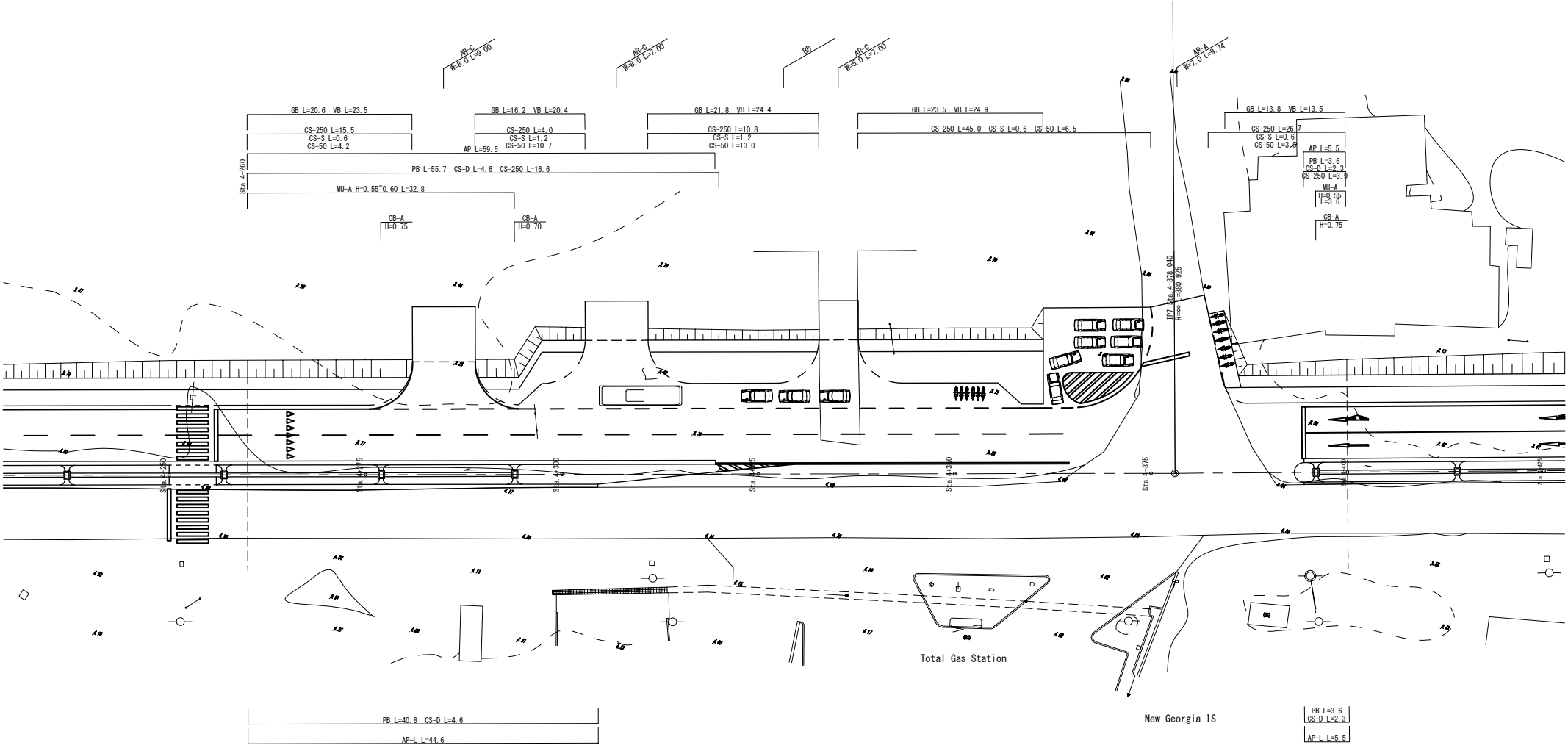




2-50



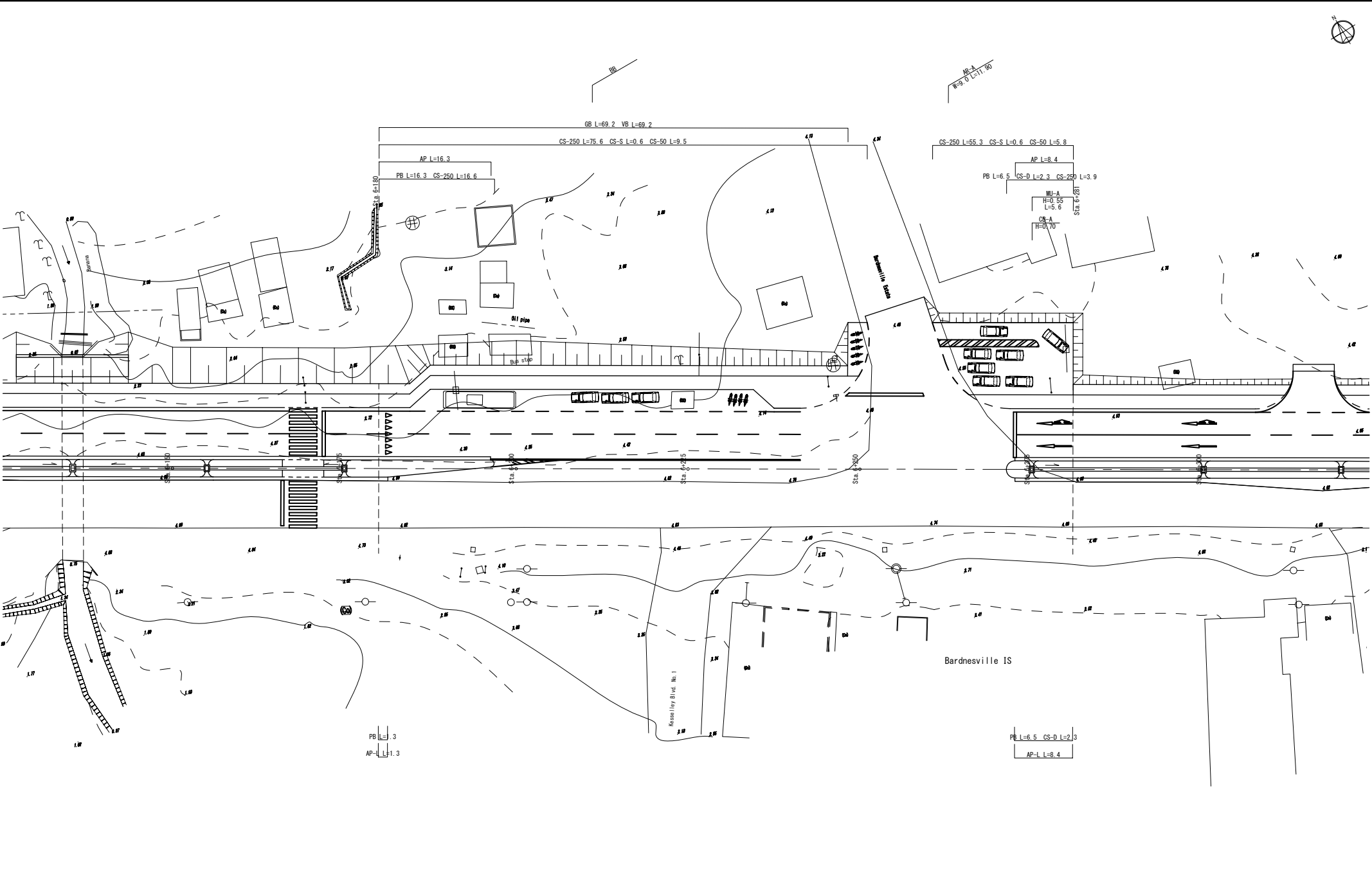
MINISTRY OF PUBLIC WORKS

JAPAN INTERNATIONAL
COOPERATION AGENCY
KATAHIRA & ENGINEERS INTERNATIONAL
YACHIYO ENGINEERING CO.,LTD.

THE PREPARATORY SURVEY ON
THE PROJECT FOR
RECONSTRUCTION OF
SOMALIA DRIVE IN MONROVIA

TITLE :
PLAN OF INTERSECTION DRAWING
(NEW GEORGIA I.S.)

Drawing No.	IS-1
SCALE	A1:1/250 A3:1/500
DATE	SEP. 2012



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MINISTRY OF PUBLIC WORKS	JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIYO ENGINEERING CO.,LTD.	THE PREPARATORY SURVEY ON THE PROJECT FOR RECONSTRUCTION OF SOMALIA DRIVE IN MONROVIA	TITLE : PLAN OF INTERSECTION DRAWING (BARDNESVILLE I.S.)	Drawing No.	IS-2
				SCALE	A1:1/250 A3:1/500
				DATE	SEP. 2012



AB-0
W.E. 0 L=10.00

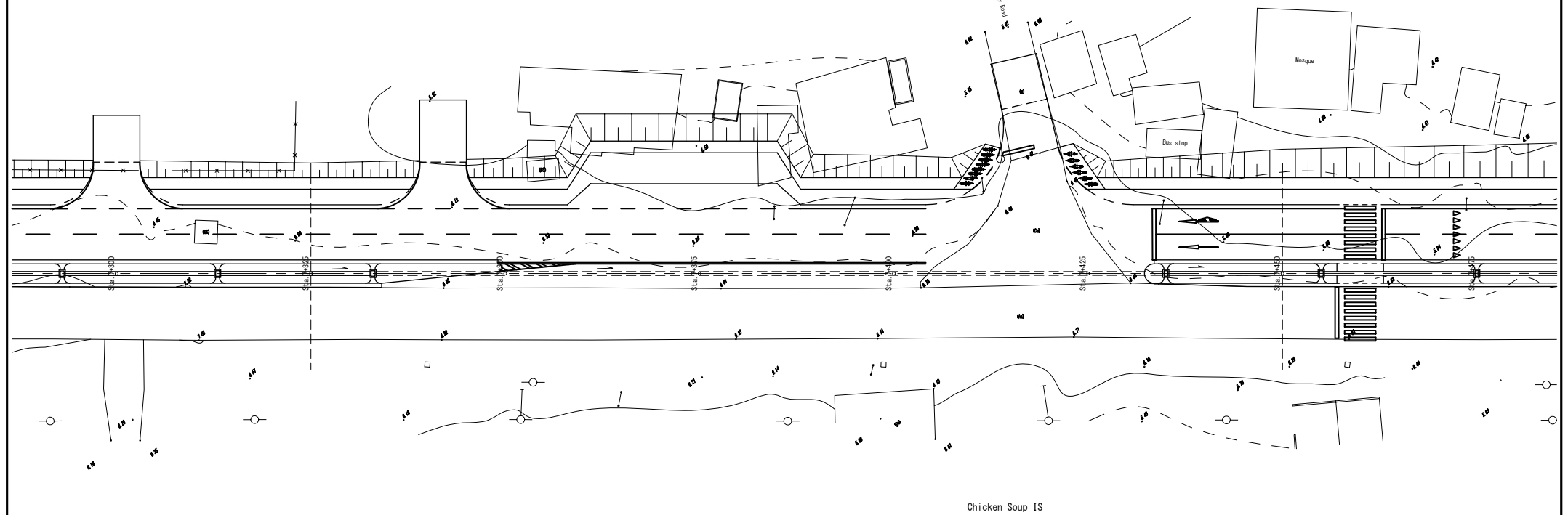
BB

AB-1
W.E. 0 L=10.70

GB L=13.6 VB L=16.5
 CS-250 L=8.5 CS-S L=0.6
 CS-50 L=4.2
 AP L=24.1
 PR L=22.2 CS-D L=2.3 CS-250 L=16.6
 MJ-A H=0.55 L=7.6
 CS-A
 H=1.15

GB L=68.5 VB L=70.4
 CS-250 L=67.2 CS-S L=1.2 CS-50 L=10.1
 RC500-360 L=101.2

GB L=23.9 VB L=22.8
 CS-250 L=30.7 CS-S L=0.6 CS-50 L=5.8
 AP L=16.5
 PR L=14.6 CS-D L=2.3 CS-250 L=3.9
 MJ-B H=0.97*1.00 L=14.6
 CS-A
 H=1.15



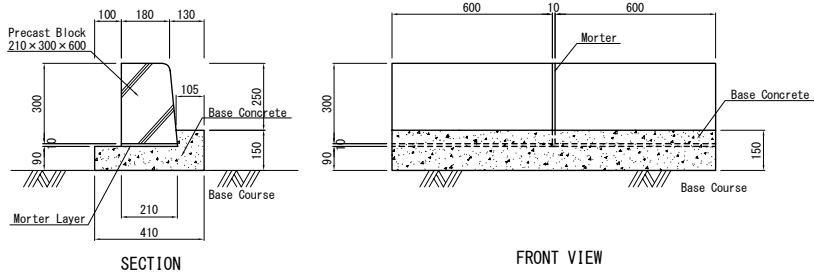
PR L=7.2 CS-D L=2.3
 AP-L L=9.1

PR L=14.6 CS-D L=2.3
 AP-L L=16.5

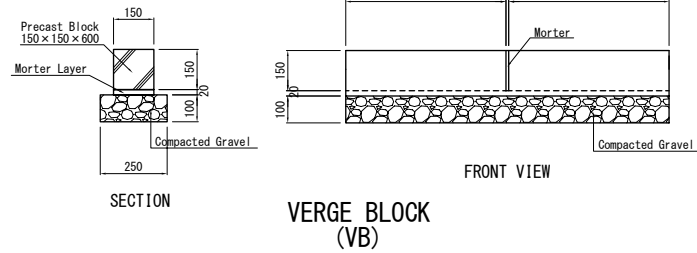
Chicken Soup IS

2-52

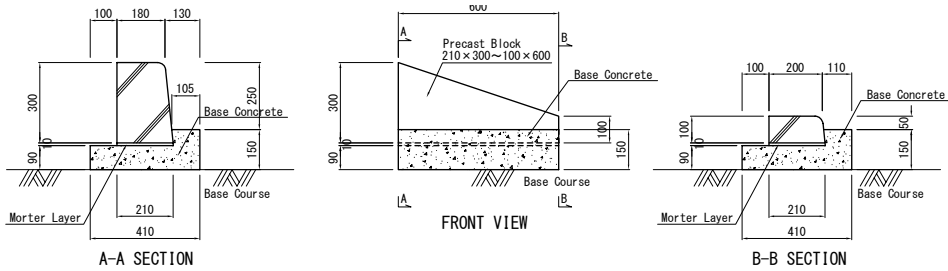
MINISTRY OF PUBLIC WORKS	JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIYO ENGINEERING CO.,LTD.	THE PREPARATORY SURVEY ON THE PROJECT FOR RECONSTRUCTION OF SOMALIA DRIVE IN MONROVIA	TITLE : PLAN OF INTERSECTION DRAWING (CHICKEN SOUP I.S.)	Drawing No.	IS-3
				SCALE	A1:1/250 A3:1/500
				DATE	SEP. 2012



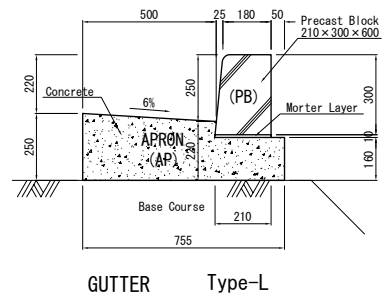
CURB STONE FOR SIDE WALK OR MEDIAN (CS-250)



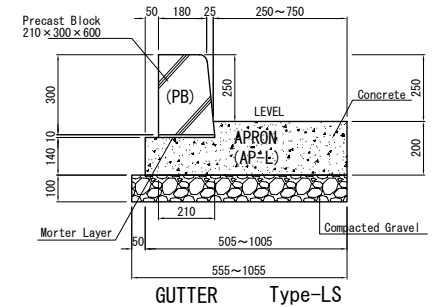
VERGE BLOCK (VB)



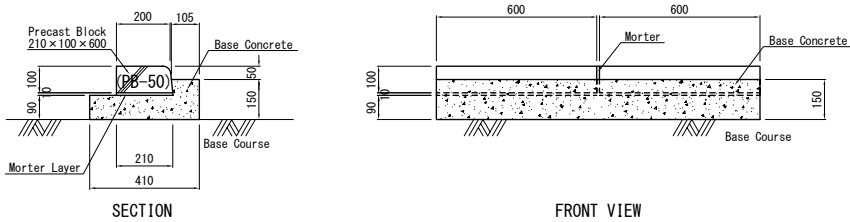
CURB STONE FOR SIDE WALK (CS-S)



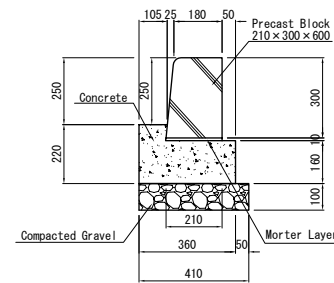
GUTTER Type-L



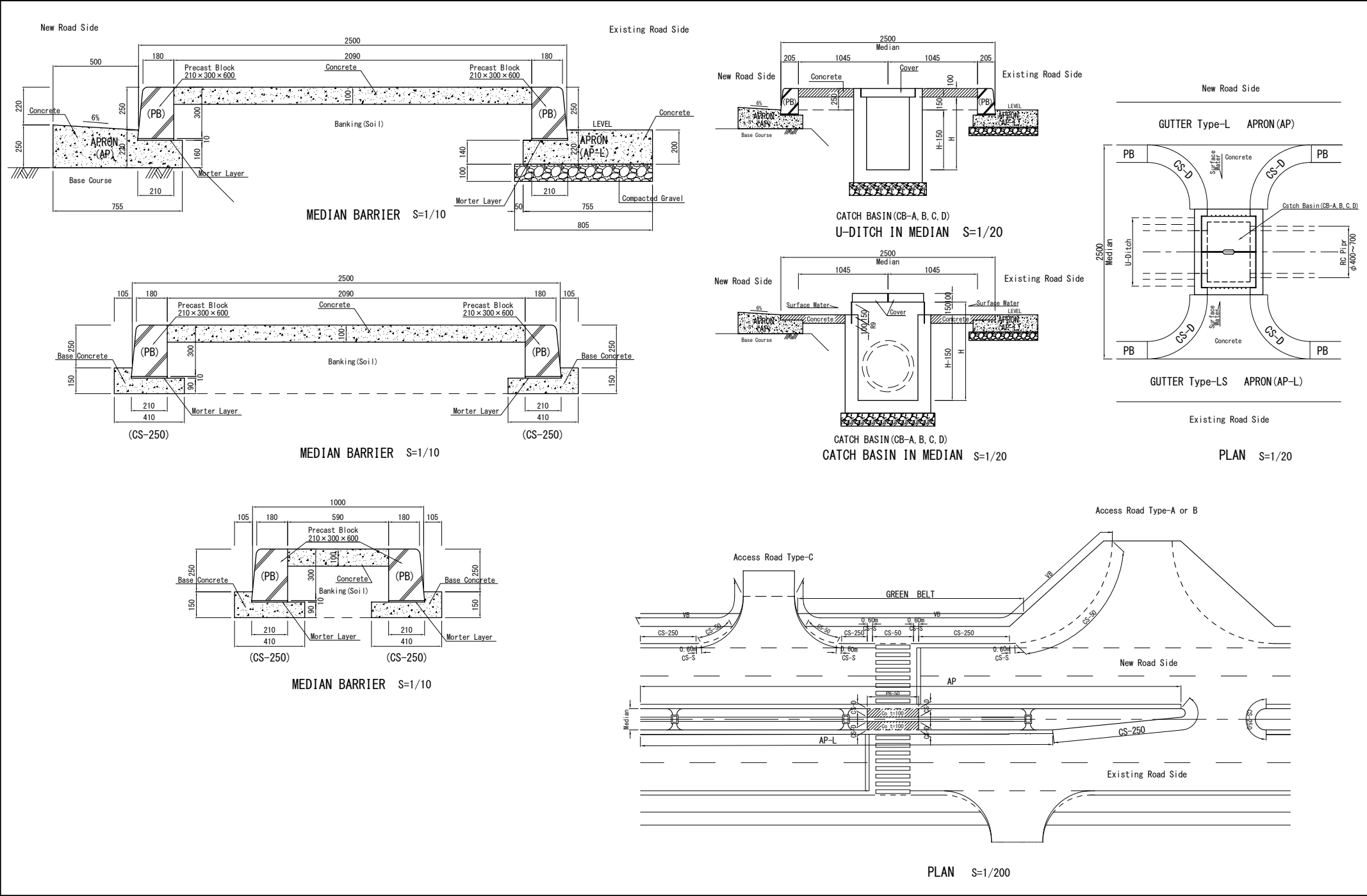
GUTTER Type-LS



CURB STONE FOR SIDE WALK OR CROSS WALK (CS-50)

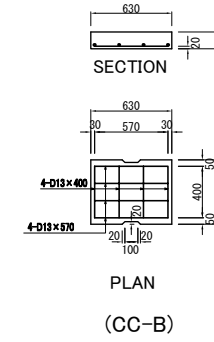
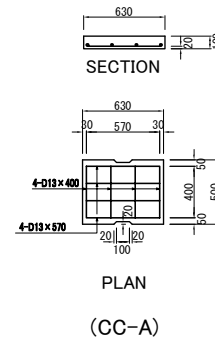
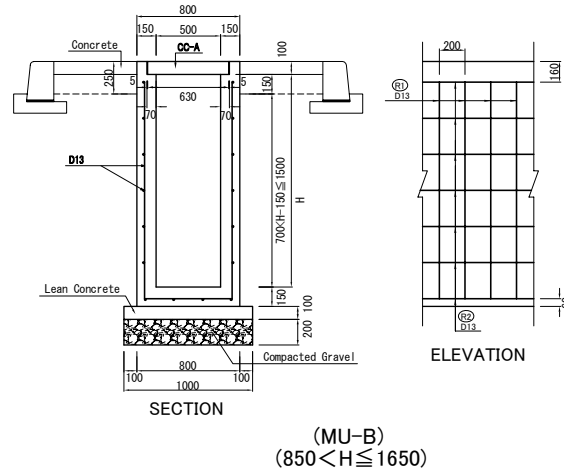
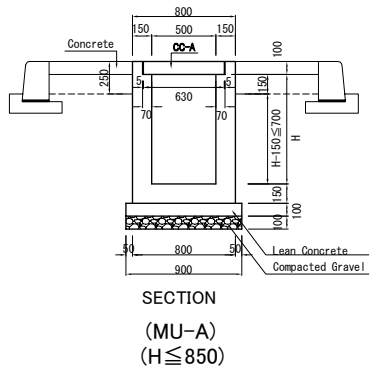


CURB STONE FOR CATCH BASIN OR CROSS WALK IN MEDIAN (CS-D)



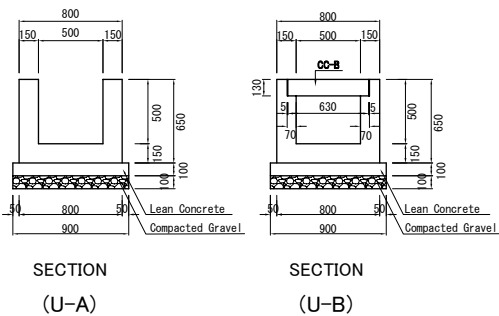
2-54

MINISTRY OF PUBLIC WORKS	JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIYO ENGINEERING CO.,LTD.	THE PREPARATORY SURVEY ON THE PROJECT FOR RECONSTRUCTION OF SOMALIA DRIVE IN MONROVIA	TITLE : LAYOUT OF ROAD STRUCTURES	Drawing No.	RS-2
				SCALE	As Shown
				DATE	SEP. 2012



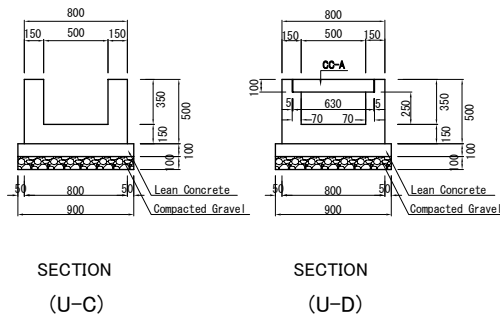
U-DITCH IN MEDIAN

COVER FOR U-DITCH



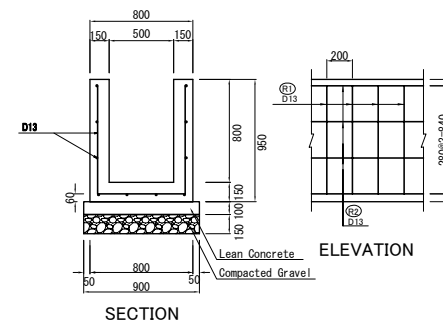
SECTION (U-A)
SECTION (U-B)

U-DITCH AT OUTLET



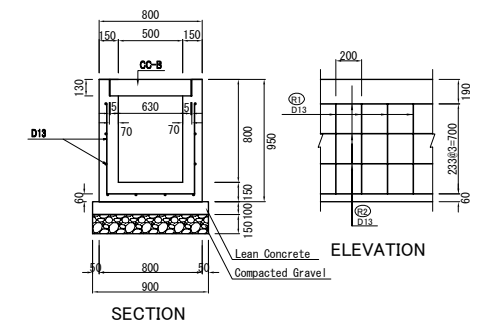
SECTION (U-C)
SECTION (U-D)

U-DITCH AT SIDEWALK CROSSING



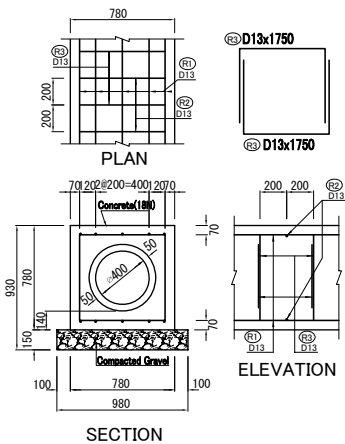
SECTION
ELEVATION

(U-E)
U-DITCH AT OUTLET

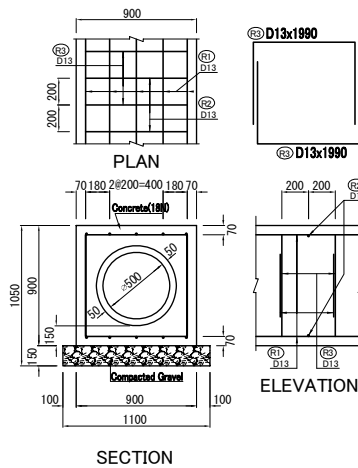


SECTION
ELEVATION

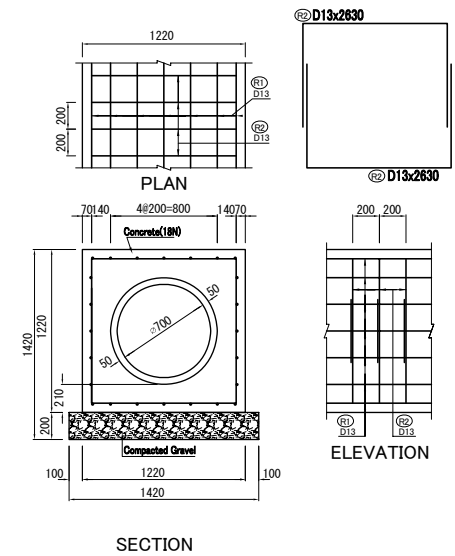
(U-F)
U-DITCH AT
ACCESS ROAD CROSSING



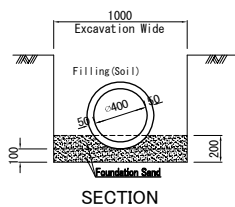
RC PIPE ϕ 400(Co.360° Base)
(RC400-360)



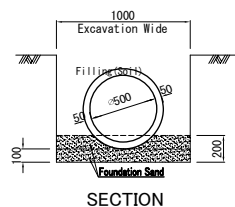
RC PIPE ϕ 500(Co.360° Base)
(RC500-360)



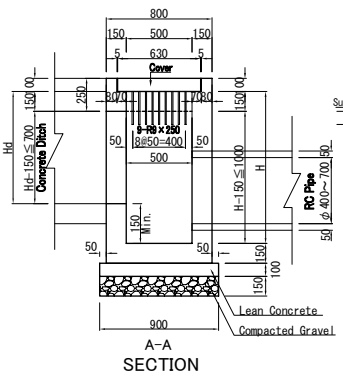
RC PIPE ϕ 700(Co.360° Base)
(RC700-360)



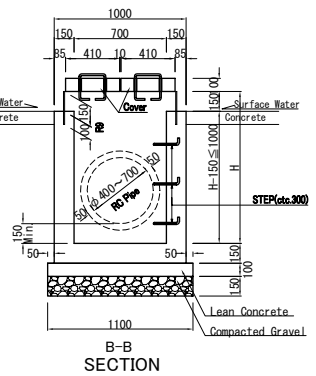
RC PIPE ϕ 400(Sand Base)
(RC400-SB)



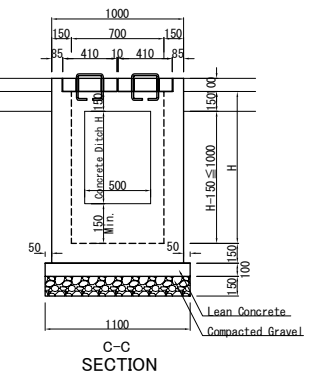
RC PIPE ϕ 500(Sand Base)
(RC500-SB)



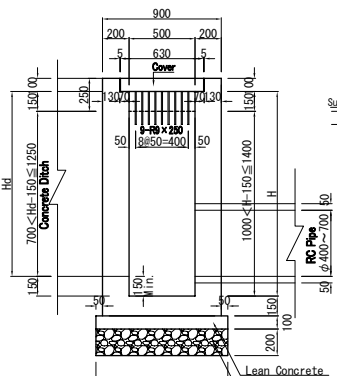
A-A SECTION



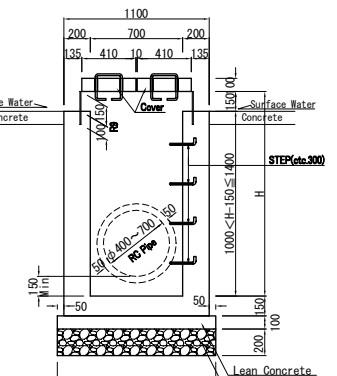
B-B SECTION



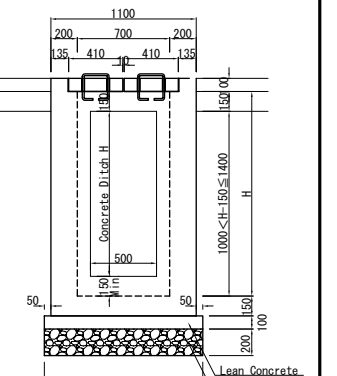
C-C SECTION



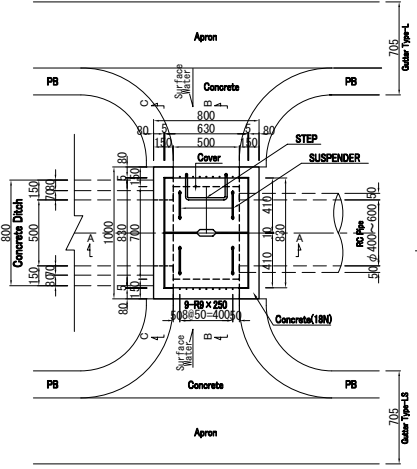
A-A SECTION



B-B SECTION

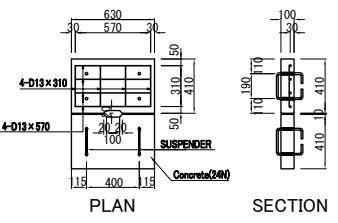


C-C SECTION



PLAN

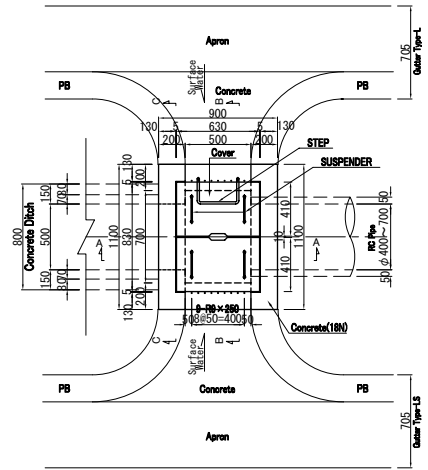
CATCH BASIN($H \leq 1150$) (CB-A)



PLAN

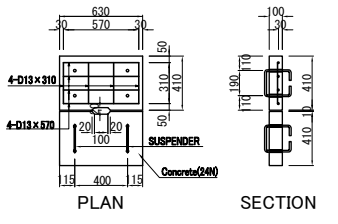
SECTION

COVER FOR CB



PLAN

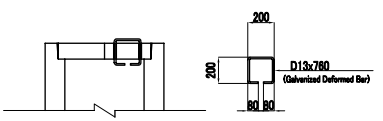
CATCH BASIN($1150 < H \leq 1550$) (CB-B)



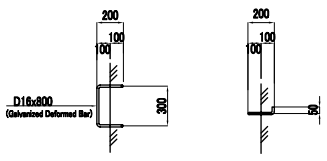
PLAN

SECTION

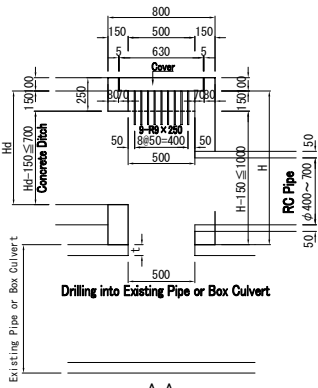
COVER FOR CB



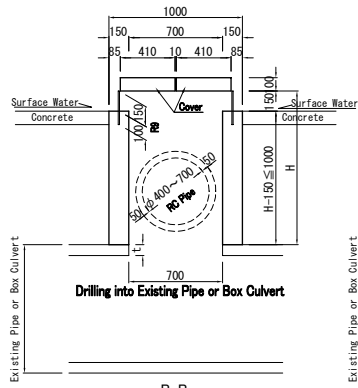
DETAIL OF SUSPENDER



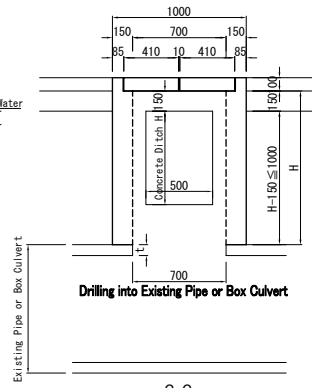
DETAIL OF STEP



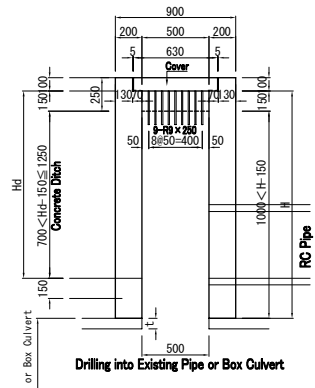
A-A SECTION



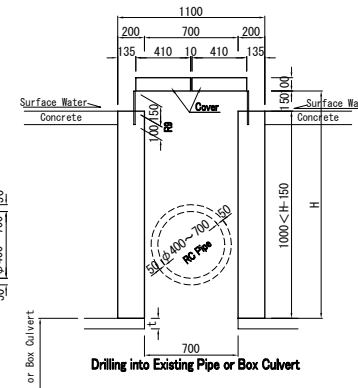
B-B SECTION



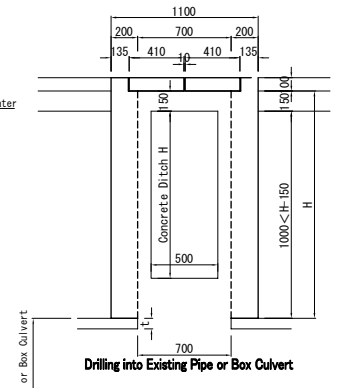
C-C SECTION



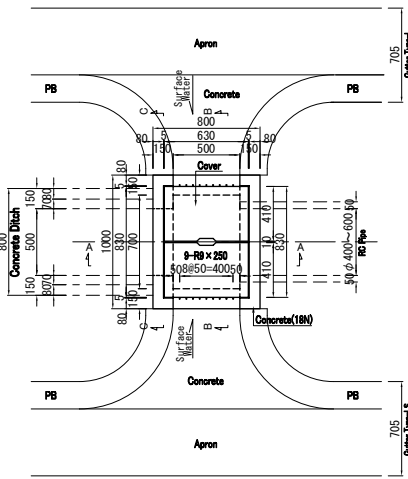
A-A SECTION



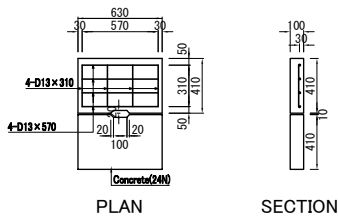
B-B SECTION



C-C SECTION

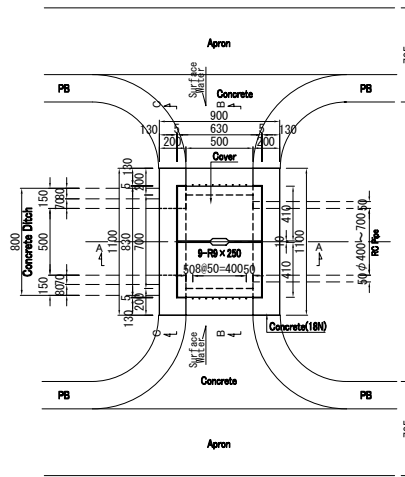


PLAN

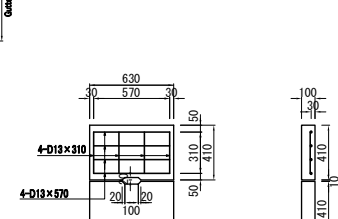


COVER FOR CB

CATCH BASIN($H \leq 1150$)
(CB-C)

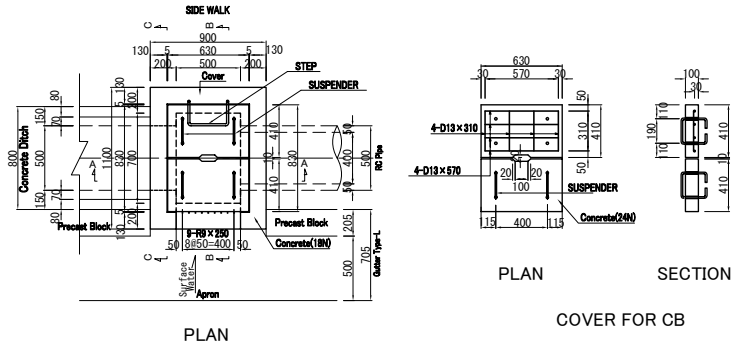
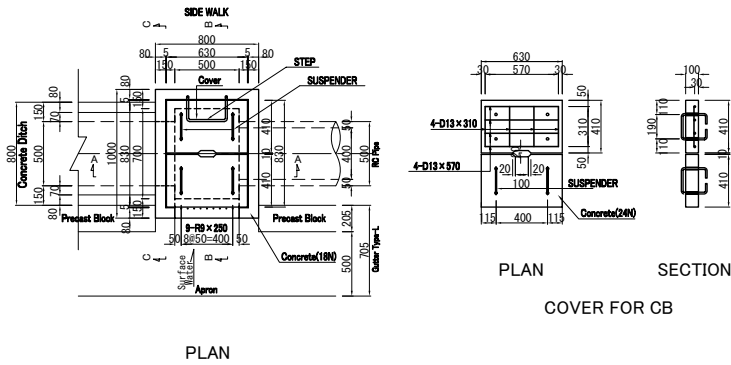
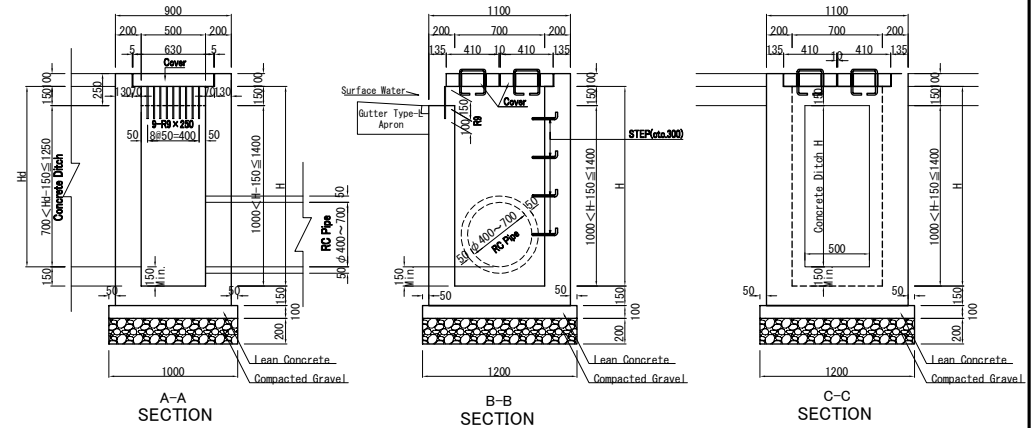
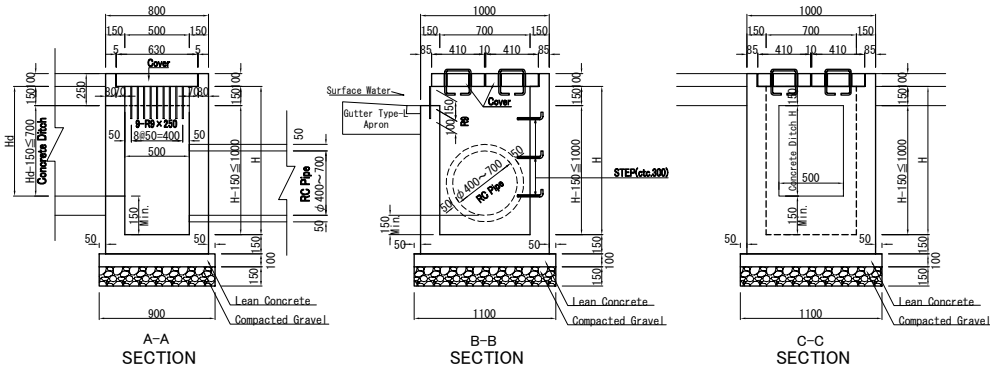


PLAN



COVER FOR CB

CATCH BASIN($1150 < H$)
(CB-D)



CATCH BASIN($H \leq 1150$)
(CB-E)

CATCH BASIN($1150 < H \leq 1550$)
(CB-F)

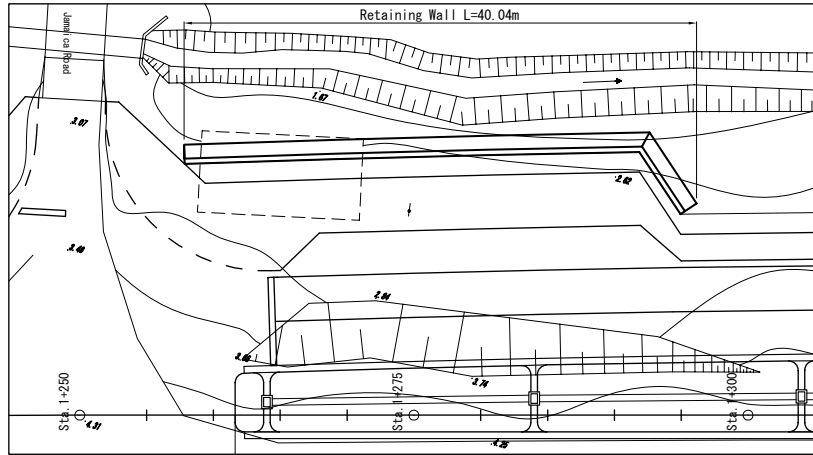
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YACHIYO ENGINEERING CO.,LTD.

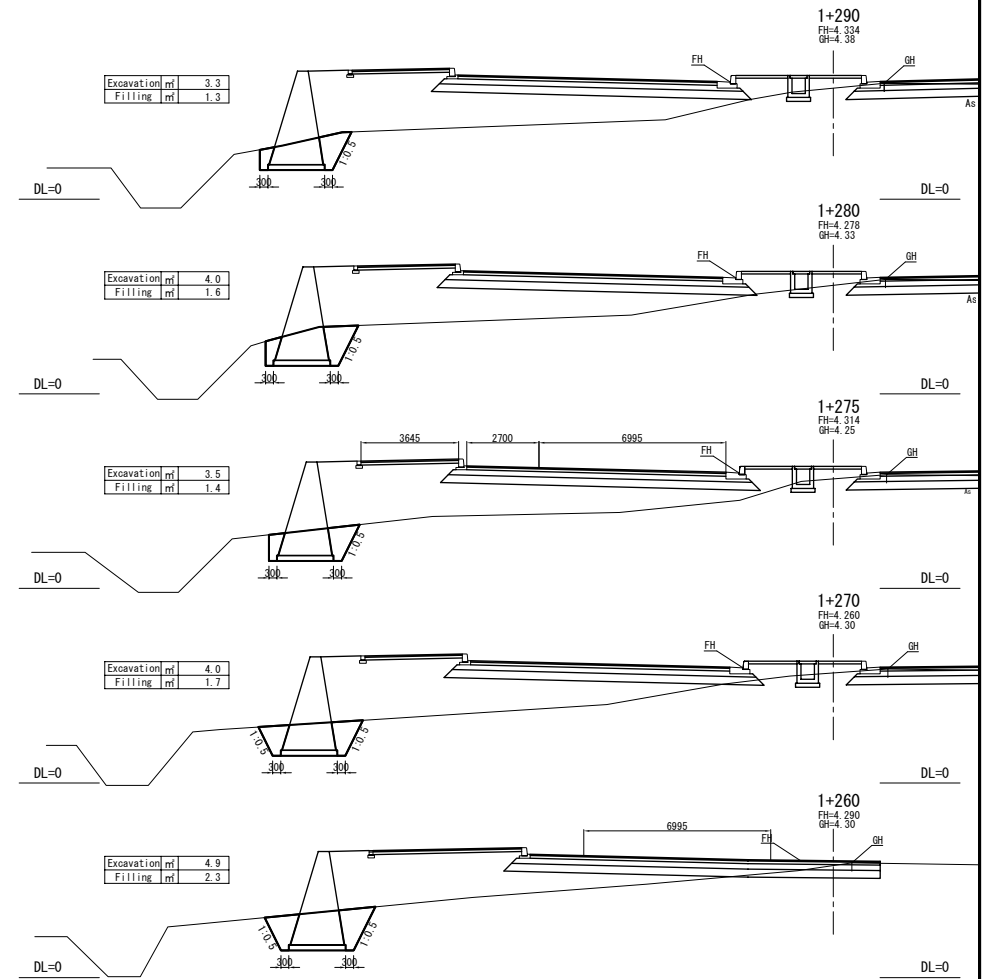
THE PREPARATORY SURVEY ON
THE PROJECT FOR
RECONSTRUCTION OF
SOMALIA DRIVE IN MONROVIA

TITLE :
DRAINAGE STRUCTURES

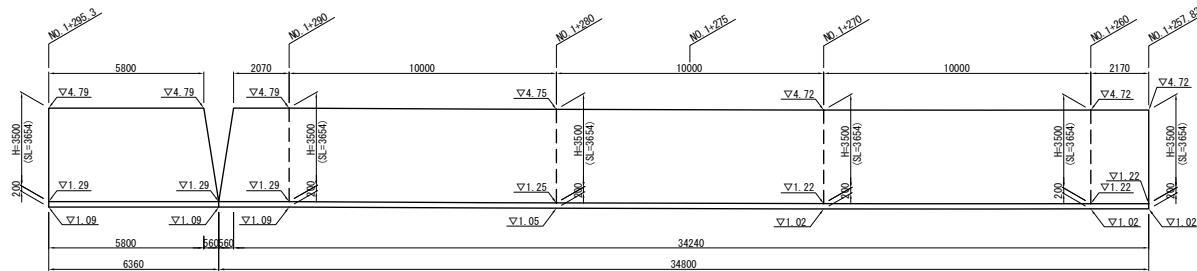
Drawing No.	DS-5
SCALE	1/20
DATE	SEP. 2012



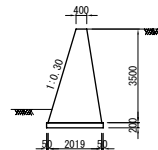
PLAN S=1/200



EARTHWORK PLANNING S=1/100



DEVELOPMENT VIEW S=1/100



TYPICAL SECTION S=1/100

RETAINING WALL (RW)

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THE PREPARATORY SURVEY ON
THE PROJECT FOR
RECONSTRUCTION OF
SOMALIA DRIVE IN MONROVIA

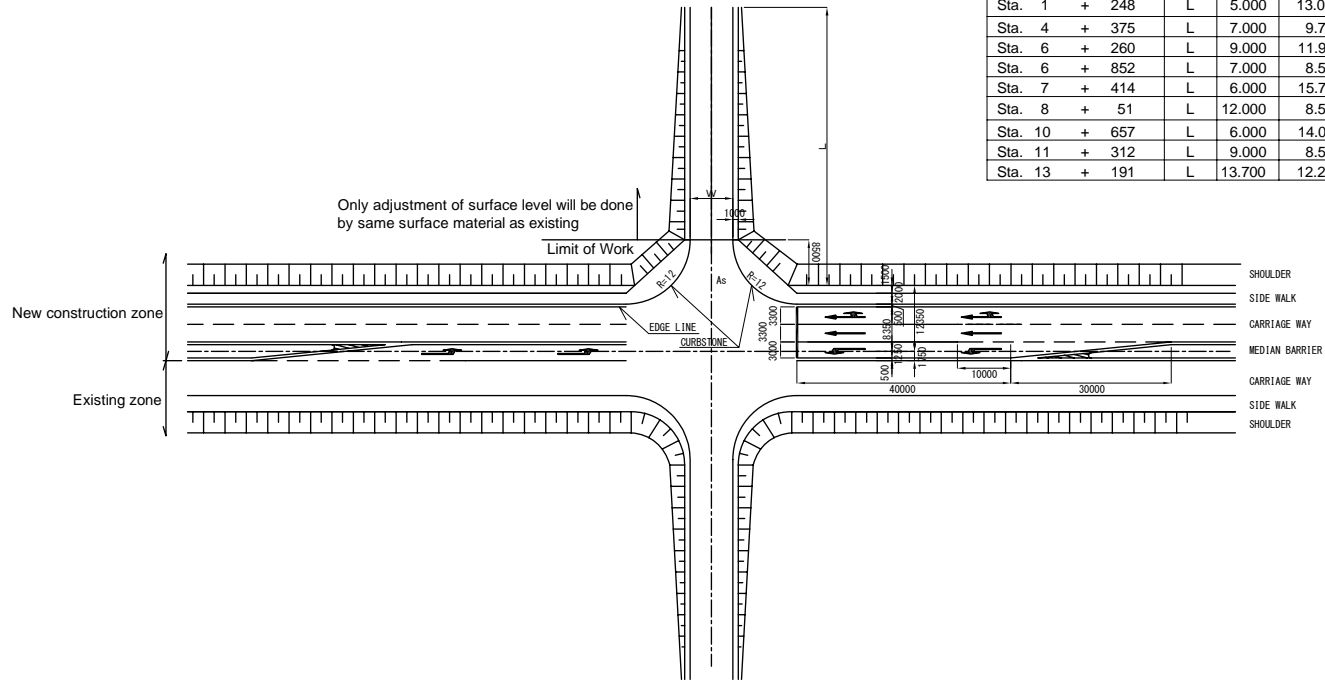
TITLE :
RETAINING WALL
(STA. 1+257.844-STA. 1+294.944)

Drawing No.	RW-1
SCALE	As Shown
DATE	SEP. 2012

TYPE-A S=1/1000

INTERSECTION TYPE-A

TYPE-A		(m)	
Station	L or R	W	L
Sta. 1 + 248	L	5.000	13.000
Sta. 4 + 375	L	7.000	9.740
Sta. 6 + 260	L	9.000	11.900
Sta. 6 + 852	L	7.000	8.500
Sta. 7 + 414	L	6.000	15.700
Sta. 8 + 51	L	12.000	8.500
Sta. 10 + 657	L	6.000	14.080
Sta. 11 + 312	L	9.000	8.500
Sta. 13 + 191	L	13.700	12.200



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THE PREPARATORY SURVEY ON
THE PROJECT FOR
RECONSTRUCTION OF
SOMALIA DRIVE IN MONROVIA

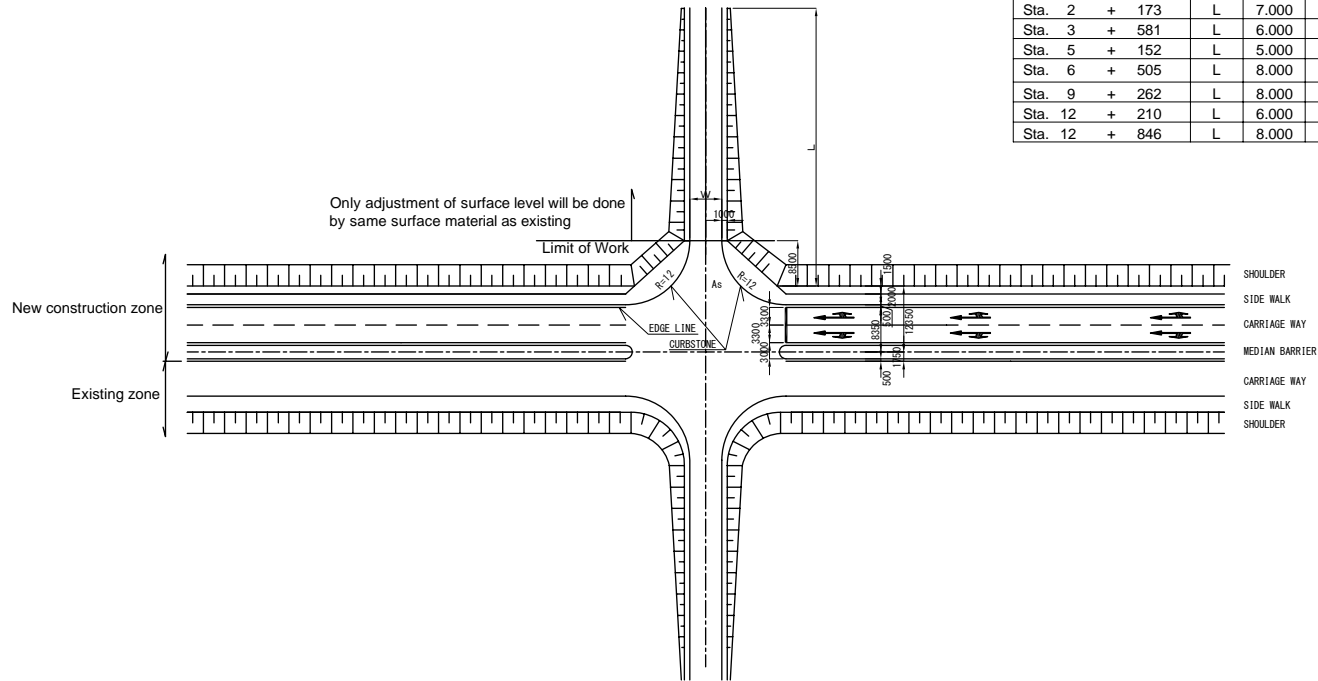
TITLE :
ACCESS ROAD TYPE-A

Drawing No.	AR-1
SCALE	A1:S=1/500 A3:S=1/1000
DATE	SEP. 2012

TYPE-B S=1/1000

INTERSECTION TYPE-B

TYPE-B		(m)	
Station	L or R	W	L
Sta. 1 + 554	R	10.000	17.000
Sta. 2 + 173	L	7.000	8.500
Sta. 3 + 581	L	6.000	8.500
Sta. 5 + 152	L	5.000	8.500
Sta. 6 + 505	L	8.000	11.000
Sta. 9 + 262	L	8.000	8.500
Sta. 12 + 210	L	6.000	11.310
Sta. 12 + 846	L	8.000	14.500



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YACHIYO ENGINEERING CO.,LTD.

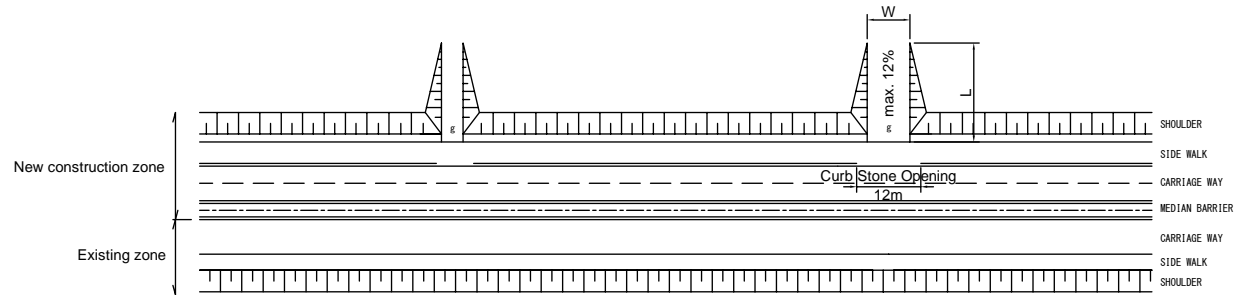
THE PREPARATORY SURVEY ON
THE PROJECT FOR
RECONSTRUCTION OF
SOMALIA DRIVE IN MONROVIA

TITLE :
ACCESS ROAD TYPE-B

Drawing No.	AR-2
SCALE	A1:S=1/500 A3:S=1/1000
DATE	SEP. 2012

TYPE-D S=1/1000
FOR LARGE SIZE VEHICLE

ENTRANCE



TYPE-D (m)				
Station	L or R	W	L	
Sta. 0 + 86	L	6.000	8.900	
Sta. 0 + 117	L	6.000	8.300	
Sta. 0 + 168	L	6.000	7.300	
Sta. 0 + 193	L	6.000	6.900	
Sta. 0 + 218	L	6.000	6.200	
Sta. 0 + 774	L	5.000	9.000	
Sta. 0 + 820	L	5.000	11.000	
Sta. 0 + 861	L	5.000	11.000	
Sta. 1 + 114	L	5.000	11.000	
Sta. 1 + 145	L	5.000	11.000	
Sta. 1 + 196	L	5.000	11.000	
Sta. 1 + 513	L	5.000	11.000	
Sta. 1 + 562	L	8.000	11.000	
Sta. 1 + 635	L	5.000	11.000	
Sta. 1 + 715	L	5.000	11.000	
Sta. 1 + 785	L	5.000	11.000	
Sta. 1 + 950	L	5.000	11.000	
Sta. 0 + 79	R	6.000	3.700	
Sta. 0 + 129	R	6.000	6.100	
Sta. 0 + 149	R	6.000	5.500	
Sta. 0 + 169	R	6.000	5.700	
Sta. 0 + 188	R	6.000	5.100	
Sta. 0 + 235	R	5.000	5.000	
Sta. 0 + 253	R	7.000	3.000	

TYPE-D (m)				
Station	L or R	W	L	
Sta. 1 + 356	R	4.000	12.000	
Sta. 1 + 528	R	5.000	11.000	
Sta. 2 + 338	L	5.000	11.000	
Sta. 2 + 558	L	5.000	11.000	
Sta. 3 + 690	L	5.000	11.000	
Sta. 3 + 890	L	5.000	11.000	
Sta. 7 + 529	L	5.000	11.000	
Sta. 8 + 370	L	5.000	11.000	
Sta. 8 + 487	L	5.000	11.000	
Sta. 8 + 760	L	5.000	10.000	
Sta. 9 + 89	L	5.000	4.000	
Sta. 9 + 500	L	4.000	11.000	
Sta. 9 + 656	L	5.000	11.000	
Sta. 9 + 810	L	4.000	11.000	
Sta. 9 + 940	L	4.000	11.000	
Sta. 10 + 266	L	4.000	3.000	
Sta. 10 + 366	L	4.000	11.000	
Sta. 11 + 190	L	4.000	7.000	
Sta. 11 + 571	L	4.000	11.000	
Sta. 11 + 718	L	5.000	6.000	
Sta. 11 + 836	L	5.000	4.000	
Sta. 12 + 370	L	3.000	11.000	

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THE PREPARATORY SURVEY ON
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SOMALIA DRIVE IN MONROVIA

TITLE :

ACCESS ROAD TYPE-D

Drawing No.

AR-4

SCALE

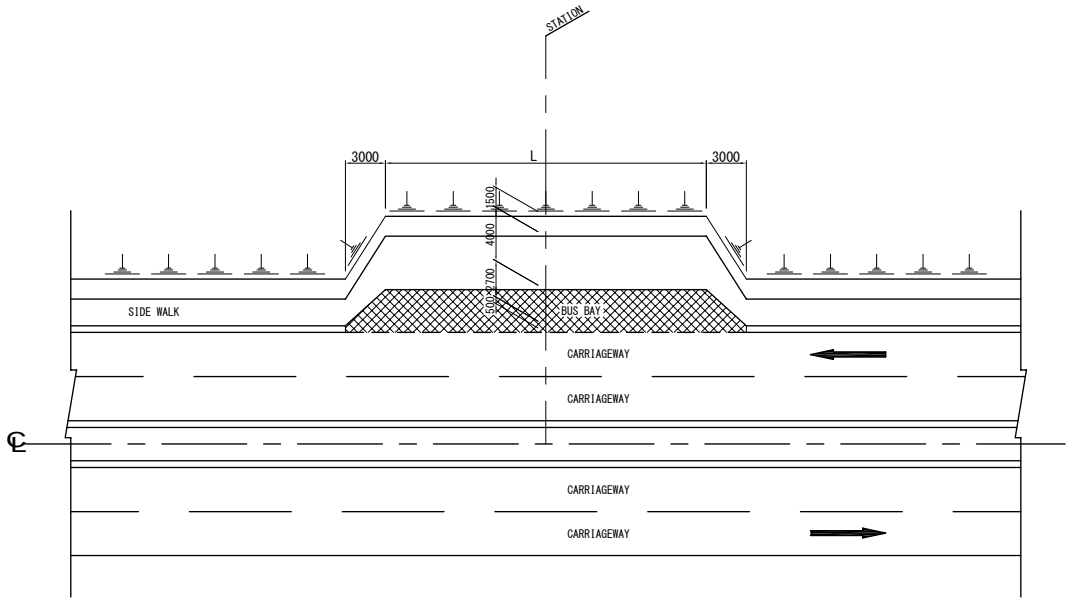
A1:S=1/500
A3:S=1/1000

DATE

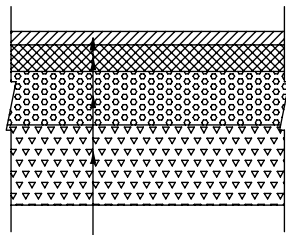
SEP. 2012

SCHEDULE OF BUS BAY

No.	BUS STOP NAME	Left Side	Right Side	REMARK
		L (m)	L (m)	
1	Freeport/Old Plank Field		24	
2	CEMECO/Doe Community	24	24	
3	Jamaica Road/Slaughter House	24	24	
4	Battery Factory	24	24	
5	THI/Topoe Village	24	24	
6	Sethi Brothers/Iron Factory	24	24	
7	New Georgia Junction	58	24	
8	Supermarket Junction	24	24	
9	Bardnersville Estate Junction	47	24	
10	Former LPRC Refinery Junction	24	24	
11	Chiken Soup Factory Junction	24	24	
12	Stephen Tolbert Estate	24	24	
13	New Hope Junction	24	24	
14	St. Francis Junction	24	24	
15	Lone Star Gas Station	24	24	
16	Neezoe Junction	24	24	
17	72nd Junction	24	24	
18	Plank Field	24	24	
TOTAL		17	18	

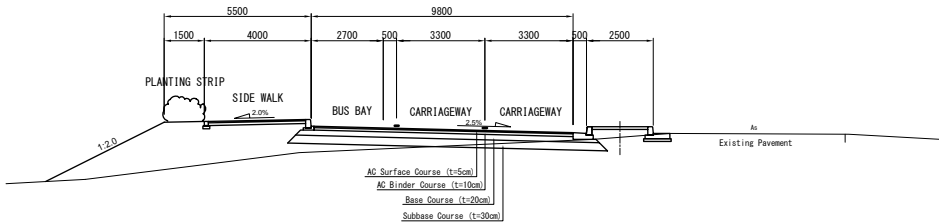


PLAN S=1/400



AC Surface Course (t=5cm)
 AC Binder Course (t=10cm)
 Base Course (t=20cm)
 Subbase Course (t=30cm)

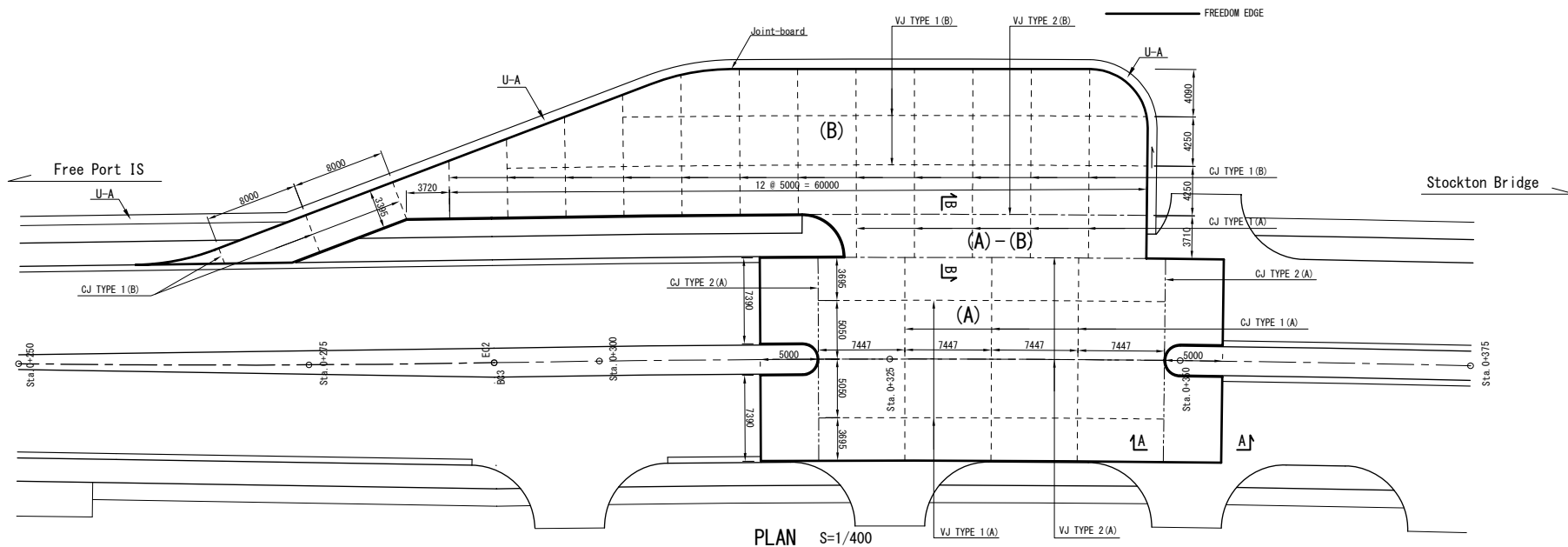
PAVEMENT TYPE S=1/20



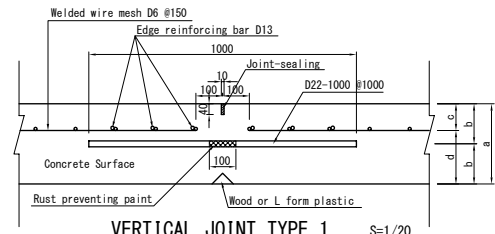
TYPICAL CROSS SECTION S=1/200

2-65

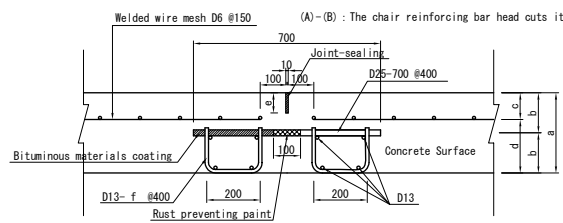
MINISTRY OF PUBLIC WORKS	JAPAN INTERNATIONAL COOPERATION AGENCY KATAHIRA & ENGINEERS INTERNATIONAL YACHIYO ENGINEERING CO.,LTD.	THE PREPARATORY SURVEY ON THE PROJECT FOR RECONSTRUCTION OF SOMALIA DRIVE IN MONROVIA	TITLE : BUS BAY DETAIL	Drawing No.	BB-1
				SCALE	As Shown
				DATE	SEP. 2012



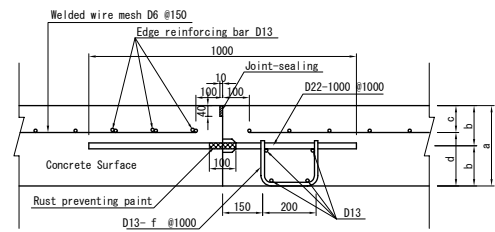
PLAN S=1/400



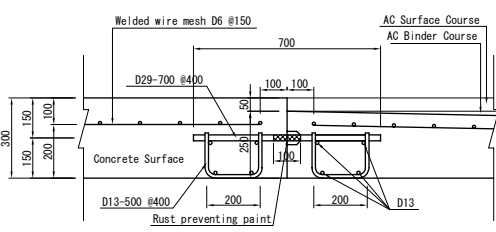
VERTICAL JOINT TYPE 1 S=1/20



CROSS JOINT TYPE 1 S=1/20



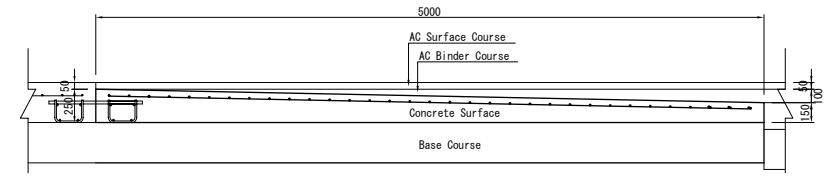
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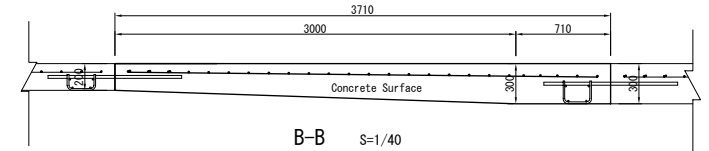
CROSS JOINT TYPE 2 S=1/20

Dimension of Concrete Ravement

	a	b	c	d	e	f
(A) Concrete Surface (t=30cm)	300	150	100	200	75	500
(B) Concrete Surface (t=20cm)	200	100	65	135	50	400

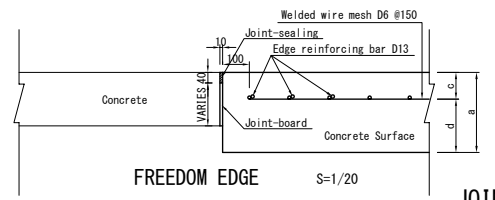


A-A S=1/40



B-B S=1/40

CROSS SECTION



FREEDOM EDGE S=1/20

JOINT DETAILS

MINISTRY OF PUBLIC WORKS

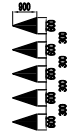
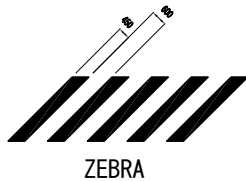
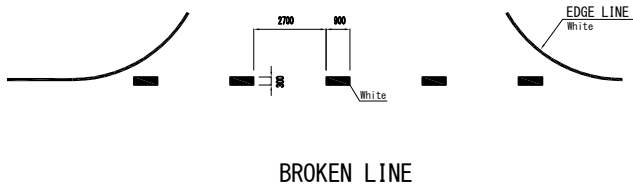
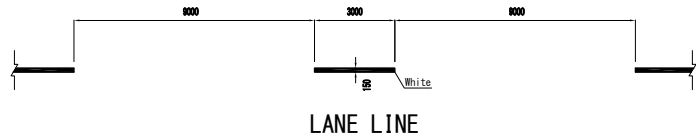
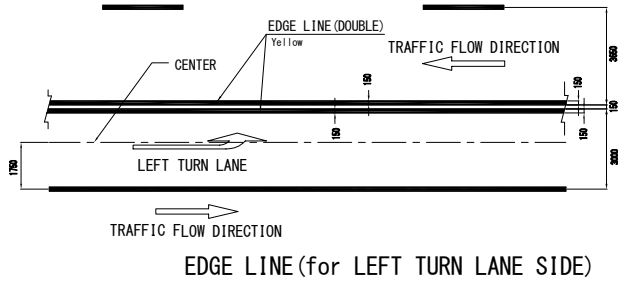
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THE PROJECT FOR
RECONSTRUCTION OF
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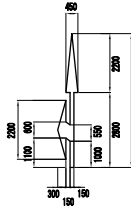
TITLE :
U-TURN SLOT DETAIL

Drawing No.	UD-1
SCALE	As Shown
DATE	SEP. 2012

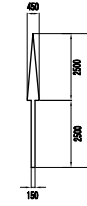
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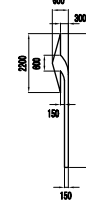
YIELD LINE



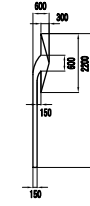
STRAIGHT AND LEFT



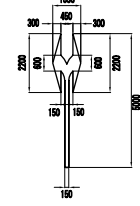
STRAIGHT



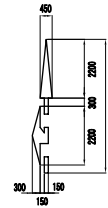
LEFT



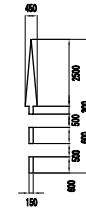
RIGHT



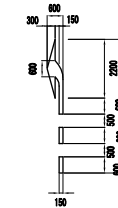
LEFT AND RIGHT



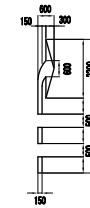
ADVANCE NOTICE
STRAIGHT AND LEFT



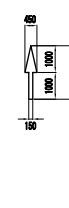
A. N. STRAIGHT



A. N. LEFT

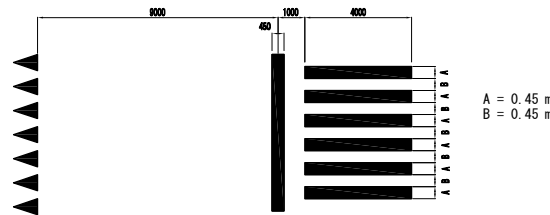


A. N. RIGHT



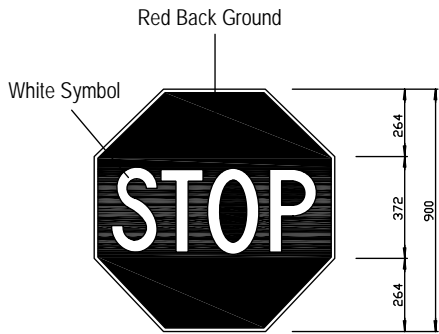
SPECIAL DIRECTION

DIRECTIONAL ARROWS

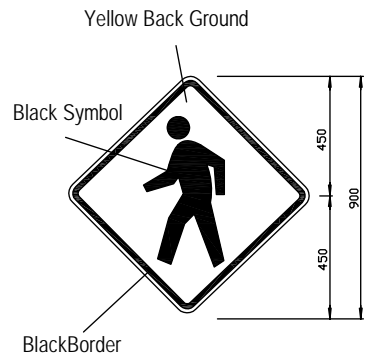


SCHEDULE OF CROSS WALK

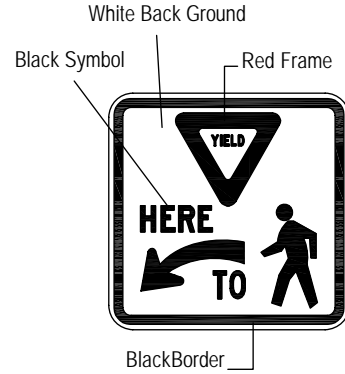
No.	Sta.
1	0+565.5
2	2+272
3	2+568
4	3+561
5	4+253
6	5+491
7	6+169
8	6+484
9	6+605
10	7+000
11	7+460
12	9+208
13	9+882
14	10+452
15	11+369
16	11+903
17	12+555



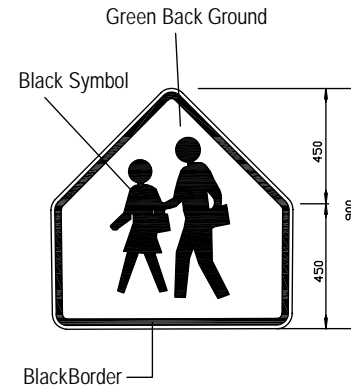
R1-1



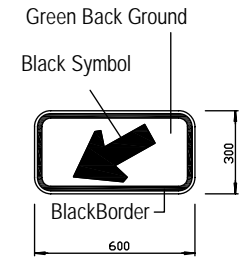
W11-2



R1-5



S1-1

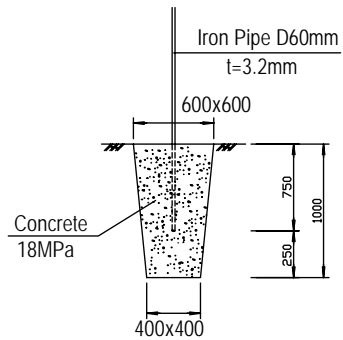


W16-7P

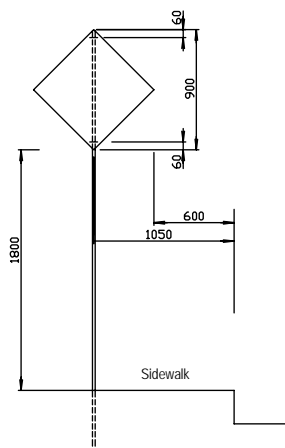
ROAD SIGN S=1/20

ROAD SIGN SCHEDULE

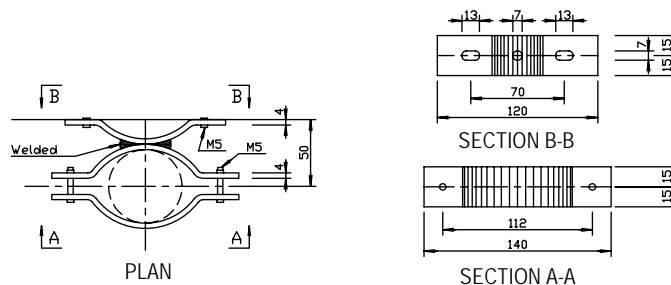
Location	Side	Sign Board	Remarks	Location	Side	Sign Board	Remarks
0+100	Right	W11-2		7+390	Left	W11-2	
0+650	Left	R1-5		7+414	Left Road	R1-1	type-A IS
0+675	Left	W11-2		7+460	Left	R1-5	
1+248	Left Road	R1-1	type-A IS	8+051	Left Road	R1-1	type-A IS
1+300	Left	W11-2		8+180	Left	W11-2	
2+173	Left Road	R1-1	type-B IS	9+210	Left	R1-5	
2+250	Left	R1-5		9+262	Left Road	R1-1	type-B IS
2+560	Left	S1-1,W16-7		9+340	Left	W11-2	
3+520	Left	R1-5		9+900	Left	S1-1,W16-7	
3+581	Left Road	R1-1	type-B IS	9+980	Left	W11-2	
3+670	Left	W11-2		10+450	Left	R1-5	
4+280	Left	R1-5		10+657	Left Road	R1-1	type-A IS
4+375	Left Road	R1-1	type-A IS	10+700	Left	W11-2	
5+480	Left	R1-5		11+312	Left Road	R1-1	type-A IS
6+180	Left	R1-5		11+360	Left	R1-5	
6+260	Left Road	R1-1	type-A IS	11+780	Left	W11-2	
6+505	Left Road	R1-1	type-B IS	11+910	Left	R1-5	
6+525	Left	R1-5		12+210	Left Road	R1-1	type-B IS
6+600	Left	S1-1,W16-7		12+550	Left	R1-5	
7+000	Left	R1-5		12+640	Left	W11-2	
6+852	Left Road	R1-1	type-A IS	12+846	Left Road	R1-1	type-B IS
7+390	Left	W11-2		13+191	Left Road	R1-1	



FOUNDATION DETAIL S=1/40

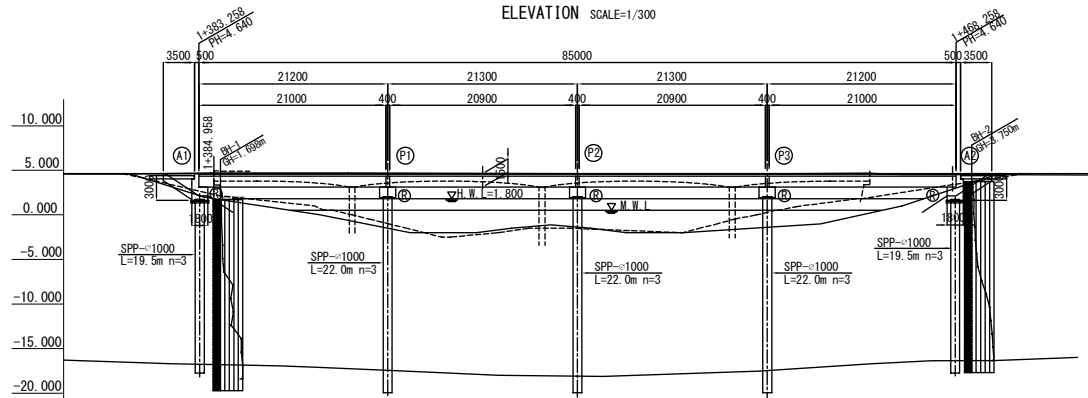


SIGN POST DETAIL S=1/40

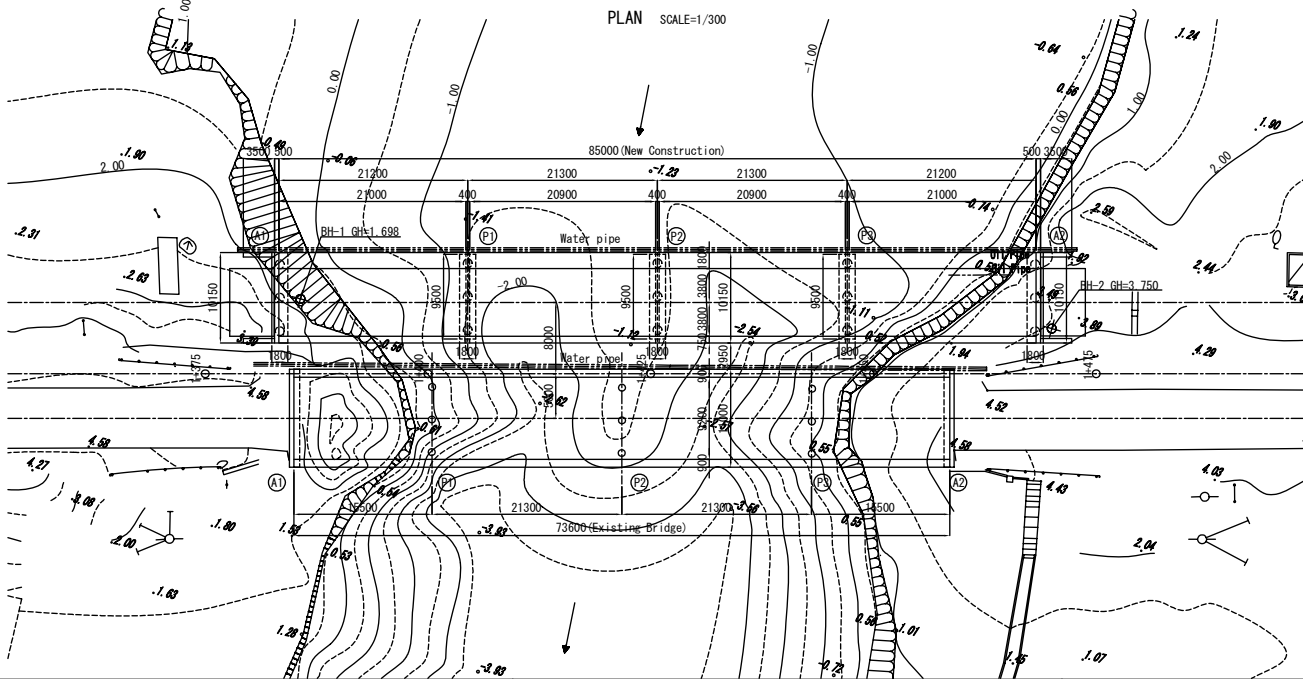


FIXING DETAIL S=1/4

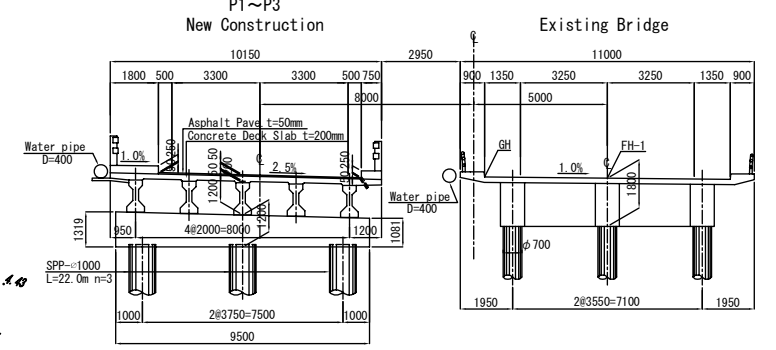
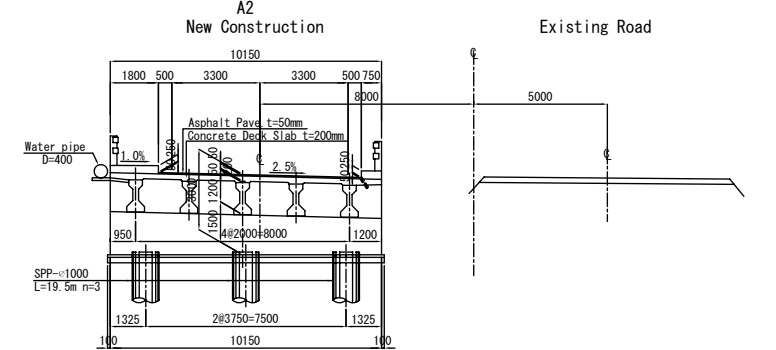
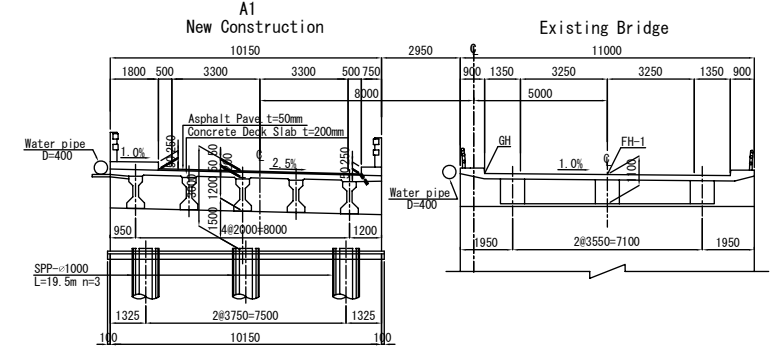
GENERAL VIEW OF STOCKTON BRIDGE (STEP-1)



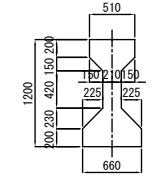
VERTICAL ALIGNMENT (Existing Road)	LEVEL
PROPOSED HEIGHT	+375 + 4.64
GROUND LEVEL	+400 + 0.00 (4.70)
STATION	+1425 + 1.50 (4.64)
	+1450 + 0.90 (4.64)
	+1475 + 4.40 (4.64)



BRIDGE CROSS SECTION SCALE=1/100



Detail of PC Girder SCALE=1/30



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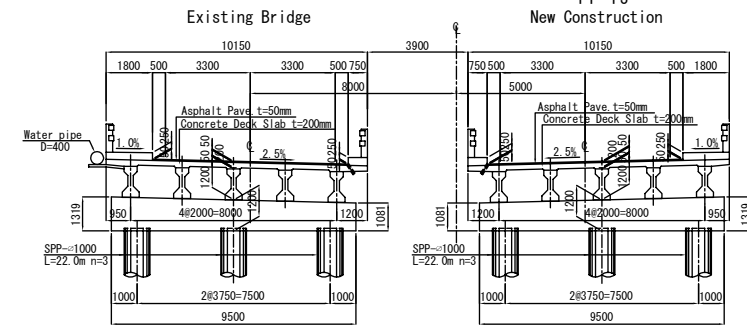
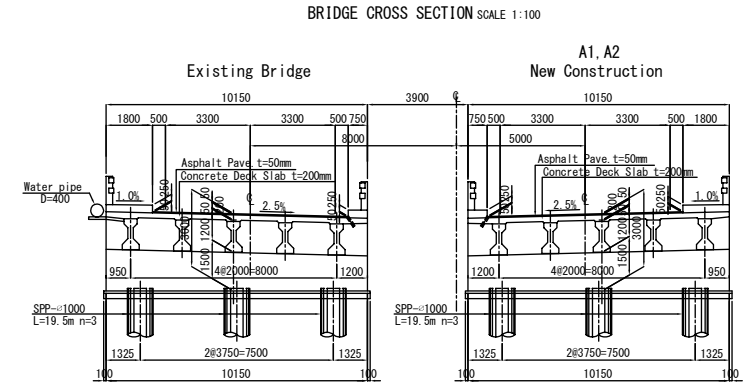
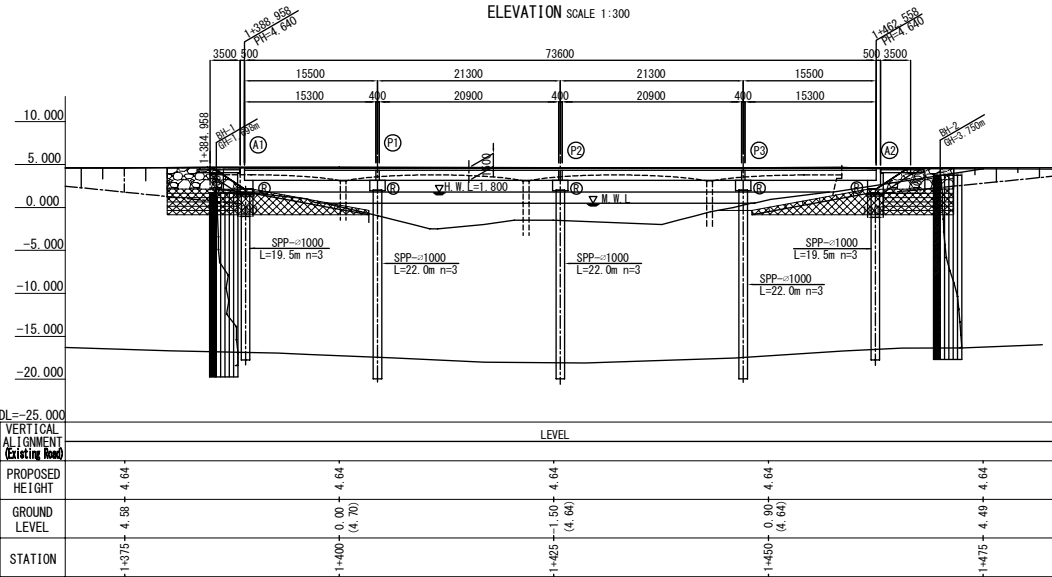
THE PREPARATORY SURVEY ON THE PROJECT FOR RECONSTRUCTION OF SOMALIA DRIVE IN MONROVIA

TITLE : GENERAL VIEW OF STOCKTON BRIDGE

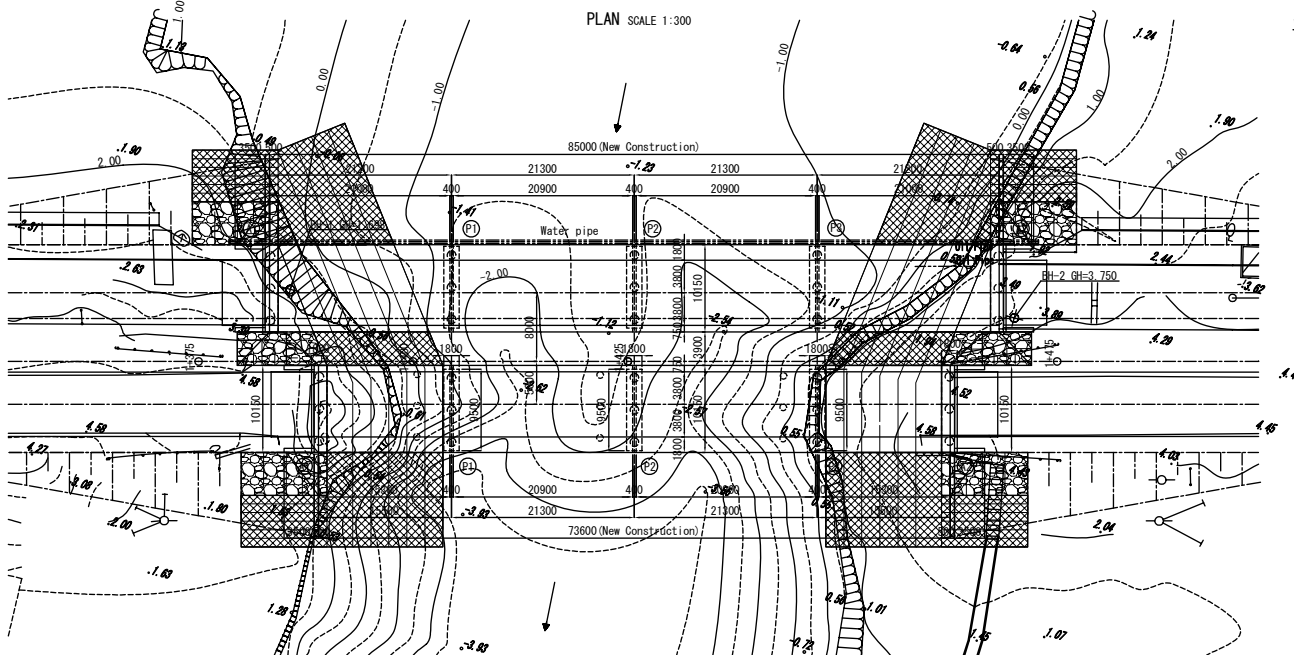
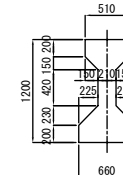
Drawing No.	BR-1
SCALE	As Shown
DATE	SEP. 2012

2-69

GENERAL VIEW OF STOCKTON BRIDGE (STEP-2)



DETAIL SCALE 1:30



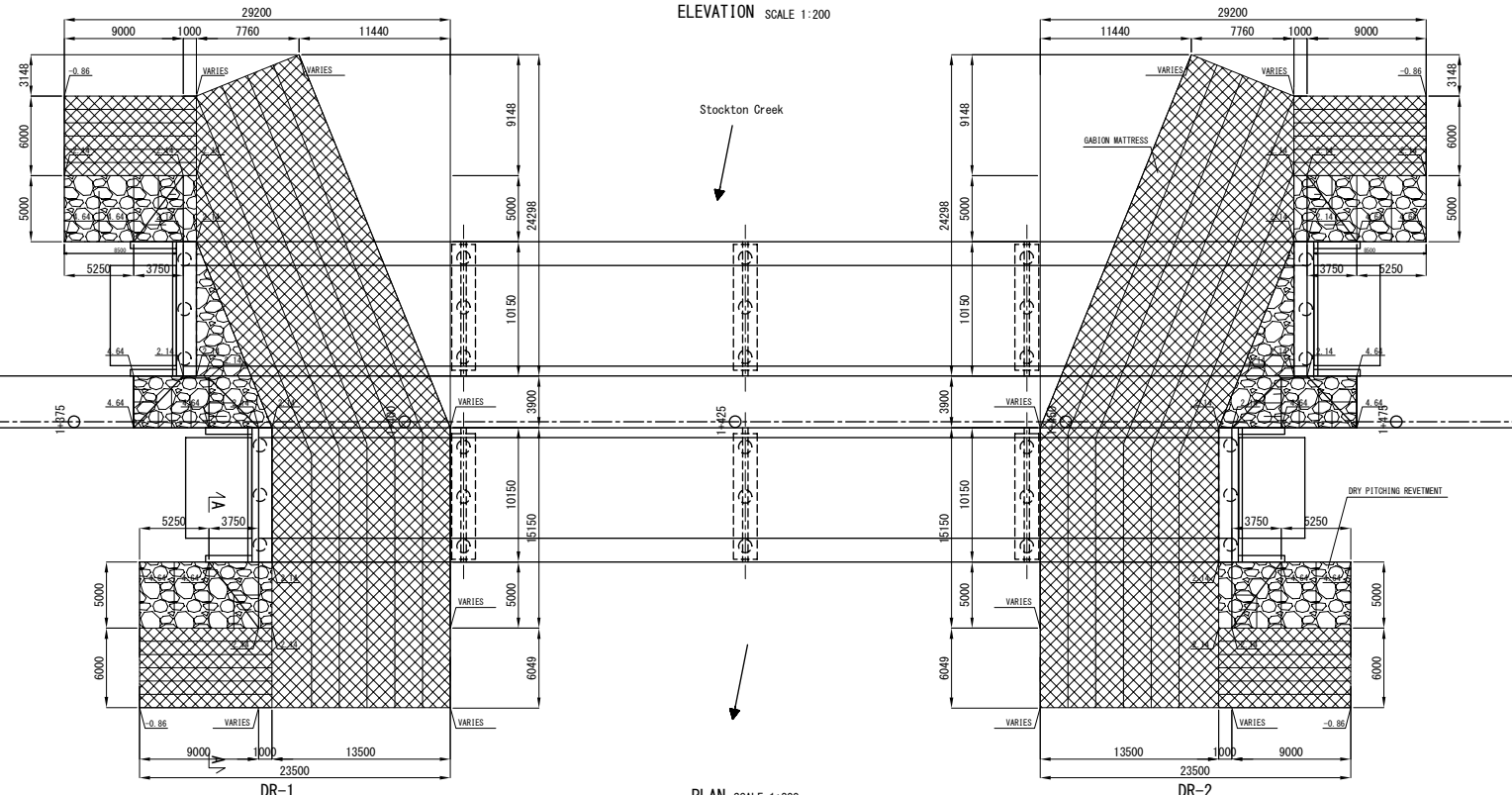
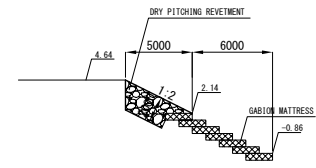
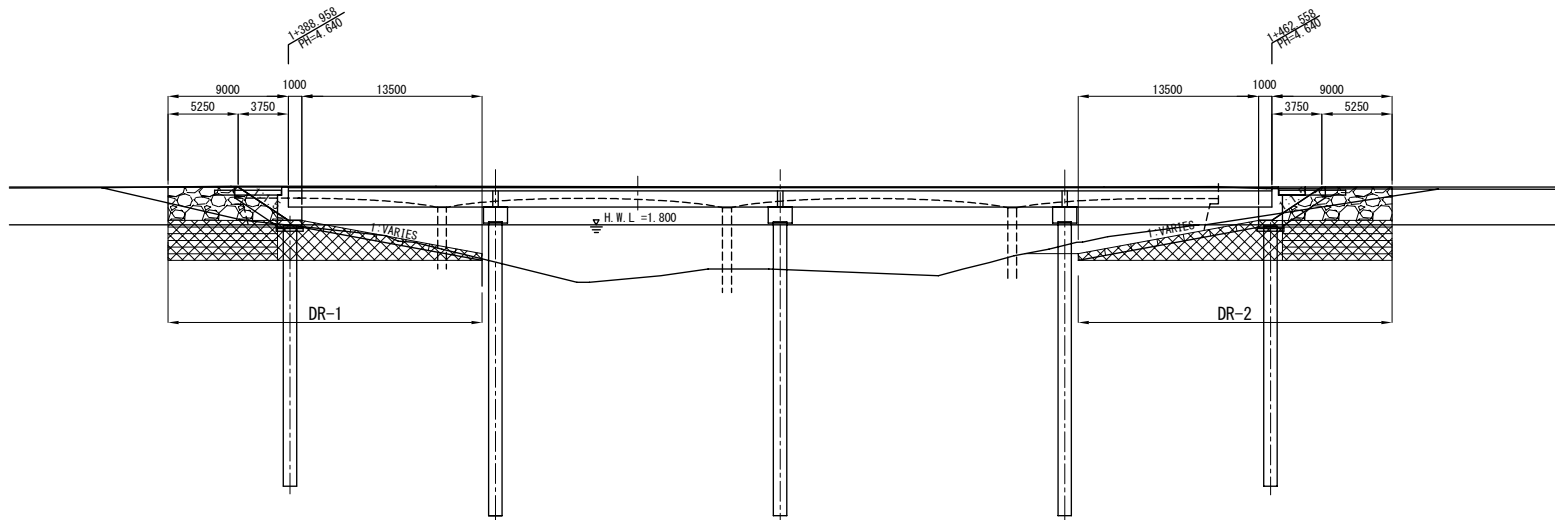
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YACHIYO ENGINEERING CO.,LTD.

THE PREPARATORY SURVEY ON
THE PROJECT FOR
RECONSTRUCTION OF
SOMALIA DRIVE IN MONROVIA

TITLE :
GENERAL VIEW OF STOCKTON BRIDGE

Drawing No.	BR-2
SCALE	As Shown
DATE	SEP. 2012



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THE PREPARATORY SURVEY ON
 THE PROJECT FOR
 RECONSTRUCTION OF
 SOMALIA DRIVE IN MONROVIA

TITLE :
 RIVER PROTECTION
 OF STOCKTON BRIDGE

Drawing No.	DR-1
SCALE	As Shown
DATE	SEP. 2012

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The basic concepts for implementation of the Project are as follows;

On reaching an agreement and signing the Exchange of Note by both Governments of Japan and Liberia, the Project will be implemented in accordance with the guideline of Japan's Grant Aid.

The Ministry of Public Works (MPW) of Government of Liberia (GOL) are responsible for the Project implementation.

Assistance in tendering and construction supervision will be undertaken by a Japanese consulting firm in accordance with a contract between the MPW and the consultant.

A Japanese pre-qualified tenderer who has been awarded the contract by the MPW will undertake the implementation of the Project.

Main concepts for the implementation are as follows;

Materials and labor for the project are procured in Liberia as many as possible. If required qualities and capacities are not enough, materials and labor can be procured effectively from third countries and/or Japan.

Implementation method and schedule for the Project shall be planned on the basis of local meteorological, topographic and geological conditions as well as any natural conditions affected by the construction works.

General and easy method without specific equipment and technology should be planned.

Appropriate standards and specifications for construction shall be proposed, and site organizations of both the contractor and consultant shall be arranged to comply abovementioned standards and specifications.

Facilities to strictly secure safety for construction staff and third parties shall be installed. Especially, educative training on environment and anti-AID/HIV shall be carried out.

Protection against water pollution and flooding by the implementation and installation and operation of asphalt plants, quarry sites and borrow pits shall be done in order to preserve environment. Construction waste shall be treated and/or dumped in a proper site specified by the Government of Liberia.

2-2-4-2 Implementation Conditions

Construction plan and method should be prepared in order to secure the safety of the construction staff and the third parties first of all, and they should be selected to consider preservation of environment for the road users and the road side residents.

Present Road Conditions

The project road's condition is damaged due to increase traffic volume by a growth of economic. This subject road is main road for connecting Monrovia to east side area, and caused sever traffic jams especially during the peak hours in the morning and evening, and commuters to office, school, and/or clinic are suffering from such conditions every day.

Therefore, safety and traffic management for road users and mitigation measures of environment for road side residents shall be considered in line with the construction planning.

Present Road Side Facility Conditions

The project is intending to construct main road, which is going to connect to the center of Monrovia that are important for citizens in the Monrovia. Right of way of the proposed roads is secured since long time ago to minimize adverse impacts, such as massive land acquisitions, in the established residential and commercial areas.

There are many school and church along the Somalia Drive. Therefore, complete road blocks should be avoided during the construction stage by providing necessary accessibilities to all road users and residents as the first priority.

Climate and Natural Conditions

City of Monrovia is classified marine climate of tropical monsoon, and there are two seasons; relatively cool dry season (November to April) and relatively warm rainy season (May to October).

The dry season has little rain and parched, but the rain season has rain fall an average 6,900mm/ year.

The average temperature/throughout a year is 23 degrees. The change of temperature is not big.

Average/month in Monrovia		Rain fall data (mm)			
Average rain fall data/month (mm)		2008	2009	2010	2011
Jan	30.2	0.0	45.4	16.0	59.5
Feb	89.0	223.3	5.2	73.1	54.4
Mar	125.5	57.5	49.4	305.1	90.1
Apr	172.9	137.1	23.4	363.8	167.3
May	558.1	434.7	381.0	889.0	527.8
Jun	1,489.6	784.0	1,510.6	1,481.5	2,182.4
Jul	767.3	1,431.4	18.3	1,076.1	543.2
Aug	1,108.2	1,089.7	868.7	1,597.8	1,078.4
Sep	1,234.7	1,392.3	1,044.6	1,167.1	1,334.9
Oct	912.1	886.9	1,104.6	842.9	813.8
Nov	324.2	204.2	465.2	144.7	482.6
Dec	110.1	143.2	22.1	262.5	12.6
Average rain fall data /year (2008-2011)		6,784.3	5,338.5	8,219.6	7,345.0

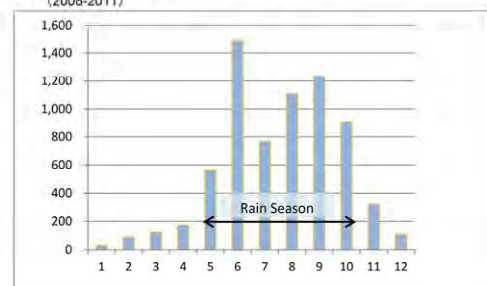


Figure 2.2-5 Rain fall data in Monrovia

Terrestrial formation is composed of the Edina Sandstone, Paynseville Sandstone and Fluvial & Deltac Deposits.

Construction should be concentrated during the total 6 months long dry seasons. Especially pavement works should be scheduled with some allowance, because the works will be troubled if it rains.

Safety Management for Road Side Residents, Road Users, and Construction Personnel

During the construction stage, carriageway and sidewalk will be provided within the right-of-way to secure smooth traffic flows on the roads under construction at particular important segments.

i. Safety for Road Side Residents;

Construction yards will be clearly separated and off-limited from general public by using security facilities such as fences, barricades, safety cones, lighting signs, construction signboard, traffic control signboards, detour routes indication boards, and so on as well as traffic controllers. Prevention measures to the heavy machine drivers and operators shall be carried out through periodical traffic and construction safety educations.

ii. Safety Management to Construction Personnel;

Guard persons will be provided to avoid collision between heavy machines and ordinary vehicles, pedestrians, and bicycles.

iii. Consideration for Environment

Debris and waste from removal of the existing pavement and bridges should be treated with proper manner to mitigate the environmental adverse impacts.

Selection of borrow pits will be made with consultation of the relevant authorities, and at the location with the least negative impacts to the environment.

Construction methods causing vibration and noise should be avoided during early morning and night time.

Dust control measures shall be carried by spraying water promptly.

Provision of information and educative training on labour safety, public health (malaria, sex related disease, AIDS/HIV, etc), natural environment preservation measures should be conducted for the construction work forces.

2-2-4-3 Scope of Works

Undertakings of both Governments of Japan and Liberia are listed in Table 2.2-16.

Table 2.2-16 Undertakings of the Both Governments

Items	Contents	Undertaken by		Remarks
		Japan	Liberia	
Procurement of Materials & Equipments	Procurement & Transportation	√		
Preparation Works	Lands & Right of Way Acquisitions		√	Including Spaces for Site Office, Stock Yard, Work Shop, etc.
	Relocation of Encroached Kiosks and Other Facilities		√	
	Provision of Borrow Pits and Quarry Sites		√	
	Provision of Waste Disposal Areas		√	
	Other Works	√		
Relocation & Removal of Various Obstacles	Relocation of Underground & Aerial Obstacles		√	Including Electric Poles & Wires, Telephone Poles & Cables, Water Pipes, Sewer Pipes, Optical Fibre Cables, Billboards & Signboards, etc.
	Removal of Existing Trees		√	
Main Works	Road & Intersection Improvement Works	√		
Supplemental Works	Underground Utility Ducts Installation Works		√	Except Hand Holes for Traffic Signals around Intersections
	Traffic Safety Facilities Installation	√		

2-2-4-4 Consultant Supervision

A Japanese consultant will carry out detailed design, assistance in tendering and construction supervision in accordance with the consultant contract agreed by the Government of Liberia and the Consultant.

(1) Detailed Design Services

The following services will be carried out as the Detailed Design Services by the Consultant;

- ✓ To confirm the contents of the Project with the Implementing Agencies in Liberia through discussions, detailed designs, and field investigations
- ✓ To prepare the detailed design and drawings, wherever necessary
- ✓ To review the procurement plan and project cost estimate, wherever necessary

Period for the Detailed Design Service will be as follows;

- ✓ 3.0 months from the verification of the agreement of the detailed design.

(2) Tender Related Services

The following services will be carried out as the Tender Related Services in the period from the tender notice to the construction contract by the Consultant;

Preparation of Tender Documents (it will be prepared in the Detailed Design Services)

Tender Notice

Pre-Qualification

Tendering

Tender Evaluation

Contract Facilitation

Period for the Tender Related Services will be as follows;

- ✓ 3.0 months from the completion of the detailed design.

(3) Construction Supervision Services

The following services will be carried out as the Construction Supervision Services of the construction to be executed by the Contractor according to the contract and implementation plan by the Consultant. Major items are as follows;

- ✓ Inspections and Approvals of the Site Surveys
- ✓ Inspections and Approvals of the Construction Plans
- ✓ Quality Control
- ✓ Progress Control
- ✓ Measurement of the Works
- ✓ Inspection of the Safety Aspects
- ✓ Final Inspection and Delivery

The Consultant will provide a Resident Engineer and an assistant Engineer. During the construction, the Consultant will coordinate with the officer-in-charge for work safety management of the Contractor to prevent any accidents at the site in advance.

2-2-4-5 Quality Control Plan

Quality control plans for concrete works and earth & pavement works are shown in Table 2.2-17 and Table 2.2-18, respectively;

Table 2.2-17 Quality Control Plan for Concrete Works

Item	Test Item	Test Method (Specification)	Frequency of Tests
Cement	Physical Property Test	AASHTO M85	Once before trail mix; thence once in every 500m ³ of concrete or when material is changed
Fine Aggregate	Physical Property Test	AASHTO M6	Once before trail mix; thence once in every 500m ³ or when material source is changed*
	Sieve Analysis	AASHTO T27	Once a month
Course Aggregate	Physical Property Test	AASHTO M80	Once before trail mix; thence once in every 500m ³ or when material source is changed*
	Sieve Analysis	AASHTO T27	Once a month
Water	Quality Test	AASHTO T26	Once before trail mix
Concrete	Slump Test	AASHTO T119	Twice a day
	Air Content Test	AASHTO T121	Twice a day
	Compressive Strength Test	AASHTO T22	6 specimens in each concreting. In case of large amount in each concreting, 6 specimens in every 75 m ³ (3 for 7-day strength and 3 for 28-day strength)
	Temperature Test	—	Twice a day
	Salinity Test	—	Twice a day

Table 2.2-18 Quality Control Plan for Earth & Pavement Works

Item	Test Item	Test Method (Specification)	Frequency of Tests
Embankment	Field Density Test	AASHTO T191	Once every 500 m ³
Subgrade & Base Course	Filed Compaction Test	AASHTO T180	Before trial execution, and when material is changed
	Modified CBR	AASHTO T193	Once before trial execution, and when material is changed
	Field Density Test	AASHTO T191	Twice every 1,000 m ²
Asphalt Concrete (Surface & Binder Course)	Sieve Analysis of Aggregate	AASHTO T27	Once before trial execution, and when material is changed
	Abrasion Test of Aggregate	AASHTO T96	Once before trial execution, and when material is changed
	Density Test of Asphalt Mixture	AASHTO T166	Once every 1,000 m ²
	Temperature of Asphalt Mixture	Temperatures while Carrying, Coating and Rolling	Once every 1 Truck

2-2-4-6 Procurement Plan

(1) Construction Materials Procurement Plan

All construction materials necessary for the Project such as sands, aggregates, crushed stones, ready-mixed concretes (including site production) and lumbers are usually available in Liberia markets either locally or through imports.

The procurement policies for major materials are as follows;

Procurement in Liberia when materials are available in domestic markets,

Procurement by importing from Japan and/or third countries when materials are not available in Liberia. The exporting countries will be decided by taking quality, price, availability and supply period into consideration.

Procurement plan for major materials is shown in Table 2.2-19.

Table 2.2-19 Procurement Plan for Major Materials

Item	Procured from			Remarks
	Liberia	Japan	Third Country	
Materials for Structures				
Crushed Stone (including for Footing)	√			
Cement	√			
Sand (for Concrete)	√			
Subgrade Material	√			
Ready Mixed Concrete	√			
Crushed Stone (for Asphalt Mixture)	√			
Straight Asphalt			√	
Re-bar ; D9 ~ D32 mm	√			
Section Steel			√	
Rubble (for Wet Masonry)	√			
PVC Pipe ; D = 150 ~ 200 mm	√			
RC Pipe ; D = 300 ~ 700 mm	√			
Plywood (for Form / without Waterproof)	√			
Timber (for Support) & Log (for Scaffold)	√			
Electric Welding Rod	√			
Fuel & Lubrication	√			
Oxygen & Acetylene	√			
Gas Cutter	√			

(2) Equipment

Procurement policies for equipment are as follows;

Equipment available in Liberia will be procured locally.

Equipment owned by local contractors will be hired or leased.

Procurement plan for major equipment is shown in Table 2.2-20.

Table 2.2-20 Procurement Plan for Major Equipment

Equipment	Size	Lease / Procurement	Procured from			Reason of Procurement
			Liberia	Japan	Third Country	
Backhoe	0.28m ³	Lease	√			
Backhoe	0.5m ³	Lease	√			
Backhoe	0.8m ³	Procurement		√		Economy
Bulldozer	15t	Lease	√			
Bulldozer	21t	Lease	√			
Motor Grader	3.7m	Lease	√			
Road Roller	10-12t	Lease	√			
Tire Roller	8-20t	Lease	√			
Vibration Roller	0.8-1.1t	Procurement		√		Economy
Wheel Loader	2.4m ³	Lease	√			
Wheel Loader	3.1m ³	Lease	√			
Asphalt Finisher	2.4-6.0m	Procurement		√		Procurement
Sprinkler Truck	6.0kl	Procurement		√		Economy
Dump Truck	10t	Procurement		√		Economy
Truck Crane	20t	Procurement		√		Economy
Trailer Truck	20t	Lease	√			
Trailer Truck	30t	Lease	√			
Concrete Plant	30 m ³ /h	Procurement		√		Economy
Asphalt Plant	50 t/h	Procurement		√		Economy
Generator	35kVA	Procurement		√		Economy
Generator	60kVA	Procurement		√		Economy
Generator	250kVA	Lease	√			
Submersible Pump	150mm	Lease	√			
Submersible Pump	100mm	Lease	√			
Compressor	5m ³ /min	Lease	√			

2-2-4-7 Operation Guidance Plan

This project has no operation guidance plan.

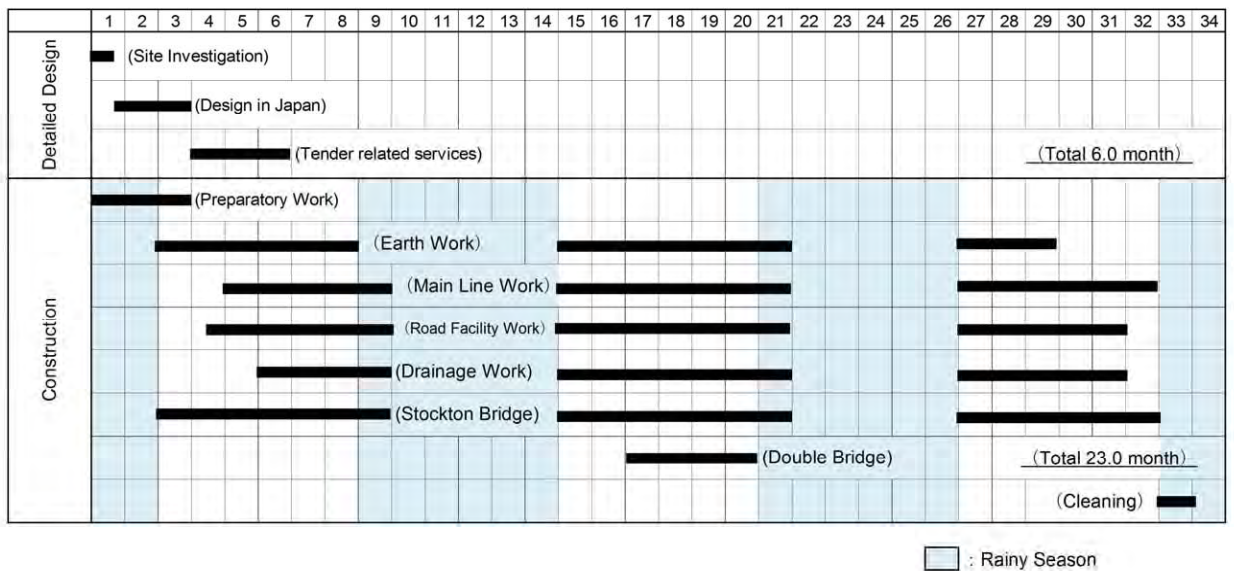
2-2-4-8 Soft Component (Technical Assistance) Plan

This project has no soft component plan.

2-2-4-9 Implementation Schedule

Implementation schedule for detailed design, tender related services, and construction is shown in Table 2.2-21.

Table 2.2-21 Implementation Schedule



2-3 Obligations of Recipient Country

The Government of Liberia will undertake the following measures on condition that the Grant Aid by the Government of Japan is extended to the Project;

- ✓ To provide data and information necessary for the Project
- ✓ To secure the land necessary for the execution of the Project, such as the land for construction works, stock yards, work shops, field offices, and others
- ✓ To provide borrow pits, quarry sites and waste disposal areas
- ✓ To bear commissions to the bank in Japan for its banking service in connection with the Project
- ✓ To ensure prompt tax exemption, customs clearance, and effective inland transportations of materials and equipment
- ✓ To exempt Japanese nationals engaged in the Project from any customs duties for the supply of products and services necessary for the project.
- ✓ To accord Japanese nationals necessary legal rights for their entry and stay in Liberia.
- ✓ To provide all necessary permission, licenses and certificates in connection with environmental issues and earthwork for the Project (EIA approved, construction permission, traffic control permission, detour permission, construction permission in river, earthwork permission etc.)
- ✓ To relocate all obstruction structures such as water pipes, optical fibre cables, billboards & signboards, etc. in the project road
- ✓ To arrange proper use and effective maintenance of the road after the completion of the project
- ✓ To coordinate and solve any issues related to the Project that may be raised from residents and/or third parties
- ✓ To bear all the expenses, other than covered by the Japanese Grant Aid, agreed and necessary for the Project
- ✓ To secure safety of the construction site

2-4 Project Operation Plan

(1) Organization for Road Management and Maintenance

- ✓ Road management and maintenance after the Project is under the responsibility of Ministry of Public Works (MPW). However, it is not enough to manage and maintenance the road and to have machinery , technical skill, budget. Road surfaces of primary road have been adequately repaired regularly , however road surfaces of secondary road have not been relatively repaired. It is necessary to improve the ability of road management and maintenance through this project.

(2) Road Maintenance Plan

Necessary road maintenance works are as follows;

Periodical Maintenance

- ✓ Routine inspection and cleaning of side ditches, culverts, ancillary facilities, etc

Ad-hoc Maintenance

- ✓ Repair of damaged parts, such as ceiling & patching pavement, repainting pavement marking, and any other damaged parts

(3) Present Road Maintenance Conditions and Recommendations

Recent road management & maintenance conditions observed are as follows;

- ✓ Road surfaces of Somalia Drive have been repaired regularly
- ✓ Road side ditches and inlets have not been well maintained periodically. For instance, cleaning works of road surfaces and drainages are observed at various places in Monrovia, on the other hand, long time clogged drainage pipes and inlets as well as submerged points are also observed at several segments in the City

To achieve effective results of the Project and sustain good conditions of the road facilities, it is important to manage and maintain road facilities appropriately by keeping in good condition of the pavements and other ancillary facilities and extending their life spans, The following recommendations are proposed;

- ✓ To check facilities regularly for controlling their conditions
- ✓ To clean facilities, especially drainage
- ✓ To secure necessary budget for maintenance

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

(1) Cost borne by the Government of Japan

The Project will be implemented in accordance with the Japan's Grant Aid scheme and the cost will be determined before concluding the Exchange of Note for the Project.

(2) Cost borne by the Government of the Republic of Liberia

Total Cost	:	1,545,000 US\$ (Approx. 124.3 Million Yen)
Land Acquisition and Relocation of House	:	860,000 US\$ (Approx. 69.2 Million Yen)
Utility Relocation Cost	:	600,000 US\$ (Approx. 48.3 Million Yen)
Environmental Assessment Cost	:	60,000 US\$ (Approx. 4.8 Million Yen)
Bank Commission	:	25,000 US\$ (Approx. 2.0 Million Yen)

(3) Conditions in Cost Estimate

Time of Cost Estimate	:	June 2012
Exchange Rate	:	1 United States Dollar = 80.52 Yen
Construction Period	:	As shown in the Implementation Schedule
Other Conditions	:	Cost estimate is implemented in accordance with the guideline of Japan's Grant Aid

2-5-2 Operation and Maintenance Cost

Ministry of Public Works is responsible for the maintenance of the road to be rehabilitated by the Project.

Annual maintenance cost necessary for the road is estimated at approximately US\$ 91,150.

Details are shown in Table 2.5-1.

Table 2.5-1 Maintenance Work and Annual Cost

✓ Routine Inspection (unit: US\$)

Facility	Inspection Item	Frequency	No. of Staff	Equipment	Quantity	Unit Price	Cost
Pavement	Crack, deformation, pothole, etc.	12 times a year	4 persons	Scoop, hammer, sickle, barricade, pick-up truck	48 man-day / year	37.5/day	1,800
Shoulder/slope	Rainwater erosion & collapse, etc.	1 day each time					
Road marking	Injury, deformation, stain, splitting				12 veh-day/ year =96 hours/year (8 hours/day)	75.0/hour	7,200
Drainage	Damage and obstruction						
						Total	9,000

✓ Daily Maintenance Work (unit: US\$)

Facility	Inspection Item	Frequency	No. of Staff	Equipment	Quantity	Unit Price	Cost
Cleaning	Cleaning soil, obstacles	4 times a year	10 persons	Scoop, hammer, sickle, barricade, Pick-up truck (2 units)	160 man-day / year	90.0/day	14,400
Drainage	Cleaning	4 days each time					
Pavement	Cutting grass, cleaning				20 veh-day/ year (10 hours/day)	80.0/day	6,000
Shoulder	Cleaning						
Road marking							
						Total	20,400

29,400

✓ Repair (unit: US\$)

Facility	Repair Item	Frequency	Unit Price (per Year, per km)	Road length
Pavement	Patching pothole	1 times / 5 years	2,200	13.2 km(2-Lane)
Shoulder/slope	Repairing damaged part	1 times / 5 years	300	
Drainage	Repairing damaged part	1 times / 2 years	1,800	
Road attached facilities	Repairing damaged part	1 times / 5 years	150	
Structure	Repairing damaged part	1 times / 10 years	300	
		Total	4,750	61,750

91,150

CHAPTER 3 PROJECT EVALUATION

3-1 Preconditions

“OBLIGATION OF RECIPIENT COUNTRY” shown in 2-3 has to be reliably conducted by MPW.

3-2 Necessary Inputs by Recipient Country

To fully secure and sustain the Project effects, Liberia shall execute the following issues.

- (1) Maintenance should be well carried out. Cleaning of drainage facilities is very critical so as to prevent early deterioration of the road. The maintenance for pipe drain is not enough in the present conditions, cleaning for pipe drain should be done in particular.
- (2) Road maintenance budget should be secured in accordance with the long-run program for operation and maintenance. In addition, capacity development should be carried out as well.

3-3 Important Assumptions

The road rehabilitation project on the international corridor from Monrovia to border of the Republic of Guinea is being put into effect by the World Bank donation at present. The road of this Project is the main road of international corridor from Freeport, main port in Monrovia, to border of the Republic of Guinea. With multiplier effect of the preceding project on road improvement to border of the Republic of Guinea, the efficient traffic / physical distribution of international corridor will be expected.

3-4 Project Evaluation

3-4-1 Relevance

- ① A number of people receive benefit from the Project; Direct beneficiary of the Project includes the road user and the resident whose population is 300 thousand people and indirect beneficiary of the Project includes 1.2 million people who live in Monrovia.
- ② Liberia can operate and maintain the project facilities by itself using its fund, labor and technology as excessively special techniques are not required.

- ③ This Project will reconstruct basic infrastructure, which is one of the important subjects among National Plan “the Poverty Reduction Strategy Papers (PRSP) of Liberia.” As Monrovia’s population is growing rapidly, this Project is urgent to solve the traffic congestion.
- ④ As for the countermeasures against traffic accidents after effects of road improvement on environment and society are observed, measures such as the establishment of traffic safety facilities, improvement of junction and construction of sidewalk are fully taken.
- ⑤ It is expected that this project will be implemented without difficulties by the Japanese Grant Aid scheme.

3-4-2 Effectiveness

(1) Quantitative Effect

Expected effect	Before Implementation (Present)	After Implementation (Future)
Reduction in traffic time at peak hour (L=13.2km)	60 minutes	20 minutes
Decrease of Private bus’s additional fare (round trip fare between the Red light Junction and the center of Monrovia)	20-30 Liberia \$	0

(2) Qualitative Effect

- ✓ Safety securement
The safety for the pedestrian will be secured by separating sidewalk and carriage way by the construction of sidewalk and curb stone.
- ✓ Decrease in the frequency of maintenance by improvement of drainage facilities
The damage to the base course from rain water will be prevented by the improvement of drainage facilities, resulting in decrease in the frequency of maintenance.
- ✓ Smooth traffic by bus bay
The safety of passenger on the bus as well as smooth traffic will be secured by the construction of bus bay at the place which a large number of people get on and off.

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1. Member List of Study Team

(1) 1st Preparatory Survey (18/January/2012 - 30/March/2012)

Mr. Tsuyoshi YAMAJUKU	Chief Consultant/Road Planner	Katahira & Engineers International
Mr. Keiichi MURAKAMI	Road Designer 1	Katahira & Engineers International
	Burial things Investigator	
Mr. Kiyotake MIYAKE	Road Designer 2	Yachiyo Engineering CO., LTD.
	Drainage Designer	
Mr. Yasushi AOKI	Bridge Designer	Katahira & Engineers International
Mr. Toshiaki TSUCHIYA	Natural Condition Surveyor	Katahira & Engineers International
Mr. Kiyoshi MUKAI	Environmental Specialist	Katahira & Engineers International
	Social Specialist 1	
Mr. Mamoru SHIBATA	Social Specialist 2	Yachiyo Engineering CO., LTD.
Mr. Hidekatsu FUJIWARA	Construction, Procurement Planner / Cost Estimator	Katahira & Engineers International
Mr. Kazuhisa TAKASHIMA	Office of liaison / Natural Condition survey assistant	Katahira & Engineers International

(2) 2nd Preparatory Survey (31/March/2012 - 3/June/2012)

Mr. Makoto ASHINO	Team Leader	Japan International Cooperation Agency
Mr. Daisuke FUKUZAWA	Project Coordinator	Japan International Cooperation Agency
Mr. Tsuyoshi YAMAJUKU	Chief Consultant/Road Planner	Katahira & Engineers International
Mr. Keiichi MURAKAMI	Road Designer 1	Katahira & Engineers International
	Burial things Investigator	
Mr. Kiyotake MIYAKE	Road Designer 2	Yachiyo Engineering CO., LTD.
	Drainage Designer	
Mr. Yasushi AOKI	Bridge Designer	Katahira & Engineers International
Mr. Kiyoshi MUKAI	Environmental Specialist	Katahira & Engineers International
	Social Specialist 1	
Mr. Mamoru SHIBATA	Social Specialist 2	Yachiyo Engineering CO., LTD.
Mr. Hidekatsu FUJIWARA	Construction, Procurement Planner / Cost Estimator	Katahira & Engineers International

(3) 3rd Preparatory Survey (6-16/October/2012, 22-29/October/2012)

Mr. Tsuyoshi YAMAJUKU	Chief Consultant/Road Planner	Katahira & Engineers International
Mr. Kiyoshi MUKAI	Environmental Specialist	Katahira & Engineers International
	Social Specialist 1	

(4) Explanation of Draft Report (25/November/2012 - 8/December/2012)

Mr. Makoto ASHINO	Team Leader	Japan International Cooperation Agency
Mr. Yutaro KANEKO	Project Coordinator	Japan International Cooperation Agency
Ms. Kyoko UEMATSU	Environment & Social Specialist	Japan International Cooperation Agency
Mr. Tsuyoshi YAMAJUKU	Chief Consultant/Road Planner	Katahira & Engineers International
Mr. Keiichi MURAKAMI	Road Designer 1	Katahira & Engineers International
	Burial things Investigator	

2. Survey Schedule

1st Preparatory Survey (18/1/2012-30/3/2012)

Schedule of Preparatory Survey Team for Somalia Drive re-construction project-1st Term (18,January, 2012-30,March, 2012)

Name			Mr.Tsuyoshi YAMAJUKU	Mr.Keiichi MURAKAMI	Mr.Kiyotaka MIYAKE	Mr.Yasushi AOKI	Mr.Toshiaki TSUCHIYA	Mr.Kiyoshi MUKAI	Mr.Mamoru SHIBATA	Mr.Hidekatsu FUJIWARA	Mr.Kazuhisa TAKASIMA
Position			Chief Consultant / Road Planner. (Katahira & Engineers International)	Road Designer 1/ Burial things investigator. (Katahira & Engineers International)	Road Designer 2/ Drainage Designer. (Yachiyo Engineering Co.LTD)	Bridge Designer. (Katahira & Engineers International)	Natural Condition Surveyor. (Katahira & Engineers International)	Environment Specialist / Social Specialist 1. (Katahira & Engineers International)	Social Specialist 2. (Yachiyo Engineering Co.LTD)	Construction, Procurement Planner / Cost Estimator. (Katahira & Engineers International)	Office of liaison / Natural Condition Survey assistant. (Katahira & Engineers International)
No.	Date	Day									
1	18-Jan-12	Wed	Narita → Amsterdam					Narita → Amsterdam	Narita → Amsterdam		
2	19-Jan-12	Thu	Amsterdam → Accra					Amsterdam → Accra	Amsterdam → Accra		
3	20-Jan-12	Fri	Visit to EOJ, JICA					Visit to EOJ, JICA	Visit to EOJ, JICA		
4	21-Jan-12	Sat	Accra → Monrovia					Accra → Monrovia	Accra → Monrovia		Narita → Frankfurt → Brussels
5	22-Jan-12	Sun	Meeting with Investigation team Site Survey					Meeting with Investigation team Site Survey	Meeting with Investigation team Site Survey		Brussels → Monrovia
6	23-Jan-12	Mon	Meeting with MPW					Meeting with MPW	Meeting with MPW		Meeting with MPW
7	24-Jan-12	Tue	Meeting with GIZ,WB,MCC					Meeting with GIZ,WB,MCC	Meeting with GIZ,WB,MCC		Meeting with MCC / Site survey
8	25-Jan-12	Wed	Meeting with MOT, Land Commission					Meeting with MOT, Land Commission	Meeting with MOT, Land Commission		Meeting with MOT, Land Commission
9	26-Jan-12	Thu	Kickoff Meeting					Kickoff Meeting	Kickoff Meeting		Site Survey
10	27-Jan-12	Fri	Site Survey					Site Survey	Site Survey		Site Survey
11	28-Jan-12	Sat	Site Survey					Site Survey	Site Survey		Site Survey
12	29-Jan-12	Sun	Meeting with Investigation team Site Survey					Meeting with Investigation team Site Survey	Meeting with Investigation team Site Survey		Meeting with Investigation team Site Survey
13	30-Jan-12	Mon	Site Survey					Site Survey	Site Survey		Site Survey
14	31-Jan-12	Tue	Meeting with Local Consultant					Meeting with Local Consultant	Meeting with Local Consultant		Site Survey
15	01-Feb-12	Wed	Site Survey					Site Survey	Site Survey		Site Survey
16	02-Feb-12	Thu	Site Survey					Site Survey	Site Survey		Site Survey
17	03-Feb-12	Fri	Site Survey					Site Survey	Site Survey		Site Survey
18	04-Feb-12	Sat	Site Survey					Site Survey	Site Survey		Site Survey
19	05-Feb-12	Sun	Meeting with Investigation team Site Survey					Meeting with Investigation team Site Survey	Meeting with Investigation team Site Survey		Meeting with Investigation team Site Survey
20	06-Feb-12	Mon	Site Survey					Meeting with Local Consultant	Meeting with Local Consultant		Site Survey
21	07-Feb-12	Tue	Meeting with EU					Meeting with Local Consultant	Meeting with Local Consultant		Site Survey
22	08-Feb-12	Wed	Site Survey					Site Survey	Site Survey		Site Survey
23	09-Feb-12	Thu	Meeting with MPW					Site Survey	Site Survey		Site Survey
24	10-Feb-12	Fri	Meeting with MPW					Meeting with MPW	Meeting with MPW		Site Survey
25	11-Feb-12	Sat	Site Survey					Site Survey	Site Survey		Site Survey
26	12-Feb-12	Sun	Meeting with Investigation team Site Survey					Meeting with Investigation team Site Survey	Meeting with Investigation team Site Survey		Meeting with Investigation team Site Survey
27	13-Feb-12	Mon	Site Survey					Meeting with Local Consultant	Meeting with Local Consultant		Site Survey
28	14-Feb-12	Tue	Meeting with LWSC					Site Survey	Site Survey		Site Survey
29	15-Feb-12	Wed	Meeting with MPW					Meeting with Local Consultant	Meeting with Local Consultant		Site Survey
30	16-Feb-12	Thu	Meeting with Local Contractor					Site Survey	Meeting with Local Consultant		Site Survey
31	17-Feb-12	Fri	Site Inspection with MPW					Site Inspection with MPW	Site Inspection with MPW		Site Survey
32	18-Feb-12	Sat	Meeting with Local Contractor	Narita → Frankfurt → Brussels				Site Survey	Site Survey		Site Survey
33	19-Feb-12	Sun	Meeting with Investigation team Site Survey	Brussels → Monrovia				Meeting with Investigation team Site Survey	Meeting with Investigation team Site Survey		Meeting with Investigation team Site Survey
34	20-Feb-12	Mon	AM Visit to JICA PM-Site Survey					Site Survey	Site Survey		Site Survey
35	21-Feb-12	Tue	Stake holder meeting					Stake holder meeting	Stake holder meeting		Site Survey
36	22-Feb-12	Wed	AM Visit to JICA PM-Monrovia → Accra					AM Visit to JICA PM-Monrovia → Accra	AM Visit to JICA PM-Monrovia → Accra		Site Survey
37	23-Feb-12	Thu	Report Preparation					Report Preparation	Report Preparation		Site Survey
38	24-Feb-12	Fri	Visit to EOJ, JICA					Visit to EOJ, JICA	Visit to EOJ, JICA		Site Survey
39	25-Feb-12	Sat	AM-Report Preparation PM-Accra →					AM-Report Preparation PM-Accra →	AM-Report Preparation PM-Accra →		Report Preparation
40	26-Feb-12	Sun	→ Amsterdam →	Meeting with Investigation team Site Survey				→ Amsterdam →	→ Amsterdam →		Meeting with Investigation team Site Survey
41	27-Feb-12	Mon	→ Narita	Site Survey				→ Narita	→ Narita		Report Preparation
42	28-Feb-12	Tue		Site Survey							Report Preparation
43	29-Feb-12	Wed		Site Survey							Site Survey
44	01-Mar-12	Thu		Site Survey	Narita → Frankfurt → Brussels			Site Survey			Site Survey
45	02-Mar-12	Fri		Site Survey	Brussels → Monrovia			Site Survey			Site Survey
46	03-Mar-12	Sat		Site Survey				Site Survey			Site Survey
47	04-Mar-12	Sun		Meeting with Investigation team Site Survey	Meeting with Investigation team Site Survey			Meeting with Investigation team Site Survey			Meeting with Investigation team Site Survey
48	05-Mar-12	Mon		Site Survey	Site Survey			Site Survey			Site Survey
49	06-Mar-12	Tue		Site Survey	Site Survey			Site Survey			Site Survey
50	07-Mar-12	Wed		Site Survey	Site Survey			Site Survey			Site Survey
51	08-Mar-12	Thu		Site Survey	Site Survey			Site Survey			Site Survey
52	09-Mar-12	Fri		Site Survey	Site Survey			Site Survey			Site Survey
53	10-Mar-12	Sat		Site Survey	Site Survey			Site Survey			Site Survey
54	11-Mar-12	Sun		Meeting with Investigation team Site Survey	Meeting with Investigation team Site Survey			Meeting with Investigation team Site Survey			Meeting with Investigation team Site Survey
55	12-Mar-12	Mon		Site Survey	Site Survey			Site Survey			Site Survey
56	13-Mar-12	Tue		Site Survey	Site Survey			Site Survey			Site Survey
57	14-Mar-12	Wed		Site Survey	Site Survey			Site Survey			Site Survey
58	15-Mar-12	Thu		Site Survey	Site Survey			Site Survey			Site Survey
59	16-Mar-12	Fri		Site Survey	Site Survey			Site Survey		Narita → Frankfurt → Brussels	Site Survey
60	17-Mar-12	Sat		Site Survey	Site Survey			Report Preparation		Brussels → Monrovia	Report Preparation
61	18-Mar-12	Sun		Meeting with Investigation team Site Survey	Meeting with Investigation team Site Survey			AM-Report Preparation PM-Monrovia →		Site Survey	AM-Report Preparation PM-Monrovia →
62	19-Mar-12	Mon		Site Survey	Site Survey			→ Brussels → Frankfurt →		Site Survey	→ Brussels → Frankfurt →
63	20-Mar-12	Tue		Site Survey	Site Survey					Site Survey	→ Narita
64	21-Mar-12	Wed		Site Survey	Site Survey					Site Survey	
65	22-Mar-12	Thu		Meeting with MPW	Meeting with MPW					Meeting with MPW	
66	23-Mar-12	Fri		Meeting with MPW	Meeting with MPW					Meeting with MPW	
67	24-Mar-12	Sat		Site Survey	Site Survey					Site Survey	
68	25-Mar-12	Sun		Meeting with Investigation team Site Survey	Meeting with Investigation team Site Survey					Meeting with Investigation team Site Survey	
69	26-Mar-12	Mon		Meeting with MPW	Meeting with MPW					Report Preparation	
70	27-Mar-12	Tue		Report Preparation	Report Preparation					Report Preparation	
71	28-Mar-12	Wed		AM-Report Preparation PM-Monrovia →	AM-Report Preparation PM-Monrovia →					AM-Report Preparation PM-Monrovia →	
72	29-Mar-12	Thu		→ Brussels → Frankfurt →	→ Brussels → Frankfurt →					→ Brussels → Frankfurt →	
73	30-Mar-12	Fri		→ Narita	→ Narita					→ Narita	

EOJ:Embassy of Japan

EPA:Environmental Protection Agency

MPW:Ministry of Public Works

MOT:Ministry of Transport

GIZ:Deutsche Gesellschaft für Internationale Zusammenarbeit

MCC:Monrovia City Corporation

LWSC:Liberia Water and Sewer Corporation

2nd Preparatory Survey (31/3/2012-3/6/2012)

Schedule of Preparatory Survey Team for Somalia Drive re-construction project - 2nd Term (31, March, 2012-3, June, 2012)

Name			Mr.Makoto ASHINO	Mr.Daisuke FUKUZAWA	Mr.Tsuyoshi YAMAJUKU	Mr.Keiichi MURAKAMI	Mr.Kiyotaka MIYAKE	Mr.Yasushi AOKI	Mr.Kiyoshi MUKAI	Mr.Mamoru SHIBATA	Mr.Hidekatsu FUJIWARA
Position			Leader (Japan International Cooperation Agency)	Project Coordinator (Japan International Cooperation Agency)	Chief Consultant / Road Planner. (Katahira & Engineers International)	Road Designer 1/ Burial things investigator. (Katahira & Engineers International)	Road Designer 2/ Drainage Designer. (Yachiyo Engineering Co.LTD)	Bridge Designer. (Katahira & Engineers International)	Environment Specialist / Social Specialist 1. (Katahira & Engineers International)	Social Specialist 2. (Yachiyo Engineering Co.LTD)	Construction, Procurement Planner / Cost Estimator. (Katahira & Engineers International)
No.	Date	Day									
1	31-Mar-12	Sat									
2	01-Apr-12	Sun									
3	02-Apr-12	Mon									
4	03-Apr-12	Tue									
5	04-Apr-12	Wed									
6	05-Apr-12	Thu									
7	06-Apr-12	Fri									
8	07-Apr-12	Sat									
9	08-Apr-12	Sun									
10	09-Apr-12	Mon									
11	10-Apr-12	Tue									
12	11-Apr-12	Wed									
13	12-Apr-12	Thu									
14	13-Apr-12	Fri									
15	14-Apr-12	Sat									
16	15-Apr-12	Sun									
17	16-Apr-12	Mon									
18	17-Apr-12	Tue									
19	18-Apr-12	Wed									
20	19-Apr-12	Thu									
21	20-Apr-12	Fri									
22	21-Apr-12	Sat									
23	22-Apr-12	Sun									
24	23-Apr-12	Mon									
25	24-Apr-12	Tue									
26	25-Apr-12	Wed									
27	26-Apr-12	Thu									
28	27-Apr-12	Fri									
29	28-Apr-12	Sat									
30	29-Apr-12	Sun									
31	30-Apr-12	Mon									
32	01-May-12	Tue									
33	02-May-12	Wed									
34	03-May-12	Thu									
35	04-May-12	Fri									
36	05-May-12	Sat									
37	06-May-12	Sun									
38	07-May-12	Mon									
39	08-May-12	Tue									
40	09-May-12	Wed									
41	10-May-12	Thu									
42	11-May-12	Fri									
43	12-May-12	Sat									
44	13-May-12	Sun									
45	14-May-12	Mon									
46	15-May-12	Tue									
47	16-May-12	Wed									
48	17-May-12	Thu									
49	18-May-12	Fri									
50	19-May-12	Sat									
51	20-May-12	Sun									
52	21-May-12	Mon									
53	22-May-12	Tue									
54	23-May-12	Wed									
55	24-May-12	Thu									
56	25-May-12	Fri									
57	26-May-12	Sat									
58	27-May-12	Sun									
59	28-May-12	Mon									
60	29-May-12	Tue									
61	30-May-12	Wed									
62	31-May-12	Thu									
63	01-Jun-12	Fri									
64	02-Jun-12	Sat									
65	03-Jun-12	Sun									

EOJ:Embassy of Japan

MPW:Ministry of Public Works

NTA:National Transit Authority

EPA:Environmental Protection Agency

MOT:Ministry of Transport

3rd Preparatory Survey (22/10/2012-28/10/2012)

**Schedule of Preparatory Survey Team for Somalia Drive re-construction project
3 rd time Survey (6,October, 2012-28,October, 2012)**

Name			Mr.Tsuyoshi YAMAJUKU	Mr.Kiyoshi MUKAI
Position			Chief Consultant / Road Planner. (Katahira & Engineers International)	Environment Specialist / Social Specialist 1. (Katahira & Engineers International)
No.	Date	Day		
1	06-Oct-12	Sat		Narita → Frankfurt → Brussels
2	07-Oct-12	Sun		Brussels → Monrovia
3	08-Oct-12	Mon		Meeting with MPW, WB and Local Consultant
4	09-Oct-12	Tue		Meeting with EPA, MPW and Local Consultant
5	10-Oct-12	Wed		Meeting with EPA, MPW and Local Consultant
6	11-Oct-12	Thu		Meeting with EPA, MPW and Local Consultant
7	12-Oct-12	Fri		Meeting with MPW and WB, Site Survey
8	13-Oct-12	Sat		Report Preparation
9	14-Oct-12	Sun		AM: Report Preparation PM: Monrovia →
10	15-Oct-12	Mon		→ Brussels → Frankfurt →
11	16-Oct-12	Tue		→ Narita
1	22-Oct-12	Mon	Narita → Europe	
2	23-Oct-12	Tue	Europe → Monrovia	
3	24-Oct-12	Wed	Meeting with MPW	
4	25-Oct-12	Thu	Meeting with MPW, Site investigation	
5	26-Oct-12	Fri	AM:Meeting with MPW , PM:Monrovia →	
6	27-Oct-12	Sat	→ Europe →	
7	28-Oct-12	Sun	→ Narita	

MPW:Ministry of Public Works

Explanation on Draft Final Report (25/11/2012-9/12/2012)

Schedule of Preparatory Survey Team for Somalia Drive re-construction project - DBD (25,November, 2012-9,December, 2012)

Name			Mr.Makoto ASHINO	Mr.Yutaro KANEKO	Ms. Kyoko Uematsu	Mr.Tsuyoshi YAMAJUKU	Mr.Keiichi MURAKAMI
Position			Leader (Japan International Cooperation Agency)	Project Coordinator (Japan International Cooperation Agency)	Environmental and Social Considerations (Japan International Cooperarion Agency)	Chief Consultant / Road Planner. (Katahira & Engineers International)	Road Designer 1/ Burial things investigator. (Katahira & Engineers International)
No.	Date	Day					
1	25-Nov-12	Sun			Tokyo→Frankfurt→Brussels →Monrovia	Narita → Amsterdam	
2	26-Nov-12	Mon			Meeting with EPA	Amsterdam → Accra	Tokyo → Paris
3	27-Nov-12	Tue			Meeting with MPW	Visit to JICA in Accra	Paris → Monrovia
4	28-Nov-12	Wed			Meeting with MPW	Accra → Monrovia (KQ)	Meeting with MPW, WB
5	29-Nov-12	Thu			Meeting Investigation team, Site survey with MPW		
6	30-Nov-12	Fri			Meeting with EPA	Meeting with MPW	
7	01-Dec-12	Sat			Site Survey	Site Survey	
8	02-Dec-12	Sun	Tokyo→Frankfurt→Brussels→Monrovia		Meeting with Investigation team , Site Survey		
9	03-Dec-12	Mon	Site Survey, Meeting with MPW			Site Survey, Meeting with MPW	
10	04-Dec-12	Tue	Meeting with MPW, Stakeholder Meeting			Meeting with MPW, Stakeholder Meeting	
11	05-Dec-12	Wed	AM:Meetg with MPW , PM:Signing of MD			AM:Meetg with MPW , PM:Signing of MD	
12	06-Dec-12	Thu	Monrovia→Accra→			Site Survey	
13	07-Dec-12	Fri	→London→			AM:Meeting with MPW , PM:Monrovia →	
14	08-Dec-12	Sat	→Tokyo			→ Amsterdam →	→ Paris →
15	09-Dec-12	Sun				→ Narita	→ Tokyo

EOJ:Embassy of Japan

MPW:Ministry of Public Works

EPA:Environmental Protection Agency

MOT:Ministry of Transport

3. List of Parties Concerned

Ministry of Public Works

- Minister : ATTY. Samuel Kofi Woods, II
- Deputy Minister for Technical services : Mr. Victor B. Smith
- Acting Assistant Minister : Mr. Edsel Edward Smith
- Technical Assistant, Office of the Minister : Mr. I. Richmond W. K. Harding
- Head Engineer : Mr. A. D. E. Jackson
- Chef Engineer : Mr. Lasana Sesay
- Environmental Consultant : Prof. David L. Wiles, M. Phil
- Program Director : Mr. A. G. Beckley
- Deputy Program Director : Mr. Emmanuel K. Baker

Ministry of Transport

- Minister : Hon. Willard A. Russell, I
- Technical assistant Minister : Mr. Gabriel S. Tarplah
- Sr. Research/Policy Officer : Mr. D. Erasmulr Grngar
- Sr. Research/Policy Advisor : Mr. Julius D. Dennis, Jr

City Government of Monrovia

- Mayor, Chairman : Ms. Mary T. Broh

Environmental Protection Agency of Liberia

- Executive Director : Ms. Anyaa Vahiri
- Deputy Executive Director : Mr. Nathaniel T. Blama
- Assistant Manager : Mr. Varney L. Conneh
- Supervisor, Environmental Quality & Standard : Mr. Earl A.R. Neblett
- Statistician : Sete F. Marshall

Land Commission

- Chairman : PhD. Cecil T.O. Brandy
- Vice Chairman : Mr. Walter Y. Wisner
- Adm. Assistant / Land Commission : Ms. Daniel Warner

National Transit Authority

- Quality Control Manager : Mr. E. Cosby Pelham
- Internal Audit Manager : Mr. Edmond Forh Forh
- Financial Comptroller / CFO : Mr. J. Willy Moore ESQ

Liberia Water & Sewer Corporation

- Managing Director : Mr. Nortu Jappah
- Deputy Managing Director for Technical Service : Mr. Elmos B. Glay

Liberia Institute of Statistics & Geo-Information Services

- Director General : PhD T. Edward Liberty
- Sr. Demographer : Ms. Dorothy D. Johnson

World Bank

- Senior Highway Engineer Transport Section : Mr. Kulwinder Singh Rao
- Sr. Operations Officer : Ms. Coleen R. Littlejohn
- Urban Development Specialist : Ms. Jenny Hasselsten
Africa Region Urban and Water Unit (ERTWU)

GIZ

- Project Manager for Capacity Building for the : Ms. Claudia Hermes
Transport Sector in Liberia
- Road Maintenance Advisor : Mr. Walter Frankenberger

Embassy of Japan

- Ambassador Extraordinary and Plenipotentiary : Mr. Naoto NIKAI
- Counsellor, Deputy Head of Mission : Mr. Hisanobu MOCHIZUKI
- First Secretary : Mr. Shunsuke SAITO

JICA Ghana Office

- Chief Representative : Mr. Jiro INAMURA
- Senior Representative : Mr. Koichi KITO
- Senior Representative : Mr. Fuyuki SAGARA
- Senior Representative : Mr. Hitoshi SATO
- Representative : Mr. Hajime USUKURA
- Representative : Mr. Ichiro FUKUHARA
- Project Formulation Advisor : Mr. Osamu SAKURAI

JICA Liberia Field Office

- Former Country Manager : Mr. Shitau MIURA
- Country Manager : Ms. Maki OKUSA

4. Minutes of Discussions

Explanation on Draft Final Report (5/December/2012)

Minutes of Discussions
on
the Preparatory Survey
on
the Project for Reconstruction of Somalia Drive in Monrovia
in
the Republic of Liberia

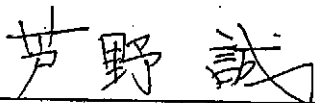
(Explanation on Draft Final Report)

In April 2012, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey Teams on the Project for Reconstruction of Somalia Drive in Monrovia to the Republic of Liberia. Through the discussions, field surveys and technical examination in Japan, JICA finally prepared a Draft Final Report of the study.

In order to explain and consult with the concerned officials of the Government of the Republic of Liberia on the contents of the Draft Final Report, JICA dispatched the Preparatory Survey Team headed by Mr. Makoto Ashino (hereinafter referred to as "the Team") to Republic of Liberia scheduled to stay from November 26 to December 6, 2012.

As a result of the discussions, both sides confirmed the main item described in the attached sheets.

Monrovia, December 5, 2012



Makoto Ashino
Leader, Preparatory Survey Team
Japan International Cooperation Agency



Victor B. Smith
Deputy Minister for Technical Services
Ministry of Public Works



Yancon-Dargbe Nimley
Assistant Minister for Economic
Cooperation & Integration
Ministry of Planning & Economic Affairs

ATTACHMENT

1. Project Component

After the explanation of the contents of the Draft Final Report by the Team, Liberian side agreed in principle to the project contents below.

- Expansion of the Somalia Drive (from Sta. 0+0125 to Sta. 13+000) from 2-lanes to 4-lanes (Construction of new additional 2-lane roads) including necessary facilities such as pedestrian walkway, traffic signs etc.
- Construction and rehabilitation of Stockton Bridge (Totally 4-lane).

2. Cost Estimation

- 2-1. Both sides agreed that the Project Cost Estimation as attached in Annex- 1 should never be duplicated nor disclosed to any third parties before the signing of all the contract(s) with contractor(s) for the Project.
- 2-2. The Team explained to Liberian side that the rough estimate of the Project Cost described in Annex- 1 includes the contingency, however, the final Project Cost including the contingency described in E/N would be appraised by the Government of Japan. The contingency would cover the additional cost due to natural disaster, unexpected natural conditions, etc.

3. Japan's Grant Aid Scheme

Liberian side understood the Japan's Grant Aid scheme and the necessary measures to be taken by the recipient country as explained by the Team and described in Annex-3, Annex-4 and Annex-5 of the Minutes of Discussions signed on August 31, 2011.

Liberian side also understood that the Preparatory Survey Team is not in the position to guarantee implementation of the Project, this position is the responsibility of the Government of Japan.

4. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to Liberian side around February, 2013.

5. Environmental and Social Considerations

General

5-1. Environmental Guidelines and Environmental Category

The Team explained that "JICA Guidelines for Environmental and Social Considerations dated April 2004" (hereinafter referred to as "the Environmental Guidelines") is applied to the Project.

The Team further explained that the Project is categorized as "A" in accordance with the



Environmental Guidelines, because the project falls into the road sector located in a sensitive area (adjacent to the Mesurado Wetland registered under the Ramsar Convention) and is likely to have significant adverse impact due to its characteristic (large-scale involuntary resettlement) under the Environmental Guidelines.

The environmental and social considerations including major impacts and mitigation measures for the Project are summarized in the Environmental Checklist (Annex-2).

5-2. Consultations with stakeholders

The Team confirmed that the Ministry of Public Works (hereinafter referred to as "MPW") has conducted public consultations regarding the Environmental Impact Assessment (the EIA) and the Resettlement Action Plan (the RAP) in the Project area at scoping stage and draft report's preparation stage.

MPW assured to continue consultations and information disclosure with stakeholders including Project Affected Persons (PAPs).

5-3. Information Disclosure

MPW assured that as soon as the EIA (including the RAP) is approved by the Environmental Protection Agency (hereinafter referred to as "EPA"), MPW will disclose the approved EIA report and the RAP written in English, which is an official language of Liberia, at the offices of MPW, EPA, Monrovia City Corporation (hereinafter referred to as "MCC"), Paynesville City Corporation (hereinafter referred to as "PCC") and administrative buildings in New Georgia and Gardnersville, and at the same time, it will post summary of the RAP, which includes the key impacts, entitlements and grievance procedures, on each community center in the affected area.

MPW also assured that it will notify the disclosure of the EIA report and the RAP on local newspapers prior to the disclosure and that the EIA report and the RAP will be available for photocopying for anyone who is interested in.

5-4. Monitoring for Environmental and Social considerations

5-4-1. Environmental Monitoring

MPW and the Team confirmed that environmental monitoring will be conducted by the Infrastructure Implementation Unit of MPW (hereinafter referred to as "MPW/IIU") in accordance with the Monitoring Plan described in the EIA report.

MPW agreed to submit the results of the monitoring to JICA Liberia field office on a quarterly basis during construction. After the completion of the Project, MPW confirmed it will submit the monitoring result to JICA Liberia field office semiannually for two (2) years.

The monitoring form to be submitted to JICA is Annex- 3 for construction stage and Annex- 4 for operation stage. Monitoring items shall be reviewed if necessary, under agreement between MPW and JICA.



5-4-2. Internal Monitoring of RAP Implementation

MPW and the Team confirmed that internal monitoring will be conducted by RAP Implementation Committee, together with MPW/IIU, based on the RAP.

MPW agreed to submit the result of the internal monitoring to JICA Liberia field office on a quarterly basis until the completion of RAP implementation.

The monitoring form to be submitted to JICA is Annex- 5.

5-4-3. External Monitoring of RAP Implementation

MPW confirmed external monitoring on involuntary resettlement including the status of livelihood restoration will be conducted for at least three (3) times in 2 years after the completion of RAP implementation by an independent agency hired by MPW. Criteria and indicators for external monitoring are envisaged in the RAP (Table 15.2).

MPW agreed to check the external monitoring reports submitted from the agency and send it to JICA Liberia field office as soon as each report is finalized.

5-4-4. Extension of Monitoring Report period

In case JICA finds that there is a remaining issue that needs to be addressed (e.g. insufficient restoration of livelihood of displaced PAPs and/or there is a need for improvement in a situation with respect to environmental/social considerations after the agreed monitoring period, JICA may request to extend the period of monitoring and reporting until JICA confirms the issues have been properly addressed and solved in accordance with the agreement between MPW and JICA.

Environmental considerations

5-5. Requirement of EIA under Liberian legislation

Liberian legislation "Environmental Impact Assessment Procedural Guidelines (2006)" stipulates that EIA shall be conducted and approved by EPA for the Project.

MPW explained that it submitted the EIA report including the RAP to EPA in October 2012, and the EIA will be approved by December 10, 2012.

MPW stated that as soon as the EIA is approved, it will submit to JICA a photocopy of the approval letter and the approved EIA report including the RAP.

5-6. Required Permission

MPW explained that no other environmental official permission is required as long as construction and operation comply with the contents of the EIA. However, if any other permission is required for the Project, MPW ensures that contractor(s) for civil works follow appropriate procedures to acquire the permits.

5-7. Consideration of Alternatives

MPW confirmed that the Project design including construction of Stockton Bridge and repair of Double Bridge is proposed considering the impact on Mesurado wetland located on the south of the Project road, magnitude of involuntary resettlement, project cost,



construction period, technical aspect, economic impact, etc.

5-8. Environmental Mitigation Measures

MPW assured that possible negative impacts during construction and operation phase will be mitigated to appropriate level. Mitigation measures to be taken for the Project include but not limited to the ones described in the EIA.

Regarding the situation of storm water channel which is clogged by garbage, MPW is committed to work with relevant authorities to do the followings;

- Improve the drainages which lead collected storm water into Mesurado Wetland before the completion of the Project road and at its own cost,
- Continuously facilitate anti-littering campaign for local people held by EPA, MCC and PCC, and
- Monitor the condition of storm water discharge every two (2) weeks, and take timely appropriate measures accordingly during the operation stage.

In Addition, regarding the garbage dumped and accumulated along the road, MPW agreed to monthly monitor the garbage around the road, and take measures accordingly in collaboration with MCC and PCC to maintain the best sanitary condition.

MPW and the Team assured that cost for conducting environmental mitigation measures and monitoring activities during construction phase (US\$ 54,000) is included in the Project cost, and cost for conducting environmental monitoring activities (US\$ 60,000 for the first two (2) years) and additional necessary budget during operation and maintenance phase will be allocated by MPW.

Social consideration

5-9. Scale of Resettlement

MPW explained that the scale of resettlement is as the followings;

- Number of PAPs; 918
- Number of structures to be affected; 449
(Commercial; 424, Residential; 11, Unclassified: 14)
- Number of the structures' owners; 456

5-10. Resettlement Action Plan

MPW confirmed that resettlement will be implemented in accordance with the RAP. MPW also confirmed that PAPs will be compensated in accordance with the entitlement matrix (Annex- 6). Such compensation policy has been explained to PAPs and agreed through satisfactory stakeholder consultations.

The RAP will be updated following the detailed asset survey to be conducted by MPW before implementation of RAP, taking into account the followings.

- The information of 89 structures' owners out of 456 who were absent during RAP preparation in 2012 will be followed up.
- Compensation rates mentioned in the entitlement matrix will be updated/recalculated

List of Annexes

- Annex-1 Project Cost Summary
- Annex-2 Environmental Checklist
- Annex-3 Environmental Monitoring Form for Construction Stage
- Annex-4 Environmental Monitoring Form for Operation Stage
- Annex-5 Monitoring Form for Resettlement
- Annex-6 Entitlement Matrix
- Annex-7 Implementation Schedule of Resettlement
- Annex-8 Responsibility Matrix

YAM

[Signature]

[Signature]

Project Cost Summary

(1) Japanese Contribution

The Project will be implemented in accordance with the Japan's Grand Aid scheme and the cost will be determined before concluding the Exchange of Note for the Project.

(2) Liberia Contribution

Cost Summary of Liberia Contribution

Item	Amount US\$
1. Land acquisition and relocation of house	860,000
2. Utility Relocation Cost	600,000
3. Environmental Monitoring Cost	60,000
4. Advising Commission (Bank Charges)	25,000
Total	1,545,000

(3) Condition of Estimation

- ① Estimation Month/Year : June 2012
- ② Foreign Exchange Rate : US\$ 1.00 = 80.52 Yen (Exchange rate of Japanese Yen against American dollar)
- ③ Construction Period : Schedule of detailed design and construction supervision is shown in the schedule of implementation
- ④ Others : The project is to be carried out based on the Japanese Government's grant aid scheme.



Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) Y (b) N (c) - (d) -	(a) EIA/RAP reports were prepared. (b) EIA/RAP reports are under review by EPA. EIA license will be issued by December 2012. (c) Still unknown. (d) No license and/or permission is required except for EIA license issued by EPA. No construction work will not start until EPA approval which means EIA license (approval) of the Project is granted.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) At the stage of EIA/RAP preparation, sufficient stakeholder meetings were taken place and consensus/understanding from local stakeholders and authorities concerned to the Project was obtained. (b) Opinions raised from local resident were reflected to the Project design including Resettlement Action Plan (RAP) as much as possible.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) 5 alternatives including zero-action were examined with social and environmental considerations and most suitable alternative was selected.
	(1) Air Quality	(a) Is there a possibility that air pollutants emitted from the project related sources, such as vehicles traffic will affect ambient air quality? Does ambient air quality comply with the country's air quality standards? Are any mitigating measures taken? (b) Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?	(a) Y (b) N	(a) Since the Project is to expand the existing road, the volume of traffic is expected to increase. However the total of emission volume from the traffic is going to decrease or be almost same as the zero-action due to speed-up of travel speed. Also ambient air quality is expected to be under Draft standard of ambient air quality in Liberia and that of WHO. (b) It is expected that ambient air quality will not exceed the standard above. However mitigation measures as follows will be taken, (1) periodical monitoring surveys for ambient air quality, (2) promotion of lead-free gasoline, (3) promotion of crackdown against ill-serviced vehicles.

A-15

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
2 Pollution Control	(2) Water Quality	(a) Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas? (b) Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater? (c) Do effluents from various facilities, such as parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas not to comply with the country's ambient water quality standards?	(a) Y (b) Y (c) -	(a) It is possible. However it is expected that the water quality degradations in downstream water areas will be limited based on reasons that (1) large-scaled earth cutting and filling are not planned, (2) appropriate slope protections such as vegetation is taken. (b) It is expected that spilled oil on the road is flown out by rain water and contaminate groundwater etc. However it is also expected that the impact is limited based on reasons that (1) the amount of spilled oil on the road is a little, (2) crackdowns against ill-serviced vehicles is promoted. (c) No parking area/service is designed in the Project components. 35 bus stops in total are designed to be installed along the Project road, however no factor affecting water quality is expected.
	(3) Wastes	(a) Are wastes generated from the project facilities, such as parking areas/service areas, properly treated and disposed of in accordance with the country's regulations?	(a) -	(a) No parking area/service is designed in the Project components. Wastes arising from road maintenance/cleaning works and in/outside of ROW are disposed by MPW, those arising from cleaning works are disposed by Monrovia City Corporation (MCC). Swage are collected by the Liberia water and sewage corporation (LWSC).
2 Pollution Control	(4) Noise and Vibration	(a) Do noise and vibrations from the vehicle and train traffic comply with the country's standards?	(a) Y/N	(a) Draft standard for noise has been prepared but that for vibration does not exist. Therefore as for noise, Draft standard in Liberia and International Financial Corporation(IFC) standard and as for vibration Ghana standard are used to evaluate the current level in the Project site. Regarding noise, based on the baseline survey, 3 out of 4 survey points are over Draft Liberian standard and IFC standard. Regarding vibration, based on the baseline survey, most of points are below standard in Ghana. As mitigation measures in operation phase, (1) planted trees in green belt will be maintained well, (2) crackdown against ill-serviced vehicles is promoted, (3) crackdown against over-loaded vehicles is promoted, (4) periodical monitoring surveys for noise and vibration are done.
	(1) Protected Areas	(a) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) The Project road is close to the Mesurado Wetland designated as Ramsar Convention however no direct impact is expected. However, as the possibility of indirect affect still exists, monitoring survey for ambient air quality, water quality, noise & vibration and ecosystem along the Project road will be conducted.

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Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
3 Natural Environment	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? (e) Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered? (f) In cases the project site is located at undeveloped areas, is there a possibility that the new development will result in extensive loss of natural environments?	(a) N (b) N (c) - (d) N (e) N (f) N	(a) According to discussions with EPA who manages the Mesurado Wetland, it was confirmed that primeval forest, tropical rain forests, ecologically valuable habitats were not encompassed in the Project area. In addition, no mangrove is confirmed along the Project road including ROW. (b) According to discussions with EPA, it was confirmed that the protected habitats of endangered species by GoL and/or international treaties and conventions were not encompassed in the Project area. (c) Significant ecological impacts are not anticipated however in order to mitigate the impacts, the followings measures will be taken. (1) Trees which do not affect road structures in ROW remain. (2) Green belt is installed along the entire road length. (3) Monitoring surveys for ecosystem are conducted. (d) Since the Project road is situated in sub-industrial and residential area, measures such as disruption of migration routes, habitat fragmentation and traffic accident of wildlife and livestock are not necessary. (e) As a part of the Project, about 50 trees will be cut however trees co-habiting with surrounding nature is forested. (f) The Project site is already utilized as sub-industrial and residential area, therefore extensive loss of natural environment is not expected causing new area development.
	(3) Hydrology	(a) Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows?	(a) N	(a) Piers for new bridge will be constructed in Stockton Creek however type of piers and its construction method affecting water flow less is introduced.
3 Natural Environment	(4) Topography and Geology	(a) Is there any soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? (b) Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides? (c) Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?	(a) N (b) N (c) Y	(a) Since the existing road passes through relatively flat area, slope failures are less likely to happen. Also based on the geological survey, no soft ground area confirmed. (b) Large-scaled civil works are not expected. (c) It is possible. Protection measures against earth cutting and filling are appropriate slope and hydraulic seeding works. Also it was confirmed that waste soil disposal sites and borrow sites were maintained well.

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Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Are the compensations going to be paid prior to the resettlement? (e) Are the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) Y (b) Y (c) Y (d) Y (e) Y (f) Y (g) Y (h) Y (i) Y (j) Y	(a) 918 Project Affected Persons (PAPs) (456 owner of structure) occupying 449 commercial and residential structures would be affected within 75 feet (or 22.86m) of the ROW. In order to minimize the involuntary resettlement, 5 alternatives were examined and most suitable alternatives was selected. (b) At the stage of RAP preparation, 9 stakeholder meetings were taken place and appropriate explanation on compensation and resettlement assistance was given to PAPs. (c) Resettlement cost study was carried out and appropriate resettlement cost was calculated based on the study. (d) RAP states that the compensations is going to be paid prior to the resettlement. (e) Compensation policies are shown in RAP and RAP will be disclosed to public after EPA approval. (f) Vulnerable groups are given particular attention and it is mentioned in RAP. (g) Based on the 8 stakeholder meetings, agreements from PAPs are expected to be obtained. However there are some unidentified PAPs, therefore MPW keeps trying to find out the PAPs by using mass medias and local communities. (h) Organizational framework with MPW's initiative to properly implement resettlement has been established. Also budget necessary will be allocated. (i) Monitoring surveys are expected to be implemented properly by both internal and external organizations. (j) Grievance redress mechanism is established by reference to past project implemented by World Bank.

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Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(2) Living and Livelihood	<p>(a) Where roads are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts?</p> <p>(b) Is there any possibility that the project will adversely affect the living conditions of the inhabitants other than the target population? Are adequate measures considered to reduce the impacts, if necessary?</p> <p>(c) Is there any possibility that diseases, including infectious diseases, such as HIV will be brought due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary?</p> <p>(d) Is there any possibility that the project will adversely affect road traffic in the surrounding areas (e.g., increase of traffic congestion and traffic accidents)?</p> <p>(e) Is there any possibility that roads will impede the movement of inhabitants?</p> <p>(f) Is there any possibility that structures associated with roads (such as bridges) will cause a sun shading and radio interference?</p>	<p>(a) N (b) N (c) Y (d) Y (e) N (f) N</p>	<p>(a) Since the Project is to expand the existing road, the existing means of transport is not expected to be affected.</p> <p>(b) The Project does not affect the local resident on living and livelihood except for PAPs above.</p> <p>(c) Diseases including infectious diseases are expected to be brought due to immigration of workers associated with the project. Workers involving the Project are educated by contractor.</p> <p>(d) The Project is expected to contribute mitigating traffic congestion however it is expected to affect traffic accidents because travel speed will be up.</p> <p>(e) Since the Project is to expand the existing road, the movement of inhabitants will not be impeded.</p> <p>(f) Since the Project road passes through almost ground level except for the bridges, a sun shading and radio interference does not be caused.</p>
	(3) Heritage	(a) Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) No archaeological, historical, cultural, and religious heritage does exist along the Project road.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) No significant impact is expected.
	(5) Ethnic Minorities and Indigenous Peoples	<p>(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples?</p> <p>(b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources to be respected?</p>	<p>(a) - (b) -</p>	<p>(a) No ethnic minority and indigenous people does exist</p> <p>(b) Same above.</p>

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Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(6) Working Conditions	<p>(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project?</p> <p>(b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials?</p> <p>(c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.?</p> <p>(d) Are appropriate measures being taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?</p>	<p>(a) Y</p> <p>(b) Y</p> <p>(c) Y</p> <p>(d) Y</p>	<p>(a) Construction plan is in accordance with Labor Law of Liberia.</p> <p>(b) (c) As tangible measures, safety equipments are installed to prevent accidents. As intangible measures, suitable construction implementation plan for securing safety based on construction safety plan will be prepared. Also it is stated that appropriate education is provided to construction workers and related persons. Moreover monitoring is done to confirm if mentioned above is kept.</p> <p>(d) In order to prevent accidents, safety equipments will be installed. Also appropriate safety education to construction workers, security guards and traffic control staff are mobilized.</p>

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Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) Y (b) Y (c) Y	(a) Mitigation measures against pollution during construction are as follows. Regarding noise and vibration, (1) for the purpose of alleviate traffic congestion, existing 2-lane road is expanded into 4-lane road, (2) the number of surface layer joint on new additional 2-lane road is decreased as many as possible, (3) low-noise construction machineries are used. (4) construction machineries are used properly, also regular maintenance work is implemented. (5) green belt is constructed and trees are planted in the green belt, (6) construction work is done only daytime around schools and clinics, (7) monitoring is carried out regularly (8) in case night work is implemented, advance notice is given and permission is obtained. (9) crackdown against ill-serviced vehicles are promoted. Regarding water quality, (1) waste water from construction site is not discharged into the rivers directly. (2) construction machinery is not washed in the rivers. (3) during bridge construction, oil fence and anti-water pollution net are used. Regarding dust and emission; (1) construction machinery is used properly without unnecessary idling. Also regular maintenance work is implemented. (2) sprinkling of water is carried out regularly during dry season. (3) in case of placing backfilling and excavated soil temporarily, the soil is covered by anti-scattering sheets. (4) monitoring is carried out regularly. (5) lead free gasoline is used for construction machinery and vehicles. Regarding construction waste, (1) construction waste is recycled as much as possible. (2) in case recycle is not available, the waste is disposed in appropriate facilities. (b) As mitigation measures against natural environment, (1) trees which do not affect road structures in ROW remain. (2) green belt is installed along the entire road length. (3) ecosystem monitoring is conducted in Stockton Creek and Warner Creek. (c) As mitigation measures against social environment, (1) the poor is given priority to get construction works. (2) movable vendors are allowed to operate in ROW where construction work is not disturbed. (3) traffic control staff is allocated to smooth the traffic and avoid accidents (4) temporal busbays are installed in order to secure means of transport for local resident.
5 Others	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y (b) Y (c) Y (d) Y	(a) Monitoring program for the environmental items was developed and stated in EIA report. (b) Monitoring items, methods and frequencies were determined in consideration of personnel, budget etc. of MPW/IIU. (c) MPW establishes IIU who is in charge of EIA issue. IIU applies budget necessary for the Project implementation in the next fiscal year. (d) EIA/RAP report states format and frequency of the reports.

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Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation). (b) Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).	(a) N (b) N	(a) No large areas of deforestation is expected in the Project. (b) No installation of power transmission lines and/or electric distribution facilities is expected in the Project.
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) Y	(a) As transboundary or global issues, global warming arising from CO2 emission is expected. However the volume of CO2 emitted from traffic will decrease a bit or be the same level as Zero-option.

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.

In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

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As of YYYY/MM/DD

Vegetation

		Submission of Monitoring Report	Number of trees planted	
			Young Trees	Old Trees
1	2013 (3rd qtr)	YYYY/MM/DD		
2	2013 (4th qtr)	YYYY/MM/DD		
3	2014 (1st qtr)	YYYY/MM/DD		
		YYYY/MM/DD		
		YYYY/MM/DD		
		YYYY/MM/DD		
		YYYY/MM/DD		
		YYYY/MM/DD		

Complaint

	Complaint received	Complaint resolved	Type of Complaint
1	YYYY/MM/DD	YYYY/MM/DD	
2	YYYY/MM/DD	YYYY/MM/DD	
3	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	

HIV/AIDS and other Sexually Transmitted Diseases <Campaign>

	Date	Place	Number of Safety Measures		Number of Participants		
			Contraceptive	Condoms	Male	Female	Total
1	YYYY/MM/DD						
2	YYYY/MM/DD						
3	YYYY/MM/DD						
	YYYY/MM/DD						
	YYYY/MM/DD						
	YYYY/MM/DD						
	YYYY/MM/DD						
	YYYY/MM/DD						

Accident

	Date	Place	Number of persons Injured		Type of Accident	Measure taken
			Project's Employee	Non-employee		
1	YYYY/MM/DD					
2	YYYY/MM/DD					
3	YYYY/MM/DD					
	YYYY/MM/DD					
	YYYY/MM/DD					
	YYYY/MM/DD					
	YYYY/MM/DD					
	YYYY/MM/DD					

Sanitary Situation (Garbage along the road)

<Monitoring Frequency> Monthly

	Date	Situation Observed	Measure Taken
1	YYYY/MM/DD		
2	YYYY/MM/DD		
3	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		

Air Quality, Water Quality, Noise & Vibration

Item	Parameter	Location	Result	Standard	Remarks	
Air Quality	PM10 (average 24h)	[A]		100 µg/m ³ (National) 50 µg/m ³ (WHO)		
		[B]				
		[C]				
	SO ₂ (average 24h)	[A]		80 µg/m ³ (National) 20 µg/m ³ (WHO) (average 24h)		
		[B]				
		[C]				
	NO ₂ (average 24h)	[A]		80 µg/m ³ (National) (average 24h)		
		[B]				
		[C]				
	CO (average 8h)	[A]		2,000 mg/m ³ (National) 1,000 mg/m ³ (WHO)		
		[B]				
		[C]				
Noise	Noise Level (Day Time 06:01 – 22:00)	[A]		50 dB (National, Residential Building)		
		[B]		45 dB (National, Hospital, School Area)		
		[C]		60 dB (National, Residential + Industry or small production)		
		[D]		50 dB (National, Mixed Residential Building)		
	Noise Level (Night Time 22:01 – 06:00)	[A]		35 dB (National, Residential Building)		
		[B]		35 dB (National, Hospital, School Area)		
		[C]		50 dB (National, Residential + Industry or small production)		
		[D]		35 dB (National, Mixed Residential Building)		
Vibration	Vibration Level (Day Time 06:01 – 22:00)	[A]		55 dB (Ghana, Residential Building)		
		[B]		55 dB (Ghana, Hospital, School Area)		
		[C]		65 dB (Ghana, Residential + Industry or small production)		
		[D]		60 dB (Ghana, Mixed Residential Building)		
	Vibration Level (Night Time 22:01 – 06:00)	[A]		48 dB (Ghana, Residential Building)		
		[B]		50 dB (Ghana, Hospital, School Area)		
		[C]		60 dB (Ghana, Residential + Industry or small production)		
		[D]		55 dB (Ghana, Mixed Residential Building)		
Water Quality	pH	[A]		6.5-8.5 (National, WHO)		
		[B]				
		[C]				
	Temperature	[A]				
		[B]				
		[C]				
	me	[A]		No Color (National)		
		[B]				
		[C]				
	Odor	[A]		No Odor (National)		
		[B]				
		[C]				
	SS	[A]		30 mg/L (WHO)		
		[B]				
		[C]				
	COD	[A]		30-50 mg/L (WHO)		
[B]						
[C]						
DO	[A]		< 5.0 mg/L (National, WHO)			
	[B]					
	[C]					
E. Coll	[A]					
	[B]					
	[C]					
Oil & Grease	[A]		0.1 mg/L (National, WHO)			
	[B]					
	[C]					

WHO: World Health Organization

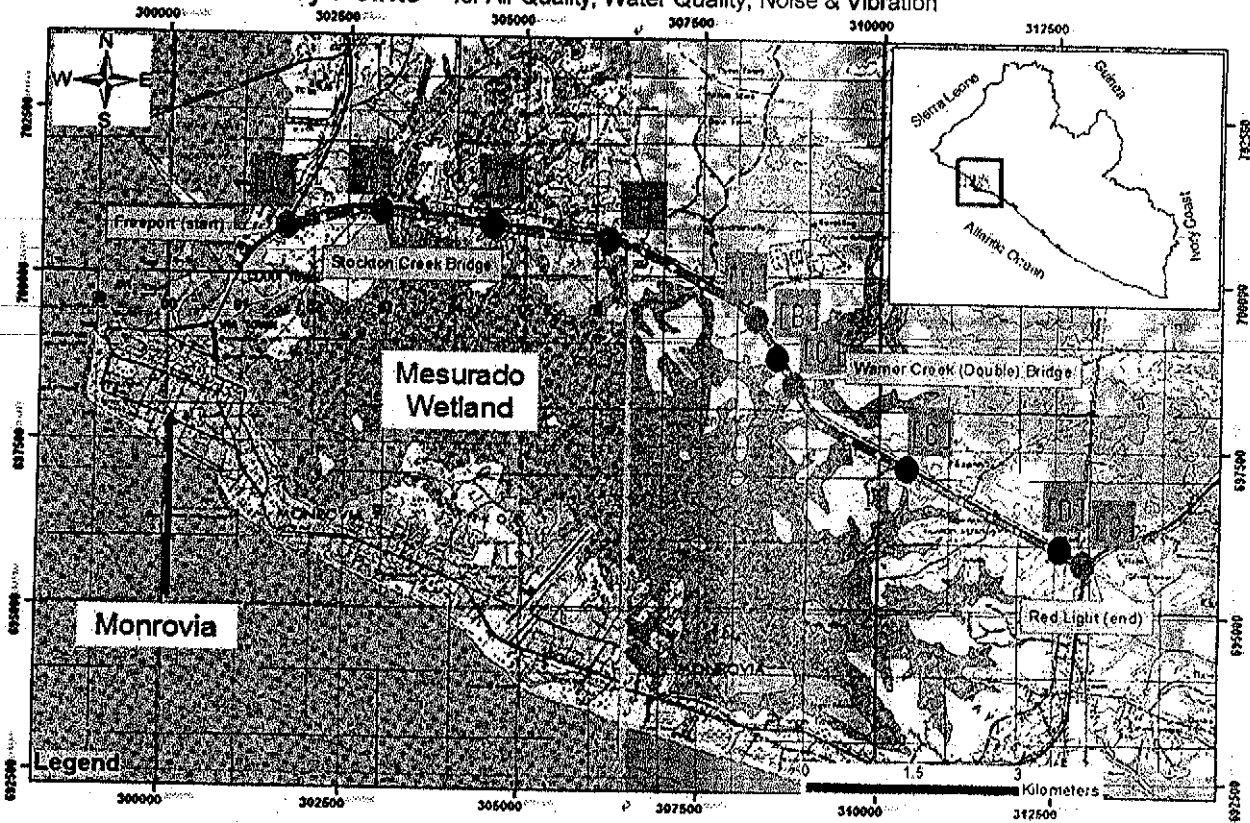
**Remarks; Past trend and current status including remedial measures if necessary

<Monitoring Frequency>

Air Quality, Noise & Vibration; Every three (3) months

Water Quality; Every six (6) months

< Location of Survey Points > for Air Quality, Water Quality, Noise & Vibration



Regend) ● : Air Quality ● : Water Quality ● : Noise & Vibration

Coordinates of each Survey Points

Survey Point	North - N West - W	Coordinates		
		Air Quality	Water Quality	Noise & Vibration
[A]	N	15° 44'	6° 18' 57.07"	6° 18' 33.90"
	W	10° 47' 33.54"	10° 43' 41.07"	10° 43' 28.35"
[B]	N	6° 19'	6° 20' 23.73"	6° 19' 06.11"
	W	10° 44' 02.20"	10° 46' 49.52"	10° 43' 42.61"
[C]	N	6° 17'	6° 20' 18.83"	6° 20' 21.85"
	W	10° 41' 27.29"	10° 46' 45.99"	10° 47' 15.87"
[D]	N	-	-	6° 17' 44.72"
	W	-	-	10° 41' 07.62"

Ecosystem <Visual observation of animals>

	Location	Date of Survey	Creatures Found	Threaten to Ecosystem (if any)	Root Cause	Measure Taken
1	Stockton Creek	2013 (Latter Half)				
		Warner Creek				
2	Stockton Creek	2014 (First Half)				
		Warner Creek				
3	Stockton Creek	2014 (Latter Half)				
		Warner Creek				
	Stockton Creek					
	Warner Creek					
	Stockton Creek					
	Warner Creek					

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As of YYYY/MM/DD

Submission of Monitoring Report		
1	2015 (First Half)	YYYY/MM/DD
2	2015 (Latter Half)	YYYY/MM/DD
3	2016 (First Half)	YYYY/MM/DD
4	2016 (Latter Half)	YYYY/MM/DD

Complaint

	Complaint received	Complaint resolved	Type of Complaint
1	YYYY/MM/DD	YYYY/MM/DD	
2	YYYY/MM/DD	YYYY/MM/DD	
3	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	
	YYYY/MM/DD	YYYY/MM/DD	

HIV/AIDS and other Sexually Transmitted Diseases <Campaign>

	Date	Place	Number of Safety Measures Distributed		Number of Participants		
			Contraceptive	Condom	Male	Female	Total
1	YYYY/MM/DD						
2	YYYY/MM/DD						
3	YYYY/MM/DD						
	YYYY/MM/DD						
	YYYY/MM/DD						
	YYYY/MM/DD						
	YYYY/MM/DD						
	YYYY/MM/DD						

Sanitary Situation <Garbage along the road>

<Monitoring Frequency> Monthly

	Date	Situation Observed	Measure Taken
1	YYYY/MM/DD		
2	YYYY/MM/DD		
3	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		

Drainage Situation

<Monitoring Frequency> Every two (2) weeks

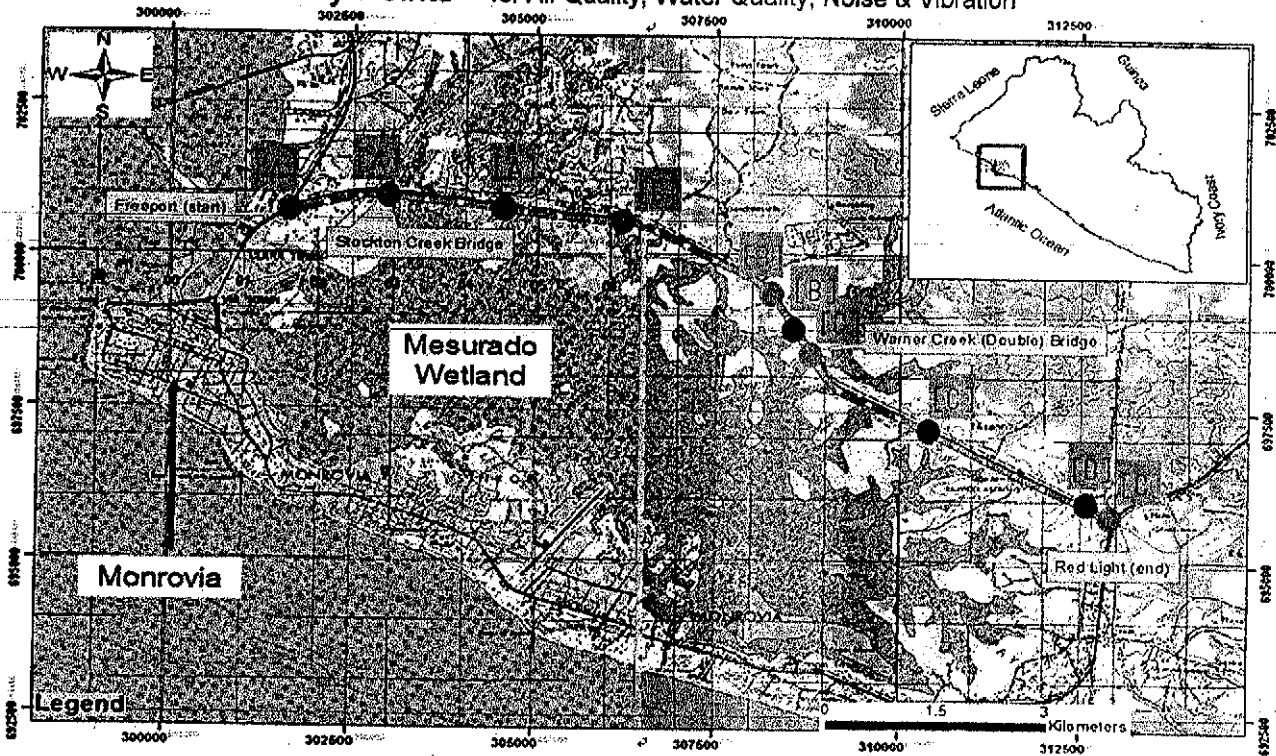
	Date	Situation Observed	Measure Taken
1	YYYY/MM/DD		
2	YYYY/MM/DD		
3	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		
	YYYY/MM/DD		

Air Quality, Water Quality, Noise & Vibration

Item	Parameter	Location	Result	Standard	Remarks	
Air Quality	PM10 (average 24h)	[A]		100 µg/m ³ (National) 50 µg/m ³ (WHO)		
		[B]				
		[C]				
	SO ₂ (average 24h)	[A]		80 µg/m ³ (National) 20 µg/m ³ (WHO) (average 24h)		
		[B]				
		[C]				
	NO ₂ (average 24h)	[A]		80 µg/m ³ (National) (average 24h)		
		[B]				
		[C]				
	CO (average 8h)	[A]		2,000 mg/m ³ (National) 1,000 mg/m ³ (WHO)		
		[B]				
		[C]				
Noise	Noise Level (Day Time: 06:01 – 22:00)	[A]		50 dB (National, Residential Building)		
		[B]		45 dB (National, Hospital, School Area)		
		[C]		60 dB (National, Residential + industry or small production)		
		[D]		50 dB (National, Mixed Residential Building)		
	Noise Level (Night Time: 22:01 – 06:00)	[A]		35 dB (National, Residential Building)		
		[B]		35 dB (National, Hospital, School Area)		
		[C]		50 dB (National, Residential + industry or small production)		
		[D]		35 dB (National, Mixed Residential Building)		
Vibration	Vibration Level (Day Time: 06:01 – 22:00)	[A]		55 dB (Ghana, Residential Building)		
		[B]		55 dB (Ghana, Hospital, School Area)		
		[C]		65 dB (Ghana, Residential + Industry or small production)		
		[D]		60 dB (Ghana, Mixed Residential Building)		
	Vibration Level (Night Time: 22:01 – 06:00)	[A]		48 dB (Ghana, Residential Building)		
		[B]		50 dB (Ghana, Hospital, School Area)		
		[C]		60 dB (Ghana, Residential + industry or small production)		
		[D]		55 dB (Ghana, Mixed Residential Building)		
Water Quality	pH	[A]		6.5-8.5 (National, WHO)		
		[B]				
		[C]				
	Temperature	[A]				
		[B]				
		[C]				
	me	[A]		No Color (National)		
		[B]				
		[C]				
	Odor	[A]		No Odor (National)		
		[B]				
		[C]				
	SS	[A]		30 mg/L (WHO)		
		[B]				
		[C]				
	COD	[A]		30-50 mg/L (WHO)		
		[B]				
		[C]				
DO	[A]		< 5.0 mg/L (National, WHO)			
	[B]					
	[C]					
E. Coll	[A]					
	[B]					
	[C]					
Oil & Grease	[A]		0.1 mg/L (National, WHO)			
	[B]					
	[C]					

WHO: World Health Organization*Remarks; Past trend and current status including remedial measures if necessary
 <Monitoring Frequency> Every six (6) months

< Location of Survey Points > for Air Quality, Water Quality, Noise & Vibration



Legend) ● : Air Quality ● : Water Quality ● : Noise & Vibration

Coordinates of each Survey Points

Survey Point	North N		Coordinates		
	West W		Air Quality	Water Quality	Noise & Vibration
[A]	N	6°20'15.61"	6°18'57.07"	6°18'33.90"	
	W	10°47'	10°43'41.07"	10°43'28.35"	
[B]	N	6°19'36.61"	6°20'23.73"	6°19'06.11"	
	W	10°47'	10°46'49.52"	10°43'42.61"	
[C]	N	6°17'33.10"	6°20'18.83"	6°20'21.85"	
	W	10°41'27.29"	10°46'45.99"	10°47'15.87"	
[D]	N	-	-	6°17'44.72"	
	W	-	-	10°41'07.52"	

Ecosystem <Visual observation of animals>

	Location	Date of Survey	Creatures Found	Threaten to Ecosystem (if any)	Root Cause	Measure Taken
1	2015 (First Half)	Stockton Creek YYYY/MM/DD				
		Warner Creek YYYY/MM/DD				
2	2015 (Latter Half)	Stockton Creek YYYY/MM/DD				
		Warner Creek YYYY/MM/DD				
3	2016 (First Half)	Stockton Creek YYYY/MM/DD				
		Warner Creek YYYY/MM/DD				
4	2016 (Latter Half)	Stockton Creek YYYY/MM/DD				
		Warner Creek YYYY/MM/DD				

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As of YYYY/MM/DD

Progress of Compensation for Affected Structure

Item	Total Number of Structures	Payment of Compensation	Vacation of Land	(Expected) Date of Completion
Concrete Flat/Zinc Roof	107	0%	0%	YYYY/MM
Concrete Storey/Zinc Roof	3	0%	0%	YYYY/MM
Container (with some development)	130	0%	0%	YYYY/MM
Fence-barb wire	8	0%	0%	YYYY/MM
Fence-concrete/barb wire	7	0%	0%	YYYY/MM
Fuel Stations	50	0%	0%	YYYY/MM
Kiosk	47	0%	0%	YYYY/MM
Mud Bricks/Zinc Roof	12	0%	0%	YYYY/MM
Round Poles/Zinc Roof	20	0%	0%	YYYY/MM
Zinc/Mat Round	10	0%	0%	YYYY/MM
Zinc/Plywood Round	45	0%	0%	YYYY/MM
Other (Well, Bus Stop etc.)	10	0%	0%	YYYY/MM
TOTAL	449	0	0	YYYY/MM

Progress of Assistance

Item	Total Number of Households	Payment of Assistance	(Expected) Date of Completion
Compensation for Loss of Income (US\$ 100)	431	0%	YYYY/MM
Relocation Assistance for Container (US\$ 250)	130	0%	YYYY/MM
Relocation Assistance for Residential Structure (US\$ 250)	11	0%	YYYY/MM
Transportation Assistance for Residential Structure (US\$ 100)	25	0%	YYYY/MM
Transportation Assistance for Others (US\$ 100)	25	0%	YYYY/MM
Assistance to Vulnerable People (US\$ 50)	92	0%	YYYY/MM

Procedures

Procedure	Date
Institutional Arrangement	
Establishment of RAP Implementation Committee	YYYY/MM/DD
Establishment of Grievance Redress Committee	YYYY/MM/DD
Detailed Asset Survey and Compensation Estimation	
Start of Survey	YYYY/MM/DD
Completion of Survey	YYYY/MM/DD
RAP Budget	
Submission	YYYY/MM/DD
Approval	YYYY/MM/DD

Submission of Monitoring Report

Internal Monitoring	
2013 (1st qtr)	YYYY/MM/DD
2013 (2nd qtr)	YYYY/MM/DD
2013 (3rd qtr)	YYYY/MM/DD
2013 (4th qtr)	YYYY/MM/DD
2014 (1st qtr)	YYYY/MM/DD
External Monitoring	
1st	YYYY/MM/DD
2nd	YYYY/MM/DD
3rd	YYYY/MM/DD

Grievance Redress

Outline of Grievance and Remarks (if any)	Grievance received	Grievance resolved
1	YYYY/MM/DD	YYYY/MM/DD
2	YYYY/MM/DD	YYYY/MM/DD
3	YYYY/MM/DD	YYYY/MM/DD
	YYYY/MM/DD	YYYY/MM/DD
	YYYY/MM/DD	YYYY/MM/DD

Public Consultation

Agenda	Place	Number of Participants	Date
1			YYYY/MM/DD
2			YYYY/MM/DD
3			YYYY/MM/DD
			YYYY/MM/DD
			YYYY/MM/DD

ENTITLEMENT MATRIX FOR PROJECT AFFECTED PERSONS

#	Type of Loss	Entitled Persons (Beneficiaries)	Entitlement (Compensation Package)	Implementation Issues/Guidelines
1	Loss of Land	Legal Owner of Land	Replacement Cost	<ul style="list-style-type: none"> ✓ Assessment of quantity and quality of land ✓ Assessment of Market Value ✓ Assessment of Cash Compensation ✓ Updating of titles of the affected persons ✓ Payment of Cash Compensation ✓ Affected Persons will be fully informed of the entitlements and the procedures regarding payments ✓ Advance notice to vacate
		Illegal Occupant of Land	No Compensation for Land	<ul style="list-style-type: none"> ✓ Cash compensation for assets such as structures and standing trees. ✓ Advance notice to vacate
2	Loss of Structures	Owner of Structure	Replacement Cost	<ul style="list-style-type: none"> ✓ Assessment of quality of structures ✓ Assessment of Market Value ✓ Assessment of Cash Compensation ✓ Payment of Cash Compensation ✓ In addition, US\$ 250 for relocation assistance and US\$ 100 for transportation assistance will be provided per Project Affected Household (PAH) for Residential Structure ✓ Affected Persons will be fully informed of the entitlements and the procedures regarding payments ✓ Permission to continue business within ROW which does not destruct road facilities ✓ Advance notice to vacate
		Owner of Container	US\$ 250 per PAH	<ul style="list-style-type: none"> ✓ Payment of Cash Compensation (US\$ 250 per PAH which is sufficient to rent a forklift to relocate container from original position to another) ✓ No compensation for container itself, because containers will not be demolished ✓ Additional assistances such as relocation ✓ Permission to continue business within ROW which does not destruct road facilities ✓ Advance notice to vacate

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#	Type of Loss	Entitled Persons (Beneficiaries)	Entitlement (Compensation Package)	Implementation Issues/Guidelines
3	Loss of Income	Owner of Business	US\$ 100 per PAH	<ul style="list-style-type: none"> ✓ Payment of Assistance (US\$ 100 per PAH for loss of business income during the period of relocation or demolition of the structures) ✱ All PAHs operating businesses in Project area wish to continue operating within ROW out of the proposed road facilities such as carriageways, greenbelt, and sidewalk. Therefore US\$ 100 per PAH is sufficient to compensate loss of business income during the period of relocation or demolition of the structures. The period between the relocation and restart of the business is anticipated as 7 days. ✓ Affected Persons will be fully informed of the entitlements and the procedures regarding payments ✓ Advance notice to vacate
		Wage Earners	Assistance for Loss of Wage	<ul style="list-style-type: none"> ✓ Assessment of income loss ✓ 3 month cash hand-out worth of wages paid, if employment is lost by the Project.
4	Loss of Accommodation	Vulnerable Persons	US\$ 50 per PAH, Special Measures and Assistance	<ul style="list-style-type: none"> ✓ Assessment of Loss ✓ Assessment of Assistance ✓ Payment of Cash Assistance ✓ Affected Persons will be fully informed of the entitlements and the procedures regarding payments ✓ Provision of materials to help them build a higher standard replacement unit, assistance to acquire vocational training or income generating scheme. (done on a case-by-case basis) ✓ Additional assistances such as transportation, etc. ✓ Advance notice to vacate
		Tenants	Special Assistance	<ul style="list-style-type: none"> ✓ Re-imbursement of remaining worth of lease or tenancy deposit ✓ Moving assistance such as house replacement, assistance of rent for 3-month period and moving cost ✓ Advance notice to vacate

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Implementation Schedule of Resettlement

Resettlement activities to be conducted by Liberian Government are described as following table:

Activity	Calendar YR	2012				2013													
	JP Fiscal-YR	24						25											
	Responsible Agency	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		
1. Approval of RAP	EPA				■														
2. Stakeholder Meeting	MPW				■		■												
3. Detailed Asset Survey and Compensation Estimation	MPW				■	■													
4. RAP Budget																			
- Submission	MPW					■													
- Approval	MPW						■												
5. Resettlement																			
- Contracting for Compensation	MPW							■											
- Compensation Payment	MPW							■											
- Relocation of PAPs	MPW							■	■	■	■	■	■	■	■	■	■		
6. Completion of Relocation	MPW												■						
7. Grievance Redressing	MPW					■	■	■	■	■	■	■	■	■	■	■	■		
8. Site Clearing for Alignment ROW	MPW													■					
9. Possible Bidding Date	-																■		
10. Possible Date of the Commencement of Construction																	■		

Notes: 1. Abbreviations:

- YR - Year
 - JP - Japan
 - EPA - Environmental Protection Agency
 - MPW - Ministry of Public Works
 - PAPs - Project Affected Persons
 - JICA - Japan International Cooperation Agency
2. JICA will provide technical support for the RAP Activities.

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**Project for Reconstruction of Somalia Drive in Monrovia
in the Republic of Liberia**

Responsibility Matrix

Items	Target Date	Responsible Agency					
		GOJ	ROL	MPW	EPA	Contractor	
1. Project Scope	• Road Construction	End of May, 2016	⊙				
	• Reconstruction of Stockton Bridge	End of May, 2016	⊙				
	• Repair of Double Bridge	End of May, 2016	⊙				
2. Project ROW and Permits/Clearances	• Secure Budget for ROW & RAP	End of February, 2013			⊙		
	• Project ROW Acquisition	Beginning of August, 2013			⊙	○	
	• Project Site Preparation and Clearance (removal of existing buildings, trees, obstacles, removal/relocation of utilities, etc.)	Mid of August, 2013		○	⊙	○	
	• Clearance for Temporary Construction Yard	Before Construction			⊙		
	• Permits for Disposal Area, etc.	Before Construction			⊙		
3. RAP	• RAP Approval	Beginning of December, 2012			○	⊙	
	• Detailed Asset Survey and Compensation Estimation	Mid of January, 2013			⊙	○	
	• RAP Budget (Preparation & Approval)	End of February, 2013		○	⊙	○	
	• Compensation Agreement with PAPs	Mid of March, 2013			⊙	○	
	• Payment of Compensation	Mid of March, 2013			⊙	○	
	• Relocation of PAPs	June, 2013			⊙	○	
	• RAP Monitoring	During RAP activities until two (2) years after Resettlement			⊙	○	
4. EIA	• EIA Approval	Beginning of December, 2012			○	⊙	
	• Monitoring for Environmental and Social Consideration	Before, During Construction			⊙	○	⊙
		After Construction			⊙	○	
5. Bank Arrangement	• Bank Account and Bank Charges for Grant (Commission for Banking Arrangement and Authorization to Pay)	Before and during Construction		⊙	○		
6. Tax Exemption and Clearances	• Customs clearance and tax exemption for imported items related to project	During Construction		⊙	○		
	• Tax exemption of Japanese nationals from customs duties, internal taxes and other fiscal levies for the supply of products and services	During Construction		⊙	○		

- Notes:**
- ⊙ - Major role/responsibility
 - - Secondary role/responsibility
 - GOJ - Government of Japan
 - ROL - Republic of Liberia
 - MPW - Ministry of Public Works, ROL
 - EPA - Environmental Protection Agency, ROL

4. Minutes of Discussions
2nd Site Survey (19/April/2012)

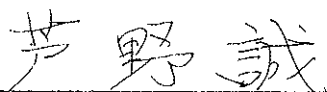
Minutes of Discussions
on the Preparatory Survey (Outline Design)
on the Project for Reconstruction of Somalia Drive in Monrovia
in the Republic of Liberia

In response to the request from the Government of the Republic of Liberia (hereinafter referred to as "Liberia"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Reconstruction of Somalia Drive in Monrovia (hereinafter referred to as "the Project"), and entrusted the Survey to Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent the Preparatory Survey Team for the Outline Design (hereinafter referred to as "the Team") to Liberia. The Team is headed by Mr. Makoto ASHINO, Senior Advisor to the Director General, Economic Infrastructure Department, JICA, and is scheduled to stay in the country from January 21 to June 1, 2012.

The Team held a series of discussions with the officials concerned of the Government of Liberia and conducted a field survey in the Project area. In the course of the discussions, both sides have confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey Report.

Monrovia, April 19, 2012



Makoto Ashino
Leader
Preparatory Survey Team
Japan International Cooperation Agency



Victor B. Smith
Deputy Minister for Technical Services
Ministry of Public Works



Yancon -- Dargbe Nimley
Assistant Minister for Economic Cooperation
& Integration
Ministry of Planning & Economic Affairs

ATTACHMENT

1. Objective of the Project

The objective of the Project is to satisfy increasing transportation demand and contribute to the reduction of traffic jam in Greater Monrovia, through the Reconstruction of Somalia Drive.

2. Items Requested by the Government of Liberia

2-1. After the discussions with the Team, the items described below were requested by the Liberian side.

- Expansion of the Somalia Drive (from the Free Port junction to the Red Light junction) from 2-lanes to 4-lanes. (New additional 2-lane roads)
- Rehabilitation of existing Stockton Bridge (4-lane).
- Repair of existing Double Bridge (4-lane).
- Improvement of existing road junctions.
- Installation of bus stop and car parking.
- Installation of pedestrian walkway.
- Installation of curb stones.
- Installation of traffic signs and road marking.
- Installation of pedestrian crossings.

JICA will assess the appropriateness of the request through the Preparatory Survey and will report the findings to the Government of Japan. Implementation and components of the Project will be decided by the Government of Japan.

2-2. Both sides confirmed that the designing of the Red Light junction is not included as a Project component.

2-3. The Liberian side requested that the designing of existing road of Somalia Drive be considered in the overall design.

3. Environmental and Social Considerations

3-1. The Team explained the outline of JICA Guidelines for Environmental and Social Considerations (April 2004) (hereinafter referred to as "the JICA Guidelines") to the Liberian side. The Liberian side understood the concept of the JICA Guidelines and confirmed to conduct the necessary procedure.

3-2. The Liberian side confirmed that MPW shall conduct necessary procedure concerning Environmental Impact Assessment (EIA) based on the law of Liberia and acquire EIA License from Environment Protection Agency (EPA) and submit it to JICA Liberia Field Office by the middle of October 2012.

3-3. Regarding the Project Affected Persons (PAPs) within the Project sites, the Liberian



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side agreed to secure the appropriate budget to be allocated for resettlement and compensation and secure the land before the implementation of the Project. In this regard a Resettlement Action Plan (RAP) will be prepared and approved by the responsible authorities beforehand and MPW will take necessary measures to PAPs according to RAP in close communication with JICA.

3-4. The Liberian side agreed that Project Affected Persons (PAPs) shall be sufficiently compensated and supported to improve standard of living, income opportunities and production levels, or at least to restore them to pre-project levels.

4. Schedule of the Study

4-1. The Team will continue further studies in Liberia until June 1, 2012.

4-2. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Liberia in order to explain its contents around October 2012.

4-3. If the contents of the report is accepted in principle by the Liberian side, JICA will complete the final report in English and send it to Liberia around February 2013.

5. Other Relevant Issues

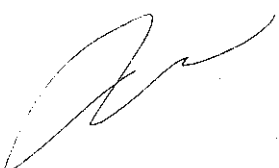
5-1. The Liberian side confirmed that the following undertaking should be taken by the Liberian side at the Liberian expenses.

- (1) To acquire the land for the Project site shown by the Team.
- (2) Removal/Relocation of existing utilities (water lines, power cable, telecommunication lines, etc.) including the underground facilities, advertisement boards and small gas stations within the Project site to designated area or out of the Project site.
- (3) Compensation for the PAPs (Project Affected Persons).
- (4) Securing of the temporary yard for the Project.
- (5) Securing site for borrowing pit, quarry and disposal area.
- (6) Necessary assistance for tax exemption and custom clearance for project related equipment, materials and facilities.

5-2. Both sides confirmed that all the agreements in the Minutes of Discussions of the preceding Preparatory Survey signed on August 31, 2011 continue to be valid.

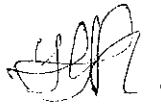
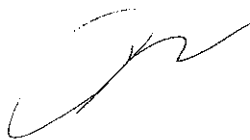
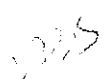
5-3. Regarding the Free Port junction, the Team will continue further studies until the end of May 2012 in order to decide whether or not its improvement should be one of the project components.

5-4. The Liberian side shall share necessary data with the Team including the design of existing Double Bridge by the middle of May, 2012.



5-5. Regarding existing Double Bridge, the Team will continue further studies including X-ray survey and discuss measures with the Liberian side. When it turns out that there is no severe damage to the structure, the Team will consider simple repairs for the pavement, handrail and slab, which will not be warranty against defects to the bridge.

Annex : List of Attendants

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List of Attendants

1. Ministry of Public Works

Victor B. Smith	Deputy Minister for Technical services
Edsel Edward Smith	Assistant Minister for Technical services
William L. Slour	Assistant Minister for Operations/Construction
Akindele George Beckley	Program Director/IIU
Bindu Brewer	Act. National Zoning Officer

2. Ministry of Planning and Economic Affairs

Yancon-Dargbe Nimley	Assistant Minister for Economic Cooperation & Integration
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3. JICA

Makoto Ashino	Team Leader
Osamu Sakurai	Team Member
Daisuke Fukuzawa	Team Member
Shitau Miura	Country Manager, JICA Liberia Office
Tsuyoshi Yamajuku	Chief Consultant

5. Technical Note

Technical Note

The Preparatory Survey on the Project for Reconstruction of Somalia Drive in Monrovia

Ministry of Public Works (MPW) and JICA Survey Team made technical discussions about design criteria of the project. The both parties confirmed and understood on the following matters.

Design Criteria

General

- Design Speed: MPW request to select appropriate design speed between 60 and 80km/hr based on the consideration of roadside condition.
- Maximum Superelevation: 4% for urban is acceptable.
- Cross Fall: 2.5% is acceptable.
- Pavement Type: Asphalt Concrete is acceptable.
- Pavement Design Period: JICA team proposes 10 years for pavement design but MPW requests 20 years. It will be discussed in Japan.
- Standard Axle Load: 11.5 ton for ECOWAS standard is adopted.
- Red light junction is not included in JICA project. The end point of JICA project shall be Sta. 13+000.
- MPW requests at least three (3) design options with adequate drainage provisions as well as the associated cost estimates for implementation.
- MPW and JICA team will review and agree on the design option to be implemented.

Cross Section

- Mountup Median Separator: 2.5 m is acceptable.
- Lane Width 3.25 m is requested to 3.65 by MPW.
- Pavement Width: 7.5 m is acceptable.
- Sidewalk: JICA team proposes flat sidewalk 4.0 m width but MPW requests mountup sidewalk 2.0 m. It shall be studied with comparative options including drainage system.
- Green belt: 1.5 m is acceptable.

Bridge

- Live Load: Equivalent with AASHTO HS-20 is acceptable. MPW additionally requests to analyze military tank load.
- Carriage Way: 7.5 m include shoulder as same with road section is acceptable.
- Seismic Coefficient: $K_h=0.1$ as minimum value
- High Water Level: 1.3 m below (Stockton Br.) and 1.5 m below (Double Br.) from existing girder

- Navigation Clearance: Existing span is kept (Stockton Br. 21 m, Double Br. 25 m).

ROW

- Construction limit set for the project is approximately 75 feet from the median centerline.

Other Requests

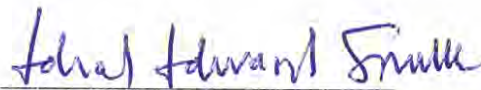
- MPW requests to make design for completed 4-lane road. JICA team may accept the request after the discussion with JICA head office.
- MPW requests to carry out cost estimation for completed 4-lane road and it will be discussed in Japan.

Noted by

30 May 2012



Keiichi Murakami
Road Designer
JICA Preparatory Survey Team



Edsel Edward Smith
Assistant Minister for Technical Services
Ministry of Public Works