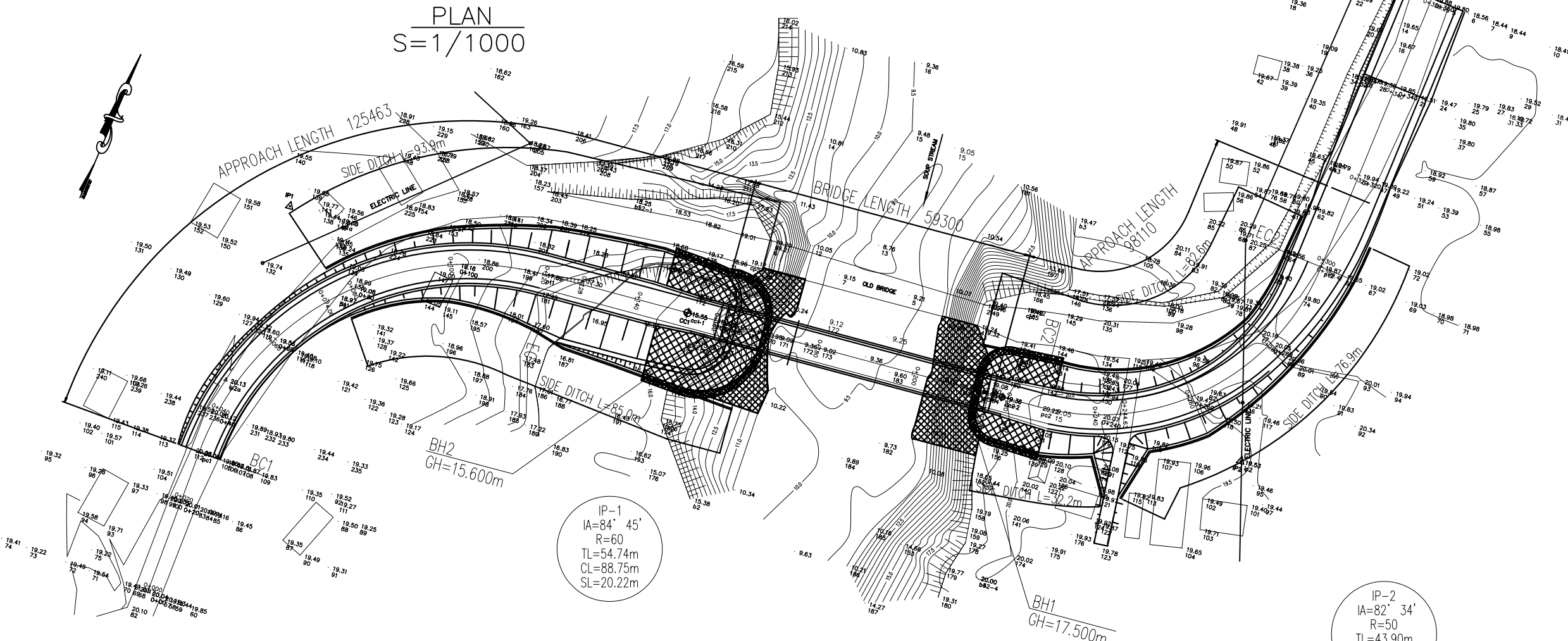


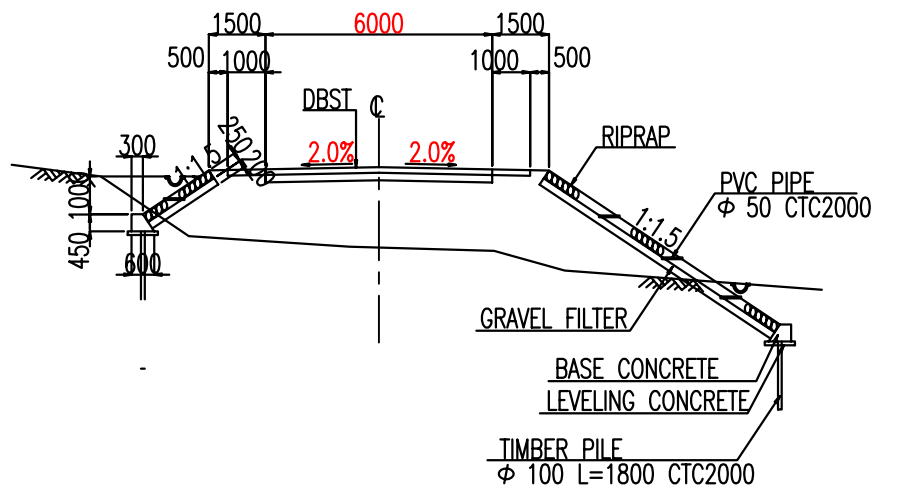
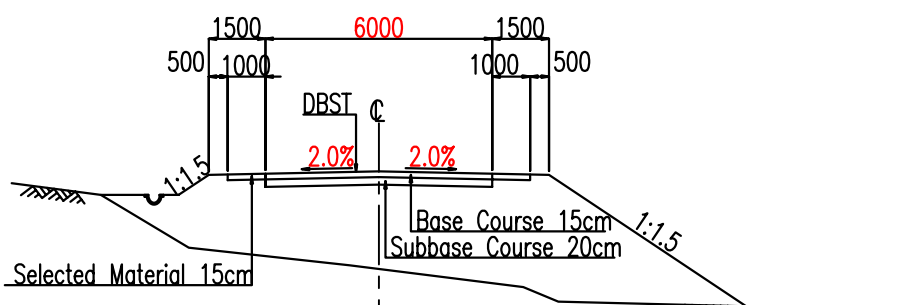
THE SOCIALIST REPUBLIC OF VIETNAM PROJECTS MANAGEMENT UNIT NO.2, MINISTRY OF TRANSPORTS			
PROJECT	THE PROJECT FOR RECONSTRUCTION OF BRIDGES IN THE CENTRAL DISTRICT (PHASE II)		
CONSULTANT	ORIENTAL CONSULTANTS CO., LTD		
DESIGNED BY	CHECKED BY	APPROVED BY	
NAME			
SIGNATURE			
DATE			

BR.NO.52 EA SOUP BRIDGE
GENERAL VIEW OF THE SITE

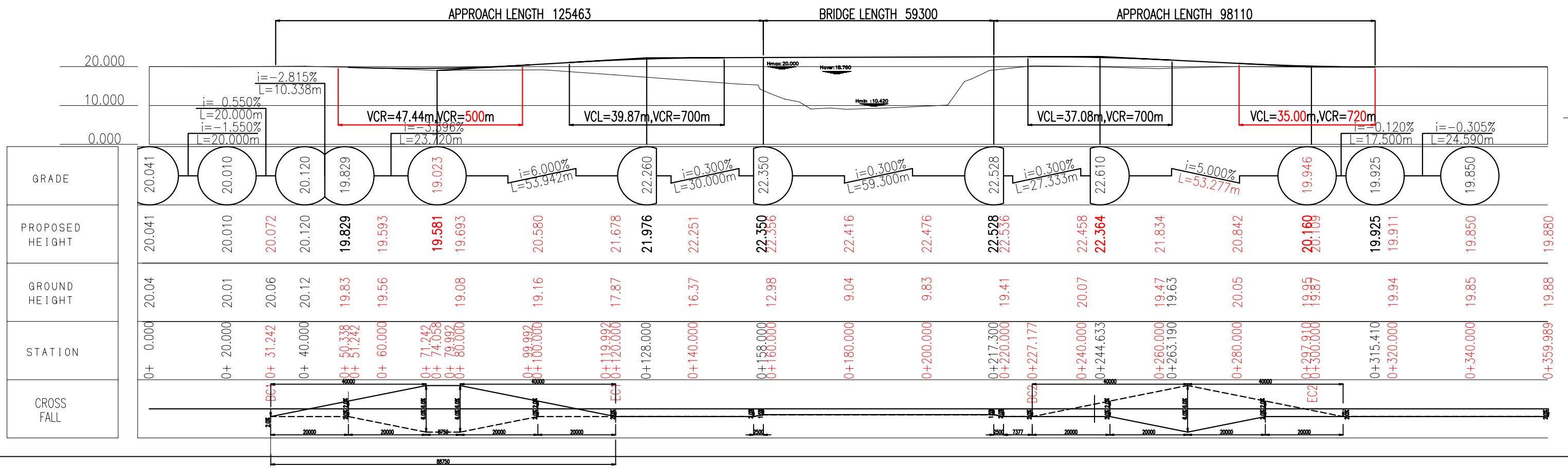
SECTION	SCALE	DRAWING NO.	SHEET NO.
	1/200, 1/1000	F-1	1 OF 1
DRAWING TITLE	ROAD PLANNING (BR.NO.52 EA SOUP BRIDGE)		
REV. NO.	DATE	DESCRIPTION	SIGNATURE



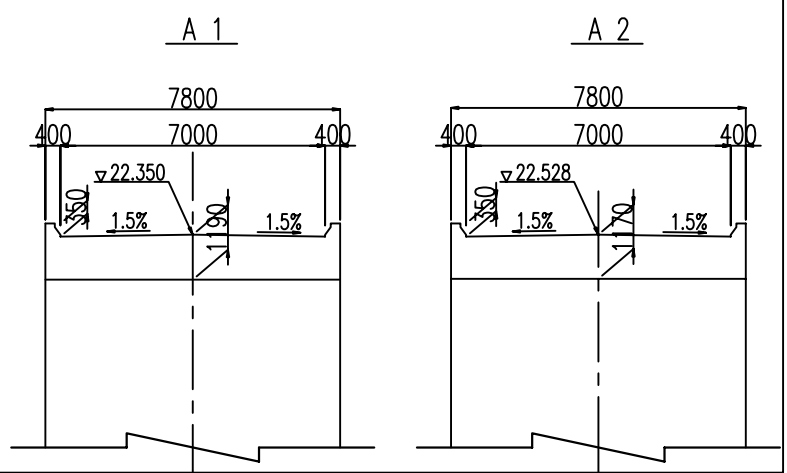
TYPICAL CROSS SECTION OF APPROACH ROAD
S=1/200



PROFILE
S=1/1000



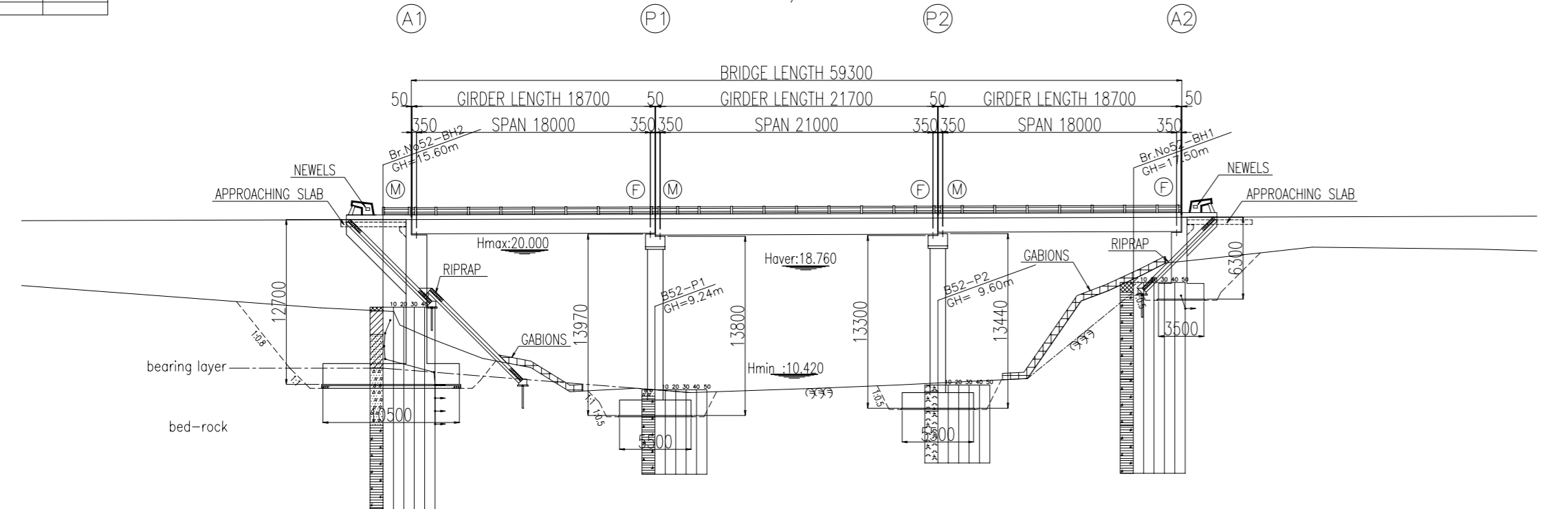
ABUTMENT S=1/200



THE SOCIALIST REPUBLIC OF VIETNAM PROJECTS MANAGEMENT UNIT NO.2, MINISTRY OF TRANSPORTS			
PROJECT	THE PROJECT FOR RECONSTRUCTION OF BRIDGES IN THE CENTRAL DISTRICT (PHASE II)		
CONSULTANT	ORIENT CONSULTANTS CO., LTD		
DESIGNED BY	CHECKED BY	APPROVED BY	
NAME			
SIGNATURE			
DATE			

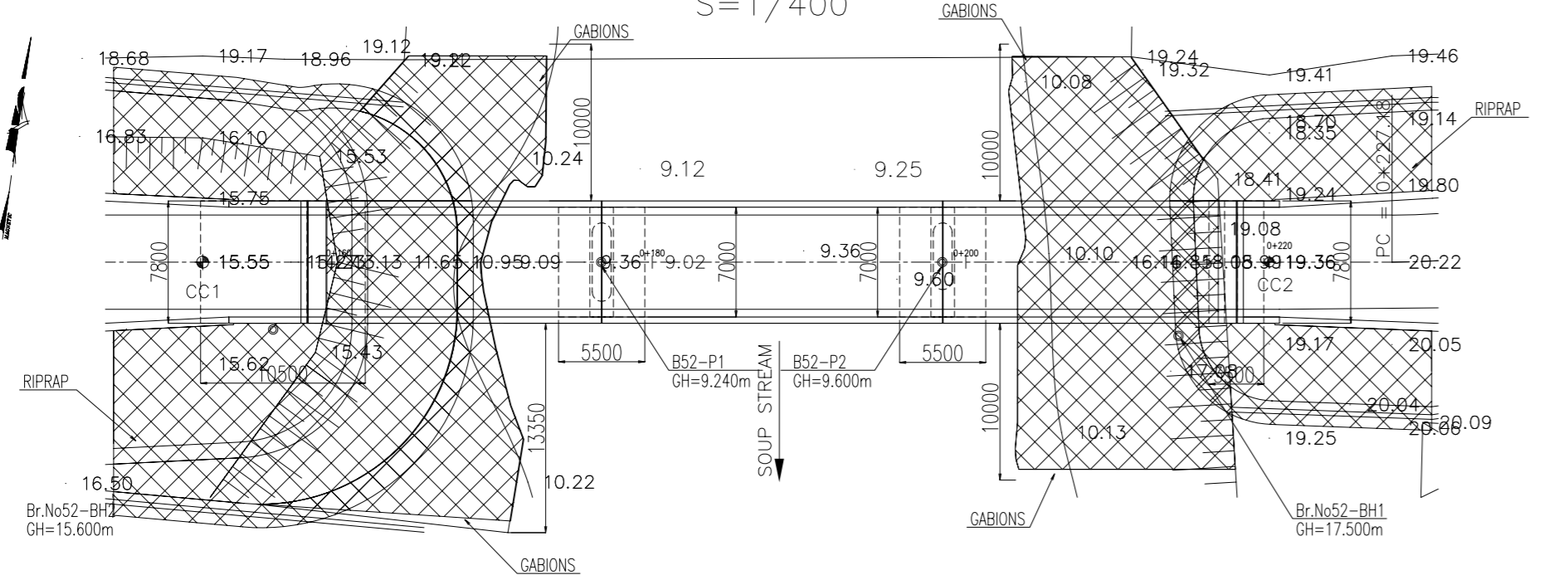
SECTION	SCALE	DRAWING NO.	SHEET NO.
	1/100, 1/200, 1/400	F-2	1 OF 1
DRAWING TITLE	BRIDGE STRUCTURE (BR.NO.52 EA SOUP BRIDGE)		
REV. NO.	DATE	DESCRIPTION	SIGNATURE

PROFILE
S=1/400



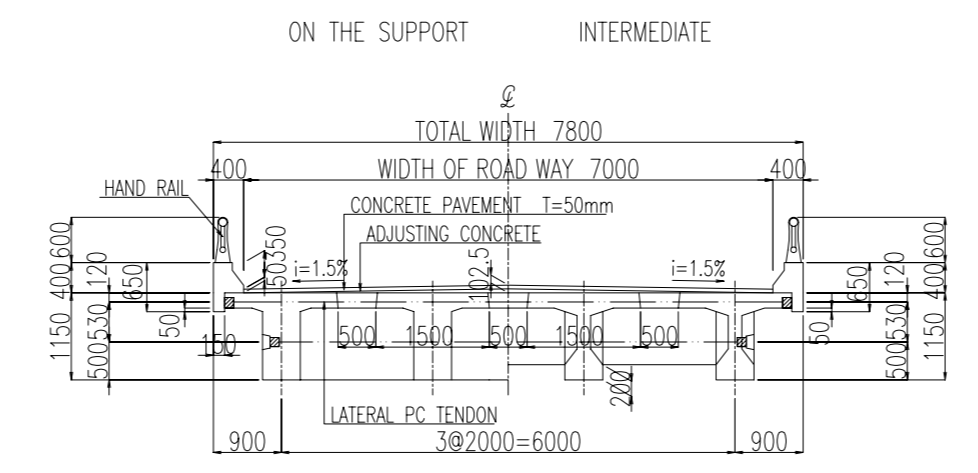
DATUM ELEV: 0.00	22.260	22.350	22.406	22.472	22.528	22.554	22.610			
GRADE	i=0.300% L=30.000m									
PROPOSED HEIGHT	21.976	22.350	22.406	22.472	22.528	22.554	22.364			
GROUND HEIGHT	15.550	15.270 14.230	11.650 9.950	10.100 16.850	18.050 18.990	20.220	20.070			
STATION	0+128.000	0+151.33	0+156.65 0+158.000 0+159.61	0+163.49	0+167.19 0+170.21	0+175.36 0+176.775 0+179.44	0+189.37 0+195.35 0+198.525 0+205.42	0+209.72 0+211.61 0+214.20 0+216.05 0+217.300 0+219.35	0+227.33	0+240.10 0+244.583

PLAN
S=1/400

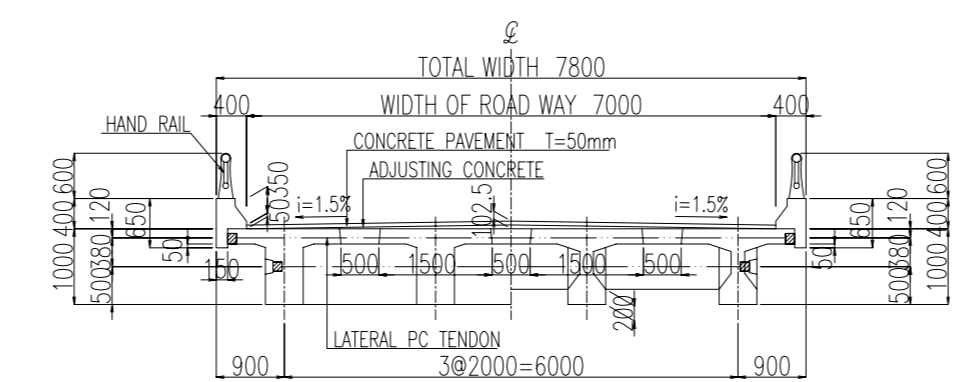


BR.NO.52 EA SOUP BRIDGE
GENERAL VIEW OF THE BRIDGE

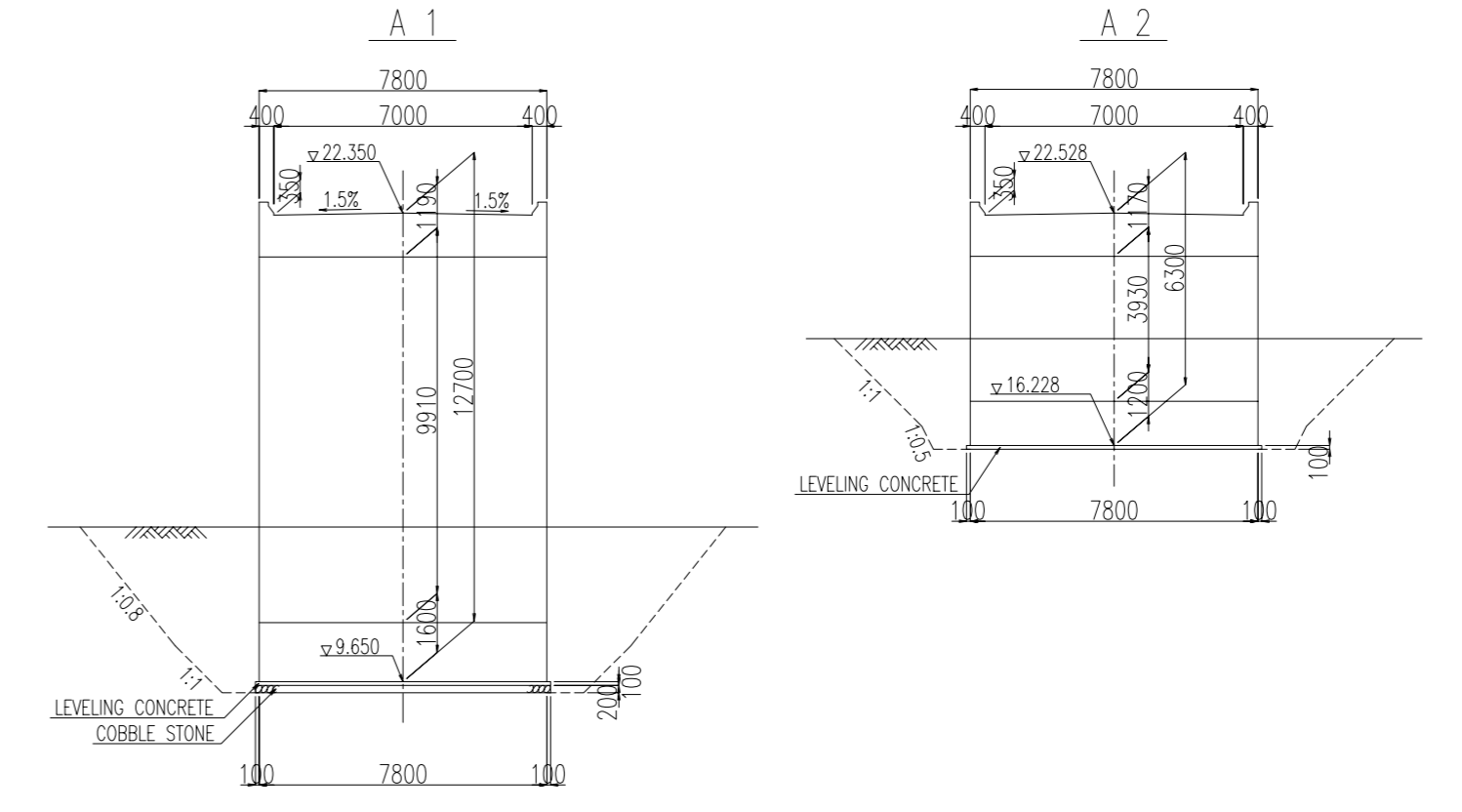
CROSS SECTION
S=1/100
GIRDER LENGTH 21700



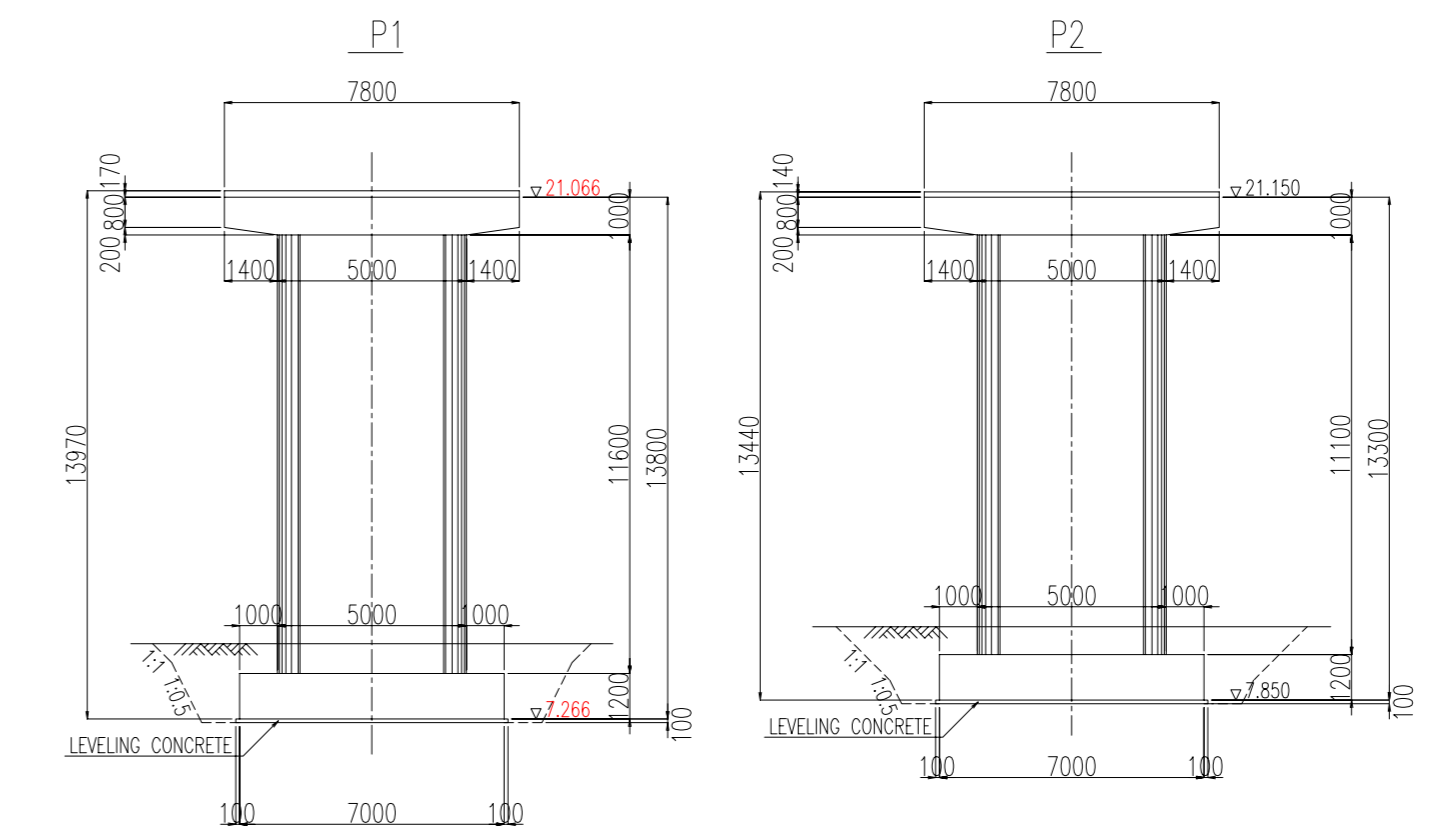
GIRDER LENGTH 18700
ON THE SUPPORT INTERMEDIATE



FRONT VIEW
S=1/200
ABUTMENT



PIER



Note:
The footing of abutments and piers shall be located into more than fifty centimeters under the surface of bearing stratum which consists of stiff rock, gravel or sandy soil.

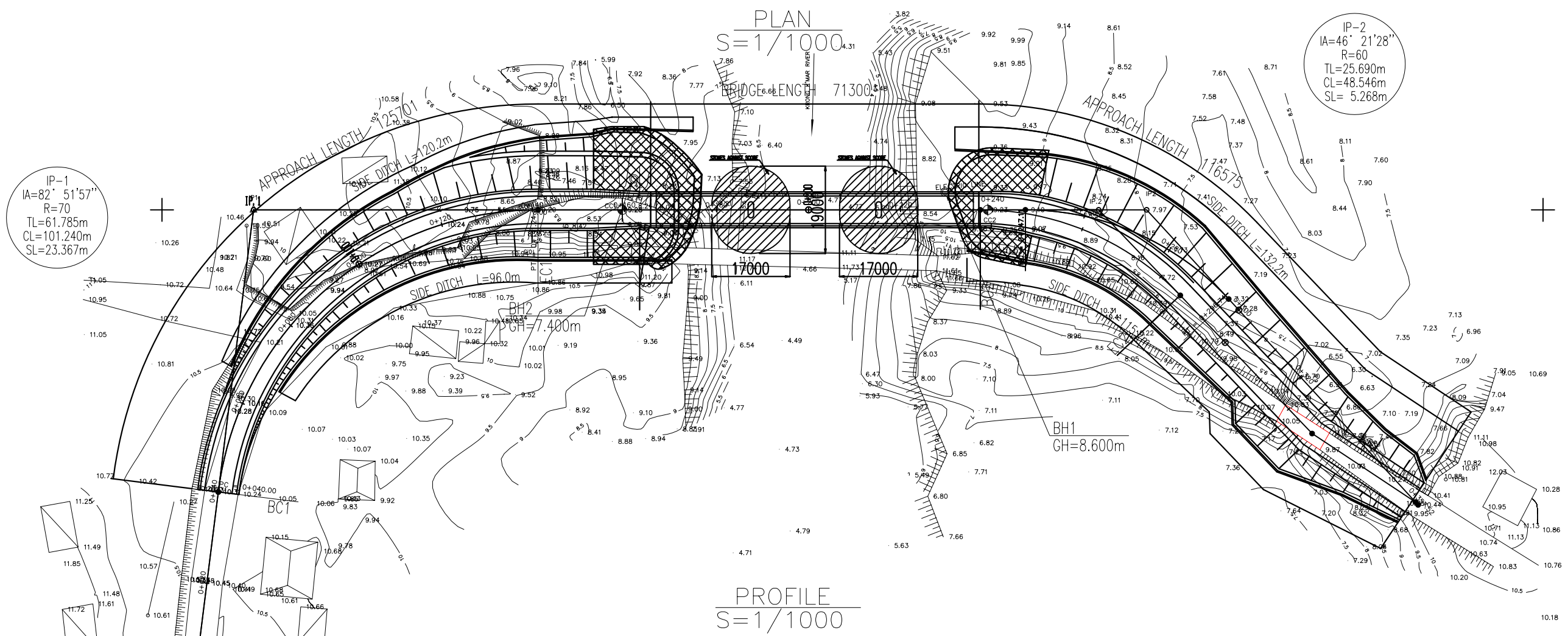
DESIGN CRITERIA

General Condition	
Design Live Load	HL-93,X80%
Design Speed	V=30km/h
Bridge Length(Span Length)	59.30m(18.00m+21.00m+18.00m)
Freeboard	1.0m
Longitudinal Gradient	0.30 %
Cross-fall of Carriage way	1.50 %
Super Structure Type	Prestressed Concrete
Sub Structure Type	Abutment Reinforced Concrete
	Pier Reinforced Concrete
Foundation Type	Abutment A1: Spread foundation
	A2: Spread foundation
	Pier P1: Spread foundation
	P2: Spread foundation
Material Strength	
Super Structure Type	Girder $\sigma_{28}=35N/mm^2$
	Cross Beam $\sigma_{28}=30N/mm^2$
	Slab $\sigma_{28}=30N/mm^2$
Surface	Curb, Handrail $\sigma_{28}=21N/mm^2$
	Sub Structure Type $\sigma_{28}=21N/mm^2$
Reinforcing Steel	SD295($\sigma_{yk}=295N/mm^2$)

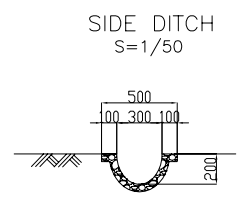
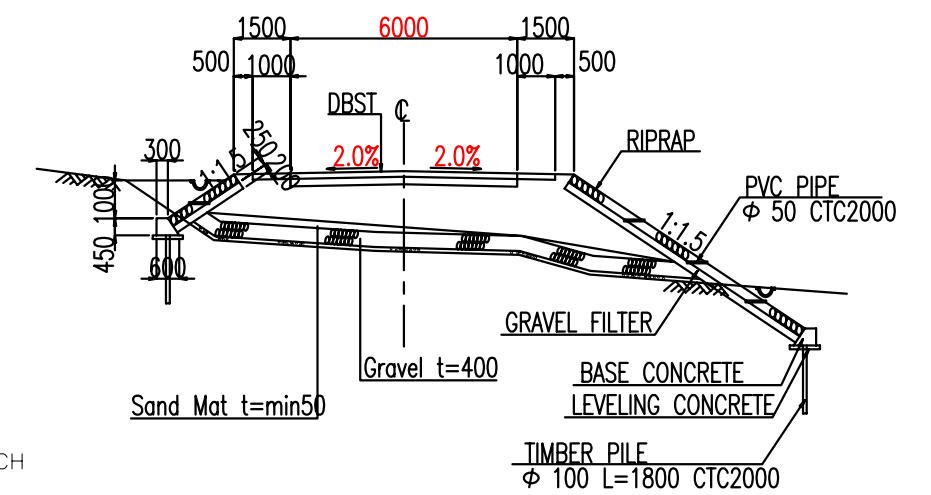
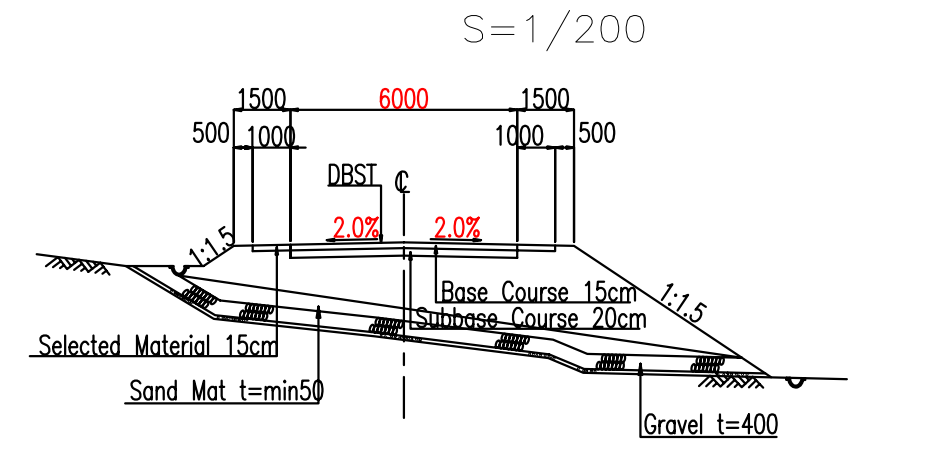
THE SOCIALIST REPUBLIC OF VIETNAM PROJECTS MANAGEMENT UNIT NO.2, MINISTRY OF TRANSPORTS			
PROJECT	THE PROJECT FOR RECONSTRUCTION OF BRIDGES IN THE CENTRAL DISTRICT (PHASE II)		
CONSULTANT	ORIENTAL CONSULTANTS CO., LTD		
DESIGNED BY	CHECKED BY	APPROVED BY	
NAME			
SIGNATURE			
DATE			

BR.NO.56 K'ONG K'MAR BRIDGE
GENERAL VIEW OF THE SITE

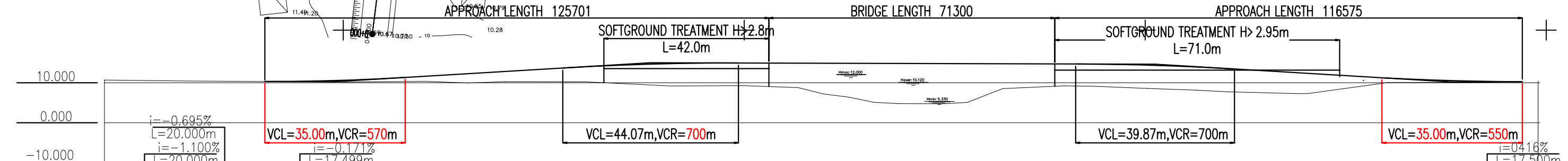
SECTION	SCALE	DRAWING NO.	SHEET NO.
	1/200, 1/1000	G-1	1 OF 1
DRAWING TITLE	ROAD PLANNING (BR.NO.56 K'ONG K'MAR BRIDGE)		
REV. NO.	DATE	DESCRIPTION	SIGNATURE



TYPICAL CROSS SECTION OF APPROACH ROAD
S=1/200

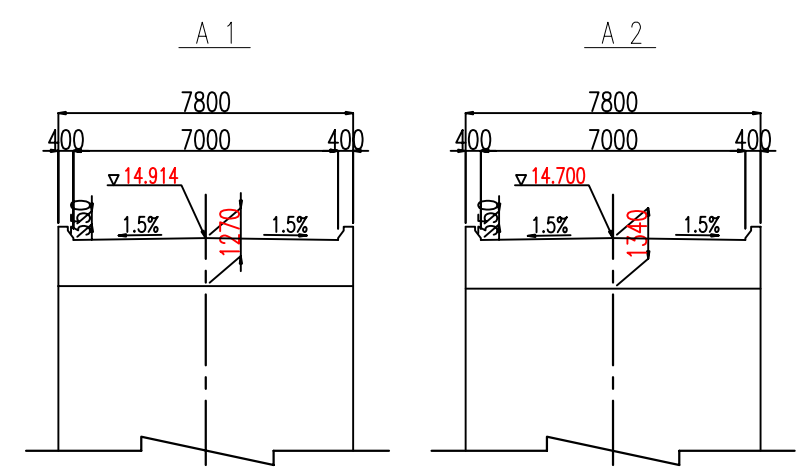


PROFILE
S=1/1000



GRADE	10.669	10.449	10.310	10.281		15.003	14.914	14.700	14.625	10.180	10.253
PROPOSED HEIGHT	10.669	10.449	10.310	10.281	11.630	14.655	14.931	14.700	14.401	10.461	10.253
GROUND HEIGHT	10.67	10.45	10.31	10.16	10.36	9.28	9.28	9.23	8.59	10.08	10.25
STATION	0+ 0.000	0+ 20.000	0+ 39.999	0+ 57.499	0+ 80.000	0+ 136.200	0+ 165.700	0+ 197.990	0+ 215.160	0+ 320.000	0+ 353.575
CROSS FALL	[Cross fall diagram showing ground and proposed elevations]										

ABUTMENT S=1/200

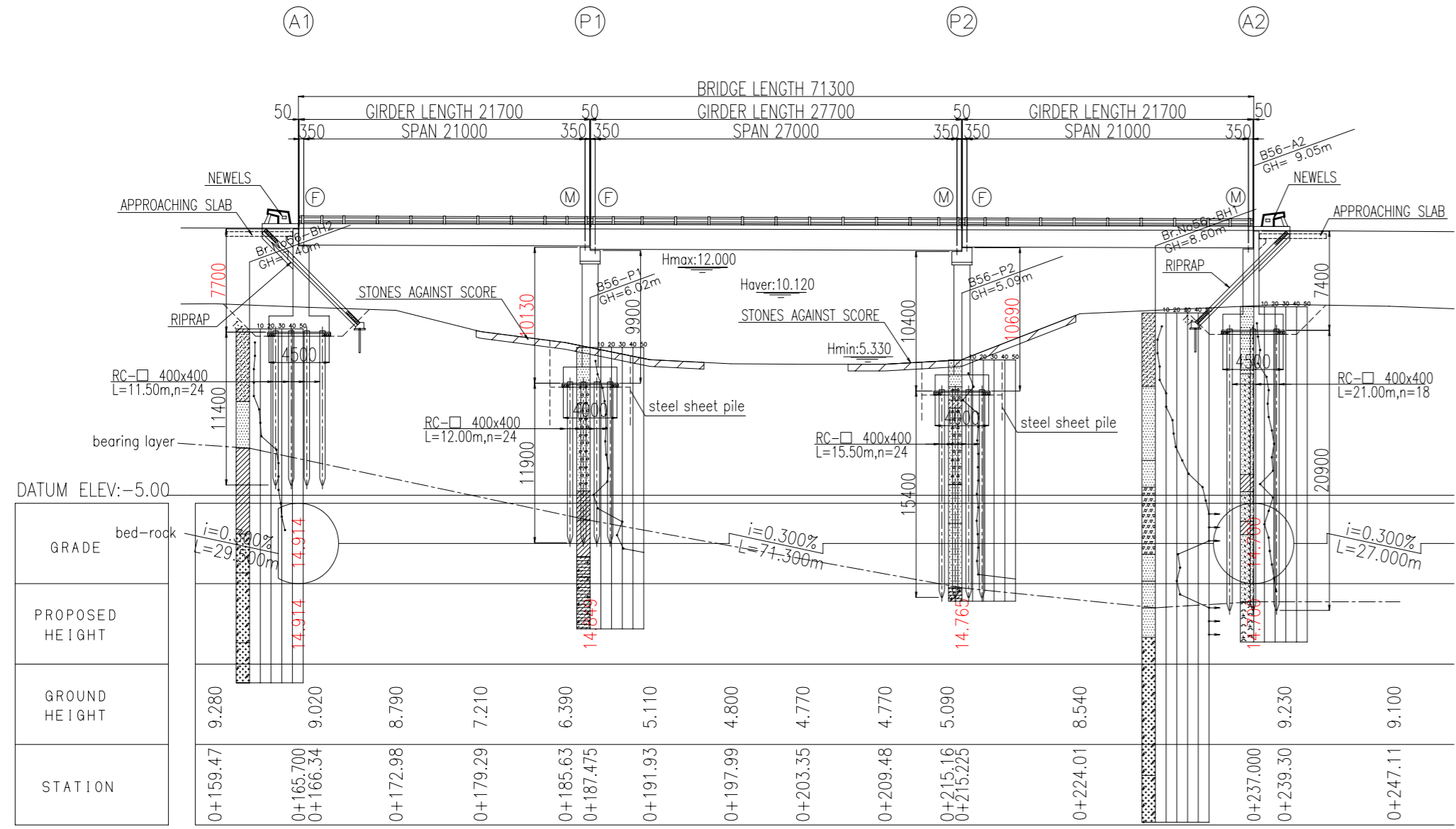


THE SOCIALIST REPUBLIC OF VIETNAM PROJECTS MANAGEMENT UNIT NO.2, MINISTRY OF TRANSPORTS			
PROJECT	THE PROJECT FOR RECONSTRUCTION OF BRIDGES IN THE CENTRAL DISTRICT (PHASE II)		
CONSULTANT	ORIENTAL CONSULTANTS CO., LTD		
DESIGNED BY	CHECKED BY	APPROVED BY	
NAME			
SIGNATURE			
DATE			

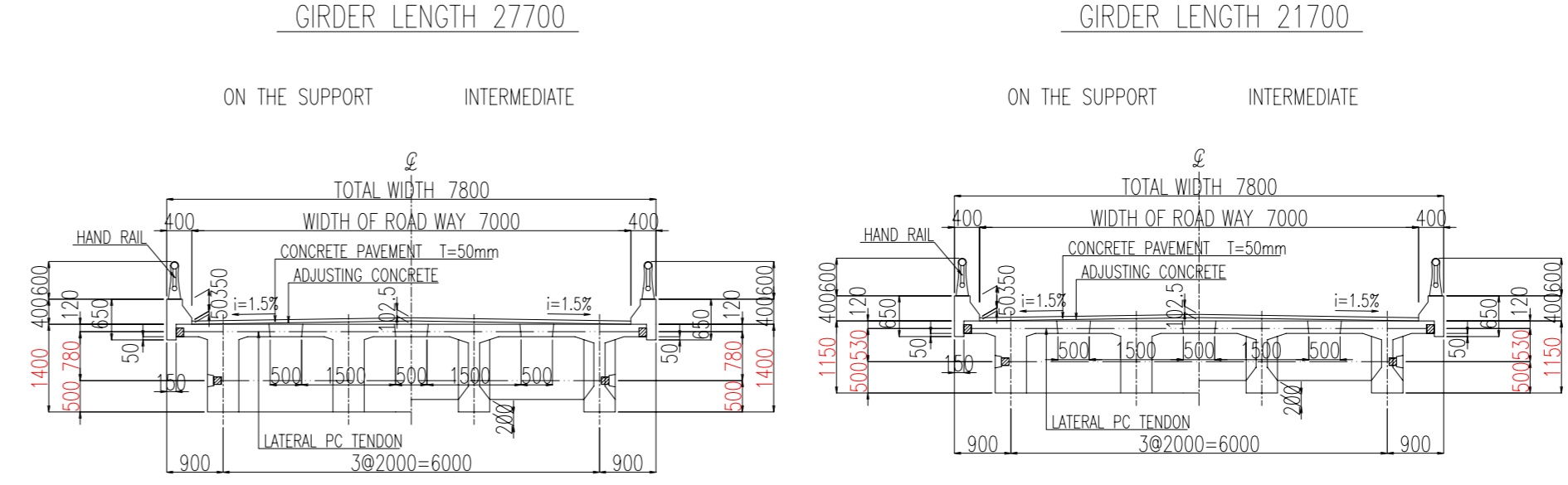
SECTION	SCALE	DRAWING NO.	SHEET NO.
	1/100, 1/200, 1/400	G-2	1 OF 1
DRAWING TITLE	BRIDGE STRUCTURE (BR.NO.56 K'ONG K'MAR BRIDGE)		
REV. NO.	DATE	DESCRIPTION	SIGNATURE

BR.NO.56 K'ONG K'MAR BRIDGE
GENERAL VIEW OF THE BRIDGE

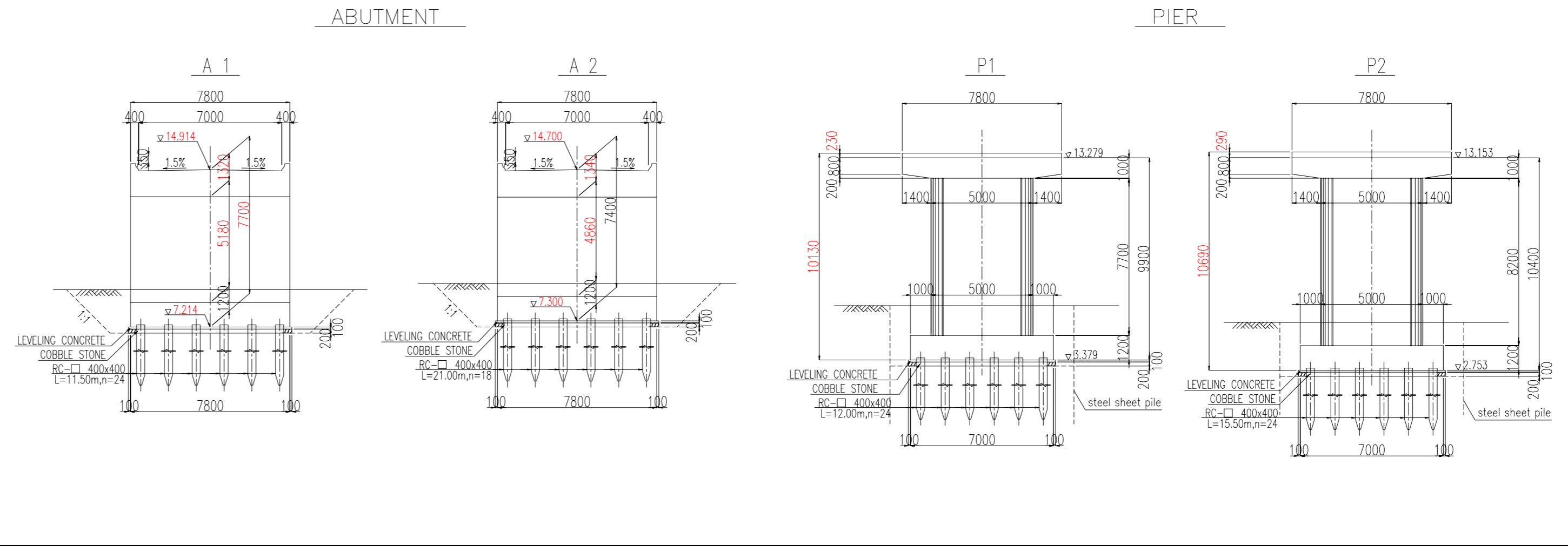
PROFILE
S=1/400



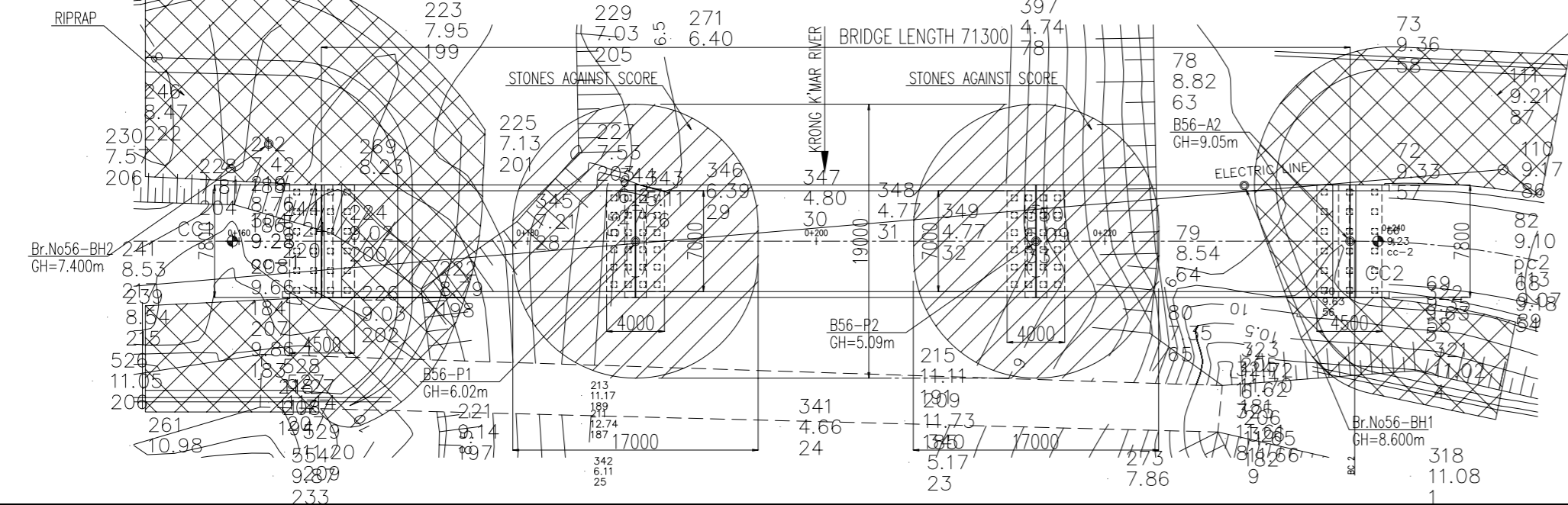
CROSS SECTION
S=1/100



FRONT VIEW
S=1/200



PLAN
S=1/400



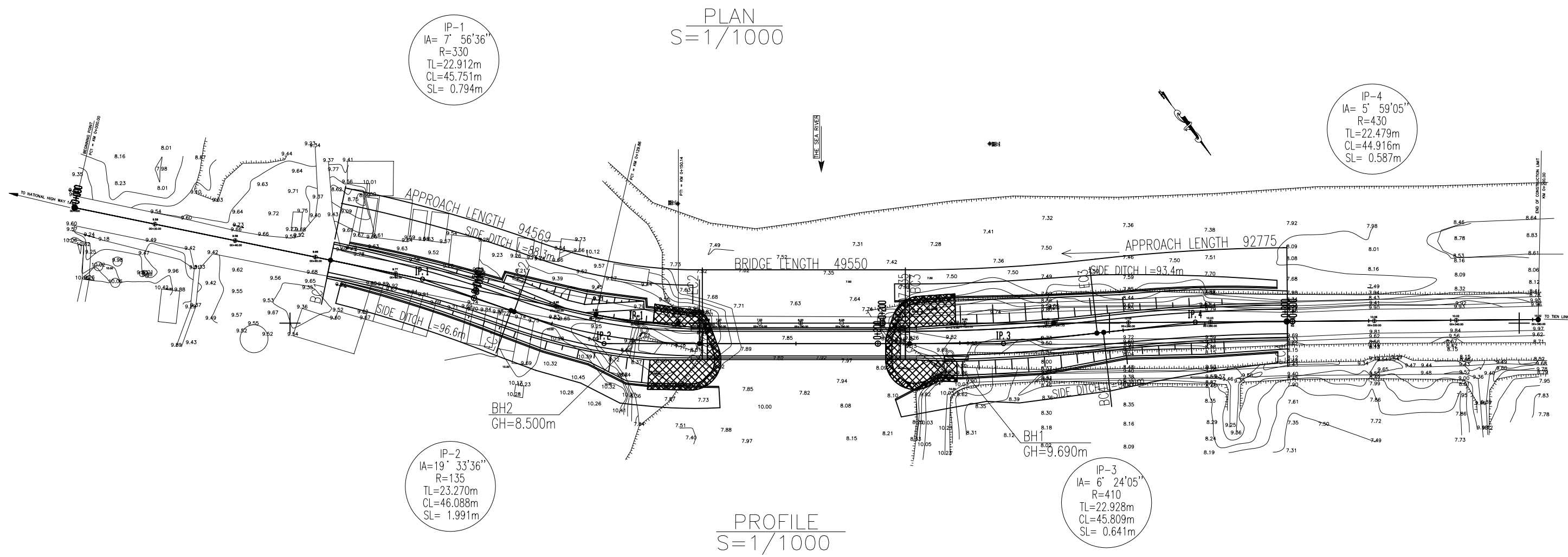
DESIGN CRITERIA

General Condition	
Design Live Load	HL-93,X80%
Design Speed	V=40km/h
Bridge Length(Span Length)	71.30m(21.00m+27.00m+21.00m)
Freeboard	1.0m
Longitudinal Gradient	0.30 %
Cross-fall of Carriage way	1.50 %
Super Structure Type	Prestressed Concrete
Sub Structure Type	Abutment Reinforced Concrete
	Pier Reinforced Concrete
Foundation Type	Abutment A1:Rc. Pile □400x400
	A2:Rc. Pile □400x400
	Pier P1:Rc. Pile □400x400 P2:Rc. Pile □400x400
Material Strength	
Super Structure Type	Girder $\sigma_{28}=35N/mm^2$
	Cross Beam $\sigma_{28}=30N/mm^2$
	Slab $\sigma_{28}=30N/mm^2$
Surface	Curb,Handrail $\sigma_{28}=21N/mm^2$
Sub Structure Type	Pier $\sigma_{28}=21N/mm^2$
	Reinforcing Steel

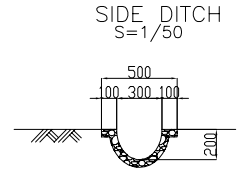
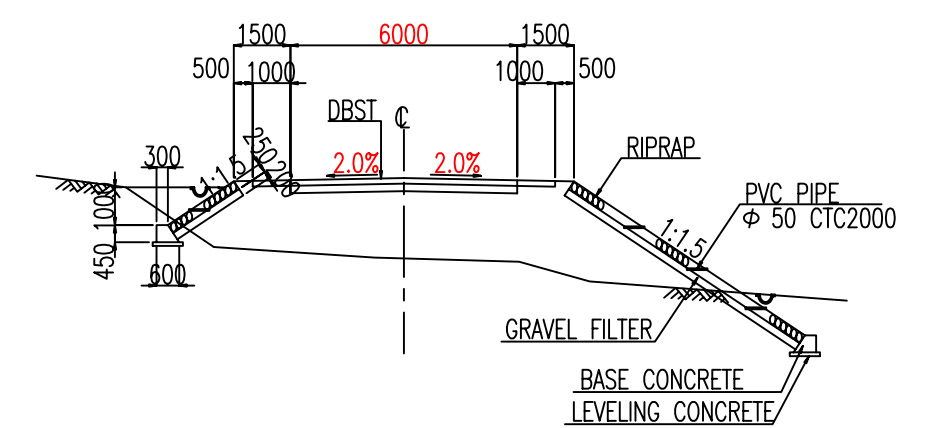
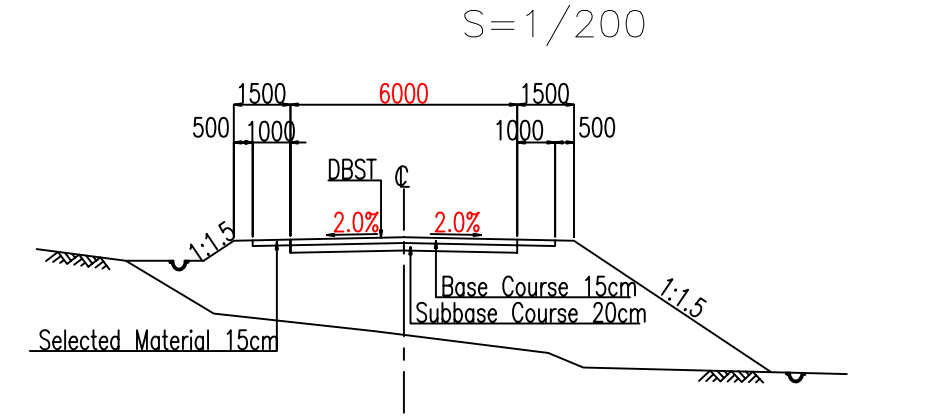
THE SOCIALIST REPUBLIC OF VIETNAM PROJECTS MANAGEMENT UNIT NO.2, MINISTRY OF TRANSPORTS			
PROJECT THE PROJECT FOR RECONSTRUCTION OF BRIDGES IN THE CENTRAL DISTRICT (PHASE II)			
CONSULTANT ORIENTAL CONSULTANTS CO., LTD			
DESIGNED BY	CHECKED BY	APPROVED BY	
NAME			
SIGNATURE			
DATE			

BR.NO.83 NGOI NGAN BRIDGE GENERAL VIEW OF THE SITE

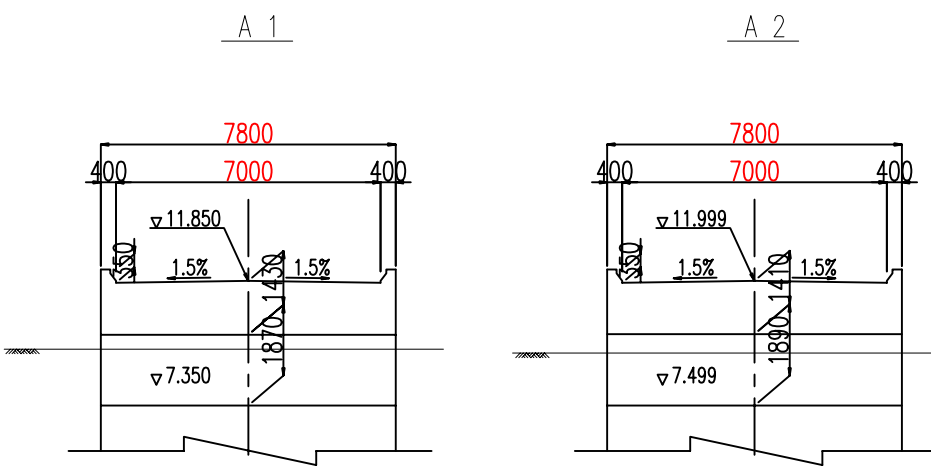
SECTION	SCALE	DRAWING NO.	SHEET NO.
	1/200, 1/1000	H-1	1 OF 1
DRAWING TITLE	ROAD PLANNING (BR.NO.83 NGOI NGAN BRIDGE)		
REV. NO.	DATE	DESCRIPTION	SIGNATURE



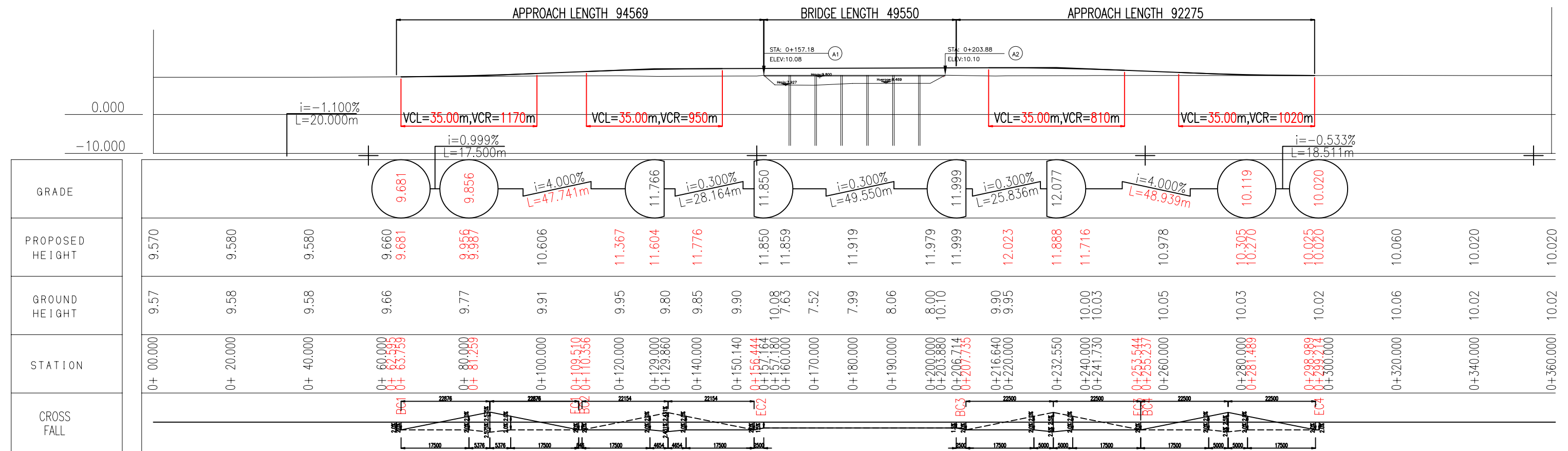
TYPICAL CROSS SECTION OF APPROACH ROAD S=1/200



ABUTMENT S=1/200



PROFILE S=1/1000

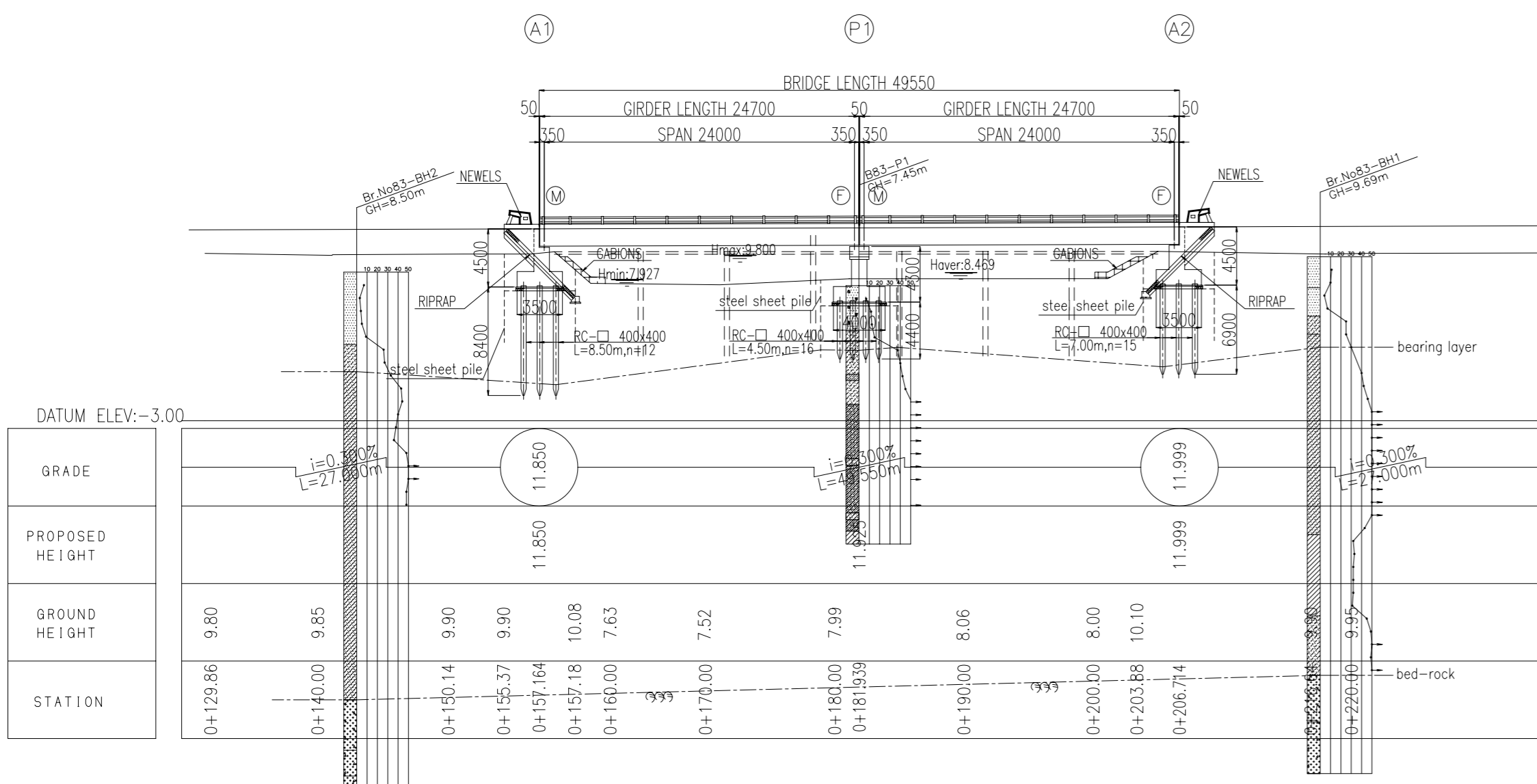


THE SOCIALIST REPUBLIC OF VIETNAM PROJECTS MANAGEMENT UNIT NO.2, MINISTRY OF TRANSPORTS			
PROJECT	THE PROJECT FOR RECONSTRUCTION OF BRIDGES IN THE CENTRAL DISTRICT (PHASE II)		
CONSULTANT	ORIENTAL CONSULTANTS CO., LTD		
DESIGNED BY	CHECKED BY	APPROVED BY	
NAME			
SIGNATURE			
DATE			

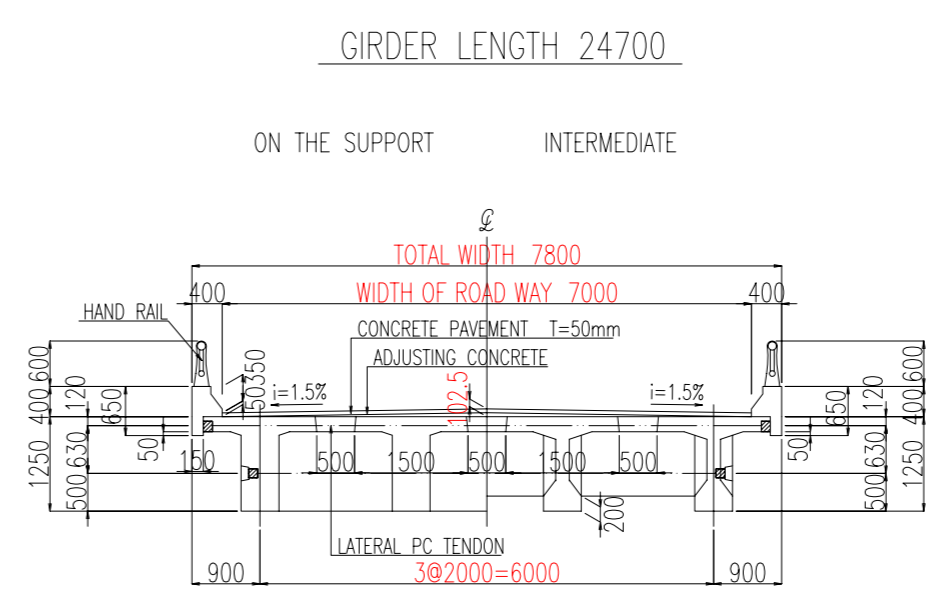
BR.NO.83 NGOI NGAN BRIDGE
GENERAL VIEW OF THE BRIDGE

SECTION	SCALE	DRAWING NO.	SHEET NO.
	1/100, 1/200, 1/400	H-2	1 OF 1
DRAWING TITLE	BRIDGE STRUCTURE (BR.NO.83 NGOI NGAN BRIDGE)		
REV. NO.	DATE	DESCRIPTION	SIGNATURE

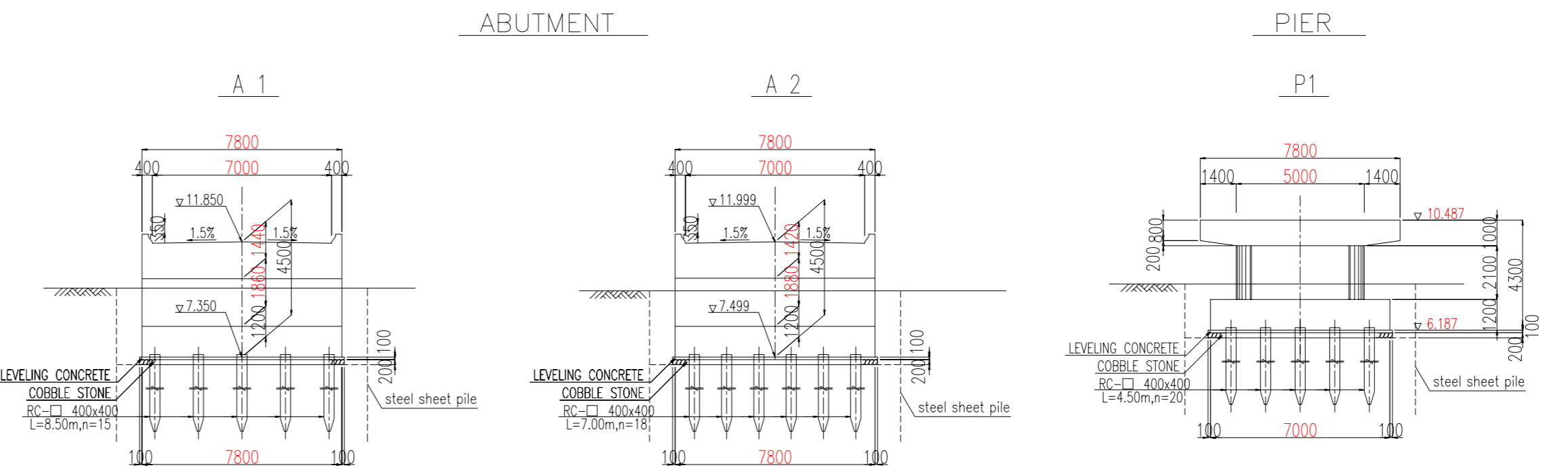
PROFILE
S=1/400



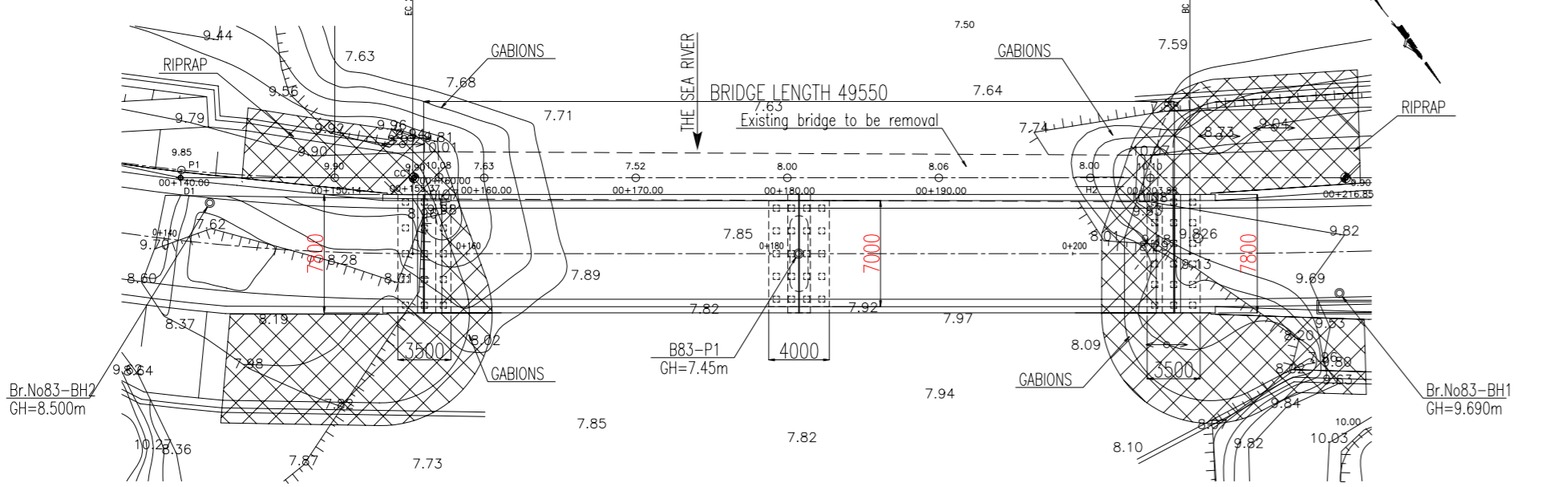
CROSS SECTION
S=1/100



FRONT VIEW
S=1/200



PLAN
S=1/400



DESIGN CRITERIA

General Condition	
Design Live Load	HL-93,65%
Design Speed	V=40km/h
Bridge Length(Span Length)	49.55m(24.00m+24.00m)
Freeboard	0.5m
Longitudinal Gradient	0.30 %
Cross-fall of Carriage way	1.50 %
Super Structure Type	Prestressed Concrete
Sub Structure Type	Abutment Reinforced Concrete
	Pier Reinforced Concrete
Foundation Type	Abutment A1:Rc. Pile □400x400
	A2:Rc. Pile □400x400
	Pier P1:Rc. Pile □400x400
Material Strength	
Super Structure Type	Girder σ 28=35N/mm ²
	Cross Beam σ 28=30N/mm ²
	Slab σ 28=30N/mm ²
Surface	Curb,Handrail σ 28=21N/mm ²
Sub Structure Type	σ 28=21N/mm ²
Reinforcing Steel	SD295(ρ_y =295N/mm ²)

2.2.4 Implementation Plan

2.2.4.1 Implementation Policy

(1) Basic Concept

The Project will involve the construction of 6 bridges located in 4 different provinces in the central region of Vietnam. Construction will be pursued through bidding Japanese contractors under Japan's Grant Aid Scheme. Based on this premise, the basic concept for the implementation of the Project is described as follows:

- PMU2 will be the implementing agency of the Project from the tendering stage up to the construction completion stage. However, operation and maintenance of the facilities will be turned over to relevant provincial DOTs. Accordingly, close communication between PMU2 and the provincial DOTs will be required for Project implementation.
- The construction plan should be set taking into consideration the difference in the characteristics of the rainy season between the mountainous and coastal areas, including the duration, rainfall volume and intensity.
- One site office will be established for each group. In order to manage all site offices, a Central Office will be set up in Nha Tron City of Khanh Hoa Province. A liaison office will also be established in Hanoi to ensure close communication with PMU2's headquarters.
- The number of Japanese engineers for construction management will be minimized considering the abundant experience of Term 1 and 2 of the Project. However, Japanese engineers will be deployed to occupy key positions to ensure smooth implementation, quality of works, and safety during construction. These positions will include the Project Manager, Office Manager in charge of administration, and site manager for the each site office. In addition, a bridge expert to supervise PC tensioning and girder erection will be deployed from Japan. Moreover, Japanese mechanical and electrical engineer will be designated to the Central Office for the management of equipment and machineries to avert possible adverse impact on construction schedule.
- The PC post-tensioned girders will be fabricated in the construction yard for the construction of the superstructure of the proposed bridges.
- A crane erection method to shorten erection time at a reasonable cost will be applied as much as possible, since it was confirmed in the Study that cranes with more than 50 tons of lift are available.
- In order to reduce on construction costs, the efficient use of construction equipment and coupled with the possible reuse of temporary construction materials such as scaffoldings should be made to the extent practicable for the construction of all the bridges.

Furthermore, locally available construction materials and equipments should be used to the greatest extent possible, provided that the quality and quantity are in compliance with specification requirements.

- In cases where an existing bridge is located near a new bridge and its removal is indispensable for new bridge construction, the construction of diversion roads, temporary bridges, and the removal of the existing bridge will be included in the tasks of the Japanese side in order to realize smooth Project implementation.

(2) Review of Construction Plan

The construction method for both the substructure and foundation, including the excavation method, was reviewed based on the existing site conditions and the results are summarized in Tables 2.2.21 and 2.2.22 hereunder. The erection method based on the existing conditions for each site was also reviewed for possible improvement.

Table 2.2.21 Construction Method for Foundation Work

Bridge Name	Sub-structure	Foundation	Construction Method		Reason for Change
			Implementation Review Study in 2006	Preparatory Survey (This Survey)	
Da Dung Bridge	A1	Spread	Open excavation	Same as the left	
	P1	ditto	Dike the surrounding	Same as the left	
	P2	ditto	Dike the surrounding	Same as the left	
	A2	ditto	Open excavation	Same as the left	
Tran Bridge	A1	ditto	Sheet pile cofferdam	Same as the left	
	P1	ditto	Sheet pile cofferdam	Same as the left	
	P2	ditto	Sheet pile cofferdam	Same as the left	
	A2	ditto	Sheet pile cofferdam	Same as the left	
Tam Ngan Bridge	A1	ditto	Open excavation	Same as the left	
	P1	ditto	Dike surrounding	Same as the left	
	P2	ditto	Sheet pile cofferdam	Same as the left	
	A2	ditto	Open excavation	Same as the left	
Ea Soup Bridge	A1	ditto	Open excavation	Same as the left	
	P1	ditto	Dike surrounding	Same as the left	
	P2	ditto	Dike surrounding	Same as the left	
	A2	ditto	Open excavation	Same as the left	
Krong K'Mar Bridge	A1	RC Pile	Open excavation	Same as the left	
	P1	ditto	Sheet pile cofferdam	Same as the left	
	P2	ditto	Sheet pile cofferdam	Same as the left	
	A2	ditto	Open excavation	Same as the left	
Ngoi Ngan Bridge	A1	ditto	Sheet pile cofferdam	Same as the left	
	P1	ditto	Sheet pile cofferdam	Same as the left	
	A2	ditto	Sheet pile cofferdam	Same as the left	

Table 2.2.22 Review of Erection Method

Bridge Name	Super-structure	Span(m)	Erection Method		Reason for Change
			Implementation Review Study in 2006	Preparatory Study (This Study)	
Da Dung Bridge	PC-T girder	30+30+30	Erection girder	Same as the left	
Trang Bridge	PC-T girder	21+21+21	Crane erection	Same as the left	
Tam Ngan Bridge	PC-T girder	21+27+21	Erection girder	Same as the left	
Ea Soup Bridge	PC-T girder	18+21+18	Erection girder	Same as the left	
Krong K'Mar Bridge	PC-T girder	21+27+21	Erection girder	Same as the left	
Ngoi Ngan Bridge	PC-T girder	24+24	Erection by using temporary bridge	Same as the left	

2.2.4.2 Implementation Conditions

The Project comprises mainly of bridgework, approach roadwork and other necessary works. All sub-work items, including PC girders, RC substructures with spread footing or RC piles, and DBST for road surfacing, have been carried out before in Vietnam and there is no work item that requires high technical or supervisory skills. Accordingly, quality, safety and environmental considerations during the construction will be the areas of major concern.

- It is important for the contractor to establish a well-organized management system to cope with the construction schedule, quality requirements, equipment, materials and labor in order to smoothly complete all of the bridges, which are widely dispersed, within the planned period of time. Careful supervision and close communication with PMU2 and the Consultant is also vital.
- Any river work during the rainy season will be carefully executed because of the possible occurrence of flush flood.
- Erection work shall be carefully undertaken to avoid the risk of accidents. This will also involve of laborers as preventive measure against possible occurrence of mishap.
- Taking essential safety measure is vital for the protection of local residents, which includes the proper handling of wastewater and dust generated by the construction work.

2.2.4.3 Scope of Works

Project to be implemented under the Japan's Grant Aid Scheme will involve certain types of work sharing by both the Japanese and Vietnamese Governments as shown in Table 2.2.23 hereunder.

Table 2.2.23 Joint Tasks for the Japanese and Vietnamese Sides

Responsibilities of the Japanese Side	Responsibilities of the Vietnamese Side
- Construction of bridges, approach roads, revetment and protection works, and other necessary facilities.	- Land acquisition for the construction sites and the procurement of lands for temporary facilities such as PC girder fabrication yards, stockpiling areas for materials and equipment, etc.
- Removal of existing bridges and construction of temporary detour bridges in the case of existing bridges being on the same alignment	- Compensation for relocation of houses
- Construction and removal of temporary roads and bridges needed for the construction works	- Removal or relocation of public utilities, such as electrical facilities, telephone poles, water pipes, etc.
- Procurement of materials, equipment and labor required for the construction work	- Removal of an existing bridge when the proposed bridge is constructed away from existing bridge (for Da Dung, Tam Ngan, Ea Soup and Krong K'Mar Bridge)
- Supervision of the construction works	- Tax exemption of imported materials and equipment brought to Vietnam for the Project. Assistance to facilitate customs clearance and exemption from payment of customs duties
- Consultancy services required for the implementation of the Project	- Exemption from payment of customs duties and taxes and other financial requirements relative to the implementation of the Project of Japanese and other third party nationals deployed to Vietnam for the Project.

2.2.4.4 Construction Supervision

(1) Scope of Works for Consultancy Services

As an integral part for the implementation of the Project, the Exchange of Notes (E/N) between the Japanese and the Vietnamese Governments and the Grant Agreement (G/A) between the JICA and the Vietnamese Government will be signed prior to the commencement of the Project. Following the signing of the E/N and the G/A, the contract for consultancy services between the Consultant, who shall possess a recommendation letter from JICA, and the Vietnamese Government will be signed and the Consultant shall assist with the preparation of tender documents and the supervision of construction work. The major scope of works of the consultancy services is described below.

1) Assistance with Preparation of Tender Documents

The tender documents provided as part of the Study output will be reviewed and submitted to VRA for approval. The major components of the work will involve the following:

- Review of drawings
- Review of quantities of facilities to be built and cost estimates
- Review of construction plans
- Preparation of Specifications, Conditions of Contract including Instructions to Bidders, Special Conditions among others the execution of the works

2) Assistance for Bidding

The Consultant will provide PMU2 with assistance for the bidding of the Project. This will involve the following major items of services:

- Preparation of the Notice of Tender
- Preparation of the Pre-qualification evaluation criteria and assistance for the prequalification of contractors
- Assistance to conduct of pre-bid meetings and site visits, as necessary
- Assistance to evaluation of bidders
- Assistance for Contract negotiation

3) Construction Supervision

After obtaining the approval of the contract documents from the Japanese Government, the Consultant will issue the “Notice to Proceed” to the Contractor and thereafter will start deploying the expatriate staffs for the construction supervision of the Project. During the construction period, the Consultant will oversee the quality and safety of the works, execute the administrative work for payment, and make recommendations on working methods to the Contractor. The Consultant will also be coordinating as necessary with the relevant organizations, including JICA, the Embassy of Japan in Vietnam, and the Vietnamese Government. The components of major activities of the Consultant are summarized in Table 2.2.24 below.

Table 2.2.24 Supervision Items during Construction Stage

Supervision Items	Contents
① Approval of construction schedule & drawings	- To inspect and approve the construction schedule and shop drawings submitted by the Contractor. - To check whether submitted documents are in accordance with contract documents drawings and specifications, etc.
② Schedule control	- To receive progress reports from the Contractor and to give instructions to ensure the completion of the Project on schedule.
③ Quality control	- To examine the quality of works and approve construction materials and construction methods by making reference to the contract drawings and specifications.
④ Inspection of completed construction works	- To inspect and give approval for completed works and final quantities for payment by checking as-built drawings.
⑤ Issuing of certification	- To issue the necessary certificates for payment for completion of construction and for the expiry of the warranty period to the Contractor.
⑥ Submission of reports	- To inspect monthly progress reports and as-built drawings and photographs prepared by the Contractor for submittal to the Vietnamese authorities, JICA, etc. - To prepare a final report at the completion of construction works for submission to JICA.

(2) Organization of Consultancy Services

1) Consultant Organization at Assistance to Tendering Process

Pursuant to Japan's Grant Aid Scheme, the following services will be provided for the tender process:

- Preparation of Draft Contract Documents in accordance with the guidelines of Japan's Grant Aid Scheme.
- Preparation of specifications incorporation the results of the review of the specifications that were adopted for Terms 1 and 2 of the Project.
- Deployment of engineers involved in the BD or the Study for this work.

Experts will be deployed for the preparation of tender documents and for assisting the Client in the bidding process.

Table 2.2.25 Experts for Preparation of Bidding Documentation & Bidding Process Assistance

Name	Roles
Project Manager	To manage & supervise all activities of the Consultant during the tendering process
Document Specialist & Bridge Engineer	To finalize the tendering documents on the basis of the Study results and to assist the Client in the bidding process.

2) Consultant's Organization during Construction Supervision

A Resident Engineer with experience with bridge projects and Japan's Grant Aid Scheme will be assigned for the construction supervision of the Project to ensure quality of work. The chief Consultant will from time to time or the need arise inspect the site to check the progress accomplishment of works as well as to coordinate with relevant organizations.

The Bridge engineers will assist the resident engineer for the construction of (1) the widely dispersed 6 bridges, and (2) the tensioning of PC cables and erection of the girders to ensure quality and safety of works. A soil engineer will also be deployed for short duration to supervise the soft ground treatment work for Krong K'Mar Bridge. Table 2.2.26 hereunder shows the tasks of each of the engineers mentioned above.

Table 2.2.26 Consultant's Organization for Construction Supervision

Name	Roles & Activities
Project Manger	- To confirm the progress of major work items and coordinate the relevant organizations, including JICA, the Embassy of Japan, and the Vietnamese Government
Resident Engineer	- To supervise all six bridges and carry out daily supervision works jointly with the bridge engineer.
Bridge Engineers	- To supervise the daily works of the Contractor and give instructions as necessary - To supervise the tensioning PC cables and girder erection work.
Geotechnical Engineer	- To supervise the procedures and methods of soft ground treatment

2.2.4.5 Quality Control Plan

The quality control of the work will be carried out based on the Vietnamese standard and Japanese Standard. The summaries of tentative quality control plan for each work item are shown in Table 2.2.27.

Table 2.2.27 Summaries of Tentative Quality Control Plan

Quality Control Item		Test	Schedule
1. Embankment	Material	Material Test for Embankment and Base (Specific gravity, Water content, Atterberg limit, Grain-size, Compaction, Dry density, CBR)	Before construction
	Dairy	Daily Inspection for Embankment and Base (Compaction density)	After construction for each layer
2. Pavement (DBST)	Material	Asphalt emulsion (Physical tests, Specific gravity)	Before construction
	Dairy	Quantity of spray	At the time of execution for each layer
3. Concrete	Batching Plant	Capability of Batching Apparatus and Mixing	Before execution at every month
	Material	Cement and Water (Certification) Fine and Coarse Aggregate (Specific gravity, Grain-size, Unit weight, Absorption, Durability, Alkali-aggregate reaction)	Before construction At the time of material change
	Trial Test	Mixing Design (Slump, Air content, Temperature, Strength)	Before construction
	Daily	Fresh Concrete (Air content, Slump, Temperature)	First 5 vehicles At every 50m ³ batch
		Placement (Placement method, Compaction, Joint, Curing method, Laitance removal)	At the time of placement
	Specimen (Compression strength)	One specimen/day at 7 days and 28 days strength	
4. Rebar, Formwork and PC Tendon	Material	Inspection of mill sheet for rebar and PC tendon (tensioning and bending test)	Before construction
	Daily	Inspection of rebar arrangement (Size, Dimension, Arrangement, Lap length, Cover, etc)	Before concrete placement
5. Tensioning of PC Cable	Strength	Compressive strength test for concrete specimen	Before tensioning
	Tensioning Apparatus	Calibration of jack and pump	Before the tensioning At 50 cables interval
	Tensioning Test	Refer to the figure of tensioning control	Before tensioning
	Tensioning	Control for each cable,	At the time of tensioning
6. PC Grout	Mix Proportion	Consistency, Bleeding ratio, Expansion ratio, Strength, etc	Before using
	Dairy	Consistency, Temperature	Once/day for every five batches
		Bleeding ratio, Expansion ratio, Compression strength	Once/day

The tolerances of work items are shown in Table 2.2.28.

Table 2.2.28 Summaries of Tentative Tolerance for Construction Items

Work Item		Tolerance	Remarks	
Embankment	Embankment	Formation	0 cm or more	20m pitch
		Width	-10cm or more	Ditto
	Base	Formation	-2.5cm or more	Ditto
		Thickness	-5cm or more	Ditto
		Width	-10cm or more	Ditto
Pavement	DBST	Width	-3cm or more	Ditto
		Thickness	-1.5cm or more	Ditto
Foundation	Spread Footing	Elevation of bottom	Lower than planned level	4m mesh
Concrete Structure	Footing	Formation	±5cm	
		Thickness	±75mm or ±3%	
	Pier, Abutment, Retaining wall	Position	±30mm	
		Formation	-30mm~+10mm	
		Top length, Top width	±30mm	
		Dimension of Cross-section	-10mm~+20mm or ±2%	
	Slab	Bridge Length	-25mm~+30mm	
		Width	0~+30mm	
		Formation	-20mm~+20mm	
		Thickness	-10~+20mm	
PC Structure	Girder	Bridge Length	-25mm~+30mm	

2.2.4.6 Procurement Plan

(1) Materials

The procurement plan of the Implementation Review Study was checked and the results are summarized in Table 2.2.29. The concrete batching plant, steel formwork and the temporary houses for the construction bridges under Terms 1 and 2 are no longer usable for Term 3.

Table 2.2.29 Review of Procurement Plan for Materials

Name	Procurement Source		Specification	Remarks
	Review Study	Preparatory Survey (This time)		
Embank, fill	Vietnam	Same as left		Quarry source from each province
Upper-sub- base materials	Ditto	Ditto	Graded crusher-run	Ditto
Lower sub-base material	Ditto	Ditto	Crasher-run	Ditto
Coarse aggregate	Ditto	Ditto	Ditto	Ditto
Fine aggregate	Ditto	Ditto	Sand	Ditto
Quarry stone	Ditto	Ditto	25~30cm	Ditto
Asphalt emulsion	Ditto	Ditto		Imported but available in HCM
Cement	Ditto	Ditto	Portland cement	Ditto
Admixture	Ditto	Ditto		Ditto
Re-bar	Ditto	Ditto	Deformed bar	Available in HCM
PC strand	Indonesia	Ditto	1S21.8, 12S12.7	To HCM port
Sheath	Vietnam	Ditto	φ 38mm φ 65mm	
Anchorage	Ditto	Ditto	1T22 12T13M220	
PC girder	Ditto	Ditto		To be fabricated on site
RC pile	Ditto	Ditto		Ditto
Rubber bearing	Ditto	Ditto		Available in HCM
Expansion joint	Ditto	Ditto	25mm	Ditto
Signboard	Ditto	Ditto	Speed & Weight limit	Available in provincial capitals
Plywood	Ditto	Ditto		Steel formwork from previous work will be used
Wood	Ditto	Ditto		Available in provincial capitals
Falsework, Scaffolding	Third country	Ditto		To HCM port
Sheet pile	Ditto	Ditto	III or IV type	Ditto
H-shape steel	Vietnam	Ditto		Imported but available in HCM
Steel cover plate	Third country	Ditto	1*2*0.2m	To HCM port
Angle	Ditto	Ditto	H village, other	Ditto
Fuel	Vietnam	Ditto		Available in provincial capitals

(2) Construction Machinery & Equipment

Table 2.2.30 Review of Procurement Source for Equipment

Name	Specification	Procurement Source		Remarks
		Review Study	Preparatory Survey (This time)	
Bulldozer	15t	Purchase in Vietnam	Same as the Review Study	Depreciation cost will be calculated based on previous use
Back hoe	0.6m ³	Ditto	Ditto	Ditto
Back hoe	0.06m ³	Ditto	Ditto	Ditto
Dump truck	10t	Ditto	Ditto	Ditto
Macadam roller	10-12t	Ditto	Ditto	Ditto
Vibration roller	0.8-1.0t	Ditto	Ditto	Ditto
Tamping machine	60-100kg	Ditto	Ditto	
Wheel loader	1.3m ³	Ditto	Ditto	Depreciation cost will be calculated based on previous use
Concrete plant	0.5m ³	Ditto	Ditto	Available in HCM
Cement silo	30t	Ditto	Ditto	Ditto
Aggregate hopper		Ditto	Ditto	
Truck mixer	4.5m ³	Ditto	Ditto	Depreciation cost will be calculated based on previous use
Concrete pumping vehicle	30m ³ /h	Lease in Vietnam	Same as the Review Study	
Re-bar cutter and bender		Ditto	Ditto	
Vibrator		Purchase in Vietnam	Same as the Review Study	
Crawler crane	40t	Lease in Vietnam	Same as the Review Study	Depreciation cost will be calculated based on previous use
Crawler crane	50,65t	Ditto	Ditto	Ditto
Vibrating hammer	46,60kw	Purchase in Vietnam	Same as the Review Study	Depreciation cost will be calculated based on previous use
Generator	150kva	Ditto	Ditto	Ditto
Grout mixer, pump	15-30l/min	Ditto	Ditto	
Tension jack, pump		Lease in Vietnam	Same as the Review Study	
PC erection girder		Purchase in Vietnam	Same as the Review Study	
Gantry crane		Japan	Ditto	
Truck	2,3,5,11t	Ditto	Ditto	
Truck with crane	2.9t	Ditto	Ditto	
Trailer	20t	Lease in Vietnam	Same as the Review Study	
Truck crane	15, 25,45t	Ditto	Ditto	
Drilling machine	20kg	Purchase in Vietnam	Ditto	
Air compressor	5m ³ /min	Ditto	Ditto	
Water pump	H: 10m	Ditto	Ditto	
Generator	10,100,45kVA	Ditto	Ditto	
Welding machine		Ditto	Ditto	

The major equipment and machineries used by the Contractor for Terms 1 and 2 of the Project were the property of the local sub-contractor. Accordingly, the cost of depreciation of the equipment and machineries will be calculated, except for the crane. The results of the review are shown in Table 2.2.30.

2.2.4.7 Implementation Schedule

Table 2.2.31 shows the tentative project implementation schedule of the Study's results. The design will consist of the preparation of contract drawings. The preparation of tender documents will firstly be conducted followed by the Exchange of Notes. Thereafter tendering will be carried out followed by the execution of construction works.

Table 2.2.31 Tentative Project Implementation Schedule for Term 3

Items		Mon.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Preparation of Tender Document	Site Survey	■																							
	Preparation of bidding document	□																							
	Approval of bidding document	▲																							
Tender Process	Tender notice/PQ	△																							
	Bid meeting	□																							
	Bidding	▲																							
	Evaluation of bidders	■																							
Contract negotiation/Contract		△																							
Construction Works	Material transport					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Preparation work					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Temporary works					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Earth work					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Substructure work					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Girder fabrication					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Girder erection					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Approach road work					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Miscellaneous work					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Cleaning up					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Total Construction period						← Construction Period: 18.5month →																			

2.3 Obligations of Recipient Country

The obligations of the Vietnamese Government which are listed below are also made part of the exchange of Technical Memorandum between the Study Team and the Vietnamese Government and attached as Appendix 2 of this report.

- Acquisition of construction sites and lands necessary to undertake temporary works (PC girder fabrication, stockpiling of materials, equipment depot, and repair shop for equipment and falseworks including formwork & re-bars work)
- Provision of right of way for access to bridge construction sites
- Compensation for the relocation of affected houses generated from construction of the Project
- Removal or relocation of utilities, such as electric cables, telephone cables and water pipes
- Removal of existing bridges when the proposed bridge is built away from the existing one.
- Tax exemptions on materials and equipments imported for the construction of the Project. Assistance to facilitate customs clearance
- Exemption from customs duties and taxes for Japanese and third party nationals entering Vietnam to work for the Project. Exemption from any other financial requirements relative to the execution of the Project

It was confirmed in site visits of the Study that land acquisition and compensation negotiations are almost done, and the remaining land acquisition and resettlement activities will be completed by May 2010.

Removal of the existing bridge is the concern of the Japanese side because it was observed that some existing bridges have not removed after completion of the new bridges constructed in the Component B Bridge of this Project. Since the existence of the old bridge may give a negative effect to the new bridge at flood, old bridge would have to be removed after the construction of the new bridge.

2.4 Project Operation & Maintenance Plan

2.4.1 Operation & Maintenance System

Large-scale repair work will not be required for 20 to 30 years after the completion of the bridges, provided that routine inspection and maintenance as shown in Table 4.1 are properly executed. Accordingly, it is possible for the provincial DOTs to carry out the inspection and maintenance work for the proposed bridges based on the current maintenance system of the provincial DOT.

2.4.2 Inspection & Maintenance Method

(1) Periodic Inspection & Maintenance

Bridge structures, approach roads and revetments around the sub-structures will have to be maintained by provincial DOTs. Table 2.4.1 shows the recommended intervals for the inspection and maintenance activities of the proposed bridges. Note that it is recommended to execute inspections before and after the rainy season.

Table 2.4.1 Maintenance & Inspection Schedule

	Item	Maintenance & Repair Works	Inspection Interval
Bridge	① Drainage pipe	Clearing of sediment	3 months
	② Expansion joint	Repairing of metal & seal rubber	3 months
	③ Railing	Repairing damage from collisions	3 months
	④ Bearing	Removal of soil deposits	6 months
	⑤ Concrete pavement	Repairing of cracks	6 months
	⑥ Substructure	Removal of debris	6 months
Inspection of scouring		6 months	
Road	① Pavement	Patching, smoothing	3 months
	② Shoulder/slope	Planting turf, reinforcement of soils, repairing riprap	3 months
River bank	① Around abutment	Repairing of riprap/gabion	6 months
	② Riverbank	Repairing of riprap/gabion, planting turf	6 months

It is important to keep records of periodic inspections conducted by provincial DOTs for the assessment of the conditions of the facilities for establishment of a repair schedule. Accordingly, proper inspection procedures including checking methods, intervals and reporting should be established from the outset.

(2) Maintenance of Approach Roads

Although minor maintenance activities will be encountered, patching and leveling should be executed periodically. Overlay should be undertaken approximately at every 7 years taking into consideration the life span of the DBST. For the approach roads to Da Dung Bridge, Tran Bridge and Ea Soup Bridge, settlement due to consolidation might occur because of the high abutments of more than 10m tall, although the approach slab was planned for the backside of these bridges. In the construction stage, close supervision should be made of materials to be pursued in accordance with the specifications. However, based on the embankment materials used, advice on future maintenance will be given to the Vietnamese side after the construction of the approach roads.

2.5 Project Cost Estimation

2.5.1 Initial Construction Scope

(1) Grant Aid Scheme

Responsibilities of the Japan's Grant Aid Scheme are summarized in Table 2.5.1.

Table 2.5.1 Responsibilities of the Japan's Grant Aid Scheme

Project Items		
Facility	Bridge	Substructure Superstructure Revetment Approach roads Other facilities
Tendering Support & Construction Supervision		

(2) Scope by Vietnamese Government and Cost Borne

The scope by Government of Vietnam and estimated costs to be provided are shown in Table 2.5.2. As mentioned earlier, land acquisition and resettlement activities were almost completed in 2006.

Table 2.5.2 Approximate Costs to be Borne by Vietnamese Government

Items	Cost: Million VND (Million JPY)
Land acquisition	3,253
Resettlement	2,226
Removal/relocation of public utilities	261
Removal of existing bridge	376
Total amount	6,116 (32.2)

* The above-mentioned costs are estimates subject to review.

2.5.2 Operation & Maintenance Cost

The estimated cost for Inspection and daily maintenance costs of completed bridges are shown in the table below.

(1) Daily Maintenance Activities

Periodic inspection and minor repair/maintenance works will be conducted under the direct administration of provincial DOTs. The estimated cost for annual inspection and maintenance per province is shown in the below:

Personal expenses	:	56 Mil VND	=	56 Mil VND
Materials	:	50% of above	=	28 Mil VND
Equipment including vehicles	:	25 Mil VND	=	25 Mil VND
<hr/>				
Total		109 Mil VND (US\$ 6,100)		

(2) Periodic Maintenance for Pavement

Periodic maintenance, mainly for overlay of DBST for the approach roads, will be entrusted to a local maintenance company to be carried out approximately at every 7 years. The estimated cost of the overlay is shown below.

$$\frac{1,488 \text{ m}^2 \times 1 \text{ Bridge} \times 162 \text{ Thousand VND}}{\text{Total 241Mil. VND (US\$ 13,500)}} = 241 \text{ Mil. VND}$$

Periodic maintenance, mainly the overlay of the DBST for the approach roads, shall be entrusted to a local maintenance company and be carried out approximately every 7 years. The cost of the overlay is as shown below.

$$\frac{1,234 \text{ m}^2 \times 1 \text{ Bridge} \times 90 \text{ Thousand VND}}{\text{Total 111Mil. VND (US\$ 7000)}} = 111 \text{ Mil. VND}$$

(3) Annual Operation & Maintenance Cost

$$109 + 1/7 (241 \text{ or } 482) = 143 (178) \text{ Mil VND (US\$ 8,000 (10,000) Mil) /year/province}$$

The total operation and maintenance cost per province is estimated at US\$ 8,000-10,000 and accounts approximately for 3% of the maintenance budget of each province at maximum, which can be easily covered by the maintenance budget of each province.

CHAPTER 3

PROJECT EVALUATION & RECOMMENDATIONS

Chapter 3 Project Evaluation and Recommendations

3.1 Project Effect

The Project aims to ensure the safe and smooth passage of road traffic for small- and medium-sized bridges on rural roads in the central districts of Vietnam, as many of these bridges were damaged in the war and only have temporary structures due to the lack of a sufficient budget. These bridges are characterized by a narrow formation width, insufficient capacity for handling heavy vehicles, and relatively low bridge height, which sometimes results in flooding and closure. The proposed 6 bridges will be improved with all-weather permanent structures having a 2-lane carriageway capable of handling heavy vehicles of at least up to 16 tons all-year round. This improvement is expected to achieve one of the objectives of the Project as well as one of the goals of the national development, which aims to narrow difference in the standard of living between the central area and other areas in the country by stimulating economic activity and improving access to social services and markets. The following describes both the direct and indirect positive impacts of the Project.

(1) Direct Positive Impacts

1) Improvement of Access to Services

Present Situation & Issues to be Solved	Frequent flooding in the rainy season sometimes causes the closure of bridges from a few days to a week.
Countermeasures Provided by the Project	The height of the new bridge is set so there will be no overflows from floods with approximately twenty to fifty years of the return period based on the previous flood record and providing freeboard under the girders.
Positive Impacts from the Project	Improvement of access to social services, including public offices, hospitals, schools and markets by securing all-year passage with all-weather bridges.

The beneficiaries of the Project are expected to consist of people living within the districts where the proposed bridges are located. The table shows the expected number of the beneficiaries for each proposed bridge.

Province Name	Binh Thuan		Ninh Thuan	Dac Lak		Khanh Hoa
Bridge Name	Da Dung	Tran	Tam Ngan	Ea Soup	Krong K'Mar	Ngoi Ngan
Population to Benefit	106,071	163,813	69,962	40,000	90,000	126,224

2) Strengthening & Stabilization of Transport Capacity

Present Situation & Issues to be Solved	The proposed 6 bridges can only handle vehicles less than 5 tons except for Ea Soup Bridge (18 tons), which is lower than the Vietnamese standard. Accordingly, vehicles exceeding this limit have had either to take a detour or pass through the rivers, which is not possible in the rainy season.
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Countermeasures Provided by Project	In accordance with the Vietnamese standard, 4 bridges were designed to have a capacity to handle vehicles up to 30 tons, while others were designed to have a capacity of up to 16 tons.
Positive Impacts from Project	An increase in vehicle weight limit capacity will enable heavy vehicles to use the bridges.

Further details on the level of improvement for the bridges are shown below.

Province	Binh Thuan		Ninh Thuan	Dac Lak		Khanh Hoa
Bridge Name	Da Dung	Tran	Tam Ngan	Ea Soup	Krong K'Mar	Ngoi Ngan
Existing Weight Limit	2.5 t one way	5.0 t one way	Only pedestrian & motorbike	18.0 t one way	5.0 t one way	Only pedestrian & motorbike
Weight Limit After Improvement	30 t two way	30 t two way	16 t two way	30 t two way	30 t two way	16 t two way

3) Ensuring Smooth & Safe Passage of Vehicles

Present Situation & Issues to be Solved	Existing bridge width is insufficient for two-way traffic and results in long waiting times at bridge entrances. In addition, there is a mix of traffic consisting of motor vehicles, pedestrians, bicycles and motorbikes that sometimes results in accidents during busy times.
Countermeasures Provided by Project	Widen bridge width to 9m (3.5m dual-carriageway with 1m shoulder on either side) for Da Dung bridge and to 7m (3m dual-carriageway with 0.5m shoulder on either side) for Ea Soup, Krong K'Mar and Ngoi Ngan bridges. Remaining 2 bridges are 5.5m.
Positive Impacts from Project	For 4 bridges to have a 9m and 7m formation width, which also have large traffic volumes, widening will enable vehicles to pass each other and will result in the elimination of waiting times at bridge approaches. It will also ensure the smooth and safe passage of vehicles. In addition, pedestrians can walk along the shoulders and this will contribute further to safety. For the remaining 2 bridges, widening to 5.5m will enable sedans and trucks to safely pass each other.

4) Reduction in Bridge Maintenance Cost & Improvement of Usage

Present Situation & Issues to be Solved	Except for the Tran Bridge, wooden slabs are used and it is necessary to replace them regularly, which results in temporary bridge closure and costs money.
Countermeasures Provided by Project	Concrete slabs will be utilized to reduce costs.
Positive Impacts from Project	There is no need to replace the slabs and only minor repairs will be required. This will eliminate the frequent temporary bridge closures.



(2) Indirect Positive Impacts

1) Stimulation of Local Economic Activity

Present Situation & Issues to be Solved	Bridge transport capacity is unstable and insufficient due to narrow width, low vehicle weight restrictions, and temporary closures from flooding.
Countermeasures Provided by Project	Raising bridge elevation to improve discharge capacity capable of handling 20- to 50-year return period flooding, and increasing the capacity to handle larger vehicles weighing up to 16 tons or 30 tons.
Positive Impacts from Project	Stimulation of economic activity in the agricultural and forestry sectors, which are major industries in the area, by providing stable and reinforced transport capacity for bridges. Furthermore, it is expected that the living standard of minorities will be promoted as well.

2) Improvement of Access by Utilizing Existing Bailey Bridges

Present Situation & Issues to be Solved	Many crossing points have no crossing structure in the central area, which prevents access to markets and social services for rural villages
Countermeasures Provided by Project	After completion of the new bridges at the Da Dung, Ea Soup and Krong K'Mar bridge sites, the existing Bailey bridges can be removed and used at crossing points having no crossing structure.
Positive Impacts from Project	Improvement in access of villages to services and market.

3.2 Recommendations

There are some activities that should be carried out in order to maximize and sustain the positive impacts of the Project and these are explained below.

1) Removal or Transfer of Existing Bridges after Completion of New Bridges

The site reconnaissance of the Study Team found that existing Bailey bridges had not been removed after the completion of bridges built via steel girder supply type work under Japan's Grant Aid Scheme. Note that the existence of old bridges can cause swirling flows that result in adverse impacts on new bridges such as scouring. Accordingly, the prompt removal or re-utilizing of these old bridges at other crossing points should be executed by the Vietnamese side as quickly as possible.

2) Execution of Proper Maintenance for New Bridges & Their Approach Roads

It is anticipated that proper maintenance will be executed by the Vietnamese side, as the necessary budget for road maintenance has been secured and the appropriate maintenance systems established at the provincial level according to interviews with the PDOTs. However, it is recommended that the Japanese side occasionally monitor the operation and maintenance activities for these bridges.

APPENDICES

- 1. Member List of the Study Team**
- 2. Study Schedule**
- 3. List of Parties Concerned in the Recipient Country**
- 4. Minutes of Discussions**
- 5. Technical Memorandum**
- 6. Necessity of Soft Ground Treatment**

Appendix 1. Member List of the Study Team

Appendix 1. Member List of the Study Team

1-1 Field survey (22nd November 2009 – 21st December 2009)

Name	Title	Organization
Mr. Tomoyuki KONISHI	Chief Consultant / Road Planner	Oriental Consultants Co., Ltd.
Mr. Katsuya KUSANAGI	Bridge Engineer 1 / Natural Condition Surveyor	Oriental Consultants Co., Ltd.
Mr. Itsuro SAKAI	Bridge Engineer 2	Oriental Consultants Co., Ltd.
Mr. Syuhei MORIMOTO	Construction Planner / Cost Estimator	Oriental Consultants Co., Ltd.

1-2 Explanation of Draft Final Report (Canceled)

Appendix 2. Study Schedule

Appendix 2. Study Schedule

2-1 Field Survey

Study Team			Chief Consultant / Road Planner	Bridge Engineer I	Bridge Engineer II	Const. Planner / Estimator
			Mr. KONISHI	Mr. KUSANAGI	Mr. SAKAI	Mr. MORIMOTO
Date			(OC)	(OC)	(OC)	(OC)
1	Nov. 22	Sun.	(Narita - Hanoi)			
2	23	Mon.	Preparation of Site Survey and Data Collection			
3	24	Tue.	(in Hanoi) AM 8:00 JICA, 9:00 EOJ			
			PM 14:00~15:00 MPI-FERD: Courtesy call & explanation of IC-R			
			PM 15:30~16:30 MOT-DPI Courtesy call & explanation of IC-R			
4	25	Wed.	8:30 ~ 11:30 Discussion with PMU2			
5	26	Thu.	9:00 ~ 11:30 Discussion with MOT & PMU2			
6	27	Fri.	9:00 ~ 11:00 Signing on MD			
7	28	Sat.	(Hanoi - HCMC)			
8	29	Sun.	Site Survey: Bri. No.36, (go to Phan Thiet)			
9	30	Mon.	Discussion Binh Thuan Prov. DOT 8:30am			
			Site survey: Br. No. 37, (go to Phan Rang)			
10	Dec.1	Tue.	Discussion with Ninh Thuan Prov. DOT 8:00am			
			Site survey: Br. No. 43, (go to Da Lat)			
11	2	Wed.	Site survey: Br. No. 46 & No.56, (go to Buon Ma Thuot)			
12	3	Thu.	Discussion with Dac Lac Prov. DOT 8:00am			
			Site survey: Br. No. 52			
13	4	Fri.	Site survey: Br. No. 83			
			Discussion with Khanh Hoa Prov. DOT 3:00pm			
14	5	Sat.	(Nha Trang - Hanoi)			
15	6	Sun.	Arrangement			
16	7	Mon.	Technical study, Data collection & Arrangement			
17	8	Tue.	Technical study, Data collection & Arrangement, Report to JICA			
18	9	Wed.	Technical study, Data collection & Arrangement			
19	10	Thu.	Discussion & Report to PMU 2			
20	11	Fri.	Technical study, Data collection & Arrangement			
21	12	Sat.				
22	13	Sun.	Arrangement			
23	14	Mon.	Technical study, Data collection & Arrangement			
24	15	Tue.	Technical study Data collection & Arrangement			
25	16	Wed.	(Hanoi – Narita)			
26	17	Thu.	Explanation to JICA			
27	18	Fri.	Explanation to EOJ			
28	19	Sat.				
29	20	Sun.	Technical study Data collection & Arrangement			
30	21	Mon.	(Hanoi – Narita)			

2-2 Explanation of Draft Final Report (Canceled)

**Appendix 3. List of Parties Concerned in the
Recipient Country**

Appendix 3. List of Parties Concerned in the Recipient Country

Organization	Name	Title
Ministry of Planning and Investment (MPI)	Mr. Nguyen Xuan Tien	Deputy Director General, Foreign Economic Relations Department
Ministry of Transport (MOT)	Mr. Truong Tan Vien	General Director, Planning and Investment Department
	Mr. Ha Khac Hao	Deputy Director General, Planning and Investment Department
	Mr. Nguyen Ngoc Hai	Senior Official of PMD, Planning and Investment Department
	Mr. Nguyen Ngoc Son	Quality Control and Management Dept.
Vietnam Road Authority (VRA)	Mr. Nguyen Trong Hien	Expert, Vietnam Road Administration
PMU2	Mr. Lam Van Hoang	Deputy General Director
	Mr. Nguyen Xuan Minh	Director, Project Implementation Division 2
	Mr. Tran Nhat Phong	Deputy Director, PID 2
	Mr. Nguyen Ba Hoa	Expert of PID2
	Mr. Vu Anh Tuan	Expert of PID2
	Ms. Tran Bich Thuy	Expert of PID2
Binh Thuan Province	Mr. Nguyen Hong Hai	Deputy Director, DOT
	Mr. Nguyen Ngoc Nghia	Deputy Manager of Traffic Management Dept.
	Mr. Nguyen Huu Trung	Manager of Traffic Management Dept.
Ninh Thuan Province	Mr. Tran Van Hai	Manager of Traffic Management Dept.
	Mr. Phạm Minh Tan	Senior Officer, PMU
Dak Lak Province	Mr. Y Puat Tor	Deputy Director, DOT
	Mr. Le Cong Du	Director, PMU
	Mr. Tran Viet Diep	Manager of Planning Dept.
Khanh Hoa Province	Mr. Tran Vinh	Deputy Director, DOT
	Mr. Nguyen Tuan Giang	Manager of Traffic Management Dept.
	Mr. Nguyen Minh Nhat	Expert of Traffic management Dept.
	Mr. Pham Dong My	Deputy Manager of Infrastructure Management Dept.

DOT: Department of Transport

PMU: Project Management Unit

DPC: District People's Committee

TCQM: Technical Control Quality Management