

**CHAPTER 5**

**PROJECT EVALUATION  
AND  
CONCLUSION**



## CHAPTER 5

### PROJECT EVALUATION AND CONCLUSION

This project aims to provide safe and reliable transportation facilities to promote social and economic development in rural areas of Bangladesh by constructing bridges along rural roads.

The project roads connecting growth centers, villages, markets and farms support rural people's livelihoods and economic activities.

The bridges for the project replace those being damaged or washed out by floods or are new bridges over rivers which cut roads and obstructs travel and transportation. 74 bridges have been selected for the project as having high priority.

The bridges will be constructed by the Government of Bangladesh with steel materials procured under this project.

The implementation of this project will benefit 36 million people who reside within an affected area of 33,000 sq.km.

The direct and indirect effects and extent of improving the present situation by implementing the project are summarized in Table 5-1.

As described in the Table, this project will contribute to a rise in living standard and promote socio-economic development in rural areas. As a result, it is appropriate to implement this project under Japan's Grant Aid. Further, the Government of Bangladesh can cope with the construction and maintenance of the project.

**Table 5-1 EFFECTS AND EXTENT OF IMPROVING THE PRESENT SITUATION BY IMPLEMENTING THE PROJECT**

Present Condition and Problems	Proposed Measures	Effects and Improvement Level
<p>Travelers and vehicles are exposed to danger and inconvenience due to unsafe bridges and roads cut by river crossings without bridges.</p> <p>Difficult accessibility to market constrains expansion of rural industries.</p> <p>Low employment opportunities cause difficult economic and social conditions in rural areas.</p>	<p>To construct safe and low cost bridges.</p> <p>High priority bridges are included to contribute to social and economic development.</p> <p>Labor intensive construction method is incorporated in project planning.</p>	<p>Constructing bridges provides safe and reliable transportation means.</p> <p>Providing economical and cost-stable transportation services will greatly benefit rural development, especially in high potential agricultural industry.</p> <p>Project will increase employment opportunities.</p>

## **APPENDIX 1**

**BASIC DESIGN STUDY TEAM MEMBER LIST,  
SURVEY SCHEDULE, LIST OF PERSONS MET**



## APPENDIX 1

### BASIC DESIGN STUDY TEAM MEMBER LIST, SURVEY SCHEDULE, LIST OF PERSONS MET

#### 1.1 BASIC DESIGN STUDY TEAM MEMBER

Mr. Yoshinori HASHIGUCHI    Leader,  
Study Review and Coordination Division  
Grant Aid Study & Design Department  
Japan International Cooperation Agency  
(JICA)

Mr. Kenji MAEKAWA            Project Coordinator,  
Second Basic Design Study Division  
Grant Aid Study & Design Department  
Japan International Cooperation Agency  
(JICA)

Mr. Minoru MIURA            Project Manager,  
Katahira & Engineers International

Mr. Yasuaki MURAMOTO      Bridge Planner,  
Katahira & Engineers International

Mr. Soemu OSHITA            Material Planner/Cost Estimator,  
Katahira & Engineers International

Mr. Tadashi SATO             Coordinator,  
Katahira & Engineers International

## 1.2 SURVEY SCHEDULE

Survey Schedule during Jul. 17 - Aug. 25, 1993

		A c t i v i t i e s	
No.	Date	Discussion etc.	Site Survey
	1993		
1	Jul. 17 (Sat)	<ul style="list-style-type: none"> <li>● Project Chief (Mr. MIURA),</li> <li>Bridge Planner (Mr. MURAMOTO),</li> <li>Material Planner/Cost</li> <li>Estimator (Mr. OSHITA) and</li> <li>Coordinator (Mr. SATO)</li> <li>Lv. Tokyo Ar. Bangkok</li> </ul>	
2	Jul. 18 (Sun)	<ul style="list-style-type: none"> <li>● Above persons Ar. Dhaka</li> <li>● Discussions at JICA</li> </ul>	
3	Jul. 19 (Mon)	<ul style="list-style-type: none"> <li>● Staying at Hotel due to</li> <li>Hartal (General strike)</li> <li>● Meeting within Team</li> </ul>	
4	Jul. 20 (Tue)	<ul style="list-style-type: none"> <li>● Discussions at LGED</li> <li>-Explanation and Discussion</li> <li>on Inception Report and</li> <li>questionnaire</li> <li>-Discussion on change of</li> <li>list of bridges requested</li> <li>● Team leader (Mr.HASHIGUCHI) and</li> <li>Project coordinator (Mr.MAEKAWA)</li> <li>Lv. Tokyo Ar. Bangkok</li> </ul>	
5	Jul. 21 (Wed)	<ul style="list-style-type: none"> <li>● Discussions at LGED</li> <li>-Discussion on site survey schedule</li> <li>● Above persons Ar. Dhaka</li> <li>● Meeting within Team</li> </ul>	
6	Jul. 22 (Thu)	<ul style="list-style-type: none"> <li>● Courtesy call to</li> <li>ERD and meeting</li> <li>-Discussion on the contents</li> <li>of the request</li> <li>● Courtesy call to MOLGRD</li> <li>and meeting</li> <li>● Discussion at LGED</li> </ul>	
7	Jul. 23 (Fri)		<ul style="list-style-type: none"> <li>● Narsingdi Area</li> </ul>
8	Jul. 24 (Sat)		<ul style="list-style-type: none"> <li>● Comilla area</li> <li>● Construction site of</li> <li>Megna-gumuty Br.</li> </ul>



No.	Date	A c t i v i t i e s	
		Discussion etc.	Site Survey
9	Jul. 25 (Sun)	● Discussions at LGED	
10	Jul. 26 (Mon)	● Meeting within Team ● Drafting Minutes of Discussions ● Discussions at LGED	
11	Jul. 27 (Tue)	● Joint meeting with ERD, LGD and LGED ● Discussion on Minutes of Discussions draft	
12	Jul. 28 (Wed)	● Signing on Minutes of Discussions at ERD ● Report on the study at EOJ and JICA	
13	Jul. 29 (Thu)	● Mr. HASHIGUCHI and Mr. MAEKAWA Lv. DHAKA	
14	Jul. 30 (Fri)	● Mr. HASHIGUCHI and Mr. MAEKAWA Ar. Tokyo	● Feni area
15	Jul. 31 (Sat)		● Cox's Bazar area
16	Aug. 1 (Sun)		● Chittagong area
17	Aug. 2 (Mon)	● Discussion at LGED ● Meeting with local consultant	
18	Aug. 3 (Tue)	● Check the result of site survey executed by the local consultant	
19	Aug. 4 (Wed)		● North area of Dhaka
20	Aug. 5 (Thu)	● Discussion at LGED ● Check the result of site survey executed by the local consultant ● Report on the executing site survey at JICA	
21	Aug. 6 (Fri)	● Mr. MIURA Lv. Dhaka ● Review/Analysis on collected data	

A c t i v i t i e s			
No.	Date	Discussion etc.	Site Survey
22	Aug. 7 (Sat)	<ul style="list-style-type: none"> <li>● Mr. MIURA Ar. Tokyo</li> <li>● Check of the results of site survey executed by local consultant</li> </ul>	
23	Aug. 8 (Sun)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	<ul style="list-style-type: none"> <li>● Southern area of Dhaka</li> </ul>
24	Aug. 9 (Mon)	<ul style="list-style-type: none"> <li>● Discussion at RHD</li> <li>● Review/Analysis on the results of site survey</li> </ul>	<ul style="list-style-type: none"> <li>● Faridpur area</li> </ul>
25	Aug. 10 (Tue)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	<ul style="list-style-type: none"> <li>● Faridpur area</li> </ul>
26	Aug. 11 (Wed)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	<ul style="list-style-type: none"> <li>● Job site being executed by HRD</li> </ul>
27	Aug. 12 (Thu)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	<ul style="list-style-type: none"> <li>● Chandpur area</li> </ul>
28	Aug. 13 (Fri)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	<ul style="list-style-type: none"> <li>● Laxmipur area</li> </ul>
29	Aug. 14 (Sat)	<ul style="list-style-type: none"> <li>● Mr. SATO Lv. Dhaka</li> <li>● Review/Analysis on the results of site survey</li> </ul>	<ul style="list-style-type: none"> <li>● Noakhal area</li> </ul>
30	Aug. 15 (Sun)	<ul style="list-style-type: none"> <li>● Mr. SATO Ar. Tokyo</li> <li>● Review/Analysis on the results of site survey</li> </ul>	
31	Aug. 16 (Mon)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	
32	Aug. 17 (Tue)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	
33	Aug. 18 (Wed)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	
34	Aug. 19 (Thu)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	
35	Aug. 20 (Fri)	<ul style="list-style-type: none"> <li>● Review/Analysis on the results of site survey</li> </ul>	

No.	Date	A c t i v i t i e s	
		Discussion etc.	Site Survey
36	Aug. 21 (Sat)	● Review/Analysis on the results of site survey	● Dhaka
37	Aug. 22 (Sun)	● Discussion at LGED ● Report on the results of the site survey	
38	Aug. 23 (Mon)	● Report on the results of the site survey at EOJ and JICA	
39	Aug. 24 (Tue)	● Mr. MURAMOTO, Mr. OSHITA Lv. Dhaka	
40	Aug. 25 (Wed)	● Mr. MURAMOTO and Mr. OSHITA Ar. Tokyo	

### 1.3 LIST OF PERSONS MET

#### Ministry of Local Government Rural Development and Cooperative

Mr. MUSHFIQUR RAHMAN                      Secretary  
Local Government Division

Mr. A.K.M. KHAIRUL ALAM                      Deputy Chief  
Planning

#### Local Government Engineering Department (LGED)

Mr. QUAMRUL ISLAM SIDDIQUE                      Chief Engineer

Mr. MD. SHAHIDUL HASSAN                      Project Director  
(Superintending Engineer)

Mr. MD. AZIZUR RAHMAN                      Executive Engineer  
RDP-18

Mr. M. AZIZUR HOQUE                      Executive Engineer  
Head Quarter

Mr. MD. MOTIAR RAHAMAN                      Executive Engineer  
RDP-16

Mr. MD. ABUL KALAM AZAD                      Executive Engineer  
RDP-7

District Engineering Office, LGED

Mr. MD. HAHEN ALAM	Executive Engineer District Narsingdi
Mr. NAZMUL HASSAN	Executive Engineer District Comilla
Mr. MD. SHAWKAT ALI BHVIYAN	Executive Engineer District Feni
Mr. MD. SARWAR JAHAN	Executive Engineer District Cox's Bazar
Mr. GOLAM MASTAFA	Assistant Engineer District Chittagong
Mr. MD. MOKBUL HOSSAIN	Executive Engineer District Dhaka
Mr. MAHMUDUL ISLAM	Executive Engineer District Faridpur
Mr. HUMAYON RASHID	Assistant Engineer District Faridpur
Mr. SYED ADDUL HALIM	Assistant Engineer District Chandpur
Mr. A. GOMES FATUARY	Sub-Assistant Engineer District Chandpur
Mr. MOHIDUL ISLAM	Executive Engineer District Laxmipur
Mr. MD. MANIRAZZ AMAN	Executive Engineer District Laxmipur
Mr. KAMAL UDDIN AHMED	Sub-Assistant Engineer District Laxmipur

Mr. GOLAM MUSTAFA PATWARY      Executive Engineer  
District Noakhali

Thana Engineering Office, LGED

Mr. MD. NOSLAM UDDIN      Thana Engineer  
Comilla Sadar, Comilla

Mr. MD. NAZRUL ISLAM      Thana Engineer  
Chandina, Comilla

Mr. FAZLUL KABIR      Thana Engineer  
Feni Sadar, Feni

Mr. ARASHINDA CHAKRAVATY      Thana Engineer  
Sadar, Dhaka

Mr. S.M. KAMRUZZAMAN      Thana Engineer  
Diamrai, Dhaka

Mr. MD. REZAUL KARIM      Sub-Assistant Engineer  
Sadar Thana, Faridpur

Mr. MD. AMINUR RASUL      Sub-Assistant Engineer  
Sadar Thana, Laxmipur

Ministry of Finance, Economic Relations Divisions

Dr. SAADAT HUSAIN      Additional Secretary

Mr. DEWAN ZAKIR HUSSAIN      Deputy Secretary

Mr. MD. RAFIQUUL ISLAM      Assistant Chief







## **APPENDIX 2**

### **MINUTES OF DISCUSSIONS**



MINUTES OF DISCUSSIONS  
BASIC DESIGN STUDY  
ON  
THE PROJECT FOR PROCUREMENT OF PORTABLE STEEL BRIDGES  
FOR RURAL ROADS  
IN  
PEOPLE'S REPUBLIC OF BANGLADESH

In response to the request from the Government of People's Republic of Bangladesh, the Government of Japan decided to conduct a Basic Design Study on the Project for Procurement of Portable Steel Bridges for Rural Roads (hereinafter referred to as "The Project"), and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Bangladesh a study team, which is headed by Mr. Yoshinori Hashiguchi, Study Review and Coordination Division, Grant Aid Study and Design Department, JICA, and is scheduled to stay in the country from July 18 to August 24, 1993. The Team held discussions with the officials concerned of the Government of Bangladesh and conducted field survey at the study area.

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

Dhaka, July 28, 1993

橋口義則

Mr. Yoshinori Hashiguchi  
Leader  
Basic Design Study Team  
JICA

Shub G.

Dr. Saadat Husain  
Additional Secretary  
Economic Relations Division  
Ministry of Finance

Witness :

A.K.M. Khairul Alam

A.K.M. Khairul Alam  
Deputy Chief, Planning  
Local Government Division.

Md. Shahidul Hassan  
Project Director. LGED  
(S.E. Maintenance)

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to improve rural transportation by providing portable steel bridges in rural areas for promoting rural development in Bangladesh. The Project is a part of Flood Rehabilitation Project of Local Government Engineering Department.

### 2. Project sites

The sites of the Project are located in 15 districts in Bangladesh (Project sites map and list are attached as ANNEX - I and II). However, the final sites of the Project may differ from those sites.

### 3. Executive Organization

Responsible Ministry : Ministry of Local Government  
Rural Development and Co-operative  
(Local Government Division)

Executing Agency : Local Government Engineering  
Department

### 4. Items requested by the Government of Bangladesh

After discussions with the Basic Design Study Team, the following items were requested by the Government of Bangladesh.

- (1) To provide steel materials of super-structures necessary for constructing bridges listed in ANNEX-II.

Steel materials consist of:

- Pony Trussed Beam
- Steel Deck
- Torque Wrench
- Erection Tool

- (2) To conduct training on erection work of super-structures for several bridges.

However, the final components of the Project will be decided after further studies.

### 5. Grant Aid System

The Government of Bangladesh has understood the system of Japan's Grant Aid explained by the Team and the following items have been confirmed:

- (1) The consulting firm that was selected by JICA as per their set procedure and takes charge of the Basic Design work will be employed in principle as a project implementing consultant for smooth implementation of the Grant Aid project.
- (2) Procuring products and services for implementing the Grant Aid project shall be executed in accordance with "GUIDELINES FOR PROCUREMENT UNDER THE JAPANESE GRANT, 1991, JICA".
- (3) Necessary measures described in ANNEX-III will be taken by the Government of Bangladesh for smooth implementation of the Project.

6. Specification of Portable Steel Bridge

(1) Design Criteria:

- Type of Bridge : Pony truss type  
Single lane carriageway
- Design and Loading : AASHTO HS-15 or equivalent
- Span : Maximum 80'0" (24.38m)
- Finishing : Galvanised coating
- Origin : Japanese origin

(2) Designated Port of Entry

- Chittagong International Seaport.

However, the final specification of the portable steel bridge will be decided after further studies.

7. Schedule of the Study

- (1) The consultants will proceed to further studies in Bangladesh until August 24, 1993.
- (2) Based on the Minutes of Discussion and technical examination of the study results, JICA will complete the final report and send it to the Government of Bangladesh by November 1993.

*SP*

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## ANNEX-II

LIST OF REQUESTED BRIDGES (1/5)

No.	Name of District	Name of Thana	Name of Road	Chainage (m)
1	Cox's Bazar	Sadar	Eidgaon to Pokhali road	5635.00
2		Ramu	Nikkonchari-Garjania	62.00
3	Feni	Sadar	Selsonia R.B.hat road over Kalidash Pahalia river	1500.00
4		Parshuram	Fulgazi-Montala road over Silonia river	1200.00
5		-do-	Gotuma Bridge	3000.00
6	Chittagong	Fatikchari	Fatikchari-Heako hat road	15980.00
7			-do-	19022.00
8		Raozan	Dost Mohammad road (Rauzan -west Gohira Shartar Khal)	4780.00
9		Chandanaish	Dohazari-Lalutia road	3500.00
10		Lohagara	Shah-Pir road	2100.00
11		Satkania	Rampur-D.C.road (Satkania portion)	2300.00
12		Bhanskhali	Joldi-D.C.road, Jolkadar Khal)	3000.00
13	Habiganj	Baniyachong	Baniachong-Sujatpur bazar road	5275.00
14		Nabigonj	Nabigonj-Innatgonj road	7377.00
15		Lakhai	Thana H.Q.-Lakhai bazar	5400.00
16		Azmirigonj	Azmirigonj-Kakailsee road	3750.00
17		-do-	-do-	4174.00
18	Moulvibazar	Sreemangal	Shindur Khan-Dubar hat bazr	1800.00
19		-do-	-do-	4950.00
20		Kulaura	Kulaura-Rabibazar road	1669.00

LIST OF REQUESTED BRIDGES (2/5)

No.	Name of District	Name of Thana	Name of Road	Chainage (m)
21		Kulaura	-do-	2834.00
22		Barlekha	Dasher bazar-Fakirer bazar	2400.00
23		Sadar	Shahbandar-Dighirpar-Kagabhola road	10250.00
24	Chandpur	Sadar	Ibrahim Bazar-Thana road	7264.00
25		Kachua	Palghiri-Darbeshgonj road (Near Chandpur Bazar)	3500.00
26		Faridgonj	Munshirhat-Ubharampur road (Near Munshirhat Canal)	500.00
27		-do-	Gupti-Baichatali road over B.W.D.B. Canal	4500.00
28		Matlab	Kalir Bazar-Chengarchar rd.	5699.00
29		-do-	-do-	6888.00
30	B.Baria	Akhaura	Akhaura-Barabazar Dharkar GCCR road	2414.00
31		-do-	-do-	5507.00
32		Bancharampur	Bancharampur-Ujanchar GCCR road	6473.00
33		-do-	-do-	6898.00
34		Nasirnagar	Nasirnagar-Madhabpur road at Khasti	.00.00
35		-do-	Bridge at Hareenbeer (Norha)	2500.00
36		Sadar	Haliday road	3500.00
37	Comilla	Sadar	Comilla-Bibirbazar road over Sonaichari Khal near Kotakbazar	5500.00
38		-do-	Nalkori-Matiara road over Sonaichari Khal at Matiara	300.00

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LIST OF REQUESTED BRIDGES (3/5)

No.	Name of District	Name of Thana	Name of Road	Chainage (m)
39		Sadar	Bhubanghar-Shiber bazar road over Gungur Khal	5400.00
40		Chandina	Elliotgonj-Krishnapur road	988.00
41		-do-	Gumta-North Krishnapur road	510.00
42		Homna	Homna-Taker bazar road	1880.00
43		-do-	-do-	2135.00
44		Daudkandi	Batakandi-Raipur road	4188.00
45		-do-	-do-	4910.50
46		-do-	-do-	8953.00
47	Noakhali	Sadar	Sonapur-Akhtermiarhat road over Petkata khal	11350.00
48		-do-	Sonapur-Akhtermiarhat road over Jaliardona near Keramatpur Bazar	18440.00
49		Begamgonj	Bazra-Battoli road over Chowmuhani-Sonaimuri khal near Bazra bazar	00.00
50		-do-	Sarurpool-Durgapur high school road over Feni-Chowmuhani khal	00.00
51		Companigonj	Chargangchil-Charlaxmi road over Gangchil Khal	350.00
52		Chatkhil	Chatkhil-Sonachaka road near R & H road	00.00
53		Senbag	Senbag-Crosh Munshi road near Senbag bazar	00.00
54	Laxmipur	Sadar	Hazirpara-Basudhuhitha-Bashurhat road (Over Rahamat Khali khal)	330.00

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LIST OF REQUESTED BRIDGES (4/5)

No.	Name of District	Name of Thana	Name of Road	Chainage (m)
55		Raipur	Chaltatoli-Kaserhat road (Over Dakatia river near Bongshi ferry ghat)	5500.00
56		Ramgati	Mathabbar hat (Bhola Launchghat)-Monoharpur- Odarhat road (over Bolua khal)	3000.00
57	Narsingdi	Sadar	Bridge over Puranpara- Horidua river of Narshindi -Hasnabad road	3000.00
58		Shibpur	Shibpur bazar-Jallara bzar	4147.00
59		-do-	-do-	4638.00
60		-do-	-do-	4978.00
61		-do-	Charsindur-Birajnagar road	10420.00
62		Belabo	Bridge over Arialkha river near Belabo bazar	250.00
63		-do-	Nilokkhai Bridge	1500.00
64	Faridpur	Sadar	Charkamlapur-West Khabaspur	2500.00
65		-do-	Khalilpur-Sibrampur road adjacent to Khalilpur Growth Centre	4500.00
66		Boalmari	Chandpur-Chitar Bazar road (Bridge over Kumar river at Chandpur)	5000.00
67	Dhaka	Savar	Jirani-Shimulia	4840.00
68		-do-	-do-	5210.00
69		-do-	Dhatpur-Rostampur	0.80
70		Nawabgonj	Nawabgonj-Sullapara gram	268.00
71		-do-	-do-	15050.00

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LIST OF REQUESTED BRIDGES (5/5)

No.	Name of District	Name of Thana	Name of Road	Chainage (m)
72		Dhamrai	Dhamrai-Dhantara hat	00.00
73		-do-	RHD-Chardauba road	10.00
74	Munshigonj	Sadar	Ratanpur-Champatala road	1175.00
75		-do-	-do-	2175.00
76		Tongibari	Tongibari-Dighirpar road	3000.00
77		-do-	Tongibari-Hasail road	2500.00
78		Serajdikhan	Serajdikhan-Balurchar road	500.00
79		Gazaria	Megna bridge-Hossaindi road	349.00
80		Lohagonj	Lohagonj-Noapara Bazar road	2015.00
81	Gazipur	Sreepur	Bridge over Matikata river Kawraid U.P.	10600.00
82		Sader	Joydebpur-Chandpur-Zangalia road over chelye khal near Titerkul	3000.00
83		Kaligong	Kaligong-Zangalia road over Nali khal	5500.00
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Total 83 bridges				
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ANNEX - III

Necessary measures to be undertaken by the Government of Bangladesh:

1. To secure the sites for the Project.
2. To bear advising commissions of the Authorization to Pay (A/P) and payment commission to the Japanese foreign exchange bank for banking services based upon the Banking Arrangement (B/A).
3. To ensure prompt unloading, tax payment, and custom clearance of the steel materials purchased under the verified contract at port of disembarkation in Bangladesh and internal transportation of the steel materials.
4. To accord Japanese Nationals whose services may be required for the Project in connection with the supply of the products and services under the verified contract such facilities as may be necessary for their entry into Bangladesh and stay therein for the performance of their work.
5. In order to exempt Japanese Nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Bangladesh with respect to the supply of the products and services under the verified contracts, the cost of duties, internal taxes and other fiscal levies to be imposed under the Bangladesh Regulations shall be borne by the relevant Ministry/Agency concerned with the Project for which necessary budget provision shall be made by them.
6. To allocate the necessary budget to meet the cost of construction works of all projected portable bridges.
7. To construct all projected portable bridges within the period of two years after delivery of steel materials purchased under the verified contracts at designated port of entry.
8. To bear all the expenses other than those to be borne by the Grant, necessary for construction of the facilities as well as for the internal transportation of the steel materials purchased under the verified contract from the port of entry to each bridge site and installation of the steel materials.
9. To maintain and use properly and effectively the steel materials purchased under the verified contract.

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10. To report the progress of construction of the portable bridges to JICA Bangladesh Office every one year until the completion of the construction of all projected portable bridges.
11. To coordinate and solve any issues related to the Project which may be raised from third parties and inhabitants in the Project areas during implementation of the Project.

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**APPENDIX 3**

**LETTER OF CHANGE OF  
REQUEST BRIDGES**





Government of the People's Republic of Bangladesh  
Local Government Engineering Department  
ADB Flood Project  
4/5, Block-B, Lalmatia  
Dhaka-1207.

Memo No. LGED/PD/PTB/694

Date : 22-07-93

To

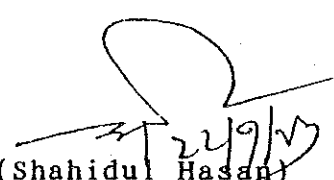
Mr. Yoshinosi Hashiguchi  
Leader  
Basic Design Study Team  
Jica.

Sub: Change of list of sites proposed for portable steel bridge  
under Japanies grant.

In reference to the above subject enclosed kindly find here  
with the final list of sites proposed for portable steel bridge. It  
may be mentioned here that the previous list was prepared two years  
back and the scheme has been finalised recently.

You are therefore requested to conduct site visit survey etc  
work on the final list as enclosed.

Thanking you.

  
(Shahidul Hasan)  
SE (Maintenance)  
& Project Director  
LGED



## **APPENDIX 4**

### **SAMPLES OF LAYOUT OF STORAGE YARD**



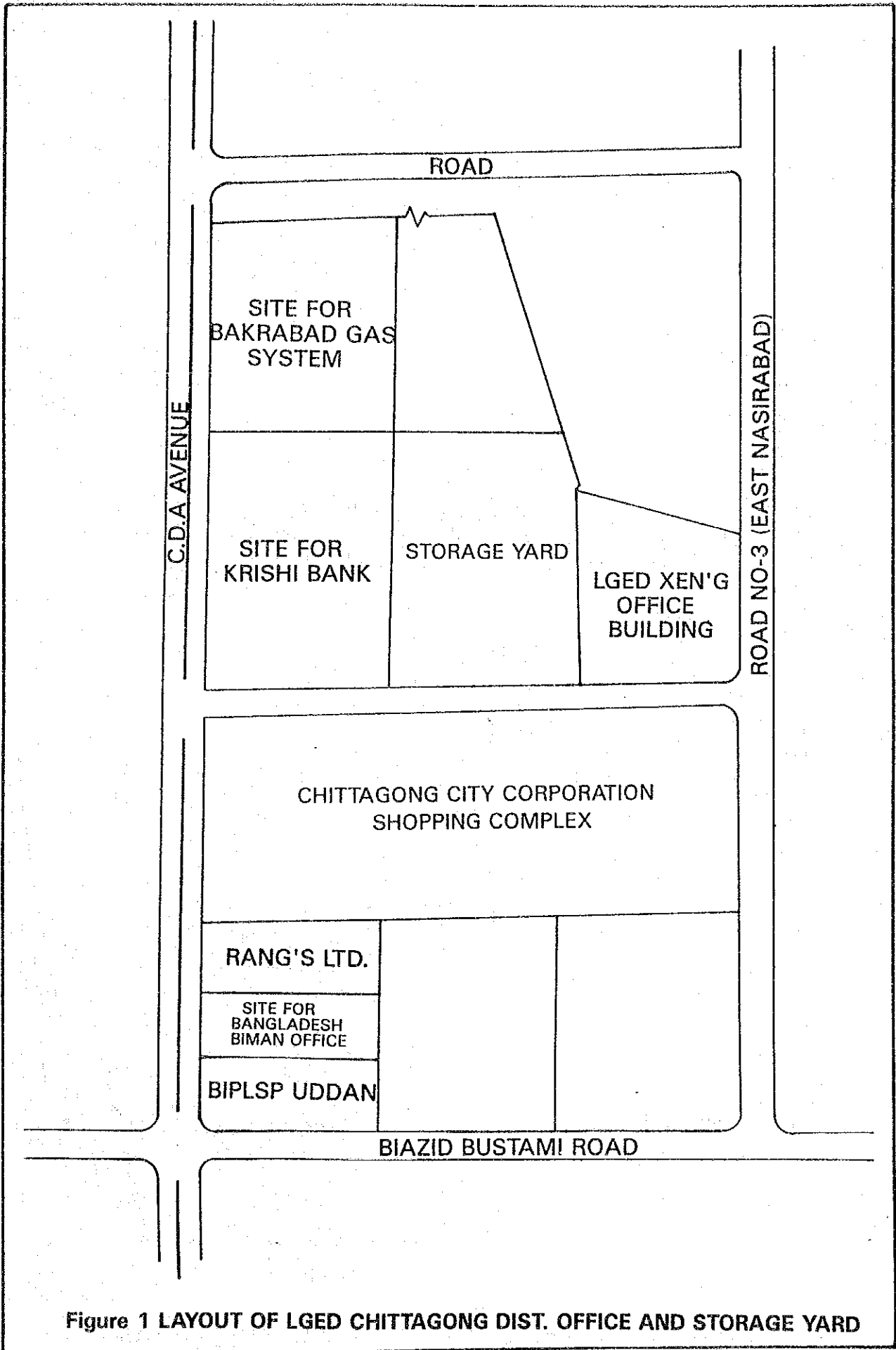


Figure 1 LAYOUT OF LGED CHITTAGONG DIST. OFFICE AND STORAGE YARD

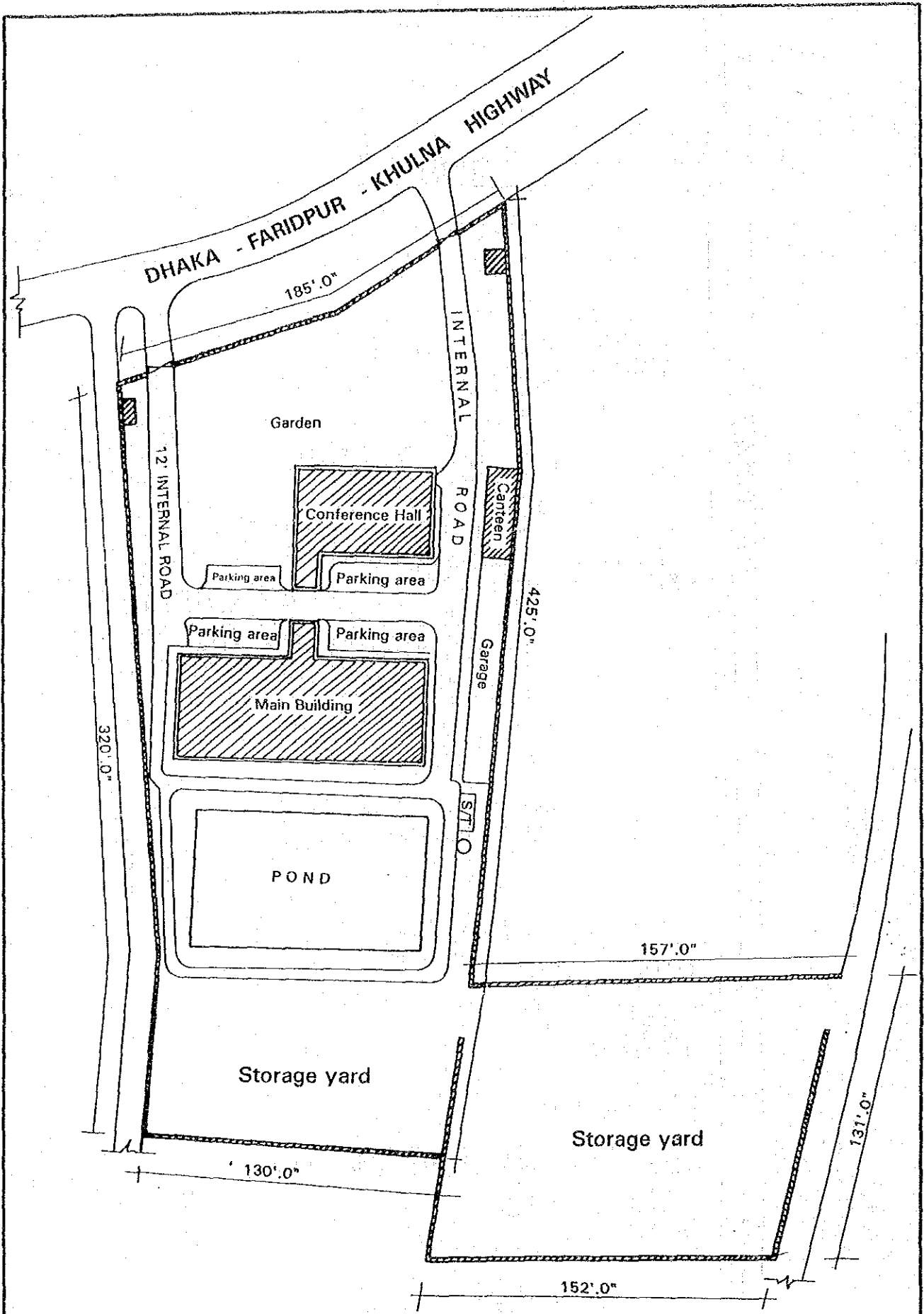


Figure 2 LAYOUT OF LGED FARIDPUR RESP HQ AND STORAGE YARD

## **APPENDIX 5**

### **SCHEME OF ERECTION METHOD**

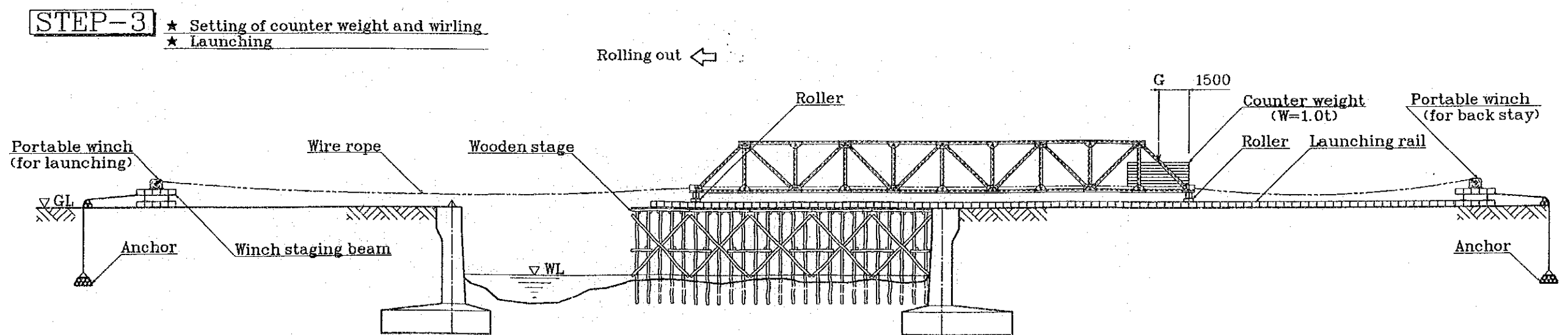
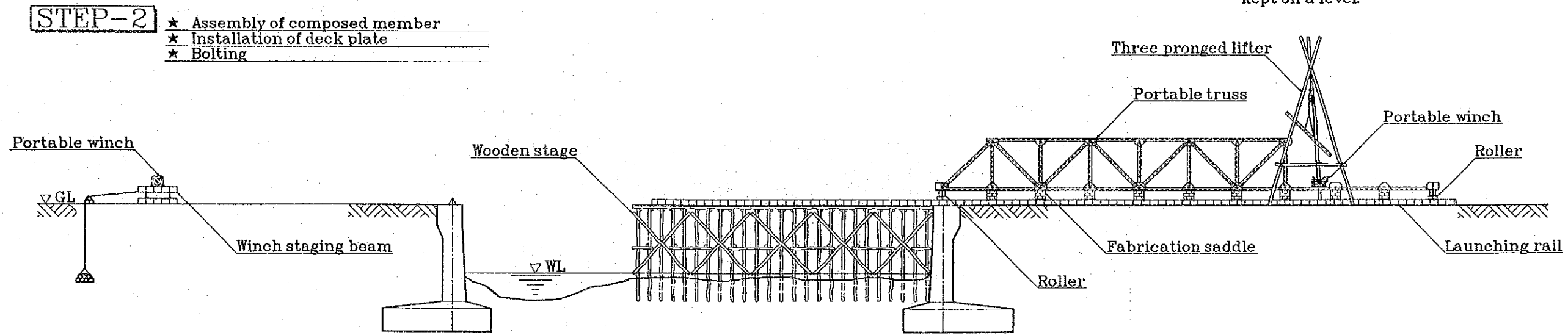
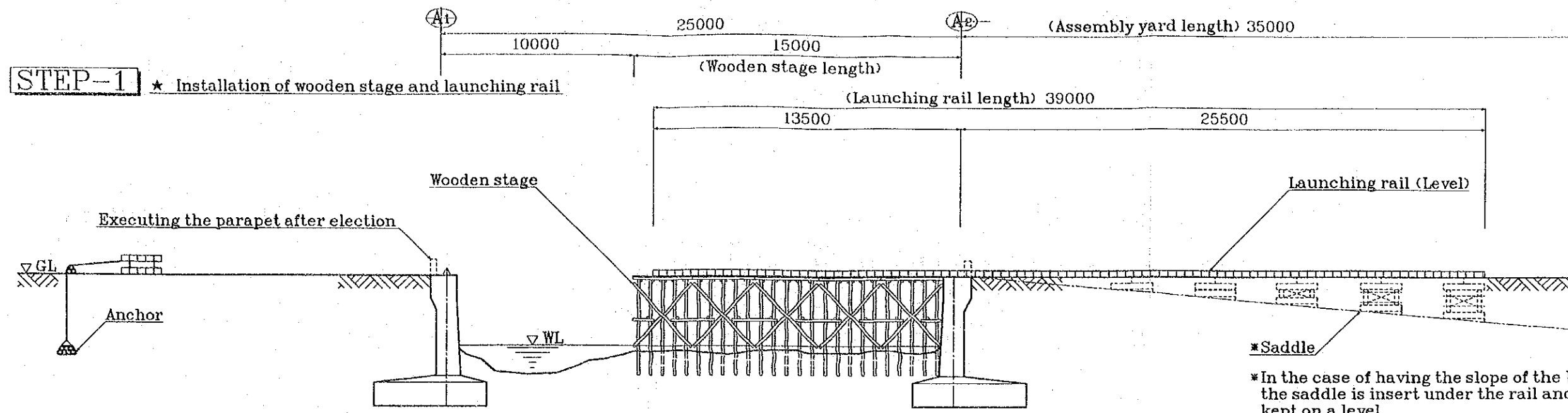


Figure-1 CONCEPTUAL FIGURES OF LAUNCHING ON STAGING METHOD (ONE SPAN TYPE) (1/2)



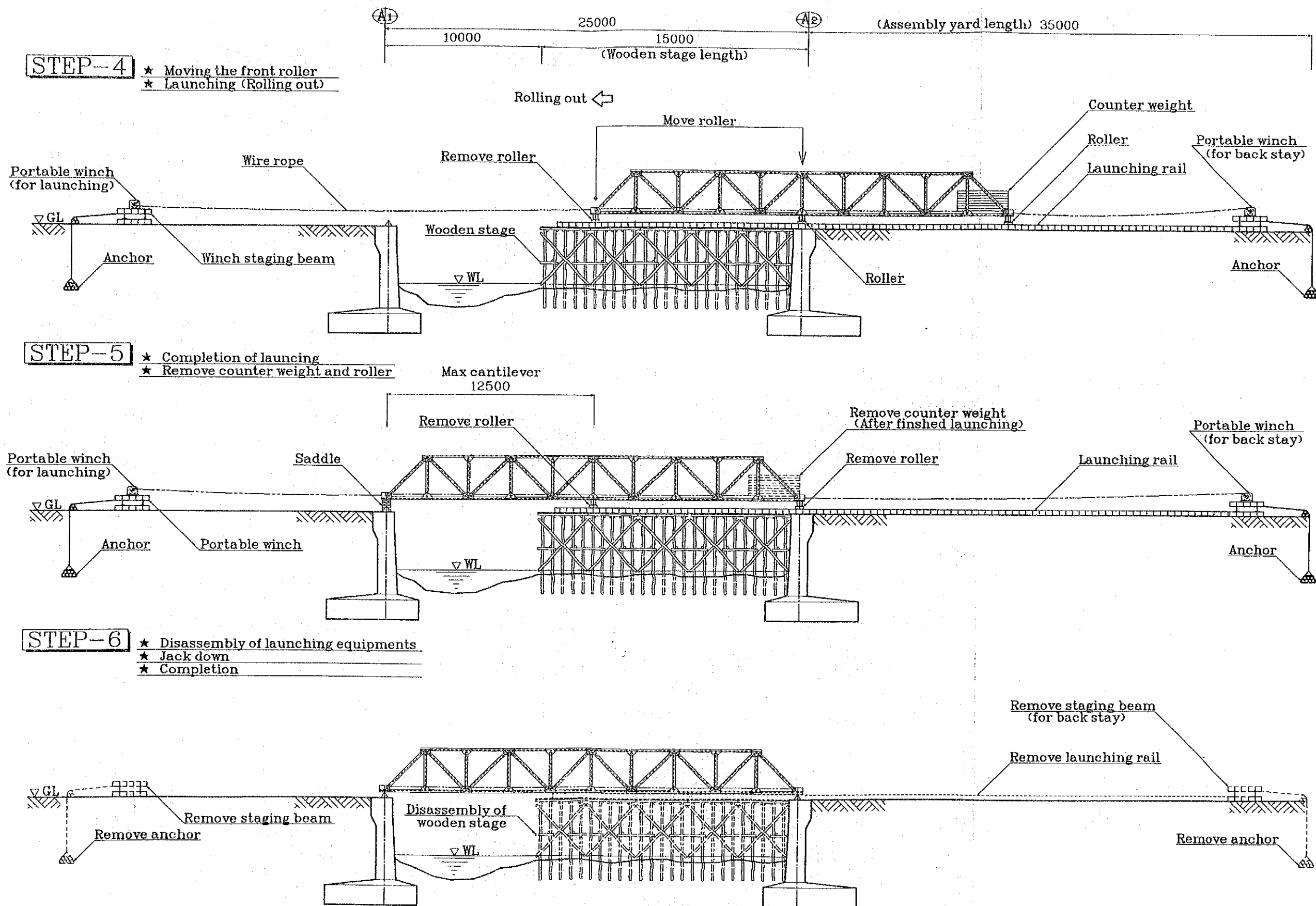
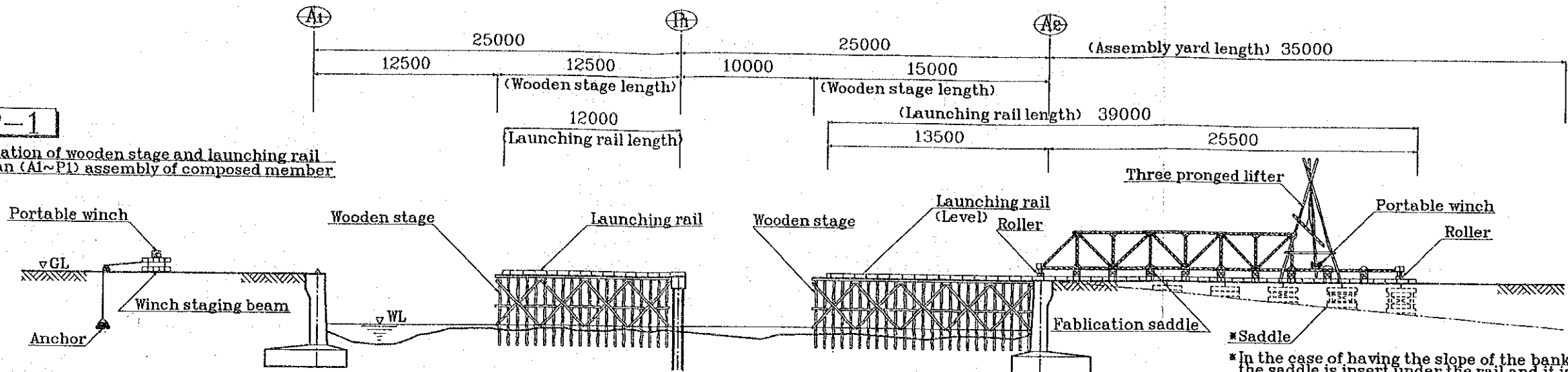


Figure-1 CONCEPTUAL FIGURES OF LAUNCHING ON STAGING METHOD (ONE SPAN TYPE) (2/2)

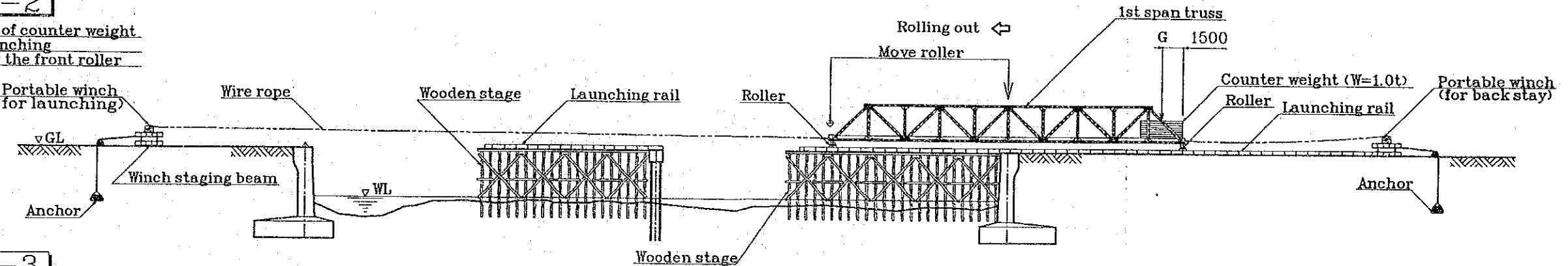
**STEP-1**

- ★ Installation of wooden stage and launching rail
- ★ 1st span (A1~P1) assembly of composed member



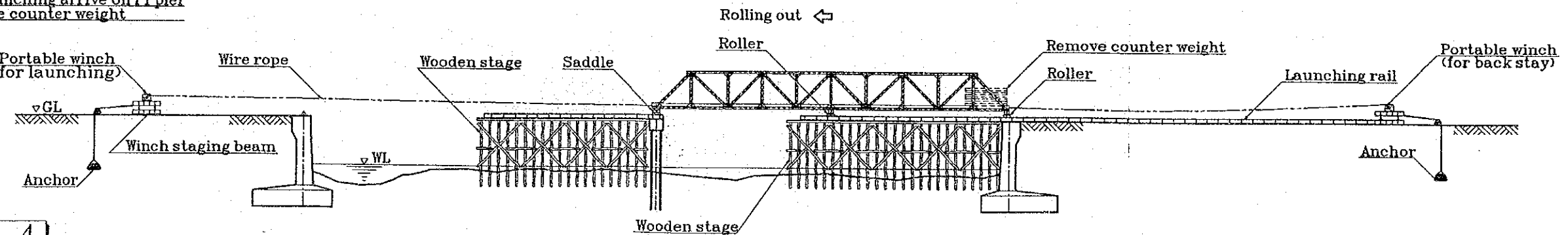
**STEP-2**

- ★ Setting of counter weight
- ★ 1st launching
- ★ Moving the front roller



**STEP-3**

- ★ 2nd launching arrive on P1 pier
- ★ Remove counter weight



**STEP-4**

- ★ 2nd span (P1~A2) Assembly of composed member
- ★ Assembly of tie beam

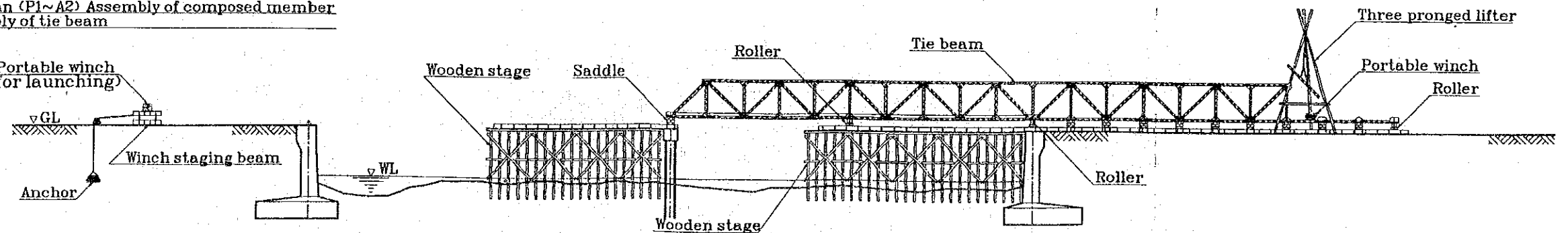
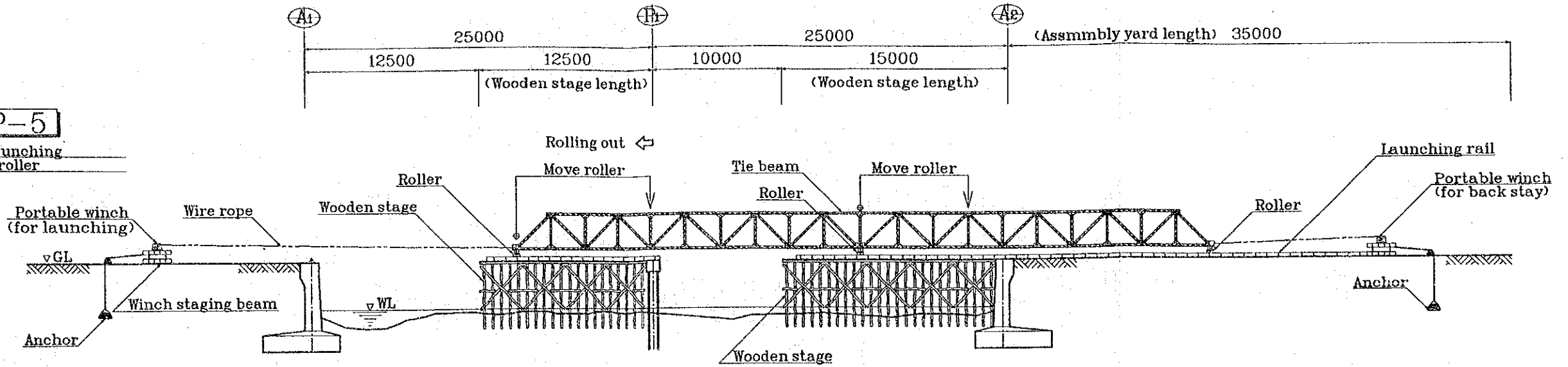


Figure-2 CONCEPTUAL FIGURES OF LAUNCHING ON STAGING METHOD (TWO SPAN TYPE) (1/2)

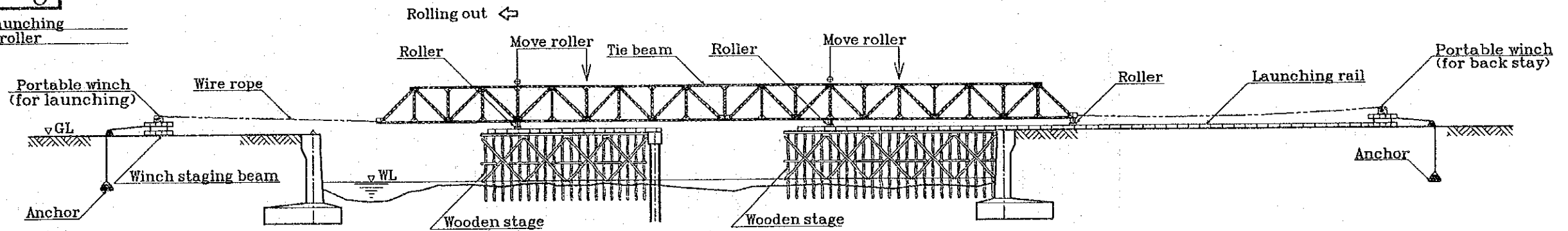
**STEP-5**

- ★ 3rd launching
- ★ Move roller



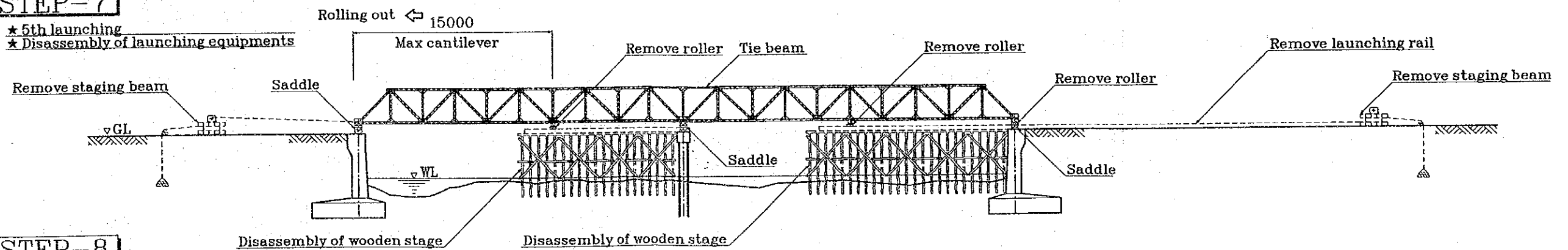
**STEP-6**

- ★ 4th launching
- ★ Move roller



**STEP-7**

- ★ 5th launching
- ★ Disassembly of launching equipments



**STEP-8**

- ★ Jack down. Disassembly of tie beam
- ★ Completion

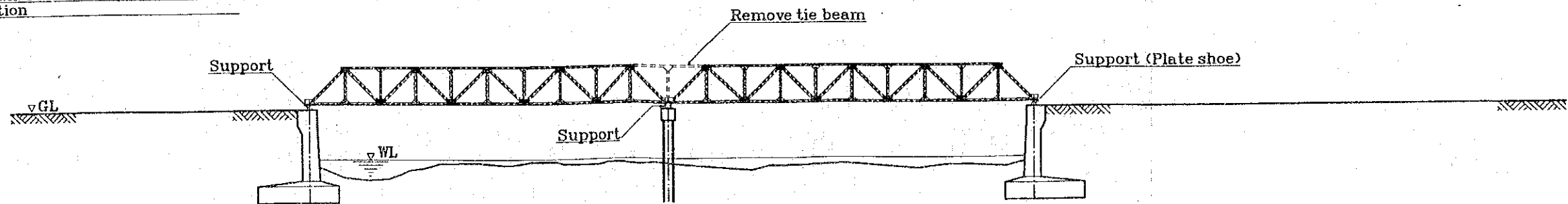


Figure-2 CONCEPTUAL FIGURES OF LAUNCHING ON STAGING METHOD (TWO SPAN TYPE) (2/2)

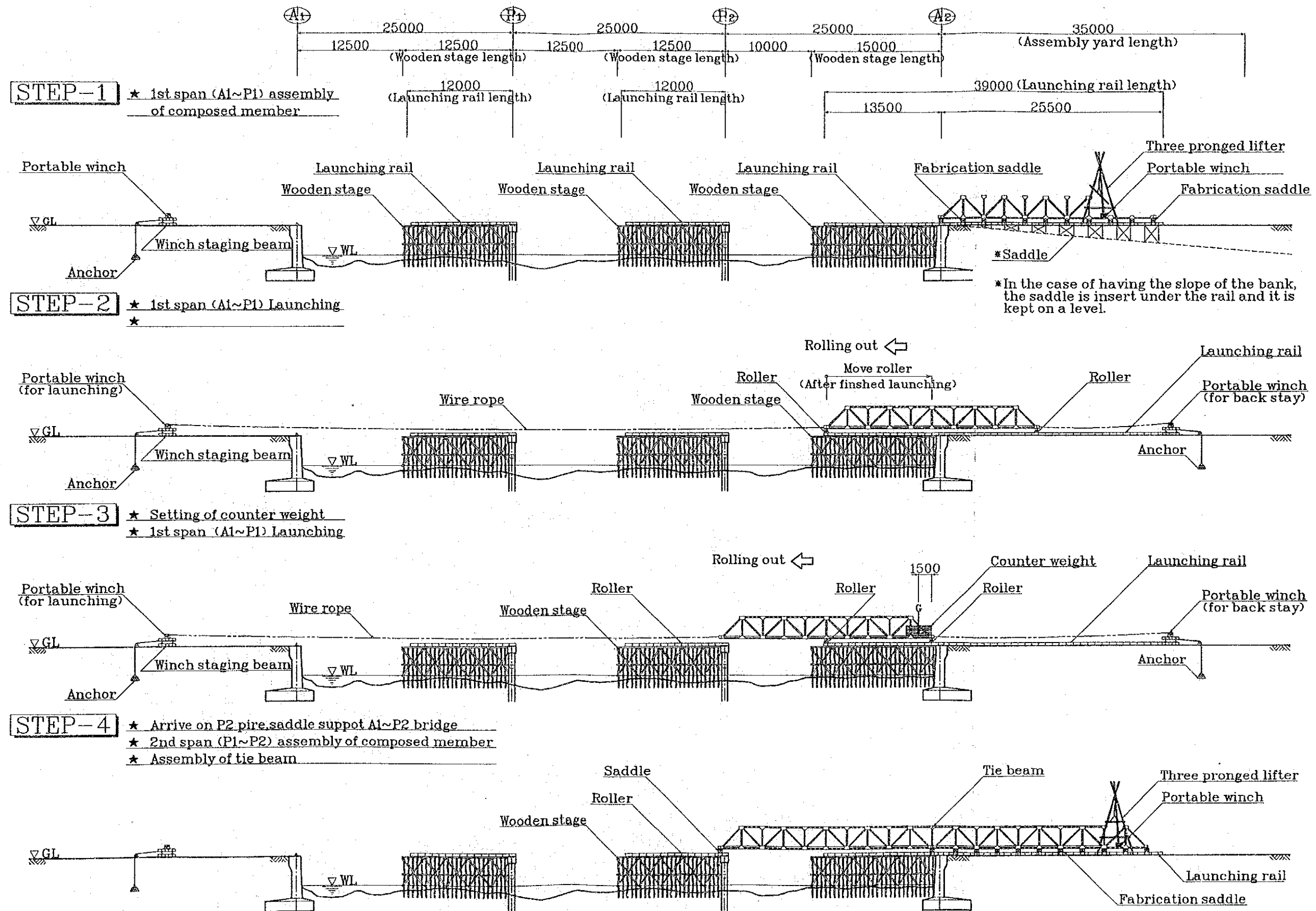


Figure-3 CONCEPTUAL FIGURES OF LAUNCHING ON STAGING METHOD (THREE SPAN TYPE) (1/3)

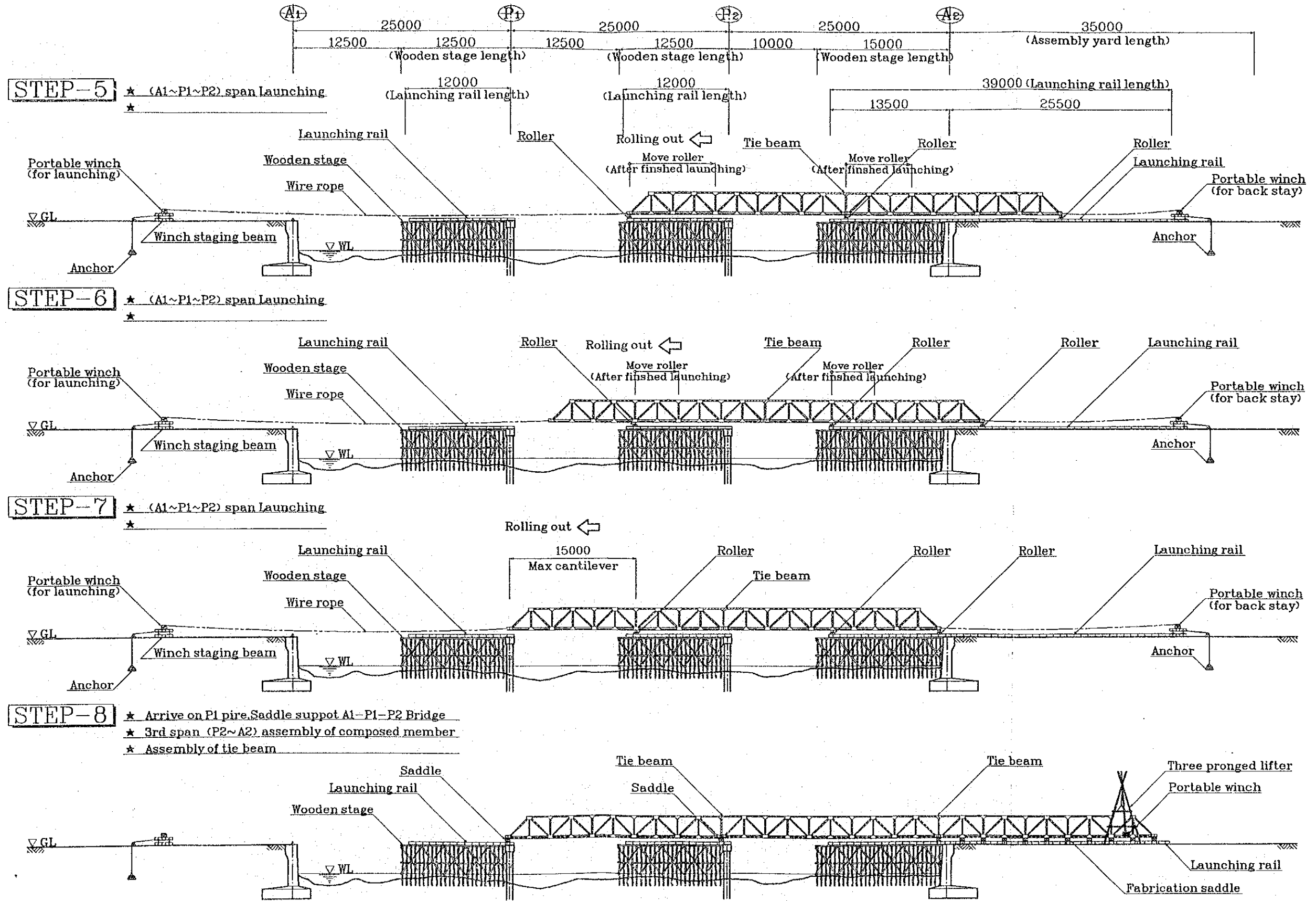
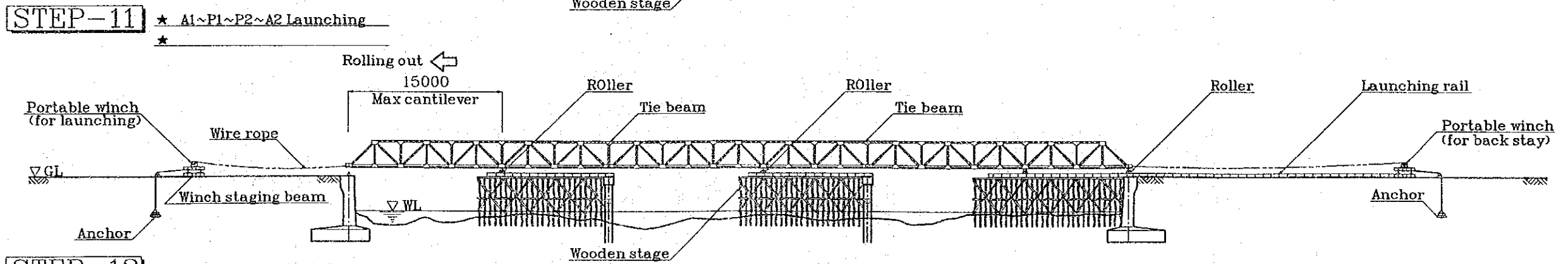
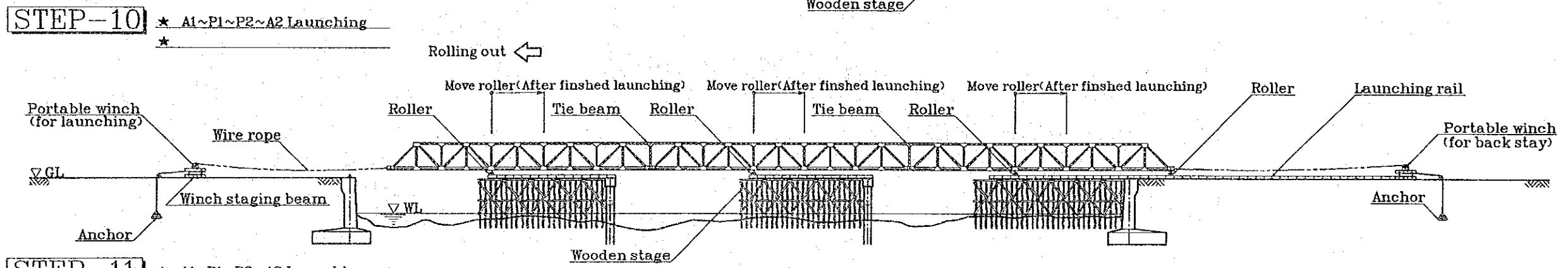
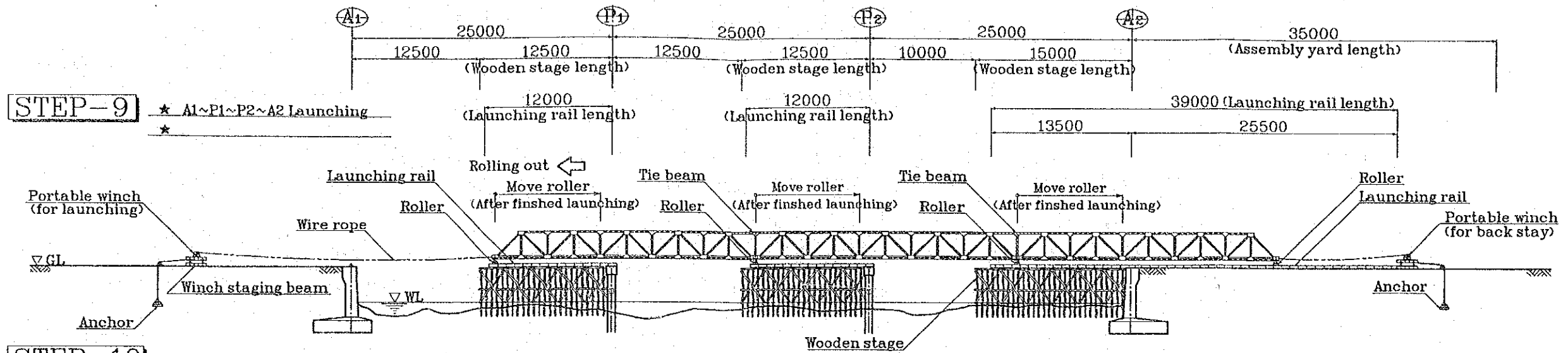
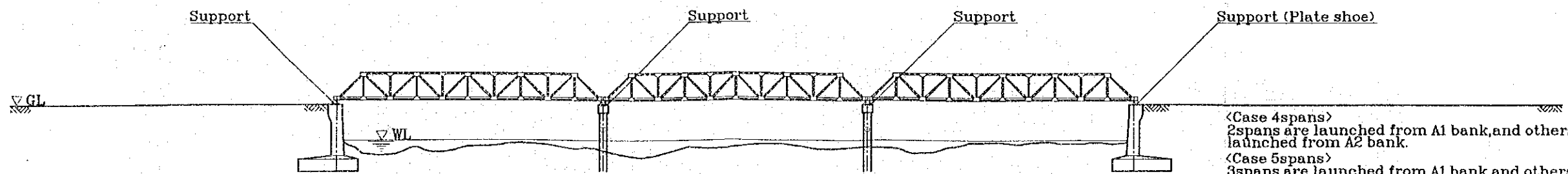


Figure-3 CONCEPTUAL FIGURES OF LAUNCHING ON STAGING METHOD (THREE SPAN TYPE) (2/3)



**STEP-12** ★ A1~P1~P2~A2 Jack down  
★ Disassembly of the beam, launching rail and wooden stage



<Case 4 spans>  
2 spans are launched from A1 bank, and others 2 spans launched from A2 bank.  
<Case 5 spans>  
3 spans are launched from A1 bank and others 3 spans launched from A2 bank.

Figure-3 CONCEPTUAL FIGURES OF LAUNCHING ON STAGING METHOD (THREE SPAN TYPE) (3/3)



## **APPENDIX 6**

### **LIST OF COLLECTED DATA**





## COLLECTED DATA

### GENERAL

- Statistical Yearbook, 1992, Bangladesh Bureau of Statistics(BBS)
- Preliminary Report Population Census, July 1991, BBS
- Statistical Pocket Book of Bangladesh, 1992, BBS

### DEVELOPMENT PLAN

- The Fourth Five Year Plan 1990-95, Ministry of Planning

### EXECUTING AGENCY

- Local government Engineering Department Brochure
- Organization Chart of Ministry of Local Government Rural Development Co-operatives

### ROAD AND BRIDGE

- District Road Maps, LGED
- Inventory of Road and Structure of Feeder Road Type-B and Rural Road (R1,R2 & R3), May 1993, LGED

### ROAD DEVELOPMENT AND MAINTENANCE

- Food Assisted Development Program of LGED, 1992, LGED
- Strategy for Maintenance of Rural Infrastructure, March 1992, LGED
- Maintenance of Rural Infrastructures, January 1993, LGED
- Report on Maintenance of Rural Infrastructure Compiled for Consideration and Review in the workshop, February 1992, LGED
- Planning and Implementation Method of Growth Center Connection Road Program,

### ENGINEERING STANDARDS

- Road Structure Manual, Part-A Standard Design, LGED
- Road Structure Manual, Part-B Guidelines and Design Criteria, 1989, LGED
- Standard Specifications and Schedule of Rates 1986-90, LGED
- Labor and Material Rates, 1992, LGED
- 93 Pay Item Rate, LGED



**APPENDIX 7**

**COST SHOULDERED BY  
THE GOVERNMENT OF BANGLADESH**

APPENDIX 7 ESTIMATED COST SHOULDERS BY THE GOVERNMENT OF BANGLADESH

1. BRIDGE CONSTRUCTION COST

BRIDGES CONSTRUCTION COST

(Unit : Taka)

Work Item	Structure	Designation	Unit Price	Unit	Phase 1 (32Bridges)		Phase 2 (22Bridges)		Phase 3 (20 Bridges)		Total (74 Bridges)	
					Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
Sub-Structure	Abutment	H = 4.5m ~ 5.0m	319,200.00	Unit	62	19,790,400.00	42	13,406,400.00	36	11,491,200.00	140	44,688,000.00
		H = 5.0m ~ 6.0m	370,600.00	Unit	2	741,200.00	2	741,200.00	4	1,482,400.00	8	2,964,800.00
	Sub-total		—	—	64	20,531,600.00	44	14,147,600.00	40	12,973,600.00	148	47,652,800.00
	Pier	H = 5.0m ~ 7.5m	238,100.00	Unit	20	4,762,000.00	12	2,857,200.00	3	714,300.00	35	8,333,500.00
		H = 8.0m ~ 9.0m	268,400.00	Unit	4	1,073,600.00	11	2,952,400.00	3	805,200.00	18	4,831,200.50
		H = 10.0m ~ 13.5m	303,800.00	Unit	6	1,822,800.00	0	0.00	1	303,800.00	7	2,126,600.00
		Pile-bent Coping	81,600.00	Unit	6	489,600.00	5	408,000.00	13	1,060,800.00	24	1,958,400.00
Sub-total		—	—	36	8,148,000.00	28	6,217,600.00	20	2,884,100.00	84	17,249,700.00	
Foundation Piles	Pre-cast (300×300×6,000)	9,900.00	Each	860	8,514,000.00	603	5,969,700.00	430	4,257,000.00	1,893	18,740,700.00	
	Cast-in-place (φ 700)	8,400.00	m	417	3,502,800.00	378	3,175,200.00	960	8,064,000.00	1,755	14,742,000.00	
Sub-total		—	—	—	12,016,800.00	—	9,144,900.00	—	12,321,000.00	—	33,482,700.00	
Total			—	—	—	40,696,400.00	—	29,510,100.00	—	28,178,700.00	—	98,385,200.00
Super-Structure	Inland Transportation of Steel Material Erection of Bridges	—	1,000.00	ton	1,009	1,009,000.00	748	748,000.00	607	607,000.00	2,364	2,364,000.00
		—	29,400.00	ton	1,009	29,664,600.00	748	21,991,200.00	607	17,845,800.00	2,364	69,501,600.00
Total			—	—	—	30,673,600.00	—	22,739,200.00	—	18,452,800.00	—	71,865,600.00
Other Structure	Approach Roads River Protection	—	2,400.00	m	675	1,620,000.00	480	1,152,000.00	425	1,020,000.00	1,580	3,792,000.00
		—	1,500.00	m <sup>2</sup>	2,350	3,525,000.00	1,600	2,400,000.00	1,470	2,205,000.00	5,420	8,130,000.00
Total			—	—	—	5,145,000.00	—	3,552,000.00	—	3,225,000.00	—	11,922,000.00
Grand Total			—	—	—	76,515,000.00	—	55,801,300.00	—	49,856,500.00	—	182,172,800.00

## 2. INLAND TRANSPORTATION COST

## INLAND TRANSPORTATION COST

(Unit : Taka)

Item	Destination (LGED District Office)	Transportation Route / Mean	Distance ( km )	Unit Price	Unit	Phase 1 (32 Bridges)		Phase 2 (22 Bridges)		Phase 3 (20 Bridges)		Total (74 Bridges)	
						Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
Steel Materials	Cox's Bazar	Chittagong to ~Cox's Bazar By land	154	1,100.00	F/T	327.288	360,016.80	0.000	0.00	0.000	0.00	327.288	360,016.80
	Feni	Chittagong to ~Feni By land	84	600.00	F/T	124.580	74,748.00	122.733	73,639.80	0.000	0.00	247.313	148,387.80
	Chittagong	Chittagong to ~Chittagong By land	20	100.00	F/T	122.733	12,273.30	185.023	18,502.30	204.555	20,455.50	512.311	51,231.10
	Habiganj	Chittagong to ~Habiganj By land	348	2,400.00	F/T	103.201	247,682.40	185.023	444,055.20	163.644	392,745.60	451.868	1,084,483.20
	Moulvibazar	Chittagong to ~Moulvibazar By land	380	2,600.00	F/T	93.435	242,931.00	103.201	268,322.60	112.967	293,714.20	309.603	804,967.80
	Chandpur	Chittagong to ~Chandpur By land	177	1,000.00	F/T	103.201	103,201.00	65.029	65,029.00	89.147	89,147.00	257.377	257,377.00
	B. Baria	Chittagong to ~B. Baria By land	222	1,500.00	F/T	204.555	306,832.50	175.555	263,332.50	89.147	133,720.50	469.257	703,885.50
	Comilla	Chittagong to ~Comilla By inland waterway	167	1,200.00	F/T	281.495	337,794.00	144.112	172,734.40	89.147	106,976.40	514.754	617,704.80
	Noakhari	Chittagong to ~Noakhari By land	151	1,000.00	F/T	55.263	55,263.00	62.290	62,290.00	105.940	105,940.00	223.493	223,493.00
	Laxmipur	Chittagong to ~Laxmipur By land	145	1,000.00	F/T	122.733	122,733.00	48.236	48,236.00	103.201	103,201.00	274.170	274,170.00
	Narsingdi	Chittagong to ~Narsingdi By inland waterway	294	1,600.00	F/T	192.348	307,756.80	122.733	196,372.80	204.555	327,288.00	519.636	831,417.60
	Faridpur	Chittagong to ~Faridpur By land	409	2,800.00	F/T	103.201	288,962.80	103.201	288,962.80	0.000	0.00	206.402	577,925.60
	Dhaka	Chittagong to ~Dhaka By inland waterway	264	1,400.00	F/T	233.259	326,562.60	62.290	87,206.00	24.118	33,765.20	319.667	447,533.80
	Munshigonj	Chittagong to ~Munshigonj By inland waterway	284	1,600.00	F/T	186.870	298,992.00	185.023	296,036.80	144.112	230,579.20	516.005	825,608.00
	Gazipur	Chittagong to ~Gazipur By land	299	2,100.00	F/T	103.201	216,722.10	185.023	388,548.30	103.201	216,722.10	391.425	821,992.50
	Sub-total	—	3,398	—	F/T	2,357.363	3,302,471.30	1,749.472	2,673,468.50	1,433.734	2,054,254.70	5,540.569	8,030,194.50
Erection Tools	Dhaka	Chittagong to ~Dhaka	264	1,400.00	F/T	227.718	318,805.20	0	0.00	0	0.00	227.718	318,805.20
	Sub-total	—	264	—	F/T	227.718	318,805.20	0	0.00	0	0.00	227.718	318,805.20
Total			3,662	—	F/T	2,585.081	3,621,276.50	1,749.472	2,673,468.50	1,433.734	2,054,254.70	5,768.287	8,348,999.70



3. CUSTOM CLEARANCE FEE

CUSTOM CLEARANCE FEE

(Unit : US\$)

Item	Unit Price	Unit	Phase 1		Phase 2		Phase 3		Total	
			Quantity	Amount	Quantity	Amount	Quantity	Amount	Quantity	Amount
Steel Materials	34.00	F/T	2,349.595	79,886.23 (Tk 3,157,902.67)	1,743.712	59,286.21 (Tk 2,343,583.80)	1,428.894	48,582.40 (Tk 1,920,462.27)	5,522.201	187,754.84 (Tk 7,421,948.82)
Erection Tolls	34.00	F/T	227.718	7,742.41 (Tk 306,057.47)	-	-	-	-	227.718	7,742.41 (Tk 306,057.47)
Paints	34.00	F/T	7.768	264.11 (Tk 10,440.27)	5.760	195.84 (Tk 7,741.56)	4.840	164.56 (Tk 6,505.08)	18.368	624.51 (Tk 24,886.89)
Total	34.00	F/T	2,585.081	87,892.75 (Tk 3,474,400.41)	1,749.472	59,482.05 (Tk 2,351,325.44)	1,433.734	48,746.96 (Tk 1,926,967.33)	5,768.287	196,121.76 (Tk 7,752,693.18)

Note : Exchange Rate : US\$ 1.0 = TK 39.53



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