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ENGINEERING SERVICES FOR RURAL ROADS  
REHABILITATION (ES3R)  
CONTRACT NO: EDH-I-00-08-00023  
YEAR 1, QUARTER 4  
PROGRESS REPORT (TO SEPTEMBER 2014)

20 October 2014

# ENGINEERING SERVICES FOR RURAL ROAD REHABILITATION (ES3R) CONTRACT NO. EDH-I-00-08-00023

## YEAR 1, QUARTER 4

## PROGRESS REPORT (TO SEPTEMBER 2014)

**Prepared for:** USAID/Liberia

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20 October 2014

The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government. This report was prepared for the U.S. Agency for International Development. It was prepared by CDM International, Engineering Services Rural Roads Rehabilitation (ES3R)

# Acronyms

A & E	Architect and Engineer
BoQ	Bills of Quantity
COP	Chief of Party
COR	Contracting Officer Representative
ES3R	Engineering Services for Rural Roads Rehabilitation
ETL	Engineering Team Leader
EVD	Ebola Virus Disease
FED	Food and Enterprise Development
FTF	Feed the Future
FTL	Field Team Leader
F2M	Farm to Market
F2MRR	Farm to Market Road Rehabilitation
GIS	Geographic Information System
GOL	Government of Liberia
IWP	Interim Work Plan
LESSP	Liberia Energy Sector Support Project
LMWP	Liberia Municipal Water Project
LOE	Level of Effort
MCA	Multiple Criteria Analysis
MOF	Ministry of Finance
MPEA	Ministry of Planning and Economic Affairs
MPW	Ministry of Public Works
OCA	Organizational Capacity Assessment
PIRS	Performance Indicator Results Sheet
RE	Resident Engineer
SI	Site Inspector
USAID	United States Agency for International Development

# **ENGINEERING SERVICES FOR RURAL ROADS REHABILITATION (ES3R)**

**YEAR 1, QUARTER 4, JULY TO SEPTEMBER 2014**

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# 1. SUMMARY PROJECT DESCRIPTION

## 1.1 Introduction

The U. S. Agency for International Development's (USAID) 'Engineering Services for Rural Roads Rehabilitation (ES3R)' was awarded to Camp Dresser McKee International (CDM) under the following USAID contract number: EDH-I-00-08-00023 and task order AID-669-TO-13-00002 which records the period of performance as 8 October 2013 to 20 October 2015.

Liberia's Farm to Market Rural Roads (F2MRR) activity is allied to the objectives of the Feed the Future (FTF) initiative, which is a U.S. government initiative, which aims to address the root causes of global hunger by sustainably increasing agricultural productivity. F2MRR will provide infrastructure investment in the rehabilitation of rural farm-to-market roads to support the following:

- USAID /Liberia FTF program Food and Enterprise Development (FED),
- Capacity development for routine maintenance systems within the Government of Liberia (GOL),
- Capacity development of Ministry of Public Works (MPW) rural roads engineers and local A & E firms,
- Development of alternative low volume road pavement pilot projects, standards and design specifications.

## **1.2 Objectives**

Within F2MRR, ES3R will be an implementing mechanism which will undertake the following objectives:

### **Objective 1:**

Provide construction oversight for three (3) local contracts for the rehabilitation of a total of 83.5 kilometers farm-to-market roads in Bong, Lofa, and Nimba counties from 2013 to 2015.

### **Objective 2:**

Produce engineering designs and construction documents for the 450 kilometers farm-to-market roads in Bong, Lofa, Nimba, and Grand Bassa counties to be rehabilitated in 2015 to 2018.

### **Objective 3:**

Training and pre-qualification of five (5) local architect-engineer firms capable of providing oversight for road rehabilitation activities by 2015.

## 2. QUARTERLY OVERVIEW

This is the fourth and final quarterly progress report to be presented in respect of Year 1 of the project. The material presented, deals primarily with the finalization of the preliminary design process, the commencement of detailed field survey of prioritized roads and the onset of conditions which gave rise to the temporary withdrawal of field teams from field survey, to Monrovia office based, detailed road design works. In addition, the report details the status and approach to challenges on the project and presents the proposed Work Schedule for the next quarter. A financial report is also included.

### 2.1 Quarter 4 Highlights Summary

This section provides a summary of the items which were undertaken (by month) in the operations for the project. The highlights of these will be further detailed later in the section.

<b>JULY 2014</b>		
<b>Date</b>	<b>Description</b>	<b>Comment</b>
1 July	Depart Monrovia for up country visit	ETL to Nimba/Bong
1 July	ETL meets FTL's in Gbarnga and Ganta	Bong & Nimba
2 July	Visit to Nimba roads sites	Two roads
2 July	Site meeting with 21 <sup>st</sup> Century	Meeting at Payee
2 July	Nimba Superintendent attends site meeting	Visit sites also
3 July	ETL visits Bong county roads	Site visit
3 July	Site meeting with Westwood	Gbenequelle
3 July	Meeting with Jackson Paye, Dep. Min. MPW	Briefing by COP
3 July	Meeting (general COP) with L-MEP	Mamba Point
3 July	Advice of survey equipment arrival at ROB	Agent advice
4 July	Survey equipment at airport – duty required	Tax Cert in place

6 July	ETL travels to Ganta	With Nimba RE
8 July	Weekly Meeting with USAID	ES3R Office
9 July	ETL travels to Ganta (after return to Monrovia)	Computer stolen
10 July	Survey consignment retrieved from ROB airport	Week after arrival
10 July	Site survey by ETL for bridges in Zoaplay	Survey 10 & 11 July
12 July	ETL return to Monrovia via Gbarnga	ETL meet with FTL
14 July	Design environmental guidelines received	K Menzer provides
14 July	Cardno representatives to ES3R office	Internal discussions
15 July	Technical Coordination meeting with MPW	USAID/ES3R
18 July	Quarterly Progress Report submitted to USAID	Y1 Q3 Report
19 July	COR visit to field team on Nimba roads survey	COR Nimba visit
20 July	ETL and FTL Nimba travel from Monrovia to site	Travel to Nimba
21 July	S Dotson commence in Monrovia office	LP visit and act COP
21 July	Coordination meeting for all teams & staff	Meet in Ganta
21 July	Lead practitioner review on project	COP/LP in Monrovia
22 July	ETL return to Monrovia	ETL & Driver
22 July	Coordination download COP/LP/ETL	ES3R Office
23 July	Weekly Meeting with USAID	COR/COP/LP/ETL
24 July	COP commence leave – departs Monrovia	COP leave period
28 July	Project staff meeting	Monrovia
31 July	Contractor meeting with project team & COR	Monrovia
<b>AUGUST 2014</b>		
<b>Date</b>	<b>Description</b>	<b>Comment</b>
1 Aug	CDM instruct field survey suspension	Ebola risk
2 Aug	Lofa team demob from Nimba to Monrovia	Reduce health risk
2 Aug	SSF E-mail to USAID re: suspension of works	Application to CO
4 Aug	P Macy telcon with Contracting Officer	Telcon CDM / CO
5 Aug	ETL travels from Monrovia to Ganta	To Monrovia 6 Aug.
5 Aug	Suspension of Work order issued by USAID CO	Lofa Works
7 Aug	Office based work plan finalized	Liaise with HO
7 Aug	Weekly meeting with USAID COR	ETL & COR
8 Aug	ETL departs Monrovia to commence leave	Sick leave
8 Aug	Bong & Nimba teams demob to Monrovia	Emerg'ncy measure
11 Aug	Project staff meeting in Monrovia office	All tech staff
11 Aug	Skype coordination conference	Senior staff

12 Aug	Weekly meeting with USAID COR	COR & 2* FTL
13 Aug	ES3R response to USAID 'Guidance to IP's'	CDM E-mail
15 Aug	Meeting with COR & contractors (Bong & Nimba)	Team & contractors
15 Aug	ES3R submittal of Demobilization Plan to USAID	CDM E-mail
18 Aug	Staff meeting to review designs / BoQ	Design team
22 Aug	Review of BoQ with COR	COR & 2* FTL
24 Aug	ETL return to Monrovia delayed	Flight cancelled
26 Aug	Staff meeting and review of progress	Design team
26 Aug	Review of BoQ	COR & FTL Nimba
27 Aug	Meeting with USAID in Washington DC	CDM & USAID CO
28 Aug	CDM letter to USAID requesting direction	Letter to USAID CO
28 Aug	Skype follow up conference call	COR/COP/ETL/CDM
31 Aug	ETL returns to Liberia	ETL - J Clarke
	<b>SEPTEMBER 2014</b>	
<b>Date</b>	<b>Description</b>	<b>Comment</b>
1 Sept	ETL to Monrovia Office following leave	ETL – J Clarke
2 Sept	ES3R advise COR of potential 30% design strategy	Way forward
2 Sept	Positive response from COR to future strategy	Future strategy
3 Sept	USAID CO letter reply to CDM of 28 August	USAID CO letter
4 Sept	Meeting with USAID/Liberia Acting COR	Meet USAID
10 Sept	Communications with MPW re: staff availability	MPW unavailable
11 Sept	Meeting with USAID Acting COR postponed	Postponed by COR
13 Sept	SSF Lofa Contract Mod 2 – suspension extended	Suspended to 7 Oct
15 Sept	Meeting with USAID Acting COR postponed	Postponed by COR
19 Sept	ES3R Mod #2 signed by CDM and USAID	Various Mod items
24 Sept	USAID COR returns to ES3R project for meeting	COR brief meeting
24 Sept	CDM submits formal Interim WP to USAID	Interim WP issued
26 Sept	Brief meeting with USAID COR	COR brief meeting
26 Sept	USAID CO letter reply to CDM of 24 September	USAID CO letter
29 Sept	Progress meetings with all (three) contractors	Works contracts
30 Sept	Brief meeting with USAID COR	COR brief meeting

## **2.2 Quarter 4 Details of Highlights**

### **2.2.1 EVD Crisis in Liberia**

The preferred activity sequence for the planned 450 km of detailed design of selected roads was originally envisaged as detailed field survey, followed by detailed design for each road section cluster; a strategy which is articulated in the ES3R Inception Report. However, it was recognized that during the rainy season; June – December, the actual sequence would be significantly influenced by weather conditions. When good weather prevails (thus providing favorable surveying conditions and adequate road site access) field surveys would take preference. During the mid to latter part of June 2014, the teams embarked on the detailed field surveys.

It was on 26 June 2014, that information was received from the Lofa FTL, which advised of 3 deaths in Voinjama and 5 deaths in Foya district of Lofa (source, Voinjama main hospital). This information naturally worried the team about undertaking further field work in Lofa County. As a result, ES3R immediately advised USAID/Liberia of their the decision to effect a temporary withdrawal from Voinjama, due to the recent deterioration of the Ebola situation in the County, coupled with the fact that the design team is presently undertaking field survey work which demands the hiring of local casual labor from the area. In addition, there is apparent denial in the general surrounding area that the health problems being experienced are Ebola related, thus increasing the risk to the ES3R staff. The Lofa field team was temporarily re-located to Nimba County. Following further deterioration in conditions and therefore preventing an early resumption to Lofa based activities, the team was further re-located to Grand Bassa County.

On 31 July 2014, following the imposition of a State of Emergency by GOL, a decision was taken by ES3R, that field work be curtailed on the basis of further deterioration of the EVD situation. All field staff was relocated to Monrovia to continue work out of the Monrovia project office. At that stage, a total of 75km of road had been surveyed. Since each team commenced survey works upon completion of the prioritization workshop in their respective county, the commencement of field survey had been staggered and therefore output for each team different.

### **2.2.2 Progress Meetings with USAID**

Progress meetings have been continued with USAID COR, generally at ES3R project office in Monrovia as and when appropriate, since it is often the case that meetings are scheduled in the field when the parties are involved in site visits.

In addition to regular meetings, a coordination meeting was held with MPW, at which senior officials of MPW were briefed on the progress of the ES3R project. Discussions were also held regarding the utilization of standard MPW design and contract documentation for the works, including the necessity for amendments and additions to the same for the proper design and contract implementation. It should be noted that due to the forced GOL furlough of non-essential staff, the limited or non-availability of key MPW staff was viewed as a critical issue by ES3R during the latter part of the reporting quarter. An ES3R coordination meeting was held on 21 July 2014 in Ganta which was attended by all field team staff ETL and USAID COR.

Progress meetings and calls have been held with USAID as follows:

- 8 July: Progress Meeting with COR, ES3R office,
- 15 July: Coordination Meeting with USAID and MPW,
- 21 July: Meeting in Ganta: Design team and COR,

- 23 July: Progress Meeting with COR, ES3R office,
- 4 August: Telcon between CDM and USAID CO,
- 7 August: Progress Meeting with COR,
- 12 August: Progress Meeting with COR,
- 15 August: Meeting with Bong & Nimba contractors,
- 22 August: Technical Review with COR,
- 26 August: Technical Review with COR,
- 27 August: Members of CDM staff and Cardno staff member meet with USAID CO in Washington D.C.,
- 28 August: Conference call with USAID COR and CDM (Pretoria), COP and ETL.,
- 4 September: Meeting with USAID/Liberia Acting COR,
- 26 September: Brief Meeting with COR,
- 29 September: Progress Meetings with contractors,
- 30 September: Brief Meeting with COR.

Thus it is clear that since the technical review meeting of 26 August, there has been no technical interface between ES3R and USAID until towards the end of September 2014, due to the limited in-country availability of the COR.

### 2.2.3 Project Deliverables and Documentation

**Table of ES3R Communication Documents and Letters**

ES3R COMMUNICATION DOCUMENTS AND LETTERS			
Communication		Date	Detail
From	To		
CDM	USAID/Liberia	8-Jul-14	Travel/Country Clearance – S Dotson
CDM	USAID/Liberia	18-Jul-14	Quarterly Progress Report Y1, Q3
USAID/Lib MD	All IP's	30-Jul-14	Ebola Message
CDM	USAID CO	31-Jul-14	Changed Conditions (sent 1 August)
USAID/Lib MD	All IP's	4-Aug-14	Ebola Update

USAID CO	SSF (Lofa Contractor)	5-Aug-14	Suspension of Work Order issued by USAID CO
USAID/Lib MD	All IP's	6-Aug-14	Ebola Update
CDM	USAID CO	6-Aug-14	Changed Conditions
CDM	USAID/Liberia	8-Aug-14	Monthly Progress Report – July 2014
CDM	USAID CO	9-Aug-14	Notification of partial Stop Work Conditions and requested Direction to Proceed
USAID/Lib MD	All IP's	11-Aug-14	Guidance to IP's
USAID CO	CDM	13-Aug-14	Notification of partial Stop Work Conditions and requested Direction to Proceed
CDM	USAID CO & COR	13-Aug-14	Request for Direction
CDM	USAID CO	14-Aug-14	Cost cutting measures due to remote based Chief of Party
CDM	USAID CO	15-Aug-14	Request for Reconsideration
CDM	USAID CO	19-Aug-14	E-mail Mod 2 signed and issued to USAID
USAID CO	CDM	19-Aug-14	E-mail Mod 2 completed by USAID CO.
CDM	USAID CO	26-Aug-14	Changing Conditions
CDM	USAID CO	28-Aug-14	Project Action Plan Modification
USAID CO	CDM	3-Sep-14	Project Action Plan Modification
CDM	USAID/Liberia	10-Sep-14	Monthly Progress Report – August 2014
CDM	USAID CO	24-Sep-14	Project Action Plan – Interim WP Proposal
USAID CO	CDM	26-Sep-14	Project Action Plan – Further Guidance

The above 'Table of Communication Documents and Letters' includes in chronological order those communications of particular relevance to the progression of Works on the ES3R project.

The most significant effect on project planning and operations during the quarter has been occasioned by the crisis caused by the Ebola virus. USAID have acknowledged that the Ebola virus is an increasing cause of concern in Liberia. Such concern is considered to be totally vindicated by the total numbers of confirmed, probable and suspected cases of infection, which have increased from just over 300 at the beginning of August 2014 to 3834 (including 1830 deaths) towards the end of September 2014; ever increasing at a rate which has been described as epidemic proportions.

In the first week of August the following was evident:

- Peace Corps temporarily suspended operations,
- CDC travel advisory recommended against non-essential travel to Liberia,
- SP announced it was evacuating non-essential personnel from Liberia,
- Liberia President declares countrywide ' State of Emergency'.

In addition, this period marked the start of notification of international flight suspensions in and out of Liberia which was continued throughout the month. A situation update of information by USAID, acknowledged that the continued deterioration in the country's healthcare system and its ability to respond to non-Ebola illnesses, was of major concern.

The ES3R team have maintained close liaison with USAID CO and COR, regarding changes in planning and project implementation which were warranted as a consequence of the health risks which were being imposed on the field teams, in view of the essential interaction with the various local communities and lack of access to healthcare facilities for non-Ebola related issues. The road survey fieldwork necessarily involves significant contact and engagement with the local communities because of the employment of local labor to assist in the field operations and in liaison with villagers in order to best meet the needs of the communities. During much of the field operations, because of the remoteness of the road locations, our staff has to reside within the local communities. It is these circumstances which have mainly contributed to the decisions which have been made by ES3R to temporarily suspend field operations. Of serious concern to the project staff was the potential risk of contracting malaria which has documented symptoms similar to the

Ebola virus. It is commonly reported that those with non-Ebola related illnesses in Liberia are suffering in greater numbers due to the lack of access to adequate healthcare facilities. Prior to the crisis, the project experienced malaria related illness to staff members.

ES3R have therefore informed and regularly updated USAID regarding adverse operational impacts, such that field based operations have been subjected to substantial 'stop work' conditions. Notwithstanding this, ES3R made alternative work planning arrangements in order that potential negative impacts on progress be mitigated as much as possible. The ES3R team has presented USAID with notification and details of changed conditions, as a result of which, requests for direction of future procedures have been made. The relevant correspondence is recorded in the said table.

As a response to CDM letters of 6 and 9 August 2014, USAID/Liberia provided the following guidance to CDM in a letter dated 13 August 2014:

- (1) All construction oversight for ongoing contracts in Lofa, Nimba and Bong Counties are hereby suspended until September 15, 2014.
- (2) All training and capacity building activities shall be suspended until September 15, 2014.
- (3) All field surveys and site based data collection for designs are hereby suspended until September 15, 2014.
- (4) From August 4, 2014 to September 15, 2014, ES3R is to complete a total of 74.8 km of roads. ES3R has assured the contracting office that enough field data and survey material were completed prior to August 4, 2014 to manage this risk.
- (5) From August 4, 2014 to September 15, 2014, ES3R will update specifications, adjust typical drawings, modified BOQ's, and contract administration forms/reporting templates.
- (6) The full ES3R project staff shall be available in country to provide support to all the deliverables mentioned above.
- (7) CDM Smith reserves the right to request the Contracting Officer to either rescind this order early, or request an extension.

- (8) CDM Smith shall submit an updated work plan and deliverable schedule outlining implementation strategies, schedules and updates of how the rest of the project deliverables will be met within the remaining life span of the project. This submission shall be within thirty (30) days, of the lifted suspension.

Subsequent to this information and guidance, CDM presented further written requests to USAID; requests which were elaborated as a consequence of a 'face to face' meeting in Washington D.C. with the USAID CO and conference calls between the parties towards the end of August 2014.

USAID/Liberia letter dated 3 September 2014 was received as a result of the former correspondence and discussions. The letter contained the following guidance/approvals:

1. The partial suspension of work has been extended from September 15, 2014 to September 26, 2014.
2. CDM Smith is to provide to USAID an updated Work Plan. This work plan should cover the entire project until completion. This work plan should be provided to USAID within thirty (30) days of the lifted suspension.
3. CDM Smith has been granted permission to consolidate all personnel in Monrovia, with the understanding that USAID will only pay for housing in one location per day. Meaning the employee cannot receive accommodations in Monrovia, and their field assigned area at the same time.
4. CDM Smith has been granted permission to reduce the hours of drivers as needed to ensure proper usage of government funds.
5. The Chief of Party has been granted permission to telework part-time from London. CDM Smith invoices shall clearly reflect his level of effort, and at no time reflect more than fifty (50) percent.
6. Mr. Obetia has been granted permission to telework from Uganda until September 26, 2014. At that time, his teleworking privilege will be revisited.

It is USAID understanding that unless CDM Smith re-evaluates their willingness to move into the field on a limited and controlled basis (at least Grand Bassa County) by mid-September under the current circumstances, USAID may be left with no other viable option but to suspend all works by the end of September.

In view of the USAID understanding in the final sentence of the letter (above) and in the sincere interest of maintaining momentum in the design of the project, ES3R developed an innovative strategy for the continuation of design work utilizing existing field survey data.

Thus the need for further field survey works was not a requirement for the progression of design work, which in the prevailing circumstances of the Ebola health and safety crisis, seemed to be a fair and reasonable way forward. On the basis that the strategy was in line with the provisions of Task Order Section C.4.3.23, "Preliminary (30%) engineering designs", and with the general agreement of USAID COR by e-mail of 6 September 2014, the ES3R team continued with the formulation and development of a resourced Interim Work Plan (IWP), together with associated narrative. Following the issuance of drafts of the proposal to USAID/Liberia, the narrative and IWP were formally submitted to USAID CO under CDM letter dated 24 September 2014. Copies of both the narrative and IWP are included in Annex A of this report.

USAID/Liberia letter dated 26 September 2014, advised CDM as follows:

The U.S. Agency for International Development in Liberia has reviewed the subject document dated September 24, 2014, in which CDM Smith proposed solutions to keep ES3R project active until the end of the calendar year. Please note that the plan submitted was deemed as unacceptable.

Please find below the only two acceptable options at this time:

**Option 1**

- The Chief of Party and Field Team Leader shall return to Liberia within two weeks to resume their full duties or be replaced with someone equal or better.

- CDM Smith shall restore periodic quality assurance services to Bong and Nimba County sufficient enough to complement the ongoing construction works. (This could be implemented by one of the three field teams).
- CDM Smith shall commence field surveys/detail engineering designs for roads in Grand Bassa County. (This could be implemented by one of the three field teams).
- CDM Smith shall work on 30% designs of the remaining 353 to 362 km of roads. This could also be implemented by one of the three field teams with part time support from the other field teams.

## **Option 2**

- Stop work order for a period of 60 days

As mentioned previously, unless CDM Smith re-evaluates their willingness to move into the field on a limited and controlled basis (at least Grand Bassa County) by mid-September under the current circumstances, USAID would be left with no other viable option but to suspend all works by the end of September.

As of the end of the period quarter, ES3R was giving consideration to a response to the last stated USAID letter.

### **2.2.4 Field Visits to Counties Sites**

Numerous visits to all project sites were made during the Quarter, by USAID/Liberia and ES3R key staff, particularly in July 2014 prior to the escalation of the Ebola situation:

#### **July 2014:**

##### **Field Visit 1 – 4 July 2014 (ETL Visit)**

The purpose of this visit was to attend monthly site progress meetings in Bong and Nimba counties and to meet with Field Team Leaders for discussions on logistics for future inputs.

##### **Bong/Nimba Counties 1 July 2014**

- Meeting with FTL Bong in Gbarnga
- Meetings with FTL's Nimba and Lofa

##### **Nimba County 2 July 2014**

- Travel to Payee for site meeting with 21<sup>st</sup> Century
- Meet up with County and Deputy Superintendents
- Discussions on integration in Nimba with FTL's Nimba and Lofa
- Discussions on Productivity and detailed design

**Nimba/Bong Counties 3 July 2014**

- Travel to Bong road sites – visit Janyea and Molly's Town
- Site progress meeting in Gbanequelle
- Technical discussions with FTL & RE bong
- Return to Ganta – discussions on bridges with FTL's

**4 July 2014**

- Discussions on logistics with FTL's and return to Monrovia

**Field Visit 7 – 12 July 2014**

The main purpose of this field visit was to cover for the FTL Nimba who was on short leave, in order to maintain progress in the detailed field survey for Nimba, particularly in a particular bridge site which has been determined following bushclear.

**Bong/Nimba Counties 7 July 2014**

- Meeting with FTL Bong in Gbarnga
- Meet in Ganta with FTL Lofa

**Monrovia 8 July 2014**

- Unscheduled return to Monrovia; computer stolen
- Meeting with COP and COR in Monrovia

**Nimba County 9 July 2014**

- Preparations for Zuoplay surveys
- Travel to Saclepea

**10 July 2014**

- Meet with FTL Lofa at bridge site
- Familiarize with road link and commence site survey

**11 July 2014**

- Complete survey of bridge site
- Return to Ganta

### **Nimba/Bong Counties 12 July 2014**

- Discussion with RE Nimba re: bridges in Nimba/Grand Bassa
- Return to Monrovia via Gbarnga
- Meet with FTL Bong for technical discussions

### **Field Visit 20 – 22 July 2014 (ETL Visit)**

The main purpose of the visit was to chair a field team coordination meeting at which COR will be present, in order to streamline and discuss matters related to detailed field survey and related designs.

### **Bong County 20 July 2014**

- Journey from Monrovia to Gbarnga
- Meeting with FTL Bong
- Journey to Ganta

### **Nimba County 21 July 2014**

- Meeting with Field Team Leaders Bong/Lofa/ Nimba and COR.
- Discussion regarding culvert design and survey
- Discussion regarding earthwork specifications
- Review of contractor progress

### **22 July 2014**

- Admin & finance discussions with staff
- Return journey to Monrovia

## **2.2.5 Design of Bridgeworks**

It is evident that numerous waterways on future road links will require bridge structures in excess of 10 meters span to be addressed which is outside the ES3R scope of work. Following discussion with USAID, ES3R will quantify the LOE required for the design of the bridges between 10m and 16m, for the development of standard bridge superstructure designs as well as a design guide checklist for substructure elements of bridgeworks for feeder roads in Liberia.

The notes of the meeting held on 23 July 2014, in Item 4, records that, "... a contract amendment will be submitted to USAID for review in regards to a bridge structural engineer".

Although a draft contract amendment was prepared on the basis of a large number of waterway structures (>25 No.), it became evident following detailed field survey work done in Nimba, that of the six locations cleared of bush, thus being suitable for inspection and evaluation; only one was deemed appropriate as a bridge location. Determination as to the choice of structure is practical only subsequent to bush clearance, which is now needed in 23 further locations, there being 29 established in total.

We recall that during the said meeting in July, the method of quantum was briefly addressed, when we understood that a lump sum cost was favored by USAID, as compared to a cost per potential bridge site. In the light of current circumstances where the number of potential bridge crossings is not definitive, a cost per site may prove to be a time saving method of solution. This may be related to (say) a maximum number of potential bridge sites until such time as specific bridge locations are determined as a result of field survey.

#### **2.2.6 Annual Work Plan**

It is noted that as per Modification 1, the Annual Work Plan (AWP) was due for delivery on 1 September 2014. We advise that USAID CO letter dated 13 August 2014, advised as follows:

CDM Smith shall submit an updated work plan and deliverable schedule outlining implementation strategies, schedules and updates of how the rest of the project deliverables will be met within the remaining life span of the project. This submission shall be within thirty (30) days, of the lifted suspension.

This, by definition, was construed to be the AWP. By the direction of the USAID CO letter dated 3 September 2014, which advised that the partial suspension was extended to 26 September 2014; this gives rise to a revised submission date for the AWP of 26 October 2014. Whether the preparation of an AWP for submission in late October 2014, will provide a practical work plan for future work operations, deliverables etc. is highly debatable in consideration of the ever evolving Ebola crisis throughout the country.

## 3. PROJECT OBJECTIVES PROGRESS

### 3.1 Objective 1 – Construction Oversight

It was apparent from an early stage that the contractors' staff generally lacked the capabilities to perform the reporting and design functions of a design and construct contractor, this being a new concept for this type of road construction in Liberia. During these early stages the ES3R teams, particularly the FTL's and RE's, were engaged in considerable time input in the mentoring of contractors' staff and in support of the design and reporting process in order to facilitate reasonable progression of the works.

This situation gave rise to a generally slow start on all of the contracts; however, better progress was achieved during the third quarter. This fourth quarter has seen much delay and disruption to progress from July to September 2014 inclusive, due both to the Ebola crisis situation and to the traditional scale down period for road contracts due to wet season conditions.

The function of QAC oversight on the works contracts was suspended by USAID/Liberia from 13 August 2014, initially to 15 September, which was later extended to 26 September 2014. Thus, ES3R would not be in a position to undertake construction oversight duties. As a consequence of this direction, clearly ES3R will not be in a position to recommend acceptance of works undertaken during the said period of suspension of the QAC duties.

The general progress of each of the contracts, with 'time elapsed' expressed as a percentage of total contract periods, as of the end of September 2014, is as follows:

#### **Bong:**

At a meeting on 15 August 2014, Westwood was advised that the following works may be undertaken during August 2014:

- Site Clearance and smaller pipe culvert (24' & 36' diameter) work on Palala road would continue during the month of August. It was agreed that the contractor to avoid pipe culverts in active streams due to the risk of losing access during the heavy rain, until weather conditions improve.
- Completion of concrete casting to top slab at ongoing box culvert but no new box culverts to be opened, until further review of progress and revision to field supervision arrangements. The conditions laid out for the continued work at this box culvert included:-
  - Westwood to conduct on site slump tests and preparation of concrete test cubes during any concrete casting works to determine the constructed concrete strength.
  - Westwood to take photos of the reinforcement steel and formwork prior to casting of concrete, for submission to the QAC & C.O.R.
  - Q.A.C will make arrangement for site supervision support from the MPW resident engineer Bong County.
- With regards to the Ebola outbreak Westwood promised to conduct some Ebola awareness for its workers, as a measure to pre-empt any potential Ebola problems on site. The contractor was advised to prepare a short written report when it is done.

As of the end of September 2014, it is reported that although work would seem to be continuing on site when possible, outside of inclement weather restrictions, the key staff of the Contractor would appear to be ineffective in their duties. A meeting was held with Westwood at ES3R offices on 29 September 2014, at which only the QAC and Contractor were present:

The Westwood project manager advised that he has had his computer confiscated internally.

In addition, it was advised that the WI project engineer was now in Ghana and may not return to Liberia; that there was no QA officer, no effective environmental officer and the WI general manager was in the U.S. and not expected back until first week in October.

The PM produced a brief report of very little value which was inconsistent with the previous report, work plan etc.

Overall assessed percentage completion: 31% (end August)  
Percentage time elapsed: 34.5%

Gbenquelleh – Janyea Road: (10.5km)

Gbenquelleh – Molly Town Road: (9.5km)

Tolomai – Palala Road: (29.9km)

Financial:	Assessed Value of Works completed	\$ 587,494
	Total Contract Value	\$1,895,141.86
	Payments to date	\$ 508,376.56

### **Nimba:**

There has been interaction with the Contractor, 21<sup>st</sup> Century, who had been advised of the works which may be undertaken during August 2014, which consisted of site clearance and limited culvert works. A progress meeting was held at the ES3R offices, Monrovia on 29 September at which the COR, ES3R and the Contractor were present. Key output from the meeting was as follows:

- The construction works contract modification has been approved and signed by the C.O.R increasing the contract scope and amount. The contractor was advised to prepare and submit a revised work plan reflecting the modified works scope and submit a copy to the client and QAC by the 10th October 2014.

- Contractor could potentially continue with non-critical construction works, which could easily be checked post construction using simple field tests.
- Site clearance for all the contract roads completed during the month. Contractor only awaiting the weather condition to improve and for his compactor to be completed before they resume reshaping and embankment filling works on the remainder road section.
- All the culvert lines in the original contract were completed during the month. Contractor to focus on culvert fabrication for the remainder new culverts contained in the contract variation.
- The Q.A.C reminded the contractor that if they realize any need to request for a non-cost extension of time due to Ebola outbreak, the client has to be notified in time in writing, for contractual procedural purposes.
- The contractor reminded the meeting of his pending request for joint site measurement to permit him invoice for another interim payment for works done. The C.O.R informed the contractor that he will act on his request but stated that the most likely inspection date would be confirmed only after he secures transport from the currently busy Embassy fleet.

Overall assessed percentage completion: 39%

Percentage time elapsed: 34.5%

Bahn – Kpayee – Zuolor – Payee Road (14.4km)

Dwonwea - Zuo Lapa Road (4.1km)

Duanpea Road (2.5km)

Financial:	Assessed Value of Works completed	\$328,753
	Original Contract Value	\$737,371.15
	Revised Contract Value	\$843,228.25

Payments to Date \$280,847.97\*

\*Note a discrepancy in amount c/f Contractor Monthly Report 5.3.

**Lofa:**

The construction contractor (SSF) in late June 2014 advised that he planned to scale down works as a result of the rains. A skeletal team including a concrete team, a maintenance team and an engineer would be kept on the site during the full period of the rain (July to September) to continue works on an ongoing box culvert while also maintaining access on the road as is required by the contract.

ES3R, as a result of the deterioration of the Ebola situation in the county during June 2014, decided to temporarily withdraw the field team from Voinjama.

A request by SSF for suspension of work due to the current outbreak of Ebola was granted by USAID/Liberia in a letter dated 5 August 2014, which incorporated Modification No. 1; ‘to suspend all works being completed in Lofa County from 8 August 2014 to 7 September 2014’, which was subsequently extended to 7 October 2014 by the issuance of Modification No. 2.

Overall assessed percentage completion: 34.4%  
Percentage time elapsed: 26%

Galamai Road (2.6km)

Bitijama Road (3.6km)

Barkedu – Jamulor – Moibadu Road (8.3km)

Financial:	Assessed Value of Works Completed	\$203,966
	Total Contract Value	\$592,384.35
	Payments to Date	\$202,957.65

### **3.2 Objective 2 – Design and Contract Documents**

Following the finalization of the selection of prioritized target roads as a consequence of the prioritization workshops in the counties during the last quarter, the field teams were enabled to commence work in the detailed field surveys of the roads. Each of the field teams was to undertake the detailed survey of roads in their respective county, Lofa, Bong and Nimba, and it was envisaged that the Bong and Nimba teams would share the survey works required for roads in Grand Bassa, in view of the geographic location.

The detailed road field survey, generally involves the following items to be undertaken:

- Establish field camp in consultation with local community,
- Hire and train two local 'flying gang' (3 - 4 people each),
- General discussions/liaison with community,
- Peg out road and paint chainages,
- Identify culvert locations and arrange clearing of bush,
- Hire of local labor for survey / sampling assistance,
- Topo survey with levels at 25m intervals on L/c – offsets where necessary,
- Establish benchmarks along route,
- Take levels along watercourse inverts,
- Identify, clear and sample gravel/fill source(s).

These items clearly involve close working interface with the local communities including working relationship, transport, equipment handling and in some cases living within the community.

Immediately prior to the withdrawal of the Lofa team from the county towards the end of June 2014, the survey of one road had been undertaken. The Lofa team was then relocated to Nimba as of late June / early July 2014, when field survey was commenced in that county in support of the Nimba field team. Meanwhile the Bong field team was progressing with detailed field survey in that county.

As addressed in the final paragraph of section 2.2.1 herein, a decision was taken by ES3R, that field work be curtailed on the basis of further deterioration of the EVD situation. At the time of withdrawal from field surveys on 31 July 2014, the following detailed field survey work had been completed:

<b>County</b>	<b>Road Link</b>	<b>Length km</b>	<b>Total km</b>
<b>Lofa</b>	John's Town - Bulor	15.4	15.4
<b>Nimba</b>	Dounpa – Zuaplay – Gogoin - Nimba	22.2	28.2
	Gaopah – Garwonpa - Fleedin	6.0	
<b>Bong</b>	Gbondi - Gbarnia	17.5	31.6
	Yaindewoun – Nyan – Molo ta Junction	14.1	
		<b>Total</b>	<b>75.2</b>

It was established that there was sufficient field data in hand from the above mentioned detailed road field surveys to carry out the detailed road design of those roads, which has been progressed from the project office in Monrovia since the three teams moved to that office during early August 2014.

The design work involved to achieve the detailed design included the following:

For each road link, conversion of survey data into tender documentation including:

- Strip mapping,
- Improvement plans,
- Bills of quantities (BoQ) according to specification,
- Technical drawings illustrating BoQ items,
- Digital drawings for pipe culverts,
- Digital drawings for revised inlet / outlet structures,
- Technical drawings for single and double cell box culverts,
- Review and revision of MPW Bills of Quantities (5 sections),
- Review and revision of MPW Specifications (5 sections),
- Preparation of standard contractor reporting templates.

It was our expectation that the design work would be completed on or around 26 September 2014, which was reflected in our initial work schedule to USAID/Liberia issued on 9 August 2014. However, numerous items have inhibited the progress of the design work including the following:

- The effect(s) of the Ebola crisis on the teams generally,
- Low team motivation and morale result from above,
- Sicknesses (minor) within the team,
- Optimistic initial schedule,
- Generally slower team output than expected,
- Ongoing uncertainty and impact on staff generally.

In addition the following technical related issues had significant impact on productivity:

- Five large structures added to Nimba cluster at the request of USAID. These were not included in the work schedule,
- MPW specification issues including the following:
  - Major flaws noted covering large RC elements,
  - Realization that major revisions are necessary,
  - Incompatibility with USAID contract document which gives rise to ever increasing need for extensive modifications,
- MPW Method of Measurement and associated Bills required major revisions,
- MPW standard detail drawings were not available as auto cad originals as had been agreed in the meeting of 15 July 2014. Thus, all drawings have been generated from scratch which include significant revisions/improvements to detailing – both structural and geometric. A total of 38 drawings have been prepared.
- MPW staff has been found to be unavailable for coordination during the period of design work. This is understood to be the consequence of mandatory and/or emergency leave as a result of the EVD crisis.
- Lack of technical interface and liaison with USAID from late August to 24 September 2014, which represented a key period in the design process, due to the absence of COR from the

country. One non-technical meeting was held with the acting COR during this period.

- Remote design work undertaken by one of the FTL's was less effective than expected, mainly because of communication difficulties.

We would note that although some level of amendment and revision was expected to be required to MPW standard documentation, which had not to date been field tested; the level of effort which has been expended on these matters could not have been forecast, was unexpected and has proved to be excessive. In addition, an informed professional will be aware that with such significant requirements for amendment and revision to contract documentation, particularly a specification which was geared to specific international contract conditions, it would be highly advisable that a new specification be formulated in conformity with USAID conditions of contract.

It should be noted that although the work schedule indicated the finalization of design work on 26 September 2014, this did not reflect essential input for key stakeholder coordination and review, followed by QA/QC; both of which are essential components prior to the formal submission of the designs, the date for which was not reflected in the schedule.

Notwithstanding the abovementioned constraints, the teams have maintained impetus in the completion of the design of 75 km of roads, which will form the basis for design of the future packages.

### **3.3 Objective 3 – Training and Capacity Building**

As a consequence of the demobilization of QAC staff from field duties in early August 2014, the mentoring of contractors was not

applicable for the balance of the quarter. Because of the continuing deterioration of the Ebola crisis situation in Liberia, the training for A & E firms which was formally scheduled for two, 3-day training sessions during September 2014, has been postponed. This has placed a hold on interface with the A & E firms and trainees of which they have been informed.

The training and mentoring of Resident Engineer and Site Inspector staff has been continued from the Monrovia office in the design of feeder roads as follows:

Resident Engineers:

- Development of strip maps containing relevant design implementations,
- Analysis of details collected from existing road conditions,
- Design of horizontal and vertical alignments
- Extraction of existing and design levels from vertical profiles into strip maps,
- Export of data from strip maps to Bills of Quantities,
- Estimating quantities of works and materials using appropriate methods,
- Preparation of detail drawings,
- Various road design interventions

Site Inspectors:

- Auto cad plotting of existing and reduced levels,
- Earthworks calculation of cut & fill volumes,
- Fieldwork data processing,
- Auto cad preparation of detail drawings,
- Assistance with road improvement plans.

### **3.4 Performance Management Plan - PIRS**

The Performance Indicator Reference Sheets (PIRS) related to the progress of the ES3R project are included in Annex B of this document.

## 4. PROJECT CHALLENGES

The following items have been encountered during the course of the quarter and pose challenges to the ES3R team and project:

Challenge / Issue	Mitigation / Resolution
All contractors are struggling with the design / build contract model, thus require much support in preparation of submittals.	QAC has to offer inordinate amount of support to contractors in order that compliance be achieved and progress achieved.
The lack of capability of local contractors required that excessive time spent by FTL's in guidance and mentoring process.	ES3R must strike a balance between formal mentoring of contractors and progression of survey and design works required.
The lack of availability of diesel fuel in both Lofa and Nimba has had a negative impact on logistics and travel plans	Despite contingency measures being in place, specific journeys out of county have been required to secure fuel, thus loss of productive vehicle time.
The suitability of dates for the presentation of the MCA tool and for county based presentations and workshops led to unavoidable rescheduling of dates.	Significantly extended time periods in the preparation and presentation of the prioritization workshops has incurred unexpected delays resulting in further time requirement for Y1 documentation deliverables.
Detailed design field survey commenced on 1 July. Available time for design documentation by deliverable date is 3.5 months.	On the basis of time available, completion of target design of 150km is a significant challenge as previously indicated. 75 km was agreed as appropriate within time available.
The Ebola crisis continues to intensify at the end of July requiring evacuation of Peace Corps personnel and issuance of CDC travel advisory against non-	Intensification of project safety protocol. All teams are withdrawn from field work where interaction with local community is causing concern

essential travel.	among team members.
In the interests of health and safety, the field teams were moved to the project office in Monrovia to commence design duties.	The staff of the three field teams will be fully engaged in the design of 75 km of roads for which survey data is now available.
MPW Technical Specifications, Method of Measurement and Detail Drawings which are required to be used in the contract documentation are neither finalized nor yet field tested.	ES3R have identified that from initial assessment, the existing MPW documents will require significant refinement for inclusion in the contract documents. Further work to be undertaken by ES3R.
Bridge engineer requirement.	Proposal for structural engineering support is required. A realistic estimate of waterways which require bridge structures is required.
MPW Specification is inconsistent with USAID/Liberia conditions of contract.	A Specification should be totally consistent with conditions of contract, a matter which should be resolved prior to any solicitation.

## 5. WORK PLAN FOR NEXT QUARTER

An Interim Work Plan for the next quarter covering the period to 20 December 2014 was presented to USAID/Liberia, a matter which is addressed in section 2.2.3 of this document. As of the time of writing, interaction is ongoing between ES3R and USAID/Liberia as to an appropriate way forward for the project.

### **Objective 1: Construction Oversight**

ES3R would be willing to consider undertaking periodic quality assurance services in Bong and Nimba counties subject to the validation of the adequacy of healthcare facilities in those counties.

### **Objective 2: Design and Contract Documents**

ES3R will continue with the finalization of the design of 75 km of roads, the submission of which will be effected as and when formal pre-submission processes have been adequately completed.

ES3R would be willing to reactivate field design /survey activities (say) in Grand Bassa County upon the identification of adequate healthcare facilities in the local area. Comprehensive research will be required given the greater risk and exposure with the work elements required.

In the meantime, ES3R will continue to work on 30% designs as per the IWP submitted to USAID/Liberia, and will review the LOE available for this work according to the possible resumption of other field staff activities as indicated above.

### **Objective 3: Training and Capacity Building**

The formal program which was in place for the training of A & E firms has been postponed as addressed in section 3.3 of this report. It is impractical

at this stage of the deteriorating EVD crisis in the country to determine when the program may be recommenced.

### **Annual Work Plan**

Further to the comments in section 2.2.6 of this report, we would note that there is significant duplication in the requirements of the Annual Report in respect of project planning which includes the following:

“designs and work plans and recommendations for following year”.

This is construed to be the information of the Annual Work Plan (AWP).

In view of this, and in cognizance of the ongoing interaction between the parties as to the future direction and timing of project operations, it is considered appropriate that a draft AWP be developed in principle, as and when a mutually acceptable way forward has been determined. In this way, a meaningful platform will be developed for future work activities, such as are practical in the prevailing health and safety crisis throughout the country. Thus an acceptable AWP may be formally presented in association with the Annual Report.

## 6. FINANCIAL REPORT

We include hereafter a summary of project expenditure from project commencement to end September 2014.

<b>ENGINEERING SERVICES FOR RURAL ROAD REHABILITATION</b>			
<b>FINANCIAL REPORT TO END SEPTEMBER 2014</b>			
<b>Row Labels</b>	<b>Sum of RAW COST</b>	<b>Indirect Cost</b>	<b>TOTAL Cost</b>
01-Auto - A/P	21695		21695
01-Mileage - expense	16.81		16.81
03-Room - A/P	74415.49		74415.49
03-Room - expense	5944.1		5944.1
04-Park, Toll, Taxi - A/P	13301.39		13301.39
04-Park, Toll, Taxi - expense	136.36		136.36
05-Prints - A/P	178.84		178.84
05-Prints - expense	87		87
06-Supplies - A/P	178333		178333
06-Supplies - expense	110		110
07-Miscellaneous - A/P	47499.32		47499.32
07-Miscellaneous - expense	523.5		523.5
08-Telephone - A/P	3587		3587
08-Telephone - expense	58		58
09-Car Rental - A/P	1875		1875
09-Car Rental - expense	350		350
10-Air Fare - A/P	4808.4		4808.4
10-Air Fare - expense	9119.18		9119.18
11-Outside Professionals	925817.99		925817.99
12-Computer - A/P	15606.2		15606.2
19-Shipping, Postage - A/P	110		110
24-Field Equipment - A/P	50750.7		50750.7
26-Auto - expense	170		170
28-Overnight Delivery - A/P	29.45		29.45
30-Meals - A/P	11803.62		11803.62
30-Meals - expense	3837.21		3837.21
Labor	56203.88	103415.1392	159619.0192
Labor Local	175243.16	322447.4144	497690.5744
Overseas Differential - ODC	30550.4		30550.4
Overtime	60.92		60.92
<b>Grand Total</b>	<b>1632221.92</b>		<b>2058084.474</b>
		<b>Fee @ 7.5%</b>	<b>154356.3355</b>
		<b>Inception To Date Total</b>	<b>2,212,440.81</b>

**ENGINEERING SERVICES FOR RURAL ROADS REHABILITATION (ES3R)**

**ANNEX A**

**ES3R NARRATIVE**

**and**

**INTERIM WORK PLAN**

# ES3R Proposal for Interim Work Plan

## 1. Introduction

The ongoing escalation of the EGV crisis throughout north and central Liberia has resulted in all field based project staff being confined to office based activities in the Project Office, Monrovia.

The field teams had generated 75 km of detailed topographic road surveys prior to the decision to withdraw the teams from field survey work. The teams are now converting this field data and intervention selections into 3 road improvement contract packages as indicated in table 1.

County	Road link	Length km	Total
Nimba	Dounpa Zuaplay Gogein - Nimba	22.2	28.2
	Gaopah - Garwonpa - Fleedin	6	
Bong	Gbondi - Gbarnla	17.5	31.6
	Yaindewoun -Nyan - Molo ta Junction	14.1	
Lofa	John's Town - Bulor	15.4	15.4
		total	75.2

**Table 1: Break down of detailed design July - September '14**

It is anticipated that the design packages will be essentially complete by 3 October 2014.

During a tele-conference on 28 August COP, ETL and COR were tasked with the generation of ideas regarding activities aimed at maintaining effective and efficient project progress beyond current detailed design activities. A prerequisite of the post 3 October 2014 activities, is that they do not require a resumption of field works on the basis that the Ebola crisis is ever increasing throughout the country, which is supported by statistics from MOH, Liberia.

This proposal outlines the most feasible of the ideas generated.

## 2. Background

The preferred activity sequence for the planned 450 km of detailed design of roads was originally envisaged as detailed field survey, followed by detailed design for each road section cluster. This is articulated in detail in the ES3R Inception Report. However, it was recognized that during the rainy season; June – December, the actual sequence would be significantly influenced by weather conditions. When good weather prevails (thus providing favorable surveying conditions and adequate road site access) field surveys would take preference.

Between June and July the three ES3R field teams followed this logic. By the end of July a total of 75km of road had been surveyed. Each team commenced survey works upon completion of the prioritization workshop in their respective county. The commencement date for each field team was staggered and therefore output for each team different.

On 26 June 2014, a decision was made by ES3R to temporarily withdraw the team from Lofa County with increasing concern over the Ebola epidemic in the districts where the Lofa field team was active; Voinjama and Foya. The Lofa field team was temporarily re-located to Nimba County. Following further deterioration in conditions and therefore preventing an early resumption to Lofa based activities, the Team was further re-located to Grand Bassa County. On 31 July 2014, following the imposition of a State of Emergency by GOL, a decision was taken by ES3R that field work be curtailed and work restricted to detailed design of the 75km of surveyed road links operating out of the project office in Monrovia. Between 1 August and 3 October 2014, the teams have been, and continue to convert the survey data and intervention selections into three design packages for Lofa, Nimba and Bong.

The situation regarding EDV continues to deteriorate and ES3R is not in a position to permit a return to field survey work.

Project work beyond 3 October 2014 must aspire to the following conditions:

- Effective – in so far as to maintain progress on the project,
- Efficient – in so far as project works undertaken are as far as possible compatible with productivities envisaged prior to the EDV crisis,
- Maintaining output quality – in so far as output qualities are not compromised,
- Minimal adjustment to current project resource allocation – avoiding as far as possible the complication of contract amendments and budget realignments,

- Provides the continuous and long term engagement of all field based technical personnel – avoiding fragmentation and attrition of the core technical team.

Only one significant ES3R activity meets with all five of these conditions – Objective 2, the detailed design of the planned 375km. In order for this activity to be made available a revision to the design activity sequence is necessary. It is anticipated that a revision to the design process will generate office based work for all country based technicians until end of December 2014.

The proposed revised design process is described below.

### **3. Interim Work Plan - Preliminary Design of 375km up to 30% level (October – December 2014)**

#### **Information Generated by Prioritization process (April – June 2014)**

An integral component of the selection of the planned 450 km of road was the development of a road link prioritization tool. The prioritization tool chosen required a cost estimate to be made for each road link to be surveyed. In order to quantify the cost of improvement, it was necessary that all roads included for selection be surveyed by the field teams. The total length of road surveyed for the prioritization exceeded 1,000km. As such, the project’s target of 450 km has been inspected both in terms of current road condition and for an inventory of existing social, economic and road network assets lying along the roads’ length.

The prioritization survey included:

- Assessment of interventions required to establish ‘basic access<sup>1</sup>’ along road links
  - The density and width of vegetation required to be cleared,
  - Remedial earthworks – Level of effort required to establish selected road cross section,
  - Identification of prevalent storm drainage patterns – therefore determine the nature of longitudinal and lateral drainage structures required,
  - Sections of road requiring existing levels to be lifted and by how much – for roads passing through swampy areas,
  - Insitu soil characteristics - lengths of road requiring imported gravel as a pavement,
  - Location of potential gravels sources for road pavement.

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<sup>1</sup> Basic Access is the minimum intervention required to maintain reliable all weather access and socio-economic activity along the road link

- Precise length of each road link,
- Location of road intersections, villages, health centers etc.,
- Continuous video and photographs of many selected road links,
- Approximate location and magnitude of storm drainage interventions – location and size of culverts,
- Estimation of population served by the road – permitting a forecast of generated traffic and traffic growth and therefore a selection of an appropriate geometric cross section for the proposed road.

### **Information, knowledge and competence generated by detailed design of 75km (July – September 2014)**

The initial 75km of detailed design followed the following sequence:

#### **Field Survey**

- I. Logistics required to establish field based operations camps/sites at each road cluster,
- II. Establishing and refining field survey sub activities:
  - a. Clearance for detailed survey,
  - b. Chaining,
  - c. Topographic survey along centerline and at cross drainage structures complete with permanent bench marks at culvert locations,
  - d. Identification of potential sources of borrow material for both embankment fill and road pavement gravel.
- III. Training of RE and SI in surveying techniques,
- IV. Training of community based casual workers,
- V. Training of flying gangs – used continuously for each road cluster,
- VI. Engaging community support and recruitment of casual workers,
- VII. Establishing and developing data collection systems.

The outcome of these activities is significantly improved field based activity productivities.

## Office Based work

- I. Data entry – field data sheets into electronic form,
- II. Data processing: designing linked spread sheets that minimize data entry,
- III. Development of templates for design presentation – Strip maps/Improvement Plans,
- IV. Enhancing MPW’s BoQs, specifications and construction drawings,
- V. Computing unit rates for BoQ items,
- VI. Harmonized approach to surveying, data collection, data processing, intervention selection and quantification plus coordination workshops between the three field based teams.

The outcome of these activities for future office based work will generate design package templates for future office based design work that significantly reduces the number of activities required to be undertaken and improves productivities of those that remain.

### Combining existing data and information with design package templates

The integration of elements described within this section contributes significantly to the design process. The contribution is outlined below:

- Templates can be customized for each of the road links forming the balance of the planned 450 km remaining roads to be designed,
- Presentation of information gathered during the rapid assessment forms the basis of the detailed design for each road link in the form of an Improvement Plan,
- Culvert schedules, on the basis of rapid assessment can be compiled,
- Quantities for all standard culverts (600, 900, 1200 and 1500), computed for 75 km can be used for all subsequent culverts,
- Box culvert details and quantities drawn and computed for Bong and Nimba roads can be used for many subsequent box culverts along the outstanding road length to be designed,

### Outputs of Interim Plan (October – December 2014)

Combining existing data gathered during the road prioritization process and data generated during detailed design of 75km will enable ES3R to produce road designs for the balance of the roads as indicated in table 2 hereafter:

County	Prioritization outputs km	Detailed Design July - Sept '14	Interim Plan Oct - Dec '14
Bong	88.3	31.6	56.7
Nimba	117.4	28.2	89.2
Lofa	120.7	15.4	105.7
Grand Bassa	136.7	0	136.7
	<b>463.1 km</b>	<b>75.2km</b>	<b>387.9 km</b>

**Table 2: Breakdown of Roads to be Designed (by County)**

The level of competence of these design packages will be at least equal to the design packages prepared by USAID for tender in Counties of Lofa (13.6km), Nimba 20.8km and Bong 49.1km. The tender designs are judged to be of a 30% level of completion and reference is made to such level of design as provided in Task Order Section C.4.3.23 as "Preliminary (30%) engineering designs".

It should be noted that substantial cross drainage structures, i.e. those whose river bank to river bank clear span is greater than 10m, are not included in the designs. These structures lie beyond the current scope of ES3R. These design packages will be presented in a revised design presentation format complete with refined and expanded standard details for storm drainage structures and geometric cross sections and improved and expanded specifications/method of measurement and associated Bill of Quantities.

#### **4. Resumption of Field Work (date yet to be determined)**

Safety implementation is under daily review by the CDM Smith senior management and corporate safety officer as we monitor the progression of the Ebola situation. If at such time the rapid infection rate decreases or quarantine activities by the Government of Liberia begin to take immediate effect, then resumption of field activities could potentially resume, after a risk review analysis is conducted. As the situation is still developing during the preparation of this document, schedule impacts are unknown at this time and would likely occur if the trend continues to worsen in the coming weeks. Thus the resumption of field based activities is dependent on circumstances beyond the control of ES3R. As and when a return to field based work is determined, the activity sequence and LOE of senior engineering staff will be meaningfully programed.



**ENGINEERING SERVICES FOR RURAL ROADS REHABILITATION (ES3R)**

**ANNEX B**

**PERFORMANCE INDICATOR**

**REFERENCE SHEETS**

**September 2014**

## PERFORMANCE INDICATOR REFERENCE SHEET

ENGINEERING SERVICES FOR RURAL ROADS REHABILITATION									
PERFORMANCE INDICATOR REFERENCE SHEET									
PERFORMANCE INDICATOR VALUES									
Year	TARGETS for ROAD SURVEY								Notes
	PROVISIONAL				ACTUAL				
	Bong	Lofa	Nimba	Grand Bassa	Bong	Lofa	Nimba	Grand Bassa	
2013	0	0	0	0	0	0	0	0	Base Year
2014	150				31.6	15.4	28.2	0	Sub total 75.2
2015	300								Total for four counties in 2015

<b>Performance Indicator Reference Sheet</b>			
<b>Name of Development Objective: Ease of Access to Markets Facilitated</b>			
<b>Name of Intermediate Result: Construction oversight provided for Local Contracts</b>			
<b>Name of Indicator: Length of road that has construction contract for rehabilitation awarded and in place</b>			
<b>Geographic Focus: Bong, Lofa and Nimba</b>			
<b>Is this an Annual Report indicator? No ___ Yes _Yes___, for Reporting Year(s) ___2013/2015___</b>			
<b>DESCRIPTION</b>			
<b>Precise Definition(s):</b>			
<b>Unit of Measure: Kilometer</b>			
<b>Method of Calculation: Measure of length of roads</b>			
<b>Disaggregated by: None</b>			
<b>Justification &amp; Management Utility: Usefulness of Indicators</b>			
<b>PLAN FOR DATA ACQUISITION BY USAID</b>			
<b>Data collection method: Driving along the roads</b>			
<b>Data Source: Project sites</b>			
<b>Method of data acquisition by USAID: Reporting</b>			
<b>Frequency and timing of data acquisition by USAID: Annual</b>			
<b>Estimated cost of data acquisition: Included in project cost</b>			
<b>Individual responsible at USAID: David Wounuah</b>			
<b>Individual responsible for providing data to USAID: Howard Shelmerdine</b>			
<b>Location of Data Storage: PIDS</b>			
<b>DATA QUALITY ISSUES</b>			
<b>Date of Initial Data Quality Assessment: N/A</b>			
<b>Known Data Limitations and Significance (if any): N/A</b>			
<b>Actions Taken or Planned to Address Data Limitations: N/A</b>			
<b>Date of Future Data Quality Assessments: N/A</b>			
<b>Procedures for Future Data Quality Assessments: N/A</b>			
<b>PLAN FOR DATA ANALYSIS, REVIEW, &amp; REPORTING</b>			
<b>Data Analysis: Manual</b>			
<b>Presentation of Data: Tabulated</b>			
<b>Review of Data: Regular Check</b>			
<b>Reporting of Data: Quarterly and Annual Report</b>			
<b>OTHER NOTES</b>			
<b>Notes on Baselines/Targets: Stipulated</b>			
<b>Other Notes: None</b>			
<b>PERFORMANCE INDICATOR VALUES</b>			
<b>Year</b>	<b>Target</b>	<b>Actual</b>	<b>Notes</b>
2013	0	0	
2014	83.5	83.5	Contracts awarded January 2014
2015	150		
<b>THIS SHEET LAST UPDATED ON: Sept 14</b>			

<b>Performance Indicator Reference Sheet</b>			
<b>Name of Development Objective: Ease of Access to Markets Facilitated</b>			
<b>Name of Intermediate Result: Survey for design completed</b>			
<b>Name of Indicator: Length of survey (windshield and instrument) conducted</b>			
<b>Geographic Focus: Bong, Lofa ,Nimba and Grand Bassa</b>			
<b>Is this an Annual Report indicator? No ___ Yes _Yes___, for Reporting Year(s) ___2013/2015___</b>			
<b>DESCRIPTION</b>			
<b>Precise Definition(s):</b>			
<b>Unit of Measure: Kilometer</b>			
<b>Method of Calculation: Measure of length of roads</b>			
<b>Disaggregated by: None</b>			
<b>Justification &amp; Management Utility: Usefulness of Indicators</b>			
<b>PLAN FOR DATA ACQUISITION BY USAID</b>			
<b>Data collection method: Driving along the roads</b>			
<b>Data Source: Project sites</b>			
<b>Method of data acquisition by USAID: Reporting</b>			
<b>Frequency and timing of data acquisition by USAID: Annual</b>			
<b>Estimated cost of data acquisition: Included in project cost</b>			
<b>Individual responsible at USAID: David Wounuah</b>			
<b>Individual responsible for providing data to USAID: Howard Shelmerdine</b>			
<b>Location of Data Storage: PIDS</b>			
<b>DATA QUALITY ISSUES</b>			
<b>Date of Initial Data Quality Assessment: N/A</b>			
<b>Known Data Limitations and Significance (if any): N/A</b>			
<b>Actions Taken or Planned to Address Data Limitations: N/A</b>			
<b>Date of Future Data Quality Assessments: N/A</b>			
<b>Procedures for Future Data Quality Assessments: N/A</b>			
<b>PLAN FOR DATA ANALYSIS, REVIEW, &amp; REPORTING</b>			
<b>Data Analysis: Manual</b>			
<b>Presentation of Data: Tabulated</b>			
<b>Review of Data: Regular Check</b>			
<b>Reporting of Data: Quarterly and Annual Report</b>			
<b>OTHER NOTES</b>			
<b>Notes on Baselines/Targets: Stipulated</b>			
<b>Other Notes: None</b>			
<b>PERFORMANCE INDICATOR VALUES</b>			
<b>Year</b>	<b>Target</b>	<b>Actual</b>	<b>Notes</b>
2013	0	0	
2014	150	75.2	Detailed design survey completed – preliminary survey for balance to 450km
2015	300		
<b>THIS SHEET LAST UPDATED ON: Sept 14</b>			

<b>Performance Indicator Reference Sheet</b>			
<b>Name of Development Objective: Ease of Access to Markets Facilitated</b>			
<b>Name of Intermediate Result: Target roads determined</b>			
<b>Name of Indicator: Prioritized target roads for further design development based upon stakeholders needs and requirements</b>			
<b>Geographic Focus: Bong, Lofa ,Nimba and Grand Bassa</b>			
<b>Is this an Annual Report indicator? No ___ Yes _Yes___, for Reporting Year(s) ___2013/2015___</b>			
<b>DESCRIPTION</b>			
<b>Precise Definition(s):</b>			
<b>Unit of Measure: Kilometer</b>			
<b>Method of Calculation: Measure of length of roads</b>			
<b>Disaggregated by: None</b>			
<b>Justification &amp; Management Utility: Usefulness of Indicators</b>			
<b>PLAN FOR DATA ACQUISITION BY USAID</b>			
<b>Data collection method: Driving along the roads</b>			
<b>Data Source: Project sites</b>			
<b>Method of data acquisition by USAID: Reporting</b>			
<b>Frequency and timing of data acquisition by USAID: Annual</b>			
<b>Estimated cost of data acquisition: Included in project cost</b>			
<b>Individual responsible at USAID: David Wounuah</b>			
<b>Individual responsible for providing data to USAID: Howard Shelmerdine</b>			
<b>Location of Data Storage: PIDS</b>			
<b>DATA QUALITY ISSUES</b>			
<b>Date of Initial Data Quality Assessment: N/A</b>			
<b>Known Data Limitations and Significance (if any): N/A</b>			
<b>Actions Taken or Planned to Address Data Limitations: N/A</b>			
<b>Date of Future Data Quality Assessments: N/A</b>			
<b>Procedures for Future Data Quality Assessments: N/A</b>			
<b>PLAN FOR DATA ANALYSIS, REVIEW, &amp; REPORTING</b>			
<b>Data Analysis: Manual</b>			
<b>Presentation of Data: Tabulated</b>			
<b>Review of Data: Regular Check</b>			
<b>Reporting of Data: Quarterly and Annual Report</b>			
<b>OTHER NOTES</b>			
<b>Notes on Baselines/Targets: Stipulated</b>			
<b>Other Notes: None</b>			
<b>PERFORMANCE INDICATOR VALUES</b>			
<b>Year</b>	<b>Target</b>	<b>Actual</b>	
2013	0		
2014	150	450	Prioritized roads selected for total project in Y1
2015	300		Prioritized roads selected for total project in Y1
<b>THIS SHEET LAST UPDATED ON: Sept 14</b>			

<b>Performance Indicator Reference Sheet</b>			
<b>Name of Development Objective: Ease of Access to Markets Facilitated</b>			
<b>Name of Intermediate Result: Prequalification document submitted</b>			
<b>Name of Indicator: Develop evaluation criteria and conduct full assessment of available engineering sources.</b>			
<b>Geographic Focus: Bong, Lofa, Nimba, Grand Bassa and Monrovia</b>			
<b>Is this an Annual Report indicator? No ___ Yes _Yes___, for Reporting Year(s) ___2013/2015___</b>			
<b>DESCRIPTION</b>			
<b>Precise Definition(s):</b>			
<b>Unit of Measure: Number</b>			
<b>Method of Calculation: Training logs/Attendance registers</b>			
<b>Disaggregated by: Sex</b>			
<b>Justification &amp; Management Utility: Usefulness of Indicators</b>			
<b>PLAN FOR DATA ACQUISITION BY USAID</b>			
<b>Data collection method: Assessment</b>			
<b>Data Source: Project trainer</b>			
<b>Method of data acquisition by USAID: Reporting</b>			
<b>Frequency and timing of data acquisition by USAID: Annual</b>			
<b>Estimated cost of data acquisition: Included in project cost</b>			
<b>Individual responsible at USAID: David Wounuah</b>			
<b>Individual responsible for providing data to USAID: Howard Shelmerdine</b>			
<b>Location of Data Storage: PIDS</b>			
<b>DATA QUALITY ISSUES</b>			
<b>Date of Initial Data Quality Assessment: N/A</b>			
<b>Known Data Limitations and Significance (if any): N/A</b>			
<b>Actions Taken or Planned to Address Data Limitations: N/A</b>			
<b>Date of Future Data Quality Assessments: N/A</b>			
<b>Procedures for Future Data Quality Assessments: N/A</b>			
<b>PLAN FOR DATA ANALYSIS, REVIEW, &amp; REPORTING</b>			
<b>Data Analysis: Manual</b>			
<b>Presentation of Data: Tabulated</b>			
<b>Review of Data: End of training period</b>			
<b>Reporting of Data: Quarterly and Annual Report</b>			
<b>OTHER NOTES</b>			
<b>Notes on Baselines/Targets: Stipulated</b>			
<b>Other Notes: None</b>			
<b>PERFORMANCE INDICATOR VALUES</b>			
<b>Year</b>	<b>Target</b>	<b>Actual</b>	<b>Notes</b>
2013	0	0	
2014	5	5	Five A & E firms selected for participation in ES3R project
2015			
<b>THIS SHEET LAST UPDATED ON: Sept 14</b>			

<b>Performance Indicator Reference Sheet</b>			
<b>Name of Development Objective: Ease of Access to Markets Facilitated</b>			
<b>Name of Intermediate Result: Local A&amp;E firms identified</b>			
<b>Name of Indicator: Expression of interest evaluation completed for number of A&amp;E firms</b>			
<b>Geographic Focus: Bong, Lofa, Nimba, Grand Bassa and Monrovia</b>			
<b>Is this an Annual Report indicator? No ___ Yes _Yes___, for Reporting Year(s) ___2013/2015___</b>			
<b>DESCRIPTION</b>			
<b>Precise Definition(s):</b>			
<b>Unit of Measure: Number</b>			
<b>Method of Calculation: Training logs/Attendance registers</b>			
<b>Disaggregated by: Sex</b>			
<b>Justification &amp; Management Utility: Usefulness of Indicators</b>			
<b>PLAN FOR DATA ACQUISITION BY USAID</b>			
<b>Data collection method: Evaluation</b>			
<b>Data Source: Project trainer</b>			
<b>Method of data acquisition by USAID: Reporting</b>			
<b>Frequency and timing of data acquisition by USAID: Annual</b>			
<b>Estimated cost of data acquisition: Included in project cost</b>			
<b>Individual responsible at USAID: David Wounuah</b>			
<b>Individual responsible for providing data to USAID: Howard Shelmerdine</b>			
<b>Location of Data Storage: PIDS</b>			
<b>DATA QUALITY ISSUES</b>			
<b>Date of Initial Data Quality Assessment: N/A</b>			
<b>Known Data Limitations and Significance (if any): N/A</b>			
<b>Actions Taken or Planned to Address Data Limitations: N/A</b>			
<b>Date of Future Data Quality Assessments: N/A</b>			
<b>Procedures for Future Data Quality Assessments: N/A</b>			
<b>PLAN FOR DATA ANALYSIS, REVIEW, &amp; REPORTING</b>			
<b>Data Analysis: Manual</b>			
<b>Presentation of Data: Tabulated</b>			
<b>Review of Data: End of training period</b>			
<b>Reporting of Data: Quarterly and Annual Report</b>			
<b>OTHER NOTES</b>			
<b>Notes on Baselines/Targets: Stipulated</b>			
<b>Other Notes: None</b>			
<b>PERFORMANCE INDICATOR VALUES</b>			
<b>Year</b>	<b>Target</b>	<b>Actual</b>	<b>Notes</b>
2013	0	0	
2014	8	8	Number of firms interviewed and assessed
2015			
<b>THIS SHEET LAST UPDATED ON: Sept 14</b>			