

VERIFICATION REPORT FOR THE LOWER ZAMBEZI REDD+ PROJECT



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Summary:

This report describes the verification audit of the Lower Zambezi REDD+ Project ("the project"), a Reduced Emissions from Deforestation and Degradation (REDD+) project located in the Rufunsa district of Zambia, which was conducted by SCS. The report covers the monitoring period from 1 January 2018 to 31 December 2018. The purpose of the verification audit was to conduct an independent assessment of the project to determine whether the project complies with the VCS Rules. The criteria for the verification audit was the VCS Version 3. The verification audit was performed through a combination of document review, interviews with relevant personnel and on-site inspections. A total of 5 findings were issued during the verification process. The project complies with all of the verification criteria, and the assessment team has no restrictions or uncertainties with respect to the compliance of the project with the verification criteria.

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1 INTRODUCTION

1.1 Objective

In accordance with Section 5.1.1 of the VCS Standard, SCS carried out an ex-post independent assessment of the greenhouse gas (GHG) Emission Reductions or Removals that have occurred as a result of the project during the monitoring period. In accordance with Section 2.1.2 of the VCS Validation & Verification Manual, V3.1, the objectives of the verification engagement were to evaluate the monitoring report and assess the following:

- The extent to which methods and procedures, including monitoring procedures, have been implemented in accordance with the validated project description. This includes ensuring conformance with the monitoring plan.
- The extent to which GHG Emission Reductions or Removals reported in the monitoring report are materially accurate.

The other objective of the verification engagement was to assess the non-permanence risk analysis.

1.2 Scope and Criteria

In accordance with Section 4.3.4 of ISO 14064-3:2006, the scope was defined as follows:

- The project;
- The physical infrastructure, activities, technologies and processes of the project;
- The GHG sources, sinks and/or reservoirs that are applicable to the project;
- The types of GHGs that are applicable to the project; and
- The monitoring period, as discussed in Section 5 of this report.

In accordance with Section 5.3.1 of the VCS Standard, the criteria for verification was the VCS Version 3, including the following documents:

- VCS Program Guide
- VCS Standard
- VCS AFOLU Requirements
- VCS Non-Permanence Risk Tool

Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS guidance document.

In addition, the assessment was performed against the requirements of the validated project description.

1.3 Level of Assurance

In accordance with Section 5.3.1 of the VCS Standard, the level of assurance of this report is reasonable.

1.4 Summary Description of the Project

The project is located in the Rufunsa District of Zambia and is aimed at reducing emissions from unplanned deforestation.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification was performed through a combination of document review, interviews with relevant personnel and on-site inspections, as discussed in Sections 2.2 through 2.4 of this report. At all times, the monitoring report and non-permanence risk analysis were assessed for conformance to the criteria described in Section 1.2 of this report. As discussed in Section 2.5, findings were issued to ensure conformance to all requirements.

The audit team created a sampling plan following a proprietary sampling plan workbook developed by SCS. Per Section 4.4.3 of ISO 14064-3:2006, the audit team identified possible risks of errors, omissions and misrepresentations with respect to the verification criteria. For each identified risk, the audit team assessed the likelihood of a material discrepancy occurring, the likelihood of a material discrepancy not being prevented or detected by the controls of the project, and the likelihood of a material discrepancy not being detected by the audit team. Sampling and data testing activities were planned to address any risk where the likelihood of a material discrepancy not being detected by the audit team was judged to be unacceptably high. The audit team then created a verification plan that took the sampling plan into account.

2.2 Document Review

The monitoring report titled “20190610_LZRP_MR_M6_1.2” was carefully reviewed for conformance to the verification criteria. The following additional documentation, provided by Project Personnel in support of the aforementioned documents, was also reviewed by the audit team:

Document	File Name	Document ID /#
Environmental Management Plan	20150529_LZRP_EnvironManPlan_V4	/1/
Adaptive Management Evidence	2015.01.22_Workshop_LessonsLearned Report _ Formal	/2/
Social Monitoring I	CES_Handbook_2015_d4	/3/
Social Monitoring II	Social Monitoring SOP V4_Community Engagement Strategy_2013.03.compressed	/4/
Illegal Logging Shape Files	Various Shape files	/5/
Leakage Plot Imagery	(various images)	/6/

Leakage Workbook	20190110_LZRPLeakageV2_Leakage_M6	/7/
ER Calculations M4	20190226_LZRP_ER_Calc_M6	/8/
Field Sampling Protocol	BCP_Biomass_Sampling_SOP_June_2019_V3	/10/
QA/QC Protocol	BCP_Biomass_SpotError_Protocol_Jan_2014	/11/
Biomass Calculations	2017_02_23_MRV_LZRP_ForestInv	/12/
M6 Inventory	20180504_MRV_LZRP_M6_QualityControl	/13/
Leakage Field Protocol	LZRP_Annex_M_BCP_Biomass_Sampling_LeakageMon_8June_2013	/14/
Project Risk Report	20190610_LZRP_VCS Non-Permanence Risk_MR6	/15/
Financial Viability I	20190531_CFP Verification Break Even Model	/16/
Financial Viability II	AMOCPA Letter	/17/
Financial Viability II	LOWER ZAMBEZI REDD+ PROJECT	/18/
Appendix H	(various raster, vector, and KML files)	/29/
Conservation easement	LZRP_Annex_B-Signed_CRC_Rufunsa_FINAL	/20/
Financial Statements	Grant funding and bank statements reviewed on site	/21/

2.3 Interviews

The process used in interviewing Project Personnel was a process wherein the audit team elicited information from Project Personnel regarding the project and its compliance with the verification criteria. Some meetings were held concurrently with site inspections (see Section 2.4 below). Other meetings were held remotely via telephone or Skype connection.

The following personnel associated with the project proponent and/or other entities involved in the project were interviewed.

Individual	Affiliation	Role	Date(s) Interviewed
Darlington Chipita	BioCarbon Partners (BCP)	Conservation Manager	3-6 April 2019
Elvin Muchimba	BCP	Forest management team leader	3-6 April 2019

Nchimunya Simwendengwe	BCP	Forest management team leader	3-6 April 2019
Theron Morgan-Brown	BCP	Senior Manager, Science & Technology	Throughout Audit
Joke Hoffman	BCP	Chief Operating Officer	Throughout Audi
Hassan Sachedina	BCP	Chief Executive Officer	Throughout Audi
Peter Chisulo	Community Resource Board (CRB)	Member	3-6 April 2019
Rachel Ngoma	BCP	Scout	3-6 April 2019

2.4 Site Inspections

The objectives of the on-site inspections performed were to:

- Select samples of data from on-the-ground measurements for verification in order to meet a reasonable level of assurance and to meet the materiality requirements of the project, as required by Section 5.1.3 of the VCS Standard;
- Perform a risk-based review of the project area and project activities to ensure that the project conformed to the requirements of the VCS Rules and the methodology throughout the monitoring period; and
- Ensure that monitoring was conducted in accordance with the requirements of the validated monitoring plan, the methodology employed and the VCS Rules

In fulfilment of the above objectives, the audit team performed an on-site inspection of the project area on the dates 3-6 April 2019. The main activities undertaken by the audit team were as follows:

- Interviewed Project Personnel (see Section 2.3 of this report) to gather information regarding the monitoring of the project;
- Interviewed Project Personnel (see Section 2.3 of this report) for the purpose of seeking evidence of conformance with respect to the specific requirements of the methodology and the VCS rules;
- Interviewed residents of communities near the project boundary to confirm the claims of the project proponents with respect to the extent of community engagement with the project implementation.
- Viewed Project Personnel conducting re-measurements on three inventory plots. The representatives were asked to replicate the measurement protocol that was applied, for the purpose of providing the audit team with reasonable assurance that the measurements were collected to appropriate quality standards.

2.5 Resolution of Findings

Any potential or actual material discrepancies identified during the assessment process were resolved through the issuance of findings. The types of findings issued by SCS were characterized as follows:

Non-Conformity Report (NCR): An NCR signified a material discrepancy with respect to a specific requirement. This type of finding could only be closed upon receipt by SCS of evidence indicating that the identified discrepancy had been corrected. Resolution of all open NCRs was a prerequisite for issuance of a verification statement. A total of 2 NCRs were issued during the verification engagement.

New Information Request (NIR): An NIR signified a need for supplementary information in order to determine whether a material discrepancy existed with respect to a specific requirement. Receipt of an NIR did not necessarily indicate that the project was not in compliance with a specific requirement. However, resolution of all open NIRs was a prerequisite for issuance of a validation statement. A total of 3 NIRs was issued during the verification engagement.

Opportunity for Improvement (OFI): An OFI indicated an area that should be monitored or ideally, improved upon. OFI's were considered to be an indication of something that could become a non-conformity if not given proper attention, and were sometimes issued in the case that a non-material discrepancy was identified. OFIs were considered to be closed upon issuance. 0 OFIs were issued during the verification engagement.

All findings issued by the audit team during the verification process have been closed. In accordance with Section 5.3.6 of the VCS Standard, all findings issued during the verification process, and the impetus for their closure, are described in Appendix A of this report.

2.5.1 Forward Action Requests

This section is not applicable, as no forward action requests were issued prior to this verification.

2.6 Eligibility for Validation Activities

SCS Global Services is an accredited validation body for Sectoral Scope 14 Agriculture, Forestry, and Land Use.

3 VALIDATION FINDINGS

During the verification three methodology deviations were noted by the audit team. The first methodology deviation consisted of an improvement to the monitoring of leakage plots, by geo-referencing each felled tree in the leakage plots. The second methodology deviation consisted of using GIS processes to capture deforestation, rather than relying on field plot samples. All deviations have been appropriately described in the current project monitoring report. In addition, the audit team assessed the effects of both deviations and have provided a description of each in section 3.2 below.

3.1 Participation under Other GHG Programs

This section is not applicable as the project is not seeking registration under an approved GHG program other than the VCS.

3.2 Methodology Deviations

Subsequent to the initial validation and verification of the Lower Zambezi REDD+ Project (LZRP) personnel made the decision to add a geo-reference step to the data collection protocol for the leakage

plots. The audit team reviewed this deviation in the project monitoring report and assessed the deviation against the requirements of Section 3.5.1 of the VCS Standard. It is the opinion of the audit team that this deviation is appropriate given the following:

- The additional data collection method represents a deviation from the criteria and procedures relating to monitoring or measurement set out in the methodology (i.e., deviations are permitted where they relate to data and parameters available at validation, data and parameters monitored, or the monitoring plan).
- The additional data collection method does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals and is likely to result in increased accuracy.

In response to the second deviation regarding a change in monitoring of disturbances, the audit team assessed the deviation against the requirements of section 3.5.1 of the VCS Standard and recalculated the updated reported values. It is the opinion of the audit team that this deviation is appropriate given the following:

- The additional data collection method represents a deviation from the criteria and procedures relating to monitoring or measurement set out in the methodology (i.e., deviations are permitted where they relate to data and parameters available at validation, data and parameters monitored, or the monitoring plan).
- The additional data collection method does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals and is likely to result in increased accuracy.

In response to the third deviation regarding a change in the monitoring of carbon stocks, the audit team assessed the deviation against the requirements of section 3.5.1 of the VCS Standard and recalculated the updated reported values. It is the opinion of the audit team that this deviation is appropriate given the following:

- Accounting for carbon stocks outside of the PSP's through monitoring of illegal logging represents a deviation from the criteria and procedures relating to monitoring or measurement set out in the methodology (i.e., deviations are permitted where they relate to data and parameters available at validation, data and parameters monitored, or the monitoring plan).
- The additional data collection method does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals and is likely to result in increased accuracy.

In summary, the audit team agrees that the deviations to the methodology are appropriate and are conformance with Section 3.5.1 of the VCS Standard. A complete description of the methodology deviations are located in Section 2.2.1 of the second project monitoring report and Section 4.1 of the initial monitoring report respectively.

3.3 Project Description Deviations

N/A – No project description deviations were noted during this monitoring period.

3.4 Grouped Project

This section is not applicable as the project is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The audit team assessed the implementation of the project activities against section 4.3 of the Project Description. The audit team confirmed that section 2.1 of the monitoring report provided an accurate description of the implementation of the project. For a complete description of the steps taken to assess the project implementation see below:

Item	Verification Findings
Material discrepancies between project implementation and the project description	The audit team performed a series of visits to the communities included in the project and observed the project activities taking place. The audit team held interviews with members of three communities involved in the project and were informed that the project had thus far met all commitments with regard to the project activities. It is important to note that fewer project activities were implemented during this monitoring period and was considered when assessing community engagement.
Implementation status of monitoring plan and completeness of monitoring	The audit team confirmed that all monitoring activities documented in Section 3.3 of monitoring report were correctly carried out accordingly with the requirements and frequency of the monitoring plan described in section 4.2 and 4.3 of the PD, through the following: - Reviewed sampling process for the creation of figure 2 of the project monitoring report and confirmed that the sampling remained consistent with the that previously verified by SCS - Observed the set up and re-measurement of three plots across the project area and confirmed that the sampling design was implemented as described in section 3.3.2 of the monitoring report, as well as using best practices in forest mensuration. In

Item	Verification Findings
	addition, the audit team performed spot measurements during the field verification and consistently produced the same results as the project team. - Spent 4 days in the field with the project team, both observing the re-measurement of four plots and confirming the implementation of project activities within communities and confirmed that the organizational structure and operation is as described in section 3.3.5 of the monitoring report - Reviewed the process for data management and storage and confirmed that the description provided in section 3.3.6 of the monitoring report was followed completely and is sufficient for providing quality data management and storage - Interviewed biomass team while on site and confirmed that the personnel were highly skilled and educated as to the processes described in section 3.3.2 of the monitoring report. In addition, the audit team spent over a week in both the office and the field with the team and confirmed that the description provided in the monitoring report was followed completely - Reviewed the allometric equations provided by project personnel and confirmed that the equations were correctly calculated in the project's workbooks. Finally, the audit team re-calculated the plot level biomass for all plots in the inventory and produced consistent results with those reported in the project calculations. - The audit team reviewed the calculation of baseline emissions as prescribed by the

Item	Verification Findings
	methodology. The audit team confirmed the simple addition of the value from the previously validated baseline emissions model was calculated correctly • Re-calculated the uncertainty deduction calculations, as prescribed by the methodology and confirmed that the value provided in the project calculations resulted in an accurate estimate of uncertainty • Reviewed the process for the detection of forest fires across the project area. The audit team confirmed that no fires other than what has been accounted for in the deforestation class occurred during the monitoring period • Traced the raw leakage data for all leakage plots in the Project Area. The audit team confirmed the resulting leakage to be reported accurately. In addition, the audit agrees that the leakage monitoring employed by the Project is very likely to result in a conservative estimate of GHG Emission Reductions or Removals, as often it is likely that degradation will be the result of drivers other than the project • Re-calculated the GHG Emission Reductions or Removals using the required methodological functions for the biomass emissions model. As soil is using the required decay factor, no additional checks were performed for the soil emissions model other than ensuring the calculations had not changed since the initial validation
Existence of material discrepancies between monitoring system and monitoring plan (as	• All tasks described in section 3.3 of the monitoring report were in agreement with the monitoring plan as described above. No material discrepancies were found

Item	Verification Findings
described in 4.3 of project description) and applied methodology	other than those described in Section 3.3 of this report
Whether GHG Emission Reductions or Removals generated by the project have become included in emissions trading program or other mechanism that includes GHG allowance trading	- Audit team confirmed that REDD+ projects are not within scope of Clean Development Mechanism - Audit team confirmed, through personal knowledge of all projects currently approved under California's Air Resources Board Cap-and-Trade Program, that GHG Emission Reductions or Removals generated by project have not become included in that program - Audit team applied professional judgment to determine there is very low risk of GHG Emission Reductions or Removals having been included in any other program
Whether project has received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification	Audit team is unaware of any other environmental crediting program that project would be eligible to participate in
Whether project has participated or been rejected under any other GHG programs since validation or previous verification	The audit team confirmed that the project has not previously been rejected by the VCSA and that a compliance program does not exist in Zambia at this time. Therefore the risk of the project not being in conformance with this requirement is non-existent at this time

The only previously verified methodological deviation was also included in the current monitoring report. The deviation relating to the geo-referencing of felled trees in the leakage area has been described in Section 3.2 of this report. In summary, it is the opinion of the audit team that the project has been implemented as described in the project description.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

The GHG Emission Reductions or Removals have been quantified correctly in accordance with the project description and the applied methodology.

For all instances in which values were transcribed between datasets (e.g., transcription from the project description to reporting workbooks, or between reporting workbooks), the audit team carefully traced values to ensure the absence of manual transposition errors.

An identification of the data and parameters used to calculate the GHG Emission Reductions or Removals and a description of the steps taken to assess each of them, follows:

	Steps taken by audit team to assess...		
Data/Parameter	accuracy of GHG Emission Reductions or Removals	whether methods/formulae set out in project description have been followed	appropriateness of default values
$c_B^{[m]}$ $c_{B\ BGB}^{[m]}$ $c_P^{[m]}$ $c_P^{[m-1]}$ $c_{P\ 1\ BM}^{[m=0]}$ $c_{P\ b}^{[m]}$	As described in the implementation section of this report, the audit team performed an independent re-measurement of 11 randomly selected biomass plots and one randomly selected leakage plot. In addition, the audit team recalculated the plot level carbon for each aboveground biomass plot in the project area. Moreover, the audit team re-calculated the biomass emissions for both the current and previous monitoring period	The audit team reviewed and re-calculated these parameters using the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	The default value for the below ground biomass was applied appropriately as defined by the methodology
$c_{B\ BM}^{[m]}$	Given the issue with the overestimation of aboveground biomass using the original sampling protocol, the audit team used the methods described above to ensure that the carbon stocks at the end of the monitoring period were calculated correctly	The audit team reviewed and re-calculated this parameter using the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	The default value for the below ground biomass was applied appropriately as defined by the methodology

	Steps taken by audit team to assess...		
Data/Parameter	accuracy of GHG Emission Reductions or Removals	whether methods/formulae set out in project description have been followed	appropriateness of default values
$E_{\Delta GER}^{[i]}$	The audit team re-calculated the GER values based on the updated carbon stock values in order to assess the accuracy of the project calculations	The audit team reviewed and re-calculated this parameter using the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	N/A
$E_{\Delta NER}^{[i]}$	The audit team re-calculated the NER values based on the updated carbon stock values in order to assess the accuracy of the project calculations	The audit team reviewed and re-calculated this parameter using the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	N/A
$E_B^{[m]}$ $E_B^{[m-1]}$ $E_{B \Delta}^{[m]}$	The audit team re-calculated the cumulative baseline emission values based on the updated carbon stock values in order to assess the accuracy of the project calculations	The audit team reviewed and re-calculated this parameter using the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	N/A
$E_{B \Delta BGB}^{[i]}$	The audit team reviewed the calculations for the change in below ground biomass and found that the original methods had not changed since	The audit team reviewed the implementation of the project calculations and cross-checked them against the project description and previous monitoring report and confirmed that the	N/A

	Steps taken by audit team to assess...		
Data/Parameter	accuracy of GHG Emission Reductions or Removals	whether methods/formulae set out in project description have been followed	appropriateness of default values
	the initial validation and subsequent verification	parameters were calculated using the methods and formulae set out in the project description and the methodology	
$E_{B\ BGB}^{[m-1]}$	The audit team recalculated the cumulative baseline emissions from below-ground biomass at the beginning of the current monitoring period	The audit team reviewed and re-calculated this parameter using the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	N/A
$E_{B\ BM}^{[m]}$	The audit team recalculated the cumulative baseline emissions from biomass at the end of the current monitoring period	The audit team reviewed and re-calculated this parameter using the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	N/A
$E_{BA}^{[m]}$	The audit team reviewed the cumulative emissions allocated to the buffer account at the end of the current monitoring period	The audit team reviewed and traced the calculation of this parameter and determined that the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	N/A

	Steps taken by audit team to assess...		
Data/Parameter	accuracy of GHG Emission Reductions or Removals	whether methods/formulae set out in project description have been followed	appropriateness of default values
$E_L^{[m]}$ $E_L^{[m-1]}$ $E_{L\Delta}^{[m]}$ $E_{LAS}^{[m]}$ $p_{LDEG}^{[m]}$	The audit team traced the flow of data from the raw field data throughout the process in order to assess the accuracy regarding this parameter	The audit team reviewed and traced the calculation of this parameter and determined that the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	N/A
$U_B^{[m]}$ $U_P^{[m]}$ $E_U^{[m]}$	The audit team re-calculated the uncertainty in order to assess the accuracy regarding this parameter	The audit team recalculated this parameter and determined that the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	N/A
$A_{P1}^{[m=0]}$ $A_{P2}^{[m=0]}$	The audit team recalculated the project area using the project provided shapefiles. In addition the audit team performed spot checking activities on site and confirmed the project area for each strata to be accurate.	The audit team recalculated this parameter and determined that the methods and formulae set out in the project description and the methodology and confirmed that they were being followed	N/A

In summary, the audit team reviewed the QA/QC procedures for data management and determined that they were being followed. Overall, the workbooks have been designed in a way that limits user error, as the majority of the calculations are hard wired into VBA code. In addition, data is cell referenced as it is

moved from tab to tab of the workbook, further limiting errors. The audit team has a reasonable level of assurance that the GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

The evidence used to determine the GHG reductions and removals was of sufficient quantity and appropriate quality. An identification of the categories of evidence used to determine the GHG Emission Reductions or Removals, and a description of the steps taken to assess the sufficiency of quantity, and appropriateness of quality, of each category of evidence, follows:

	Steps taken by audit team to assess...		
Category	reliability, source, nature of evidence	information flow from data generation and aggregation, to recording, calculation and final transposition into the monitoring report	appropriateness of implemented calibration frequency of monitoring equipment
Reporting workbooks	Workbooks originated from Project Personnel and were determined, after thorough testing, to be of high quality and highly reliable; quantity of workbooks provided to audit team was sufficient	In all cases, audit team traced data contained in the monitoring report from the emission reduction workbooks back to their respective sources, which were: /7/ /8/ /13/ /15/	N/A
Field Protocols	The field protocols were reviewed by the audit team, who confirmed that they were designed using best practices and are capable of capturing changes in carbon stock in conformance with the methodology	The audit team reviewed the field protocols and confirmed that the QA/QC procedures provide checks and balances to ensure high quality data collection (/4/, /14//)	N/A
GIS Data	All stratification and other demographic data was provided to the	The audit team re-calculated the total project area, as well as	N/A

	audit team, who confirmed that the data contained all the necessary information to recreate the processes employed by the project and found the calculations consistent with values stated in the project description, monitoring report and applied calculations.	the area of each land class in the project area. In addition, the audit team collected GPS data at each plot point visited in order to ensure consistency with strata level reporting in the monitoring report.	
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In summary, it is the opinion of the audit team that sufficient and appropriate quality of evidence exist to determine the GHG emission reductions or removals.

4.4 Non-Permanence Risk Analysis

The determined value of the overall risk rating has not changed since the prior verification audit. The audit team did not perform a re-assessment of the non-permanence risk analysis from first principles, but did assess the following:

- Whether any circumstances or conditions may have transpired since the prior verification audit such that the determination made by the previous verification body is no longer valid; and
- Whether items meant to address certain risks are in place and functioning as intended.

The determined value of the overall risk rating of 10% is appropriate and in conformance to the AFOLU Non-Permanence Risk Tool, to the extent that said determined value was appropriate and in conformance to the AFOLU Non-Permanence Risk Tool at the time of the prior verification audit. Finally, for instances in which there were no changes from the previous risk assessment, the audit team confirmed that the risk rating remains valid to the extent that it was valid in the first place.

4.4.1 Internal Risk – Project Management

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(a)	The project is a REDD/AUD AFOLU project and therefore does not rely on tree planting to generate GHG credits.	N/A	N/A

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(b)	The Project has previously undergone validation and verification, however, in an attempt to dissuade deforestation in the project area, prior to determining the final project boundaries, an inhabited area along the border was removed in order to develop a use area and deter deforestation in the project area. Prior to the site visit, the audit team reviewed the project area imagery and noted the current deforestation and agree that at this verification event protection is not required to protect more than 50% of carbon stocks that have previously been issued. In addition, the audit team visited many of the project area boundaries with the knowledge of the fact that the methodology assumes that the lowest stocked strata are deforested first. Observations on site showed that the highest risk areas (proximity to human settlement) for deforestation were located such that the need for enforcement for 50% of the stocks for which credits had previously issued is highly unlikely at the time of this verification event	• The audit team used high quality Google Earth imagery • The audit team performed on site observations near most major human settlements near the project area	Risk rating is appropriate
(c)	The audit team reviewed the work history and training of the Project Personnel and implementing partners. The audit team confirmed that the management team includes individuals with significant experience necessary undertake all project activities (i.e., any area of required experience is not covered by at least one individual with at least 5 years' experience in the area).	N/A	Risk rating is appropriate

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(d)	Audit team worked and assessed the project in the country and in the project area and confirmed that the project management team meets this criterion.	N/A	Risk rating is appropriate
(e)	The project is undergoing verification for the 4 th time under the same project management and thus meets the criteria of this risk item	The audit team reviewed the information available on the VCS website in order to confirm the current status of the management team	Risk rating is appropriate
(f)	The audit team assessed the adaptive management plan described in documents /1/ - /4/ and interviewed local community members who corroborated the language in such documents showing that an adaptive management plan is in place	The documents referenced in section 2.2 of this report have been reviewed by the audit team and are of high quality	Risk rating is appropriate

4.4.2 Internal Risk – Financial Viability

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(a)	-	-	N/A
(b)	-	-	N/A
(c)	The audit team reviewed the financial budget of the project including grant funding documentation. The audit team also sampled inputs driving the model and confirmed that the future sale of credits is based on conservative estimates.	The audit team found the project cash flow budget /15/-/17/ and associated documentation neat, organized and user friendly. The project team were able to provide a clear description of the inner workings of the budget as well as record keeping	Risk rating is appropriate
(d)	-	-	N/A

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(e)	-	-	N/A
(f)	-	-	N/A
(g)	-	-	N/A
(h)	See above for assessment of rationale The audit team confirmed that with the concurrent grant funding available the project has secured secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven	The audit team found the project cash flow budget /17/ and associated documentation neat, organized and user friendly. The project team were able to provide a clear description of the inner workings of the budget as well as record keeping	Risk rating is appropriate
(i)	See above for assessment rationale The audit team was provided with an official letter from Thomas Hancock of Rockwood Leisure Group, titled "LOWER ZAMBEZI REDD+ PROJECT" who has confirmed that the callable resources necessary to cover at least 50% of the cost of cash out before the project reaches breakeven. Using a web based review, the audit team was able to confirm with a reasonable level of assurance that Thomas Hancock and Rockwood Leisure are legitimate entities	The audit team considers the letter /18/ provided to the audit team, along with the available web information to be of high quality	Risk rating is appropriate

4.4.3 Opportunity Cost

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(a)	-	-	N/A
(b)	-	-	N/A

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(c)	-	-	N/A
(d)	The audit team reviewed evidence supporting the table provided in the Project risk report and confirmed that the baseline scenario is subsistence driven. In addition while on site, the audit team visited communities in the district in the project area further confirming this claim and that the project is resulting in positive community benefits	The audit team reviewed the CCBA website and confirmed that the project has been certified at the gold level and is considered high quality https://www.vcsprojectdatabase.org/#/ccb (accessed 20 May 2019)	Risk rating is appropriate
(e)	-	-	N/A
(f)	-	-	N/A
(g)	-	-	N/A
(h)	-	-	Risk rating is appropriate
(i)	-	-	Risk rating is appropriate

4.4.4 Internal risk – Project Longevity

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
	The audit team reviewed the calculation of project longevity score provided in the risk report and confirmed that it was calculated correctly. In addition, as stated above, the audit team confirmed that the project is covered by a conservation easement held by the Zambian government which requires the project activities legally be continued over the project crediting period. Also, the audit team reviewed the project management plan and confirmed that it had been submitted to the Zambian Wildlife Authority (ZAWA), as required for such projects. Moreover, the audit team received evidence that the financial plan for the project, covering the crediting period, had been submitted to AMOCPA (AMO Certified Public Accountants) a registered entity in Lusaka, Zambia	The management plan, conservation easement, and certified audit letter are all considered of high quality by the audit team (/17/ /18/)	Risk rating is appropriate

4.4.5 External Risk – Land Tenure and Resources Access/Impacts

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(a)	N/A	N/A	N/A

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(b)	While on site, the audit team visited local districts and reviewed the rights of use agreement for the project confirming that the ownership and rights of use are held by different entities	The rights of use contract /18/ was clearly defined and confirmed by the leaseholder, Iqbal Y Alloo of Sable Transport Limited, who provided the audit team with his stamp, verifying that the right of use agreement is still in place, which is customary in the country. The audit team considers these documents of high quality	Risk rating is appropriate
(c)	N/A	N/A	N/A
(d)	N/A – While on site, the audit team held interviews with community members near the project area boundaries, as well as the fee owners of the land and were unable to uncover any disputes in the project area	N/A	N/A
(e)	N/A – the project is not a WRC project	N/A	N/A
(f)	As the rights of use contracts have not changed, the legally binding commitment to continue the management practices confirmed at validation are still in place	See item (b) above	Risk rating is appropriate
(g)	N/A	N/A	N/A

4.4.6 Community Engagement

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(a)	A few individuals have settled within the project boundaries. Whereas, these individuals were not selected as part of the verification sample, the audit team consulted the certified CCB documentation in order to confirm that they had been consulted about the project	The audit team considers certified CCB documentation to be of high quality	N/A
(b)	The audit team reviewed the certified CCB documentation and confirmed that a majority of individuals within 20 km of the project boundaries had been consulted. In addition, the audit team visited a number of communities outside of the project boundaries, all of which were taking part in project activities	The audit team considers certified CCB documentation to be of high quality	N/A
(c)	The project has been successfully certified under the CCB Standards and generates net positive impacts on the social and economic well-being of the local communities who derive livelihoods from the project area.	The audit team considers certified CCB documentation to be of high quality	Risk rating is appropriate

4.4.7 Political Risk

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(a)	-	-	N/A
(b)	-	-	N/A
(c)	The audit team downloaded dataset from World Bank Institute's Worldwide Governance Indicators (for the most recent five years, 2013-2017, as of May 2019) and confirmed the WGI score of -2.43	The dataset used is required by the AFOLU Non-Permanence Risk Tool, and can be considered high quality	Risk rating is appropriate

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
(d)	-	-	N/A
(e)	-	-	N/A
(f)	The audit team was able to determine that Zambia is taking part in REDD Readiness (http://www.unredd.net/index.php?option=com_national_programme&view=countries&id=49&Itemid=689). In addition, the audit team was provided with evidence /19/ that the project is receiving multi-lateral funding from USAID for implementing REDD readiness	The audit team considers the USAID grant funding and the UN-REDD Programme website to be of high quality	N/A

4.4.8 External Risk – Natural Risk

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
Fire	Given the expertise of the audit team with the forest types comprising the project area, the audit team can confirm that miombo woodlands are highly fire adapted and are susceptible to loss of carbon stocks from natural fire due to human created conditions. The success of the project in reducing slash and burn agricultural activities that result in fire vectors near and within the project boundaries is sufficient for keeping the likelihood and significance of natural fire static. The audit team was provided with a suite of peer reviewed literature confirming that natural fire does not present a risk to the project carbon stocks	As is allowed by the non-permanence risk tool, the audit team considers peer reviewed literature to be high quality	Risk rating is appropriate

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
Pest and Disease Outbreaks	Given the expertise of the audit team with the forest types comprising the project area, the audit team can confirm that miombo woodlands are highly resistant to pest and disease outbreaks. The audit team visited inventory plots across each district in the project area and confirmed that the species composition is consistent with the forest type listed above and therefore the risk of any changes to the ability of the forest areas to resist pest and disease outbreaks is insignificant	N/A	Risk rating is appropriate
Extreme Weather	No changes have occurred to the likelihood and significance of extreme weather since validation and the previous verification. The audit team is experienced working in the region and agrees that extreme weather does not pose a risk to the carbon stocks in the project area	N/A	Risk rating is appropriate
Geological Risk	No changes have occurred to the likelihood and significance of geological events since validation and the previous verification. The audit team is experienced working in the region and agrees that geological events do not pose a risk to the carbon stocks in the project area	N/A.	Risk rating is appropriate

Risk	Assessment of rationale, assumptions and justification	Assessment of quality of documentation and data provided	Conclusion regarding appropriateness of the risk rating
Elephants	The audit team reviewed the rationale provided by project personnel and confirmed that it is supported by the peer reviewed literature provided in the project risk report. In addition, whereas the audit team agrees with the rationale of the risks that elephants have on the carbon stocks, conversation with wildlife experts both near the project area and along the opposite banks of the Zambezi River allowed the audit team to confirm that the lack of significant elephant populations in or around the project area at this time supports the risk score	As is allowed by the non-permanence risk tool, the audit team considers peer reviewed literature to be high quality	Risk rating is appropriate

5 SAFEGUARDS

5.1 No Net Harm

The audit team reviewed the CCB website and confirmed that the project has been validated under the CCB Standards Second Edition and achieved Gold Level status. In addition, during the site visit, the audit team held interviews with community members potentially affected by the project and were able to confirm that those potentially affected by the project consider the project to be resulting in net positive benefits. Finally, given the success of the project in protecting the project area's forests, biodiversity and climate are also reaping positive benefits as a result of project activities.

5.2 Local Stakeholder Consultation

As stated above and also below in the non-permanence risk section, during the site visit, the audit team held interviews with community members throughout the project zone. Community members confirmed that they are in generally consulted by the project proponent and to date no issues have arisen that have not been addressed by project personnel.

6 VERIFICATION CONCLUSION

The audit team asserts, with no qualifications or limitations that the project complies with the verification criteria for projects and their GHG emission reductions or removals set out in VCS Version 3.

In addition, the audit team asserts that the project complies with the validation criteria for projects set out in VCS Version 3 (but this statement is qualified and limited in scope to the specific project and methodology deviations assessed by the audit team, as discussed in Sections 3.2 and 3.3 above).

The audit team has been able to confirm that the project has been implemented in accordance with the project description and subsequently validated variations.

The audit team has been able to confirm, with a reasonable level of assurance, that the quantity of GHG emission reductions or removals set out below has been quantified in accordance with the VCS rules. As documented in Section 4.4 above, the audit team can also confirm that the non-permanence risk score of 10% has been quantified in accordance with the VCS rules. Total VCU's to be issued to the buffer account are as follows:

2018 – 19,617

Monitoring Period: From 1 January 2018 – 31 December 2018

Verified GHG Emission Reductions or Removals in the above verification period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Buffer Allocation (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2018	188,124	108	0	18,802	188,016
Total	188,124	108	0	18,802	188,016

APPENDIX A: VERIFICATION ISSUES

The findings below are a record of issues raised throughout the verification process. All responses from Project Personnel are titled “Client Response” and are a verbatim transcription of their responses.

NCR 1 Dated 19 Apr 2019

Standard Reference: AFOLU Non-Permanence Risk Tool 2.2.2

Document Reference: 20190303_LZRP_VCS Non-Permanence Risk_MR6 1.2

Finding: The risk tool requires that users follow the following requirements:

"Financial viability (FV) shall be assessed using Table 2, noting the following:

1) The financial viability of a project is based on 1) the number of years until cash flow

breakeven is reached, and 2) the funding that has already been secured relative to what is

needed to implement and operate the project until reaching the cash flow breakeven.

2) The cash flow breakeven point is the year in which the cumulative cash flow is positive (ie, cash flow in exceeds cash flow out) and stays positive. Breakeven should be calculated on a cash flow basis based on generally accepted accounting principles. Cash flow in may include commercial revenue streams associated with the project, secured revenue and conservatively projected revenues from the sale of GHG credits, other funding sources such as donor funds, upfront investments, or carbon prepayments, equity or loans. Cash flow out shall include, at a minimum, project implementation costs, costs associated with GHG credit generation (e.g., validation, verification and registration), and, where applicable, interest expenses, repayment of loans or forward purchase agreements, and any required equity distributions..."

In addition, the language provided in table 2 of the tool requires that the analysis be performed from the current assessment.

During the site visit, the verification team noted that the project breakeven analysis had not been updated from the previous assessment and therefore is not in conformance with the tool.

Project Personnel Response: An updated break even analysis has been added to Annex C of Appendix G. It is titled 20190531_CFP Verification Break Even Model.xlsx . The project passed it's break even point in 2018. The Non-Permanence Risk tool and reports have also been updated. See the versions dated 20190610 in appendix G.

Auditor Response: The verification team was provided with an updated cash-flow analysis as stated in the project response. The verification team reviewed the updated documentation and confirmed that the workbook meets the requirements as described in the AFOLU Non-Permanence Risk Tool. In addition, the verification team compared to cash-flow analyses from previous years (also performed by SCS) and confirmed that the inputs to the model are consistent with costs and revenues associated with project activities. The information provided is sufficient for resolving this issue.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NIR 2 Dated 19 Apr 2019

Standard Reference: AFOLU Non-Permanence Risk Tool 2.3.2

Document Reference: 20190303_LZRP_VCS Non-Permanence Risk_MR6 2.2

Finding: The risk tool requires that users follow the following requirements:

"Community engagement (CE) shall be assessed using Table 7, noting the following:

1) Community engagement shall be assessed for projects where local populations, including those living within or surrounding the project area (given as within 20 km of the project boundary), are reliant on the project area, such as for essential food, fuel, fodder, medicines or building materials. Where local populations are not reliant on the project area, the risk is not relevant to the project and the risk rating for community engagement (CE) shall be zero. Evidence may include social assessments such as household surveys and participatory rural appraisals."

During the site visit, project personnel were unable to provide evidence as to how the project determined that 20% or more of the people living within 20 kilometres of the project boundary had been consulted.

Project Personnel Response: The risk assessment report has been updated (see version dated 20190610 in Appendix G) to refer to more current information on household awareness of the project (from the end of 2017) and on household dependency as assessed through community scout patrol data through 2018. This data shows that awareness of the basic objective of the project and support for the project were very high in 2017 (91%, and 96% respectively) and that dependency on the area as measured through the detection of illegal activities through patrols has not increased despite a very large increase in patrol effort. This shows that certainly more than 20% of people reliant on the project area have been consulted and are aware of the project.

Auditor Response: The verification team agrees that the level of awareness of the project is consistent with that as reported in the project response. Moreover, the verification team agrees that the incidence of illegal activities is a good metric for assessing awareness of the project. The information provided, combined with observations during the site visit, convince the audit team that the project is meeting the requirements of the risk tool with respect to the risk score claimed by the project and is sufficient for resolving this issue. Finally, the verification team agrees that the scout patrols should be more than sufficient to alert the project of any new individuals or groups who are potentially affected by project activities.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NIR 3 Dated 19 Apr 2019

Standard Reference: VCS VM0009 B.1

Document Reference: N/A

Finding: The VM0009 methodology provides detailed guidelines for sampling project carbon stocks. Whereas, the guidance does not specifically address the issue discussed here, the guidance does provide the user with the general intent that that bias should be avoided.

During the site visit, the verification team noted that slope was only being considered if it occurred along the northern line from plot centre. Best practices in forest mensuration however, require that slope be taken along the aspect of the plot to account for the greatest effect on horizontal distances. Whereas, the verification team cannot say with certainty that this is resulting in a biased estimates of onsite carbon stocks, it is imperative to explore the effect of such a method. Please provide a justification for the use of such a method or otherwise provide evidence that the method does not result in a non-conservative estimate of GHG emission reductions or removals.

Project Personnel Response: The project agrees that the approach of only measuring slope along the northern line from plot center results in lower biomass accuracy. However, it does not result in a non-conservative estimate of GHG emissions. Measuring slope in one direction only means that the overall slope of the plot will be underestimated in most cases and thus the slope corrections in most cases will be smaller than they should be resulting in conservative biomass estimates. Only when the slope of the plot directly corresponds to the Northern direction does the technique result in the correct slope correction being made. It never results in a slope correction that is larger than it should be. Furthermore, it increases the variability in the data and therefore increases the chance of an uncertainty deduction being applied. For future monitoring periods, the project proposes to switch to correcting for slope by adjusting the radius of the plot while in the field as described in the response to the next finding.

Auditor Response: The verification team reviewed the project response and agrees that the inconsistent and potentially erroneous application of slope metrics is more than likely to result in conservative estimates of GHG emission reductions. And therefore, is sufficient for closing this finding. It should be noted that while the justification provided is sufficient for closing this finding, it does question the statistical soundness of the methodology. Please keep in mind that the purpose of reporting ghg emission reductions and having them verified is to provide an accurate estimated of GHG reductions and whereas conservative estimates are allowed, accuracy should always be prioritized if possible.

Bearing on Material Misstatement or Conformance (M/C/NA): M

NCR 4 Dated 19 Apr 2019

Standard Reference: VCS Standard v3.7 2.4.1

VCS VM0009 B.1

Document Reference: N/A

Finding: The VCS standard defines the principle of accuracy as "Reduce bias and uncertainties as far as is practical."

During the site visit the verification team noted that when collecting carbon stock data in the field, the project biomass team did not account for slope when measuring aboveground biomass plots, but rather adjusted the plot size based on the slope when calculating per unit area biomass. Whereas, the result of such a method is more than likely to increase the variability of the carbon stock estimate and increase the chance of an uncertainty deduction being applied (as per VM0009), this method is not considered statistically sound.

This is noted when reviewing the statistical estimators prescribed by the methodology and employed by the project. The methodology clearly prescribes equal probability estimators, whereas, the project is using an unequal probability design. Given the method employed by project personnel did not allow for slope correction in the field and thus does not allow for an immediate correction, the project is not in conformance with the VCS standards and a corrective action plan is necessary to ensure this error is corrected moving forward and to resolve this issue.

Project Personnel Response: The project agrees with the finding and has updated the SOP for biomass plots (see v3 in appendix E). The new approach requires that slope be measured parallel to the dominate direction of the slope in the plot passing through plot center. Then the desired plot radius (always 12 meters for LZRP) is multiplied by a correction factor equal to 1 divided by the square root of the cosine of the slope in degrees. This correction results in plot with the same area as a plot would have on flat ground, though slightly warps the flat ground equivalent of the plot by using a single fixed radius resulting in a circular plot on slope rather than an oval plot. To reduce the chance of errors in the slope correction calculations, the ODK data form used to record plot data will automatically calculate the correct plot radius after the user provides the plot slope in degrees. The form then notifies the user of the result of that calculation and instructs the user to use that radius when making measurements on the ground.

Auditor Response: See above.

Bearing on Material Misstatement or Conformance (M/C/NA): M

NIR 5 Dated 19 Apr 2019

Standard Reference: N/A

Document Reference: 20190307_LZRP_MR_M6_1.1

Finding: The project monitoring report states the following with respect to disturbance monitoring:

"Remote sensing (NASA FIRMS alerts) followed by ground-based inspections, bi-monthly aerial surveys."

During the site visit the verification team was made aware that this information is not accurate. Please update the monitoring report to accurately describe how disturbance monitoring was carried out during the monitoring period.

Project Personnel Response: The reference in table 3 on page 87 has been corrected to refer to the actual fire monitoring product that is used by the project which is the MODIS Burned Area Product produced by the University of Maryland.

Auditor Response: The verification team reviewed the updated monitoring report and confirmed that the information now accurately describes the disturbance monitoring.

Bearing on Material Misstatement or Conformance (M/C/NA): C