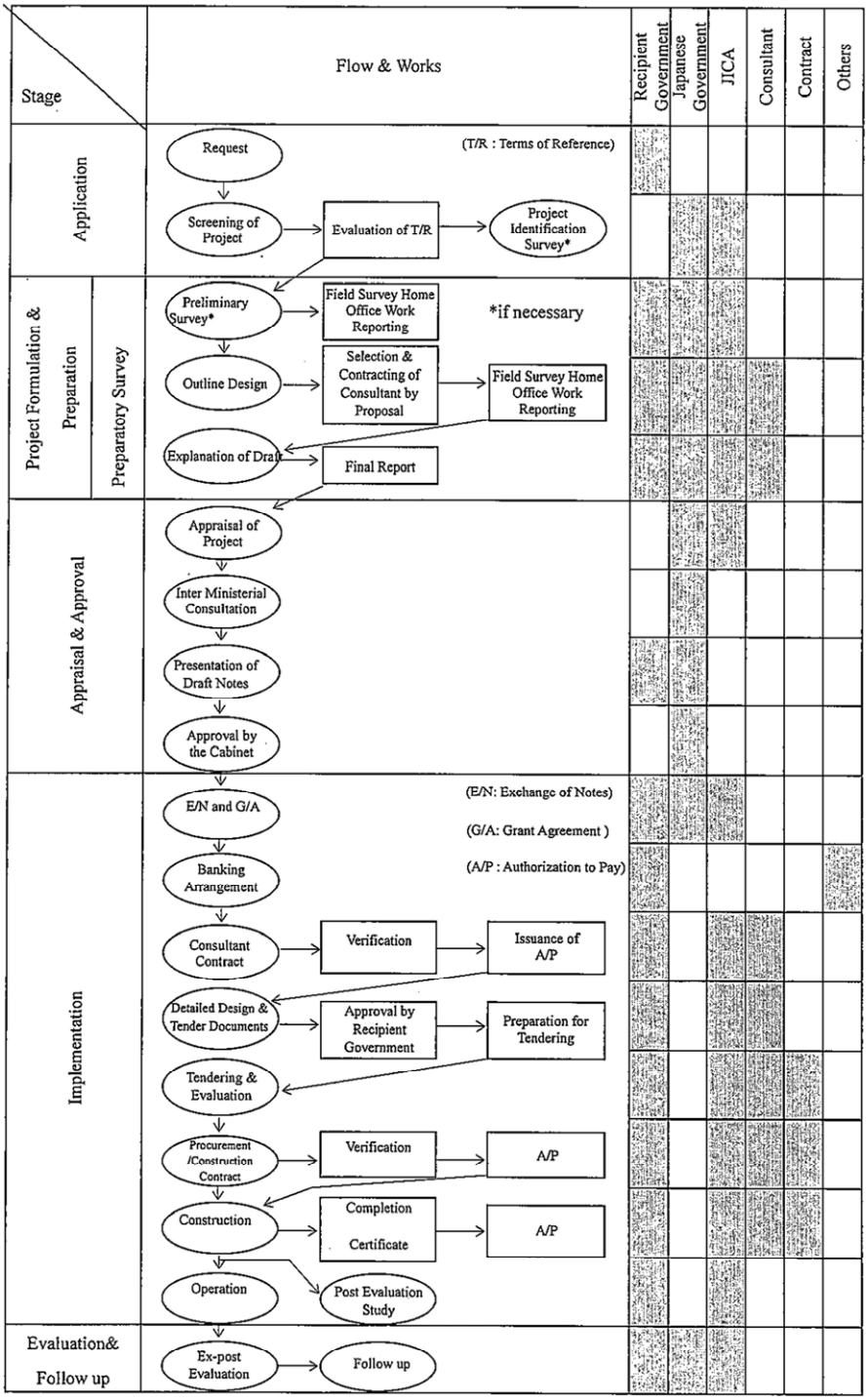
The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment

commissions paid to the Bank.

(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

FLOW CHART OF JAPAN's GRANT AID PROCEDURES



Annex-5

Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure lots of land necessary for the implementation of the Project and to clear the sites;		●
2	To ensure prompt customs clearance of the products and to assist internal transportation of the products in the recipient country		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
3	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		●
4	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
5	To ensure that the Facilities be maintained and used properly and effectively for the implementation of the Project		●
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
7	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
8	To give due environmental and social consideration in the implementation of the Project.		●

(B/A : Banking Arrangement, A/P : Authorization to pay)

MONITORING FORM

During the construction of the Project bridges, the following environmental items which are described in UKL and UPL will be monitored by Directorate General of Highways (National Road Implementation Work Unit Region II, NTB Province) and the Consultant jointly and reported to BLHP in NTB and JICA Indonesia Office every 6 month.

Monitoring Item	Monitoring Method	Monitoring Result
1. Land acquisiton The forest land owned by regency can be used for the project with coordination with forestry agency. However, private land should be compensated based on the deliberated rate in accordance with laws and regulations.	To check Agreement between forestry agency and NTB Provincial Government. To check agreed amount and paid amount for compesnsation for land acqusition by interviewing to the land owners.	Agreement: Agreed rate: Paid rate: Evaluation:
2. Employment opportunity creation Local manpower should be maximum utilized based on their skills. Wage should referred to regency minimum wage. Training is given to laborers to improve their skills.	To survey the number of local people who are employed in the bridge construction and their wage rate.	No. of local employee: Wage: Minimum wage: Evaluation:
3. Air and noise pollution mitigation To water routinely on the dusty roads, install dust-collector of plant if necessary, secure distance of base camp from residential area, regulate vehicle speed slower than 40 km/hr and ban overtime work. To clear and vegetate the area where camps were.	To survey air and noise pollution level by field observation and by interview to surrounding local people who complain on deterioration of ambient air quality and increase of the noise level by field observation with surrounding local people.	Visual observation Ambient air quality: Noise level: Local people's complain on air poluttion: on noise: Evaluation:
4. Riverwater pollution prevention To treat polluted water properly, discharge muddy water after clearing, install septic tanks for every camps and treat rubbish properly and~~but~~ not to dump directly to river.	To survey riverwater quality by observation of sampled water visually. To investigate treatment system of polluted water arisen from the Project. To interview to local people who reside downstream of bridge site on riverwater pollution.	Visual observation of sample water: Riverwater polution mitigation/treatment measures: Local people's complain:
5. Soil pollution prevention To store fuel and oil in a storage, collect waste oil then send to oil treatment plant, collect spilled oil immediately before it discharges to the river by rainwater and treat toxic and hazardous substances in accordance with law and regulation.	To investigate on waste oil and toxic and hazardous substance treatment methods whether they are treated properly or not.	Evaluation:
6. Traffic control and safety To install flag man for transporting heavy equipments, hold safety campaign for students, install warning signs and traffic safety signs and regulate max driving speed to be 40 km/hr.	To survey on traffic disturbance and traffic accidents occurred by hearing at around the sites.	Occurence of Traffic distrubance: Traffic accident: Evaluation:

7. Accident prevention To require~~let~~ workers to wear safety devices (helmet, musk, earplug, safety shoe, goggle, etc.)	To investigate construction sites whether workers wear safety devices or not. To investigate occurrence of accidents.	Accident occurred: Safety devices weared: Evaluation:
8. Health control To manitain camp sanitary and prevent malaria and hemorrahagic fever by covering breding spots and fill water ponds.	To investigate sanitary condition of camps. To survey occurrence of prevalent disease in camps and local villages by interview to contractor and health center.	Evaluation of sanitary conditin of camps: Prevalent disease occurred in camps and loca villages: Evaluation:
9. Road damage To limit the size and weight of heavy equipments which are to be used on the road and repair the road immediately when damaged.	To investigate road damage by the project and complain form the local people by field observation and interview to representative of local villages.	Road damages caused by the project related vehicles: Evaluation:
10.Disruption of utility To relocate power poles, coordinate with regency government and Sumbawa Electric Enterprise (PLN).	To investigate if there is disruption of utilities (power supply) by interview to representative of local villages.	Utility disruption occurred: Evaluation:
11 Gravel quarrying To ban quarring river gravel within 500m from any bridge. The quarrying company should have environmental licence.	To observe whether gravel quarrying is executed within 500m from bridges ~~executed~~ or not. To check whether quarrying company has environemtal licence.	Quarrying location: Licenced or not:
12.Preservation of forest To ban fire, cut trees, hunting animals in the forest, and install sign boards of these information.	To investigate whether fire, cut trees, hunting animal in the forest executed by the project related peopole or not by interview.	Fire: Cut trees: Hunting animals:
13. Post construction environmental management To ban construciton buildings close to bridges and control traffic operation.	To investigate whether the surrounding of the bridges sites were restored properly and traffic control is properly operated or not by observation.	Restoration: Traffic control:

Monitored by:

Head of National Road Implementation Work Unit
Region II, NTB Province
Directorate General of Highways

Regident Engineer
Consultant

Environmental Checklist: 15. Roads and Railways (1)

Annex-7

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
1 Permits and Explanation	(1) EIA and Environmental Permits	① Have EIA reports been officially completed? ② Have EIA reports been approved by authorities of the host country's government? ③ Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? ④ In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	① The UKL and UPL reports instead of EIA have been officially completed. ②③ The authority BLHP in NTB has approved UKL and UPL on 11 November 2008. It was confirmed by BLHP that this UKL and UPL is valid for Phase 3 of the Project (Phase 3 bridge are covered by Phase 2 UKL and UPL). ④ No other environmental permit is required.
	(2) Explanation to the Public	① Are contents of the project and the potential impacts adequately explained to the public based on appropriate procedures, including information disclosure? Is understanding obtained from the public? ② Are proper responses made to comments from the public and regulatory authorities?	① The local public consultation meetings were conducted at the basic design study stage in October 2008 and the consent of local people has obtained as attached in the basic design study report. ② No comments was made by public. Everybody welcomes the project. BLHP discloses information and accepts query from local people at any time.
2 Mitigation Measures	(1) Air Quality	① Is there a possibility that air pollutants emitted from various sources, such as vehicle traffic will affect ambient air quality? Does ambient air quality comply with the country's ambient air quality standards? ② Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?	① There is no possibility that sifnificant pollutants emitted from various sources. Because emittance is limited due to the traffic volume is very small and the site is very rural island. ② There are no industrial areas near the route.
	(2) Water Quality	① Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas? ② Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater? ③ Do effluents from various facilities, such as stations and parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas that do not comply with the country's ambient water quality standards?	① Filled and cutting soil will be protected by grouted riprap and turfing, so there is no possibility of soil runoff and water quality degradation in downstream water area. ② The surface runoff water from roads and bridges is designed to be drained to river which will not contaminate water sources. ③ There is no facility near the project bridges.
	(3) Noise and Vibration	① Do noise and vibrations from vehicle comply with the country's standards?	① During construction period, generation of noise and vibration can be minimized by the followings: using low noise heavy machineries and construction vehicles, construction with noise and vibration equipment undertaken from 08:00 am to 04:00 pm, making public announcement of construction plan prior to construction and obliges the field workers to wear the standard safety devices (ear plug, etc.). During operation period, noise and vibration caused by vehicle is negligible since there is no residence close to the bridges and roads. The project site is very rural area.

Environmental Checklist: 15. Roads and Railways (2)

Annex-7

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
3 Natural Environment	(1) Protected Areas	① Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	① There are no protected areas in and around the site. The forest is categorized as production forest and other use, and it allows development with coordination with forestry agency.
	(2) Ecosystem	① Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? ② Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? ③ If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? ④ Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? ⑤ Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered? ⑥ In cases where the project site is located at undeveloped areas, is there a possibility that the new development will result in extensive loss of natural environments?	① The forest along the route is not protected forest. There are no ecological valuable habitats in and around the site. ② The protected habitats of endangered species designated by the country's laws or international treaties and conventions have not been identified in the site. ③ No significant ecological impact is anticipated. ④ Since the road is existing gravel road and vehicle speed is very slow, no disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock is anticipated. ⑤ Since the project is installing bridges and re-graveling of existing roads, it will not cause destruction of forest and wetland and disturbance of ecosystems and introduction of exotic species. ⑥ No significant development which will result in extensive loss of natural environment is anticipated.
	(3) Hydrology	① Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows?	①Installation of bridges will not cause any significant adverse affect on surface water and groundwater flows.
	(4) Topography and Geology	① Is there a soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? ② Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides? ③ Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?	① There is not soft ground which may cause slope failure or landslide on the route. ② ③ There is no possibility of slope failure, landslide or soil runoff since the cutting and filling slopes are protected with riprap or turfing.

Environmental Checklist: 15. Roads and Railways (3)

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(1) Resettlement	① Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? ② Is adequate explanation on relocation and compensation given to affected persons prior to resettlement? ③ Is the resettlement plan, including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? ④ Does the resettlement plan pay particular attention to vulnerable groups or persons, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous people? ⑤ Are agreements with the affected persons obtained prior to resettlement? ⑥ Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? ⑦ Is a plan developed to monitor the impacts of resettlement?	① There is no involuntary resettlement. Land acquisition only necessary. ②③④ Adequate socialization on land acquisition and reasonable compensation will be given to the land owners prior to the land acquisition by Sumbawa Regency Government in accordance with Indonesian regulations and laws and JICA Guidelines for Environmental and Social Consideration. ⑤ Agreement between the land owners Sumbawa Regency Government will be made prior to the land acquisition. Consent on the land acquisition from the landowners has already obtained through the local stakeholder meetings. ⑥ There is no resettlement required. ⑦ No impact is anticipated by the land acquisition.
	(2) Living and Livelihood	① Where roads or railways are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts? ② Is there a possibility that the project will adversely affect the living conditions of inhabitants other than the affected inhabitants? Are adequate measures considered to reduce the impacts, if necessary? ③ Is there a possibility that diseases, including communicable diseases, such as HIV will be introduced due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary? ④ Is there a possibility that the project will adversely affect road traffic in the surrounding areas (e.g., by causing increases in traffic congestion and traffic accidents)? ⑤ Is there a possibility that roads and railways will impede the movement of inhabitants? ⑥ Is there a possibility that structures associated with roads (such as bridges) will cause a sun shading and radio interference?	①②④⑤ No adverse impact on transportation, livelihood and socioeconomic conditions in the area is anticipated by the project since the project is improvement of existing road and replacement of broken temporary bridges. ③ No significant possibility of communicable disease is anticipated. HIV awareness-rising through education and workshop for workers will be taken in the project. ⑥ The project bridges will not cause sun shading and radio interference.
	(3) Heritage	① Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage sites? Are adequate measures considered to protect these sites in accordance with the country's laws?	① There are no archeological, historical cultural and religious heritage near the site.
	(4) Landscape	① Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	① There is no possibility of adverse affect on local landscape by the construction of the bridges project.

Environmental Checklist: 15. Roads and Railways (4)

Annex-7

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(5) Ethnic Minorities and Indigenous People	① Where ethnic minorities and indigenous peoples are living in the rights-of-way, are considerations given to reduce the impacts on culture and lifestyle of ethnic minorities and indigenous people? ② Does the project comply with the country's laws for rights of ethnic minorities and indigenous people?	①② There is no ethnic minorities and indigenous people having unique culture and lifestyle near the site.
5 Others	(1) Impacts during Construction	① Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? ② If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? ③ If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts? ④ If necessary, is health and safety education (e.g., traffic safety, public health) provided for project personnel, including workers?	① Yes. Adequate measures such as periodical water spray and sheet cover on track will be employed to reduce dust. Provides the proper waste water treatment plant (septic tank), sediment pond to control the run off water, collects the wet and dry solid wastes on separated places in final dumping places and prohibits to dispose the garbage directly into the river. Work will be allowed only daytime. Equipment will be maintained in good condition by proper maintenance. ② No significant adverse affect on natural environment (ecosystem) is anticipated by the construction. The surrounding of the construction site will be restored as before. ③ No significant adverse affect on social environment by the construction activities is anticipated ④ The contractor will provided health and safety education for project personnel including workers.
	(2) Monitoring	① Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? ② Are the items, methods and frequencies included in the monitoring program judged to be appropriate? ③ Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? ④ Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	① Yes. The proponent Directorate General of Highways (National Road Implementation Work Unit Region II, NTB Province) developed monitoring program on environmental items that are considered to have potential impacts such as air, water, noise, soil. ② Yes. Items, methods and frequencies (every 6 months) in the monitoring program are judged to be appropriate. ③ Yes. DGH will implement the monitoring jointly with the consultant and the contractor of the project. ④ Yes. Monitoring format is proposed as attached. The DGH will monitor the environment items and report to authority BAPEDALDA and JICA monthly during the construction.

Environmental Checklist: 15. Roads and Railways (5)

Annex-7

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
6 Note	Reference to Checklist of Other Sectors	① Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation). ② Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).	–
	Note on Using Environmental Checklist	① If necessary, the impacts to trans boundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as trans boundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	–

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are made, if necessary.
In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan' experience).
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

5. テクニカルノート

THE PREPARATORY SURVEY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES IN THE PROVINCE OF NUSA TONGGARA BARAT, PHASE-3

TECHNICAL NOTES

The Public Works of Sumbawa Regency and JICA Survey Team discussed and confirmed the followings:

1. **Undertaking of Sumbawa Regency**
   The responsible undertakings of Sumbawa Regency Government for the Project are as follows as it was agreed in the basic design stage in 2008. These undertakings shall be executed before the start of the construction, in case the Project will be implemented.

   - Land acquisition of private lots which are necessary for the construction of Project Bridges
     Land acquisition is necessary at the following 4 bridge sites. The land acquisition areas necessary are the bridge and approach roads construction areas which are shown in the attached Site Plans.
     -BR-32 Petain III
     -BR-33 Molong
     -BR-34 Emang
     -BR-35 Kalbir

   - Land rent of private lots which are necessary to construct temporary detour during the construction for 2 years period
     Land rent is necessary at the following 2 bridge sites. The land rent areas necessary are the detour construction areas which are shown in the attached Detour Plans.
     -BR-34 Emang
     -BR-35 Kalbir

   - Relocation of public utilities, if necessary (nothing was identified as of now)
   - Removal of encroachments, if necessary (nothing was identified as of now)

2. **Land Acquisition Procedure**
   The Public Works of Sumbawa Regency shall execute the abovementioned land acquisition with proper procedure and appropriate price of compensation. The land acquisition shall be executed in accordance with the laws and regulations of Indonesia (as shown in the attached sheet). JICA and BLHP will monitor the land acquisition.

3. **Securing of Budget**
   The Public Works of Sumbawa Regency shall secure the budget for the above land acquisition and land rent. The approximate cost was estimated as follows:
   -Land acquisition of 4,200 sq. m.: Rp. 150 M
   -Land rent of 1,300 sq. m. for 2 years: Rp. 10 M

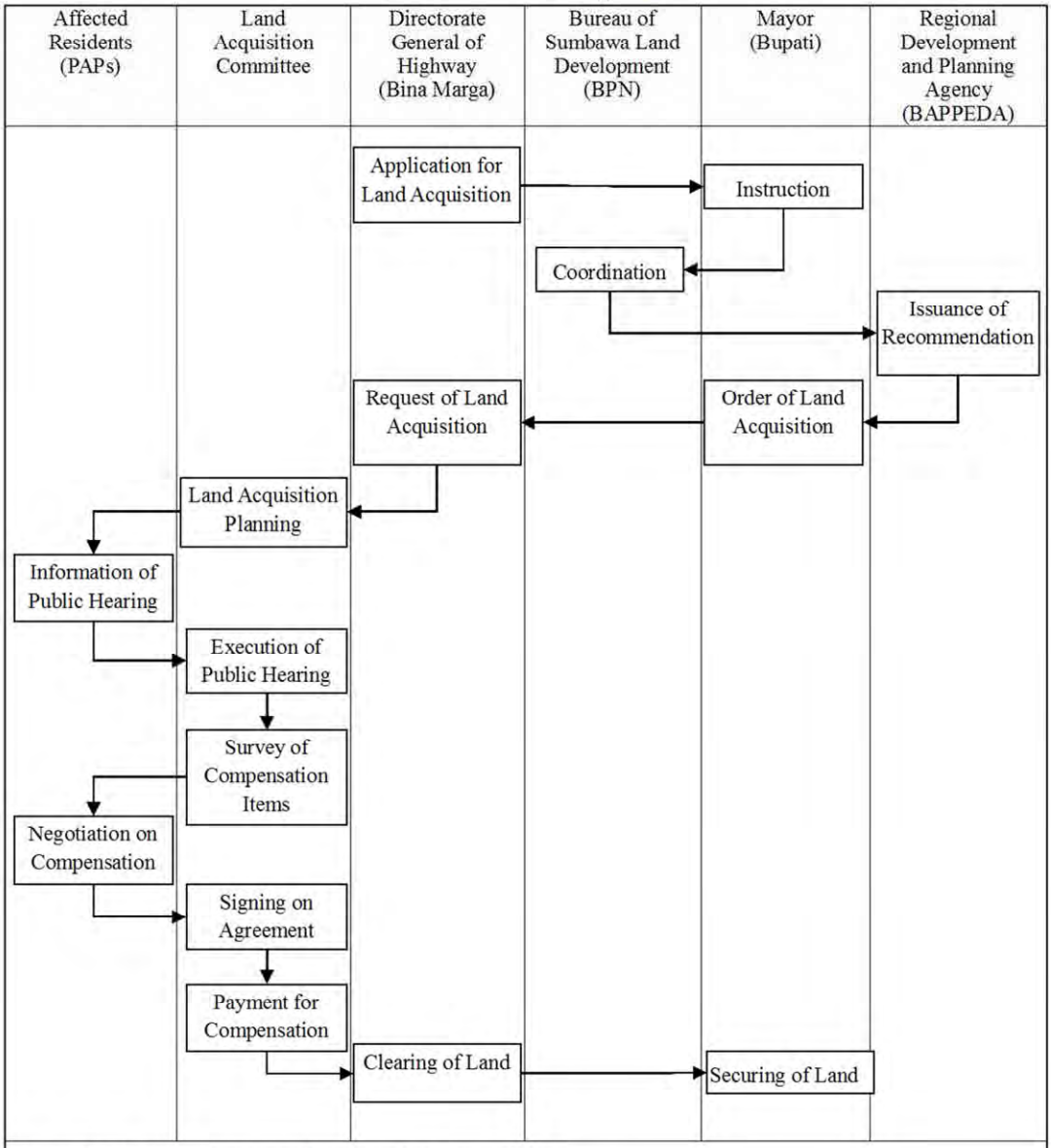
November 18, 2011

Confirmed by:

Ir. H. Saad Abdullah
Head of Public Works
Regency Government of Sumbawa

Soemu Oshita
Chief Consultant
JICA Survey Team

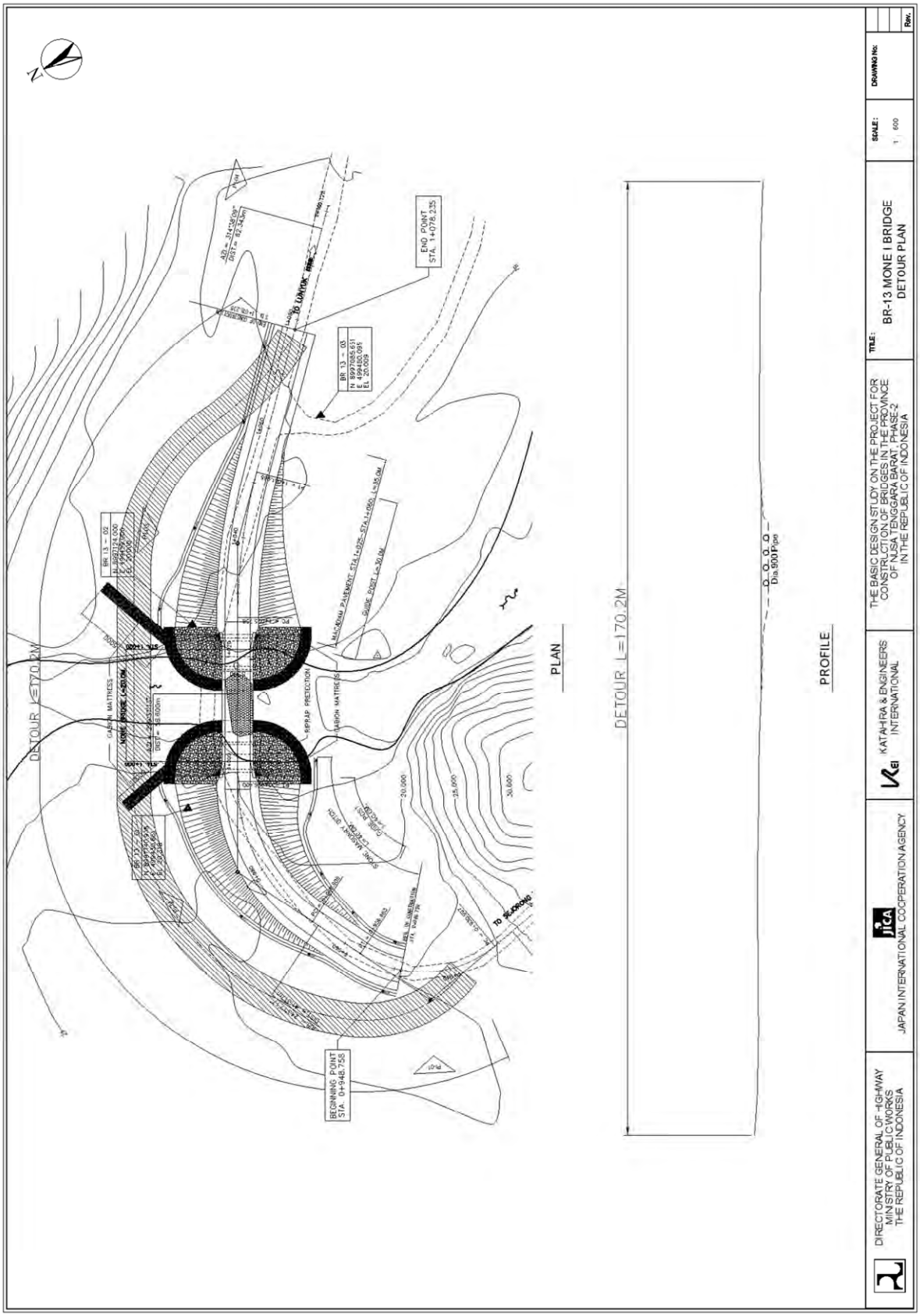
Procedure of Land Acquisition

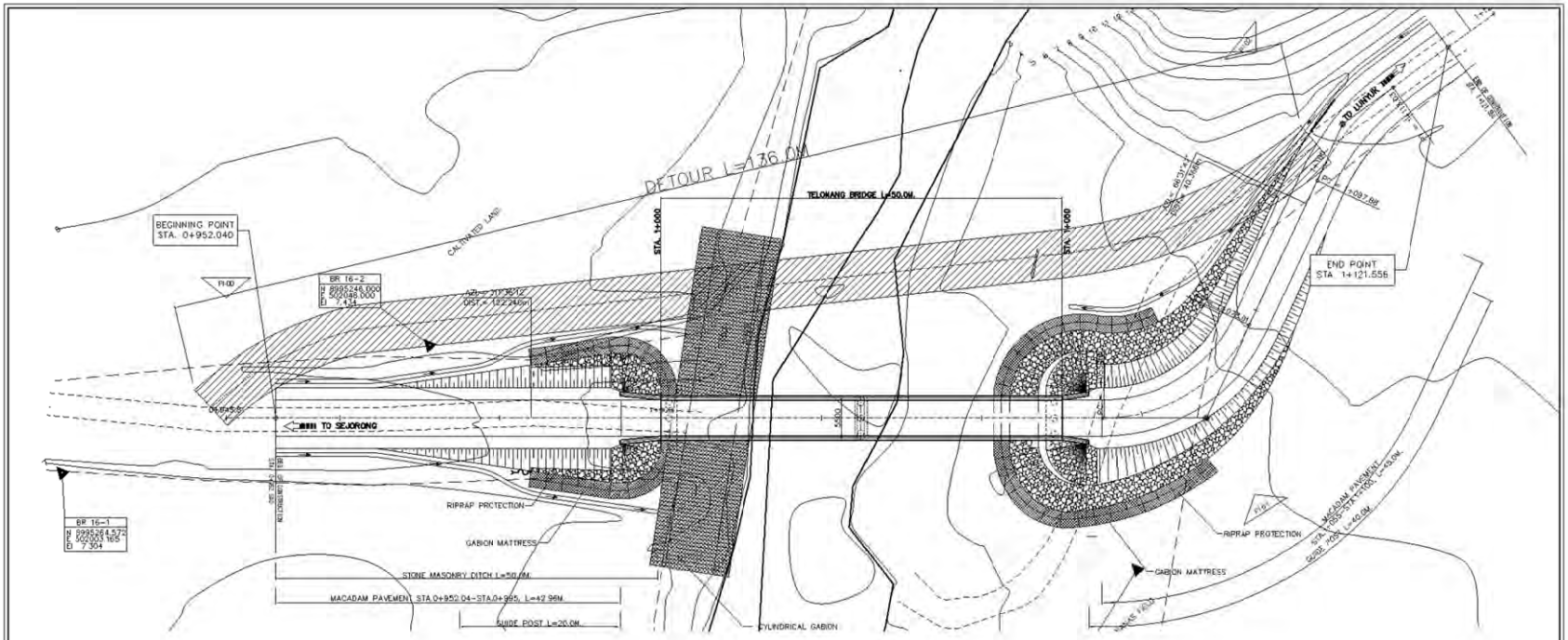


Note: Land acquisition committee members are as follows:

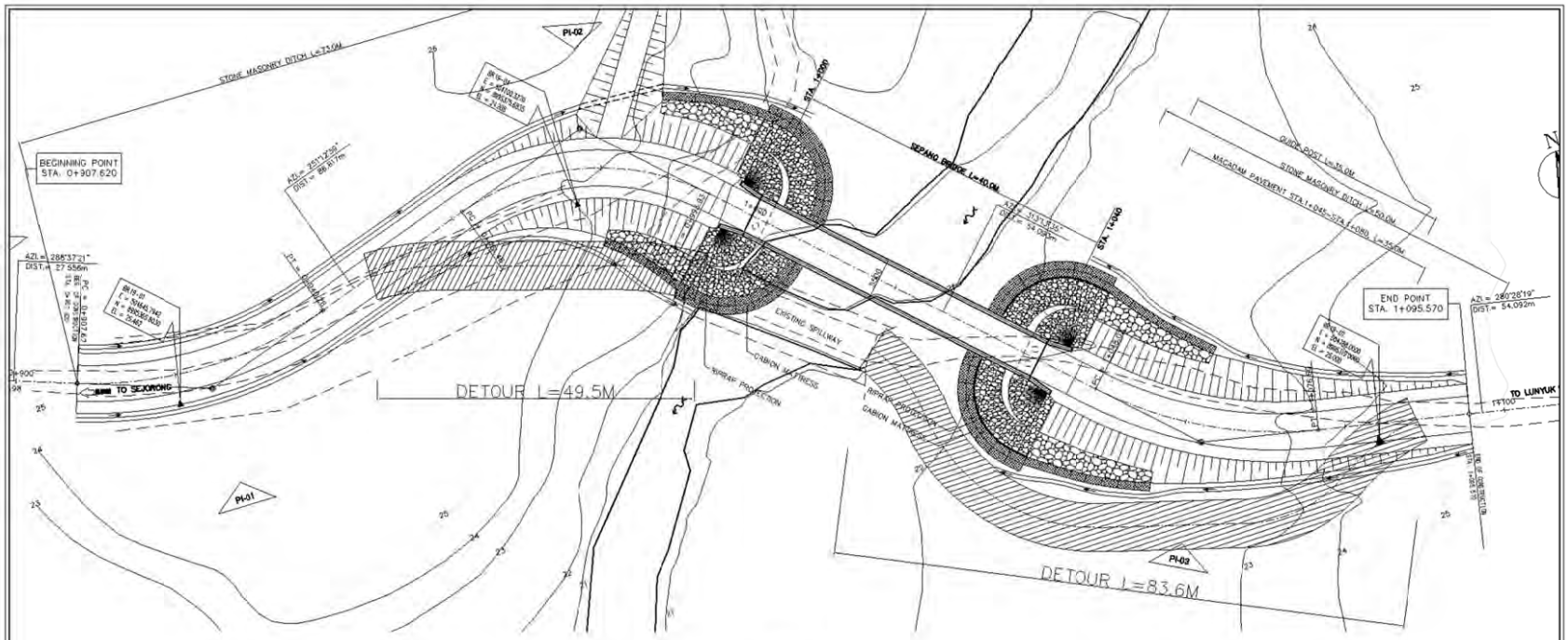
-Deputy Mayor of Regency (Chairman)
-Chief of Regency Land Development Section
-National Land Development Regional Branch
-Public Works Sumbawa Branch, Nusa Tenggara Barat Provincial Government
-Regency Agricultural Section
-Regency Tax office
-Village Captains

6. 迂回路計画

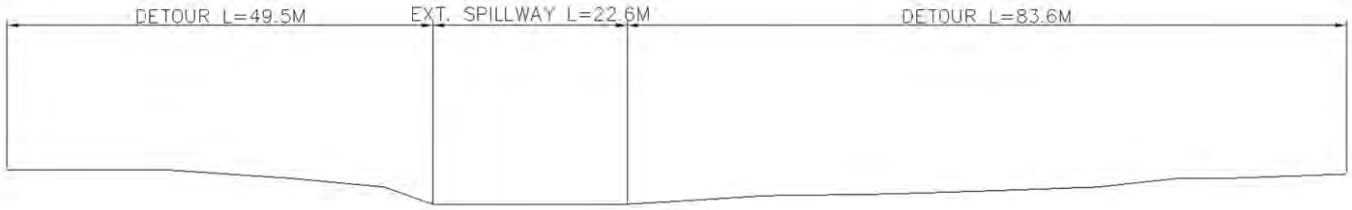

PLAN
PROFILE
DETOUR L=170.2M
DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
THE BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES IN THE PROVINCE OF NUSA TENGGARA BARAT, PHASE-2 IN THE REPUBLIC OF INDONESIA
TITLE:
BR-13 MONE I BRIDGE
DETOUR PLAN
SCALE:
1 : 600
DRAWING No:
Rev.



DIRECTORATE GENERAL OF HIGHWAY MINISTRY OF PUBLIC WORKS THE REPUBLIC OF INDONESIA	JAPAN INTERNATIONAL COOPERATION AGENCY	KATAHIRA & ENGINEERS INTERNATIONAL	THE BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES IN THE PROVINCE OF NUSA TENGGARA BARAT, PHASE-2 IN THE REPUBLIC OF INDONESIA	TITLE: BR-16 TELONANG I BRIDGE DETOUR PLAN	SCALE: 1 : 500	DRAWING No: Rev.

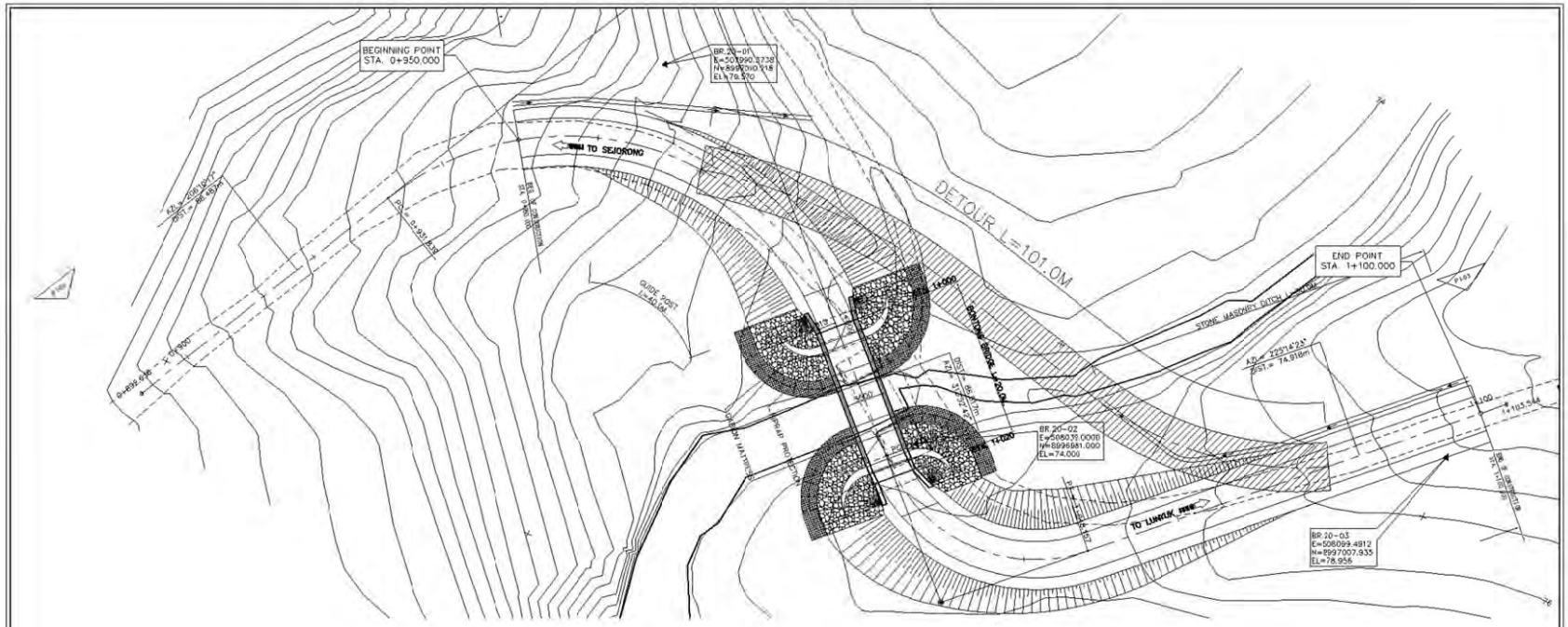


PLAN

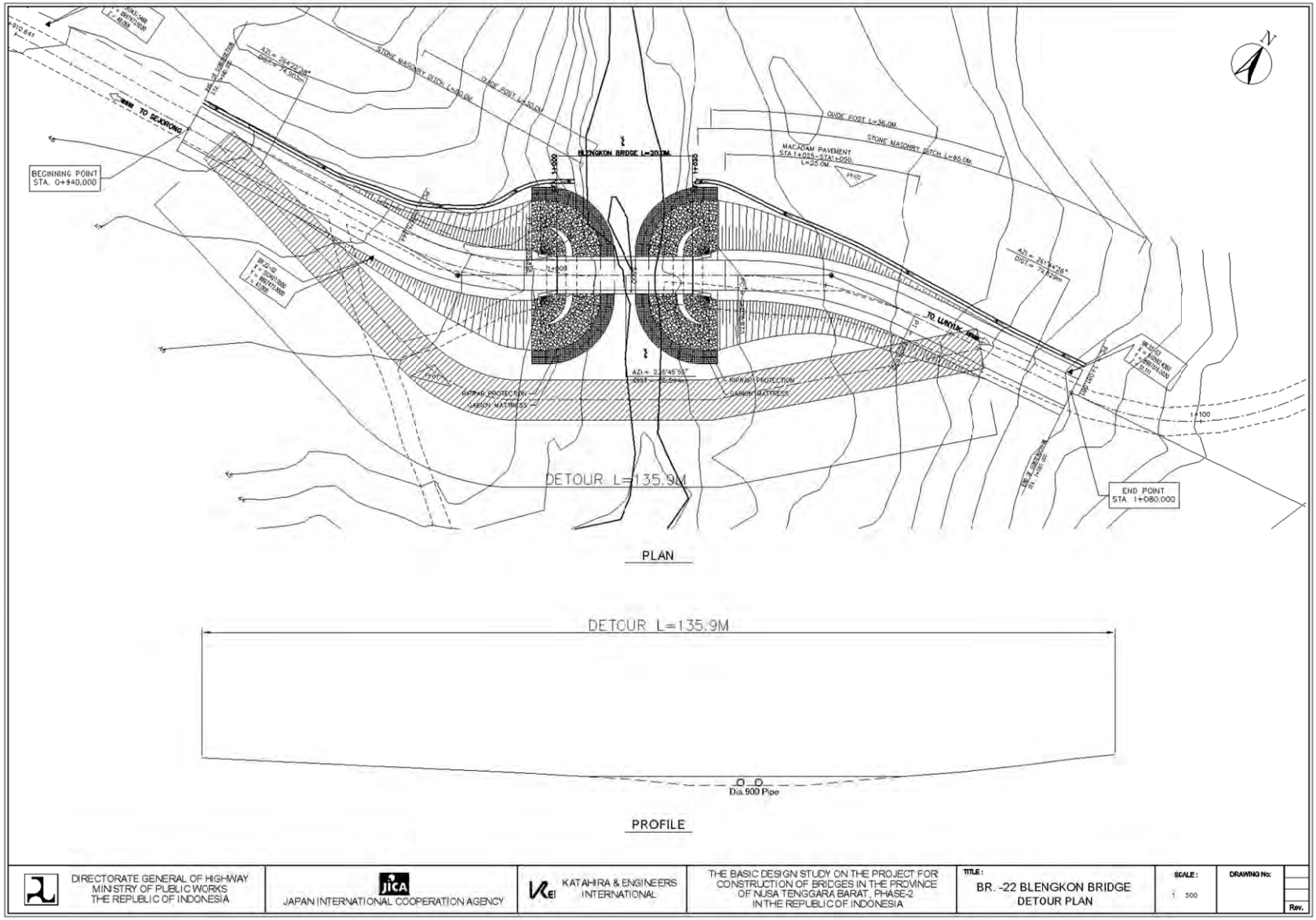


PROFILE

DIRECTORATE GENERAL OF HIGHWAY MINISTRY OF PUBLIC WORKS THE REPUBLIC OF INDONESIA	JICA JAPAN INTERNATIONAL COOPERATION AGENCY	KATAHIRA & ENGINEERS INTERNATIONAL	THE BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES IN THE PROVINCE OF NUSA TENGGARA BARAT, PHASE-2 IN THE REPUBLIC OF INDONESIA	TITLE: BR-19 SEPANG BRIDGE DETOUR PLAN	SCALE: 1 : 500	DRAWING No: Rev.



DIRECTORATE GENERAL OF HIGHWAY MINISTRY OF PUBLIC WORKS THE REPUBLIC OF INDONESIA	JAPAN INTERNATIONAL COOPERATION AGENCY	KATAHIRA & ENGINEERS INTERNATIONAL	THE BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES IN THE PROVINCE OF NUSA TENGGARA BARAT, PHASE-2 IN THE REPUBLIC OF INDONESIA	TITLE: BR-20 BONTONG BRIDGE DETOUR PLAN	SCALE: 1 : 500	DRAWING No: Rev.


BEGINNING POINT
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DETOUR L=135.9M
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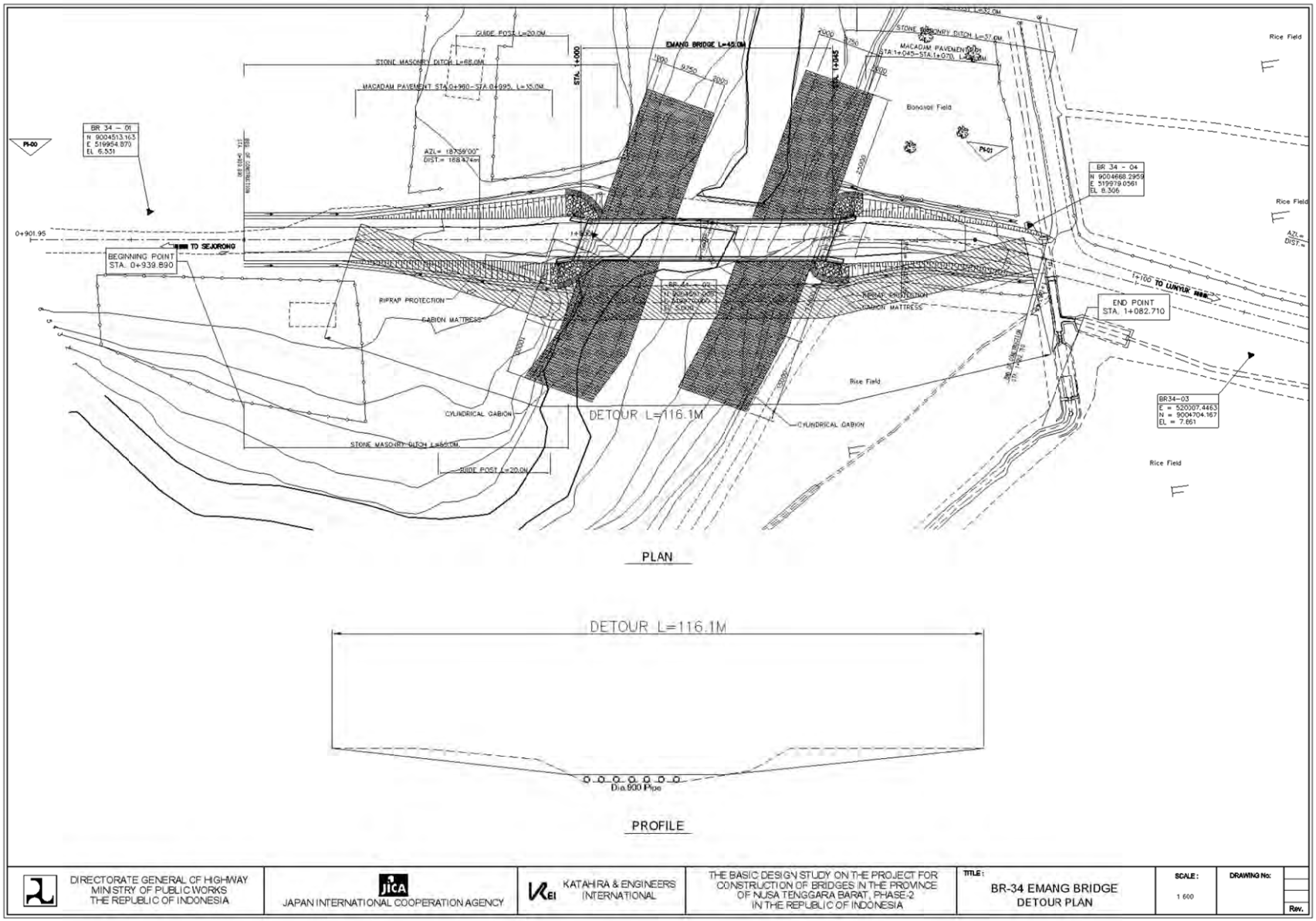
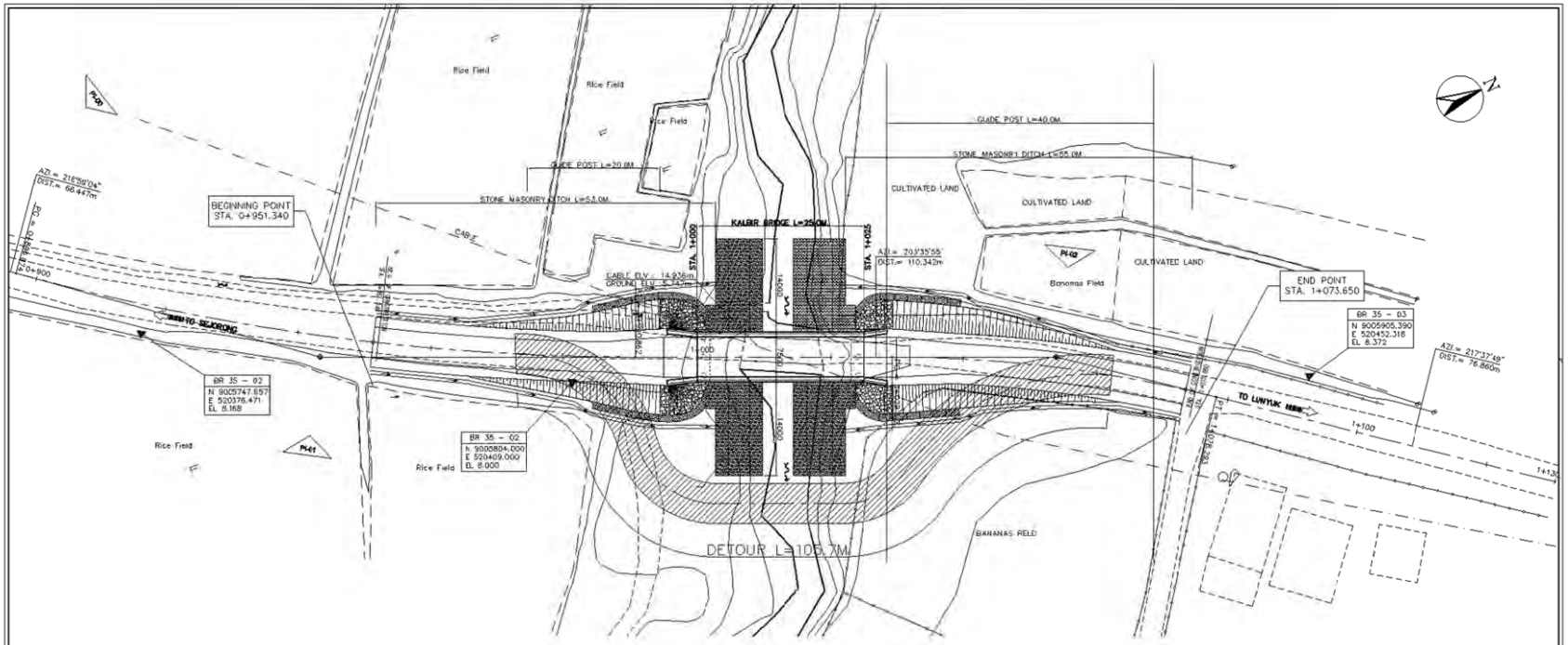
PROFILE
DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
THE BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES IN THE PROVINCE OF NUSA TENGGARA BARAT, PHASE-2 IN THE REPUBLIC OF INDONESIA
TITLE:
BR.-22 BLENGKON BRIDGE
DETOUR PLAN
SCALE:
1 500
DRAWING No:
Rev.



DIRECTORATE GENERAL OF HIGHWAY MINISTRY OF PUBLIC WORKS THE REPUBLIC OF INDONESIA	JAPAN INTERNATIONAL COOPERATION AGENCY	KATAHIRA & ENGINEERS INTERNATIONAL	THE BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES IN THE PROVINCE OF NUSA TENGGARA BARAT, PHASE-2 IN THE REPUBLIC OF INDONESIA	TITLE: BR-34 EMANG BRIDGE DETOUR PLAN	SCALE: 1:600 / DRAWING No: / Rev.



DIRECTORATE GENERAL OF HIGHWAY MINISTRY OF PUBLIC WORKS THE REPUBLIC OF INDONESIA	JAPAN INTERNATIONAL COOPERATION AGENCY	KATAHIRA & ENGINEERS INTERNATIONAL	THE BASIC DESIGN STUDY ON THE PROJECT FOR CONSTRUCTION OF BRIDGES IN THE PROVINCE OF NUSA TENGGARA BARAT, PHASE-2 IN THE REPUBLIC OF INDONESIA	TITLE: BR-35 KALBIR BRIDGE DETOUR PLAN	SCALE: 1:600	DRAWING No: Rev.

7. 参考資料

番号	名　称	形態	オリジナル・コピー	発行機関	発行年
1	Nusa Tenggara Barat Dalam Angka 2010	CD	ｺﾋﾟｰ	Badan Pusat Statistik, NTB	2010
2	Nusa Tenggara Barat Dalam Angka 2011	CD	ｺﾋﾟｰ	Badan Pusat Statistik, NTB	2011
3	Rencana Strategies 2010-2014	CD	ｺﾋﾟｰ	Direktorat Jenderal Bina Marga	2010
4	Statistik Indonesia	図書	ｺﾋﾟｰ	Bandan Pusat Statistik	2009