

ATTACHMENT-1

FIELD REPORT OF THE TOPOGRAPHIC SURVEY

**THE TOPOGRAPHIC SURVEY
ON
THE STUDY
ON
WATER SUPPLY SYSTEM FOR SIEM REAP REGION
IN
CAMBODIA**

**FIELD REPORT
OF
THE TOPOGRAPHIC SURVEY**

APRIL 1997

**PREPARED
BY
JICA STUDY TEAM
AND
PISNOKA ENGINEERING INC.**

**FIELD REPORT OF THE TOPOGRAPHIC SURVEY
ON
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ON
WATER SUPPLY SYSTEM FOR SIEM REAP REGION
IN
CAMBODIA**

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CHAPTER 1. OUTLINE

1.1 Contract

The Topographic Survey works the Study on the Water Supply System for Siem Reap Region in Cambodia was contracted between JICA Study Team and Pisonoka Engineering on 4 th March 1997.

1.2 Topographic Survey Area

The Topographic Survey Area was decided in accordance with the Technical Specifications, in DWG-1 "Location Map Showing Topographic Survey Points". The detailed survey area was instructed by Engineer to the Contractor in the field as well as location maps at scale 1:50 000.

The horizontal control survey to locate the cross-section post was carried out by using the Total Stations in the study area. The locations of the new cross-section posts were selected and decided according to the information of the existing maps as well as on the field.

The vertical control survey, levelling, was carried out along the roads, tracks and dikes which has been selected and decided according to the information of the maps and the field condition.

1.3 Work Volume

According to the Technical Specifications and field conditions the work volume in the Topographic Survey was revised on 10 March 1997 by the Engineer. However, the balance of original and revised work volume was same as it was originally planned.

The Revised Quantity of Topographic Survey Work is attached as Annex 1.

1.4 Work Period

The period of the survey work was following:

Commencement: 6 March 1997

Completion: 12 April 1997

CHAPTER 2. SURVEY SUPERVISION AND CONTRACTOR'S STAFF

2.1 Survey Supervision

In Order to the supervision of survey work, the following staffs were pursued:

JICA Study Team Mr. Itoh Ryosuke

Contractor's Staff

Project Supervision and Mr. Sok Sothyra
Project Manager

Team A

Team Leader	Mr. Khiev Kimseng
Instrument man	Mr. Kang Seiha
Labour	Mr. Hey Chet
Labour	Mr. Hey Soran
Driver	Mr. Tep Narin

Team B

Team Leader	Mr. Ay Chumnith
Instrument man	Mr. Khun Phipum
Technician	Mr. Khim Sokheng
Labour	Mr. Kim Thy
Driver	Mr. Kauv Bunna

Team C

Team Leader	Mr. Lay Kheng
Instrument man	Mr. Seang Puy
Technician	Mr. Srey Raadeth
Labour	Mr. Um Sakea
Driver	Mr. Heng Klot

Team D

Team Leader	Mr. Bou Chorn
Instrument man	Mr. Kao Soucheng
Technician	Mr. Khiev Kimson
Labour	Mr. Sok Sophal
Driver	Mr. Chhay Sovann

CHAPTER 3. DETAILS OF THE SURVEY WORK

3.1 Technical Method

3.1.1 Longitudinal Profile Survey

The Longitudinal Profile Survey was carried out using ordinary levelling method with two levelling instruments. Reading accuracy of the used instruments was 1 mm. The levelling was carried out along the planned levelling routes instructed by the Engineer, e.g. roads and tracks as well as paths and dikes. The detailed survey routes as well as the location of the cross section posts was instructed by the Engineer.

The longitudinal profile surveys included also levelling work from existing bench marks to cross section posts along the planned survey routes.

The total length of longitudinal survey was as follows:

<i>Siem Reap River</i>	<i>27 km</i>
<i>Channel</i>	<i>7 km</i>

The longitudinal profile was plotted out using the AutoCad software and HP Desingjet plotter.

3.1.2 Cross Section Surveys

The cross section survey was carried out by using total stations and reflectors (prisms). The observed data was recorded manually and post processed to Auto Cad format for final plotting of the cross section drawings.

The cross section measurements was based on the cross section posts which were established during the longitudinal profile survey.

The waterlevel of the Siem Reap River, the Channel and West Baray was observed twice per during the cross section survey work.

The total number of established cross section and cross section posts was as follows:

<i>Siem Reap River</i>	<i>60 posts</i>	<i>30 cross sections</i>
<i>Channel</i>	<i>20 posts</i>	<i>10 cross sections</i>
<i>West Baray Reservoir</i>	<i>22 posts</i>	<i>11 cross sections</i>

3.1.3 Levelling of the Existing Wells and New Drilling Wells

The levelling of the existing and new drilling wells was carried out by using ordinary levelling method with one levelling instrument and two levelling rods. The reading accuracy the instrument was 1 mm.

The levelling was carried out by planned routes which were instructed by the Engineer. All wells were connected to existing bench marks and/or to established cross section posts.

Achievements:

<i>Existing Wells</i>	<i>83 pcs</i>
<i>New Drilling Wells</i>	<i>8 pcs</i>
<i>Hydrometric Stations</i>	<i>7 pcs</i>
<i>Staff Gauge</i>	<i>2 pcs</i>

3.2 Given Control Points

The levelling of the longitudinal profile, cross sections as well as the levelling of the existing wells and new drilling wells was based on the existing control points/bench marks established by the IGN French International in 1994 as shown in DWG-2, and JICA Study Team of Topographic Mapping Project for Angkor Archaeological Area in 1997 as shown in DWG-3.

3.3 Accuracy of Survey work

3.3.1 Accuracy of Longitudinal Survey, levelling

20 mm Sqroot s
s= km

3.3.2 Accuracy of Cross Section Survey

cross section posts, distance of 1/500
elevation of 20 mm+5 mm sqroot s
s =km

3.4 Equipment

3.4.1 Total Stations

The following equipment were used for topographic survey work

Topcon 702 (S.No.GY 0056)
Topcon 303 D (S.No.GW 0816)

3.4.2 Levelling instruments

The following equipment were used for levelling work

Topcon AT G1 (S.No. AV 2247)
Topcon AT G1 (S.No. AV 2594)

CHAPTER 4. FINAL RESULTS

4.1 Longitudinal Profile Survey

- Longitudinal profile charts	1 set
- Duplicate of longitudinal charts	1 set
- Blue prints	3 set
- Location map of existing benchmarks and necessary other points	1 set
- Description of cross section posts and necessary other points	1 set
- Measuring/calculation sheets	1 set

4.2 Cross Section Survey

- Cross section sheets 1 set
- Duplicate of cross section 1 set
- Blue prints 3 set
- Measuring /calculation sheets 1 set

4.3 Levelling Survey of the Existing Wells and Newly Drilling Wells

- Location Maps 1 set
- Description of Posts 1 set
- Blue Prints 1 set
- Measuring/calculation sheets 1 set

4.4 Final Survey Report

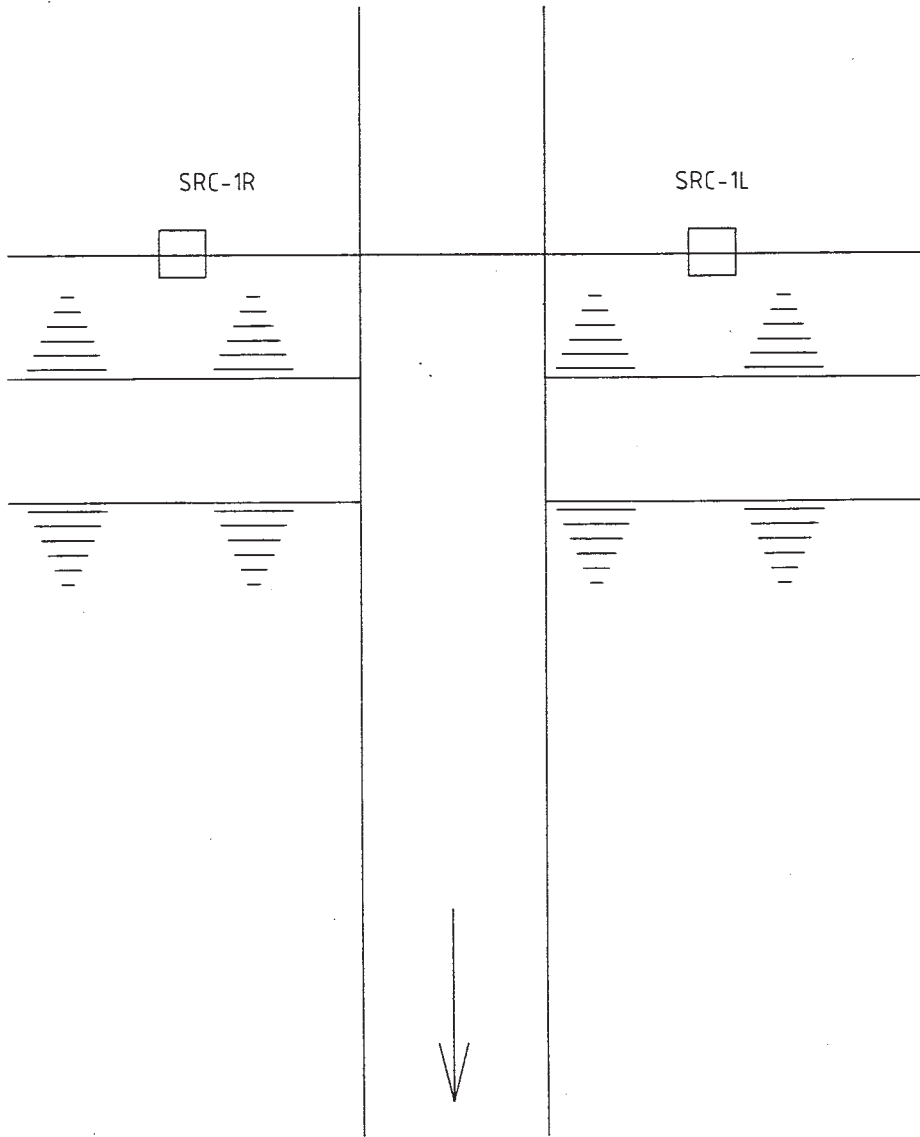
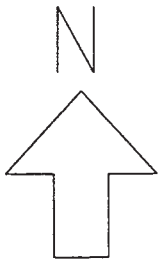
3 sets

***Description of the
Crosssections Posts:***

- 1 Siem Reap River***
- 2 Channel***
- 3 West Baray***

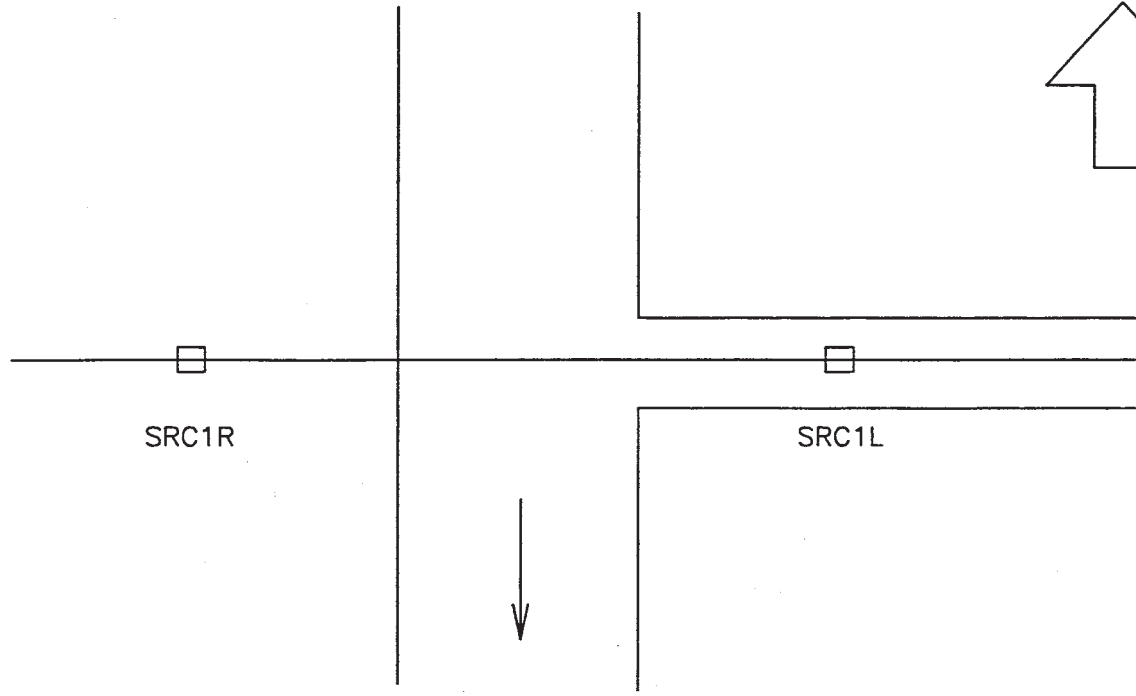
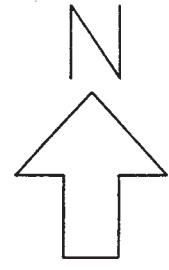
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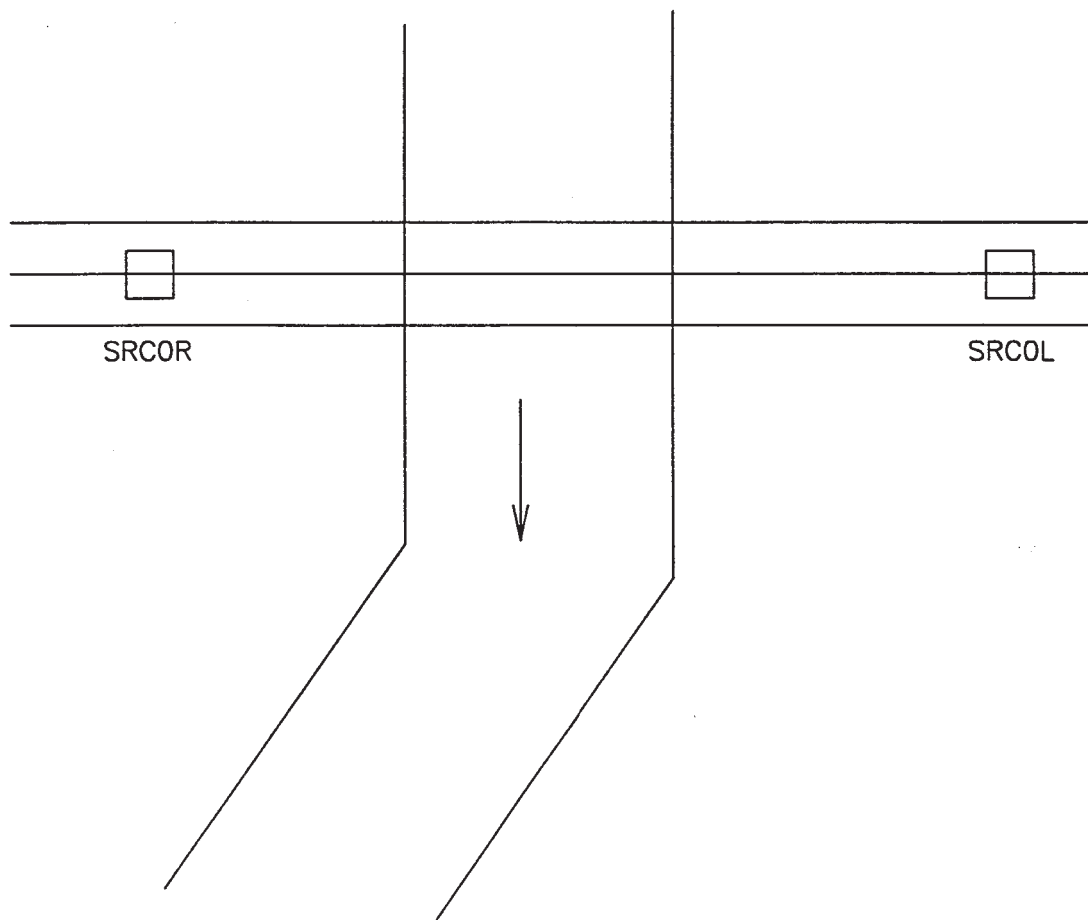
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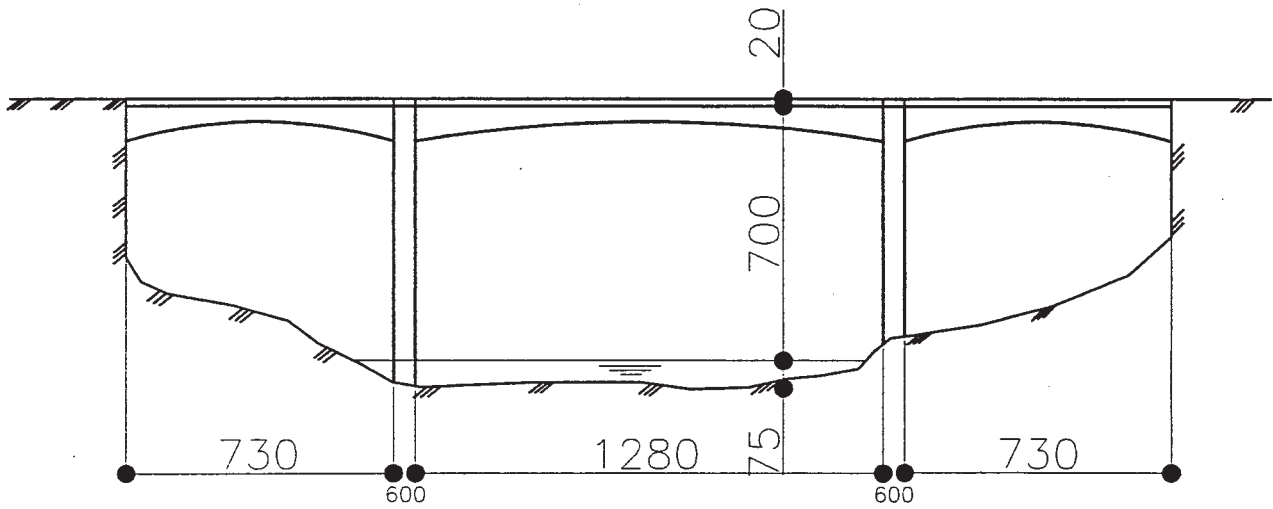
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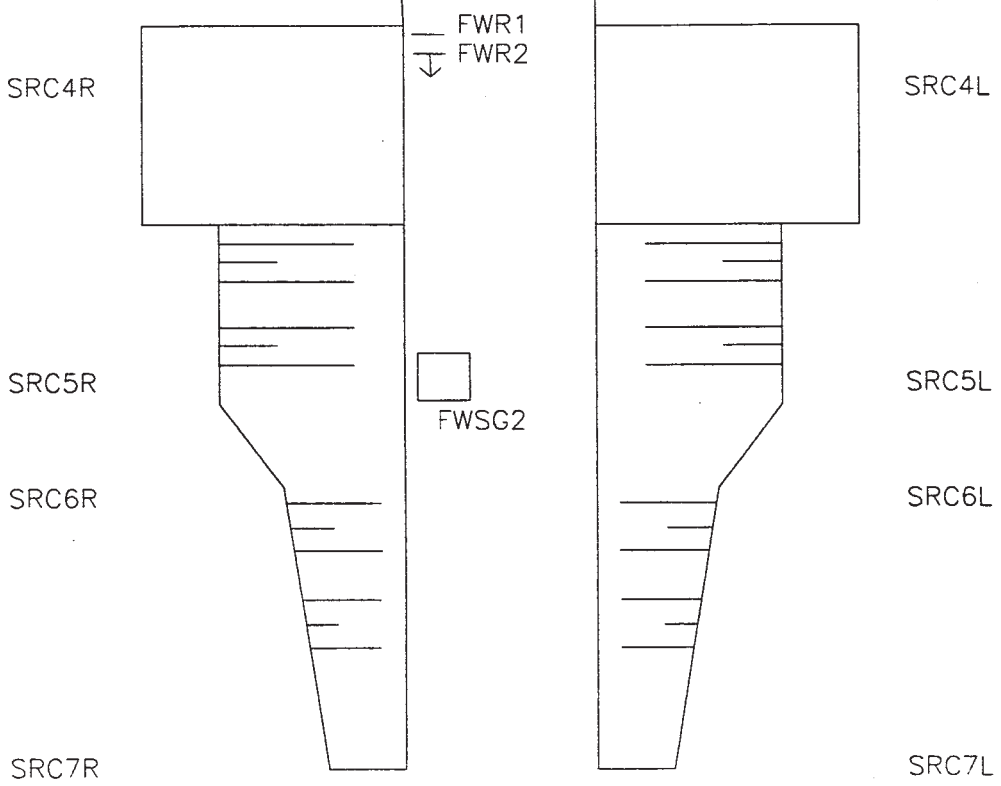
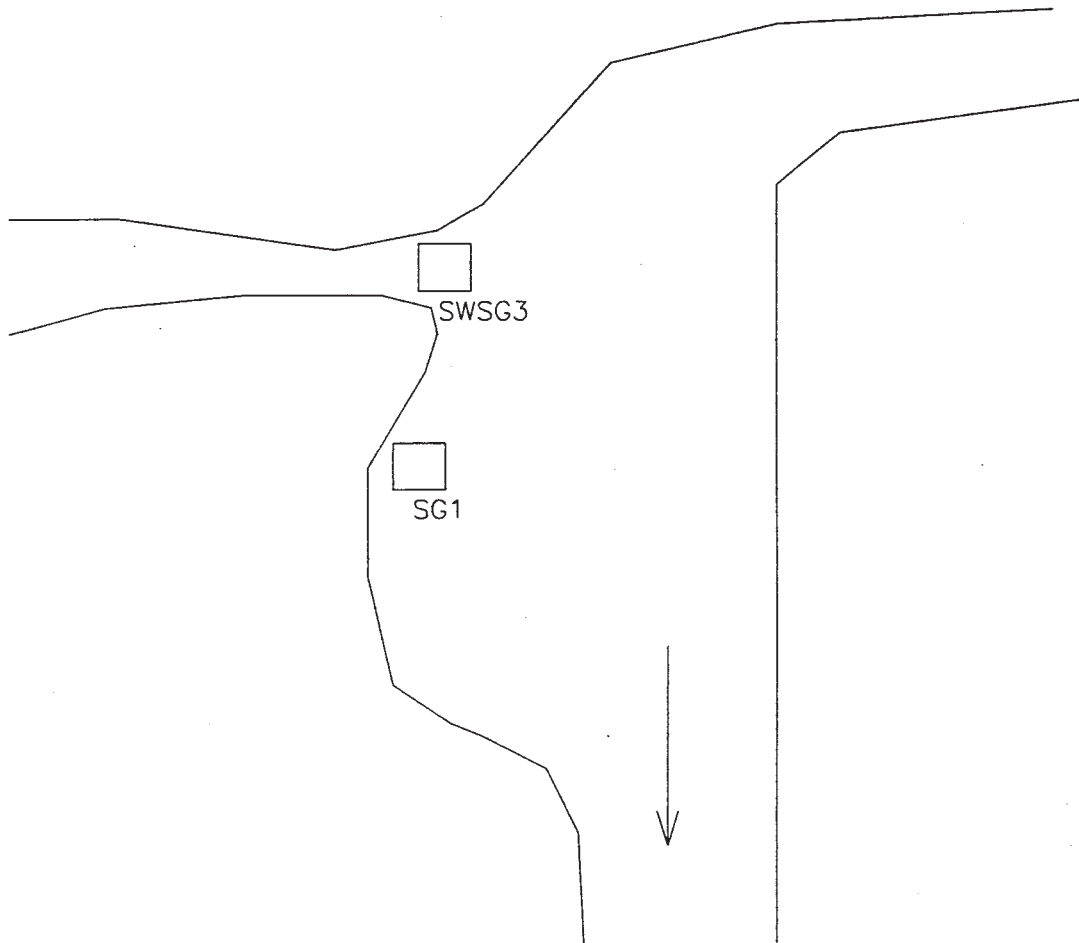
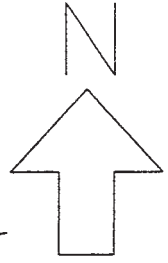
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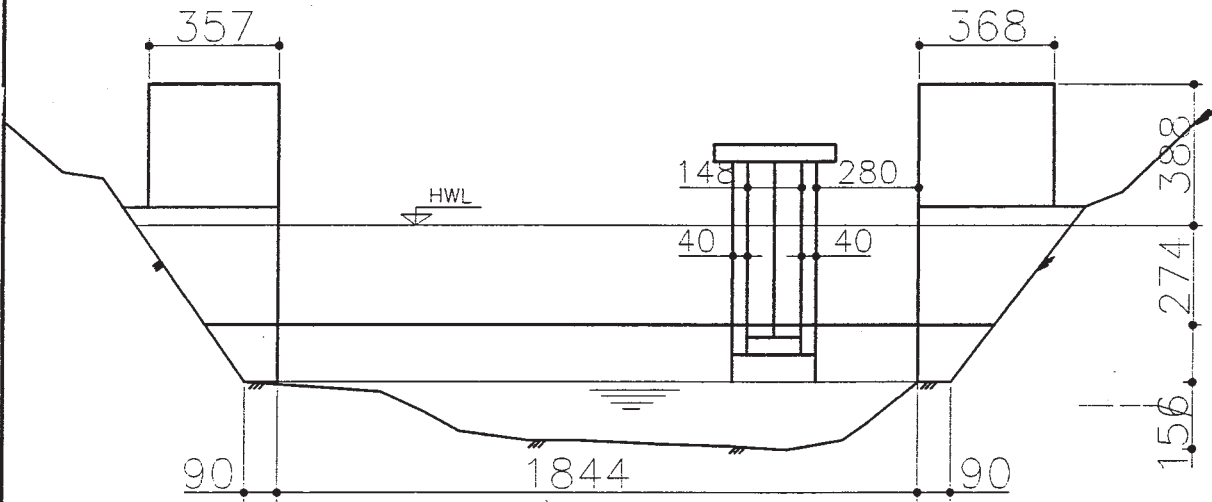
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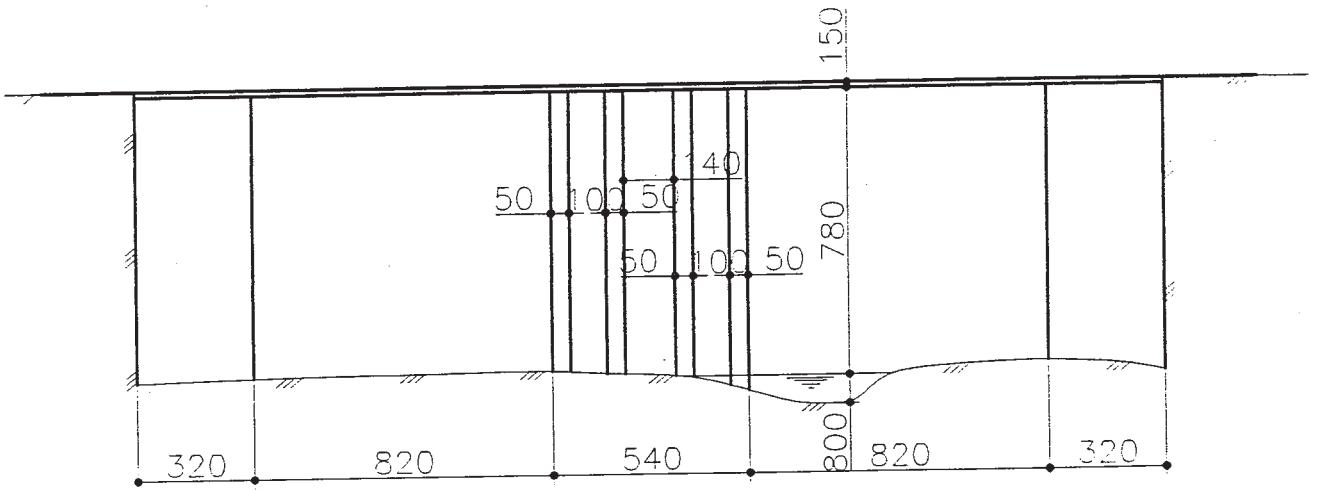
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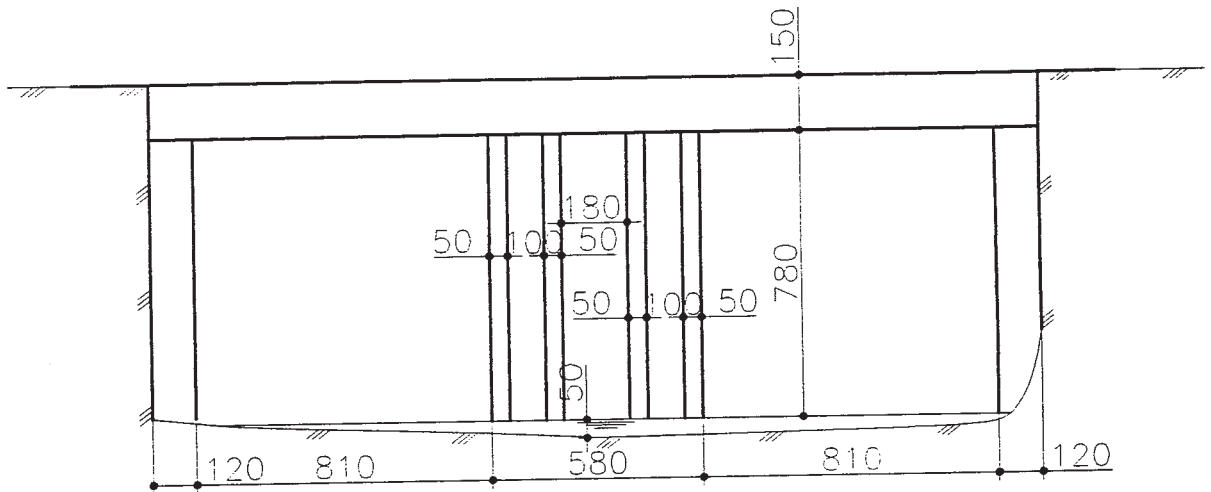
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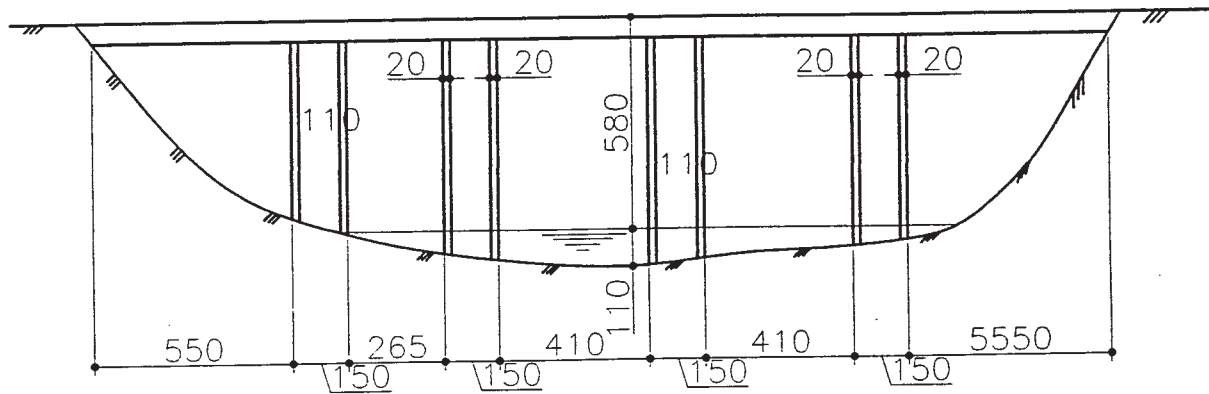
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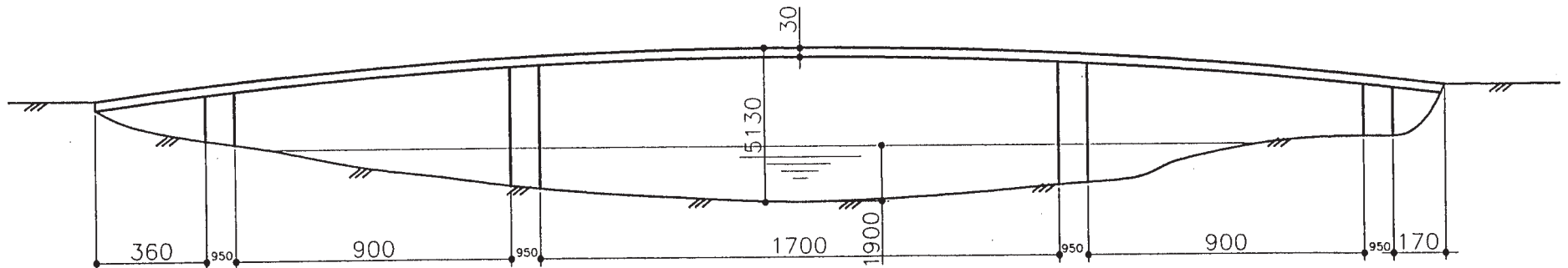
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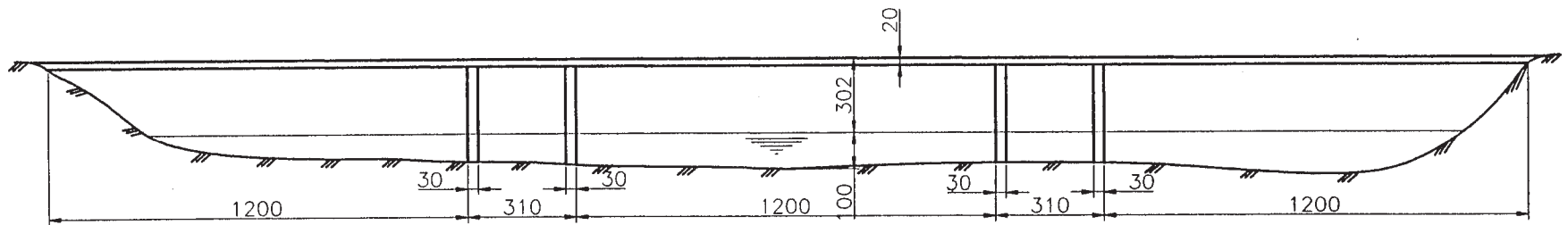
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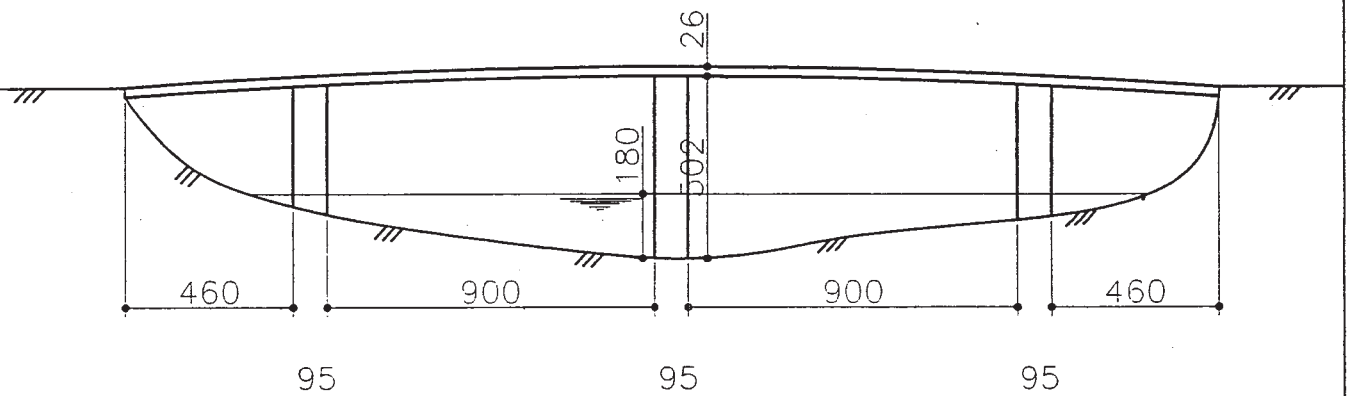
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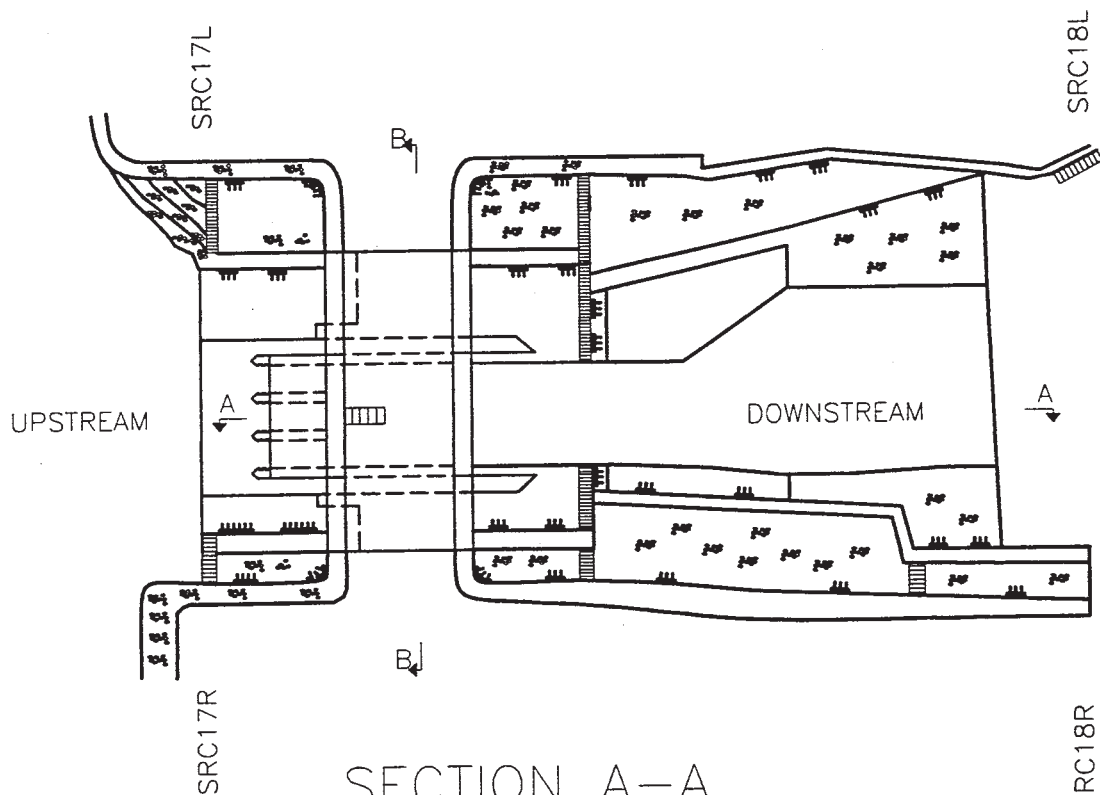
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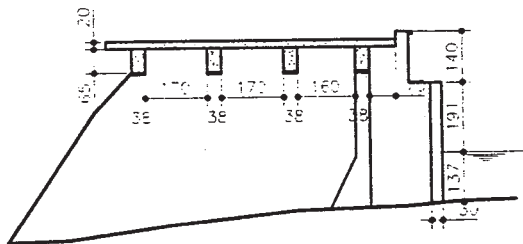
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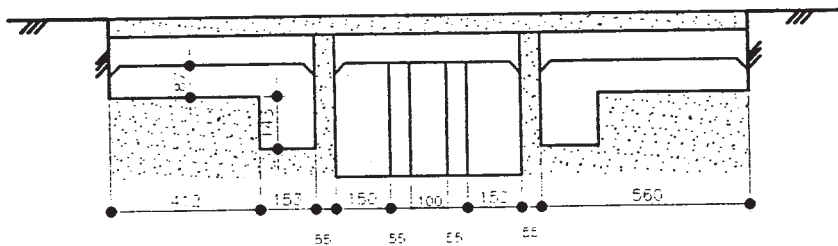
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SECTION B-B

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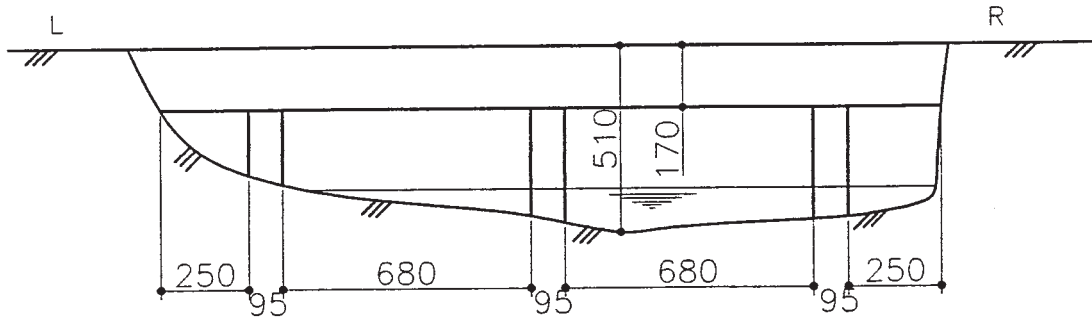
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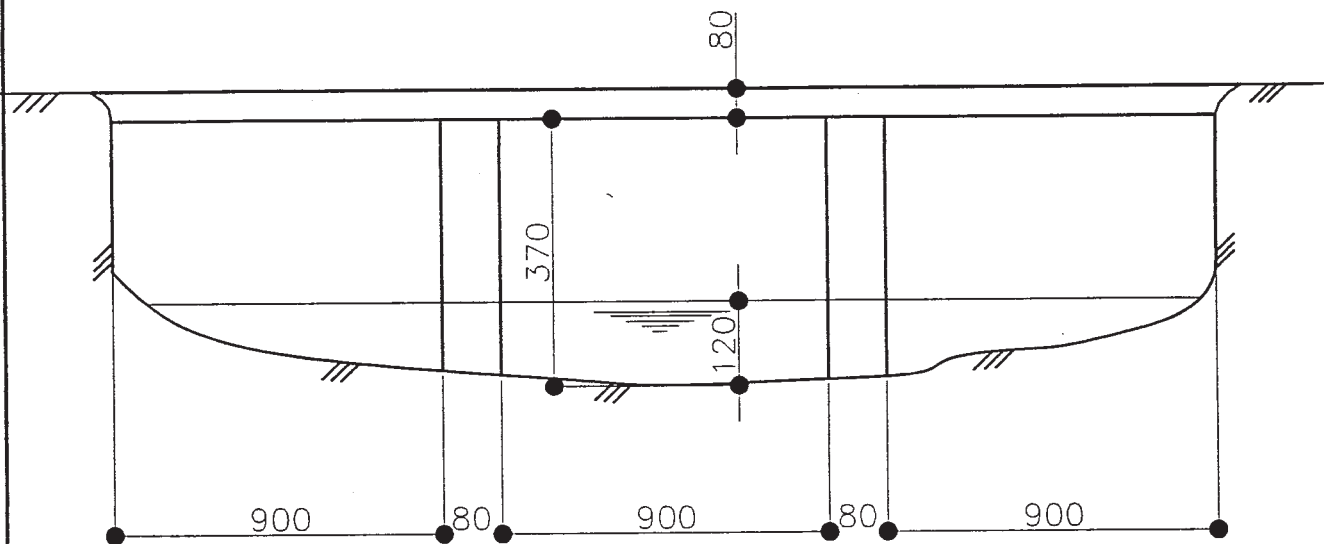


KONG MOCH BRIDGE

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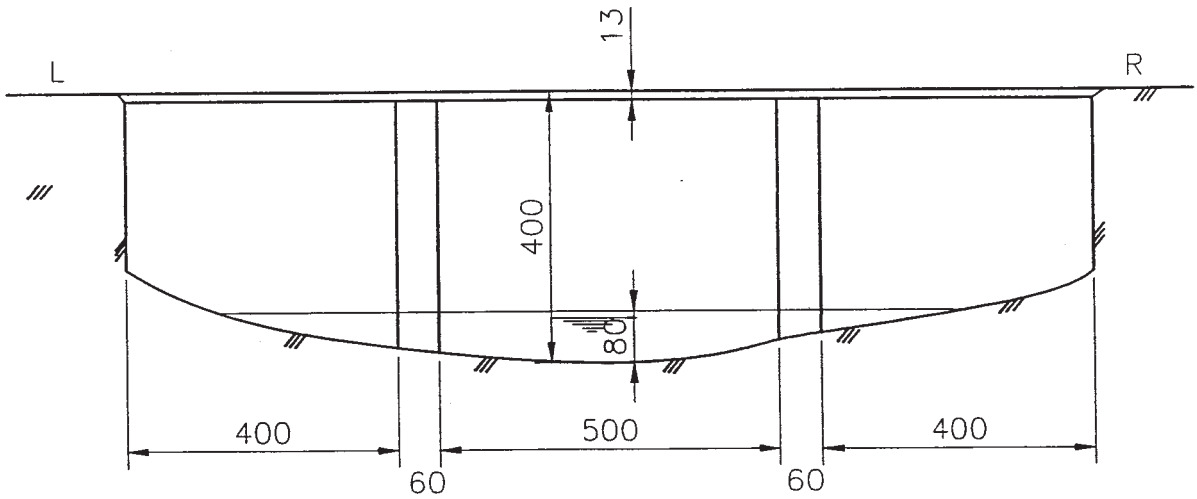
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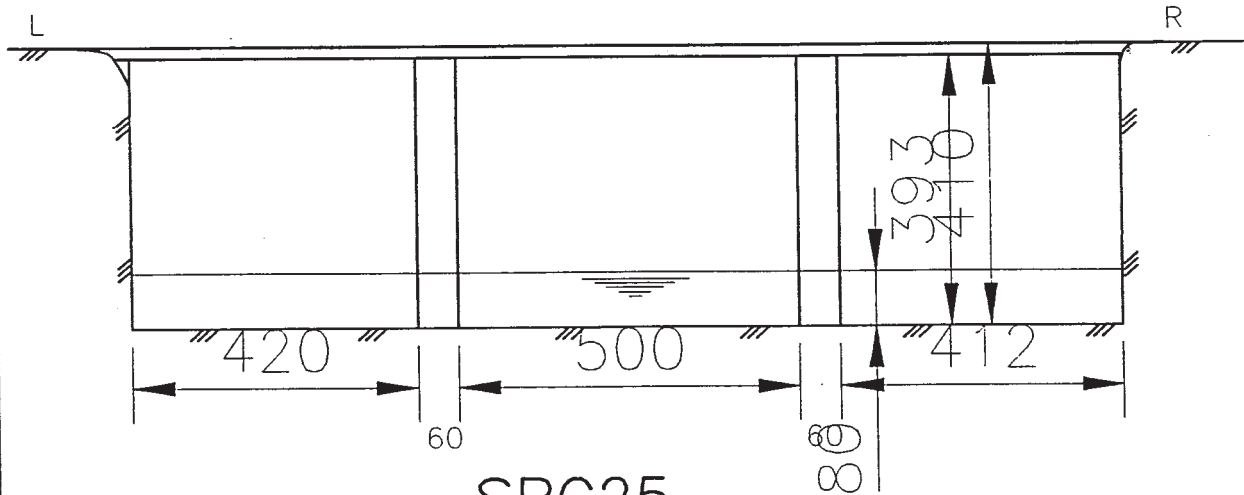


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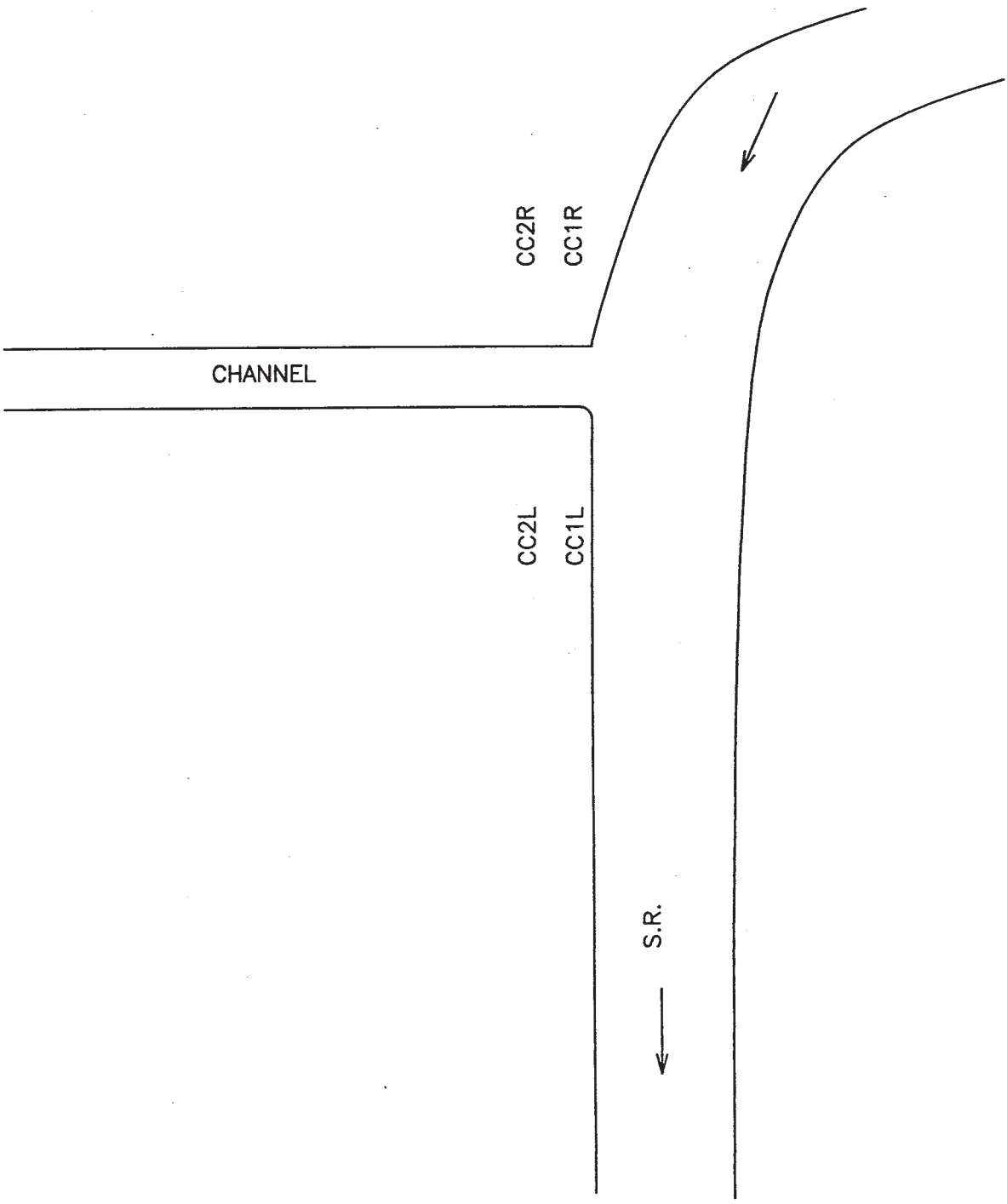
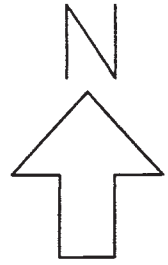


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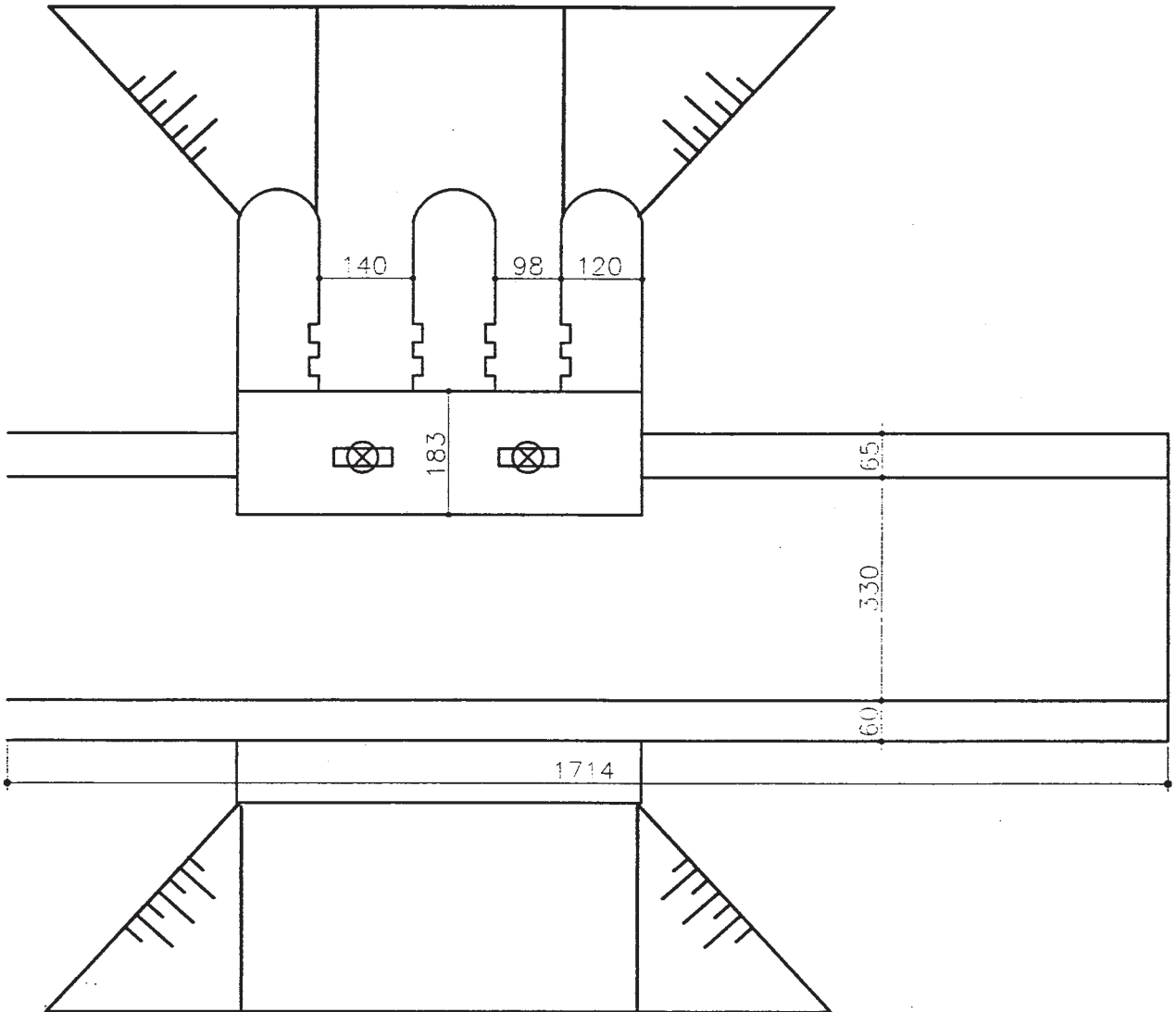


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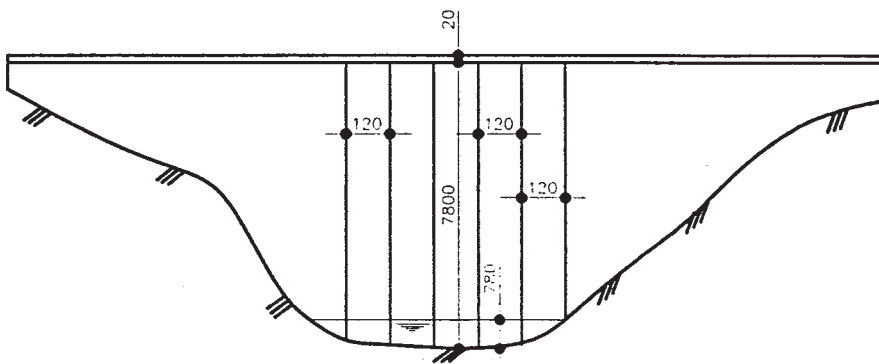


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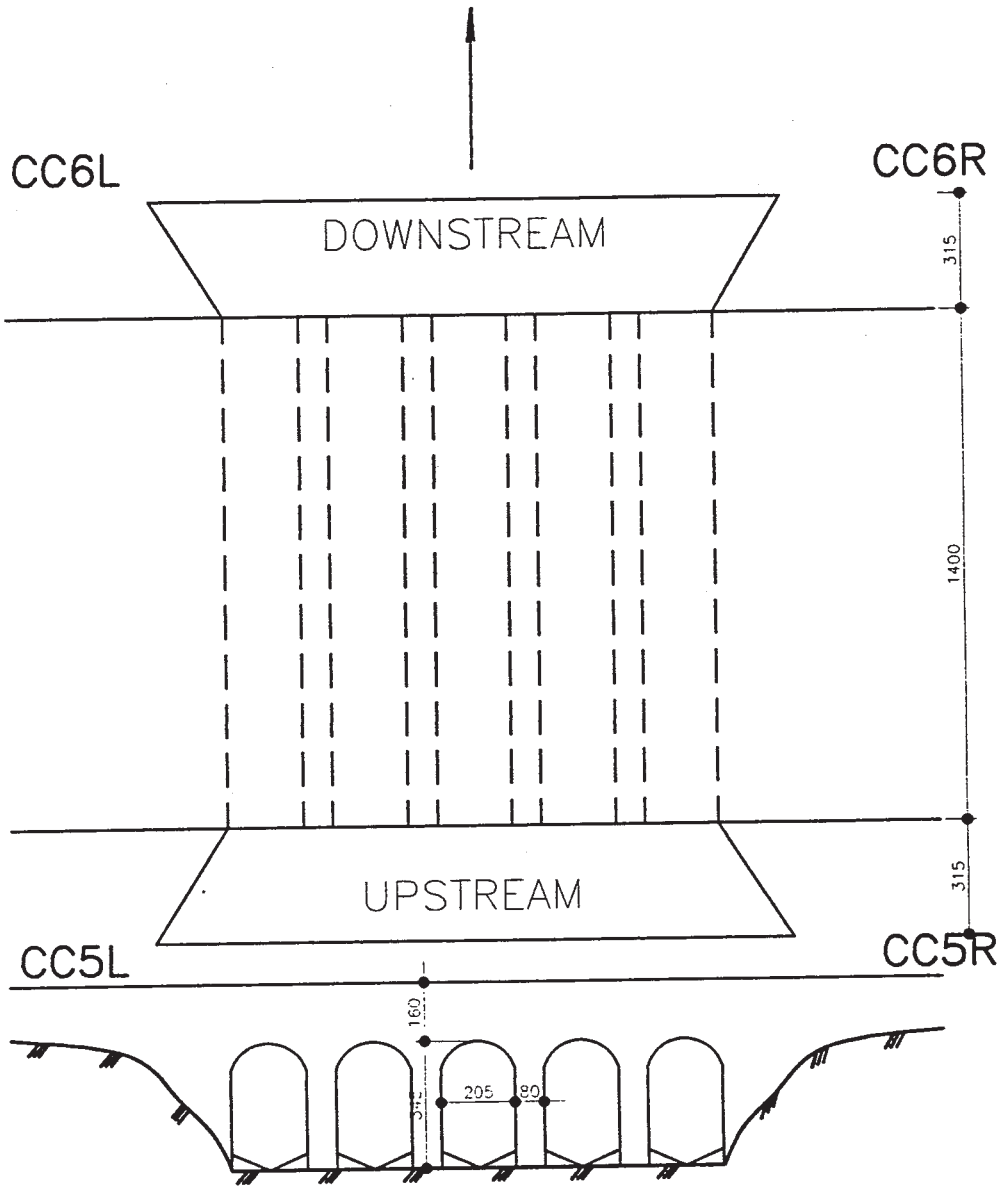
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CC4L



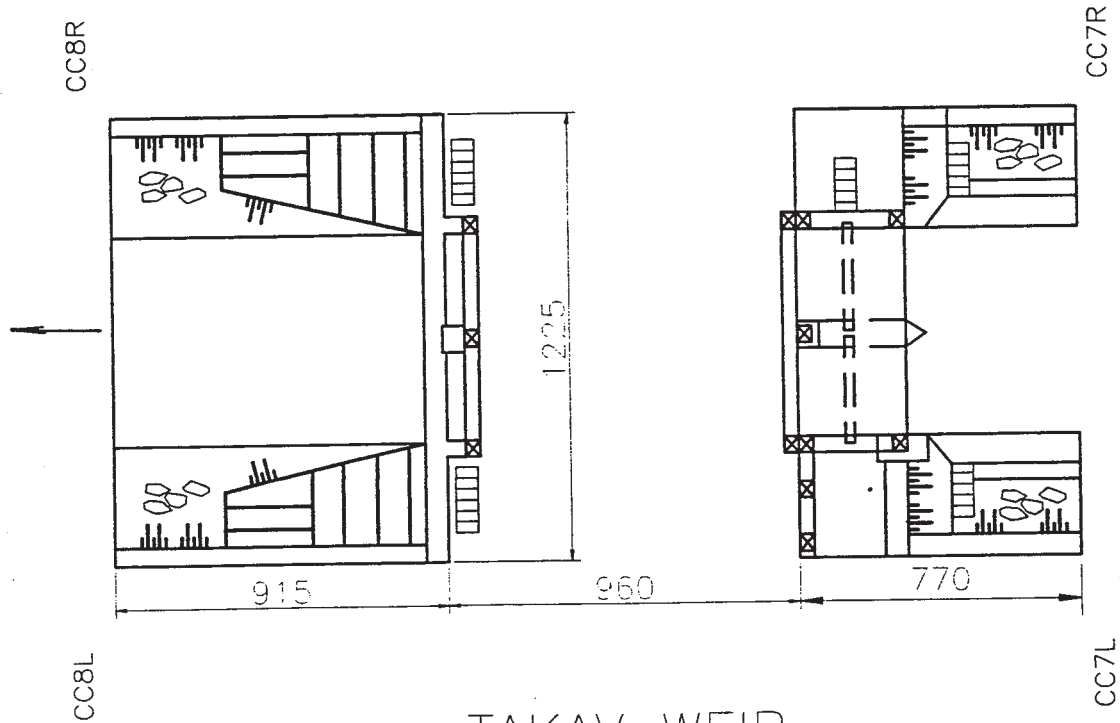
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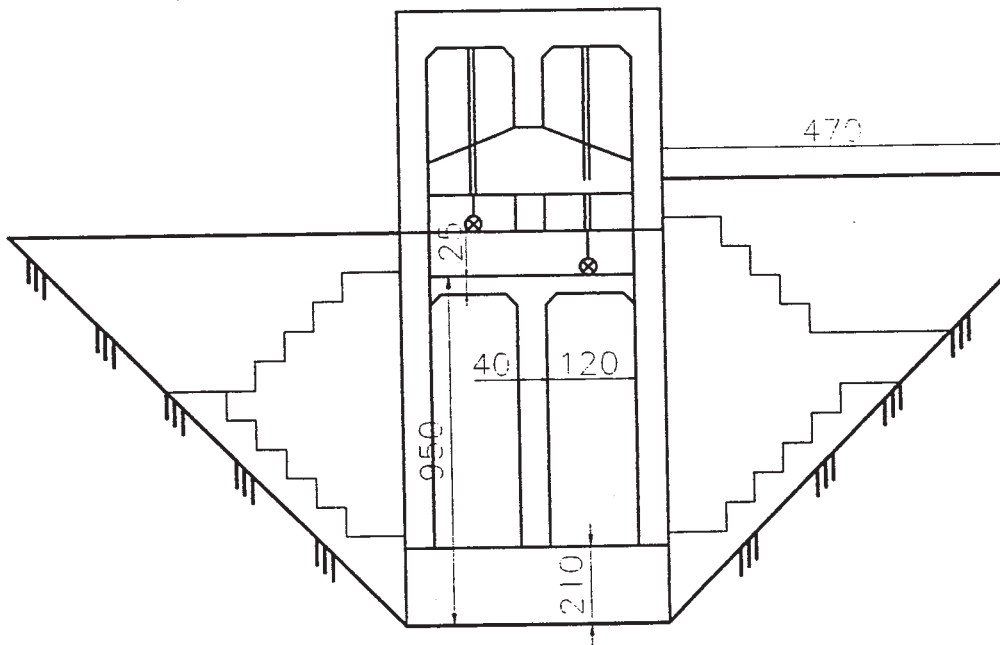
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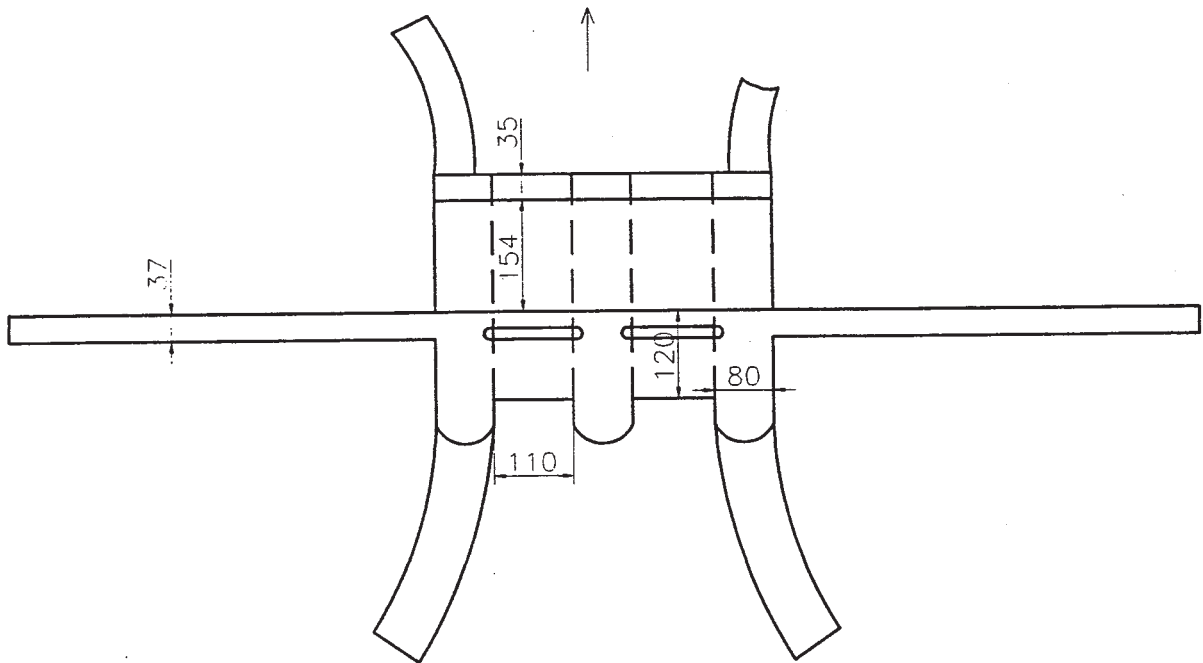
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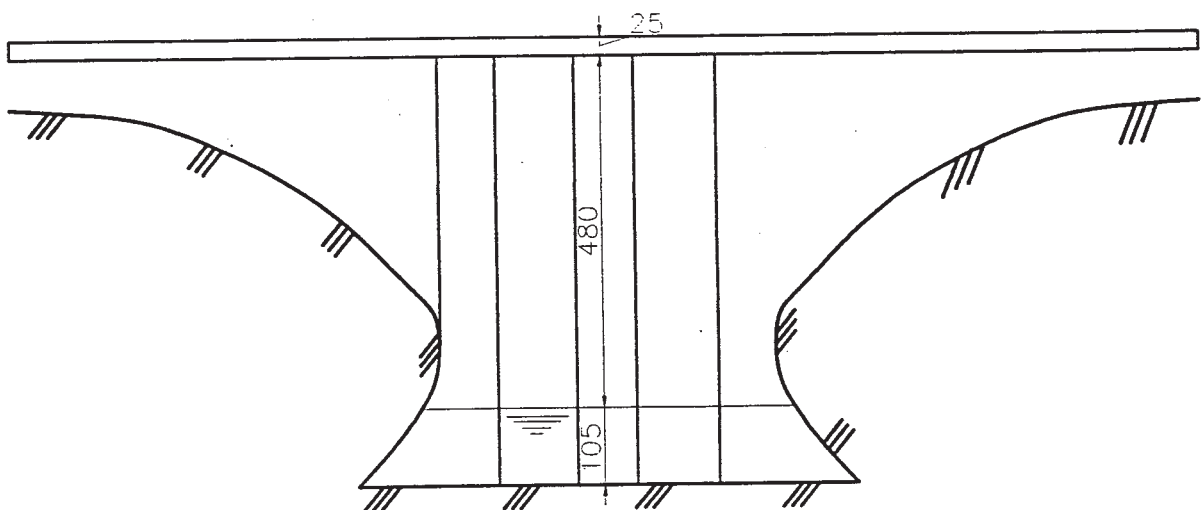
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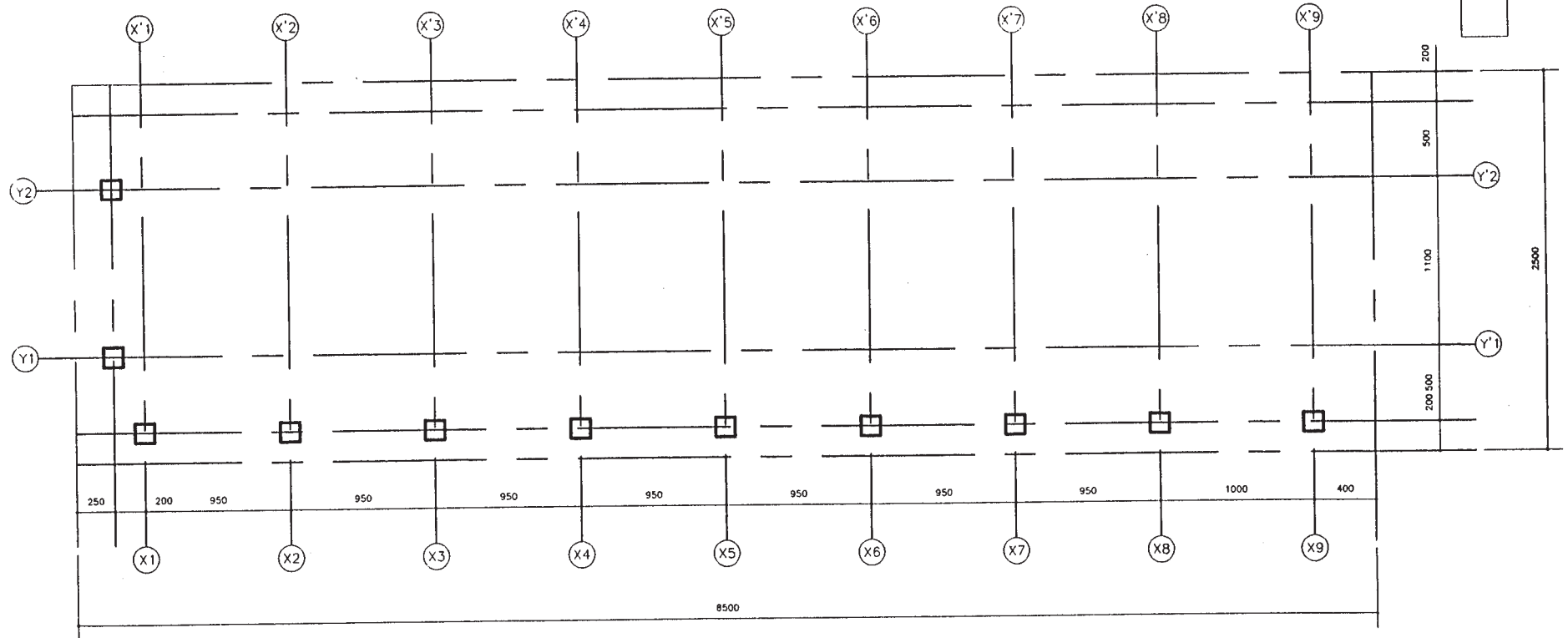
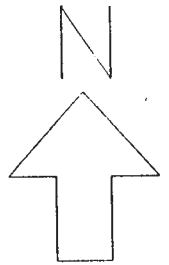
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WEST BARAY PLAN

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NOTE

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