LIST OF PARTY CONCERNED IN NEPAL

List of Party Concerned in Nepal

1. Ministry of Works and Transport, Department of Roads
   Mr. Ananda Prasad Khanal (Director General)
   Mr. Madan Gopal Maleku (Deputy Director General)
   Mr. B. S. Rana (Project Manager, Sindhuli Banepa Road Project)
   Mr. T. Kimata (Expert/Advisor)

2. Ministry of Works and Transport
   Mr. H. L. Regmi (Secretary)

3. National Planning Commission
   Mr. J. C. Pokharel (Member)

4. Ministry of Finance
   Mr. M. P. Ghimire (Joint Secretary)
   Mr. M. Karki (Section Officer)

5. Ministry of Population and Environment
   Mr. B. B. Balayar (Ministor)
   Mr. P. Kunwar (Under Secretary)

MINUTES OF DISCUSSIONS

Minutes of Discussions
on
the Basic Design Study
on
the Project for Construction of Sindhuli Road
(Section II: Sindhuli Bazar - Khurkot)
in
the Kingdom of Nepal

In response to a request from His Majesty's Government of Nepal (hereinafter referred to as "HMG/N"), the Government of Japan decided to conduct a Basic Design Study on the Project for Construction of Sindhuli Road (Section II: Sindhuli Bazar - Khurkot) (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the kingdom of Nepal (hereinafter referred to as "Nepal") the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Satoshi Umenaga, Second Project Study Division, Grant Aid Project Study Department, JICA, and is scheduled to stay in the country from March 21 to May 12, 1999.

The Team held discussions with the officials concerned of HMG/N and conducted a field survey at the study area.

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

Kathmandu, March 30, 1999

His Majesty's Government
Ministry of Works & Transport
Department of Roads
Babar Mahal, Kathmandu

Director General

Mr. Satoshi Umenaga
Leader
Basic Design Study Team
Japan International Cooperation Agency
(JICA)

Mr. Niranjan P. Chalise
Director General
Department of Roads (DOR)
Ministry of Works and Transport

ATTACHMENT

1. OBJECTIVE OF THE PROJECT

The objective of the Project is to construct the Sindhuli Road (Section II: Sindhuli Bazar - Khurkot) which plays an important role as a part of trunk road to mobilize transportation between Kathmandu and Terai Plain. The construction of the road will be much effective in poverty alleviation by balancing and updating the living standard and welfare of people by ensuring smooth transportation, hence to contribute to socio-economic development of the Project area.

2. PROJECT SITE

The site of the Project is shown in ANNEX-1.

3. RESPONSIBLE AND IMPLEMENTING ORGANIZATION

The responsible and implementing organization is the Department of Roads (DOR), Ministry of Works and Transport (MOWT). The organization chart is shown in ANNEX-2.

4. ITEMS REQUESTED BY HMG/N

After discussions with the Team, the construction of the Sindhuli Road (Section II: Sindhuli Bazar - Khurkot) was finally requested by HMG/N.
Main specification of the Project is as follows;

4-1. Lane number of carriageway
In line with the development policy of introducing the stage-wise construction method, the basic design on the Section II road will be carried out on the basis of single lane road as the first stage.

4-2. Carriageway width
4.75m carriageway width shall be applied for the ordinary sections. 4.0m carriageway width road will be planned at sections where the topographic condition and/or geological condition is poor.

4-3. Pavement
Gravel road shall be applied in principle, however, surface treatment will be applied to sections having steep gradient and where the Team judged its necessity.

4-4. Bridge design
Single lane bridge with 4.25m wide in super- structure and sub-structure will be applied.

4-5. Alignment design policy and mitigation measure for slope failures.
The road design will be done taking into consideration existing and foreseeable slope failures and landslides. Furthermore, the road alignment will be planned giving priority to avoid as much as possible areas having potential slope failures and/or landslides.

5. JAPAN'S GRANT AID SYSTEM

5-1. The Nepalese side understands the Japan's Grant Aid Scheme explained by the Team, as described in ANNEX-3.

5-2. The Nepalese side will take the necessary measures, as described in ANNEX-4, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

6. SCHEDULE OF THE STUDY

6-1. The consultants will proceed to further studies in Nepal until May 12, 1999.

6-2. JICA will prepare the interim report in English and dispatch a mission in order to explain its contents around middle of June, 1999.

6-3. The interim report will include contents to be considered in the road design and Project implementation discussed between the DOR and the Team.

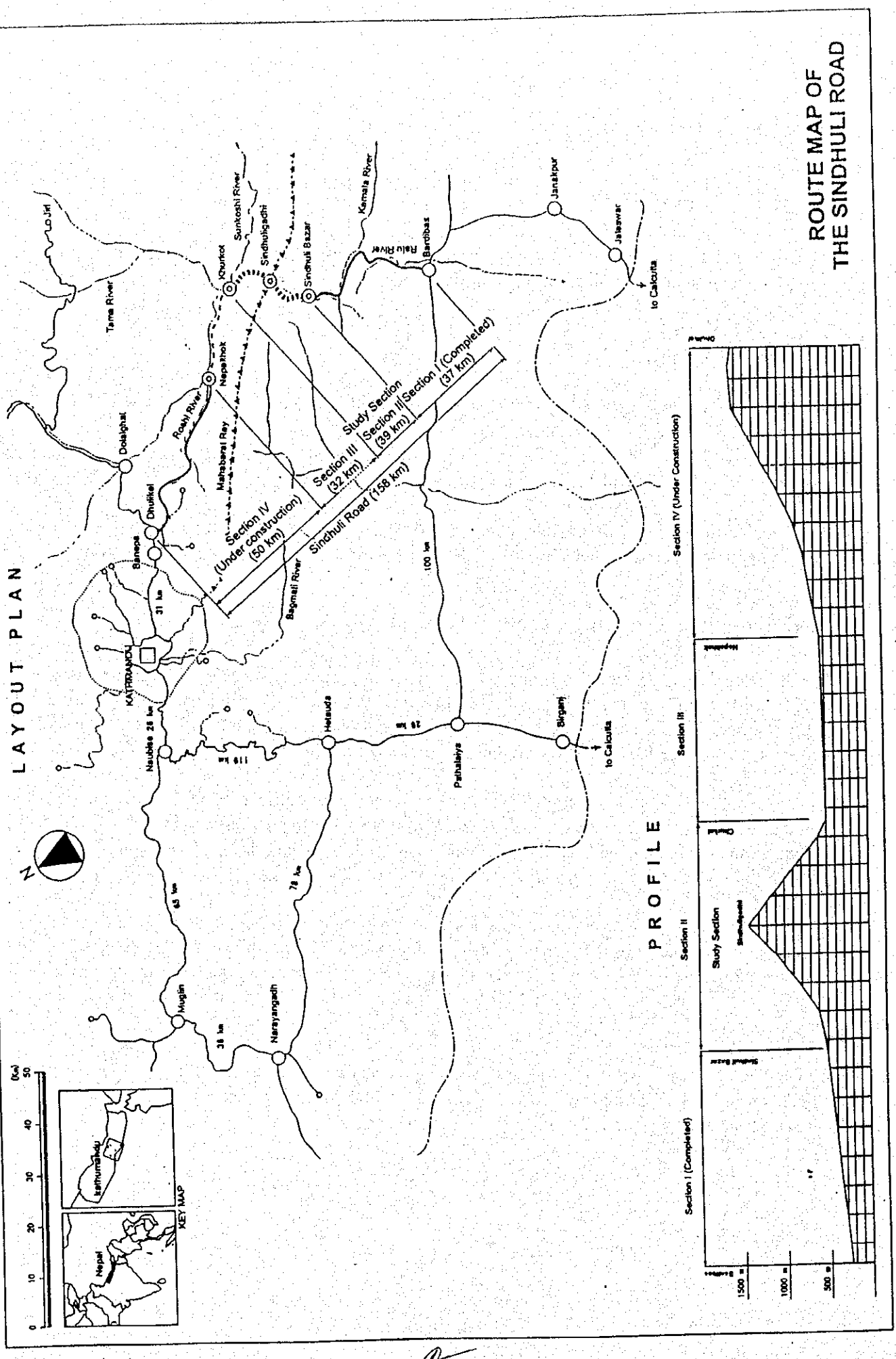
7. OTHER RELEVANT ISSUES

7-1. The Nepalese side will take necessary actions and measures for environmental issues in conformity with the regulations of HMG/N and consult with Ministry of Population and Environment (MOPE). The DOR will make action plans for environmental issues by the middle of June, 1999 and finalize necessary actions and measures by the end of October, 1999.

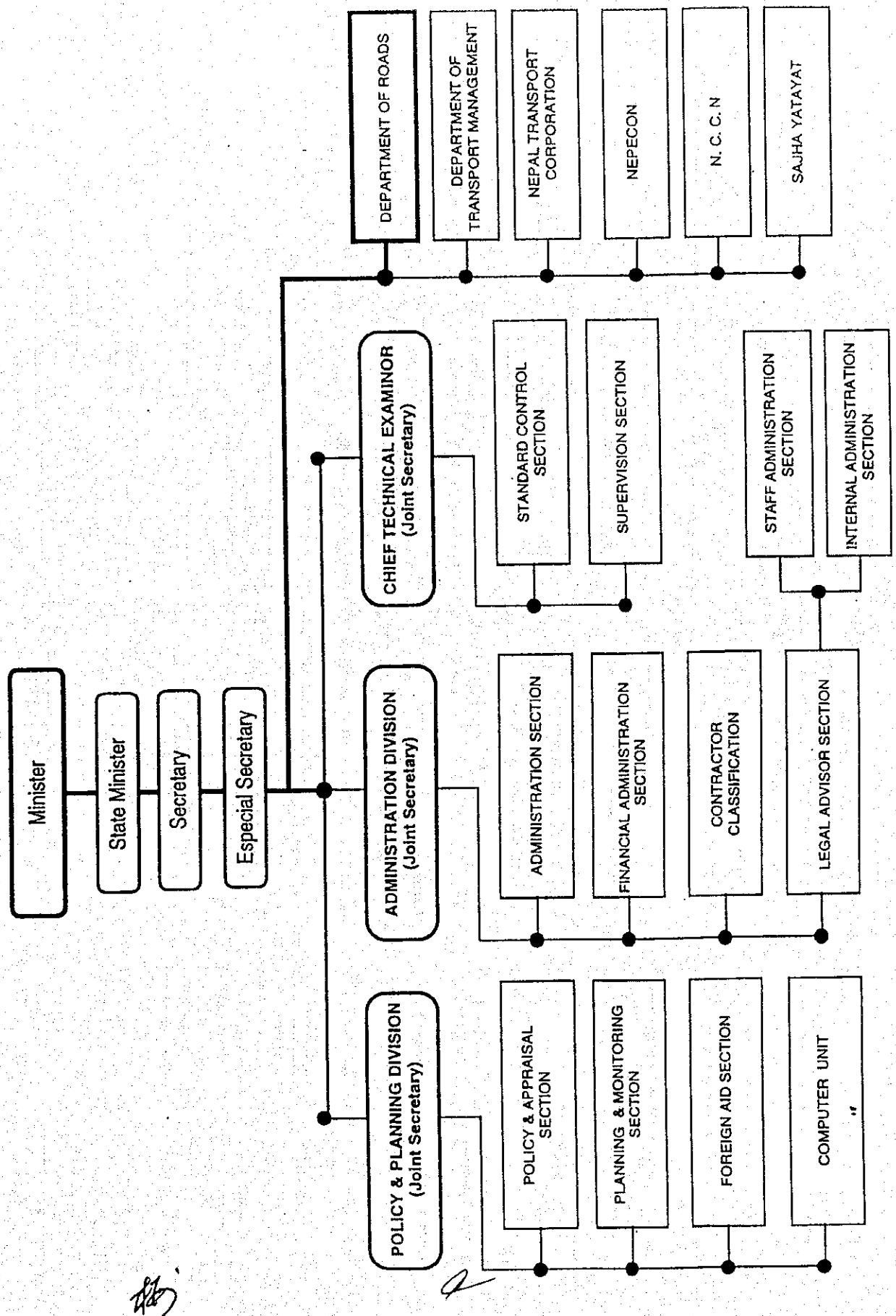
7-2. The Nepalese side will acquire the land and make necessary compensations for those houses and land affected by the road construction in conformity with the regulations of HMG/N. The detailed disbursement schedule will be discussed and confirmed between the DOR and the Team by the end of the second field survey scheduled in the middle of June,1999.

7-3. The DOR is planning to establish new divisional maintenance office at Bardibas. HMG/N shall continue to provide budget for maintenance of the road in Section I. The detailed programme and organizational body responsible for the maintenance of the Project road will be discussed and confirmed in accordance with HMG/N's decision for establishment of the new divisional maintenance office at Bardibas.

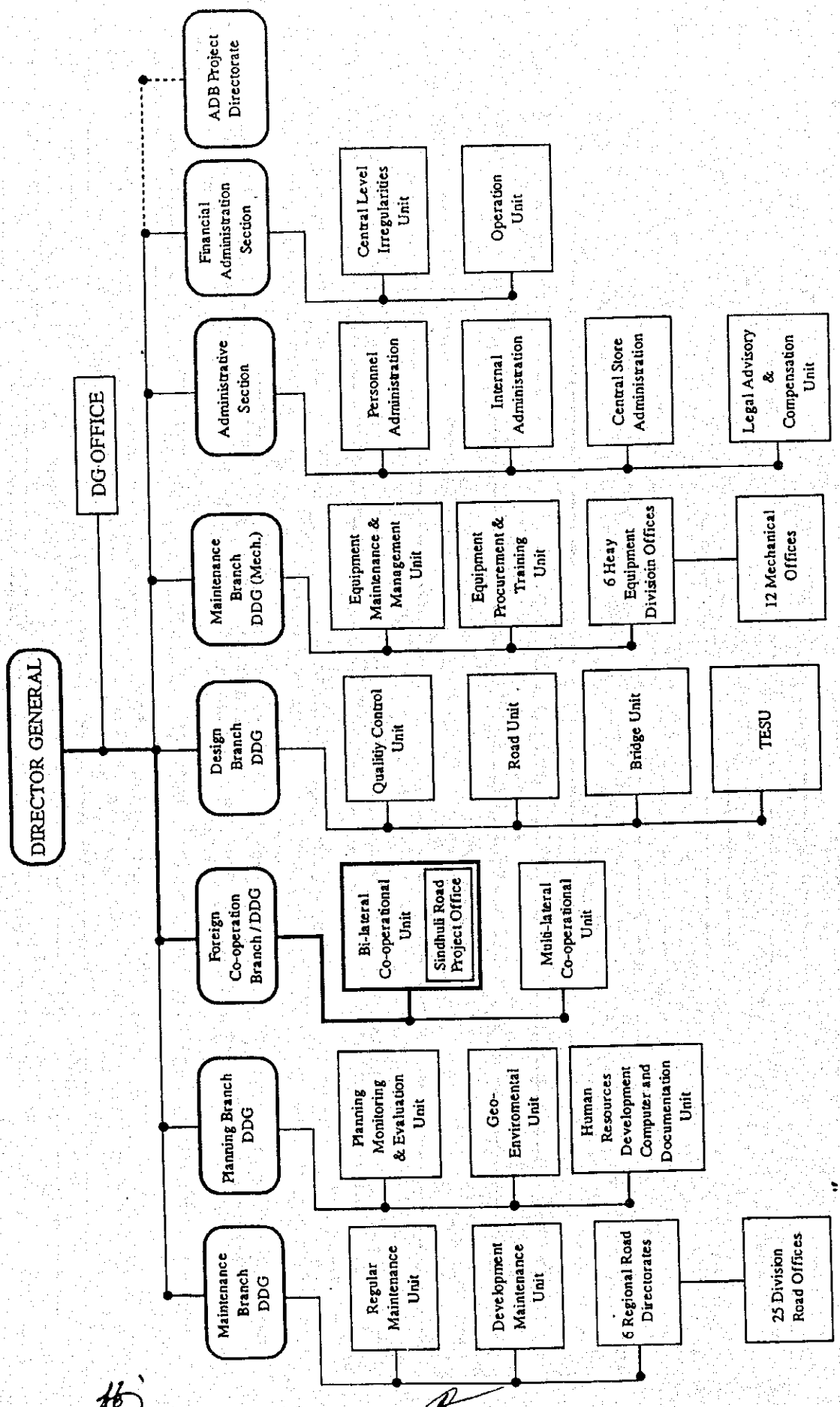
7-4. The Nepalese side will make necessary arrangements to ensure the security and safety of the Team during the field survey. However, in case the Team is instructed by the Government of Japan for security reasons, the study may be suspended.


ROUTE MAP OF
THE SINDHULI ROAD
LAYOUT PLAN
PROFILE
Study Section
Section I (Completed) (37 km)
Section II (39 km)
Section III (32 km)
Section IV (Under construction) (50 km)
Sindhuli Road (158 km)
Dolalghat
Dhulikel
Banepa
KATHMANDU
Naubise
Hetauda
Birgunj
Pathalaiya
to Calcutta
Janakpur
Jaleswar
Bardibas
Sindhuli Bazar
Khurkot
Sunkoshi River
Sindhulgadhi
Kamala River
Rabi River
Tama River
Roshi River
Mahabarat Ray
Nepalthok
Bagmati River
Mugling
Narayangadh
31 km
25 km
100 km
65 km
78 km
38 km
KEY MAP
Nepal
Section IV (Under Construction)
Section III
Section II
Section I (Completed)
Study Section
1500 m
1000 m
500 m

ORGANIZATION CHART OF MINISTRY OF WORKS & TRANSPORT



ORGANIZATION CHART OF DEPARTMENT OF ROADS



JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedures

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 and 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 (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

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 Governments 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 (hereafter referred to as "the Study"), conducted by JICA on a requested project (hereafter 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 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 a technical, social and economic point 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.

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 the 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 smooth implementation of the Study, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA. The consulting firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

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 o the Grant Aid, etc., are confirmed.

3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Projec for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contract with (a) consulting firm(s) and (a) contractor(s) and final payment to them must be completed However, in case of delays in delivery, installation or construction due to unforeseen factors suc as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal yea at most by mutual agreement between the two Governments.

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

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of th products or services of a third country.

However, the prime contractors, namely, consulting constructing and procurement firms, a limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanes nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "Verification"

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

Japanese taxpayers.

6) Undertakings required of 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 the following:

(1) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.

(2) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.

(3) To secure buildings prior to the procurement in case the installation of the equipment.

(4) To ensure all the expenses and prompt excursion for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.

(5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country 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 the recipient country and stay therein for the performance of their work.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance 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 should not be re-exported from the recipient country.

9) Banking Arrangements (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 a 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 (A/P) issued by the Government of the recipient country or its designated authority.

ANNEX-4

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 land		●
2	To relocate public utilities such as power cable, telephone line and water pipe, prior to the construction of the Project		●
3	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
4	To ensure prompt unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine(Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
5	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
6	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 contract		●
7	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
8	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities		●
9	To coordinate and solve any issues related to the Project which may be raised from third parties or inhabitants in the Project area		●

Minutes of Discussions
on
the Basic Design Study
on
the Project for Construction of Sindhuli Road
(Section II : Sindhuli Bazar - Khurkot)
in
the Kingdom of Nepal

In March 1999, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study team on the Project for Construction of Sindhuli Road (Section II : Sindhuli Bazar - Khurkot), to the Kingdom of Nepal, and through discussions and field survey in Nepal, and technical examination of the results in Japan, has prepared the Interim Report on the Study.

In order to explain and to consult His Majesty's Government of Nepal (hereinafter referred to as "HMG/N") on the components of the Interim Report and conduct the Second Field Survey, JICA sent to Nepal a study team (hereinafter referred to as "the Team"), which is headed by Mr. Yoshikazu Yamada, Director of Third Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in Nepal from 28 June to 9 July.

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

Kathmandu, July 7, 1999

Mr. Yoshikazu Yamada
Leader
Basic Design Study Team
Japan International Cooperation Agency
(JICA)

Mr. Niranjan P. Chalise
Director General
Department of Roads (DOR)
Ministry of Works and Transport
(MOWT)

ATTACHMENT

1. COMPONENTS OF THE INTERIM REPORT

The Nepalese side agreed and accepted in principle the components of the Interim Report proposed by the Team.

2. DESIGN POLICY

The Team explained the design policies described in the Discussion Paper. The Nepalese side accepted the contents of the Discussion Paper.

3. JAPAN'S GRANT AID SCHEME AND NECESSARY MEASURES TO BE TAKEN BY HMG/N

The Nepalese side understands the Japan's Grant Aid Scheme and necessary measures as explained by the Team and described in Annex-3 and 4 of the Minutes of Discussions signed by both parties on March 30, 1999.

4. FURTHER SCHEDULE OF THE STUDY

Based on the results of the Second Field Survey, JICA will prepare the Draft Basic Design Report and dispatch a team in October 1999 in order to consult with the Nepalese side on the outline of the Draft Basic Design.

5. OTHER RELEVANT ISSUES

5.1 Environmental Issues

The Nepalese side agreed and assured to finalize the necessary actions and measures for the environmental issues as referred in the environmental study data available in the Aftercare Study conducted by JICA 1993 and the Interim Report according to the rules of HMG/N by the end of October 1999.

5.2 Assessment and Countermeasures for the Influx of Labors into the Area and Means to Secure the Security in the Area.

Both sides recognized the issues to ensure the security of the project area affected by the influx of labors and present situation of the area. The Nepalese side agreed to take and make necessary actions and programs for the issues with consultation with concerned

ministries of HMG/N.

Both sides also realized the necessity of the provisions to provide ID cards to the labors engaged in the Project to regulate the control of unauthorized and unrelated entries for smooth implementation of the project.

5.3 Restriction of Public Traffic into the Construction Site

Both sides recognized the problem of the entering of private vehicles into the project site before completion of the entire works, and agreed in principle that the construction works would be implemented without partial taking-over, partial completion and partial traffic opening program.

5.4 Removal and Relocation of Obstacles

The Nepalese side realized the serious issues like obstacles, particularly the relocation of the power distribution line at Sindhuli Gadhi. Therefore, the Nepalese side agreed to start the consultation and negotiation with the concerned authorities and assured to inform the Team the result of the consultation and negotiation by the end of August 1999.

5.5 Forest Clearing

The Nepalese side agreed to manage the tree clearance works and to consult with concerned ministries as recommended by the Team.

5.6 Camp Yard for Construction

The Nepalese side recommended and agreed for the project to provide the Government land shown on the attached location map as the Construction Camp Yard.

5.7 House Compensation and Land Acquisition

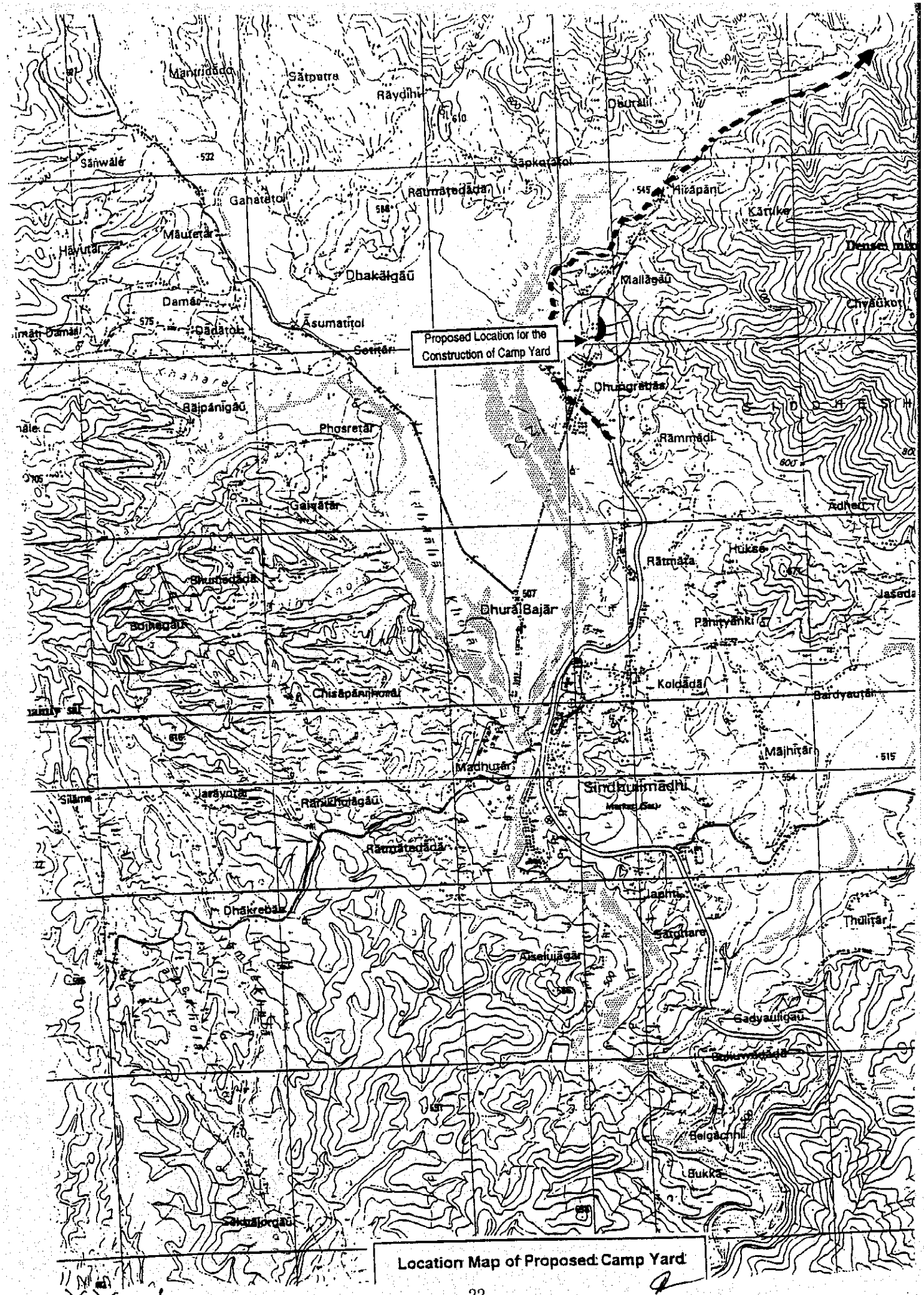
The Nepalese side shall confirm the detailed disbursement of the compensation budget after obtaining the detailed topo-maps from the Team. The Nepalese side also agreed to implement the house compensation and land acquisition strictly following the rules of HMG/N as has been implemented in the Section IV Project.

Y. Yamada

5.8 Guarantee of Free Collection of Aggregate

The Nepalese side agreed the free collection of aggregate, sand and boulders from the area of Ratu River and/or Kamala River.

Both sides understood the importance and necessity of the considerations from the environmental viewpoints at the river quarry sites.


Proposed Location for the Construction of Camp Yard
Dhurā Bajār
Location Map of Proposed Camp Yard

MINUTES OF DISCUSSIONS
ON BASIC DESIGN STUDY ON THE PROJECT FOR
CONSTRUCTION OF SINDHULI ROAD
(Section II : Sindhuli Bazar - Khurkot)
IN THE KINGDOM OF NEPAL
(EXPLANATION ON DRAFT REPORT)

In March and July, 1999, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched Basic Design Study Teams on the Project for Construction of Sindhuli Road (Section II : Sindhuli Bazar - Khurkot) (hereinafter referred to as "the Project") to The Kingdom of Nepal (hereinafter referred to as "Nepal"), and through discussion, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult His Majesty's Government of Nepal (hereinafter referred to as "HMG/N") on the components of the draft report, JICA sent to Nepal the Draft Report Explanation Team (hereinafter referred to as " the Team "), which is headed by Mr. Atsumu Iwai,Third Project Management Division, Grant Aid Management Department, JICA , from October 7 to October 15, 1999.

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

Kathmandu, October 13, 1999

Mr. Atsumu Iwai
Leader
Basic Design Study Team
Japan International Cooperation Agency

Mr. Niranjan P. Chalise
Director General
Department of Roads
Ministry of Works and Transport

His Majesty's Government
Ministry of Works & Transport
Department of Roads
Babar Mahal, Kathmandu

ATTACHMENT

1. COMPONENTS OF THE DRAFT REPORT

HMG/N agreed and accepted in principle the components of the draft report explained by the Team.

2. JAPAN'S GRANT AID SCHEME

HMG/N understood the Japan's Grant Aid Scheme and the necessary measures to be taken by HMG/N as described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both parties on March 30, 1999, and as described in the "Other Relevant Issues" of the Minutes of Discussions signed by both parties on July 7, 1999.

3. SCHEDULE OF THE STUDY

JICA will complete the final report in accordance with the confirmed item and send it to HMG/N by the end of January, 2000.

4. OTHER RELEVANT ISSUES

4.1 Environmental Impact Assessment (EIA)

(1)Both sides recognized that proper mitigation measures have already been considered in the Draft Final Report explained by the Team.

(2)In accordance with the EIA procedure as per Annex-1, which is based on the Environmental Protection Act, 1996, and Environmental Protection Regulation, 1997 (Revised in 1999), HMG/N promised to issue the final approval of EIA Report by November 14, 1999. The result shall be informed to the Embassy of Japan and JICA

A. Iwai

Nepal office immediately after issuing the final approval.

(3)Both sides examined the mitigation measures written in the Draft EIA Report, and agreed that the work scope of the mitigation measures to be covered by Japanese side is as per Annex-2.

(4)HMG/N assured that if any additional mitigation works other than Annex-2 will be included in the Final EIA Report, such works and costs shall be borne by HMG/N.

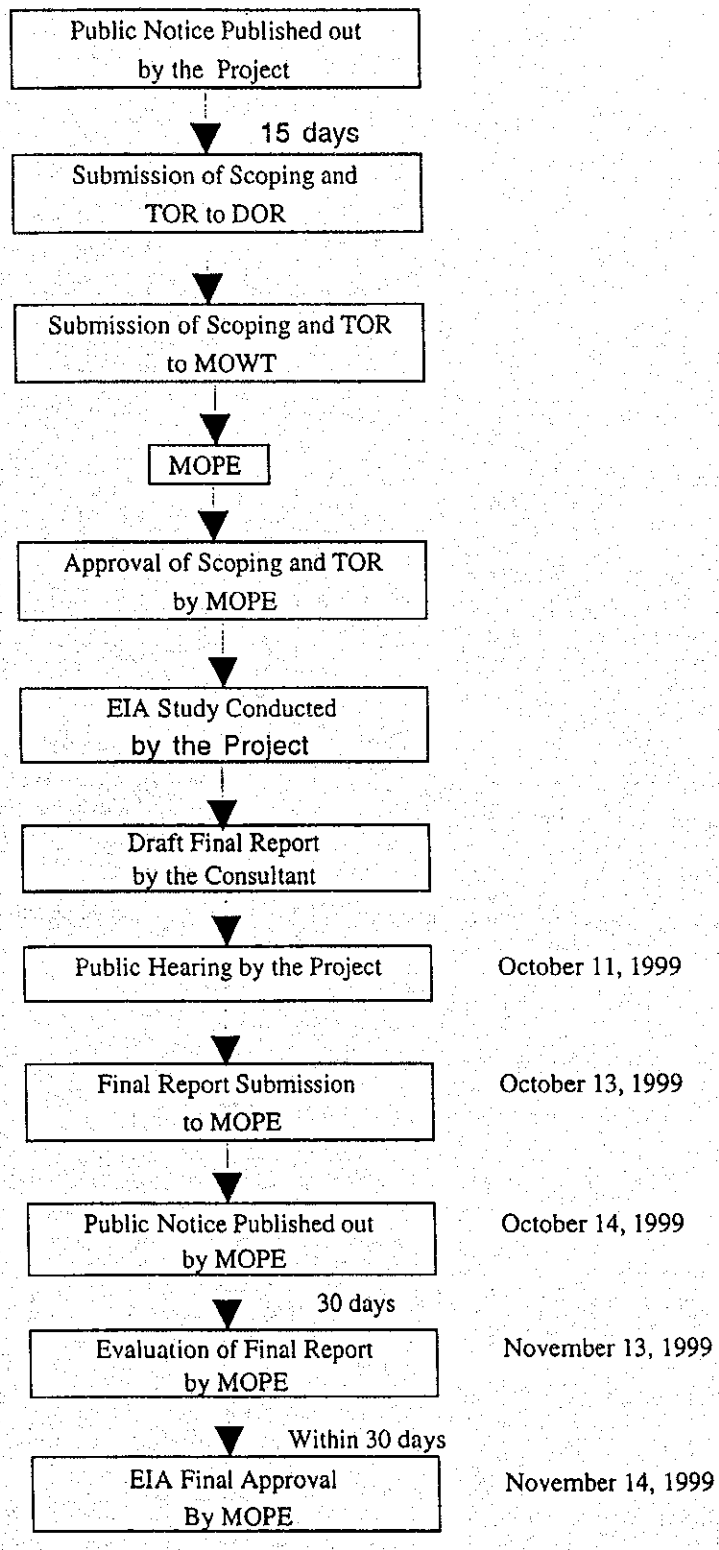
4.2 Removal and Relocation of Obstacles

To ensure the smooth implementation of the Project, HMG/N confirmed to remove and /or relocate the power distribution line at Sindhuli Gadhi and other obstacles on the planned sites in accordance with the schedule which will be prepared by the Consultant in the detail design or the construction stage.

4.3 Preparation of the Lands for the Spoil Banks

Both sides understood the necessity to have the suitable and sufficient lands for the spoil banks. HMG/N promised to provide the necessary governmental and/or private lands for the spoil banks in accordance with the detail maps and schedule which will be proposed by the Consultant. The Team agreed to include the works of loading, transportation, unloading, leveling, compaction of surplus materials, and slope stabilization with minimum facilities as a part of Contractor's responsibility.

PROCEDURE OF EIA



Note : This flow chart is prepared in accordance with the (i) Environmental Protection Act, 1996 and (ii) Environmental Protection Regulation, 1997 (Revised 99)

Abbreviation:

DOR	:	Department of Roads
MOWT	:	Ministry of Works and Transport
MOPE	:	Ministry of Population and Environment

ANNEX – 2

Mitigation Measures Shown in Table 5.2 in Draft EIA Report	Work scope to be covered under Japan's Grant Aid Programme
Design and Construction Stage	
Application of standard civil engineering norms	Application of Design Concepts described in the Draft Final Report
Application of technical specifications	Application of Specifications as mentioned in the Tender Document
Adopt cut and fill technology	Preparation of adequate Specifications in the Tender Document
Land Acquisition (farm land)	To be borne by Nepalese side
Site clearance in forest area • Royalty • Cost for clearance and transportation of products	To be borne by Nepalese side Clearance and Transportation of Products
Road slope stabilization (cost for spoil disposal, plantation, grass turfing, protection wall etc. and cost for Bio-Engineering)	The Slope Stabilization Works within the scope as described in the Draft Final Report
Environmental pollution • Water spraying • Erection of no horn signs • Vehicle maintenance	Water Spraying Erection of no horn signs Construction Equipment Maintenance
Disposal of Spoils (0.4 million m^3) (loading, transportation and unloading cost, leveling, compaction and plantation cost)	The works of loading, transportation, unloading, levelling compaction of surplus material and slope stabilization with minimum facilities.
• Compensatory plantation (also plant in roadside plantation preferably 3 rows at appropriate places)	To be borne by Nepalese side
• Regulating collection of forest products (checkpoint cost)	To be borne by Nepalese side
Awareness and Counseling services (cost for the preparation and production of awareness materials, cost for Sociologist)	To be borne by Nepalese side
Relocation of Drinking water facilities (number of facilities damaged and approximate cost)	To be borne by Nepalese side
Relocation of irrigation schemes (number of schemes damaged and approximate cost)	Re-location of existing irrigation canals as described in the Draft Final Report
Relocation of electric poles	To be borne by Nepalese side

A. Iwai

ANNEX – 2

Mitigation Measures Shown in Table 5.2 in Draft EIA Report	Work scope to be covered under Japan's Grant Aid Programme
Addition physical facility for educational institutions	To be borne by Nepalese side
Health and safety (cost for medicines, safety equipment such as helmets, masks, air plugs etc.)	Health and Safety of Workers and Labours employed by the Contractor
Operational Stage	
Roadslope stabilization	To be borne by Nepalese side
Environmental pollution (conduct a study after construction stage)	To be borne by Nepalese side
ROW management (plantation)	To be borne by Nepalese side

A. Iwai

COST ESTIMATION BORNRE BY HMG/N

Cost Estimation Borne by the HMG/N

1. Land acquisition and House Compensation Cost

Land acquisition		House compensation	
Area (m^2)	498,824 (m^2)	Number	91
Rate (NRs)	100 (NRs/m^2)	Rate (NRs)	25,000 (NRs) ··· *
Cost (NRs)	49,882,400 (NRs)	Cost (NRs)	2,275,000 (NRs)
	Total 52,157,400 (NRs)		

* Note : House compensation cost is estimated at 500 (NRs/m^2). And it is supposed that area of one house is 50m^2.

2. Electric pole relocation

Electric pole		Electric pole with transformer	
Number	31	Number	10
Rate (NRs)	10,000 (NRs)	Rate (NRs)	20,000 (NRs)
Cost (NRs)	310,000 (NRs)	Cost (NRs)	200,000 (NRs)
	Total 510,000 (NRs)		

3. Forest

Estimation at the rate of 5 persons for 4 months a year with average salary of 6,000NRs/month

5 persons × 4 months × 6,000NRs/month	= 120,000 NRs/year
Transportation (Lumpsum)	= 300,000 NRs/year
Administrative	= 60,000 NRs/year
Total	= 480,000 NRs/year

4. Maintenance Administration Cost

POSITION	Man Year
Project Manager	1
Chief Engineer	1
Engineer	4
Supervisor	4
Mechanical Engineer	2
Administrative staff	1
Other	9
Total Man Year	22

Average salary = 3,000 NRs/month

Allowance, office expenditure at 100 % of total salary

22 Man Year × 12 months × 3,000 NRs/month × 200% = 1,584,000 NRs/year

5. Maintenance Material

Average distance of cross drainage = 165 m

Gabion 1 m^3/165 m/year

Riplap 1m^3/165 m/year

Gabion wire 32.5kg/0.165×39km = 197 kg×41NRs x 39km = 315,003 NRs/year

Cement 150kg/0.165 x 39km =909 kg x 6.0 NRs x 39km = 212,700 NRs/year

Total = 527,703 NRs/year

6. Fuel

According to B/D study, fuel consumption is assumed to be 19.55 litre/hr

700m3/km/year of deposits are cleaned at capacity of 40m3/hr = 17.5 hr/km/year

17.5hr/km/year×19.55litre/hr×39km = 13,343 litre/year×13NRs/littre = 173,459 NRs/year

7. Labour

2 persons/km/day×39 km×140 NRs/day×25 days×12 months = 3,276,000 NRs/year

8. Spare

Annual spare equipment cost = 5 % of equipment cost given in reports of Section 1

80,000,000 NRs x 0.05 = 4,000,000 NRs/year

Estimated Land Acquisition Area and Houses to be compensated within the ROW

Section	Station	Total within ROW		Houses within	Acquisition Cost		
		Area (m2)	Houses	Const. Width	Land	Houses	Subtotal
A	Sta.0+000 - Sta.6+500	156,836	33	6	15,683,600	825,000	16,508,600
B	Sta.6+500 - Sta.13+000	63,479	9	5	6,347,900	225,000	6,572,900
C	Sta.13+000 - Sta.26+000	143,050	29	19	14,305,000	725,000	15,030,000
D	Sta.26+000 - Sta.35+000	37,232	0	0	3,723,200	0	3,723,200
E	Sta.35+000 - Sta.39+700	98,227	20	6	9,822,700	500,000	10,322,700
Total							52,157,400

Note: Land Acquisition Cost is estimated at Rs.100/m2.
House Acquisition Cost is estimated at Rs.500/m2. And it is supposed that area of one house is 50m2.

Estimated Land Acquisition Area and Houses to be compensated within the ROW (1km)

Section	No.	Area (m^2)	Total within ROW		Houses within Construction width
			Area (m^2)	Houses (No.)	
STA 0+000 – STA 1+000	1	3,600			
	2	14,100			
	3	7,640	25,340	7	3
STA 1+000 – STA 2+000	4	30,259	30,259	16	1
STA 2+000 – STA 3+000	5	9,399			
	6	9,114			
	7	7,013			
	8	4,004	29,530	5	0
STA 3+000 – STA 4+000	9	29,603	29,603	1	0
STA 4+000 – STA 5+000	10	9,403			
	11	16,033	25,436	4	2
STA 5+000 – STA 6+000	12	1,546			
	13	3,735			
	14	2,159	7,440	0	0
STA 6+000 – STA 7+000	15	9,228			
	16	11,300	20,528	2	1
STA 7+000 – STA 8+000	17	23,972	23,972	2	1
STA 8+000 – STA 9+000	18	7,049	7,049	0	0
STA 9+000 – STA 10+000		0	0	0	0
STA 10+000 – STA 11+000		0	0	0	0
STA 11+000 – STA 12+000	19	3,822	3,822	0	0
STA 12+000 – STA 13+000	20	7,186			
	21	10,150	17,336	5	3
STA 13+000 – STA 14+000	22	5,708			
	23	8,370			

Section	No.	Area (m^2)	Total within ROW		Houses within Construction width
			Area (m^2)	Houses (No.)	
	24	2,100	16,178	1	1
STA 14+000 – STA 15+000	25	16,011			
	26	988	16,999	3	3
STA 15+000 – STA 16+000	27	13,120	13,120	0	0
STA 16+000 – STA 17+000	28	8,606			
	29	4,268	12,874	1	1
STA 17+000 – STA 18+000	30	11,980			
	31	926			
	32	3,188	16,094	7	3
STA 18+000 – STA 19+000	33	4,291	4,291	0	0
STA 19+000 – STA 20+000		0	0	0	0
STA 20+000 – STA 21+000		0	0	0	0
STA 21+000 – STA 22+000		0	0	0	0
STA 22+000 – STA 23+000	34	2,876			
	35	1,938	4,814	0	0
STA 23+000 – STA 24+000	36	7,460			
	37	4,584			
	38	1,853	13,897	6	4
STA 24+000 – STA 25+000	39	10,230			
	40	6,441			
	41	7,940	24,611	7	5
STA 25+000 – STA 26+000	42	2,644			
	43	9,710			
	44	4,380			
	45	2,175			
	46	1,263	20,172	4	2
STA 26+000 – STA 27+000	47	2,065	2,065	0	0

Section	No.	Area (m^2)	Total within ROW		Houses within Construction width
			Area (m^2)	Houses (No.)	
STA 27+000 – STA 28+000		0	0	0	0
STA 28+000 – STA 29+000		0	0	0	0
STA 29+000 – STA 30+000		0	0	0	0
STA 30+000 – STA 31+000	48	11,332	11,332	0	0
STA 31+000 – STA 32+000	49	9,450			
	50	1,000			
	51	5,725	16,175	0	0
STA 32+000 – STA 33+000	52	2,350	2,350	0	0
STA 33+000 – STA 34+000	53	5,310	5,310	0	0
STA 34+000 – STA 35+000		0	0	0	0
STA 35+000 – STA 36+000	54	940			
	55	2,287			
	56	2,460			
	57	1,196	6,883	11	3
STA 36+000 – STA 37+000	58	5,510			
	59	3,820			
	60	18,565	27,895	6	3
STA 37+000 – STA 38+000	61	4,887			
	62	7,838	12,725	0	0
STA 38+000 – STA 39+000	63	2,885			
	64	2,571			
	65	2,994			
	66	4,241			
	67	14,567	27,258	3	0
STA 39+000 – End	68	23,466	23,466	0	0
GRAND TOTAL			498,824	91	36