



**ROADS & HIGHWAYS DEPARTMENT (RHD), MINISTRY OF COMMUNICATION (MOC)
PEOPLE'S REPUBLIC OF BANGLADESH**

**PREPARATORY SURVEY FOR
DHAKA-CHITTAGONG NATIONAL HIGHWAY NO.1
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT**

(Project name:

**THE KANCHPUR, MEGHNA, GUMTI 2ND BRIDGES CONSTRUCTION
AND EXISTING BRIDGES REHABILITATION PROJECT)**

FINAL REPORT

VOLUME 2 : APPENDICES (1)

(APPENDIX 1 - 13)

March 2013

JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS CO., LTD.

KATAHIRA & ENGINEERS INTERNATIONAL

E I
JR(先)
13-034



**ROADS & HIGHWAYS DEPARTMENT (RHD), MINISTRY OF COMMUNICATION (MOC)
PEOPLE'S REPUBLIC OF BANGLADESH**

**PREPARATORY SURVEY FOR
DHAKA-CHITTAGONG NATIONAL HIGHWAY NO.1
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT**

(Project name:

**THE KANCHPUR, MEGHNA, GUMTI 2ND BRIDGES CONSTRUCTION
AND EXISTING BRIDGES REHABILITATION PROJECT)**

FINAL REPORT

VOLUME 2 : APPENDICES (1)

(APPENDIX 1 - 13)

March 2013

JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS CO., LTD.

KATAHIRA & ENGINEERS INTERNATIONAL

**Preparatory Survey for Dhaka-Chittagong National Highway No.1 Bridge
Construction and Rehabilitation Project**

**(Project Name: The Kanchpur, Meghna, Gumti 2nd Bridges Construction
And Existing Bridges Rehabilitation Project)**

VOLUME2: APPENDICES

- TABLE OF CONTENTS -

Appendiecs (1)

Appendix 1.	Minutes of Meeting at RHD and Clarification Letter from MOC	AP1-1
Appendix 2.	Records of Topographical Survey	AP2-1
Appendix 3.	Records of Geological Survey.....	AP3-1
Appendix 4.	Records of Traffic Survey	AP4-1
Appendix 5.	Records of Bridge Survey	AP5-1
Appendix 6.	Records of River Traffic Survey	AP6-1
Appendix 7.	Hydrological Data	AP7-1
Appendix 8.	Pavement Design.....	AP8-1
Appendix 9.	Result of Intersection Analysis.....	AP9-1
Appendix10.	Axle Load Survey.....	AP10-1
Appendix11.	Applicability of Weathering Steel in Bangladesh	AP11-1
Appendix12.	Operation and Maintenance Administration	AP12-1
Appendix13.	Terms of Reference for External Monitoring Agency	AP13-1

Appendiecs (2)

Appendix14.	Terms of Reference for RAP Implementing Agency (RAP-IA)	AP14-1
Appendix15.	Terms of Reference for Consulting Engineers Services.....	AP15-1
Appendix16.	Economic and Financial Evaluation.....	AP16-1
Appendix17.	EIA Report.....	AP17-1
Appendix18.	RAP Report	AP18-1

APPENDIX 1.

**MINUTES OF MEETING AT RHD AND
CLARIFICATION LETTER FROM MOC**

PREPARATORY SURVEY FOR DHAKA-CHITTAGONG NATIONAL HIGHWAY No.1
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT
MINUTES OF MEETINGS No.1

Meeting Name : Kick-off Meeting

Date/Time : December 26 (Mon.) 2011/ 10:40~12:00

Place : RHD Office

Attendants :

RHD (Roads and Highways Department)

Mr. Md. Abdul Quddus : Chief Engineer
Mr. Md. Saidul Haque : Additional Chief Engineer
Mr. M. Feroz Iqbal : Additional Chief Engineer
Mr. Deleep Kumar Guha : Additional Chief Engineer
Mr. Bipul Chandra Saha : Additional Chief Engineer
Mr. Rehana Haque : Executive Engineer
Mr. Md. Rezaul Karim : Executive Engineer
Mr. Md. Ashraful Alam : Superintending Engineer
Mr. Md. Shahabuddin Khan : Superintending Engineer

JICA Bangladesh Office

Mr. Suman Das Gupta: Senior Program Manager

Consultant Team

Mr. Motoi Okuda: Sub team leader Oriental Consultants Co., Ltd.
Mr. Makoto Nozawa: Oriental Consultants Co., Ltd.
Mr. Yukimoto Tatsumi: Oriental Consultants Co., Ltd.
Dr. Ghosh Prosenjit Kumar: Oriental Consultants Co., Ltd.
Mr. Takemasa Uehara: Pegasus Engineering Corporation

Following matters were discussed in the Kick-off meeting:

Introduction

1. Chief Engineer exchanged his great wishes to the Consultant team and welcomed any suitable advice from the Consultant team.
2. Additional Chief Engineer explained that RHD will assist the Consultant team for any kind of help and queries necessary for this project.
3. Attendants introduced themselves.



Preparatory Survey Work

1. Mr. Suman introduced the preparatory survey schedule to be implemented by the Consultant team.
2. Mr. Okuda presented on Inception Report prepared by Oriental Consultants Co., Ltd. and Katahira and Engineers International. (Attachment-1)
3. Consultant team submitted Questions and Information Request (Attachment-2) to RHD and expected any kind of help / supports from RHD for data collection.
4. RHD engineer explained that basically Additional Chief Engineer, Bridge Management Wing, Mr. Md. Saidul Haque will be in charge for this project.
5. RHD engineer explained that for any queries to RHD and data collection on previous studies, Engr. Md. Rezaul Karim will assist the Consultant team. In concerning data collection, RHD will issue a forwarding letter and hand over to Consultant Team soon, which will be pre-requisite and necessary documents to go to any institute/ organization for data collection.
6. RHD engineer informed that RHD has already formed Technical Committee with six members with their contact information and handed over the list of members (Attachment-3) to the Consultant team. Among them, Engr. Mr. Md. Sahabuddin will guide and help during the survey investigation stage.
7. Consultant team did not get any information on Steering Committee formation and concerned committee members.

Confirmed by:



Mr. Md. Saidul Haque
Additional Chief Engineer,
RHD, Sarak Bhaban, Ramna,
Dhaka, Bangladesh
Date:



Mr. M. Okuda,
Sub team leader of Consultant Team
Oriental Consultants Co., Ltd.
Japan
Date: 28 December 2011

PREPARATORY SURVEY FOR DHAKA-CHITTAGONG NATIONAL HIGHWAY No.1
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT

MINUTES OF MEETINGS No.2

Meeting Name : Technical Committee Meeting

Date/Time : March 11 (Sun) 2012/ 9:30~11:00

Place : Roads and Highways Department (RHD), Sarak Bhaban, Ramna, Dhaka.

Sub: Inception Report (Rev.1) and Survey Progress

Attendants:

- Mr. Md. Saidul Hoque : Additional Chief Engineer (RHD, BMW)
Mr. Mohd. Faridul Alam : Superintending Engineer (RHD, AE)
Mr. Md. Imdad Hossain : Superintending Engineer (RHD, Procurement)
Mr. Md. Ahmedur Rahman : Superintending Engineer (BCMC)
Mr. Md. Ashraful Alam : Superintending Engineer (RHD, Bridge design circle)
Mr. Md. Zikrul Islam : Executive Engineer (RHD, Procurement)
Mr. Rehana Haque : Executive Engineer (RHD)
Mr. Md. Rezaul Karim : Executive Engineer (RHD)
Mr. Md. Riaz Ahmad Jaber : Executive Engineer (RHD)
Mrs. Zohora Sultana : Sub-divisional Engineer (BDP-1)
Mr. Abdur Rahman Kaoser : Sub-divisional Engineer (BDD-3)

From JICA

Mr. Toyoaki Ito : JICA expert for RHD

Consultant Team

- Dr. Masaaki Tstsumi, Team leader Oriental Consultants Co., Ltd
Mr. Motoi Okuda: Sub team leader Oriental Consultants Co., Ltd.
Mr. Eiji Yonezawa: GM, Oriental Consultants Co., Ltd.
Mr. Itsuro Sakai: Oriental Consultants Co., Ltd.
Mr. Yoshio Kashiwai: Oriental Consultants Co., Ltd.
Mr. Takemasa Uehara: Pegasus Engineering Corporation
Mr. Hironobu Kuroe: Oriental Consultants Co., Ltd.
Mr. Takeo Shoji: Japan Overseas Consultants Co., Ltd
Toshiyuki Konno: Tonichi Engg. Consultants Inc.
Mr. Makoto Nozawa: Oriental Consultants Co., Ltd.
Dr. Ghosh Prosenjit Kumar: Oriental Consultants Co., Ltd.
Mr. Yukimoto Tatsumi: Oriental Consultants Co., Ltd.



Following matters were discussed in the technical committee meeting

Introduction

1. Additional Chief Engineer (ACE) thanks consultants team members and requested team leaders for presentation.

2. Presentation on Inception Report (Rev. 1) and Discussion

1. Dr. Tatsumi introduced the Consultants team members and then, presented on Inception Report (Rev. 1) prepared by Oriental Consultants Co., Ltd. and Katahira and Engineers International. He also explained the different alternative alignment for 2nd bridges and corresponding environmental social impacts.

2. The Consultant informed that the video along the alignment of new bridges has been taken earlier as requested by ACE, BMW.

ACE, BMW also requested the Consultant to submit the video to the JICA.

3. On behalf of RHD personnel, Additional Chief Engineer explained and strongly recommend that to mitigate the excess traffic volume and unusual traffic congestion in NH No.1, the new bridges (2nd Kanchpur, 2nd Meghna and 2nd Meghna-Gumti bridges) with 4-lane should be essential.

4. According to discussion (No.3), the Consultant team requested them about their plan to regulate traffic movement through existing 2-lane bridge and 4-lane 2nd bridge. In reply, the existing 2-lane bridge and the 3-lane of 4-lane 2nd bridge will be used for regular traffic movement by putting the temporary barrier between 1-lane and 3-lane of new bridge.

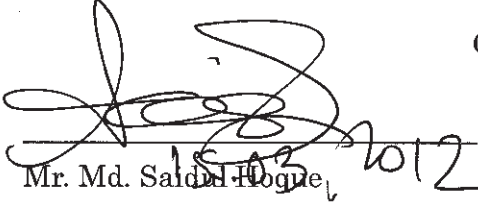
5. Accordingly, the Consultant team requested RHD personnel about Road Master Plan especially for Dhaka-Chittagong NH No.1). In reply, RHD personnel explained that they have a future plan to widen the NH No.1 into 8-lane from Jatrabari (2-3 Km ahead of Kanchpur bridge toward Dhaka side) and will submit the necessary documents to the Consultant.

6. To construct the 2nd Meghna Bridge close to existing bridge is difficult. This is because there is a "Holcim Cement Factory" constructed close to existing Meghna Bridge. Government of Bangladesh has a long term agreement to the proprietor of "Holcim Cement Factory". Therefore, to relocate or remove this factory or construct any fence /side wall close to factory will be impossible.

7. According to queries from Consultant team, the RHD personnel replied that the feasibility study on Dhaka-Chittagong express way (access control) funded by ADB may be started from 2016. Beyond this, they have no update information and this project will be their dream.

M D





Mr. Md. Saiddul Hossain
Additional Chief Engineer,
RHD, Sarak Bhaban, Ramna,
Dhaka, Bangladesh
Date:

Confirmed by:



Motoi Okuda
Sub team leader
Oriental Consultants Co., Ltd.
Japan
Date: 15 March 2012

Mo

PREPARATORY SURVEY FOR DHAKA-CHITTAGONG NATIONAL HIGHWAY No.1
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT

MINUTES OF MEETINGS No.3

Meeting Name : Discussion with Bridge Management Wing, RHD

Date/Time : March 19 (Mon) 2012/ 12:00~13:00

Place : Roads and Highways Department (RHD), Sarak Bhaban, Ramna, Dhaka.

Sub: Confirmation of design criteria for bridge design

Attendants:

Mr. Md. Saidul Hoque : Additional Chief Engineer (ACE, RHD, BMW)

Mr. Md. Ashraful Alam : Superintending Engineer (RHD, Bridge design circle)

Mr. Md. Rezaul Karim : Executive Engineer (RHD)

From JICA

Mr. Toyoaki Ito : JICA expert for RHD

Consultant Team

Mr. Motoi Okuda: Sub team leader, Oriental Consultants Co., Ltd.

Dr. Ghosh Prosenjit Kumar: Oriental Consultants Co., Ltd.

Following matters were discussed with RHD, BMW personnel

(1) Bridge design criteria

Design code: AASHTO is the basic code for bridge design. Latest version of AASHTO 2010 can be used for road and bridge design. In addition, in order to carry out dynamic /seismic analysis, seismic zone co-efficient, earthquake return period and another relevant parameters can be picked up from BNBC design manual to derive acceleration spectrum.

Live load combination on floor system:

ACE, BMW confirms that live load for design of bridge slab / floor system only, additional special loading criteria can be taken into consideration to accommodate relatively heavy weight vehicles for specific purpose. In this regard, live load combination from IRC-class or Japanese standard can be considered.

Restrainer to resist horizontal movement of bridge slab

As a queries from Consultant team, ACE, BMW confirms that Shock Transmission Unit (STU) are commonly used in Bangladesh, which is already practiced in Bangladesh for Jamuna multi-purpose Bridge and some fly over construction projects.



MO

(2) Bridge type

To select bridge type for 2nd bridges, RHD personnel gave some options with considering

- Not frequent periodic maintenance
- Manageable and easy periodic maintenance

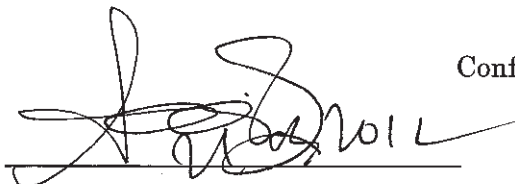
Regarding the bridge type selection, PC-Extradosed or PC-box girder can be alternative option for 2nd bridge construction.

(3) Existing Kanchpur Bridge

ACE, BMW confirms that the existing Kanchpur bridge is 3+ lane. Present form of 3+ lane existing Kanchpur Bridge together with 4-lane 2nd Kanchpur Bridge will be used to regulate traffic movement. If there occurs any bottlenecks in traffic movement, the [U-loop] plan going to be implemented soon by RHD can be considered as remedial measures.

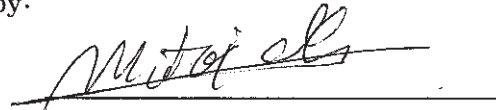
(4) 8-lane road project

The Consultant team has received the 8-lane project plan that will be implemented between Jatrabari road to ahead of Kanchpur Bridge.



Mr. Md. Saidul Hoque
Additional Chief Engineer,
RHD, Sarak Bhaban, Ramna,
Dhaka, Bangladesh
Date:

Confirmed by:



Motoi Okuda
Project sub team leader
Oriental Consultants Co., Ltd.
Japan
Date: 21. March 2012

**PREPARATORY SURVEY FOR DHAKA-CHITTAGONG NATIONAL HIGHWAY No.1
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT**

MINUTES OF MEETINGS No.4

Meeting Name : Technical Committee Meeting

Date/Time : March 28 (Wed) 2012/ 11:00~12:00

Place : Roads and Highways Department (RHD), Sarak Bhaban, Ramna, Dhaka.

Sub: Presentation on Progress Report

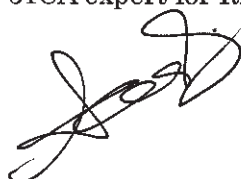
Attendants:

- Mr. Md. Saidul Hoque : Additional Chief Engineer (RHD, BMW)
Mr. Md. Mahboob ul Alam : RHD
Mr. Md. Ahmedur Rahman : SE, BCMC
Mr. Md. Ashraful Alam : SE, RHD, Bridge design circle
Mr. Rehana Haque : EE, RHD
Mr. Md. Rezaul Karim : EE, BDD-1, RHD
Mr. Shahabuddin Khan : EE, RHD, Bridge design circle
Mr. Abdur Razzaque : EE, RHD, Bridge maintenance and planning
Mr. Md. Anwarul Amin : EE, Road Design & Standard
Mr. A.S.M Elias Shah : EE, BIP
Mrs. Parveen Sultana : EE, Monitoring
Mr. Tushar Kanti Shaha : EE, RHD, Narayangong
Mr. Abdhul Mannan : EE, RHD, BC&M Div-2
Mr. Md. Sabuj uddin : EE, RHD, Road division, Manikgong
Mr. Riaz Ahmed Jaber : EE Bridge Construction & Maintenance Div-4
Mrs. Zohora Sultana : SDE, RHD, BDP-1
Mrs. Fahmida Haque Khan : SDE, BCMD-1
Mrs. Shamima Nargis : SDE, BCMD-2
Mrs. Tamina Tasmin : SDE, BCMD-4, Dhaka
Mr. Md. Amdad Hossen : SDE, Monitoring
Mr. Md. Fariduddin Ahmed : SDE, RHD Narayangong
Mr. Md. Nurul Alam : AE, Bridge Construction & Maintenance Circle
Md. Golam Mostafa : AE, BDD-2, Dhaka
Mr. Javed Hossain Talukder : AE, BCMD-2

From JICA

- Mr. Toyooki Ito : JICA expert for RHD

N/D



Consultant Team

Mr. Motoi Okuda: Sub team leader Oriental Consultants Co., Ltd.

Mr. Takemasa Uehara: Pegasus Engineering Corporation

Toshiyuki Konno: Tonichi Engg. Consultants Inc.

Mr. Makoto Nozawa: Oriental Consultants Co., Ltd.

Dr. Ghosh Prosenjit Kumar: Oriental Consultants Co., Ltd.

Mr. Yukimoto Tatsumi: Oriental Consultants Co., Ltd.

Following matters were discussed in the presentation

(1) Introduction

Additional Chief Engineer (ACE) thanks Consultants team members and requests sub team leader to present progress report.

(2) Presentation on Progress Report

Project sub team leader Mr. Motoi Okuda has presented and discussed on Progress Report.

(2) Bridge and Approach Road design criteria

The Consultant team has discussed some design criteria regarding bridge design and approach road design for 2nd bridges.

(3) 2nd bridge foundation not to be affected by scouring problem in future

To protect the bridge pier against scouring problem, the consultant has proposed Sheet Pile well method, which would be relatively costly. Rather, this method would be an effective solution especially for Meghna Bridge. In concerning to this method, ACE, BMW requested to make a comparative study among Cast in Situ RCC Pile, Additional Pile method and Sheet Pile Well method.

(4) Proposed lane number for 2nd Bridges

According to traffic volume study and considering the project on-going and project to be implemented in near future, the consultant team has found that the three 2nd Bridges would be 4-lane Bridge

(5) Public consultation with owner of "Holcim Cement Factory"

The Consultant team has raised question if the new 2nd Meghna Bridge is aligned very close to "Holcim Cement Factory", the owner of the factory might raise any objection or not ? For clarification of alignment, the Consultant team will submit as soon possible the detailed drawing of approach road with different alternatives that demonstrates the level of influence to Holcim cement. In order to clarify this statement, RHD personnel has promised that they will take initiatives and arrange meeting / necessary action / consultation with owner of "Holcim Cement Factory".

MMO

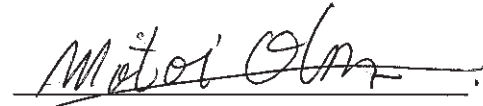


2



Mr. Md. Saidul Hoque
Additional Chief Engineer,
RHD, Sarak Bhaban, Ramna,
Dhaka, Bangladesh
Date:

Confirmed by:



Motoi Okuda
Project sub team leader
Oriental Consultants Co., Ltd.
Japan

Date: 29. March 2012

Md. Habibur Rahman,
Executive Engineer (RHD),
Sarak Bibhag,
Narayanganj.

তারিখ: ৩০/৫/১২
স্বাক্ষর: [Signature]
পরিচালক (সি.এ.ই.)
রাষ্ট্রপথ বিভাগ, ঢাকা

May 30, 2012

Subject: Release of 15 Meters of Land from the Boundary Wall for the Purpose of Bridge Construction Work of The Second Meghna Bridge on Dhaka-Chittagong High Way

Dear Sir,

Please refer to your letter Memo No.1754 dated 27.05.2012 on the above subject. We have had a further meeting with the yourself, the Superintending Engineer, Engineer Md. Shahabuddin Khan, and Sub-divisional Engineer Mr.Fariduddin Ahmed on 29 May 2012 at 6 pm in the office of the Superintending Engineer. At this meeting you were kind enough to clarify that 15 meters of land inside the boundary wall of our cement manufacturing plant in Meghnaghat, Sonargao, Narayanganj would be required for the construction work of the Second Meghna Bridge. After completion of the construction of the Second Meghna Bridge, a maximum of only 5 meters of the released land would be required to be retained by the Roads And Highways Division including for the circular road. The rest of the land of at least 10 meters, and maybe more if not required for the bridge and circular road would be released back to us for the use of the cement plant.

However, in the above-referenced letter it has been mentioned that after the completion of the bridge construction work you will retain 10 meters instead of up to a maximum of 5 meters. In view of our discussions on 29 May 2012, we humbly request you to re-issue your letter Memo No.1754 dated 27.05.2012 incorporating our joint understanding as below:

- (i) Holcim Cement (Bangladesh) Ltd (formerly Hyundai Cement Bangladesh Ltd), will provide 15 meters of land within the west side of the boundary wall, on the Dhaka-Chittagong Highway side to the Roads and Highways Division for the purpose of the construction work of the Second Meghna Bridge and circular road.
- (ii) After completion of the construction of the Second Meghna Bridge and circular road, the Roads and Highways Division will retain up to a maximum of 5 meters of the said land, and return the remaining land, which shall be at least 10 meters but may be more depending on the land in fact used for the Second Meghna Bridge and circular road.
- (iii) Roads and Highways Division shall have a joint survey with us at the end of the construction period to ascertain the amount of land to be retained by it.
- (iv) Based on the survey, Roads and Highways will compensate us for the land retained by it as per applicable rules, as soon as possible, but in any event not later than 3 months from the date of completion of the construction works of the Second Meghna Bridge and relevant portion of the circular road. The

১৫ মিটার - ১৫ মিটার - ১৫ মিটার
১০ মিটার - ১০ মিটার - ১০ মিটার

[Signature]
[Signature]
[Signature]

tolcim

- compensation shall include the cost of re-constructing the boundary wall at then current prices.

The requirement of this land is very vital for our operations but considering the larger interest of the nation we are agreeable to release the 15 meters of land as required by you, at the time of commencement of the construction of the bridge, on the terms mutually agreed by us and detailed in items (i) through (iv) above

We assure you of our highest consideration and cooperation always.

Thanking you.

Yours faithfully,

Niaz Uddin Mahmood

Niaz Uddin Mahmood
VP – Business Development & Administration

০১৬৭

C.C To: Eng and Shahabuddin Khan
1 Superintending Engineer (RHD),
Allenbari, Tejgaon, Dhaka

রেজি নং ২২২৭
তার ০৫/৬/২২
ঢাকা সড়ক সার্কেল
ঢাকা।

৪৯ - ৬০/১৩১

প্রাপ্তি নং ২০২৩/১৩১-৬-১২
প্রতিষ্ঠানঃ রাস্তা পরিবহন বিভাগ, স ৩৩
ব্রিড্জ ম্যানেজমেন্ট ডিভি

স্মারক নং ২০২৩/১৩১ তার ০৫/৬/২২

- Copy forwarded to :-
- ① ACE, RHD, Dhaka ^{Zone} ~~Circle~~, Allenbari Dhaka
 - ② ACE, RHD, Bridge Management wing, Dhaka-1002

21

Niaz Uddin Mahmood
ব্যবস্থাপক সিনিয়র (সড়ক)
সড়ক সার্কেল, ঢাকা।

**PREPARATORY SURVEY FOR DHAKA-CHITTAGONG NATIONAL
HIGHWAY No.1 BRIDGE CONSTRUCTION AND REHABILITATION
PROJECT**

MINUTES OF MEETINGS No.5

Meeting Name : Technical Committee Meeting

Date/Time : June 05 (Tue) 2012/ 15:00~16:30

Place : Roads and Highways Department (RHD), Sarak Bhaban, Ramna, Dhaka.

Sub: Presentation on Progress Report (Stage 2)

Attendants:

Mr. Md. Saidul Hoque : Additional Chief Engineer , RHD, BMW.
Mr. Md. Ashraful Alam : SE, RHD, Bridge design circle
Mr. Md. Rezaul Karim : EE, BDD-1, RHD
Mr. Md. Riaz Ahmed Jaber : RHD
Mr. Md. Golam Mostofa : RHD
Mr. Md. Yousuf : RHD

From JICA

Ms. Soekawa Mizuno : JICA Head Quarter, Tokyo
Mr. Yoshimitsu Hiyama : JICA expert for RHD
Mr. Suman Das Gupta : JICA, Dhaka office

Consultant Team

Mr. Motoi Okuda: Sub team leader, Oriental Consultants Co., Ltd.
Mr. Makoto Nozawa: Oriental Consultants Co., Ltd.
Dr. Ghosh Prosenjit Kumar: Oriental Consultants Co., Ltd.

Following matters were discussed in the presentation

(1) Introduction

Additional Chief Engineer (ACE) thanks JICA personnel & Consultant team members, and requests Mr. Okuda to present progress report.

(2) Construction of New Bridge

Mr. Okuda presented and discussed on survey progress report (Stage 2). Based on the presentation, following matters are concretely discussed and requested RHD personnel to confirm at earliest convenience.

(a) New Bridge Alignment

The survey team has proposed three Alignments (A, B, C) for each respective



bridge. Among them, "Alignment A" is very close to existing one and the survey team proposed this alignment as first priority due to consideration of cost aspect and environmental issue. But for Meghna Bridge, "Alignment A" has some influences to "Holcim Cement" boundary and they may arise some issue due to construction of new Meghna Bridge. The ACE, BMW has confirmed that the raising issue has already been solved by the consultation with owner of "Holcim Cement Factory". In this regard, RHD will hand over No Objection Certificate (NOC) from "Holcim Cement Factory" to JICA at earliest convenience.

(b) New Bridge Lane Number

According to traffic volume conducted by survey team and further considering the Railway and Chittagong Seaport and Deep Seaport development plan, the consultant team has found that the new three 2nd Bridges (Kanchpur, Meghna and Meghna-Gumti) would be 4-lane Bridge.

The ACE, BMW has promised that RHD will submit official letter to JICA regarding the confirmation of new bridge alignment, new bridge lane numbers along with No Objection Certificate from Holcim Cement within one week from 5th June, 2012.

(c) New Bridge type

The Consultant team has presented and compared four bridge types for 2nd Kanchpur and 2nd Meghna-Gumti Bridges, five bridge types for 2nd Meghna Bridge. The Consultant also proposed a ranking of them with considering several factors such as environmental aspect, erection time, scouring effect, appearance and cost aspect.

Ms. Soekawa from JICA side highly requested to RHD personnel to take decision on selection of new bridge type. Accordingly, ACE, BMW confirmed that RHD will inform JICA officially the final decision on selection of new bridge type within one month from 5th June, 2012. In this regard, Consultant team will provide some supporting documents to RHD to get some clear images on new bridge type.

(3) Existing Bridge Rehabilitation Plan

The ACE, BMW has informed that the GoB is going to take initiatives on some temporary rehabilitation of existing Meghna and Meghna-Gumti Bridges with the help of army personnel. Consequently, in the next year dry season, GoB is also planning to partially rehabilitate the foundation of Meghna Bridge at least Pier P8. In this regard, Ms. Soekawa from JICA



WHD

**PREPARATORY SURVEY FOR DHAKA-CHITTAGONG NATIONAL
HIGHWAY No.1 BRIDGE CONSTRUCTION AND REHABILITATION
PROJECT**

MINUTES OF MEETINGS No.6

Meeting Name : Technical Committee Meeting

Date/Time : July 23 (Mon) 2012/ 11:30~13:00

**Place : Roads and Highways Department (RHD), Sarak Bhaban, Ramna,
Dhaka.**

Sub: Presentation on Interim Report

Attendants:

RHD

Aminur Rahman Laskar : Chief Engineer, RHD
Md. Saidul Hoque : ACE, RHD, BMW
Md. Mafizul Islam : ACE, RHD, Dhaka zone
Bipul Chandra Shaha : ACE, RHD
M. Feroz Iqbal : ACE, RHD
Md. Mahboob Ul Alam : ACE, RHD, Tech. Services Wing
Deleep k. Guha : ACE, RHD, ADB projects
Q. Mohammad Ali : ACE, RHD, MSW
Md. Imdad Hossain : SE, RHD, Procurement circle
Mohd. Faridul Alam: : SE, RHD
Md. Ashraful Alam : SE, RHD, Bridge design circle
Rehana Haque : EE, RHD
Md. Rezaul Karim : EE, BDD-1, RHD

BUET Consultant

Dr. AFM Saiful Amin :Professor, Civil Dept., BUET

JICA

Soekawa Mizuno : JICA Head Quarter, Tokyo
Nobuo Hazeyama : Sr. Trans. Specialist, JICA, Dhaka office
Yoshimitsu Hiyama : JICA expert for RHD
Suman Das Gupta : Sr. Program Manager, JICA, Dhaka office
Yoshi Nagano : Representative, JICA Dhaka office

JICA study team

Dr. Masaaki Tatsumi : JICA study team leader



Yonezawa Eiji : JICA study team
Itsuro Sakai : JICA study team
Kumagai Toshihiko : JICA study team
Makoto Nozawa : JICA study team
Dr. Ghosh Prosenjit Kumar : JICA study team
Tatsumi Yukitomo : JICA study team

Following matters were discussed in technical committee meeting

1. Introduction

Mr. Aminur Rahman Laskar, Chief Engineer, RHD exchanged his greetings with JICA personnel & study team members, and presided over the technical committee meeting for interim report presentation.

Ms. Soekawa from JICA Headquarter, Japan thanks to RHD personnel for arranging the technical committee meeting and requested the RHD personnel to prepare a framework how to execute this project from Bangladesh side. She also explained her purpose of visit as below

- Monitoring the progress of project
- Confirmation of new bridge type to be selected for 2nd Kanchpur, 2nd Meghna and 2nd Meghna-Gumti bridges.

2. Presentation on interim report

On behalf of JICA study team, Dr. Tatsumi discussed on interim report by a Power Point presentation [Attachment1]. The main points of the presentation are briefly explained below

a) Lane numbers for 2nd bridges

Based on traffic volume conducted by study team, the number of lanes for three 2nd bridges (Kanchpur, Meghna and Meghna-Gumti) has been determined as 4-lane.

b) 2nd bridge alignment

The study team has selected the 'Alignment A' for 2nd Kanchpur, 2nd Meghna and 2nd Meghna-Gumti bridges construction. The 2nd bridges shall be aligned as parallel and next to the existing ones so that it will secure adequate space for construction.

The above two issues stated in Sec. 2. a) & b) have been confirmed by Ministry of Communication (MoC). In this regard, MoC has already issued and submitted a clarification letter to JICA.

c) Foundation type

The study team proposed the Steel Pipe Sheet Pile (SPSP) foundation



type for construction of new three bridges (2nd Kanchpur, 2nd Meghna and 2nd Meghna-Gumti). The foundation of new bridge will be integral with that of the existing bridge, which result in least construction cost comparing with the concrete bored pile foundation. The RHD personnel agreed on this plan proposed by study team.

d) 2nd bridge type

The study team has proposed four types of bridges for 2nd Kanchpur, 2nd Meghna-Gumti and 2nd Meghna Bridges. The four types of bridge are described with schematic diagram in [Attachment]. The study team has also prepared a comparative study among four bridge types considering several factors such as construction period, construction cost, riverbed scouring, earthquake resistance and structural system etc. Among the four types, the study team has evaluated the continuous steel narrow box girder as the best option for 2nd bridges construction. It is noted that the girder of steel narrow box girder bridge is made of weathering steel which has anti-corrosion properties and is serviceable in Bangladesh considering the regional salinity effect. The GoB decision on the selection of bridge type will be informed to JICA soon.

e) Retrofitting and rehabilitation plan for existing bridges

The study team has proposed a retrofitting and rehabilitation plan for existing bridges (Kanchpur, Meghna and Meghna-Gumti). The retrofitting of existing bridges will be executed in the following manners:

- ✓ Bored concrete pile foundation to be retrofitted by SPSP
- ✓ Piers to be retrofitted by RC-lining and RC-wall
- ✓ Connecting the girders (no hinge and expansion joints)
- ✓ Center hinge rehabilitation
- ✓ Expansion joint replacement
- ✓ Deck strengthening

The retrofitting plan and their application for respective bridges are schematically shown in the [Attachment]. The retrofitting plan stated above is for long-term countermeasures.

3. Discussion


After presentation, some key points are taken into attention to the RHD personnel and some points are requested for the study team to consider while the outline design will be carried out.

- a) For 2nd Kanchpur Bridge, an additional width of 2.5 m [See Attachment] is




proposed by study team, which is required to secure adequate space for passing the pedestrian through each direction. The RHD personnel agreed on this proposal.

- b) Prof. Amin from BUET commented on the input parameter for thermal load calculation. He stated that the concrete surface temperature measured on Meghna Bridges was found to be 50°C which is higher than the ambient temperature 43°C proposed by the study team. Therefore, it may be necessitated to revise this criterion. He raised a question on the clearance (≈ 800 mm) between the 2nd bridge and existing bridge. He also advised that the adequacy of the clearance will be verified by lateral displacement of bridge along transverse direction.
- c) Due to vulnerable condition of Meghna and Meghna-Gumti bridges, the GoB is going to implement some emergency repairing works. This plan includes the rehabilitation of central hinges and expansion joints, some countermeasures for riverbed scouring. The RHD personnel assures that the repairing works and countermeasures for riverbed scouring will be implemented so that the plan will not create any barrier while implementing the permanent retrofitting plan proposed by JICA study team.
- d) From RHD end, there is a query on the durability of bearings and specifically how long their life-span. In reply, Dr. Tatsumi explained that the life span of bearing can be expected as 85-200 years, based on some published research papers. But, according to the findings by a Japanese research institute, the life span of bearing can be expected as 100 years. Therefore, it will be reasonable to consider the life span of bearing as 100 years for this project.



Mr. Md. Saidul Hoque
Additional Chief Engineer,
RHD, Sarak Bhaban, Ramna,
Dhaka, Bangladesh
Date: 29.07.2012


Confirmed by:



Dr. Masaaki Tatsumi
Study team leader
Oriental Consultants Co., Ltd.
Japan
Date: 29/07/2012

side highly requested to RHD personnel to share with Consultant team about their rehabilitation plan and methodology so that the views can be exchanged and accordingly, there will be no gap. She also requested to avoid the plan and methodology that can create barrier during implementation of permanent rehabilitation plan to be proposed by JICA team. ACE, BMW agreed with the Proposal and RHD officials will arrange a meeting next week with BUET Experts, Bangladesh Army and the JICA Consultant.

Confirmed by:



Mr. Md. Sajidul Hoque
Additional Chief Engineer,
RHD, Sarak Bhaban, Ramna,
Dhaka, Bangladesh

Date: 10th June, 2012



Motoi Okuda
Project sub team leader
Oriental Consultants Co., Ltd.
Japan

Date: 10 June 2012

(Substitute Letter of the Same Memo and Date).

Urgent
By Special Messenger

Government of the People's Republic of Bangladesh
Ministry of Communications
Roads Division
Foreign Assistance Section.

No.35.033.014.00.00.015.2011(Part-1)-115

Date : 24-06-2012.

Subject : Consent for Number of Lanes and Alignment of Proposed 2nd Katchpur Bridge, 2nd Meghna Bridge and 2nd Meghna-Gumti Bridge under JICA Assistance.

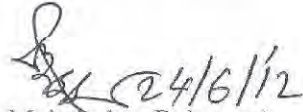
Ref. (1) RHD's Memo No.1421-CE, Dated : 07-06-2012.
(2) RHD's Memo No.1494-CE, Dated : 21-06-2012.

With reference to the above mentioned subject, the undersigned is directed to inform that according to the signed Minutes of Discussion (MOD) with JICA for rehabilitation of existing Katchpur Bridge, Meghna Bridge and Meghna-Gumti Bridge, and new construction of 2nd Katchpur Bridge, 2nd Meghna Bridge and 2nd Meghna-Gumti Bridge JICA appointed preparatory survey consultant. The said consultant submitted the progress report to RHD. Based on this report Roads Division agrees with the recommendation of Roads & Highways Department to construct the proposed 2nd Katchpur Bridge, 2nd Meghna Bridge and 2nd Meghna-Gumti Bridge as 4 (Four) lanes and the bridge alignment with approach road of the stated bridges are as follows:

- (i) **2nd Katchpur Bridge** : Alignment 'A' i.e. Next to existing Bridge at down stream as recommended by Roads and Highways Department and JICA Consultant.
- (ii) **2nd Meghna Bridge** : Alignment 'A' i.e. Next to existing Bridge at up stream as recommended by Roads and Highways Department and JICA Consultant.
- (iii) **2nd Meghna-Gumti Bridge** : Alignment 'A' i.e. Next to existing Bridge at down stream as recommended by Roads and Highways Department and JICA Consultant.

02. Therefore, the undersigned has the honor to request ERD to take further necessary actions in this regard.

Encloser : RHD's letter.


(Md. Mahabuber Rahman)
Senior Assistant Chief
Phone-9514266.
E-mail : nfmjnz@yahoo.com.

Senior Secretary
Economic Relations Division
Ministry of Finance
Sher-e-Bangla Nagar
Dhaka-1207

Copy for kind information :

1. Chief Engineer, RHD. Sarak Bhaban, Ramna, Dhaka.
2. PS to Secretary, Roads Division, Bangladesh Secretariat, Dhaka.
3. Senior Representative, JICA, Bangladesh Office, Uday Tower 7th Floor, 57/57A, Gulshan, Dhaka.
4. Personal Officer to Joint Chief, Roads Division, Bangladesh Secretariat, Dhaka.
5. Personal Officer to Deputy Chief, Roads Division, Bangladesh Secretariat.
6. Master Copy.

D:\Letter\English Letter.doc.45

Government of the People's Republic of Bangladesh
Ministry of Finance
Economic Relations Division
Japan-1 Section
www.erd.gov.bd

No: 09.151.024.13.00.010.2011-162

Date: 02 July, 2012

✓ Mr. Kei Toyama
Senior Representative
JICA Bangladesh Office
Gulshan, Dhaka.



Subject: Consent for Number of Lanes and Proposed 2nd Katchpur Bridge, 2nd Meghna Bridge and 2nd Meghna-Gumti Bridge.

Ref: Roads Division's letter No: 35.033.014.00.00.015.2011(Part-1)-115; Date: 24.06.2012.

Dear Mr. Toyama,


With reference to the above, I am directed to forward herewith the letter received from the Roads Division on Rehabilitation of Existing Katchpur Bridge, Meghna Bridge and Meghna-Gumti Bridge and alignment of new construction of 2nd Katchpur Bridge, 2nd Meghna Bridge and 2nd Meghna-Gumti Bridge for necessary action at your end.

Thank you for your continued cooperation.

With best regards.

Enclosed: As stated.

Yours sincerely,


(A.K.M Abul Kalam Azad)
Senior Assistant Chief
Phone: 9119602

Copy to:

- Secretary, Roads Division, Bangladesh Secretariat, Dhaka.

Urgent
By Special Messenger

Government of the People's Republic of Bangladesh
Ministry of Communications
Roads Division
Foreign Assistance Section.

No.35.033.014.00.00.007.2012- 161

Date : 13-08-2012.

Subject : Bridge Type for Proposed 2nd Katchpur Bridge, 2nd Meghna Bridge and 2nd Gumti Bridge under JICA Assistance.

Ref. (1) Interim Report of consultant on Dhaka-Chittagong National Highway No.1 Bridge Construction and Rehabilitation Project Dated : July 2012.


(2) RHD's Memo No.133-CE, Dated : 02-08-2012.

With reference to the above mentioned subject and decision taken in the meeting held on 29 July 2012 for selection of **type** of proposed 2nd Katchpur Bridge, 2nd Meghna Bridge and 2nd Gumti Bridge chaired by the Hon'ble Minister, Ministry of Communication the undersigned is directed to inform that Roads Division has selected the bridges' type as bellow :

Considering expert opinion on construction cost & time, quality, durability, future maintenance technique/technology & cost, the proposed 2nd Katchpur Bridge, 2nd Meghna Bridge and 2nd Gumti Bridge will be constructed under JICA assistance and the bridges' type shall be "**Continuous Steel Narrow Box Girder Bridge**" subject to following condition-

" Bridges' girder must be made of highest quality weathering steel and this guideline shall be included in tender document according to the provision of PPR 2008".

02. Therefore, the undersigned has the honor to request ERD to inform it to JICA by 15th August 2012 for further necessary actions.


(Md. Mahabuber Rahman)
Senior Assistant Chief
Phone-9514266.
E-mail : nfmjnz@yahoo.com.

Senior Secretary
Economic Relations Division
Ministry of Finance
Sher-e-Bangla Nagar
Dhaka-1207

Copy for kind information :

1. Chief Engineer, RHD, Sarak Bhaban, Ramna, Dhaka.
2. PS to Minister, Ministry of Communication, Bangladesh Secretariat, Dhaka.
3. PS to Secretary, Roads Division, Bangladesh Secretariat, Dhaka.
4. Senior Representative, JICA, Bangladesh Office, Uday Tower 7th Floor, 57/57A, Gulshan, Dhaka.
5. Personal Officer to Joint Chief, Roads Division, Bangladesh Secretariat, Dhaka.
6. Personal Officer to Deputy Chief, Roads Division, Bangladesh Secretariat,
7. Master Copy.

পরিবেশগত ছাড়পত্র বিষয়ক কমিটির ৩৪৫তম সভার কার্যবিবরণী

১১/১০/২০১২ তারিখে পরিবেশগত ছাড়পত্র বিষয়ক কমিটির আহ্বায়ক ও পরিবেশ অধিদপ্তরের পরিচালক (পরিবেশগত ছাড়পত্র) জনাব মোঃ শাহজাহান-এর সভাপতিত্বে অধিদপ্তরের সম্মেলনক্ষেত্রে পরিবেশগত ছাড়পত্র বিষয়ক কমিটির ৩৪৫তম সভা অনুষ্ঠিত হয়। সভায় উপস্থিত সদস্যবৃন্দের স্বাক্ষর শেষ পাতায় দ্রষ্টব্য।

সভার আলোচ্যসূচী অনুযায়ী কমিটির সদস্য-সচিব বিভিন্ন বিভাগীয় দপ্তর হতে প্রাপ্ত পরিবেশগত ছাড়পত্র বিষয়ক প্রস্তাবনা/নিষিদ্ধ পর্যায়ক্রমে সভায় উপস্থাপন করেন। প্রত্যেকটি বিষয়ে কমিটির উপস্থিত সদস্যবৃন্দ বিস্তারিত আলোচনায় অংশগ্রহণ করেন। সভায় উপস্থাপিত বিভিন্ন বিষয়ের ওপর আলোচনা ও পর্যালোচনার পর নিম্নরূপ সুপারিশ ও সিদ্ধান্ত গৃহীত হয় :

ক) সুপারিশকৃত শিল্প/প্রকল্পসমূহ : পরিবেশগত ছাড়পত্র

১. মহেশখালী-আনোয়ারা পর্যন্ত ৩০ x ৯.১ কি.মি. গ্যাস সরঞ্জালন পাইপলাইন প্রকল্প, গ্যাস ট্রান্সমিশন কোম্পানী লিঃ (জিটিসিএল), রেড- ক্রিস্টেট বোরাক টাওয়ার নেভেল-৩,৪,৫ ও ৬, ৭১-৭২, পুরাতন এলিফ্যান্ট রোড, ইস্কাটন, রমনা, ঢাকা (শিল্প/প্রকল্প কার্যক্রমঃ ৩০ ইঞ্চি ব্যাসের গ্যাস পাইপ লাইন নির্মাণ) : উদ্যোক্তা কর্তৃক দাখিলকৃত আবেদনপত্র, উপস্থাপিত ইআইএ প্রতিবেদন ও অন্যান্য কাগজপত্র সভায় পর্যালোচনা করা হয়। সভার আলোচনা মোতাবেক আলোচ্য প্রকল্পটির অনুকূলে সদর দপ্তর হতে উপযুক্ত শর্ত আরোপ করে ইআইএ প্রতিবেদন অনুমোদনসহ পরিবেশগত ছাড়পত্র জারীর সুপারিশ গৃহীত হয়।

২. Dhaka-Chittagong National Highway No.1 Bridge Construction and Rehabilitation Project, Roads and Highway Department, Bridge Management Wing, Sarak Bhaban, Ramna, Dhaka (কার্যক্রমঃ ব্রিজ নির্মাণ ও মেরামত) : উদ্যোক্তা কর্তৃক দাখিলকৃত আবেদনপত্র, উপস্থাপিত ইআইএ প্রতিবেদন ও অন্যান্য কাগজপত্র সভায় পর্যালোচনা করা হয়। সভার আলোচনা মোতাবেক আলোচ্য প্রকল্পটির অনুকূলে সদর দপ্তর হতে উপযুক্ত শর্ত আরোপ করে ইআইএ প্রতিবেদন অনুমোদনসহ পরিবেশগত ছাড়পত্র জারীর সুপারিশ গৃহীত হয়।

৩. মেসার্স বাংলাদেশ বিল্ডিং সিস্টেমস লিঃ, জৈনা বাজার, ডেলিহাট, শ্রীপুর, গাজীপুর (শিল্প/প্রকল্প কার্যক্রমঃ প্রি ফ্যাব্রিকেটেড স্টিল স্ট্রাকচার নির্মাণ) : উদ্যোক্তা কর্তৃক দাখিলকৃত আবেদনপত্র, ইএমপি প্রতিবেদন, পরিদর্শন প্রতিবেদন, বিভাগীয় দপ্তরের মতামত ও পরিবেশগত ছাড়পত্র বিষয়ক কমিটি কর্তৃক সরেজমিন পরিদর্শনকালে প্রাপ্ত তথ্যাদি সভায় পর্যালোচনা করা হয়। পর্যালোচনাতে সংশ্লিষ্ট জেলা অফিস কর্তৃক নিয়মিত বিশেষ শর্তের সাথে বিধি মোতাবেক প্রয়োজ্য ও প্রচলিত শর্তে পরিবেশগত ছাড়পত্র জারীর সুপারিশ গৃহীত হয় :

- ক) এ কারখানায় কেবলমাত্র প্রি-ফ্যাব্রিকেটেড স্টিল স্ট্রাকচার বিল্ডিং নির্মাণের বিম, বার, এঙ্গেল ইত্যাদি নির্মাণের জন্য এ ছাড়পত্র প্রয়োজ্য হবে। কারখানার উৎপাদন বৃদ্ধি, জায়গা সম্প্রসারণ, উৎপাদন প্রক্রিয়া বা তৎসংশ্লিষ্ট কোন প্রকার পরিবর্তনের জন্য পরিবেশ অধিদপ্তরের পূর্বনুমতি/ ছাড়পত্রের প্রয়োজন হবে।
- খ) ইএমপি ফরম্যাটে সুপারিশকৃত সকল মিটিগেশন মেজার্স সার্বক্ষণিক কার্যকরীভাবে চালু রাখতে হবে।
- গ) কারখানার উৎপাদন প্রক্রিয়ায় স্ট্রু কঠিন বর্জ্য (লোহার টুকরা ইত্যাদি) পরিকল্পিত উপায়ে সংগ্রহপূর্বক পরিবেশসম্মতভাবে নিরাপদ অপসারণ অথবা পুনঃব্যবহারের ব্যবস্থা করতে হবে।
- ঘ) ডমেষ্টিক কাজে স্ট্রু তরল-বর্জ্য যথোপযুক্ত সেপটিক ট্যাংক ও সোক পিটের মাধ্যমে নির্গমন করতে হবে।
- ঙ) ফ্লোর-ওয়াশিং কাজে স্ট্রু তরল-বর্জ্য কোন ক্রমেই সরাসরি নিজস্ব সীমানার বাইরে নিক্ষেপ করা যাবে না। এ ধরনের তরল-বর্জ্য যথোপযুক্ত সেটলিং-ট্যাংকে রেখে সেপটিক ট্যাংক ও সোক পিটের মাধ্যমে নির্গমন করতে হবে।
- চ) উৎপাদন প্রক্রিয়ায় স্ট্রু বায়বীয় বর্জ্য পর্যাপ্ত সংখ্যক Exhaust ফ্যান এর মাধ্যমে নির্গমন ব্যবস্থা সার্বক্ষণিক কার্যকরীভাবে চালু রাখতে হবে।
- ছ) কারখানায় স্ট্রু শব্দ নিয়ন্ত্রণের জন্য যথাযথ ব্যবস্থাদি গ্রহণপূর্বক তা সর্বদা কার্যক্ষম রাখতে হবে এবং শব্দের মানমাত্রা পরিবেশ সংরক্ষণ বিধিমালা ১৯৯৭ এর মধ্যে থাকতে হবে।
- জ) অগ্নি নির্বাপনকল্পে কারখানায় যথোপযুক্ত ব্যবস্থাদি যথা : ফায়ার এক্সিট, ফোমিং কম্পাউন্ডসহ ফায়ার হাইড্রেন্ট, ইমার্জেন্সী লাইট স্থাপন, ভূ-গর্ভস্থ বা ভূ-উপরিস্থ জলাধারে সর্বদা পর্যাপ্ত পানি সংরক্ষণ ইত্যাদি ব্যবস্থাদি সার্বক্ষণিক কার্যকরী রাখতে হবে।
- ঝ) কারখানায় কর্মরত শ্রমিকদের পেশাগত স্বাস্থ্য রক্ষার্থে সকল ব্যবস্থা যথাঃ বুট, নোজ মাস্ক, সেফটি গ্লাস, হ্যান্ডগ্লোভস, হ্যালমেট পরিধান ইত্যাদির ব্যবহার সার্বক্ষণিক কার্যকরীভাবে চালু রাখতে হবে।
- ঞ) কারখানা চত্বরের ন্যূনতম ৩৩% জায়গা উপযুক্ত প্রজাতির ফলজ ও বনজ গাছ লাগিয়ে সবুজায়ন করতে হবে।

জ) বিবিধ :

১. কক্সবাজার জেলার কলাতলী থেকে ছিন্নছড়ি পর্যন্ত সমুদ্র উপকূলীয় ০৫ কিলোমিটার এলাকায় ৬০ মেগাওয়াট বায়ুশক্তি উৎপাদন কেন্দ্র স্থাপন এবং সাবস্টেশন ও অফিস কমপ্লেক্স নির্মাণের জন্য ৪-৫ একর জমি অধিগ্রহণের বিষয়ে অনাপত্তি প্রদান প্রসংগে, মাদ্রিপ্পেল্ল গ্রীণ এনার্জী লিমিটেড, আর এম সেন্টার, ১০১, গুলশান এভিনিউ, স্যুট-৩১৮ (৪র্থ তলা), গুলশান-২, ঢাকা-১২১২ (শিল্প/প্রকল্প কার্যক্রমঃ বায়ুশক্তি উৎপাদন কেন্দ্র স্থাপন এবং সাবস্টেশন ও অফিস কমপ্লেক্স নির্মাণের জন্য ৪-৫ একর জমি অধিগ্রহণ) : উদ্যোক্তা কর্তৃক দাখিলকৃত আবেদনপত্র ও অন্যান্য কাগজপত্র সভায় পর্যালোচনা করা হয়। পর্যালোচনান্তে দেখা যায় যে, কক্সবাজার-টেকনাফ সমুদ্র সৈকত এলাকা সরকার কর্তৃক পরিবেশগত সংকটাপন্ন এলাকা (ECA) এলাকা হিসেবে ঘোষিত। ইতোমধ্যে কক্সবাজার-টেকনাফ ইসিএ এলাকার জন্য কনজারভেশন ম্যানেজমেন্ট প্ল্যান (CMP) প্রণয়ন করা হয়েছে। এমতাবস্থায়, উল্লেখিত কনজারভেশন ম্যানেজমেন্ট প্ল্যান (CMP) অনুযায়ী আলোচ্য প্রকল্পের জন্য উক্ত এলাকায় জমি অধিগ্রহণের বিষয়ে পরিবেশ অধিদপ্তরের সিবিএ-ইসিএ প্রকল্পের নিকট থেকে মতামত গ্রহণের জন্য সভায় সিদ্ধান্ত গৃহীত হয়।
২. Replacement of 4'' Sangu Produced water Disposal Pipeline into the Bay of Bengal, Santos Sangu Field Limited, IDB Bhaban, 9th floor, E-8/A Rokeya Sharani, Agargoan, Dhaka (শিল্প/প্রকল্প কার্যক্রমঃ গ্যাস কুপ হতে সৃষ্ট প্রডিউসড ওয়াটার নির্গমনের জন্য স্থাপিত পাইপলাইন প্রতিস্থাপন) : সান্টু গ্যাস ফিল্ড হতে গ্যাস উত্তোলনের সময় সৃষ্ট প্রডিউসড ওয়াটার নির্গমনের জন্য স্থাপিত পাইপলাইন প্রতিস্থাপনের জন্য উদ্যোক্তা কর্তৃক দাখিলকৃত আবেদনপত্র সভায় পর্যালোচনা করা হয় এবং এ বিষয়ে সদর দপ্তর থেকে প্রযোজ্য শর্ত আরোপ করে অনাপত্তি পত্র প্রদানের সিদ্ধান্ত গৃহীত হয়।

২১/১০/২০১২
২১/১০/২০১২
২১/১০/২০১২
২১/১০/২০১২

(সৈয়দ নজমুল আহসান)
উপ-পরিচালক (পরিঃ ছাড়পত্র)
ও
সদস্য-সচিব

(একেএম রফিকুল ইসলাম)
উপ-পরিচালক (গবেঃ ও মনিঃ)
ও
সদস্য

(এস, এম, তারিক)
উপ-পরিচালক (ইআইএ)
ও
কো-অপট সদস্য

(এস, এম, আহসানুল আজিজ)
উপ-পরিচালক (জলঃ পরিবর্তন)
ও
সদস্য

(ড. মুঃ সোহরাব আলি)
উপ-পরিচালক (পানি ও জৈব)
ও
কো-অপট সদস্য

(বিদেজ্ঞা আছেন।)
(মুহাম্মদ সোলায়মান হায়দার)
উপ-পরিচালক (প্রাঃ সঃ ব্যঃ)
ও
সদস্য

(মোঃ জিয়াউল হক)
উপ-পরিচালক (আইন)
ও
সদস্য

(আফরিন আকতার)
পরিচালক (গবেষণাগার)
ও
সদস্য

(মোঃ জাকর সিদ্দিক)
পরিচালক (আইন)
ও
সদস্য

(মোঃ শাহজাহান)
পরিচালক (পরিঃ ছাড়পত্র)
ও
আহবায়ক

Government of the People's Republic of Bangladesh
Department of Environment
www.doe-bd.org
Head Office, Paribesh Bhaban
E-16 Agargaon, Dhaka-1207

Memo No: DOE/Clearance/5150/2012/ 244

Date: 12/11/2012

Subject: Environmental Clearance for Dhaka-Chittagong National Highway No. 1 Bridge Construction and Rehabilitation Project.

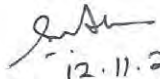
Ref: Your application dated 13/09/2012 and 11/10/2012.

Dear Sir,

Please refer to your letter of 13th September 2012 and 11th October 2012 on the captioned subject, I have the pleasure to convey the approval of Environmental Clearance to the proposed project : Environmental Clearance for Dhaka-Chittagong National Highway No. 1 Bridge Construction and Rehabilitation Project.

A copy of the said Environmental Clearance Certificate is attached herewith for your kind information and necessary action at your end.

Yours Sincerely,


12.11.2012
(Syed Nazmul Ahsan)

Deputy Director (Environmental Clearance)
and
Member-Secretary
Environmental Clearance Committee

✓ **Project Director**

Dhaka-Chittagong National Highway No. 1 Bridge Construction and Rehabilitation Project
Bridge Management Wing
Roads & Highways Department
Sarak Bhaban, Ramna, Dhaka

Copy Forwarded to :

- 1) Private Secretary to the Hon'ble Secretary, Ministry of Environment and Forests, Bangladesh Secretariat, Dhaka.
- 2) Director, Department of Environment, Dhaka/Chittagong Division, Dhaka/Chittagong.
- 3) Staff Officer to the Director General, Department of Environment, Head Office, Dhaka.

Government of the People's Republic of Bangladesh
Department of Environment
Head Office, E-16 Agargaon
Dhaka-1207

Environmental Clearance Certificate
Section 12 of the Environment Conservation Act, 1995 (Amended 2002)

Clearance Certificate Number: 244
File number: DOE/Clearance/5150/2012
Clearance Certificate Issue Date: 12 November 2012
Renewal date not later than: 11 November 2013

A. Clearance Certificate Type
Environmental Clearance Certificate

B. Clearance Certificate Holder
Project Director
Dhaka-Chittagong National Highway No. 1 Bridge Construction and
Rehabilitation Project
Bridge Management Wing
Roads & Highways Department
Sarak Bhaban, Ramna, Dhaka

C. Premises to which this Clearance Certificate Applies
Kanchpur Bridge over Shitalaksha River under Narayanganj District, Meghna
Bridge over Meghna River Between Sonargaon, Narayanganj & Gazaria,
Munshiganj and Gumti Bridge over Meghna-Gumti River Between Gazaria,
Munshiganj & Daudkandi, Comilla District.

D. Activities for which this Clearance Certificate Authorizes and Regulates

- (i) Construction of 396.5 meter long 4-lane single deck 2nd Kanchpur main bridge with end facilities over the river Shitalaksha at Shimrail and Kanchpur under Narayanganj District, approach roads (300 meter at Shimrail site and 300 meter at Kanchpur site) and rehabilitation of existing Kanchpur bridge at same location.
- (ii) Construction of 930 meter long 4-lane single deck 2nd Meghna main bridge with end facilities over the river Meghna Between Sonargaon, Narayanganj and Gazaria, Munshiganj, approach roads (500 meter at Sonargaon site and 500 meter at Gazaria site) and rehabilitation of existing Meghna bridge at same location.
- (iii) Construction of 1410 meter long 4-lane single deck 2nd Gumti main bridge with end facilities over the river Meghna-Gumti Between Gazaria, Munshiganj & Daudkandi, Comilla, approach roads (700 meter at Gazaria site and 300 meter at Daudkandi site) and rehabilitation of existing Meghna bridge at same location.

E. Terms and Conditions for Environmental Clearance Certificate

1. **Limit Condition for Discharges to Air and Water:** The Environmental Clearance Certificate must comply with schedule 2 and 10, rule 12 of the Environment Conservation Rules, 1997 (Annex-I & II).
2. **Noise Limit:** The Environmental Clearance Certificate must comply with the Noise Pollution (Control) Rules, 2006

In case of non-coverage of ECR 1997, the World Bank Environment, Health and Safety Guideline shall be adhered to.

3. Operating Conditions:

- 3.1 Activities must be carried out in a competent manner. This includes:
 - (a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
 - (b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.
- 3.2 All plant and equipment installed at the premises or used in connection with the Environmental Clearance activity:
 - (a) must be maintained in a proper and efficient condition; and
 - (b) must be operated in a proper and efficient manner.
- 3.3 Construction works shall be restricted to day time hours so as to avoid/mitigate the disturbance of local lives as well as implementation schedules of the works shall be notified in advance to nearby residents.
- 3.4 Storage area for chemicals and other construction materials shall be carefully selected to avoid disturbance of the natural drainage. To avoid soil contamination at labour camp and work-site chemical, cement and petroleum derivatives shall be handled cautiously.
- 3.5 Sufficient number of culverts, bridges and other drainage facilities shall be installed properly to ensure sufficient cross drainage capacity.
- 3.6 During site preparation, piling work, construction of land embankments, bridge approach roads and temporary access roads, top soil shall be kept aside and shall be restored after completion of the said activities.
- 3.7 The open areas that are grasslands can be used for construction but with appropriate safeguards to maintain material and dump sites from contaminating river waters.
- 3.8 This shall be ensured that soil is obtained through dredging. The construction equipment and vehicles shall be cleaned regularly.
- 3.9 Re-vegetation and replanting shall be undertaken if rehabilitation works involve extensive vegetation clearance.
- 3.10 Vegetation clearance shall be minimizing at the construction phase as to minimize soil erosion. Soils for embankments shall be properly tested and compacted to ensure stability.
- 3.11 Soil erosion caused by removal of vegetative cover and excavated loose soil shall be checked through repopulation with local vegetation as soon as possible; loose soil shall be covered and stored away from the edge of the river.
- 3.12 Proper construction practices shall be followed that minimize loss of habitats and fish breeding, feeding and nursery sites.



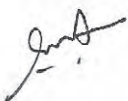
- 3.13 Necessary steps shall be taken to protect flooding of local areas due to restricted flow at the project sites.
- 3.14 Proper and adequate sanitation facilities shall be ensured in labor camps throughout the proposed project period.
- 3.15 In order to control noise pollution, vehicles & equipment shall be maintained regularly; working during sensitive hours and locating machinery close to sensitive receptor shall be avoided.
- 3.16 No solid waste can be burnt in the project area. An environment friendly solid waste management should be in place during whole the period of the project in the field.
- 3.17 Proper and adequate on-site precautionary measures and safety measures shall be ensured so that no habitat of any flora and fauna would be demolished or destructed.
- 3.18 Any heritage site, ecological critical area and other environmentally and/or religious sensitive places shall be avoided during project construction phase.
- 3.19 To control dust vehicles and equipment to be used for this project shall be maintained properly, water trucks shall be used, stockpiles to be located away from sensitive receptors and vehicle speed limits shall be enforced.
- 3.20 Resettlement plan should be properly implemented and people should be adequately compensated, where necessary.
- 3.21 Construction material should be properly disposed off after the construction work is over.
- 3.22 The mitigation measures described in the Environmental Management Plan (EMP) included in the EIA report shall strictly be implemented and kept functioning on a continuous basis.
- 3.23 Erosion, accretion, change of river morphology and undue interventions and activities within the proximity of the bridge shall be monitored during operation period.

4.1 Monitoring and Recording Conditions:

- 4.1.1 The results of any monitoring required to be conducted by this Clearance Certificate must be recorded.
- 4.1.2 The following records must be kept in respect of any samples required to be collected for the purposes of this Clearance Certificate:
 - (a) the date(s) on which the sample was taken;
 - (b) the time(s) at which the sample was collected;
 - (c) the point at which the sample was taken; and
 - (d) the name of the person who collected the sample.

4.2 Requirement to Monitor Concentration of Pollutants Discharged

For each monitoring, the Clearance Certificate holder must monitor (by sampling and obtaining results by analysis) the following parameter: water flow, water quality, air quality, noise, the surrounding areas for spread of invasive species, the changes in aquatic habitats before, during and after construction, fish catch during and after construction.



5. **Reporting Conditions:** Environmental Monitoring Reports shall be made available simultaneously to Head quarters and Dhaka & Chittagong Divisional offices of the Department of Environment on a quarterly basis during the whole period of the project.
6. **Notification of environmental harm:** The Clearance Certificate holder or its employees must notify the Department of Environment of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident.

F. RECORDING OF POLLUTION CONTROL:

The certificate holder must keep a legible record of all complaints made to the certificate holder or any employee or agent of the certificate holder in relation to pollution arising from any activity to which this Environmental Certificate applies. The record must include details of the following:

- (a) the date and time complaint;
- (b) the method by which the complaint was made;
- (c) any personal details of the complaint which were provided by the complaint or, if no such details were provided, a note to that effect;
- (d) the nature of the complaint;
- (e) the action taken by the certificate holder in relation to the complaint, including any follow-up contact with the complaint; and
- (f) if no action was taken by the certificate holder, the reasons why no action was taken.

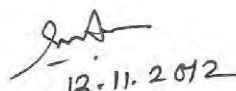
The record of a complaint must be kept for at least 4 (four) years after the complaint was made. The record must be produced to any authorized officer of the DOE who asks to see them.

G. VALIDITY OF THE CLEARANCE CERTIFICATE:

This Environmental Clearance is valid for one year from the date of issuance and the Project authority shall apply for renewal to the Head Office of DOE with a copy to Dhaka & Chittagong Divisional offices of DOE at Dhaka and Chittagong at least 30 (thirty) days ahead of expiry.

Violation of any of the above conditions shall render this clearance void.

This Environmental Clearance Certificate has been issued with the approval of the appropriate authority.



12.11.2012

(Syed Nazmul Ahsan)
Deputy Director (Environmental Clearance)
and
Member Secretary
Environmental Clearance Committee

**GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
MINISTRY OF COMMUNICATIONS
ROADS & HIGHWAYS DEPARTMENT (RHD)**

**PREPARATORY SURVEY FOR
DHAKA-CHITTAGONG NATIONAL HIGHWAY NO.1
BRIDGE CONSTRUCTION AND REHABILITATION
PROJECT**

RESETTLEMENT ACTION PLAN

Prepared in

OCTOBER 2012

(Approved vide MOC's Memo. No. 35.00.000.029.07.001.12-674 Dated 28.11.2012)

Prepared by

ORIENTAL CONSULTANTS CO., LTD.

KATAHIRA & ENGINEERS INTERNATIONAL

On Behalf of

Roads and Highways Department (RHD)



2298 (2) 4/4
2/02/20

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
যোগাযোগ মন্ত্রণালয়
সড়ক বিভাগ
ডিএফডিপি অধিশাখা

অতি জরুরি

৩০.১১.২০
৩০.১১.২০
তারিখ : ২৮.১১.২০

নম্বর ৩৫.০০.০০০.০২৯.০৭.০০১.১২-৬৭৪

বিষয়: জাইকার অর্থায়নে ঢাকা-চট্টগ্রাম মহাসড়কে ৩টি সেতু (২য় কাঁচপুর, ২য় মেঘনা এবং ২য় গোমতী সেতু) নির্মাণ ও পুনর্বাসন কাজের জন্য প্রিপারেটরী সার্ভে কাজের Resettlement Action Plan (RAP) অনুমোদন সংক্রান্ত।

সূত্র: প্রধান প্রকৌশলী (সওজ) এর স্মারক নম্বর ৪৯৯-প্র:প্র:, তারিখ: ১৩.১১.১৯

উপর্যুক্ত বিষয় ও সূত্রের পরিপ্রেক্ষিতে জাইকার অর্থায়নে ঢাকা-চট্টগ্রাম মহাসড়কে ৩টি সেতু (২য় কাঁচপুর, ২য় মেঘনা এবং ২য় গোমতী সেতু) নির্মাণ ও পুনর্বাসন কাজের জন্য এ বিভাগ কর্তৃক গঠিত কমিটি এবং তাঁর সুপারিশের আলোকে Resettlement Action Plan (RAP)টি-তে নির্দেশক্রমে অনুমোদন জ্ঞাপন করা হল।

(সফিকুল ইসলাম)
যুগ্মসচিব
ফোন : ৭১৬৯২৭৩

প্রধান প্রকৌশলী
সড়ক ও জনপথ অধিদপ্তর
সড়ক ভবন, রমনা, ঢাকা।

অনুলিপি :

- ০১. অতিরিক্ত প্রধান প্রকৌশলী (সওজ), ব্রীজ ম্যানেজমেন্ট উইং, সড়ক ভবন, রমনা, ঢাকা।
- ০২. সচিব মহোদয়ের একান্ত সচিব, সড়ক বিভাগ, যোগাযোগ মন্ত্রণালয়, ঢাকা।
- ০৩. অতিরিক্ত সচিব (উন্নয়ন) মহোদয়ের ব্যক্তিগত কর্মকর্তা, সড়ক বিভাগ, যোগাযোগ মন্ত্রণালয়, ঢাকা।

৩৫-০২-১২-১২

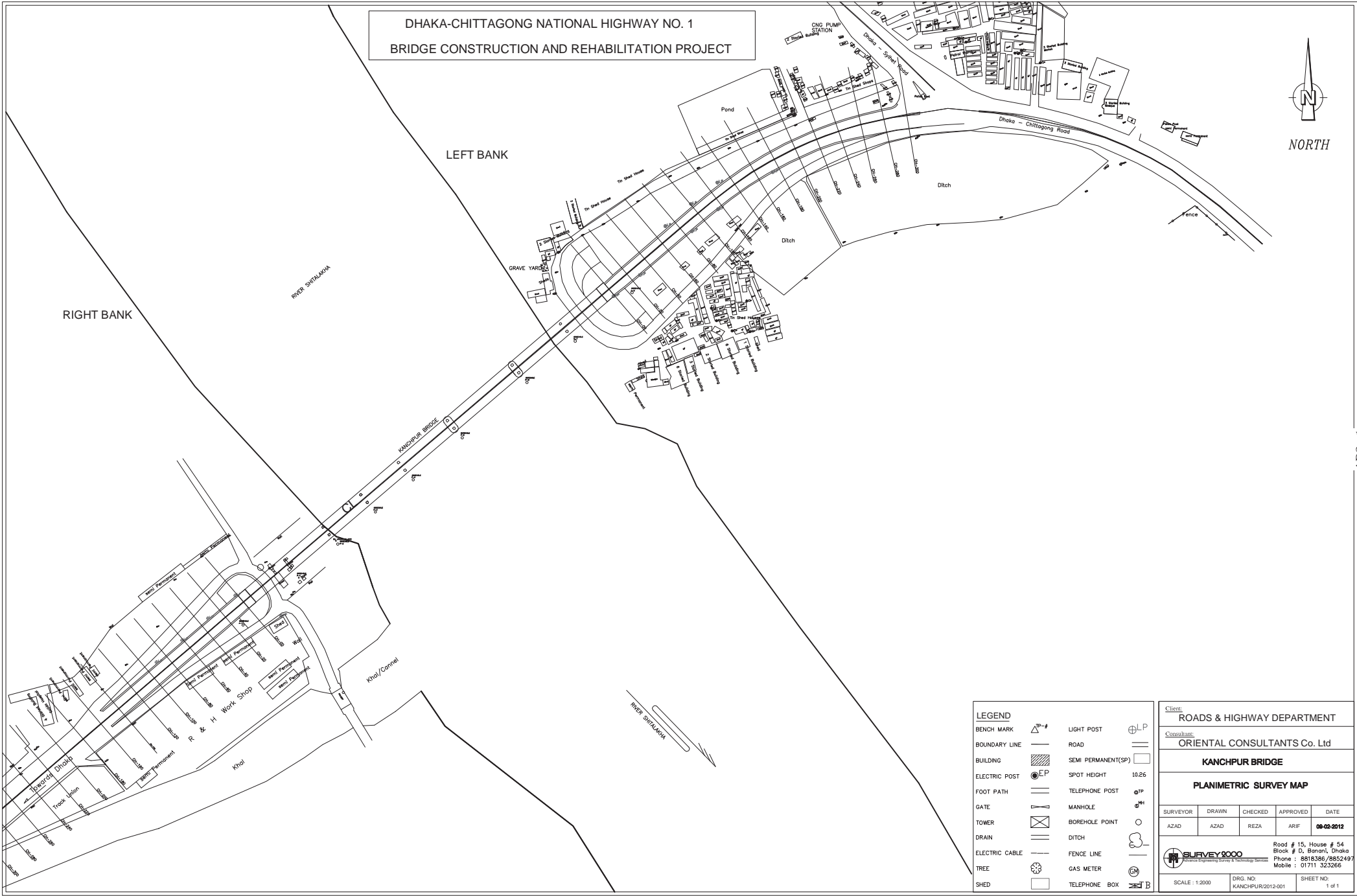
SE/BDC
অতিরিক্ত প্রধান প্রকৌশলী (সওজ), সড়ক
ব্রীজ ম্যানেজমেন্ট উইং
সড়ক ভবন, রমনা, ঢাকা।

APPENDIX 2.
RECORDS OF TOPOGRAPHICAL SURVEY

DHAKA-CHITTAGONG NATIONAL HIGHWAY NO. 1
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT



NORTH



LEGEND

BENCH MARK		LIGHT POST	
BOUNDARY LINE		ROAD	
BUILDING		SEMI PERMANENT(SP)	
ELECTRIC POST		SPOT HEIGHT	10.26
FOOT PATH		TELEPHONE POST	
GATE		MANHOLE	
TOWER		BOREHOLE POINT	
DRAIN		DITCH	
ELECTRIC CABLE		FENCE LINE	
TREE		GAS METER	
SHED		TELEPHONE BOX	

Client: ROADS & HIGHWAY DEPARTMENT				
Consultant: ORIENTAL CONSULTANTS Co. Ltd				
KANCHPUR BRIDGE				
PLANIMETRIC SURVEY MAP				
SURVEYOR	DRAWN	CHECKED	APPROVED	DATE
AZAD	AZAD	REZA	ARIF	09-02-2012
		Road # 15, House # 54 Block # D, Banani, Dhaka Phone : 8818366/8852497 Mobile : 01711 323266		
SCALE : 1:2000	DRG. NO. KANCHPUR/2012-001	SHEET NO. 1 of 1		

AP2-1

DHAKA-CHITTAGONG NATIONAL HIGHWAY NO. 1
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT

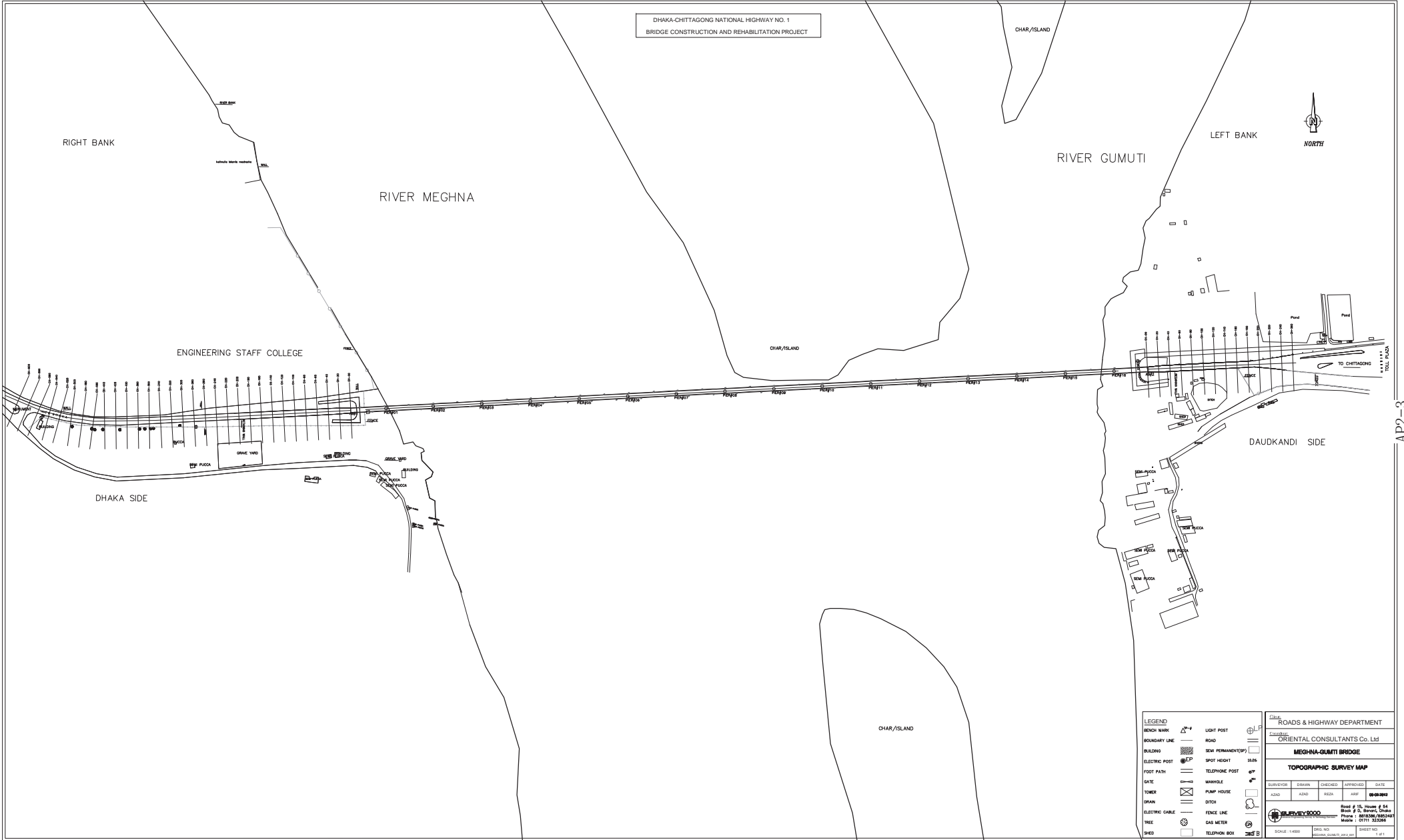


LEGEND	
BENCH MARK	LIGHT POST
BOUNDARY LINE	ROAD
BUILDING	SEA PENETRATOR
ELECTRIC POST	SPOT HEIGHT
FOOT PATH	TELEPHONE POST
GATE	MANHOLE
TOWER	PUMP HOUSE
DRAIN	DITCH
ELECTRIC CABLE	FENCE LINE
WELL	GAS METER
SHED	TELEPHONE BOX

SCALE	
ROADS & HIGHWAY DEPARTMENT	
ORIENTAL CONSULTANTS Co. Ltd	
MEGHNA BRIDGE	
PLANIMETRIC SURVEY MAP	
DESIGNED	DRAWN
CHECKED	APPROVED
DATE	DATE

SCALE	1:1000
PROJECT NO.	MEGHNA BRIDGE
DATE	2011

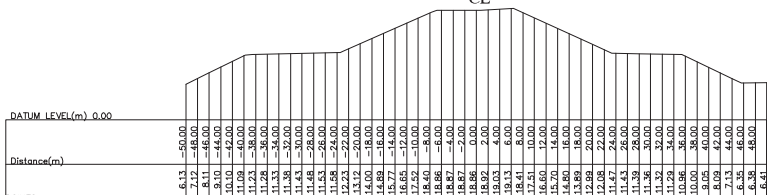
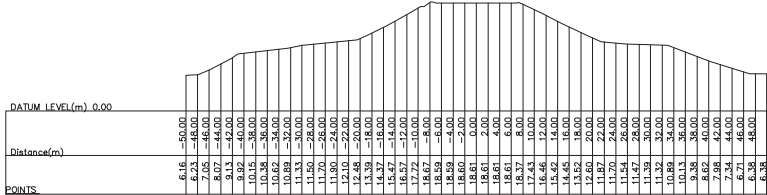
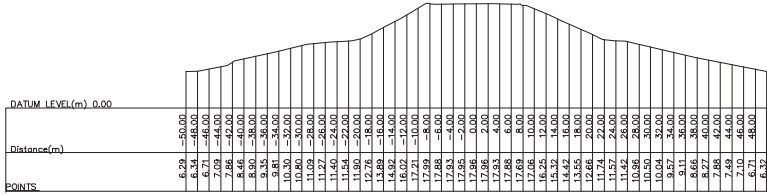
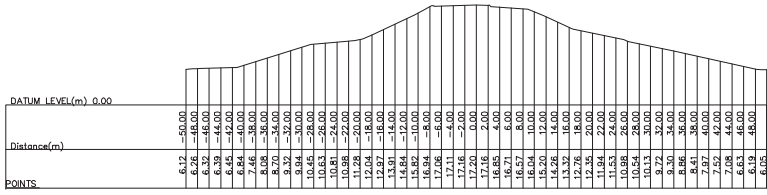
DHAKA-CHITTAGONG NATIONAL HIGHWAY NO. 1
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT



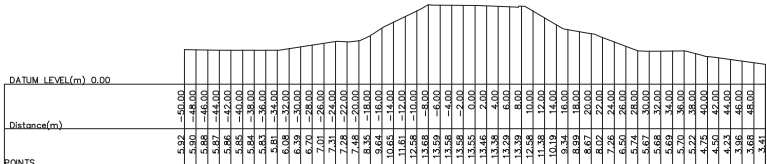
LEGEND		ROADS & HIGHWAY DEPARTMENT	
BENCH MARK		ROAD	
BOUNDARY LINE		SEMI PERMANENT (CP)	
BUILDING		TELEPHONE POST	
ELECTRIC POST		SPOT HEIGHT	
ELECTRIC CABLE		DIAM	
DATE		MANHOLE	
DRAIN		PUMP HOUSE	
DRINK		FENCE LINE	
ELECTRIC CABLE		GAS METER	
TREE		TELEPHONE BOX	
DIAM			

ORIENTAL CONSULTANTS Co. Ltd			
MEGHNA-GUMTI BRIDGE			
TOPOGRAPHIC SURVEY MAP			
SURVEYOR	DESKMAN	CHECKED	APPROVED
AZAD	AZAD	REZA	ANIF
Road # 10, House # 24, Block # 10, Sector # 04, Dhaka - 1000 Phone : 8818396/8822497 Mobile : 0171 333266			
SCALE 1:400	GRID NO	SHEET NO	
			1 OF 1

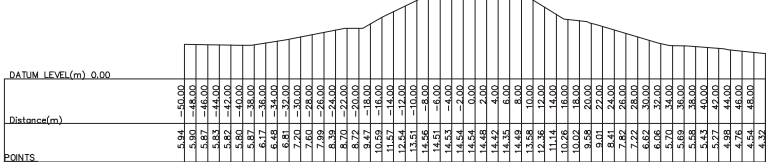
AP2-3



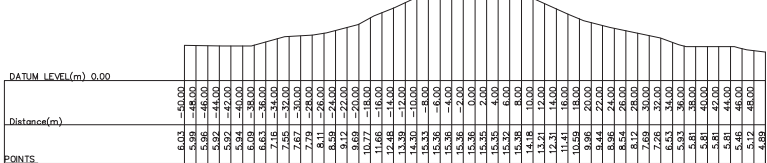
Chainage 0.000\k_xsec_lb

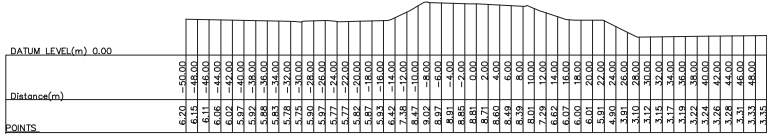


Chainage 140.000\k_xsec_lb

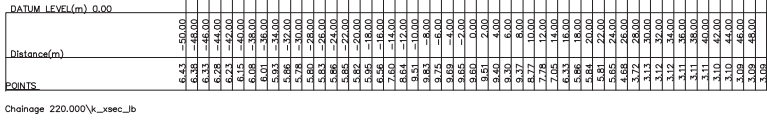


Chainage 120.000\k_xsec_lb

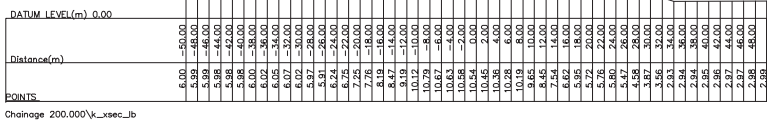




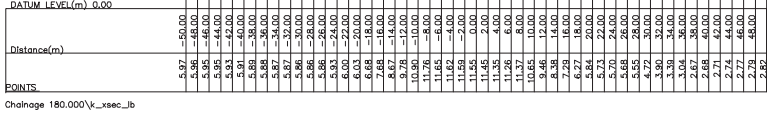
Chainage 240,000\k_xsec_lb



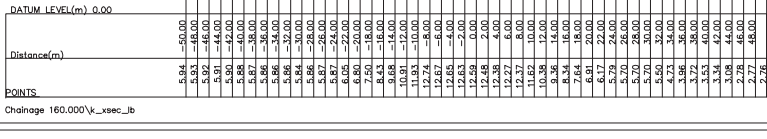
Chainage 220,000\k_xsec_lb



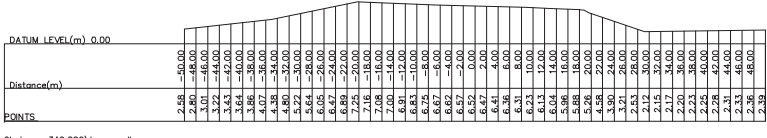
Chainage 200,000\k_xsec_lb



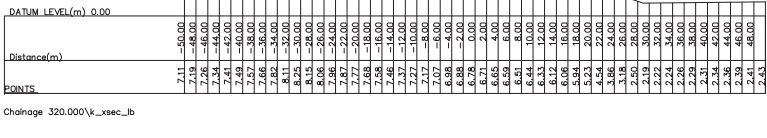
Chainage 180,000\k_xsec_lb



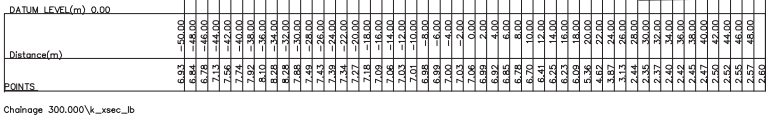
Chainage 160,000\k_xsec_lb



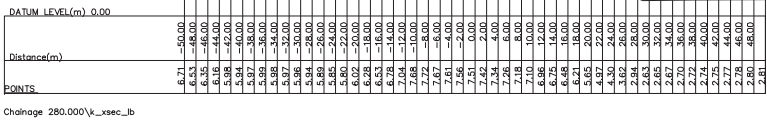
Chainage 340,000\k_xsec_lb

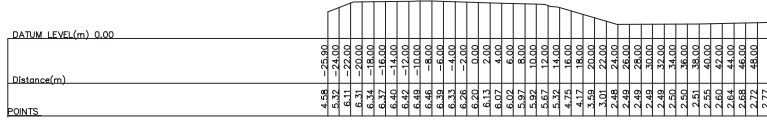


Chainage 320,000\k_xsec_lb

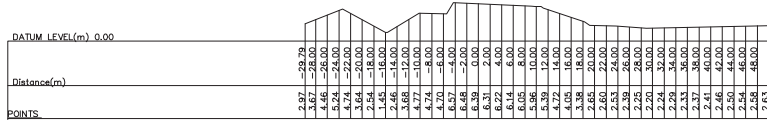


Chainage 300,000\k_xsec_lb

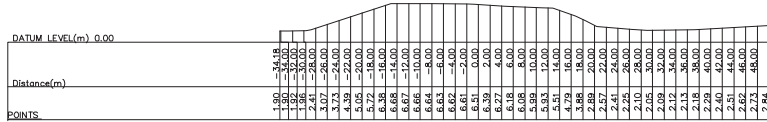




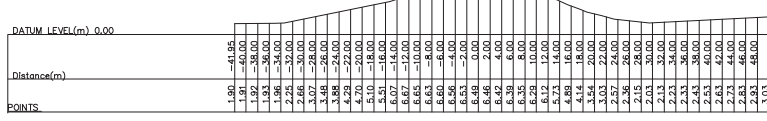
Chainage 440.000\k_xsec_lb



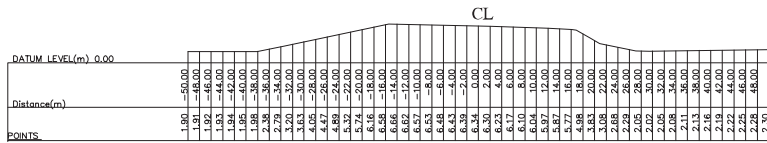
Chainage 420.000\k_xsec_lb



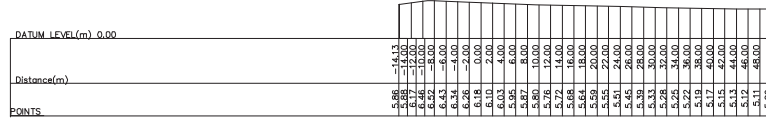
Chainage 400.000\k_xsec_lb



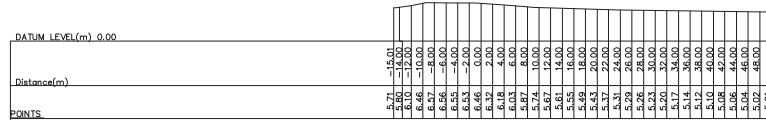
Chainage 380.000\k_xsec_lb



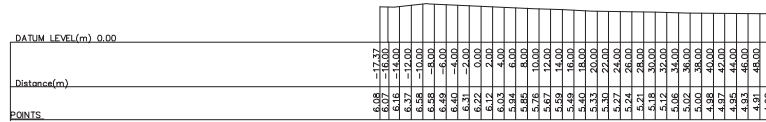
Chainage 360.000\k_xsec_lb



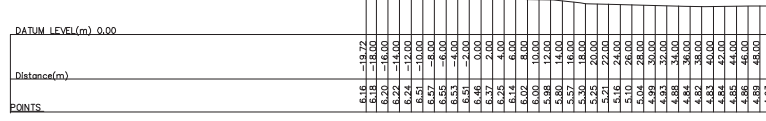
Chainage 540.000\k_xsec_lb



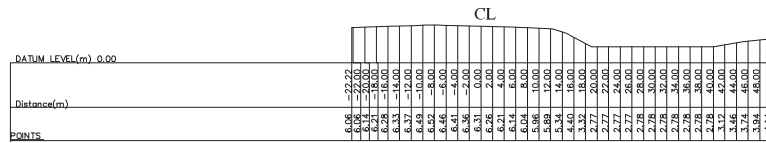
Chainage 520.000\k_xsec_lb



Chainage 500.000\k_xsec_lb

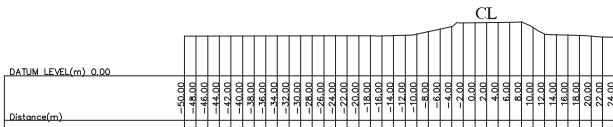
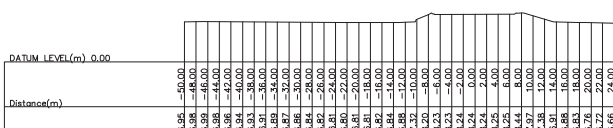
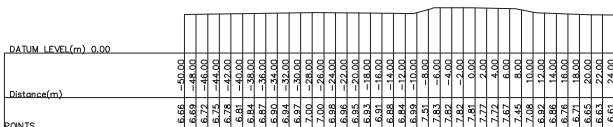
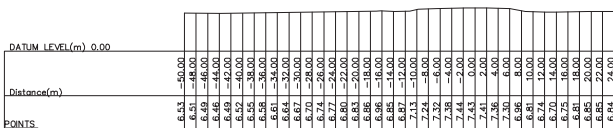
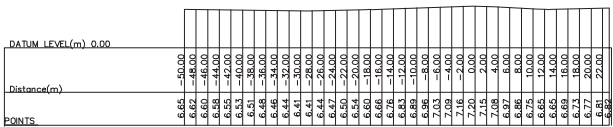
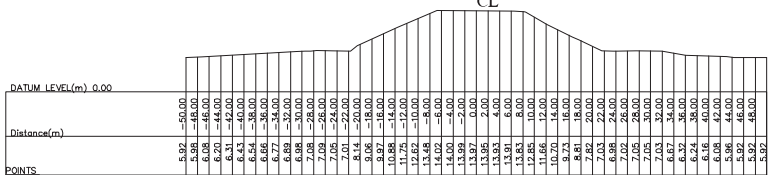
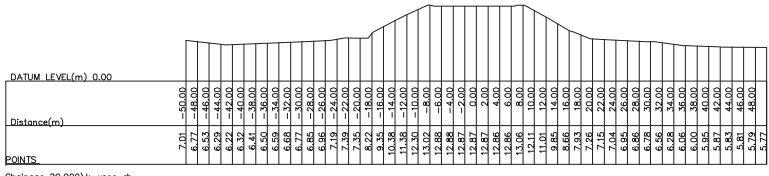
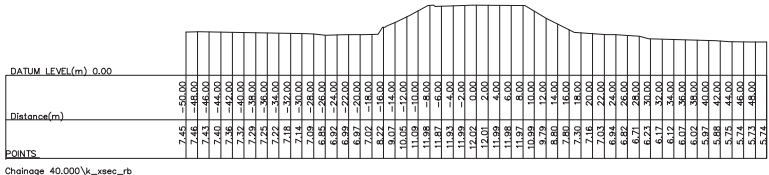
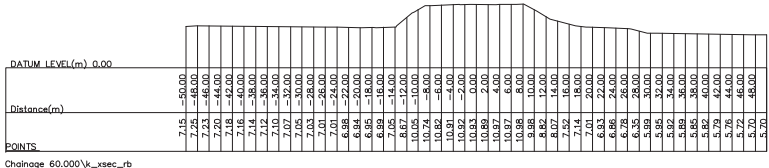
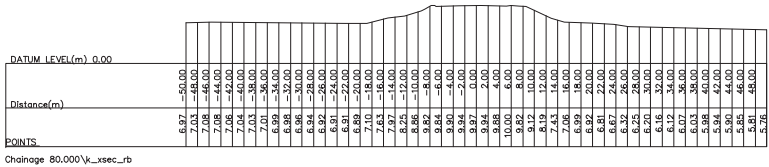


Chainage 480.000\k_xsec_lb



Chainage 460.000\k_xsec_lb

Client: ROADS & HIGHWAY DEPARTMENT			
Consultant: ORIENTAL CONSULTANTS Co. Ltd			
KANCHPUR BRIDGE			
ROAD CROSS SECTION			
EXISTING APPROACH ROAD(LEFT BANK)			
SURVEYOR	DRAWN	CHECKED	APPROVED
AZAD	AZAD	REZA	ARIF
			DATE 09-02-2012
		Road # 15, House # 54 Block # D, Banani, Dhaka Phone : 8818366/8854949 Mobile : 01711 323266	
SCALE : 1:1500		DRG. NO: KANCHPUR_2012_003	SHEET NO: 3 of 3



Client: ROADS & HIGHWAY DEPARTMENT			
Consultant: ORIENTAL CONSULTANTS Co. Ltd			
KANCHIPUR BRIDGE			
ROAD CROSS SECTION EXISTING APPROACH ROAD(RIGHT BANK)			
SURVEYOR	DRAWN	CHECKED	APPROVED DATE
AZAD	AZAD	REZA	ARIF 09-02-2012
		Road # 15, House # 54 Block # D, Banani, Dhaka Phone : 8818366/8845499 Mobile : 01711 323266	
SCALE : 1:1500	DRG. NO: KANCHIPUR_2012_004	SHEET NO: 1 of 2	

DATUM LEVEL(m) 0.00	
Distance(m)	
POINTS	
	6.72 -19.95
	6.72 -18.00
	6.72 -16.00
	6.72 -14.00
	6.72 -12.00
	6.72 -10.00
	6.72 -8.00
	6.72 -6.00
	6.72 -4.00
	6.72 -2.00
	7.08 0.00
	7.08 2.00
	6.98 4.00
	6.98 6.00
	6.98 8.00
	6.98 10.00
	6.98 12.00
	6.98 14.00
	6.98 16.00

Chainage 280.000\k_xsec_rb

DATUM LEVEL(m) 0.00	
Distance(m)	
POINTS	
	6.74 -30.19
	6.74 -28.00
	6.74 -26.00
	6.74 -24.00
	6.74 -22.00
	6.74 -20.00
	6.71 -18.00
	6.68 -16.00
	6.68 -14.00
	6.76 -12.00
	6.81 -10.00
	6.87 -8.00
	6.87 -6.00
	6.89 -4.00
	7.04 -2.00
	7.07 0.00
	7.03 2.00
	6.96 4.00
	6.87 6.00
	6.78 8.00
	6.78 10.00
	6.78 12.00

Chainage 260.000\k_xsec_rb

DATUM LEVEL(m) 0.00	
Distance(m)	
POINTS	
	6.76 -40.42
	6.75 -38.00
	6.75 -36.00
	6.74 -34.00
	6.74 -32.00
	6.74 -30.00
	6.72 -28.00
	6.70 -26.00
	6.68 -24.00
	6.66 -22.00
	6.64 -20.00
	6.61 -18.00
	6.59 -16.00
	6.57 -14.00
	6.55 -12.00
	6.83 -10.00
	6.88 -8.00
	6.88 -6.00
	6.99 -4.00
	7.03 -2.00
	7.06 0.00
	7.01 2.00
	6.92 4.00
	6.86 6.00
	6.78 8.00
	6.76 10.00
	6.76 12.00

Chainage 240.000\k_xsec_rb

DATUM LEVEL(m) 0.00	
Distance(m)	
POINTS	
	6.77 -50.00
	6.73 -48.00
	6.77 -46.00
	6.78 -44.00
	6.74 -42.00
	6.74 -40.00
	6.72 -38.00
	6.70 -36.00
	6.68 -34.00
	6.68 -32.00
	6.64 -30.00
	6.59 -28.00
	6.57 -26.00
	6.55 -24.00
	6.52 -22.00
	6.50 -20.00
	6.48 -18.00
	6.46 -16.00
	6.44 -14.00
	6.43 -12.00
	6.81 -10.00
	6.87 -8.00
	6.87 -6.00
	6.98 -4.00
	7.00 -2.00
	7.06 0.00
	7.03 2.00
	6.92 4.00
	6.86 6.00
	6.82 8.00
	6.82 10.00
	6.82 12.00
	6.82 14.00
	6.82 16.00

Chainage 220.000\k_xsec_rb

DATUM LEVEL(m) 0.00	
Distance(m)	
POINTS	
	6.75 -50.00
	6.73 -48.00
	6.71 -46.00
	6.69 -44.00
	6.64 -42.00
	6.62 -40.00
	6.60 -38.00
	6.58 -36.00
	6.55 -34.00
	6.53 -32.00
	6.50 -30.00
	6.48 -28.00
	6.46 -26.00
	6.44 -24.00
	6.43 -22.00
	6.41 -20.00
	6.48 -18.00
	6.60 -16.00
	6.75 -14.00
	6.81 -12.00
	6.87 -10.00
	6.87 -8.00
	6.98 -6.00
	7.00 -4.00
	7.06 -2.00
	7.03 0.00
	6.92 2.00
	6.86 4.00
	6.81 6.00
	6.81 8.00
	6.81 10.00
	6.81 12.00
	6.81 14.00
	6.82 16.00

Chainage 200.000\k_xsec_rb

CL

Client: ROADS & HIGHWAY DEPARTMENT				
Consultant: ORIENTAL CONSULTANTS Co. Ltd				
KANCHPUR BRIDGE				
ROAD CROSS SECTION EXISTING APPROCH ROAD(RIGHT BANK)				
SURVEYOR	DRAWN	CHECKED	APPROVED	DATE
AZAD	AZAD	REZA	ARIF	09-02-2012
Road # 15, House # 54 Block # 0, Bonani, Dhaka Phone : 8818386/8852497 Mobile : 01711 323266				
SCALE : 1:1500		DRG. NO. KANCHPUR_2012_004	SHEET NO. 2 of 2	