Appendices

1. Member List of the Survey Team
2. Survey Schedule
3. List of Party Concerned in Tanzania
4. Minutes of Discussion
5. Study Data

1. Member List of the Survey Team

Mr. Shoshiro HORIGOME	Team Leader	Development Specialist, JICA
Mr. Atsushi NAKAGAWA	Coordinator	Staff of Grant Aid Project Study Department, JICA
Mr. Akihiko HIROTANI	Chief Consultant / Road Planner	Executive Director, Oriental Consultants Co., Ltd.
Mr. Kenji NAGASAKI	Bridge Designer	Director, Construction Project Consultants Inc.
Mr. Masami FUKUDA	Natural Conditions Surveyor	Project Director, Oriental Consultants Co., Ltd.
Mr. Keigo KONNO	Construction Planner / Cost Estimator	Director, Oriental Consultants Co., Ltd.

2. Survey Schedule

No	Date	Day	Accommodation	Activities
1 ↓ 2	8/8 ↓ 8/9	Thu. ↓ Fri.	On plane Dar Es Salaam	Tokyo-Amsterdam JL411 (11:30-16:45) Amsterdam-Dar Es Salaam KL567 (23:40-11:30) +1 Join the officials at Dar Es Salaam (2 consultants: Hirotani, Fukuda) Meeting at JICA Office, Courtesy call at authorities concerned (Ministry of Works and Embassy of Japan)
3 ↓ 4	8/10 ↓ 8/11	Sat. ↓ Sun.	Mtwara	Site survey (2 officials: Horigome, Nakagawa +2 consultants: Hirotani, Fukuda)
5	8/12	Mon.	Dar Es Salaam	Meeting concerning the Inception Report (2 officials: Horigome, Nakagawa +2 consultants: Hirotani, Fukuda)
6 7	8/13 8/14	Tue. Wed.	Dar Es Salaam On plane Dar Es Salaam Amsterdam On plane	Signing of Minutes of Discussion, Courtesy call to Embassy of Japan (2 officials: Horigome, Nakagawa +2 consultants: Hirotani, Fukuda) Dar Es Salaam-Amsterdam KL569 (23:45-08:05) +1 (2 officials: Horigome, Nakagawa) Continue Investigation (2 consultants: Hirotani, Fukuda) (2 officials: Horigome, Nakagawa) Dar Es Salaam-London BA068 (19:45-05:15)+1 (1 consultant: Hirotani)
8	8/15	Thu.	On plane On plane	Amsterdam-Tokyo JL412 (14:30-09:05) +1 (2 officials: Horigome, Nakagawa) London-Tokyo JL402 (19:45-15:25) +1 (1 consultant: Hirotani)

9	8/16	Fri.	Zurich	Tokyo-Zurich SR169 (11:55-17:40) (2 consultants: Nagasaki, Konno)
10	8/17	Sat.	On Plane	Zurich-Dar Es Salaam SR292 (20:40-07:20) +1 (2 consultants: Nagasaki, Konno)
11	8/18	Sun.	Dar Es Salaam ↓ Mtwara	Charter Flight from Dar Es Salaam to Survey Site (2 consultants: Nagasaki, Konno) To Survey site(1 consultant: Fukuda)
12 ↓ 14	8/19 ↓ 8/21	Mon. ↓ Wed.	Mtwara ↓ Dar Es Salaam	Site Survey (3 consultants: Nagasaki, Fukuda, Konno) Charter Flight from Survey Site to Dar Es Salaam (3 consultants: Nagasaki, Fukuda, Konno)
15	8/22	Thu.	Dar Es Salaam	Meeting at JICA Office, Courtesy call at Japan Embassy and other authorities concerned (Ministry of Works) (3 consultants: Nagasaki, Fukuda, Konno)
16 ↓ 18 19 ↓ 28	8/23 ↓ 8/25 8/26 ↓ 9/4	Fri. ↓ Sun. Mon. ↓ Wed.	Dar Es Salaam ↓ Dar Es Salaam ↓ On plane Dar Es Salaam	Continue Investigation (3 consultants: Nagasaki, Fukuda, Konno) Tokyo-London NH201 (11:35-15:55) London-Dar Es Salaam BA069 (22:25-11:35) +1 (1 consultant: Hirotani) Continue Investigation (4 consultants: Hirotani, Nagasaki, Fukuda, Konno) Meeting at JICA Office, Courtesy call at Japan Embassy and other authorities concerned (Ministry of Works) (4 consultants: Hirotani, Nagasaki, Fukuda, Konno) Dar Es Salaam-London BA068 (19:45-05:15) +1 London-Tokyo NH202(18:00-13:40) +1 (1 consultant: Hirotani) Close Office (3 consultants: Nagasaki, Fukuda, Konno)
29	9/5	Thu.	Zurich	Dar Es Salaam-Zurich SR293 (09:00-18:05) (3 consultants: Nagasaki, Fukuda, Konno)
30 31	9/6 9/7	Fri. Sat.	On plane	Zurich-Tokyo SR168 (12:50-07:40) +1 (3 consultants: Nagasaki, Fukuda, Konno) Arrive at Tokyo

3. List of Party Concerned in Tanzania

No.	Name		Position
1.	Mr. H.G.Urio	:	Director of Roads
2.	Dr. P.F.Komba	:	Chief Engineer, Rural Roads Acting Director
3.	Mr. J.L.Ngumbulu	:	Chief Engineer, Trunk Roads
4.	Mr. D.J. Mariki	:	Chief Engineer, Design
5.	Mr. J.Ndyamukama	:	Senior Engineer, Maintenance, Trunk Roads
6.	Mr. P.A.L. Mfugale	:	Senior engineer, Bridges
7.	Mr. J.A.Kirway	:	Maintenance Management Engineer, Trunk Roads
8.	Mr. C.R. Massawe	:	Bridge Unit Engineer
9.	Mr. Issa Mlyomi	:	Engineer, Design
10.	Mr. B.V. Katabwa	:	Regional Engineer, Mtwara
11.	Mr. E.S.B. Ntagwabira	:	Regional Engineer, Lindi
12.	Mr. T.Manai	:	JICA Expert in MoW
13.	Mr. H. Kato	:	JICA Expert in MoW

MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY
ON
THE PROJECT FOR THE BRIDGE IMPROVEMENT
ON TRUNK ROAD IN
THE UNITED REPUBLIC OF TANZANIA

In response to the request from the Government of the United Republic of Tanzania, the Government of Japan decided to conduct the Basic Design Study on the Project for the Bridge Improvement on Trunk Road in Tanzania (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA")

JICA sent to Tanzania the Basic Design Study Team (hereinafter referred to as "the Study Team"), which is headed by Mr. HORIGOME Shoshiro, Development Specialist, JICA, and the Study Team is scheduled to stay in the country from August 1 to September 5, 1996.

The Study Team held a series of discussions with the officials concerned of the Government of Tanzania and conducted field surveys at the study areas.

In the course of discussions and field surveys, both parties confirmed the main items described on the attached sheets. The Study Team will proceed to further works and prepare the Basic Design Study Report.

Dar es Salaam, August 13, 1996

Mr. HORIGOME Shoshiro
Leader,
Basic Design Study Team ,
JICA

Ambassador Abdi H. Mshangama
Principal Secretary,
Ministry of Works

Mr. Emmanuel M . Masanja
Commissioner,
External Finance & Debt Management ,
Ministry of Finance

ATTACHMENT

1. Objective

This Project aims at rehabilitating some bridges on trunk road in Mtwara and Lindi Regions to provide stable road transport in the area and to contribute toward the enhancement of the nation's economy.

2. Responsible Organization and Implementing Agency

The responsible Ministry is the Ministry of Works (MOW) .
The implementing Agency is the Department of Roads, MOW .

3. Project Site

The Project site is shown in ANNEX-1.

4. Major Items Requested by the Government of Tanzania

After the series of discussions, the items listed in ANNEX-2 are requested by the Government of Tanzania.
The Project bridge, approximately three, for the Basic Design will be decided in Japan after the study team brings back the data and information .
However, the final items covered under the Project will be subject to further studies In Japan.

5. Management and Maintenance

The organization of the maintenance unit and its contents are confirmed as shown in ANNEX-3.

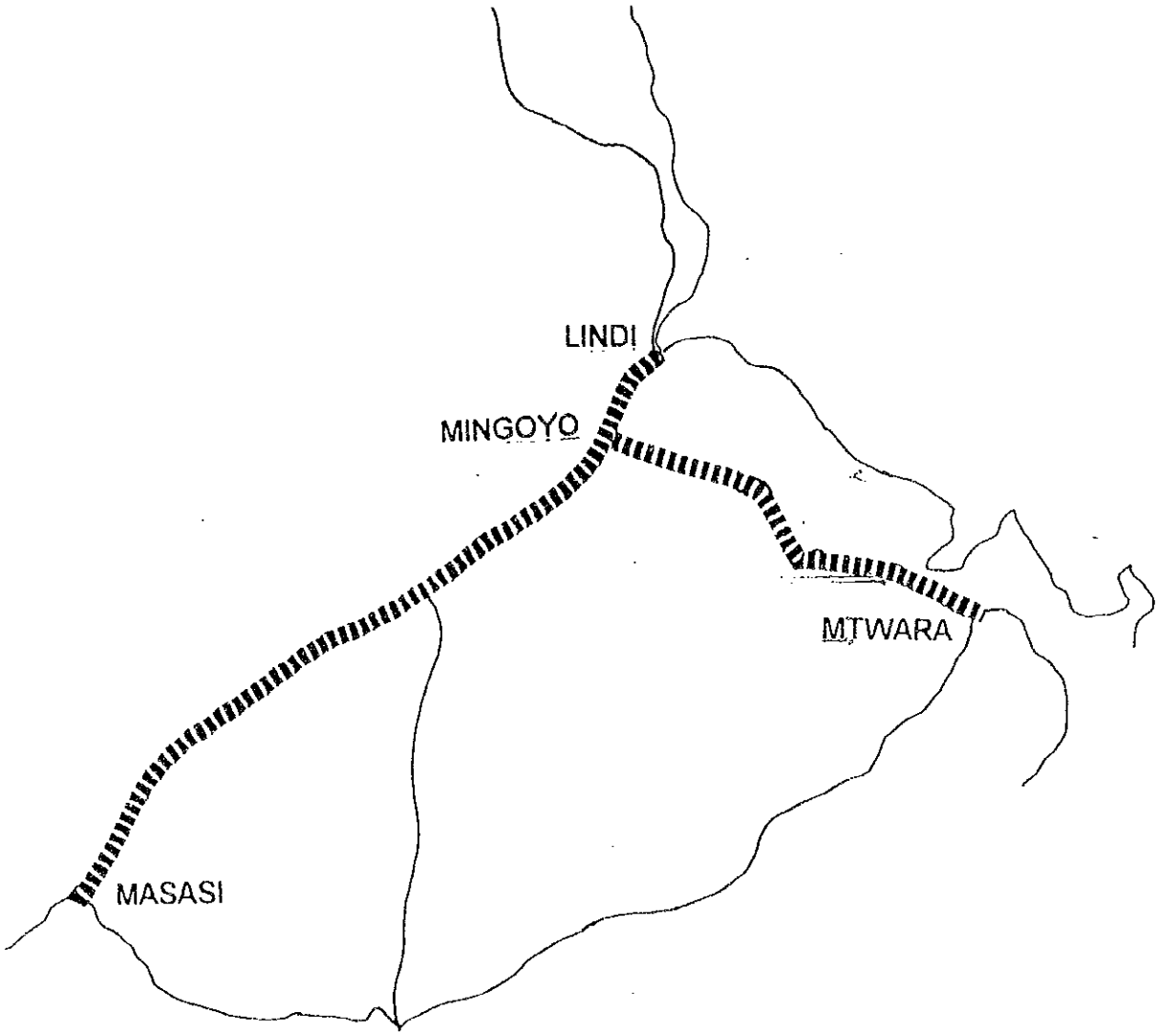
6. Japan's Grant Aid System

1) The Government of Tanzania has understood the system of the Japan's Grant Aid explained by the Study Team; the main feature is described in ANNEX-4.
2) The Government of Tanzania will take the necessary measures, described in ANNEX-5 for the smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

7. Further Schedule of the Study

1) The Study Team will proceed to further studies in Tanzania until September 5, 1996.
2) Based on the results of the Basic Design study, JICA will prepare the Draft Basic Design and dispatch a team in the end of October 1996 in order to consult with the Government of Tanzania on outline of the Draft Basic Design.
3) Upon acceptance of the Draft Basic Design by the Government of Tanzania, JICA will complete the Basic Design Study Report and forward it to the Government of Tanzania around February, 1997.

ANNEX-1 : PROJECT SITE



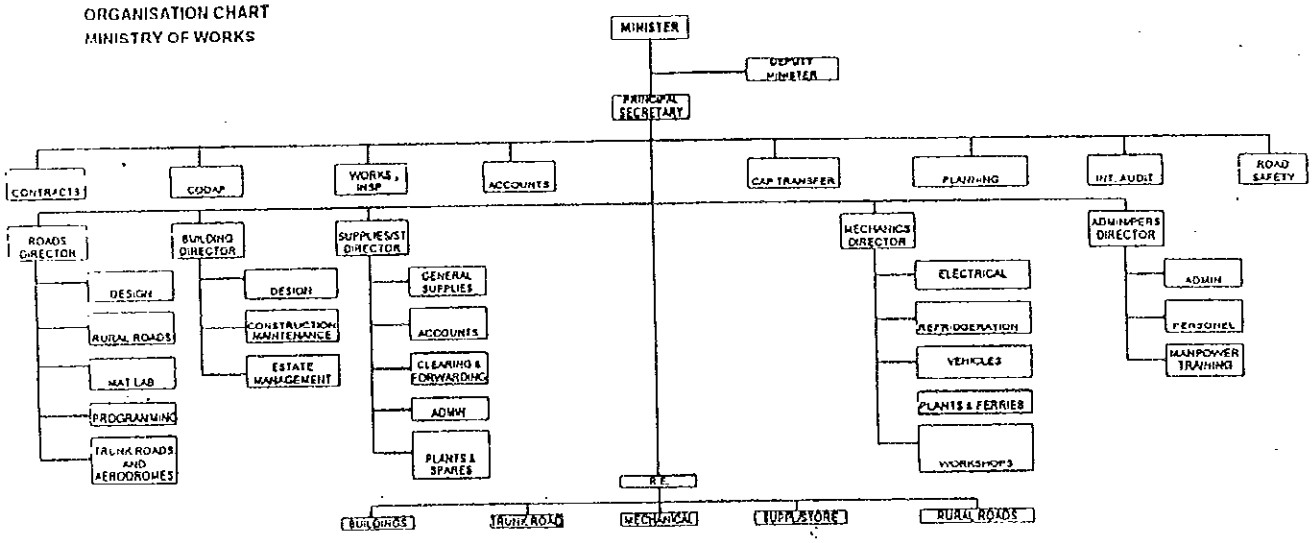
ANNEX-2 : ITEMS REQUESTED BY THE GOVERNMENT OF TANZANIA

List of Requested Bridges

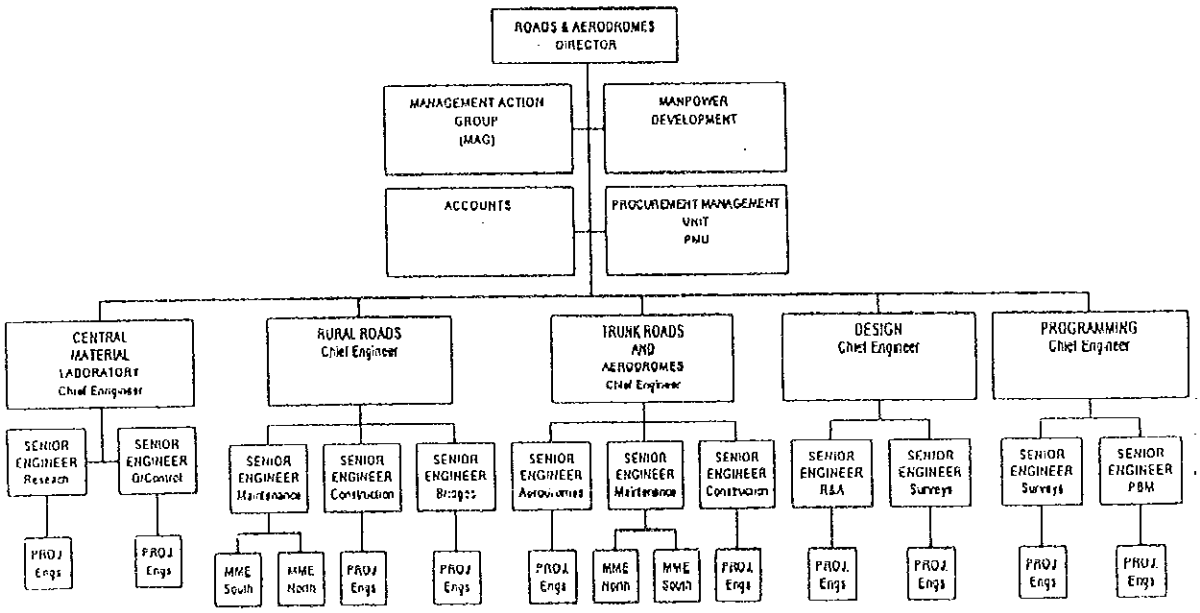
No.	Number	Name
1	LIN-2-10010	Mtange
2	LIN-2-10020	Ngurumahamba
3	LIN-2-10030	Ngongo1
4	LIN-2-10040	Ngongo2
5	LIN-3-10010	Mkwaya
6	MTW-1-10050	Mpapura
7	MTW-1-10040	Mbuo
8	MTW-1-10030	Mikindani
9	LIN-4-10010	Nyangao
10	MTW-2-10060	Nanganga
11	MTW-2-10050	Nangoo
12	MTW-2-10040	Ndanda
13	MTW-2-10030	Mandiwa
14	MTW-2-10020	Liloya
15	MTW-2-10010	Namakongwa

ANNEX-3 : MANAGEMENT AND MAINTENANCE

ORGANISATION CHART
MINISTRY OF WORKS



PRESENT ORGANISATION CHART
ROADS AND AERODROMES



ANNEX-4 : JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedure

1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan & Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Government of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on the requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

a) confirmation of the background, objectives and benefits of the requested project and also institutional capacity of agencies concerned of the recipient country necessary for the project's implementation;
b) evaluation of the appropriateness of the project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
d) preparation of a basic design of the Project; and

e) estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure 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 in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participate the Study and prepare a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Design and Construction Supervision of the Project, JICA recommends the same consulting firm which participated in the Study to the recipient country, in order to maintain the technical consistency between the Basic Design and Detailed Design as well as to avoid any undue delay caused by the selection of a new consulting firm.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

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

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two

Governments.

4) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments 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 consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) 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 the Government of Japan. This "Verification" is deemed necessary to secure accountability of Japanese taxpayers.

6) Undertakings required to the Government of the recipient country

a) to secure a lot of land necessary for the construction of the Project and to clear the site;
b) to provide facilities for distribution of electricity, water supply, drainage and other incidental facilities outside the site;
c) to ensure prompt unloading, tax exemption and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid.
d) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts.
e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.
f) to ensure that the facilities constructed and products purchased under the Grant be maintained and used properly and effectively for the Project, and
g) to bear all the expenses other than those covered by the Grant, necessary for the Project.

7) "Proper Use"

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

8) "Re-export"

The products purchased under the Grant Aid shall not re-exported from the recipient

country.

9) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan 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 the Government of Japan under an authorization to pay issued by the Government of recipient country or its designated authority.

ANNEX-5 : NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF TANZANIA

The following necessary measures should be taken by the Government of Tanzania on condition that the Grant Aid by the Government of Japan is extended to the Project.

1. To secure the land necessary for the execution of the Project, such as the land for bridges, temporary offices, working areas, storage yards and others.

2. To make all passable roads and bridges leading to the Project sites before the commencement of inland transportation of materials and equipment.

3. To demolish / relocate existing bridges and facilities those are located in the Project area according to the construction schedule which will be provided in the later stage.

4. To ensure prompt unloading and customs clearance at ports of disembarkation in Tanzania and internal transportation therein of the products purchased under the Grant;

5. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Tanzania with respect to the supply of the products and services under the Verified Contracts;

6. To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts such facilities as may be necessary for their entry into Tanzania and stay therein for the performance of their work;

7. To maintain and use facilities constructed under the Grant properly and effectively for the Project.

8. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commissions.

9. To bear all the expenses, other than those covered by the Grant, necessary for the Project.

10. To coordinate and solve any issues related to the project which may be raised from third parties or inhabitants in the Project area during implementation of the Project.

Basic Design Study on
The Project for The Bridge Improvement on Trunk Roads In
The United Republic of Tanzania

Record of Discussions

The Study Team for the captioned has commenced the Study from the 9th August, 1996, and is now almost completing the Study in Tanzania. The Team members appreciate the earnest cooperation by the Tanzanian side and express their sincere gratitude to the people concerned.
During the Study here, based on the Minutes of Discussions signed on 13 August, 1996, the following was found;

(1) Study Bridges

No	Bridge Number	Bridge Name	Bridge Type	Bridge Length
1	MTW-1-10030	Mikindani	Temporary (1-Lane, Bailey)	37.71m
2	MTW-1-10040	Mbuo	Temporary (1-Lane, Bailey)	42.67m
3	MTW-1-10050	Mpapura	Temporary (1-Lane, Bailey)	30.48m
4	LIN-3-10010	Mkwaya	Temporary (1-Lane, Bailey)	48.77m

(2) Proposed Resolution (Tentative)
Final Component of the project will be determined during the Study in Japan

No	Bridge Number	Bridge Name	Resolution	Location	Foundation	Substructure	Super-struc'e.
1	MTW-1-10030	Mikindani	Replace (2-Lane, Permanent)	Replace Bailey	Pile (RC or Section-H)	RC (Cast in place)	PC-based L=6+30+6m
2	MTW-1-10040	Mbuo	Replace (2-Lane, Permanent)	Replace Bailey	Pile (RC or Section-H)	RC (Cast in place)	PC-based L=6+30+6m
3	MTW-1-10050	Mpapura	Replace (2-Lane, Permanent)	Replace Bailey	Pile (RC or Section-H)	RC (Cast in place)	PC-based L=30m
4	LIN-3-10010	Mkwaya	Replace (2-Lane, Permanent)	Replace old bridge	Pile (RC or Section-H)	RC (Cast in place)	PC-based L=30+30+30 m

(3) Proposed Standard Cross Section of Road and Bridge
The carriageway width of 6.5m, shoulder width of 1.5m for both sides at earthwork section and 0.75m at bridge section will be applied, though, the final component of the project will be determined during the Study in Japan.

(4) Pavement
Bituminous surface treatment of 25 to 30 mm thickness will be applied as a top coat, though, the final component of the project will be determined during the Study in Japan.

(5) Design of Bridge
Bridges will be designed by the Japanese Standard and confirmed of safety and durability by the BS5400 Live Loading of HA + HB45

(6) Other Considerations
a) River Regulation
River regulation will be designed only for the portion to protect the bridges.
b) Diversion during the construction of new bridges
The Tanzanian side will take responsibility on supplying parts and maintenance of Bailey bridges for diversions during the construction of new bridges.

(7) Maintenance after The Project
Maintenance of the Project will be the responsibility of the Regional Offices of Mtwara and Lindi, with the budget allocated from the national maintenance budget

Dar es Salaam, 03 September, 1996

Yours sincerely,

For The Consultant Study Team

Mr. A. Hirotani, Executive Director,
Oriental Consultants Company Limited

For The Roads Department

ACTING Director of Roads,
Ministry of Works, Government of Tanzania

MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY
ON
THE PROJECT FOR THE BRIDGE IMPROVEMENT
ON TRUNK ROAD IN
THE UNITED REPUBLIC OF TANZANIA

(Explanation of the Draft Basic Design)

From August to September 1996, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study team on The Project for The Bridge Improvement on Trunk Road (hereinafter referred to as "the Project") to the United Republic of Tanzania (hereinafter referred to as "Tanzania"), and through discussions and field survey in Tanzania; and technical examination of the results in Japan, has prepared the draft Basic Design of the study.

In order to explain and to consult with the Government of Tanzania on the components of the draft Basic Design, JICA sent to Tanzania a study team (hereinafter referred to as "the Study Team"), which is headed by Mr. HORIGOME Shoshiro, Development Specialist, JICA, and is scheduled to stay in the country from 29th of October to 4th of November, 1996.

As a result of discussions, both parties confirmed the main items described in the attached sheets.

Dar es Salaam, November 4, 1996

Mr. HORIGOME Shoshiro
Leader,
The Basic Design Study Team ,
JICA

Ambassador Abdi H. Mshangama
Principal Secretary,
Ministry of Works

Mr. Emmanuel M . Masanja
Commissioner,
External Finance & Debt Management ,
Ministry of Finance

ATTACHMENT

1. COMPONENTS OF THE DRAFT BASIC DESIGN

The Government of Tanzania has in principle agreed on and accepted the components of the Draft Basic Design proposed by the Study Team.

2. RESPONSIBLE ORGANIZATION AND IMPLEMENTING AGENCY

Responsible ministry for the Project is the Ministry of Works (MOW), and the implementing agency for the Project is the Department of Roads of MOW.

3. PROJECT SITE

The Project site is as shown in ANNEX-1, for four bridges in between Mtwara and Mingoyo.

4. JAPAN'S GRANT AID SYSTEM

The Government of Tanzania has understood the system of Japan's Grant Aid explained by the Study Team.

5. NECESSARY MEASURES TO BE TAKEN BY THE TANZANIAN SIDE

The Government of Tanzania is responsible for the items such as; to secure the land for the new access road construction and necessary construction yards and will also take necessary measures described in ANNEX-II for smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

6. FURTHER SCHEDULE OF THE STUDY

The Study Team will make the Basic Design Study Report in accordance with the confirmed items, and forward it to the Government of Tanzania in around February, 1997.

7. MAINTENANCE AND MANAGEMENT

1) The Government of Tanzania shall prepare enough budget and staff for the maintenance and management of project bridges after completion of the construction work.

2) Both sides confirmed the content and cost estimation of the required maintenance and management works of project bridges shown in the draft Basic Design.

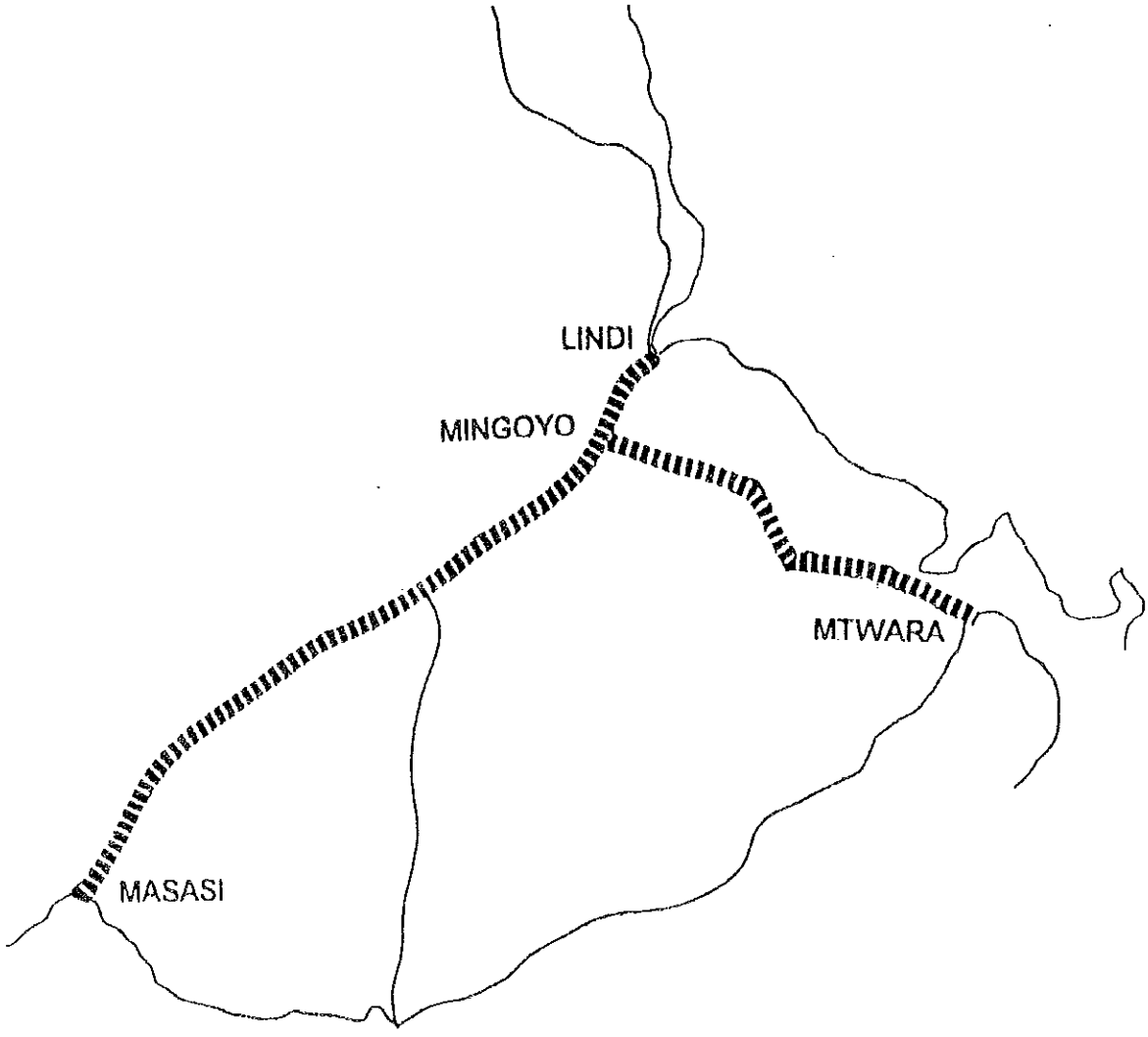
8. COUNTERPARTS TRAINING

The Government of Tanzania made a strong request that the counterparts for the Project shall be trained on site as well as in Japan during the implementation of the Project. The Study Team promised to convey the request to the JICA Headquarters.

9. OTHER RELEVANT ISSUE

The Government of Tanzania will take all possible measures to secure the safety of the concerned people during the project implementation.

ANNEX-1 : PROJECT SITE



ANNEX-2 : NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF TANZANIA

The following necessary measures should be taken by the Government of Tanzania on condition that the Grant Aid by the Government of Japan is extended to the Project;

1. To secure the land necessary for the execution of the Project, such as the land for bridges, temporary offices, working areas, storage yards and others;

2. To make all passable roads and bridges leading to the Project sites before the commencement of inland transportation of materials and equipment;

3. To undertake the incidental works, such as gardening, fencing, electric installations and other incidental facilities in and around the Project sites, if necessary;

4. To ensure prompt unloading and customs clearance at ports of disembarkation in Tanzania and internal transportation therein of the products purchased under the Grant;

5. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Tanzania with respect to the supply of the products and services under the Verified Contracts;

6. To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts such facilities as may be necessary for their entry into Tanzania and stay therein for the performance of their work;

7. To maintain and use facilities constructed under the Grant properly and effectively for the Project;

8. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commissions;

9. To bear all the expenses, other than those covered by the Grant, necessary for the Project; and

10. To coordinate and solve any issues related to the project which may be raised from third parties or inhabitants in the Project area during implementation of the Project.

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

5. Study Data

Soil Investigation (MIKINDANI 1/

Drill and Casing Type	Size	Metres
Casing	150mm	17.60
Drill bucket	137mm	

Project: LINDI – MTWARA BRIDGES
Location: MTW-1-10030
Borehole No: 1
Elevation: 10.98m
Depth to Water Table: 1.20m
Date: 23.08.96
Driller: S. Kanju
Logged by: A. Mavumila

Materials Description	Reduced level(m)	Legend	Depth (m)	Stratum Thickness	Sample Depth (m)	Sample Type	Sample No	SPT N-Value	Undrained Shear Stre C, KN/m²	Undrained Shear Stre φu Degree
Red lateritic gravel (Fill on bridge abutment)			0.00							
			1.00							
			2.00							
			3.00		3.00-3.45	–	–	2		
Very loose, wet light brown gravelly SAND					4.00-4.45	–	–	0		
Loose, wet darkish, SAND					5.00-5.45	*	S1	6		
Medium dense, wet light brown SAND			6.00		6.00-6.45			17		
			7.00		7.00-7.45			24		
Same as above			8.00		8.00-8.45	*	S2	18		
			9.00		9.00-9.45	*	S3	9		
Loose, wet darkish, fine SAND with layers of coarse gravel										
Very soft, wet dark, clayey SILT			10.00		10.00			0		

Water level Observations

Key:

- Approximate Stratum Change
- Disturbed Sample
- U-4 Sample
- Bulk Sample
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

Drill and Casing Type	Size	Metres

Project: LINDI – MTWARA BRIDGES
Location: MTW-1-10030
Borehole No: 1 — Elevation: 10.98m
Depth to Water Table: 1.20m — Date: 23.08.96
Driller: S. Kanju — Logged by: A. Mavumila

Materials Description	Reduced level(m)	Legend	Depth (m)	Stratum Thickness	Sample Depth (m)	Sample Type	Sample No	SPT N-Value	Undrained Shear Strength C_u KN/m²	Undrained Shear Strength ϕ_u Degree
Very soft, wet, dark, clayey SILT			10.00		10.00–10.60			0		
			11.00		11.00–11.81			0		
Same as above			12.00		12.00–12.76			0		
Soft, wet, dark, clayey SILT			13.00		13.00–13.45	*	S5	4		
			14.00					0		
			15.00		15.00–15.45	*	S6	5		
Loose, wet, darkish, slightly clayey SAND			16.00		16.00–16.45			3		
Same as above			17.00		17.00–17.59	*	S7	0		
			18.00		18.00–18.60			0		
Very soft, wet, darkish, silty CLAY			19.00		19.00–19.45	*	S8	10		
Medium dense, slightly moist, darkish clayey SAND with hard coral nodules			20.00		20.00–20.45	*	S9	18		

Water level Observations

Key

- Approximate Stratum Change
- Disturbed Sample
- U-4 Sample
- Bulk Sample
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

5. Study Data

Soil Investigation (MIKINDANI 3/3)

Drill and Casing Type	Size	Metres

Project: LINDI – MTWARA BRIDGES

Location: MTW-1-10030

Borehole No: 1 — Elevation: 10.98m

Depth to Water Table: 1.20m — Date: 23.08.96

Driller: S. Kanju — Logged by: A. Mayumila

Materials Description	Reduced level(m)	Legend	Depth (m)	Strutum Thickness	Sample Depth (m)	Sample Type	Sample No	SPT N-Value	Undrained Shear Stren C_u KN/m²	Undrained Shear Stren ϕ_u Degrees
Medium dense, slightly moist, light green, clayey SILT with white coral nodules			20.00							
			21.00		21.00-21.45	*	S10	24		
Same as above			22.00		22.16-22.54		U1			
Medium dense, light green with yellow patches, SILT			23.00		23.00-23.45	*	S11	27		
Same as above but with quartzitic gravel			24.00		24.00-24.45	*	S12	25		
Medium dense, slightly moist, light green, mottled brown clayey SILT			25.00							

Water level Observations

Key:

- Approximate Stratum Change
- Disturbed Sample
- U-4 Sample
- Bulk Sample
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

Drill and Casing Type	Size	Metres
Drill bucket	137mm	–
Casing	150mm	7.70

Project: LINDI - MTWARA BRIDGES
Location: MTW-1-10040
Borehole No: 1 — Elevation: 12.32m
Depth to Water Table: 4.20m — Date: 28.08.96
Driller: S. KANJU — Logged by: A. MAVUMILA

Materials Description	Reduced level(m)	Legend	Depth (m)	Stratum Thickness	Sample Depth (m)	Sample Type	Sample No	SPT N-Value	Undrained Shear Strength C, KN/m²	Undrained Shear Strength φu Degrees
			0.00							
Fill on bridge abutment			1.00							
			2.00							
			3.00							
Very soft, moist dark, CLAY with thin layers of sand			4.00		4.00-4.45	*	S1	1		
			5.00		5.00-5.45			4		
Same as above			6.00		6.00-6.45			0		
			7.00		7.00-7.45			0		
Medium dense, moist light green, SILT			8.00		8.00-8.45	*	S2	15		
Medium dense, slightly moist green SILT with quartzitic gravels			9.00		9.00-9.45	*	S3	22		
			10.00							

Water level Observations

29.8.96: At 7.00 am Water level = 4.20 m below ground level

Key

- Approximate Stratum Change
- Disturbed Sample
- U-4 Sample
- Bulk Sample
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

Drill and Casing Type	Size	Metres

Project: LINDI – MTWARA BRIDGES
Location: MTW-1-10040
Borehole No: 1 — Elevation: 12.32m
Depth to Water Table: 4.20m — Date: 28.08.96
Driller: S. KANJU — Logged by: A. MAVUMILA

Materials Description	Reduced level(m)	Legend	Depth (m)	Stratum Thickness	Sample Depth (m)	Sample Type	Sample No	SPT N-Value	Undrained Shear Stren C, KN/m²	Undrained Shear Stren φu Degrees
Light green, fine grained massive, slightly weathered SILTSTONE			10.00							
			11.00							
Same As above			12.00							

Water level Observations

Key

- Approximate Stratum Change
- Disturbed Sample
- U-4 Sample
- Bulk Sample
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

5. Study Data
Soil Investigation(MPAPURA 1/3)

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

Drill and Casing Type	Size	Metres		
Rotary drilling without casing			Project: LINDI - MTWARA BRIDGES	
			Location: MTW-1-10050	
			Borehole No: 1	Elevation: 9.73m
			Depth to Water Table: 3.0m	Date: 30.08.96
			Driller: R. MSANGI	Logged by: A. MAVUMILA

Materials Description	Reduced level(m)	Legend	Depth (m)	Stratum Thickness	Sample Depth (m)	Type	No	SPT N-Value	Undrained Shear Strength Cu Kn/m²	Undrained Shear Strength Φu Degrees
Reddish gravel with boulders (Fill on bridge abutment)			0.00							
			1.00							
Stiff, moist greyish, silty CLAY			2.00		2.00-2.45	*	S1	8		
			3.00		3.00-3.45	*	S2	9		
Same as above			4.00		4.00-4.45	*	S3	10		
Same as above but very stiff			5.00		5.00-5.45	*	S4	29		
same as above			6.00		6.00-6.45	*	S5	17		
Same as above			7.00		7.00-7.45	*	S6	15		
Medium dense, moist grey clayey SAND			8.00		8.00-8.45	*	S7	18		
			9.00		9.00-9.45	*	S8	14		
Same as above			10.00		10.00-10.45	*	S9	17		

Water level Observations

30.8.96 at 10.00 am WL = 3.0m

1.9.96 at 7.00 am WL = 1.40m

Key

- - - - - Approximate Stratum Change
- Disturbed Sample
- U-4 Sample
- Bulk Sample
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

5. Study Data

Soil Investigation (MPAPURA 2/3

Drill and Casing Type	Size	Metres

Project: LINDI - MTWARA BRIDGES

Location: MTW-1-10050

Borehole No: 1 Elevation: 9.73m

Depth to Water Table: 3.0m Date: 30.8.96

Driller: R. MSANGI Logged by: A. MAVUMILA

Materials Description	Reduced level (m)	Legend	Depth (m)	Stratum Thickness	Sample Depth (m)	Sample Type	Sample No	SPT N-Value	Undrained Shear Strength C, KN/m²	Undrained Shear Strength ϕ_u Degrees
Medium dense, moist grey, clayey SAND			10.00							
Firm to stiff, moist darkish grey, silty CLAY			11.00		11.00-11.45	*	S10	15		
			12.00		12.00-12.45	*	S11	14		
			13.00		13.00-13.45	*	S12	11		
Same as above			14.00		14.00-14.45	*	S13	13		
			15.00		15.00-15.45	*	S14	13		
			16.00		16.00-16.45	*	S15	9		
Same as above			17.00		17.00-17.45	*	S16	10		
			18.00		18.00-18.45	*	S17	12		
			19.00		19.00-19.45	*	S18	9		
Same as above			20.00		20.00-20-45	*	S19	13		

Key

- Approximate Stratum Change
- Disturbed Sample
- Undisturbed Sample
- Core Barrel
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

5. Study Data

Soil Investigation(MPAPURA 3/3)

Drill and Casing Type	Size	Metres

Project: LINDI - MTWARA BRIDGES

Location: MTW-1-10050

Borehole No: 1 Elevation: 9.73m

Depth to Water Table: 3.0m Date: 30.08.96

Driller: R. MSANGI Logged by: A. MAVUMILA

Materials Description	Reduced level(m)	Legend	Depth (m)	Stratum Thickness	Sample Depth (m)	Type	No	SPT N-Value	Undrained Shear Strength C_u kN/m²	Undrained Shear Strength ϕ_u Degrees
Firm to stiff, moist darkish grey, silty CLAY			20.00							
			21.00		21.00-21.45	*	S20	13		
			22.00		22.00-22.45	*	S21	15		
			23.00		23.00-23.45	*	S22	12		
Same as above			24.00		24.00-24.45	*	S23	15		
			25.00		25.00-25.45			17		

Water level Observations

Key

Approximate Stratum Change

Disturbed Sample

U-4 Sample

Bulk Sample

W Water

Standard Penetration Test

Water Table

N No of Blows for 300mm penetration

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

Drill and Casing Type	Size	Metres

Project: LINDI – MTWARA BRIDGES
Location: LINDI-3-10010
Borehole No: 1 Elevation: 65.34m
Depth to Water Table: 3.38m Date: 16.08.96
Driller: S. Kanju Logged by: A. Mavumila

Materials Description	Reduced level(m)	Legend	Depth (m)	Stratum Thickness	Sample Depth (m)	Sample Type	Sample No	SPT N-Value	Undrained Shear Strength C_u KN/m²	Undrained Shear Strength ϕ_u Degrees
Soft, darkish, clayey SILT			0.00							
			1.00							
			2.00		2.00-2.45	*	S1	3		
Soft, darkish brown, clayey SILT			3.00							
Mas concrete block transported from existing collapsed bridge			4.00							
Stiff, yellowish dark CLAY			5.00							
			6.00							
			7.00							
					7.60-8.05	*	S2	16		
			8.00							
			9.00		9.00-9.45	*	S3	14		
Stiff yellowish dark, CLAY			10.00							

Water level Observations

Key:

- Approximate Stratum Change
- Disturbed Sample
- U-4 Sample
- Bulk Sample
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

5. Study Data

Soil Investigation (MKWAYA 2/3)

Drill and Casing Type	Size	Metres

Project: LINDI – MTWARA BRIDGES

Location: LIND-3-10010

Borehole No: 1 Elevation: 65.34m

Depth to Water Table: 3.38m Date: 16.08.96

Driller: S. Kanju Logged by: A. Mavumila

Materials Description	Reduced level(m)	Legend	Depth (m)	Stratum Thickness	Sample Depth (m)	Type	No	SPT N-Value	Undrained Shear Strength C_u KN/m²	ϕ_u Degrees
					10.00–10.45	*	B1			
Stiff, yellowish dark CLAY					10.45–10.90	*	S4	15		
Stiff, dark fissured CLAY with thin layers of fine sand			11.00							
Firm, yellowish dark, clayey SILT			12.00		12.00–12.45	*	S5	6		
			13.00		13.00–13.45	*	S6	11		
Stiff, dark, fissured CLAY			14.00		14.00–14.45	*	S7	14		
			15.00		15.00–15.45	*	B2			
					15.45–15.90	*	S8	14		
Stiff, dark, CLAY			16.00							
			17.00		17.00–17.45		U1			
					17.45–17.90	*	S9	17		
Very stiff, dark, CLAY			18.00		18.00–18.45	*	S10	20		
					18.55–19.00		U2			
			19.00		19.00–19.45	*	S11	18		
			20.00		20.00–20.45	*	S12	16		

Water level Observations

Key:

- Approximate Stratum Change
- Disturbed Sample
- U-4 Sample
- Bulk Sample
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

INTER-CONSULT Ltd - GEOTECHNICAL ENGINEERING DEPARTMENT

Drilling Log

Drill and Casing Type	Size	Metres

Project: LINDI-MTWARA BRIDGES
Location: LIN-3-10010
Borehole No: 1 Elevation: 65.34m
Depth to Water Table: 3.38m Date: 16.08.96
Driller: S. KANJU Logged by: A. MAVUMILA

Materials Description	Reduced level(m)	Legend	Depth (m)	Strutum Thickness	Sample Depth (m)	Sample Type	Sample No	SPT N-Value	Undrained Shear Strenc C_u KN/m²	Undrained Shear Strenc ϕ_u Degrees
Stiff, dark, CLAY			20.00							
			21.00		21.00-21.45	*	S13	15		
			22.00		22.00-22.45	*	S14	18		
							U2			
Stiff, dark, CLAY			23.00		23.00-23.45	*	S15	17		
			24.00		24.00-24.45	*	S16	16		
Stiff, dark, CLAY			25.00		25.00-25.45	*	S17	19		

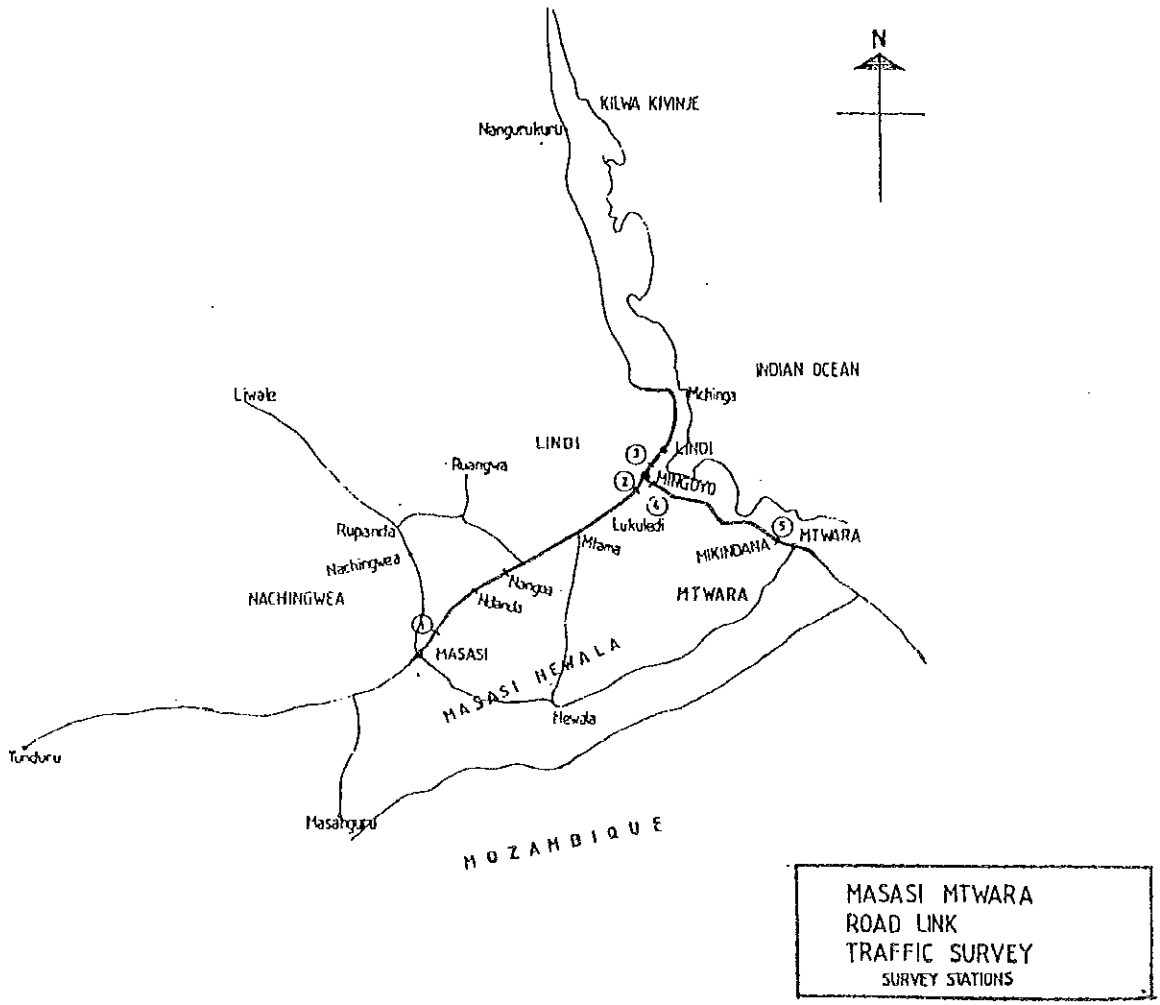
Water level Observations

Key.

- Approximate Stratum Change
- Disturbed Sample
- U-4 Sample
- Bulk Sample
- W Water
- Standard Penetration Test
- Water Table
- N No of Blows for 300mm penetration

The traffic congestion investigation was held at the following 5 points.

1. 10km point toward Lindi from Masasi.
2. 3km point toward Masasi from Mingoyo Intersection
3. 3km point toward Lindi from Mingoyo Intersection
4. 3km point toward Mtwara from Mingoyo Intersection
5. 10km point toward Mingoyo from Mtwara City



MASASI MTWARA ROAD LINK

SUMMARY

CLASSIFIED TRAFFIC COUNT SURVEY Location: MASASI Station:1 Weather: Sunny Direction: TOWARDS MASASI Date: 27/8/96

Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	25	30	31	30	8	7	13	7	8	50	8	4	216
Bycicle/Cycle + Trailer	25	42	59	62	43	38	30	20	36	30	36	31	447
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle	0	0	0	0	0	2	0	2	2	3	2	0	14
Motorcycle with Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	0	0	0	0	0	0	0	0	0	0	0
Standard Pickup or 4WD	2	2	4	4	7	4	3	4	8	10	5	8	60
Standard Bus	0	0	3	0	2	2	3	2	2	2	2	0	20
Minibus/Pickup or Van	0	0	0	0	0	0	0	0	0	0	0	0	2
2-axle Truck	0	0	4	0	2	0	0	0	0	2	0	2	13
3-axle Truck	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck with more than 3-axles	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	2
Subtotal non-motorised	50	72	90	92	51	45	43	27	44	80	44	35	663
Subtotal Motorised	3	2	12	5	12	9	7	8	13	18	10	13	112

SUMMARY

MASASI MTWARA ROAD LINK

CLASSIFIED TRAFFIC COUNT SURVEY Location: MASASI Station: 1 Weather: Direction: TOWARDS MINGOYO Date: 27/8/96

Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	30	25	24	30	16	18	16	15	22	11	1	22	241
Bycicle/Cycle + Trailer	5	36	31	50	41	53	32	35	24	35	35	24	446
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle	0	0	3	0	4	0	4	0	3	2	2	2	24
Motorcycle with Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	0	0	0	0	0	0	0	0	0	0	3
Standard Pickup or 4WD	5	5	6	8	5	4	7	6	4	3	8	4	65
Standard Bus	5	3	0	2	2	3	3	2	2	0	2	2	28
Minibus/Pickup or Van	0	2	2	0	0	0	0	0	0	0	0	0	7
2-axle Truck	2	0	2	3	3	0	2	0	0	0	0	0	16
3-axle Truck	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck with more than 3-axles	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	1
Subtotal non-motorised	35	61	55	80	57	71	48	50	46	46	46	46	687
Subtotal Motorised	12	11	14	14	15	9	16	11	11	8	13	8	144

MASASI MTWARA ROAD LINK

SUMMARY

CLASSIFIED TRAFFIC COUNT SURVEY Location: MINGOYO Station: 2 Weather: Sunny Direction: TOWARDS MINGOYO Date: 27/8/96

Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	0	0	0	0	0	0	1	0	0	0	0	0	1
Bycicle/Cycle + Trailer	0	0	2	0	0	0	0	0	0	0	0	0	2
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle with Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	0	0	0	0	0	0	0	0	0	0	0
Standard Pickup or 4WD	1	1	0	1	2	2	0	0	0	1	0	2	10
Standard Bus	0	6	2	1	2	3	1	1	3	2	0	1	22
Minibus/Pickup or Van	1	1	0	2	3	1	0	2	2	3	2	6	23
2-axle Truck	1	0	0	2	2	4	0	2	3	0	0	0	14
3-axle Truck	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck with more than 3-axles	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal non-motorised	0	0	2	0	0	0	1	0	0	0	0	0	3
Subtotal Motorised	3	8	2	6	9	10	1	5	8	6	2	9	69

MASASI MTWARA ROAD LINK

SUMMARY

CLASSIFIED TRAFFIC COUNT SURVEY Location: MINGOYO Station: 2 Weather: Sunny Direction: TOWARDS MASASI Date: 27/8/96

Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	0	1	0	0	0	0	0	0	0	0	0	0	1
Bycicle/Cycle + Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle	0	0	0	0	0	1	0	0	0	1	0	0	2
Motorcycle with Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	1	0	0	0	0	0	1	1	1	1	5
Standard Pickup or 4WD	0	0	0	1	0	1	0	1	1	0	2	1	7
Standard Bus	4	2	4	2	1	2	2	4	0	1	1	1	24
Minibus/Pickup or Van	2	2	0	0	0	0	0	1	5	3	3	3	18
2-axle Truck	0	0	2	1	1	0	0	6	2	0	2	2	15
3-axle Truck	0	0	0	0	0	0	0	0	0	1	0	0	1
Truck with more than 3-axles	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal non-motorised	0	1	0	0	0	0	0	0	0	0	0	0	1
Subtotal Motorised	6	4	7	4	2	4	2	12	7	7	9	8	72

MASASI MTWARA ROAD LINK

SUMMARY

CLASSIFIED TRAFFIC COUNT SURVEY Location: MINGOYO Station: 3 Weather: Sunny Direction: TOWARDS MINGOYO Date: 27/8/96

Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	0	0	0	1	0	0	0	0	0	0	0	0	1
Bycicle/Cycle + Trailer	0	0	0	0	0	0	0	0	0	1	0	0	1
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle	0	1	0	0	0	0	0	0	0	0	0	0	1
Motorcycle with Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	0	0	0	0	0	0	0	0	0	1	1
Standard Pickup or 4WD	0	0	3	1	2	2	0	2	1	0	0	1	12
Standard Bus	4	2	0	1	0	2	1	3	0	0	0	1	14
Minibus/Pickup or Van	3	2	0	2	1	1	0	2	3	2	2	2	20
2-axle Truck	1	1	1	1	0	0	1	3	1	3	0	1	13
3-axle Truck	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck with more than 3-axles	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal non-motorised	0	0	0	1	0	0	0	0	0	1	0	0	2
Subtotal Motorised	8	6	4	5	3	5	2	10	5	5	2	6	61

MASASI MTWARA ROAD LINK

SUMMARY

CLASSIFIED TRAFFIC COUNT SURVEY Location: MINGOYO Station: 3 Weather: Sunny Direction: TOWARDS LINDI Date: 27/8/96

Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	0	0	0	0	0	0	0	0	0	0	0	0	0
Bycicle/Cycle + Trailer	0	0	0	0	1	0	0	0	0	0	0	0	1
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle	0	0	1	0	0	1	0	0	0	0	1	0	2
Motorcycle with Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	0	0	0	0	0	0	0	1	0	0	1
Standard Pickup or 4WD	0	0	1	1	2	0	1	1	0	1	0	0	7
Standard Bus	0	2	3	0	0	3	1	2	1	0	0	0	12
Minibus/Pickup or Van	1	1	3	0	0	2	1	2	4	1	2	0	17
2-axle Truck	1	0	0	0	3	3	1	2	3	3	0	2	16
3-axle Truck	0	0	0	0	0	0	0	1	1	0	0	0	2
Truck with more than 3-axles	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal non-motorised	0	0	0	0	1	0	0	0	0	0	0	0	1
Subtotal Motorised	2	3	8	1	4	7	4	8	9	6	3	2	57

MASASI MTWARA ROAD LINK

SUMMARY

CLASSIFIED TRAFFIC COUNT SURVEY Location: MINGOYO Station: 4 Weather: Sunny Direction: TOWARDS MTWARA Date: 27/8/96

Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	2	3	2	1	0	5	0	0	0	0	0	0	13
Bycicle/Cycle + Trailer	2	3	0	0	4	0	0	0	0	0	0	0	9
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle	0	1	0	0	0	0	1	0	0	0	0	0	1
Motorcycle with Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	1	0	0	0	0	0	0	1	0	0	2
Standard Pickup or 4WD	1	0	2	1	1	2	0	0	0	1	0	1	9
Standard Bus	1	1	3	1	1	1	1	1	0	1	1	1	13
Minibus/Pickup or Van	2	1	4	1	1	1	0	1	0	3	0	2	16
2-axle Truck	2	2	1	2	1	0	0	0	2	0	1	1	12
3-axle Truck	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck with more than 3-axles	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal non-motorised	4	6	2	1	4	5	0	0	0	0	0	0	22
Subtotal Motorised	6	5	10	5	4	4	2	2	2	6	2	5	53

MASASI MTWARA ROAD LINK

SUMMARY

CLASSIFIED TRAFFIC COUNT SURVEY Location: MINGOYO Station: 4 Weather: Sunny Direction: TOWARDS MINGOYO Date: 27/8/96

Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	0	0	0	0	0	0	0	0	0	0	0	0	0
Bycicle/Cycle + Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle	0	0	1	0	0	0	0	0	1	0	1	0	3
Motorcycle with Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	0	0	0	0	0	0	2	0	0	0	2
Standard Pickup or 4WD	0	0	0	1	0	1	1	1	0	0	2	0	6
Standard Bus	1	2	2	1	1	0	3	2	0	1	0	1	14
Minibus/Pickup or Van	2	1	3	0	2	0	0	3	10	2	2	3	28
2-axle Truck	0	1	1	0	0	1	0	5	2	4	3	3	21
3-axle Truck	0	0	0	0	0	0	0	0	0	0	0	0	2
Truck with more than 3-axles	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal non-motorised	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Motorised	3	4	7	2	4	2	4	12	15	8	8	7	76

MASASI MTWARA ROAD LINK

SUMMARY

CLASSIFIED TRAFFIC COUNT SURVEY Location: MTWARA Station: MIKINDANI-5 Weather : Sunny Direction: TOWARDS MTWARA Date: 27.08.96

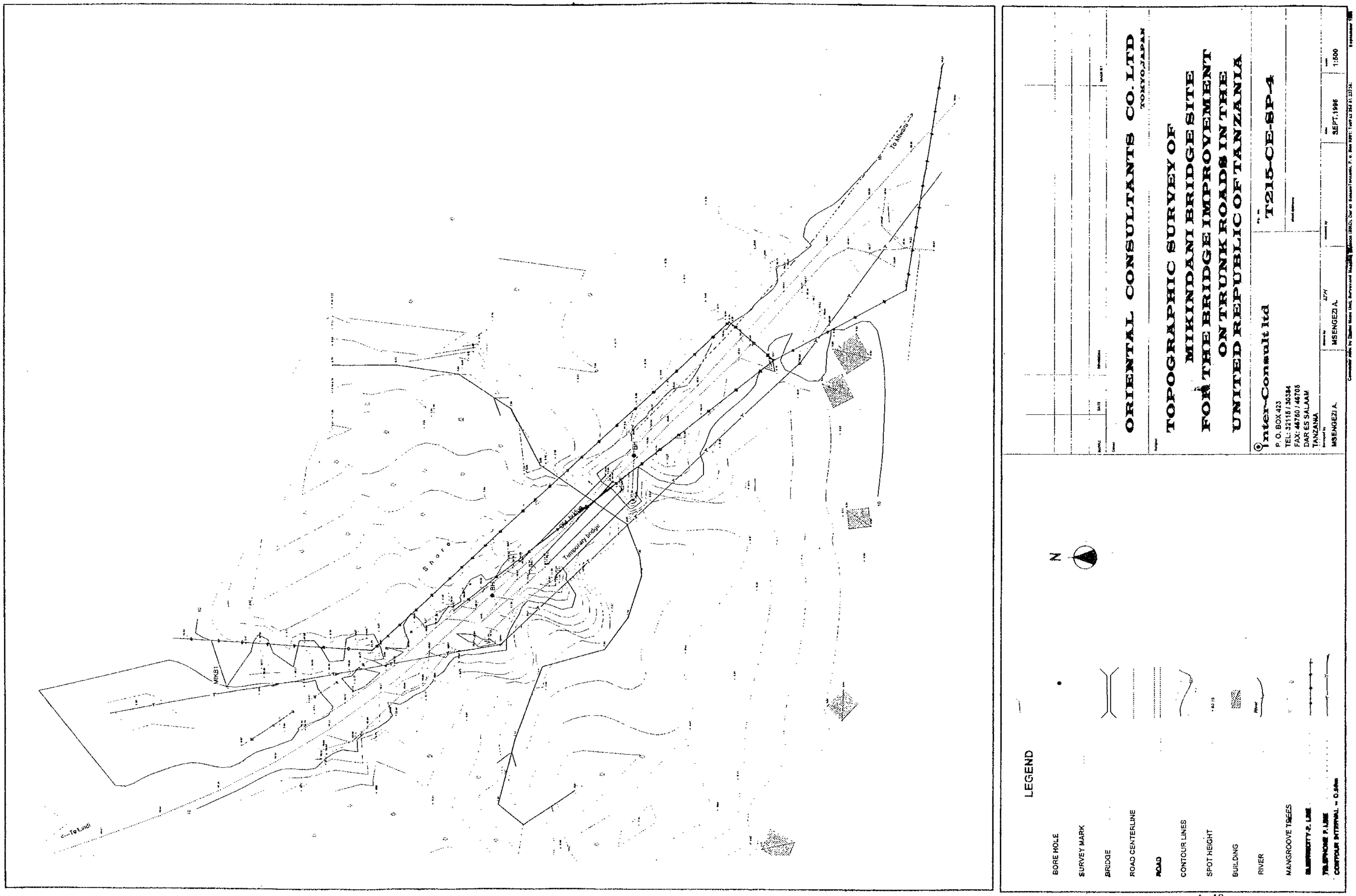
Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	40	23	20	13	22	21	22	15	13	13	24	10	236
Bycicle/Cycle + Trailer	45	48	42	44	33	31	18	19	16	22	38	21	388
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle with Trailer	1	1	0	2	0	1	2	2	2	0	2	2	15
Motorcycle	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	1	2	0	0	0	2	0	1	0	0	6
Standard Pickup or 4WD	1	5	5	10	7	8	12	12	3	6	8	7	84
Standard Bus	2	0	1	1	1	2	0	1	0	1	2	0	11
Minibus/Pickup or Van	0	0	1	0	0	0	0	0	1	0	0	0	2
2-axle Truck	2	0	1	4	1	2	5	2	2	2	1	3	25
3-axle Truck	0	0	0	1	0	0	0	0	1	0	0	0	2
Truck with more than 3-axl	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal non-motorised	85	71	62	57	55	52	40	34	29	35	62	37	624
Subtotal Motorised	5	6	9	18	9	13	17	19	9	10	13	12	145

MASASI MTWARA ROAD LINK

SUMMARY

CLASSIFIED TRAFFIC COUNT SURVEY Location: MTWARA Station: MIKINDANI-5 Weather: Sunny Direction: TOWARDS MINGOYO Date: 27/8/96

Time	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	Subtotal
Pedestrian	28	22	19	23	12	40	7	14	15	14	26	14	234
Bycicle/Cycle + Trailer	47	40	52	47	39	69	43	44	37	44	43	42	547
Animal Cart	0	0	0	0	0	0	0	0	0	0	0	0	0
Motorcycle	1	0	1	0	1	1	1	1	2	1	0	2	11
Motorcycle with Trailer	0	0	0	0	0	0	0	0	0	0	0	0	0
Passenger/Car/Sedan	0	0	0	0	0	0	0	0	0	0	0	1	1
Standard Pickup or 4WD	2	7	3	5	4	11	8	17	9	8	8	9	91
Standard Bus	2	1	1	0	1	3	1	1	0	0	1	0	11
Minibus/Pickup or Van	0	0	0	1	0	0	0	0	0	0	0	0	1
2-axle Truck	0	1	2	3	1	6	2	3	4	2	2	1	27
3-axle Truck	0	0	0	1	0	1	1	1	0	0	0	0	4
Truck with more than 3-axles	0	0	0	0	0	0	0	0	0	0	0	0	0
Military Vehicle	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal non-motorised	75	62	71	70	51	109	50	58	52	58	69	56	781
Subtotal Motorised	5	9	7	10	7	22	13	23	15	11	11	13	146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LEGEND
BORE HOLE
SURVEY MARK
BRIDGE
ROAD CENTERLINE
ROAD
CONTOUR LINES
SPOT HEIGHT
BUILDING
RIVER
MANGROOVE TREES
Shore
Temporary bridge
BH
MKB1
To Mtwara
<---To Lindi


To Mtwara
MBU3
MBU2
BH2
Temporary bridge
MBU1
To Lindi
LEGEND
BORE HOLE
SURVEY MARK
BRIDGE
OLD ROAD CENTERLINE
ROAD
CONTOUR LINES
SPOT HEIGHT
BUILDING
RIVER
PALMS
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LEGEND

- BORE HOLE
- SURVEY MARK
- BRIDGE
- ROAD CENTERLINE
- ROAD
- CONTOUR LINES
- SPOT HEIGHT
- BUILDING
- RIVER
- PALMS
- ELECTRICITY P. LINE

CONTOUR INTERVAL = 0.5m

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LEGEND

- BORE HOLE
- SURVEY MARK
- BRIDGE
- OLD ROAD CENTERLINE
- ROAD
- CONTOUR LINES
- SPOT HEIGHT
- BUILDING
- RIVER

CONTOUR INTERVAL = 0.5m

N

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