2.2.3 QIP for Emergency Repair Works of Aceh River and Floodway

(1) Design Condition

1) Scope of Works

The earthquake and subsequent Tsunami caused various and serious damages on basic infrastructure. Dykes along the Aceh River and its tributaries are one of very important infrastructure and in fact protect the Banda Aceh City from flooding and inundation during high tide season. Parts of them were swept away or cracked or collapsed at many locations owing to the earthquake and Tsunami, and as subsequence the areas along such parts are submerged and/or subject to inundation frequently.

The Project aims at repairing the damaged dykes to their original situation urgently in order to protect the city area from flooding and high tide. With implementation of the Project the present inundation areas will be secured and contribute to return of affected people and other development activities.

The scope of works comprises (1) design works and cost estimate, and (2) preparation of technical report for emergency repair works of the Aceh River and floodway.

2) Damage Assessment

Damage assessment was conducted by surveys of existing dykes along the river reaches in order to determine urgency and nature of the rehabilitation works to be required. For this purpose topographic survey along the rivers were carried out not only covering the above ground surface but also under the water surfaces. Based on the results of the surveys, conditions of the existing dykes and river channels are found to be as follows:

(a) Aceh River

From estuary (No.0-50) to Peunayoung Bridge (No.17), some serious damages on revetment are found out and the area behind the section is fairly populated. Most serious damage section is around Lampulo where parapet walls and road pavement have been destroyed for a length more than 350m. In addition, some sunken ships are located in the river channel.

From Peunayoung Bridge (No.17) to Surabaya Bridge (No.27+50), there are also damages on the low water revetments. However degree of damage appears to be not serious compared to the downstream section. It is likely that the damaged structure sustains under the normal climatologic and hydrologic conditions..

For upstream section from Surabaya Bridge, minor damages are found out on dykes. It is likely that such damage is not due to the Tsumani but lasted for long before. Deposit of sedimentation is observed throughout the sections.

(b) Floodway

From estuary (No.0-100) to Krueng Cut Bridge (No.11+100), dykes on both banks have been washed away from place to place and also damages on revetment are seen on both banks for a length more than 1,200m.

From Krueng Cut Bridge (No.11+100) to Lamnyong Bridge (No.19+50), damages on concrete revetment are seen from place to place. Deposit of small debris is observed in the channel of the river.

On the drainage canal located on LHS of the Floodway, there are erosions in toe of slopes which appear to be still developing.

(c) Doy River

There are two serious damaged sections; first section is from estuary (No.0-50) to the second bridge (No.7) and second section is after the JL.Teuku Umar (No13+50). In the first section, parapet walls have been washed away for a length of approximately 50m, while in the second section, joint of revetment blocks have developed a large gap in many areas. It is probable such blocks fall down in time, resulting in causing erosion of earth embankment.

Along the rest of sections, there are such minor damages as cracks on revetments and lack of flap gate. Such damages are judged to be not serious and require no urgent rehabilitation.

(d) Neng River

Around the bridge on the JL.Teuku Umar, there are damages on revetment. A suspension bridge has been destroyed which was located on the mid point between estuary and JL.Teuku Umar.

(e) Daroy River

There is no serious damage for the entire reach excepting some minor damage such as missing of flap gates and cracks on the revetments. However according to Satellite Images taken just after the disaster, huge amounts of debris are seen, indicating deposit or sedimentation in the channel.

It is considered to be important that the urgency and importance of rehabilitation requirements be assessed not only from technical point of view but also from social aspects such as social effects and the number of population to be secured after rehabilitation works, etc.

(2) Detail Design

1) Basic Design Policies

Prior to commencement of the design works, the JICA Study Team made a number of discussions about repairing/rehabilitation concepts with the Indonesian counterpart agency concerned. As a result the following basic design policies were established:

① In view of urgent completion of the Project, the design should pay utmost attention to speedy and easy construction works. In view of creating job opportunity for Acehnese people, the construction works should be within capability of the local contractors.

② In view of sustainability, the design should regard to easy maintenance and repair after completion of construction works.

③ In view of financial aspect, the design should consider the available budget and maximum use of construction materials locally.

2) Project Component

The project component had been determined in due consideration of the request of the Indonesian counterpart agency, urgency, condition prevailing at the Site and damaged structures, foreseen rehabilitation works and its volume, required construction period, etc. On the basis of the GOI's request, screening, etc., the project component was finally determined as shown in Fig 2.2.4.

The Project is proposed to be realized in five (5) separate contact packages in order to expedite and complete the construction works in a period shortest as possible in view of urgency.

Package I: Rehabilitation of Dykes and Revetments from Estuary to Peunayong Bridge (L=3,450m) and Dredging from Estuary to Lampulo (L=1,450m) on **Aceh River**

Package II: Rehabilitation of Dykes and Revetments from Estuary to Lamnyong Bridge (L=3,950m) and Normalization from Estuary to Krueng Cut Bridge (L=2,400m) on **Floodway**

Package III: Rehabilitation of Revetments and Normalization from Peunayong Bridge to Surabaya Bridge (L=2,050m) on **Aceh River**, and Normalization for **Daroy River** (L=1,516m)

Package IV: Rehabilitation of Revetments and Normalization for **Doy River** (L=3,050m) and **Neng River** (L=1,512m)

Package VII: Rehabilitation of Revetments around Lampulo on **Aceh River** (L=360m)

*Package V&VI were not used.

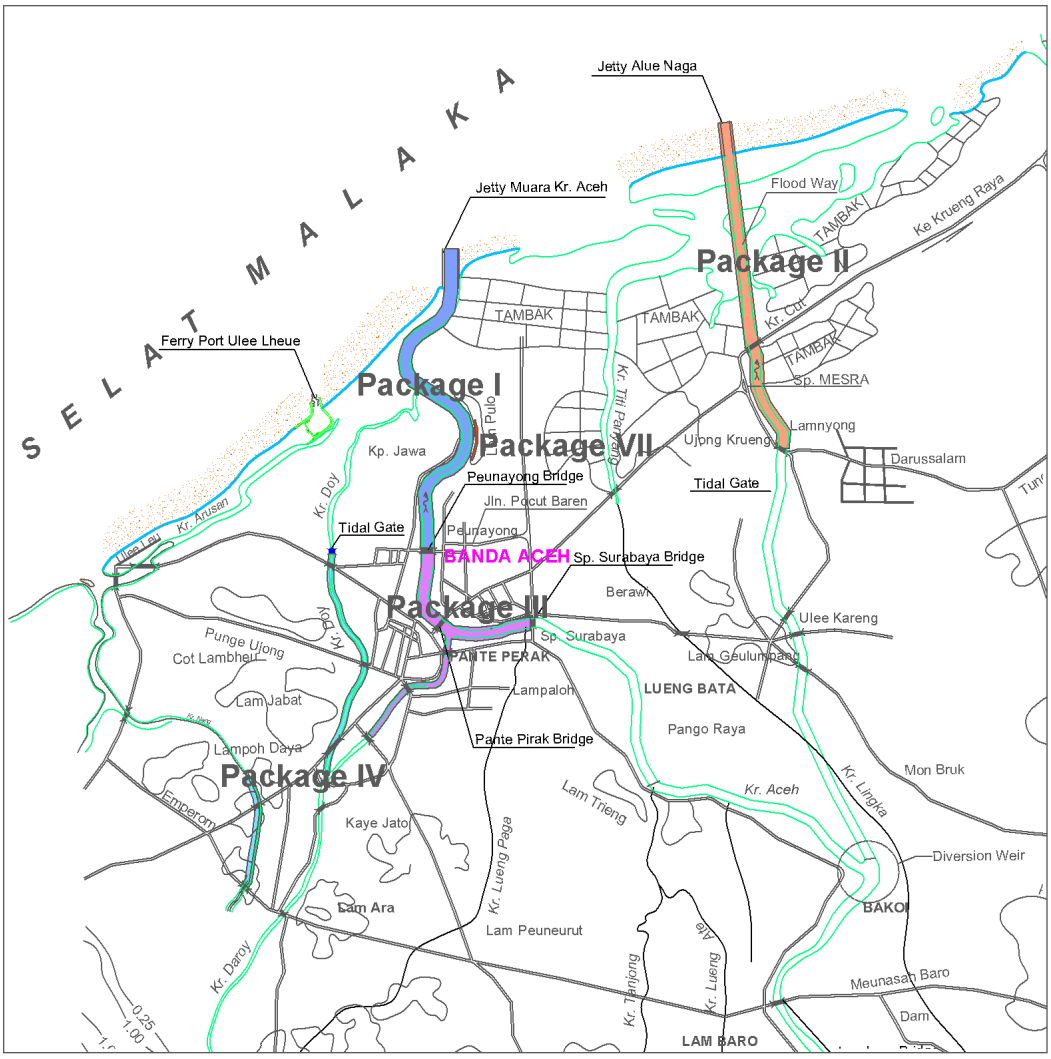


Figure 2.2.4 Summary of Project Component

3) Design Discharge and Hydraulic Criteria

The Aceh River Flood Control Project (KAFCP) was planned/ designed and finally completed for construction in 1993. The contemplated Project is determined in context of design criteria and data of the said project and basic design parameters are obtained as summarized below.

- Design drainage area: 1,780 km^2
- Design Flow : 1,300 m3/sec, having a return period of 5 years
- Distribution of flow: As per Figure
- Design water level at estuary: EL + 0.7 m i.e. mean high tide level
- Design freeboard: 1.0m from Estuary to Bakoi
- Slope of riverbed: 1/3,000

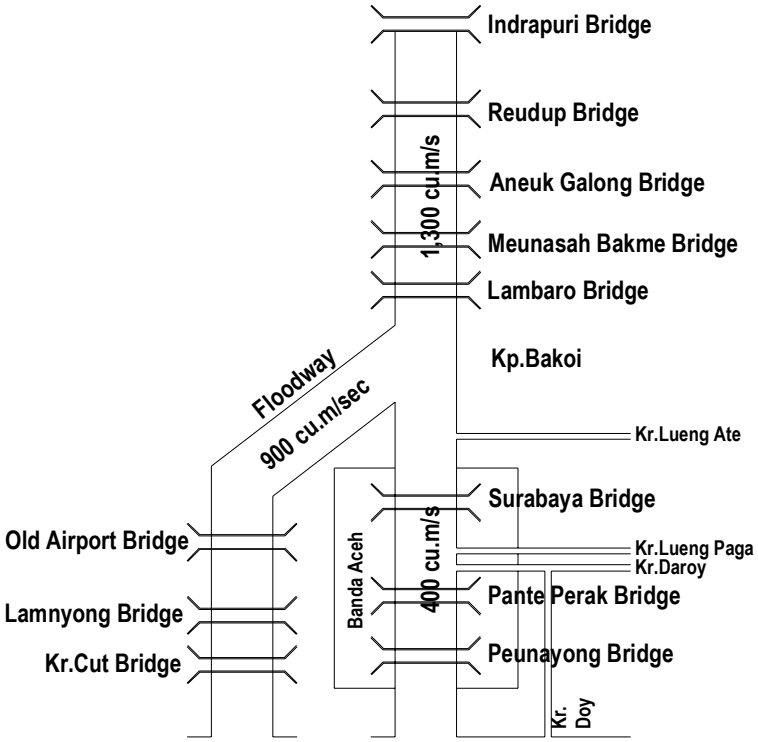


Figure 2.2.5 Discharge Distribution for Aceh River

4) Hydraulic design for River Improvement of Aceh River

Hydraulic design is conducted only for the Aceh River between the estuary and the Peunayong, since this river reach requires improvement of river channel. The other river reach involves only rehabilitation of revetments to the pre-disaster situation.

The river improvement works of the Aceh River is studied for two (2) cases for consideration of the GOI counterpart agency.

① Case 1 Full Improvement

In this case study the river channel is considered to be improved over its entire length with cross-sectional area adopted in the KAFCP.

② Case 2 Limited Improvement

In this case study the river improvement works is limited to a reach between the estuary and Lampulo, intending to identify more realistic plan to be completed within a single dry season while assuring safety against flooding.

Case 1 would require a huge amount of dredging works, approximately 400,000m3. Such large quantity of dredging work is deemed to be difficult to be completed within a single dry season and is very costly.

For Case 2, the estimated quantity of river improvement works is reduced to approximately 200,000 m3, about a half of that of Case 1.

As a result of case study, it is concluded that Case 2 is technically and economically feasible and is adopted for the Project.

Plan and profile of proposed improvement work is as given in Figure 2.2.6.

Figure 2.2.6 Plan and Profile of Aceh River under Case 2 (1/3)

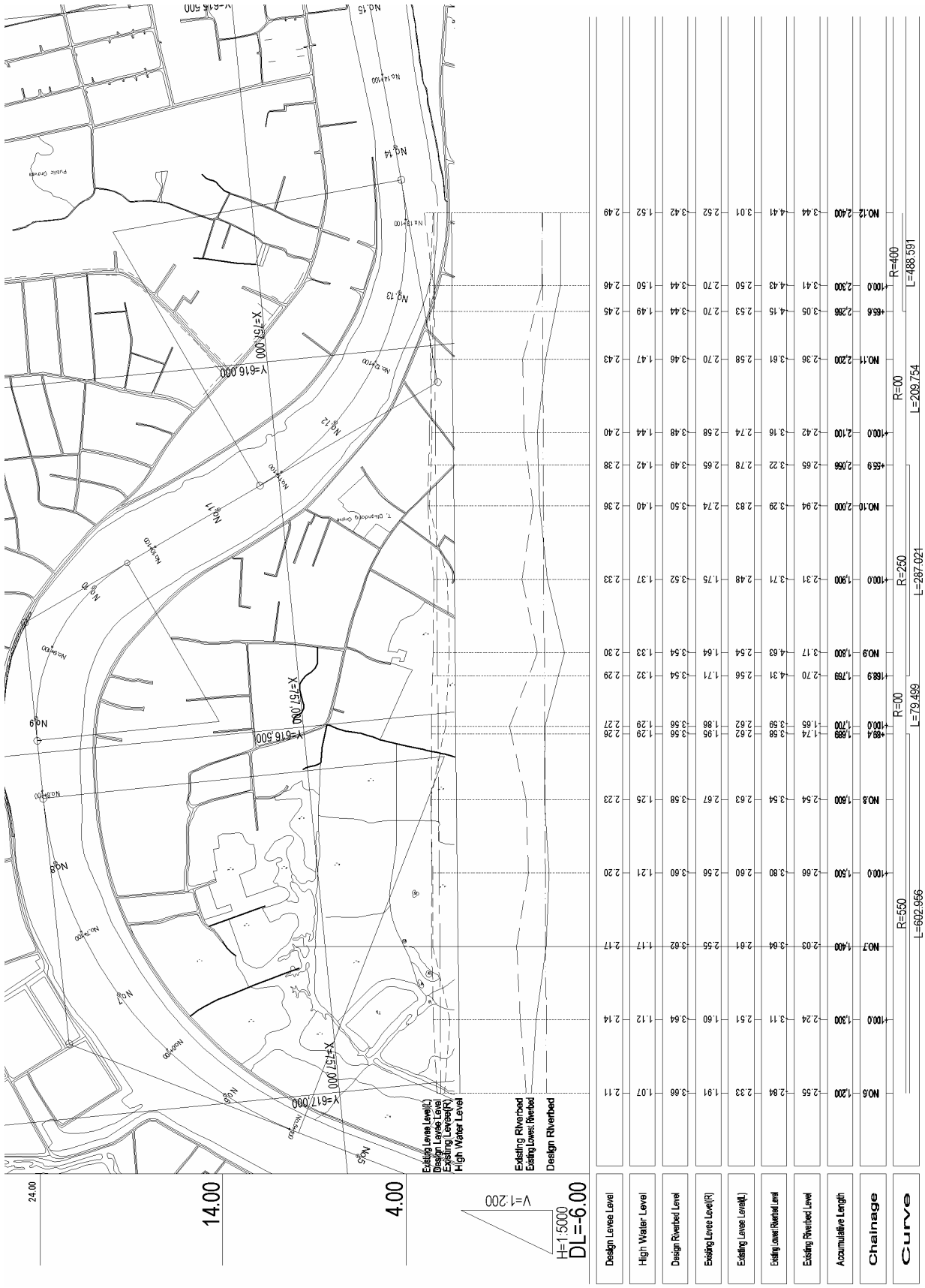


Figure 2.2.6 Plan and Profile of Aceh River under Case 2 (2/3)

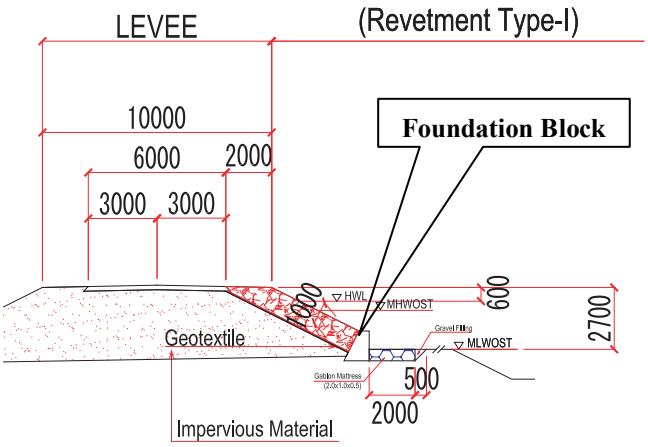
Design Levee Level	2.49	2.53	2.56	2.59	2.61	2.62	2.66	2.69	2.72	2.75	2.75	2.76	2.77	2.93
High Water Level	1.52	1.55	1.58	1.62	1.65	1.67	1.71	1.75	1.79	1.82	1.83	1.86	1.88	1.93
Design Riverbed Level	-3.42	-3.40	-3.37	-3.35	-3.34	-3.33	-3.31	-3.29	-3.27	-3.25	-3.25	-3.23	-3.21	-3.18
Existing Levee Level(R)	2.52	2.55	2.90	2.67	2.78	2.86	1.38	2.65	1.85	2.85	3.02	3.02	3.03	3.00
Existing Levee Level(L)	3.01	3.02	2.41	2.86	2.88	2.89	2.95	2.84	2.79	2.85	2.86	2.88	2.89	4.34
Existing Lowest Riverbed Level	-4.41	-3.80	-3.78	-3.41	-3.52	-3.61	-3.76	-2.86	-3.14	-2.93	-2.89	-3.44	-3.74	-4.32
Existing Riverbed Level	-3.44	-3.56	-3.49	-3.07	-3.36	-3.61	-3.74	-2.82	-2.49	-2.76	-2.81	-3.41	-3.74	-4.12
Accumulative Length	2,400	2,500	2,600	2,700	2,754	2,800	2,900	3,000	3,100	3,186	3,200	3,285	3,300	3,400
Chainage	NO.12	+100.0	NO.13	+100.0	+54.2	NO.14	+100.0	NO.15	+100.0	+185.9	NO.16	+84.5	+100.0	NO.17
Curve	R=400 L=488.591					R=00 L=431.671				R=1000 L=78.559			R=00 L=207.679	

Figure 2.2.6 Plan and Profile of Aceh River under Case 2 (3/3)

5) Design of Revetment Works

The following structures are designed for revetment works:

① Foundation block at toe of levee



The foundation block supports materials to be placed on slopes such as rip rap and wet cobble stone masonry. The block was designed as precast concrete structure. The size is 1.5m in length, being selected in due consideration of easiness of transportation and minimizing of construction time.

② Wet cobble masonry

The wet cobble stone masonry is placed instead of fabric sheet with concrete filling which was initial structure. It is selected as it is easy in construction, allows use of local material and reduces construction cost.

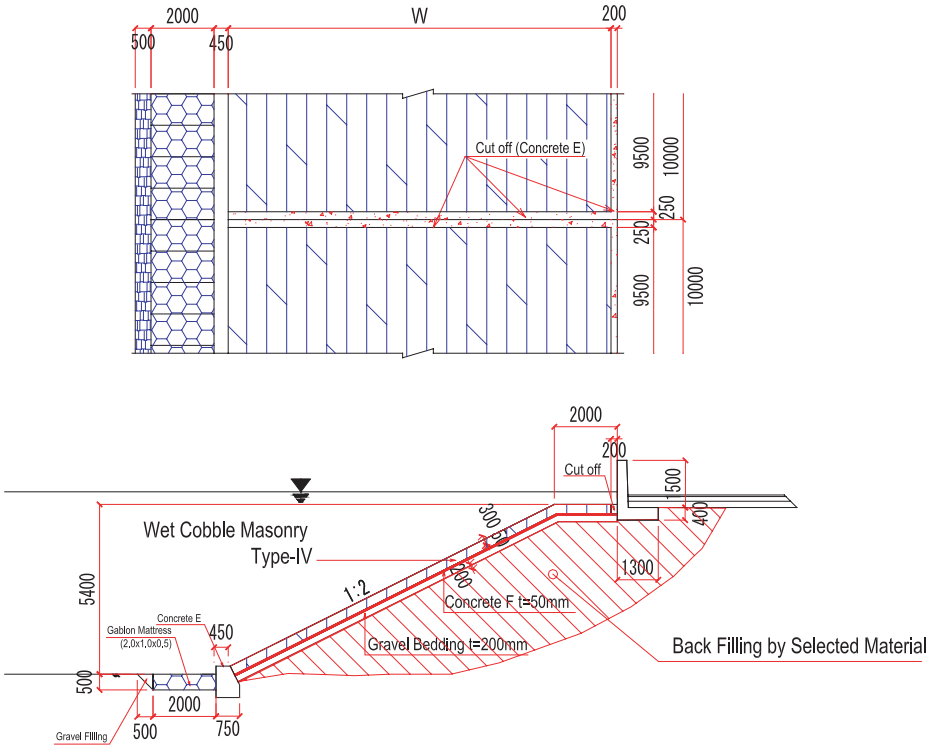


Figure 2.2.7 Cross Section of Wet Cobble Masonry

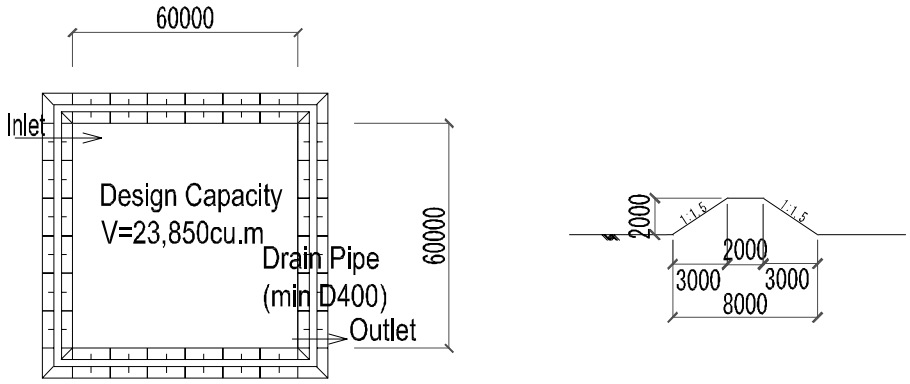
6) Construction Planning for Dredging Works

① Method of dredging

The proposed river improvement work in Aceh River includes dredging of approximately 200,000 m3 from river channel. The JICA Study Team has conducted a construction capability survey of the local contractors, especially with the view to available constructional equipment for dredging works. The survey area covers not only Banda Aceh but also Medan. Though there are various types of dredging works, the following construction equipment are identified to be made available locally according to the survey.

- Clamshell and Backhoe Dredging
- Flat Pontoon
- Cutter Suction Pump Dredger

The dredging works requires provision of a temporary pond to separate liquid and mud. Minimum size of the pond would be 60 meter square as shown below:



Plan Cross Section

Figure 2.2.8 Temporary Pond

② Execution of dredging works

Dredging shall generally be carried out from downstream reaches to upstream reaches to avoid flooding due to the occurrence of unexpected high water.

7) Design Drawings

In total 228 design drawings are prepared as shown in Table 2.2.7.

Table 2.2.7 List of Design Drawing

Package	Title	Page
Package I	Location Map	1
	Aceh River Plan	2-5
	Aceh River Profile	6-8
	Typical Cross Section	9-10
	Cross Section	11-46
	Detail of Structures	47-50
	Sub Total	**50**
Package II	Location Map	1
	Floodway plan	2-6
	Floodway Profile	7-10
	Typical Cross Section	11
	Cross Section	12-55
	Levee Cross Section	56
	Detail of Revetment Type-II	57
	Detail of Drainage Canal	58
	Detail of Foundation Block	59
	Detail of Drainage Canal Facilities	60
	Inspection Road	61
	Sub Total	**61**
Package III	Location Map	1
	Aceh River Plan	2-4
	Aceh River Profile	5-6
	Typical Cross Section	7-8
	Cross Section	9-31
	Structure	32-33
	Daroy River Plan	34-35
	Daroy River Cross Section	36-52
	Sub Total	**52**
Package IV	Location Map	1
	Doy River Plan	2-6
	Doy River Profile	7-11
	Doy River Typical Cross Section	12
	Doy River Cross Section	13-44
	Neng River Plan	45-46
	Neng River Profile	47-49
	Neng River Typical Cross Section	50
	Neng River Cross Section	51-69
	Detail of Structure	70-71
	Repair of Structure	72
	Sub Total	**72**
Package VII	Location Map	1
	Plan (Lampulo, Aceh River)	2
	Profile	3
	Typical Cross Section	4
	Cross Section	5-9
	Detail of Structure	10-12
	Inspection Road	13
	Sub Total	**13**
	Grand Total	**228**

8) Cost Estimate

Construction cost of the proposed restoration works is estimated at price level of July 2005 as is given in Table 2.2.8. It should be noted that the cost shown in the table does not include general expenditures such cost for bid security and performance security, mobilization and demobilization of the contractor, etc.

Table 2.2.8 Estimated Construction Cost

No.	Description	Amount (Yen)
P.I.	Rehabilitation of River Condition and Structures of Krueng Aceh River	
1.1	Temporary work	17,530,300
1.2	Restoration to Normal River Condition	115,931,200
1.3	Rehabilitation of Dyke Embankment	279,310
1.4	Rehabilitation of Low and High Water Revetment and Parapet Wall	52,139,378
	Total of Item Package I	185,880,188
P.II.	Rehabilitation of Dyke and Revetment for the Floodway of Krueng Aceh River	
1.1	Temporary work	10,048,900
1.2	Restoration to Normal River Condition	17,677,240
1.3	Rehabilitation of Levee and Revetment	126,862,830
1.4	Rehabilitation of Drainage Canal	16,087,300
1.5	Rehabilitation of Drain Pipe Culvert	1,287,100
	Total of Item Package II	171,963,370
P.III.	Rehabilitation of Dyke and Parapet wall of Krueng Aceh River (between Peunayong Bridge and Surabaya Bridge)	
1.1	Temporary work	5,924,642
1.2	Normalization of Krueng Aceh River	2,815,200
1.3	Rehabilitation of Dyke and Revetment	7,260,688
1.4	Normalization of Krueng Daroy River	1,906,037
	Total of Item Package III	17,906,567
P.IV.	Rehabilitation of Dyke and Revetment for the Floodway of Krueng Aceh River	
1.1	Temporary work	5,203,300
1.2	Restoration to Normal River Condition of Kr. Doy river	12,877,602
1.3	Restoration to Normal River Condition of Kr. Neng river	4,017,160
1.4	Rehabilitation of Flap Gate in Kr. Doy and Kr. Neng	7,100,000
	Total of Item Package IV	29,198,062
P.VII.	Rehabilitation of Revetment and Parapet wall of Krueng Aceh River	
1.1	Temporary work	6,866,400
1.2	Rehabilitation of Revetment and Parapet wall	23,723,330
	Total of Item Package VII	30,589,730
GRAND TOTAL		**435,537,917**

(3) Preparation of Technical Report

Technical report was prepared. Composition of the report is same as that of the Project: RECOVERY OF WATER SUPPLY SYSTEM IN BANDA ACEH CITY. JICA Study Team has produced Volumes II: Technical Specifications and III: Drawings as Technical Report.

2.2.4 QIP for Rehabilitation of Lampulo Market

(1) Design Condition

1) Scope of Works

The Lampulo Fish Market, which is located close to the mouth of the Aceh River (approximately 1 km), suffered major damage in the earthquake and tsunami. Most of the market facilities were destroyed and/or are in a dangerous situation. In view of these circumstances, the Lampulo Fish Market should be repaired and rebuilt, with the aim of restoring the functions of the fishing facility. The scope of works comprises (1) design works and cost estimate, and (2) preparation of technical report for restoration works on building for ice-making machines, freezers and generators, which will be procured separately by the Non-project Type Grant Aid Scheme.

(2) Detail Design

1) Basic Consideration in Planning

Since the planned site for the facility is close to the sea and is constantly affected by the tides, the main structure will be reinforced concrete. For the roof, a steel frame that has been rustproofed will be used, and the roofing material will be galvanized sheet iron roofing.

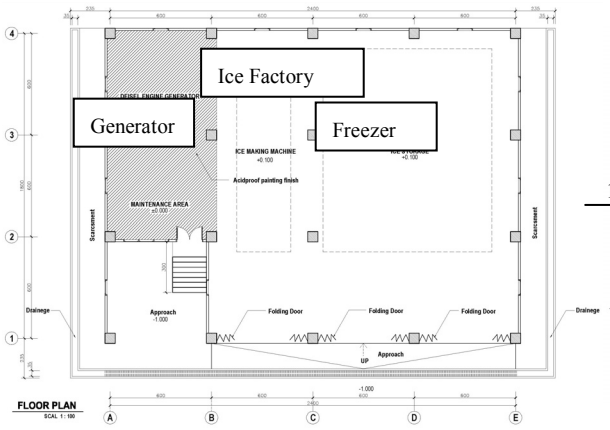


Figure 2.2.9 Ice Factory Floor Plan 28.7 m (W) x 20.35 m

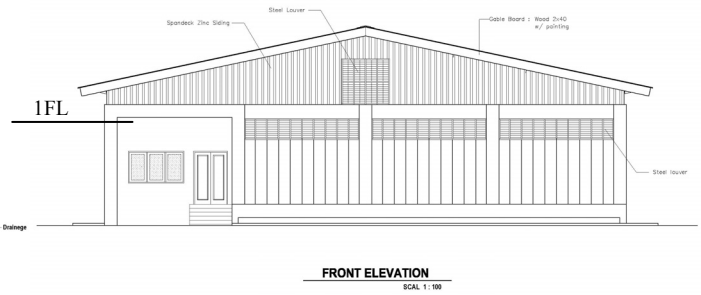


Figure 2.2.10 Ice Factory Elevation Plan

In floor planning specifications of new equipment to be procured (sizes, weights, quantities, etc.), space for selling of fish, reception and shipping, and storing are considered.

In section planning, appropreate spacing is also studied for equipment in terms of maintenance and inspections, as well as work efficiency. Height of story (4.7m) and floor elevation of the first story (approximately 1 m above ground level) are considered with the aim of keeping the facility sanitary and protecting equipment and materials from high tide and flood.

The details of the project were decided through discussions with Fish Market Operation and Management Corporation, which was directly involved in the facility planning, and the Ministry of Maritime Affairs and Fishery.

2) General Features of the Project

General features of the project is shown below.

Table 2.2.9 General Features of the Project

Name of Building			Lampulo Ice Factory
Application			Fisheries Facility
Type of Construction			New
Building Scale	Construction Floor Space (m^2)		432.0 (m^2)
	Total Floor Space (m^2)		432.0 (m^2)
	No. of Stories		Single story
	Eaves Height (m)		6.70 (m)
	Building Height (m)		9.20 (m)
	Height of 1st Foor		5.70 (m)
Structure Overview	Type of Construction		Reinforced Concrete + frame Truss Roof
	Structure Shape	X Direction	Rigid-frame Structure
		Y Direction	Rigid-frame Structure
	Type of Foundation		Pile Foundation
Plans for Expansion			None

3) Applied Regulations and Standards

The regulations and standards noted below were applied.

① Architectural design standards of Indonesia

- Tata Cara Perhitungan Struktur beton untuk Bangunan Gedung
  SNI 03-2847-2002
- Tata Cara Perencanaan Ketahanan Gempa untuk Bangunan Gedung
  SNI 03-1726-2003
- Pedoman Perencanaan Pembebanan untuk Rumah dan Gedung
  SKBI-1.3.53.1987, UDC; 624.042
- Pedoman Perencanaan Ketahanan Gumpa untuk Rumah dan Gedung
  SKBI-1.3.53.1987, UDC;699.841
- Petunjuk Perencanaan Beton Burtulang dan Struktur Dinding Burtulang untuk Rumah dan Gedung
  SKBI-2.3.53.1987, UDC;693.55;6, 693.25

② Other standards

- Structure Calculation Guidelines published by the Architectural Institute of Japan

- Reinforced Concrete Structure Calculation Guidelines published by the Architectural Institute of Japan
- Load Guidelines published by the Architectural Institute of Japan
- Architectural Foundation Structure Design Guidelines published by the Architectural Institute of Japan
- Soil Survey Methods published by the Soil Society of Japan

4) Design Drawings

Based on the results of the field survey, architectural plan drawings, finishing planning drawings, structural planning drawings, and electrical equipment drawings were drafted. List of drawings is shown in Table 2.2.10.

Table 2.2.10 List of Drawings

No.	Dwg. No.	Building Name	Title
01	01	ICE FACTORY	SITE PLAN
02	02	ICE FACTORY	FINISHING SCHEDULE
03	03	ICE FACTORY	FLOOR PLAN
04	04	ICE FACTORY	ROOF PLAN
05	05	ICE FACTORY	FRONT ELEVATION
06	06	ICE FACTORY	BACK ELEVATION
07	07	ICE FACTORY	SIDE ELEVATION
08	08	ICE FACTORY	SECTION-1
09	09	ICE FACTORY	SECTION-2
10	10	ICE FACTORY	FITTINGS SCHEDULE
11	11	ICE FACTORY	LIGTHING FIXTURE
12	12	ICE FACTORY	FOUNDATION, COLUMN & GROUND BEAM PLAN
13	13	ICE FACTORY	COLUMN & GRIDER PLAN
14	14	ICE FACTORY	STEEL FRAMING PLAN (ROOF)
15	15	ICE FACTORY	DETAIL OF FOUNDATION
16	16	ICE FACTORY	DETAIL OF RC MEMBERS
17	17	ICE FACTORY	DETAIL OF ROOF STRUCTURE

5) Cost Estimate

The table below shows the results of the rough estimate of construction cost.

Table 2.2.11 Rough Construction Cost

Name of facility	Construction classification	Rough construction costs (converted to Japanese yen) Unit: 1,000 yen
Fish Market	New building construction costs	19,500

(3) Preparation of Technical Report

Technical report was prepared. Composition of the report is same as that of the Project: RECOVERY OF WATER SUPPLY SYSTEM IN BANDA ACEH CITY. JICA Study Team has produced Volumes II: Technical Specifications and III: Drawings as Technical Report.

2.2.5 QIP for Rehabilitation of Orphanages (Jroh Naguna & Nirmala)

(1) Design Condition

1) Scope of Works

Jroh Naguna and Nirmala orphanages, located approximately 3 km east of central Banda Aceh City were severely damaged as a result of earthquake and tsunami. As seen in Figure 2.2.11, the sites included not only boarding facilities, but also mosques, administration buildings, education rooms, kitchens and dinning rooms, guest houses, and numerous other facilities related to the orphanages.

The scope of works comprises (1) design works and cost estimate, and (2) preparation of technical report for restoration of orphanage facilities. The goals of the project are to restore their normal function, improve the poor facility environment, employ disaster countermeasures, and expand the capacity of the facilities to meet the increased number of orphans and facility-related personnel.

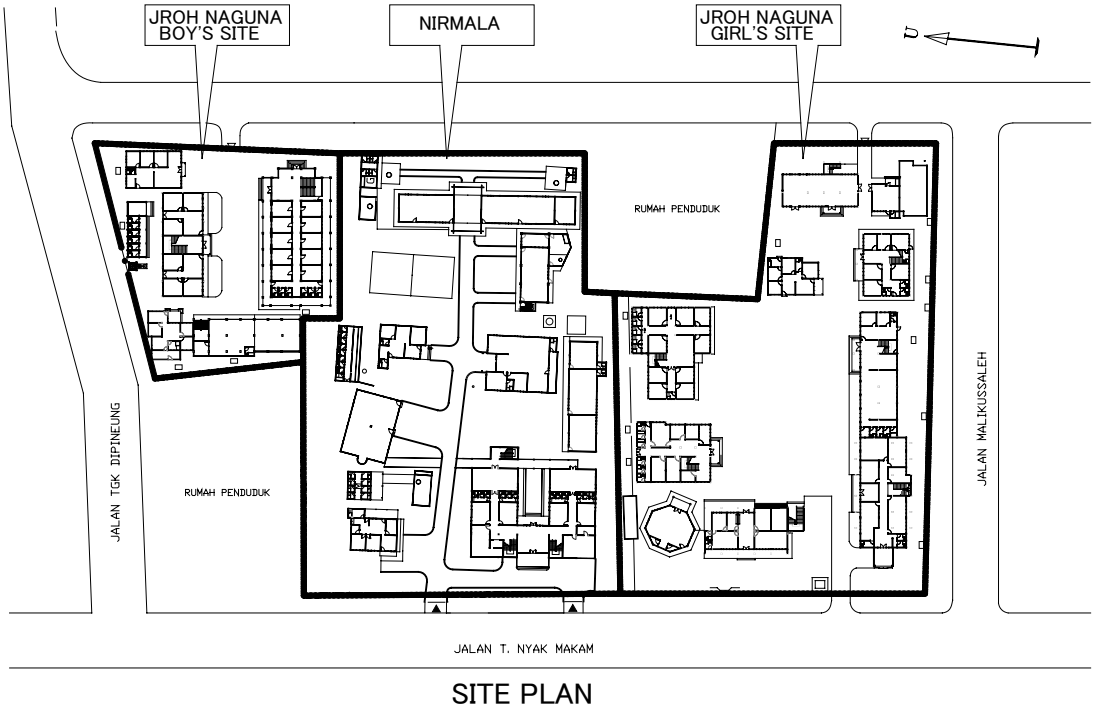


Figure 2.2.11 Site Plan of Jroh Naguna and Nirmala Orphanages

2) Damage of Orphanage Facilities

The height of the tsunami waves was approximately 2 meters above ground at the boys' hostels of the Nirmala and Jroh Naguna orphanages, and approximately 1.7 meters at the girls' hostel of the Jroh Naguna orphanage. The most striking damage due to the tsunami was the cracks in the major structural components of the buildings and deformation and separation of the concrete due to subsidence in the foundations of the buildings. In addition, finishing materials were also greatly damaged, including damage to outside structures such as walls and gates, damage to the walls on the first floor of buildings, damage to and rusting of fixtures, deformation, damage to, and rusting

of steel sheet roofing, fallen and damaged interior walls and ceilings and adhesion of dirt. Beds, furniture, and other living supplies also suffered extensive damage.

(2) Detail Design

1) Classification for Restoration

Based on the field surveys, facility where damages are judged severe resulting that the structural safety cannot be guaranteed, such facility will be demolished and new construction is introduced. Unless otherwise, repair works is introduced. Table 2.2.12 shows the classification of new construction and repair works for facilities.

Table 2.2.12 Classification of New Construction and Repair Works for Facilities

No.	Nirmala Orphanage				Jroh Naguna Orphanage		
Mark	Facility name	New Construction	Repairs	Mark	Facility name	New Construction	Repairs
A	Office and Education room	●		A.C	Office and Hostel of Main-I		○
B	Women's Hostel/ Office & Education Room		○	B	Auditorium		○
C	Men's Hostel		○	D	Mosque		○
D	Mess Room		○	E-1	Hostel of Girl-1		○
E	Men's Hostel-2		○	E-2	Hostel of Girl-2		○
F	Toilet-4		○	F	Office House		○
G	Toiet-3		○	G.I	Kitchen and Mess Room-1		○
H	Guest House		○	H	Hostel of Main-2		○
I	Toilet-2		○	J	Education Room		○
J	Mosque		○	K.L	Workshop and Boarding House	●	
K	Corridor	●		M	Polyclinic		○
L	Well		○	N	Boarding House and Auditorium	●	
M	Toilet-1		○	Q	Kitchen and Mess Room-2		○
N	Office		○				

Figures 2.2.12, 2.2.13 and 2.2.14 show location of each facility and plan for restoration.

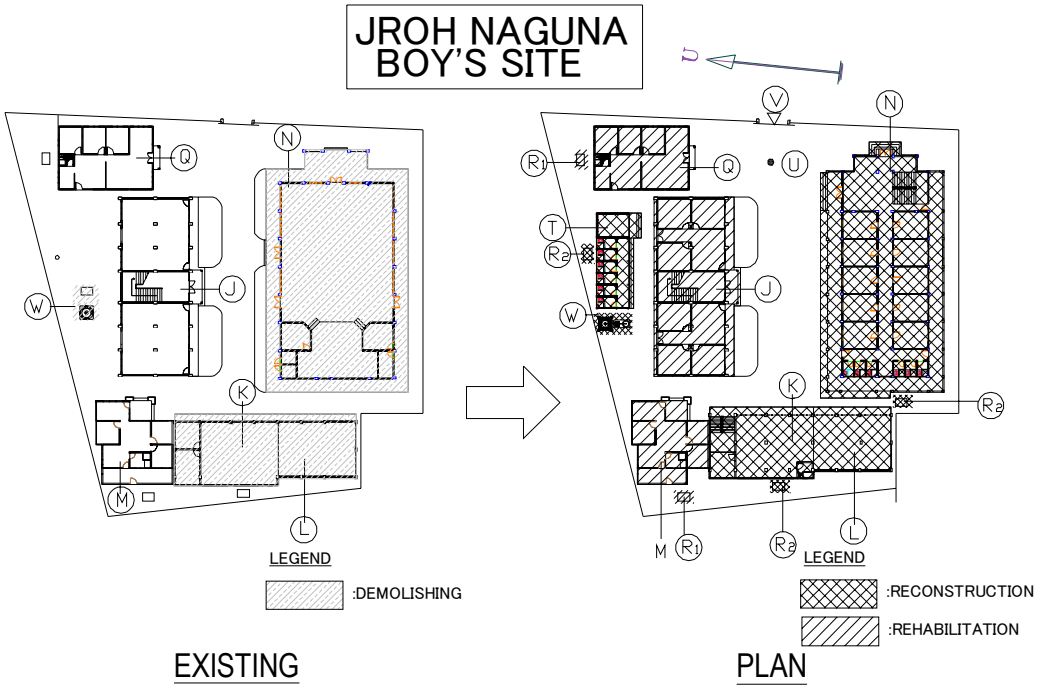


Figure 2.2.12 Site Plan and Rehabilitation Plan for Jroh Naguna Orphanage (Boy's Site)

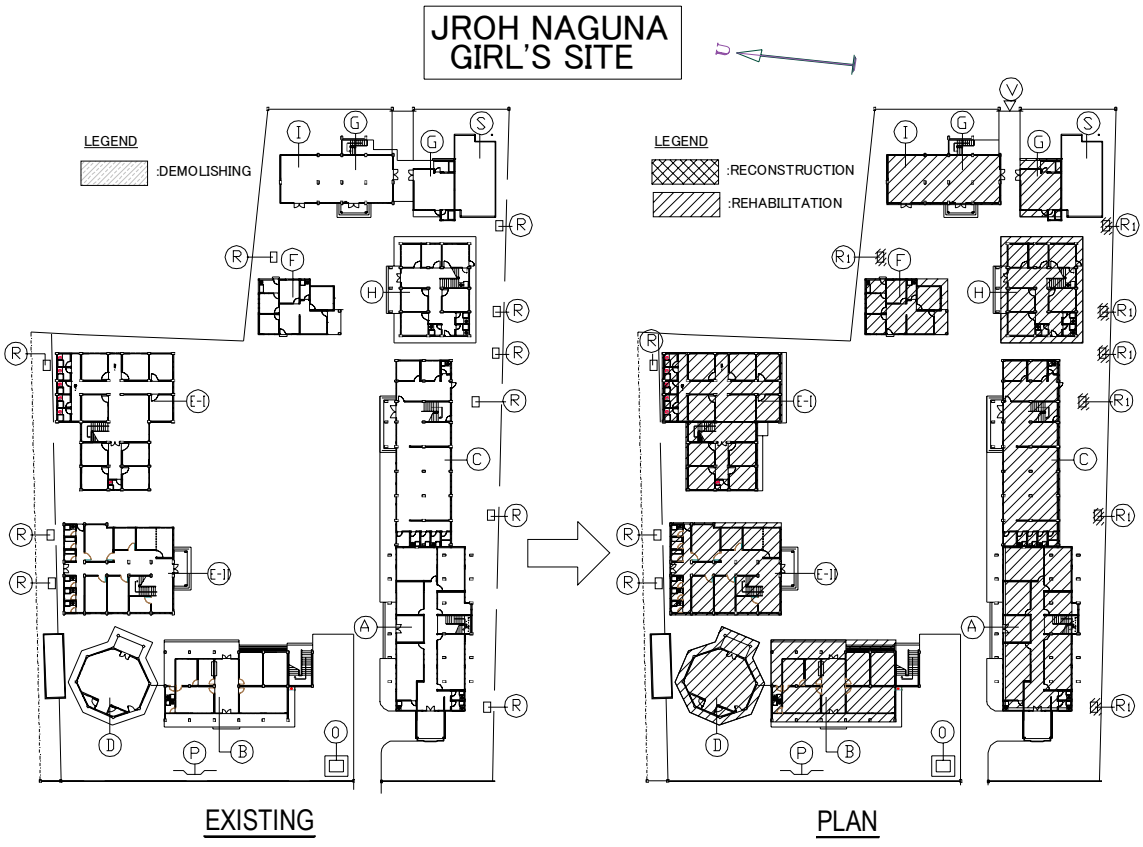


Figure 2.2.13 Site Plan and Rehabilitation Plan for Jroh Naguna Orphanage (Girl's Site)

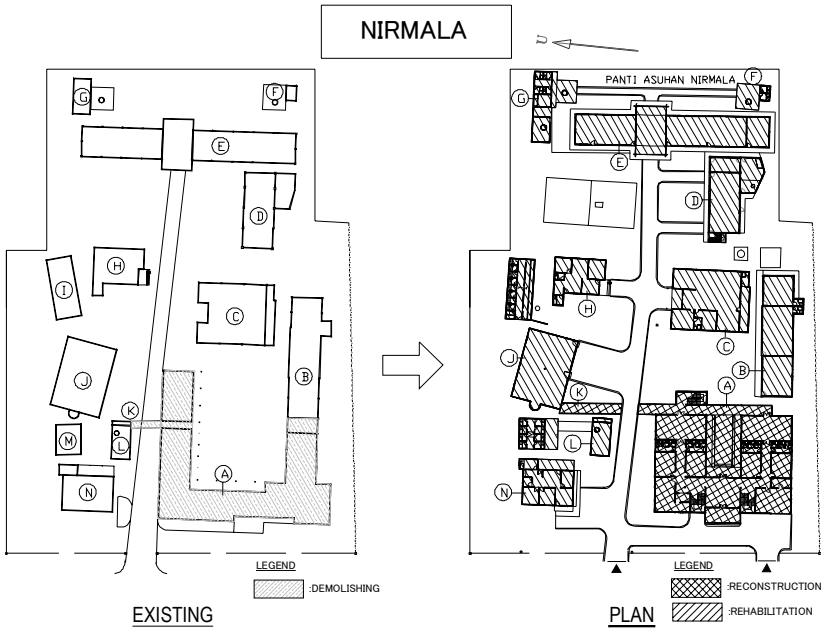


Figure 2.2.14 Site Plan and Rehabilitation Plan for Nirmala Orphanage

Main restoration items are repainting of walls, replacement and repainting of ceilings, replacement and painting of part of the roofing materials, replacement and repainting of fixtures, replacement of the flooring, replacement of toilets, and replacement of light fixtures as shown in Table 2.2.13 and Table 2.2.14.

Table 2.2.13 Classification of Repairs by Facility at Jroh Naguna Orphanage

Symbol	Facility name		Repair classification (○: Usable X: Unusable ▲: Overall repairs □: Partial repairs)									
			Structure	Exterior walls	Interior walls	Indoor flooring	Halls Stairs	Ceilings	Roofs	Fixtures	Light fixtures	Plumbing fixtures
A/C	Office and Hostel (Boy)1	2nd fl	○	▲	▲	△	△	▲	△	△	△	△
		1st fl		▲	▲	▲	▲	▲		△	△	△
B	Auditorium	2nd fl	○	▲	▲	△	▲	▲	△	△	▲	○
		1st fl		▲	▲	△	N/A	▲		△	▲	○
D	Mosque		○	▲	▲	▲	N/A	▲	▲	△	○	N/A
E-I	Hostel (Girl)1	2nd fl	○	▲	▲	△	△	▲	○	△	△	△
		1st fl		▲	▲	△	△	▲		△	△	○
E-II	Hostel(Girl)2	2nd fl	○	▲	▲	△	○	▲	▲	△	○	○
		1st fl		▲	▲	△	○	▲		△	○	○
F	Office House		○	▲	▲	▲	N/A	△	○	△	○	△
G/I	Kitchen and Mess Room1	2nd fl	○	▲	▲	○	△	▲	△	△	△	○
		1st fl		▲	▲	△	△	▲		△	△	○
H	Hostel(Boy)2	2nd fl	○	▲	▲	△	○	△	△	△	△	○
		1st fl		▲	▲	△	○	△		△	△	○
J	Education Room	2nd fl	○	▲	▲	○	△	▲	△	△	▲	○
		1st fl		▲	▲	▲	△	▲		△	▲	○
K/L	Workshop and Boarding House		X	New construction, due to major damage to structure frame.								
M	Polyclinic		○	▲	▲	▲	N/A	▲	▲	△	○	○
N	Auditorium		X	New construction, due to major damage to structure frame.								
Q	Kitchen and Mess Room2		○	▲	▲	▲	N/A	▲	○	△	○	△
T	Toilet		X	New construction, due to tsunami damage.								

Table 2.2.14 Classification of Repairs by Facility at Nirmala Orphanage

Symbol	Facility name		Repair classification (○: Uusable X: Unusable ▲: Overall repairs □: Partial repairs)									
			Structure	Exterior walls	Interior walls	Indoor flooring	Halls Stairs	Ceiling material	Roofing material	Fixtures	Light fixtures	Plumbing fixtures
A	Office and Education Room	2nd fl	X	New construction, due to major damage to structure frame. Plan is for replacing the content of the existing facility and adding a third floor along with a multipurpose room which will also function as an evacuation area.								
		1st fl										
B	Hostel (Girl)		○	▲	▲	△	N/A	△	▲	○	▲	▲
C	Hostel (Boy)1		○	▲	▲	▲	N/A	▲	▲	▲	▲	▲
D	Mess Room	2nd fl	○	▲	▲	▲	△	▲	▲	▲	▲	○
		1st fl		▲	▲	▲	△	▲		▲	▲	○
E	Hostel (Boy)2		○	▲	▲	▲	△	▲	▲	▲	▲	N/A
F	Toilet 4		○	▲	▲	▲	N/A	▲	▲	▲	▲	▲
G	Toilet 3		○	▲	▲	▲	N/A	▲	▲	▲	▲	▲
H	Guest House		○	▲	▲	○	N/A	▲	○	△	▲	○
I	Toilet 2		○	▲	▲	▲	N/A	▲	▲	▲	▲	▲
J	Mosque		○	▲	▲	○	N/A	▲	▲	▲	▲	N/A
K	Corridor		X	New construction, due to tsunami damage								
L	Well Facility		○	▲	▲	▲	N/A	N/A	N/A	N/A	N/A	N/A
M	Toilet 1		○	▲	▲	▲	N/A	▲	▲	▲	▲	▲
N	Office		○	▲	▲	○	▲	▲	▲	○	○	▲

2) Design Overview of Each Facility

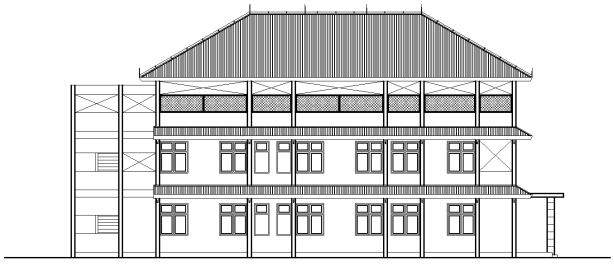
① Nirmala Orphanage Administration Building and Education Building

Table 2.2.15 and Figure 2.2.15 show outline of the plan and view of Nirmala orphanage administration building and education building.

Table 2.2.15 Outline of Plan of Nirmala Orphanage Administration Building and Education Building

	Existing facility		New construction plan		Plan overview
Floor Space (m^2)	438.0(m^2)		602.4(m^2)		The existing facility was in a U-shape, with a flat, one-story layout that included an office and a classroom. The new construction will have a rectangular layout in order to gain more effective use of the premises. The first floor office and administrative space will be expanded and a hostel rooms on a second floor will be added, increasing the capacity for accommodation. A multi-purpose room is planned for the third floor, which can be used as an evacuation area in times of disaster.
Cumulative Floor Space (m^2)	438.0(m^2)		1459.0(m^2)		
Eave Height (m)	3.80(m)		9.80(m)		
Floors	One-story		Three-story		
Construction	Reinforced steel concrete frame Block construction		Reinforced steel concrete construction		
Room Name	1st floor	• Office • Storage • Classroom • Hostel • Other common space	1st floor	• Office • Storage • Classroom • Hostel • Other common space	
	2nd floor 3rd floor	N/A	2nd floor	• Hostel	
			3rd floor	• Multi-purpose room (meetings, evacuation area)	

FRONT ELEVATION



LEFT ELEVATION

Figure 2.2.15 View of Nirmala Orphanage Administration Building and Education Building

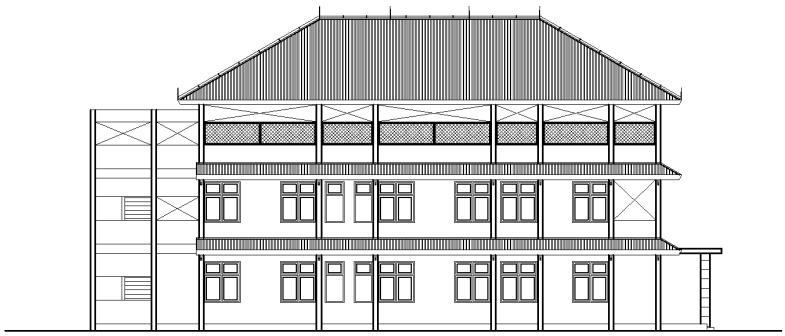
② Jroh Naguna Orphanage Vocational Training Building

Table 2.2.16 and Figure 2.2.16 show outline and view of the plan of Jroh Naguna orphanage vocational training building.

Table 2.2.16 Outline of Plan of Jroh Naguna Orphanage Vocational Training Building

	Existing facility		New construction plan		Plan overview
Floor Space (m^2)	169.0(m^2)		217.4(m^2)		In principle, the design follows that of the existing facility. The new construction plan also calls for a rectangular layout, as with the existing facility. To accommodate additional orphans, a two-story hostel will be constructed.
Cumulative Floor Space (m^2)	169.0(m^2)		434.8(m^2)		
Eave Height (m)	3.80(m)		7.70(m)		
Floors	One-story		Two-story		
Construction	Reinforced steel concrete frame Block construction		Reinforced steel concrete construction		
Room Name	1st floor	• Training room • Storage • Other common space	1st floor	• Training room • Storage • Hostel • Other common space	
	2nd floor	N/A	2nd floor	• Hostel	

FRONT ELEVATION



LEFT ELEVATION

Figure 2.2.16 View of Jroh Naguna Orphanage Vocational Training Building

③ Jroh Naguna Orphanage Auditorium

Table 2.2.17 and Figure 2.2.17 show outline of the plan and view of Jroh Naguna orphanage auditorium.

Table 2.2.17 Outline of Plan of Jroh Naguna Orphanage Auditorium

<table>
<tr><th></th><th colspan="2">Existing facility</th><th colspan="2">New construction plan</th><th>Plan overview</th></tr>
<tr><td>Floor space (m^2)</td><td colspan="2">388.0(m^2)</td><td colspan="2">398.0(m^2)</td><td rowspan="7">The layout is the same as the existing facility. To accommodate additional orphans, the first floor will have a hostel and the second floor will have an auditorium.</td></tr>
<tr><td>Cumulative Floor Space (m^2)</td><td colspan="2">388.0(m^2)</td><td colspan="2">796.0(m^2)</td></tr>
<tr><td>Eave Height (m)</td><td colspan="2">4.40(m)</td><td colspan="2">8.50(m)</td></tr>
<tr><td>Floors</td><td colspan="2">One-story</td><td colspan="2">Two-story</td></tr>
<tr><td>Construction</td><td colspan="2">Reinforced steel concrete frame Block construction</td><td colspan="2">Reinforced steel concrete construction</td></tr>
<tr><td rowspan="2">Room Name</td><td>1st floor</td><td>• Auditorium
• Storage
• Other common space</td><td>1st floor</td><td>• Hostel
• Other common space</td></tr>
<tr><td>2nd floor</td><td>N/A</td><td>2nd floor</td><td>• Auditorium
• Other common space</td></tr>
</table>

Figure 2.2.17 View of Jroh Naguna Orphanage Auditorium

3) Structural Overview

Table 2.2.18 shows structural overview for Jroh Naguna and Nirmala orphanages.

Table 2.2.18 Structural Overview

Facility Name			Jroh Naguna Orphanage		Nirmala Orphanage
			Auditorium	Vocational training area	Administration building / Education building
Use			Hostel and meeting room	Workroom/workshop Hostel	Office / hostel / education room and meeting room
Work Type			New construction	New construction	New construction
Building Scale	Floor Space (m^2)		398.0(m^2)	217.4(m^2)	602.4(m^2)
	Cumulative Floor Space (m^2)		796.0(m^2)	434.8(m^2)	1459.0(m^2)
	Floors		2 above ground	2 above ground	3 above ground
	Eave Height (m)		8.50(m)	7.70(m)	9.80(m)
	Building Height (m)		11.03(m)	11.45(m)	13.30(m)
	1st Floor Story Height		4.00(m)	4.17(m)	3.40(m)
	2nd Floor Story Height		4.50(m)	3.53(m)	3.20(m)
	3rd Floor Story Height		—	—	3.20(m)
Structural Overview	Structure Type		Reinforced steel concrete frame and wooden truss roof	Reinforced steel concrete frame and wooden truss roof	Reinforced steel concrete frame and wooden truss roof
	Structure Sstyle	X Direction	Rigid-framed structure	Rigid-framed structure	Rigid-framed structure
		Y Direction	Rigid-framed structure	Rigid-framed structure	Rigid-framed structure
	Foundation Type		Spread footing	Spread footing	Spread footing
Plans for Eexpansion			None	None	None

4) Applied Regulations and Standards

The regulations and standards noted below were applied.

① Architectural design standards of Indonesia

- Tata Cara Perhitungan Struktur beton untuk Bangunan Gedung
  SNI 03-2847-2002
- Tada Cara Perencanaan Ketahanan Gempa untuk Bangunan Gedung
  SNI 03-1726-2003
- Pedoman Perencanaan Pembebanan untuk Rumah dan Gedung
  SKBI-1.3.53.1987, UDC; 624.042
- Pedoman Perencanaan Ketahanan Gumpa untuk Rumah dan Gedung
  SKBI-1.3.53.1987, UDC;699.841
- Petunjuk Perencanaan Beton Burtulang dan Struktur Dinding Burtulang untuk Rumah dan Gedung
  SKBI-2.3.53.1987, UDC;693.55;6, 693.25

② Other standards

- Structure Calculation Guidelines published by the Architectural Institute of Japan
- Reinforced Concrete Structure Calculation Guidelines published by the Architectural Institute of Japan
- Load Guidelines published by the Architectural Institute of Japan
- Architectural Foundation Structure Design Guidelines published by the Architectural Institute of Japan
- Soil Survey Methods published by the Soil Society of Japan

5) Design Drawings

Based on the results of the field survey, and regulations and standards applied, design drawings were prepared. As for the buildings that will be repaired, design plans that explain the overall design of existing buildings are prepared with respect to each facility (e.g. floor plans, elevations, cross-sections, fixture drawings, and equipment-related drawings), and all of the parts requiring repair are indicated. For the newly-constructed buildings, all necessary design drawings, finishing drawings, structural drawings, and equipment drawings are prepared. List of drawings is shown in Table 2.2.19.

Table 2.2.19 List of Drawings

REHABILITATION & RECONSTRUCTION OF JROH NAGUNA ORPHANAGES (STATE)
DRAWING LIST OF RECONSTRUCTION (1)

No.	Dwg. No.	Building Name	Title	No.	Dwg. No.	Building Name	Title
01	00	SITE PLAN	TABLE OF THE WORKS	40	K/L-36	WORKSHOP AND BOARDING HOUSE	FRAME ELEVATION LINE 4
02	01	SITE PLAN	PROPOSED SITE PLAN	41	K/L-37		REINFORCEMENT OF 1ST FLOOR SLAB PLAN
03	02	SITE PLAN	EXISTING SITE PLAN	42	K/L-38		SECTION A-A
				43	K/L-39		ELECTRICITY PLAN 1ST FLOOR
04	K/L-00	WORKSHOP AND BOARDING HOUSE	FINISHING SCHEDULE	44	K/L-40		ELECTRICITY 2ND FLOOR
05	K/L-01		1st FLOOR PLAN	45	K/L-41		SEPTICTANK PLAN, SECTION I-I, 2-2
06	K/L-02		2nd FLOOR PLAN	46	K/L-42		PENETRATION PLAN, CONTROL BOX, SECTION
07	K/L-03		FRONT SIDE VIEW	47	K/L-43		DEMOLISHING BUILDING(Existing)
08	K/L-04		RIGHT & LEFT SIDE VIEW				
09	K/L-05		BACK SIDE VIEW	48	N-00	BOARDING HOUSE AND AUDITORIUM	FINISHING SCHEDULE
10	K/L-06		SECTION A-A	49	N-01		1ST FLOOR PLAN
11	K/L-07		SECTION B-B	50	N-02		2ND FLOOR PLAN
12	K/L-08		ROOF PLAN	51	N-03		FRONT SIDE VIEW
13	K/L-09		SKELETON ROOF. K1	52	N-04		RIGHT SIDE VIEW
14	K/L-10		SKELETON ROOF. K2	53	N-05		LEFT SIDE VIEW
15	K/L-11		BATH ROOM PLAN	54	N-06		BACK SIDE VIEW
16	K/L-12		STAIRS PLAN	55	N-07		SECTION A-A
17	K/L-13		DETAIL A, B	56	N-08		SECTION B-B
18	K/L-14		CEILING PLAN	57	N-09		SECTION C-C
19	K/L-15		FITTING-1	58	N-10		ROOF PLAN
20	K/L-16		FITTING-2	59	N-11		SKELETON ROOF K1
21	K/L-17		FOUNDATION PLAN	60	N-12		SKELETON ROOF 1/2 K1
22	K/L-18		SECTION A-A, B-B	61	N-13		SKELETON ROOF K2
23	K/L-19		FRAMING ELEVATION FOR FOUNDATION	62	N-14		SKELETON ROOF 1/2 K2
24	K/L-20		FOUNDATION PLAN, SECTION A-A	63	N-15		CEILING PLAN
25	K/L-21		KEY PLAN OF FRAME-1	64	N-16		SECTION DETAIL P
26	K/L-22		KEY PLAN OF FRAME-2	65	N-17		BATH ROOM/TOILET-1
27	K/L-23		MEMBER LIST FOR BEAM AND COLUMN	66	N-18		BATH ROOM/TOILET-2
28	K/L-24		FRAME ELEVATION LINE A	67	N-19		STAIRS
29	K/L-25		FRAME ELEVATION LINE B&C	68	N-20		STAIRS HANDRAIL
30	K/L-26		FRAME ELEVATION LINE D	69	N-21		FLOOR LOCATION OF FITTING
31	K/L-27		FRAME ELEVATION LINE E&F	70	N-22		FITTINGS-1
32	K/L-28		FRAME ELEVATION LINE G&H	71	N-23		FITTINGS-2
33	K/L-29		FRAME ELEVATION LINE 1	72	N-24		FITTINGS-3
34	K/L-30		FRAME ELEVATION LINE 1	73	N-25		FITTINGS-4
35	K/L-31		FRAME ELEVATION LINE 2	74	N-26		FOUNDATION PLAN
36	K/L-32		FRAME ELEVATION LINE 2	75	N-27		FOUNDATION
37	K/L-33		FRAME ELEVATION LINE 3	76	N-28		FOUNDATION
38	K/L-34		FRAME ELEVATION LINE 3	77	N-29		FOUNDATION
39	K/L-35		FRAME ELEVATION LINE 5	78	N-30		FOUNDATION

REHABILITATION & RECONSTRUCTION OF JROH NAGUNA ORPHANAGES (STATE)

DRAWING LIST OF RECONSTRUCTION (2)

No.	Dwg. No.	Building Name	Title
79	N-31	BOARDING HOUSE AND AUDITORIUM	FOUNDATION
80	N-32		FOUNDATION
81	N-33		FOUNDATION
82	N-34		FOUNDATION
83	N-35		KEY PLAN OF 1st FLOOR BEAM
84	N-36		KEY PLAN OF 2nf FLOOR BEAM
85	N-37		KEY PLAN OF ROOF BEAM
86	N-38		BEAM AND COLUMN TABLE
87	N-39		FRAMING ELEVATION LINE A&H
88	N-40		FRAMING ELEVATION LINE A
89	N-41		FRAMING ELEVATION LINE H
90	N-42		FRAMING ELEVATION LINE B&G
91	N-43		FRAMING ELEVATION LINE B
92	N-44		FRAMING ELEVATION LINE G
93	N-45		FRAMING ELEVATION LINE C&F
94	N-46		FRAMING ELEVATION LINE D&E
95	N-47		FRAMING ELEVATION LINE D&E
96	N-48		FRAMING ELEVATION LINE 1
97	N-49		FRAMING ELEVATION LINE 2
98	N-50		FRAMING ELEVATION LINE 3
99	N-51		FRAMING ELEVATION LINE 4,5,6&7
100	N-52		FRAMING ELEVATION LINE 8
101	N-53		FRAMING ELEVATION LINE 9
102	N-54		FRAMING ELEVATION LINE 10
103	N-55		REINFORCEMENT OF 2nd FLOOR SLAB
104	N-56		SECTION OF 2nd FLOOR SLAB
105	N-57		ELECTRICITY PLAN 1ST FLOOR
106	N-58		ELECTRICITY PLAN 2ND FLOOR
107	N-59		ELECTRIC EQUIPMENT-1
108	N-60		ELECTRIC EQUIPMENT-2
109	N-61		SEPTICTANK
110	N-62		PENETRATION
111	N-63		DEMOLISHING BUILDING(Existing)

No.	Dwg. No.	Building Name	Title
112	T-00	TOILET	FINISHING SCHEDULE
113	T-01		PLAN & ELEVATION
114	T-02		ELEVATION & SECTION
115	T-03		FITTINGS
116	T-04		DETAIL OF ROOF, ELECTRICTY
117	T-05		DETAIL & SECTION
118	T-06		DETAIL OF FOUNDATION
119	T-07		STRUCTURE-1
120	T-08		STRUCTURE-2
121	T-09		STRUCTURE-3
122	T-10		PLUMBING, SEPTIC TANK
123	T-11		PENETRATION
124	U-01	PROPOSED SITE	PAVING BLOCK PLAN
125	U-02		WATER PLAN
126	U-03		CLEAN WATER INSTALLAION
127	U-04		DIRTY WATER INSTALLAION
128	U-05		CONTROL BOX
129	U-06		WATER TOWER VIEW
130	U-07		WATER TOWER SECTION & DETAIL
131	U-08		FINISHING SCHEDULE
132	U-09		FENCE & GATE PLAN
133	U-10		FENCE & GATE TYPE A
134	U-11		FENCE & GATE STRUCTURAL FRAMING TYPE A
135	U-12		FENCE & GATE TYPE B
136	U-13		FENCE & GATE TYPE C
137	U-14		FENCE & GATE TYPE D
138	U-15		FENCE & GATE STRUCTURAL FRAMING TYPE B～D
139	U-16		FENCE & GATE GATE PLAN & ELEVATION

REHABILITATION & RECONSTRUCTION OF JROH NAGUNA ORPHANAGES (STATE)

DRAWING LIST OF REHABILITATION

No.	Dwg. No.	Building Name	Title	No.	Dwg. No.	Building Name	Title
01	A/C-01	OFFICE AND HOSTEL OF MAN-I	1st. and 2nd. Floor PLAN	35	G/I-01	KITCHEN AND MESS ROOM I	1st. and 2nd. Floor PLAN
02	A/C-02	OFFICE AND HOSTEL OF MAN-I	ELEVATION	36	G/I-02	KITCHEN AND MESS ROOM I	FRONT SIDE VIEW
03	A/C-03	OFFICE AND HOSTEL OF MAN-I	SECTION	37	G/I-03	KITCHEN AND MESS ROOM I	LEFT AND RIGHT SIDE VIEW
04	A/C-04	OFFICE AND HOSTEL OF MAN-I	DETAIL OF TERASS A	38	G/I-04	KITCHEN AND MESS ROOM I	BACK SIDE VIEW
05	A/C-05	OFFICE AND HOSTEL OF MAN-I	LOCATION OF FITTINGS	39	G/I-05	KITCHEN AND MESS ROOM I	SECTION
06	A/C-06	OFFICE AND HOSTEL OF MAN-I	FITTINGS SCHEDULE	40	G/I-06	KITCHEN AND MESS ROOM I	FITTINGS SCHEDULE
07	A/C-07	OFFICE AND HOSTEL OF MAN-I	LIGTHING				
				41	H-01	HOSTEL OF MAN-II	1st. and 2nd. Floor PLAN
08	B-01	AUDITORIUM	1st. Floor PLAN	42	H-02	HOSTEL OF MAN-II	FRONT AND BACK SIDE VIEW
09	B-02	AUDITORIUM	2nd. Floor PLAN	43	H-03	HOSTEL OF MAN-II	LEFT AND RIGHT SIDE VIEW
10	B-03	AUDITORIUM	FRONT AND BACK SIDE VIEW	44	H-04	HOSTEL OF MAN-II	SECTION
11	B-04	AUDITORIUM	LEFT AND RIGHT SIDE VIEW	45	H-05	HOSTEL OF MAN-II	FITTINGS SCHEDULE
12	B-05	AUDITORIUM	SECTION				
13	B-06	AUDITORIUM	FITTINGS SCHEDULE	46	J-01	EDUCATION ROOM	1st and 2nd FLOOR PLAN AFTER REHABILITATION
14	B-07	AUDITORIUM	2nd FLOOR LIGHT FIXTUERS PLAN	47	J-02	EDUCATION ROOM	1st FLOOR PLAN BEFORE REHABILITATION
15	B-08	AUDITORIUM	2nd Floor LIGTH FIXTURES SECTION	48	J-03	EDUCATION ROOM	FRONT VIEW AFTER AND BEFORE
				49	J-04	EDUCATION ROOM	BACK AND SIDE VIEW AFTER AND BEFORE
16	D-01	MUSHALLA	PLAN ,FRONT AND RIGTH SIDE VIEW	50	J-05	EDUCATION ROOM	SECTION
17	D-02	MUSHALLA	LEFT AND BACK SIDE VIEW, SECTION	51	J-06	EDUCATION ROOM	FITTINGS SCHEDULE
18	D-03	MUSHALLA	FITTING SCHEDULE	52	J-07	EDUCATION ROOM	STRUCTURAL REINFORCEMENT-1
				53	J-08	EDUCATION ROOM	STRUCTURAL REINFORCEMENT-2
19	E-I-01	HOSTEL OF GIRL-I	1st. Floor PLAN	54	J-09	EDUCATION ROOM	STRUCTURAL REINFORCEMENT-3
20	E-I-02	HOSTEL OF GIRL-I	2nd. Floor PLAN	55	J-10	EDUCATION ROOM	LIGHTING FIXTURE PLAN
21	E-I-03	HOSTEL OF GIRL-I	FRONT AND BACK SIDE VIEW				
22	E-I-04	HOSTEL OF GIRL-I	LEFT AND RIGHT SIDE VIEW	56	M-01	POLYCLINIC	1st FLOOR PLAN AFETER AND BEFORE
23	E-I-05	HOSTEL OF GIRL-I	SECTION	57	M-02	POLYCLINIC	FRONT AND RIGTH SIDE VIEW AFTER AND BEFORE
24	E-I-06	HOSTEL OF GIRL-I	FITTINGS SCHEDULE	58	M-03	POLYCLINIC	BACK VIEW AND SECTION AFTER AND BEFORE
				59	M-04	POLYCLINIC	FITTINGS SCHEDULE
25	E-II-01	HOSTEL OF GIRL-II	1st. Floor PLAN				
26	E-II-02	HOSTEL OF GIRL-II	2nd. Floor PLAN	60	Q-01	KITCHEN AND MESS ROOM II	PLAN AND ELEVATION
27	E-II-03	HOSTEL OF GIRL-II	FRONT AND BACK SIDE VIEW	61	Q-02	KITCHEN AND MESS ROOM II	SECTION
28	E-II-04	HOSTEL OF GIRL-II	LEFT SIDE VIEW	62	Q-03	KITCHEN AND MESS ROOM II	FITTINGS SCHEDULE
29	E-II-05	HOSTEL OF GIRL-II	RIGHT SIDE VIEW				
30	E-II-06	HOSTEL OF GIRL-II	SECTION				
31	E-II-07	HOSTEL OF GIRL-II	FITTINGS SCHEDULE				
32	F-01	OFFICER HOUSE	PLAN AND FRONT & BACK VIEW				
33	F-02	OFFICER HOUSE	LEFT $ RIGTH VIEW AND SECTION				
34	F-03	OFFICER HOUSE	FITTINGS SCHEDULE				

REHABILITATION and RECONSTRUCTION of NIRMALA ORPHANAGE (MUNICIPALITY)

DRAWING LIST OF RECONSTRUCTION

No.	Dwg.No.	Building Name	Title	No.	Dwg.No.	Building Name	Title
01	00	SITE LAYOUT PLAN	TABLE OF THE WORKS	40	A-32	NEW BUILDING	FITTING-2
02	01		PROPOSED SITE PLAN	41	A-33		FITTING-3
03	02		EXISTING SITE PLAN	42	A-34		FITTING-4
04	03		EXTERIOR WORK	43	A-35		PLUMBING PLAN-1
05	04		DRAINAGE DETAIL	44	A-36		PLUMBING PLAN-2
06	05		PAVING SECTION	45	A-37		SEWERAGE INST . PLAN-1
07	06		ELECTRICAL SITE PLAN	46	A-38		SEWERAGE INST . PLAN-2
08	07		WATER SUPPLY SITE PLAN	47	A-39		DETAIL SEPTIC TANK
				48	A-40		DETAIL SOAKAWAY
09	A-01	NEW BUILDING	FLOOR PLAN-1	49	A-41		DETAIL OF TOILET-1
10	A-02		FLOOR PLAN-2	50	A-42		DETAIL OF TOILET-2
11	A-03		ELEVATION-1	51	A-43		DETAIL of LIGHTNING
12	A-04		ELEVATION-2	52	A-44		DEMOLISHING BUILDING(Existing)
13	A-05		SECTION				
14	A-06		FOUNDATION PLAN				
15	A-07		DETAIL FOUNDATION-1				
16	A-08		DETAIL FOUNDATION-2	53	S-01	WATER TOWER	PLAN & ELEVATION
17	A-09		DETAIL FOUNDATION-3	54	S-02		DETAIL-1
18	A-10		DETAIL FOUNDATION-4	55	S-03		DETAIL-2
19	A-11		TIE BEAM	56	S-04		WATER TANK
20	A-12		GIRDER PLAN-1				
21	A-13		GIRDER PLAN-2				
22	A-14		FRAME-1				
23	A-15		FRAME-2				
24	A-16		COLUMN & GIRDER TABLES				
25	A-17		SLAB REINFORCEMENT-1				
26	A-18		SLAB REINFORCEMENT-2				
27	A-19		SLAB REINFORCEMENT-3				
28	A-20		STAIR				
29	A-21		TIMBER TRUSS PLAN				
30	A-22		DETAIL TRUSS-1				
31	A-23		DETAIL TRUSS-2				
32	A-24		CEILING PLAN-1				
33	A-25		CEILING PLAN-2				
34	A-26		CEILING SECTION				
35	A-27		ELECTRICAL LAMP-1				
36	A-28		ELECTRICAL LAMP-2				
37	A-29		FITTING SCHEDULE-1				
38	A-30		FITTING SCHEDULE-2				
39	A-31		FITTING-1				

REHABILITATION and RECONSTRUCTION of NIRMALA ORPHANAGE (MUNICIPALITY)
DRAWING LIST OF REHABILITATION

No.	Dwg. No.	Building Name	Title	No.	Dwg. No.	Building Name	Title
57	B-01	WOMEN'S HOSTEL-1	FLOOR PLAN	87	I-01	TOILET-2	FLOOR AND CEILING PLAN
58	B-02		FRONT AND BACK ELEVATION	88	I-02		ELEVATION AND SECTION
59	B-03		LEFT AND RIGHT ELEVATION	89	I-03		LIGHTING PLAN
60	B-04		CEILING PLAN				
61	B-05		LIGHTING PLAN	90	J-01	MOSQUE	FLOOR PLAN
				91	J-02		ELEVATION
				92	J-03		SECTION
62	C-01	MEN'S HOSTEL-1	FLOOR PLAN	93	J-04		CEILING PLAN
63	C-02		FRONT AND BACK ELEVATION	94	J-05		LIGHTING PLAN
64	C-03		LEFT AND RIGHT ELEVATION				
65	C-04		SECTION	95	K-01	CORRIDOR	FLOOR, ELEVATION AND ELECTRICAL
66	C-05		CEILING PLAN				
67	C-06		FITTING SCHEDULE	96	L-01	WELL	PLAN, ELEVATION, AND SECTION
68	C-07		LIGHTING PLAN				
				97	M-01	TOILET-1	FLOOR, ELEVATION AND CEILING PLAN
69	D-01	MESS ROOM	1st FLOOR PLAN	98	M-02		ELEVATION AND SECTION
70	D-02		2nd FLOOR PLAN	99	M-03		LIGHTING PLAN
71	D-03		FRONT AND BACK ELEVATION				
72	D-04		LEFT AND RIGHT ELEVATION	100	N-01	OFFICE	FLOOR PLAN
73	D-05		SECTION	101	N-02		ELEVATION
74	D-06		LIGHTING PLAN	102	N-03		SECTION
75	E-01	MEN'S HOSTEL-2	FLOOR PLAN	103	O-01	VALLEY BALL	VALLEY BALL PLAN
76	E-02		ELEVATION				
77	E-03		SECTION				
78	E-04		LIGHTING PLAN				
79	F-01	TOILET-4	PLAN, ELEVATION, AND SECTION				
80	G-01	TOILET-3	FLOOR AND CEILING PLAN				
81	G-02		ELEVATION AND SECTION				
82	G-03		LIGHTING PLAN				
83	H-01	GUEST HOUSE	FLOOR PLAN AND ELEVATION				
84	H-02		ELEVATION				
85	H-03		FITTING SCHEDULE				
86	H-04		CEILING PLAN				

6) Cost Estimate

Construction cost was estimated based on the bill of quantities and the unit prices for construction in the Aceh region. Table 2.2.20 shows the results of the rough estimate of construction cost.

Table 2.2.20 Overview of Construction Cost

Facility name	Work classification	Overview of work costs (in Japanese yen) Unit: 1000 yen		
		Breakdown		Total
Nirmala orphanage	New construction cost	35,810	51,800	106,419
	Repair cost	15,990		
Jroh Naguna orphanage	New construction cost	42,994	54,619	
	Repair cost	11,625		

(3) Preparation of Technical Report

Technical report was prepared. Composition of the report is same as that of the Project: RECOVERY OF WATER SUPPLY SYSTEM IN BANDA ACEH CITY. JICA Study Team has produced Volumes II: Technical Specifications and III: Drawings as Technical Report.