

VERIFICATION REPORT FOR THE DARKWOODS FOREST CARBON PROJECT

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Summary:

This report describes the verification audit of the Darkwoods Forest Carbon Project (“the project”), a Logged to Protected Forest (LtPF) project located in British Columbia, Canada, that was conducted by SCS. The purpose of the verification audit was to assess the conformance of the project with the verification criteria. The verification audit was performed through a combination of document review, interviews with relevant personnel and on-site inspections. 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

The objective of the verification was to conduct an independent assessment of the Darkwoods Forest Carbon Project (“the project”) to determine whether the quantification of GHG emission reductions or removals for the project during the period 1 January 2011-31 December 2012 (“the monitoring period”) complies with the verification criteria, as set out in the guidance documents listed in Section 1.2 of this report.

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 and its baseline scenarios;
- 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 reporting 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 British Columbia, Canada and is aimed at reducing emissions related to logging.

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

See Section 3.1 below.

2.2 Validation Findings

2.2.1 Gap Validation

No gap validation was performed and therefore, this section is not applicable to this verification.

2.2.2 Methodology Deviations

The Darkwoods monitoring report provides a description of a project description/methodology deviation in regarding failure of the plot network to include representation in all of the analysis units comprising the project area. Moreover, this deviation was also discussed in the previous verification report.

Upon close scrutiny of the VCS VM0012 Methodology, as well as the previous verification report for this project, it appears that there was a misunderstanding of the requirements of the methodology with respect to sample size during the previous verification. Whereas, the methodology states “The proponent will develop a plot network with representation in every polygon or analysis unit,” the methodology also states “For practical purposes it is recognized that on large or complex project areas the plot network may need to be developed across several years (no longer than 5 years) to approach the target level of precision.” Given this wording in the methodology, the audit team concluded that the lack of plot representation in all of the analysis units comprising the project area has not yet crossed the threshold of “no longer than 5 years” and therefore should not be considered a methodology deviation.

2.2.3 Project Description Deviations

The Darkwoods Monitoring Report describes a single deviation from the validated project description that states that the plot network design will be finalized and implemented in the 2011 field season. The audit team reviewed the project description deviation described in the Darkwoods monitoring report and confirmed that the description is sufficient for meeting the requirements of the VCS Monitoring Report Template. In addition the audit team was able to confirm that the project description deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, and that the project remains in compliance with the applied methodology. Finally, as per the requirements of Section 3.6.3 of the VCS Standard, SCS is accredited for validation of AFOLU projects.

2.2.4 New Project Activity Instances

There were no new project activities associated with the project; therefore, this section is not applicable.

2.3 Validation Conclusion

The project conforms to the validation criteria for projects and their GHG emission reductions set out in the VCS rules, with respect to the single project description deviation described above. The audit team asserts no qualifications or limitations with respect to the statement above.

3 VERIFICATION PROCESS

3.1 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 3.2 through 3.4 of this report. At all times, the project was assessed for conformance to the criteria described in Section 1.2 of this report. As discussed in Section 3.5, findings were issued to ensure that the project was in full conformance to all requirements.

Prior to conducting the site visit activities, the audit team created a sampling plan to determine the areas with the greatest risk of material error. These included the harvest volumes reported during the monitoring period, as well as the new forest inventory conducted from June-September 2011. The audit team then created a verification agenda that took the sampling plan into account.

3.2 Document Review

The monitoring report (version 1.6 dated February 2014) and supporting documentation were carefully reviewed for conformance to the verification criteria.

In addition to the monitoring report, the following written documents (e.g., reports, memos, land deeds and titles) were reviewed to ensure conformance of the project with the VCS rules and the methodology:

Document (Date Created)	Date Reviewed
Darkwoods Monitoring Report (3 April 2013)	Throughout
Darkwoods Project Description (11 April 2011)	Throughout
Darkwoods Data Standards (30 November 2009)	Throughout
Darkwoods_VRIEM_Ecora2012 (6 December 2012)	Throughout
Project area plot map (30 June 2012)	Throughout
Darkwoods Carbon Model (10 January 2008)	Throughout
FORECAST carbon & volume 1-year time step (26 November 2011)	Throughout
ATLAS Runs (2 September 2010)	Throughout
Darkwoods Carbon Field Plot SOP (25 July 2011)	Throughout
Darkwoods plot data (5 July 2012)	Throughout
NCC Darkwoods_QA_Carbon Plots (22 November 2011)	Throughout

3.3 Interviews

Interviews constituted an important component of the audit process. The following personnel associated with the project proponent and/or implementing partner were interviewed. The phrase “throughout audit” under “Date Interviewed” indicates that the individual in question was interviewed on multiple occasions throughout the audit process.

Individual	Affiliation and Role	Date Interviewed
Mike Vitt	3GreenTree Ecosystem Services Ltd. Project Developer	Throughout audit
Tom Swann	Nature Conservancy of Canada. Regional VP and Director	30 September – 2 November 2013
Rob Wilson	Nature Conservancy of Canada. Director Carbon Finance	Throughout audit
Nancy Newhouse	Nature Conservancy of Canada. Program Manager	30 September – 2 November 2013
Clive Welham	3GreenTree Ecosystem Services Ltd. Managing Director, Carbon project development, monitoring management	30 September – 2 November 2013
Brad Seely	3GreenTree Ecosystem Services Ltd. Managing Director, Carbon project development, carbon modeling, monitoring management	Throughout audit

The following personnel not associated with the project proponent and/or implementing partner were interviewed.

Individual	Affiliation and Role	Date Interviewed
John Kettle	Central Kootenay Regional District (RDCK). Board Chair	25 October 2013
Dave Wickstrom	Darkwoods Forestry. Forester	4 October 2013
Mike Knappick	Section Head, Habitat Management, Ministry of Lands Forests and Natural Resource Operations	4 October 2013
Michael Proctor	Grizzly Bear biologist	3 October 2013

Matt Maddes	Woodlands Manager, Wynndel Box and Lumber	3 October 2013
Corey Phelps	President, Creston Rod and Gun Club	3 October 2013
Dylan Henderson	Co-owner, Timberline Reforestation	3 October 2013
Deb Mackillop	Research Ecologist. Ministry of Lands Forests and Natural Resource Operations	4 October 2013

3.4 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 30 September-5 October 2013. 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 procedures and project implementation; and
- Interviewed residents of several stakeholders, located in the immediate vicinity of the project area to confirm the claims of the project proponents with respect to the extent of community engagement.

3.5 Resolution of Any Material Discrepancy

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.

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 verification statement.

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.

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.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The audit team confirmed through interviews with project personnel that the project has been implemented as described in the Project Description. The audit team noted a few small errors in the calculation of actual carbon stocks, which have been corrected prior to issuance of this verification report (see Appendix A).

During a series of meetings and interviews with the project personnel, the audit team reviewed the monitoring plan, as described in the project description. The audit team confirmed that the monitoring system designed by the project proponent(s) allows for the inclusion of all of the parameters necessary to adequately implement the project. Whereas, many of the parameters required at validation were confirmed through observations and data collected in the field, others are included as inputs into the project forest growth and yield model. Parameters included in the model (ATLAS FPS) were confirmed during Skype meetings between the project personnel and the audit team, in which the audit team observed a stepwise review of the modelling process. A more detailed description of the verification activities used to confirm the individual parameters is located below (Section 4.2).

As required by the VCS rules, the following is a list of previously validated methodology deviations. Please see the initial verification report of the Darkwoods Forest Carbon Project (also performed by SCS) for a complete description of each methodology deviation.

- “The network of field plot measurements installed does not meet the requirements of the methodology because not all analysis units were sampled”
- “The carbon stock monitoring program has not yet been integrated with other standard operating procedures and project documentation maintained by the project proponent.”

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

The VCS VM0012 Methodology requires that several parameters be monitored for quantification of project emissions. In addition, other parameters available at validation were assessed by the audit team to ensure the accurate calculation of GHG emission reductions or removals. The observations of the audit team with respect to the quantification of each parameter are described below. Unless noted, each parameter has been quantified in a manner that complies with the methodology and is sufficiently accurate to meet the materiality threshold required by the VCS rules.

Parameter	Verification Findings
THLB	This parameter was quantified using a GIS database (VRI Resultant ¹). During Skype calls with project personnel, the audit team was provided a step by step walkthrough of the process for determining the landbase available for timber harvesting in both the baseline and project scenario. The audit team confirmed that this process was consistent with procedures described in the monitoring report. In addition, the audit team reviewed databases for both the project and baseline scenarios and confirmed that only landbase meeting the criteria described in the monitoring report were included in the quantification of this parameter.
CF	This parameter is determined using a default factor provided by the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. The audit team confirmed that the project is using the carbon fraction value prescribed by the methodology.
R_i	The audit team confirmed that the root-to-shoot ratios used in the calculation of belowground biomass are consistent with the values approved at validation.
C_{timber,h}	This parameter is quantified using projected harvest volume in the baseline scenario and actual harvest volume in the project scenario, as well as the wood density factors and

¹ VRI Resultant – The title of the database resulting from the vegetation resources inventory performed on the project.

Parameter	Verification Findings
	the carbon fraction previously described. The audit team reviewed the workbook titled “Darkwoods Carbon Model 2011-2012 v1.1” and confirmed that this value was calculated correctly.
$\Delta C_{BSL,PERMH}$ $WP1,t$ $\Delta C_{PRJ,PERMH}$ $WP1,t$	This parameter was quantified using the 100-year method as described in the methodology. The audit team reviewed the calculations for harvested wood products in the workbook titled “Darkwoods Carbon Model 2011-2012 v1.1” and found them to be free from calculation error.
$\Delta C_{BSL,PERMH}$ $WP2,t$ $\Delta C_{PRJ,PERMH}$ $WP2,t$	This parameter was quantified using the harvested volumes for the baseline and project scenarios, while accounting for both primary and secondary efficiency coefficients in milling and manufacturing. The audit team reviewed the calculations for this parameter and found it to be free from calculation error. In addition the audit team confirmed that the coefficient values used were those prescribed by the methodology.
SE_y	This parameter was quantified using option 2 of the methodology. It was the professional judgement that Canadian timber markets are similar to those in the U.S. is therefore an appropriate use of the CAR Market Leakage procedures.
$A_{BSL,i}$, $A_{PRJ,i}$	As required by the VCS Methodology VM0012, this parameter was determined using the ECORA VRI Resultant database. The database is built upon a series of inputs including orthophotos of the project area. The project proponents contracted ECORA ² to perform an extensive monitoring process using aerial imagery and ground truthing to determine a number of characteristics including forest type. The area is then calculated using GIS software for the resulting polygons. The audit team confirmed that the process for determining the area of polygons in the baseline and project scenarios is consistent with the instructions as described in the methodology. Additionally, while onsite, the audit team performed ground truthing of the forest vegetation types provided in the GIS database. The audit team visited random portions of the property and was able to confirm that the analysis units depicted by the updated inventory were consistent with on the ground observations.
$A_{PSP,i}$	This parameter was determined based on tree density. While on site, the audit team was able to confirm that plot size was in agreement with the density parameters as described in the Darkwoods Carbon Field Plot SOP. The audit team was also able confirm adherence to the SOP by reviewing the most recent inventory data for the monitoring period.
$DBH_{i,t}$	This parameter was quantified using direct measurements in the field. NCC employed Timberland Consultants of Nelson, BC; a well-known forest consulting company in the region to perform the forest inventory. During the site visit, the audit team re-measured a

² ECORA – A British Columbia based engineering and natural resource consultant.

Parameter	Verification Findings
	subset of inventory plots and can confirm that the data collected for DBH by the project personnel is consistent with the data collected by the audit team. In addition, the audit team reviewed the QA/QC plot data collected by the project personnel and confirmed that the procedures and rules defined in the project quality standards were adequately followed.
Height_{i,t}	This parameter was quantified using direct measurements in the field. NCC employed Timberland Consultants of Nelson, BC; a well-known forest consulting company in the region to perform the forest inventory. During the site visit, the audit team re-measured a subset of inventory plots and can confirm that the data collected for height by the project personnel is consistent with the data collected by the audit team. In addition, the audit team reviewed the QA/QC plot data collected by the project personnel and confirmed that the procedures and rules defined in the project quality standards were adequately followed.
B_{AGi,t}	The parameter for aboveground biomass was quantified according to the procedures defined in Standish, Manning, & Demaerschalk, (1985) ³ . The biomass equations used rely on the DBH and height metrics from the field sample plots verified by the audit team. The audit team confirmed that the biomass equations were appropriately applied in the project data. The audit team recalculated the actual carbon stocks as provided in the current Darkwoods forest inventory and confirmed that the values provided by the project proponent are consistent with those of the audit team.
B_{BGi,t}	The audit team confirmed that the quantification of this parameter by reviewing the calculations in workbook titled "Darkwoods plot data Aug 2012 v1.2." The root to shoot ratios included in the workbook are consistent with those confirmed during the initial verification (also performed by SCS).
B_{TOTALi,t}	The audit team confirmed the correct quantification of this parameter by reviewing the calculations in the workbook titled "Darkwoods plot data Aug 2012 v1.2." In a review of the quantification of this parameter in the project's reporting workbook, no errors were detected by the audit team.
C_{LB,i,t}	The audit team confirmed the correct quantification of this parameter by reviewing the calculations in the workbook titled "Darkwoods plot data Aug 2012 v1.2." The audit team confirmed that the calculations in the workbook are consistent with the procedure, as described in in equation 28(c) of the VM0012 Methodology.
C_{DOM,i,t}	The quantification of this parameter was confirmed by the audit team using the inventory calculation workbook described above. The audit team performed a recalculation of this

³Standish, J.T., G.H. Manning, and J.P. Demaerschalk 1985. Development of Biomass Equations for British Columbia Tree Species. Inf. rep. BC-X-264. Can. For. Serv. Pac. For. Ctr., Vancouver, BC

Parameter	Verification Findings
	parameter based on the procedures confirmed during the initial verification (also performed by SCS) and the most recent inventory data and found no errors.
Mean tree age	This parameter is quantified by analyzing tree cores collected during the field inventory. For this verification, the audit team confirmed that average age was appropriate for the time elapsed since the previous verification by reviewing the databases in which carbon stock growth is projected through time.
$f_{PRJ,NATURAL,i,t}$	As required by the VM0012 Methodology the proportion of biomass that dies from natural mortality has been monitored during this monitoring period. Whereas the FORECAST model used to estimate baseline and project level carbon stock changes simulates this parameter, the audit team confirmed that natural mortality was monitored during the most recent field inventory and that the values confirmed during the initial verification (also performed by SCS) were adjusted accordingly.
$f_{PRJ,HARVEST,i,t}$	The audit team confirmed that ex-ante estimates of harvest volume in the project scenario have been replaced by the actual harvest volume for this reporting period, following the procedure described in the project document. The audit team reviewed the timber scaling reports produced by the Ministry of Forestry for B.C. and confirmed that the reported harvest volumes are consistent with those provided in the scaling reports. In addition, the audit team reviewed the wood density factor used to convert harvest volume to biomass and confirmed that the default factor meets the requirements set out in section 3.1.5 of the VCS Standard.
$f_{PRJ,DAMAGE,i,t}$	The audit team confirmed that VRI Resultant database contains data for all roads and non-forested areas created within harvest areas. In addition, the audit team was able to confirm that inputs to the forest modeling have not changed for this parameter since the last verification.
$DOM_{SNAG,i,t}$	The parameter for total dead biomass contained in standing deadwood was quantified according to the procedures defined in Standish, Manning, & Demaerschalk, (1985). The biomass equations used rely on the DBH and height metrics from the field sample plots verified by the audit team. The audit team confirmed that the biomass equations were appropriately applied in the project data. The audit team recalculated the actual biomass as provided in the current Darkwoods forest inventory and confirmed that the values provided by the project proponent are consistent with those of the audit team.
$DOM_{LDW,i,t}$	The quantification of this parameter was provided in the workbook titled "Darkwoods plot data Aug 2012 v1.2." The audit team recalculated the values provided in the workbook and confirmed that they were free from calculation error. In addition, the audit team reviewed scientific literature for coarse woody debris in the region and found the values presented by the project to be generally consistent with

Parameter	Verification Findings
	regional values for similar forest types.
$V_{LDW,c}$	The quantification of this parameter was provided in the workbook titled “Darkwoods plot data Aug 2012 v1.2.” The audit team recalculated the values provided in the workbook and confirmed that they were free from calculation error. In addition, the audit team confirmed that the procedures for calculating this parameter have not changed from the procedures approved at validation and that the procedures are consistent with the requirements of the VCS VM0012 Methodology.
$L_{i,t}$	This parameter was quantified using direct measurements in the field. NCC employed Timberland Consultants of Nelson, BC; a well-known forest consulting company in the region to perform the forest inventory. It is the professional understanding of the audit team that this procedure is consistent with general forestry practices.
$d_{n,i,t}$	This parameter was quantified using direct measurements in the field. NCC employed Timberland Consultants of Nelson, BC; a well-known forest consulting company in the region to perform the forest inventory. The audit team confirmed that the procedures for the quantification of this parameter have not changed from the procedures approved at validation.
$N_{i,t}$	This parameter was quantified using direct measurements in the field. NCC employed Timberland Consultants of Nelson, BC; a well-known forest consulting company in the region to perform the forest inventory. The audit team confirmed that the procedures for the quantification of this parameter have not changed from the procedures approved at validation.
$D_{LDW,c,i,t}$	This parameter was quantified using direct measurements in the field. NCC employed Timberland Consultants of Nelson, BC; a well-known forest consulting company in the region to perform the forest inventory. The audit team confirmed that the procedures for the quantification of this parameter have not changed from the procedures approved at validation. It should be noted that while the decay constants were derived in the lab and approved during validation, only general categories (sound, intermediate, rotten) were recorded during the most recent inventory. It is the professional understanding of the audit team that this procedure is consistent with general forestry practices.
E_M	This parameter is quantified using the procedures described in equation (60a) of the VCS VM0012 Methodology. The audit team reviewed the calculations provided in the workbook titled “Darkwoods plot data Aug 2012 v1.2.” and confirmed that the calculations were consistent with the procedures approved during the initial verification (also performed by SCS). In addition, the audit team reviewed the outputs from the most recent modeling efforts

Parameter	Verification Findings
	and confirmed that the outputs from the model were consistent with the values used for these calculations. Finally, using a series of tracing exercises, the audit team confirmed that the inventory plot data used for the calculation of this parameter is consistent with the inventory data verified by the audit team.
E_i	This parameter is quantified using the procedures described in equation (60c) of the VCS VM0012 Methodology. The audit team reviewed the calculations provided in the workbook titled “Darkwoods plot data Aug 2012 v1.2.” and confirmed that the calculations were consistent with the procedures approved during the initial verification (also performed by SCS). In addition, using a series of tracing exercises, the audit team confirmed that the inventory plot data used for the calculation of this parameter is consistent with the inventory data verified by the audit team.
E_p	This parameter is quantified using the procedures described in equation (60f) of the VCS VM0012 Methodology. The audit team reviewed the calculations provided in the workbook titled “Darkwoods plot data Aug 2012 v1.2.” and confirmed that the calculations were consistent with the procedures approved during the initial verification (also performed by SCS). In addition, the audit team reviewed the outputs from the most recent modeling efforts and confirmed that the outputs from the model were consistent with the values used for these calculations. Finally, using a series of tracing exercises, the audit team confirmed that the inventory plot data used for the calculation of this parameter is consistent with the inventory data verified by the audit team.
ER_{y,ERR}	This parameter is quantified using the procedures described in table 6 of the VCS VM0012 Methodology. The audit team reviewed the calculations provided in the workbook titled “Darkwoods plot data Aug 2012 v1.2.” and confirmed that the calculations were consistent with the procedures approved during the initial verification (also performed by SCS).
BR_y , ☐	This parameter was calculated using the latest version of the VCS AFOLU Non-Permanence Risk Tool available at the time of this assessment. The audit team reviewed the evidence supporting the risk score and confirmed that the buffer pool contribution was calculated correctly.
VCU_y , ☐	This parameter is quantified using the procedures described in equation 59 of the VCS VM0012 Methodology. The audit team reviewed the calculations provided in the workbook titled “Darkwoods plot data Aug 2012 v1.2.” and confirmed that the calculations were consistent with the procedures approved during the initial verification (also performed by SCS).

The nature of the VCS VM0012 Methodology is such that GHG emission reductions or removals are derived through a series of modeling runs and a comparison of such to the actual on site carbon stocks. In order to determine the accuracy of the GHG emission reductions or removals during this monitoring period, the audit team reviewed a series of workbooks and databases used by the project proponent(s) to estimate both modeled carbon stocks, as well as the actual onsite carbon stocks. Throughout the review of the project documentation, a few minor calculation errors were noted. In all cases, the errors were corrected, resulting in an accurate representation of GHG emission reductions or removals.

The audit team noted a number of default values used in the monitoring report. In all cases the audit team was able to confirm that the use of the default values were appropriate, as they were supported in the peer reviewed scientific literature, regionally specific, or prescribed by the methodology.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

All of the evidence used to determine the GHG emission reductions or removals was of high quality and extremely well organized. The audit team reviewed the project procedures for monitoring and managing data and found no evidence of deviations from the procedures. In most cases evidence provided to the audit team was transparent and user friendly, in all other cases the audit team was provided with a step by step walkthrough of the documentation and data analysis. It was clear to the audit team that the project has been implemented according to the frequency described in the project description and that the project personnel are highly skilled to perform the monitoring requirements. Overall, it was quite obvious to the audit team that the activities performed by the project proponent(s) are quite sufficient in providing the audit team with a reasonable level of assurance that the evidence to determine GHG emission reductions or removals for this monitoring period are both sufficient and of high quality.

Throughout the accuracy review portion of this verification, the audit team performed a step by step recalculation of pertinent values. In addition, upon completion of the recalculation activities, the audit team was able to trace each value back to its origin and confirm that no transpositions or miscalculations of the data were present.

4.4 Management and Operational System

The management and operational system undertaken for the Darkwoods Forest carbon project was found to be extremely sound, with good communication clearly evident between the different parties involved in the project. NCC and 3GreenTree have a history of success in developing and implementing this project. The audit team confirmed that the project has developed standard procedures for the collection, storing, and archiving of project data. In addition, it was apparent throughout the verification that these procedures were generally followed during the monitoring period. Finally, it is the opinion of the audit team that in cases in which outside consultants were used for the implementation of project activities that the work products were of high quality. In summary, the system currently in place was found to be of sufficient quality as to provide the audit team with a reasonable level of assurance as to the reported GHG emission reductions

5 VERIFICATION CONCLUSION

The project conforms to the verification criteria for projects and their GHG emission reductions set out in the VCS rules. The audit team asserts no qualifications or limitations with respect to the statement above.

The audit team has been able to confirm, with a reasonable level of assurance, that the quantity of GHG emission reductions set out below has been quantified in accordance with the VCS rules. As documented in Appendix B, the audit team can also confirm that the non-permanence risk score of 10% has been quantified in accordance with the VCS rules.

Reporting period: From 01-January-2011 to 31-December-2012.

Verified GHG emission reductions or removals in the above reporting period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Uncertainty (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2011	(297,264)	138,484	(42,375)	(5,901)	387,472
2012	(300,470)	127,026	(42,066)	(5,781)	379,648
Total	(597,734)	265,510	(84,441)	(11,682)	767,120

Finally, as reported in Appendix B, the 10% Non-Permanence Risk score requires a buffer pool contribution of 83,637 tCO₂e, or 42,226 tCO₂e and 41,411 tCO₂e for 2011 and 2012. The resulting VCU's for the project are 683,483 tCO₂e, or 345,246 tCO₂e and 338,237 tCO₂e for 2011 and 2012 respectively.

APPENDIX A: VERIFICATION FINDINGS

NCR 2012.1 dated 10/15/2013

Standard Reference: VCS Methodology VM0012, Data and parameters and VCS Standard v3.4 section 3.5.1

Document Reference: Darkwoods Monitoring Report pg. 14

Finding: The VCS Standard states "Deviations from the applied methodology are permitted where they represent 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). Methodology deviations shall not negatively impact the conservativeness of the quantification of GHG emission reductions or removals, except where they result in increased accuracy of such quantification. Deviations relating to any other part of the methodology shall not be permitted."

Additionally, the methodology states for parameter (Ri), that "if project specific values have not been measured, use Cairns 1997" for calculating belowground biomass.

According to the Darkwoods Monitoring Report, "Belowground biomass (t ha-1) was calculated from live aboveground biomass using equations derived from (Li, Kurz, Apps, & Beukema, 2003) and (Lehtonen, Makipaa, Heikkinen, Sievanen, & Liski, 2004)." Given the project does not use the Cairns equation, as prescribed by the methodology, and has not provided evidence that the belowground biomass equations used by the project meet the criteria of the VCS for methodology deviations, the project is not in conformance.

Client Response: The Methodology (VM0012) never intended that Cairns (1997) was the only relationship acceptable for use in the calculation of belowground biomass (as might be inferred from the parameter table in Section 9.1 of the Methodology -pg 54). The text describing the calculation of belowground biomass in Section 8.1.3 of Methodology (pg. 14) states "general relationships are acceptable (for calculating belowground biomass) as long as they are appropriate for the species and region associated with the project (Cairns, 1997)." Cairns is referenced as an example not as the only acceptable relationship. The equations used in the monitoring report as well as the validated PD are based on Li et al. 2003 and Lehtonen et al. 2004. Both of these are published in the peer reviewed literature and are regionally and species appropriate (as concluded by previous audits).

Auditor Response: Upon closer scrutiny of the VM0012 Methodology, the audit team agrees that the methodology is unclear in its intent, as to the procedures for calculating belowground biomass. This is evident as in one instance the methodology states "Ri should ideally be estimated for each polygon, but these data are difficult to derive empirically. Hence, general relationships are acceptable (Cairns, 1997)"

and in another instance the methodology states "If project-specific values have not been measured, use Cairns 1997)."

Based on the rationale provided in the client response, the audit team no longer considers not using Cairns (1997) a methodology deviation and therefore withdraws this non conformity report.

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.2 dated 10/15/2013

Standard Reference: VCS Methodology VM0012, Data and parameters and VCS Standard v3.4 section 3.5.1

Document Reference: Darkwoods Monitoring Report pg. 14

Finding: The VCS Standard states "Deviations from the applied methodology are permitted where they represent 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). Methodology deviations shall not negatively impact the conservativeness of the quantification of GHG emission reductions or removals, except where they result in increased accuracy of such quantification. Deviations relating to any other part of the methodology shall not be permitted."

Additionally, the Darkwoods Monitoring Report states that "the plot network while expanded considerably from that in place during the first monitoring period still does not meet the stated criteria of having a minimum of one plot within each analysis unit." Please provide evidence that the deviation listed in the monitoring report meets the criteria of section 3.5.1 of the VCS Standard; specifically that the deviation does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals, except where they result in increased accuracy of such quantification.

Client Response: Text was added to Section 2.2 of the Monitoring report (pg 7) to explain that the inclusion of the these 3 analysis units improves the accuracy of the modelling by using more specific criteria to distinguish inventory polygons. To be clear, these very small analysis unit areas are still being modelled individually based on the forest characteristics within each. The current lack of field plots for these analysis units is very low risk in part due to the demonstrated accuracy of the modelling tools shown across the other analysis units, and more specifically because the small areas of these analysis units makes potential modelling error within them immaterial to overall carbon stocks on the entire project area. The alternative would be to eliminate these analysis units and roll them into the best fit larger analysis units, where they would become immaterial statistically, but which would In our opinion reduce

the accuracy of the carbon accounting.

Auditor Response: Upon review of the client response, as well as, further review of the requirements of the methodology, the audit team concluded that the project has not resulted in a deviation to the methodology at this time. The VCS VM0012 Methodology allow projects up to five years to develop the plot network. Given that the project is in its fifth year at the time of this verification, the project has not resulted in a deviation to the methodology at this time. The audit team considers this issue closed.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.3 dated 10/15/2013

Standard Reference: VCS Standard v3.4 section 3.16.6

Document Reference: Darkwoods Monitoring Report

Finding: The VCS Standard states "The project proponent shall use the VCS Monitoring Report Template and adhere to all instructional text within the template."

A new version of the Monitoring Report Template (V3.3) was released on 8 October 2013 and is effective immediately. Therefore, use of the out-of-date template constitutes non-conformity with respect to the VCS rules.

Client Response:

Auditor Response: As per guidance from the VCSA (update webinar 10/22/2013), projects undergoing verification at the time of the VCS updates are not required to use the latest version of the monitoring report template until 8 April, 2014. The use of an earlier version of the monitoring report template is, therefore, no longer a non-conformity with respect to the VCS rules.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.4 dated 10/15/2013

Standard Reference: VCS Standard v3.4 section 3.16.6

Document Reference: Darkwoods Monitoring Report, section 3.1

Finding: The VCS Standard states "The project proponent shall use the VCS Monitoring Report Template and adhere to all instructional text within the template."

The Darkwoods Monitoring Report states "See Darkwoods Project Design Document, Section 3.1, Table 7." for data and parameters available at validation rather than including these within the cover of the

monitoring report and therefore constitutes non-conformity with respect to the VCS rules.

Client Response: The parameter tables from the PDD have been added to the monitoring report and all references within have been updated accordingly.

Auditor Response: As stated in the client response, the parameter tables referenced in this finding have been added to the monitoring report and therefore resolve this non conformity report.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.5 dated 10/15/2013

Standard Reference: VCS Standard v3.4 section 3.16.6

Document Reference: Darkwoods Monitoring Report, section 3.2

Finding: The VCS Standard states "The project proponent shall use the VCS Monitoring Report Template and adhere to all instructional text within the template."

The Darkwoods Monitoring Report states "See Darkwoods Project Design Document, Section 3.2, Table 8. All required parameters have been monitored." for data and parameters monitored rather than including these within the cover of the monitoring report and therefore constitutes non-conformity with respect to the VCS rules.

Client Response: The parameter tables from the PDD have been added to the monitoring report and all references within have been updated accordingly.

Auditor Response: As stated in the client response, the parameter tables referenced in this finding have been added to the monitoring report and therefore resolve this non conformity report.

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.6 dated 10/15/2013

Standard Reference: VM0012 Methodology pg. 74; VCS Standard v3.4 section 3.1.4

Document Reference: Darkwoods Monitoring Report

Finding: The VM0012 methodology states "Although the tree carbon stock is estimated most accurately and precisely by direct methods (whereby all the trees in a sample plot above a minimum diameter are harvested, dried and weighed), it is expected this approach will be impractical for most projects. Therefore, tree biomass should be estimated from allometric biomass equations that predict aboveground biomass from mathematical relationships between DBH and/or height and species. Allometric biomass equations have been published for many species and regions. The project proponent should select the

most appropriate equations by determining which published equations are most representative of the species and conditions on the project site."

In addition the VCS Standard states that "Where projects apply methodologies that permit the project proponent its own choice of model (see VCS document Program Definitions for definition of model), such model shall meet with the requirements set out in Section 4.1.6(2)-(6) and it shall be demonstrated at validation that the model is appropriate to the project circumstances (ie, use of the model will lead to an appropriate quantification of GHG emission reductions or removals)."

Section 4.1.6 of the VCS Standard requires the following:

"2) Model parameters shall be determined based upon studies by appropriately qualified experts that identify the parameters as important drivers of the model output variable(s).

3) Models shall have been appropriately reviewed and tested (eg, ground-truthed using empirical data or results compared against results of similar models) by a recognized, competent organization, or an appropriate peer review group.

4) All plausible sources of model uncertainty, such as structural uncertainty or parameter uncertainty, shall be assessed using recognized statistical approaches such as those described in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1, Chapter 3.

5) Models shall have comprehensive and appropriate requirements for estimating uncertainty in keeping with IPCC or other appropriate guidance, and the model shall be calibrated by parameters such as geographic location and local climate data.

6) Models shall apply conservative factors to discount for model uncertainty (in accordance with the requirements set out in Section 4.1.4), and shall use conservative assumptions and parameters that are likely to underestimate, rather than overestimate, the GHG emission reductions or removals.

Note – The criteria set out in (2)-(6) above are targeted at more complex models. For simple models, certain of these criteria may not be appropriate, or necessary to the integrity of the methodology. Such criteria may be disregarded, though the onus is upon the methodology developer to demonstrate that they are not appropriate or necessary."

The methodology permits the project proponent its own choice of the model used to estimate the aboveground biomass of trees, and the project has opted to use the equation sourced from Standish et al. (1985) for this task. Please provide that the equation sourced from Standish et al. (1985) complies with criteria 4.1.6(2)-(6), as set out above, or, if one or more of the criteria is not appropriate or necessary, of such.

Client Response: A more detailed description of the Standish biomass equations has been included in Section 3 or the Monitoring Report, including rationale for their use.

Auditor Response: The client has updated the monitoring report to include evidence that the use of the Standish biomass equations conform to the rules of the VCS Standard. The amendment to the monitoring

report is sufficient for resolving this issue.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.7 dated 10/15/2013

Standard Reference: VM0012 Methodology, Section 8.2.8

Document Reference: SCSDarkwoods plot data with updated inventory Aug 2012

Finding: The VM0012 Methodology requires that the project proponent use of specific equations for calculating dead organic matter.

The workbook titled "SCSDarkwoods plot data with updated inventory Aug 2012" contains incorrect cell references resulting in erroneous calculations for deadwood biomass in the current inventory and is therefore, not in conformance with the methodology.

Client Response: The errors in the calculation of tree biomass for the snag "S" condition have been located and fixed. In addition, the calculation of the model and project error terms associated with uncertainty factor have been updated in the spreadsheet and in the Monitoring Report (Section 4.5)

Auditor Response: As stated in the client response, the client has corrected the errors associated with the calculation of snag "S" in the inventory workbook. The audit team reviewed the changes and confirmed that the snag "S" calculations no longer contain calculation errors. In addition, the audit team was able to confirm the resulting differences in the overall calculation of plot carbon has been accounted for in the uncertainty calculations.

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.8 dated 10/15/2013

Standard Reference: VM0012 Methodology, pg. 75; VCS Standard v3.4, Section 3.1.5

Document Reference: NA

Finding: The Methodology requires the user to calculate the proportion of biomass removed by harvesting (fPRJ,HARVEST,i,t).

Additionally, Section 3.1.5 of the VCS Standard requires that "Where projects apply methodologies that permit the project proponent its own choice of third party default factor or standard to ascertain GHG emission data and any supporting data for establishing baseline scenarios and demonstrating additionality, such default factor or standard shall meet with the requirements set out in Section 4.1.7(1)." Section 4.1.7(1) requires that "Where the methodology uses third party default factors and/or standards, such default factors and standards shall meet with the requirements for data set out in Section 4.5.6,

mutatis mutandis." Section 4.5.6 of the VCS Standard provides nine different requirements."

The data and parameters monitored (fPRJ,HARVEST,i,t) includes a wood density factor of .4 in this calculation. Please provide evidence that the wood density factor from Gonzalez 1990 complies with the criteria of section 3.1.5 of the VCS Standard.

Client Response: A justification of the 0.4 kg m⁻³ average wood density value used in the calculation of harvested wood biomass has been added to the parameters to be monitored table (Table 4).

Auditor Response: The client has updated the monitoring report to include evidence that the use of the average wood density factor conforms to the rules of the VCS Standard. The amendment to the monitoring report is sufficient for resolving this issue.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.9 dated 10/15/2013

Standard Reference: VM0012 Methodology, Section 9.3.6

Document Reference: NA

Finding: The Methodology requires that "Projects must develop procedures to ensure proper entry of data and conversion between paper and electronic formats. Data anomalies will be resolved using the original field data, or re-measurement of data if feasible. If there are anomalies that cannot be resolved, the plot will be omitted from the analysis."

The Darkwoods PD includes QA/QC procedures for data entry; however, during office meetings on October 30-1, the audit team was informed that field data was provided to the project proponent from Timberland Consultants electronically. Additionally, the field data recorders used by Timberland Consultants were not provided to the project proponents creating a break in the chain of custody of data and is therefore not in conformance with the methodology.

Client Response: The handheld data recorders used by the field technicians run Excel on Windows Mobile. Data are provided directly to the data archivist for NCC (Touchstone GIS Services, Ltd) through a direct file transfer (a simple drag and drop into Excel on the PC). These data are then copied via Excel functions (highlight all records and copy and paste function) into the master plot data spreadsheet provided to the auditors (Darkwoods Plot data Aug 2012 v1.1.xlsx). By using common and reliable software and an automated electronic transfer process, the project data transfer process does not have a break in the data chain of custody - the data provided in the plot data spreadsheet are directly derived from the field data recorders without further handling or manipulation other than automated copy and paste functionality. Additionally, the original individual plot files are retained both by the inventory contractor Timberland and provided to NCC (Touchstone GIS).

Auditor Response: The process for transferring and archiving data, as described in the client response

is not an uncommon practice in conducting forest inventories. Furthermore, the fact that the general agreement between the project inventory data and the data collected by the audit team in the field, further supports the integrity of the system used during the most recent inventory effort by the project. It is the professional judgment of the audit team that the evidence provided in the client response, as well as the lack of anomalies between the project and audit team data provides a reasonable level of assurance that the project procedures ensure proper entry of data and conversion between paper and electronic formats.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.10 dated 02/10/2014

Standard Reference: VCS Standard v3.4 section 3.16.6

Document Reference: Darkwoods Monitoring Report, Section 3.3

Finding: The VCS Standard states "The project proponent shall use the VCS Monitoring Report Template and adhere to all instructional text within the template."

Additionally, Section 3.3 of the VCS Monitoring Report Template (v3.2) requires that the monitoring report:

- Describe the monitoring plan.
- Identify organizational structure, responsibilities and competencies.
- Describe methods for generating, recording, storing, aggregating, collating and reporting data on monitored parameters.
- Describe procedures for handling internal auditing and non-conformities.

The Darkwoods Monitoring Report does not include information regarding the organizational structure, responsibilities and competencies, methods for generating, recording, storing, aggregating, collating and reporting data on monitored parameters, or Describe procedures for handling internal auditing and non-conformities and is, therefore, not in conformance with the VCS Standard. Please update the Darkwoods monitoring report to include such information.

Client Response: The client response was provided outside the cover of this findings workbook.

Auditor Response: The Darkwoods Monitoring Report was updated to include information regarding the organizational structure, responsibilities and competencies, methods for generating, recording, storing, aggregating, collating and reporting data on monitored parameters, as well as information regarding procedures for handling internal auditing and non-conformities and is now conformance with the VCS Standard.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.11 dated 02/10/2014

Standard Reference: VCS Standard v3.4 section 3.16.6

Document Reference: Darkwoods Monitoring Report, Section 2.1

Finding: The VCS Standard states "The project proponent shall use the VCS Monitoring Report Template and adhere to all instructional text within the template."

Additionally, Section 2.1 of the VCS Monitoring Report Template (v3.2) requires that "for AFOLU projects, describe how leakage and non-permanence risk factors are being monitored and managed."

The Darkwoods Monitoring Report does not include information describing how leakage and non-permanence risk factors are being monitored and managed and is, therefore, not in conformance with the VCS Standard. Please update the monitoring report to include this information.

Client Response: The client response was provided outside the cover of this findings workbook.

Auditor Response: The Darkwoods Monitoring Report was updated to include information describing how leakage and non-permanence risk factors are being monitored and managed and is now in conformance with the VCS Standard.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.12 dated 02/10/2014

Standard Reference: VCS Registration and Issuance Process v3.5 Section 6.2.2

Document Reference: Darkwoods Monitoring Report, Section 4.4

Finding: The VCS Registration and Issuance Process states that "Release of buffer credits may only occur where a verification report (submitted to request VCU issuance) was issued at least five years after the issuance date of the verification report previously submitted to request VCU issuance. The first release of buffer credits shall be no sooner than five years after the first verification report was issued and presented to the registry for VCU issuance."

Table 17 of the Darkwoods Monitoring Report includes a release of buffer credits for emission year 2012, which is not consistent with the rules for the release of buffer credits as described in the VCS Registration and Issuance Process. Please update the monitoring report to address this issue.

Client Response: The client response was provided outside the cover of this findings workbook.

Auditor Response: The Darkwoods monitoring report was update to address the issue related to the release of buffer credits, as previously described in this finding and is no longer inconsistent with the rules

for the release of buffer credits as described in the VCS Registration and Issuance Process.

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.13 dated 02/10/2014

Standard Reference: VCS AFOLU Non-Permanence Risk Tool v3.2, Section 2.3.2

Document Reference: VCS Non-Permanence Risk Report (Short) - Darkwoods 2011-12 Verification, Section 2.2

Finding: VCS AFOLU Non-Permanence Risk Tool states that "To achieve the mitigation credit, it shall be demonstrated that a current participatory assessment of the positive and negative impacts of the project activities on the local communities who derive livelihoods from the project area has been completed and demonstrates net positive benefits on the social and economic well-being of these communities."

Whereas, the Darkwoods risk report claims that the "Darkwoods Project provides a net positive impact to the social and economic well-being of local communities in the surrounding project zone area," it also states that "As noted, there are no community members dependent on the Darkwoods property for their livelihoods." Please provide evidence the Darkwoods Project demonstrates net positive benefits on the social and economic well-being of local communities who derive livelihoods from the project area, or otherwise amend the risk report to address this mitigation score accordingly.

Client Response: The client response was provided outside the cover of this findings workbook.

Auditor Response: The Darkwoods Non-Permanence Risk Report was updated to remove the mitigation score previously referenced in this finding, therefore resolving this issue.

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.14 dated 02/10/2014

Standard Reference: VCS AFOLU Non-Permanence Risk Tool v3.2, Section 2.2.4

Document Reference: VCS Non-Permanence Risk Report (Short) - Darkwoods 2011-12 Verification, Sections 1.4 and 2.1

Finding: VCS AFOLU Non-Permanence Risk Tool states that a "Legal agreement or requirement to continue the management practice refers to any legally enforceable agreement or requirement, such as a conservation easement or protected area law that would require the continuation of the management practice that sequesters carbon or avoids emissions for the entire project longevity."

Additionally, the Darkwoods risk report claims the "Canadian Ecological Gifts Program is a legally binding agreement to continue conservation management on the property in perpetuity." Please provide evidence

that this program requires the Project to continue the management practices as defined in the Project Document.

Client Response: The client response was provided outside the cover of this findings workbook.

Auditor Response: The audit team was provided with evidence that the Canadian Ecological Gifts Certificate, held by the Project Proponents, is a legally binding agreement with the Canadian government to continue the project management practices in perpetuity.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.15 dated 02/10/2014

Standard Reference: VCS AFOLU Non-Permanence Risk Tool v3.2, Section 2.2.2

Document Reference: VCS Non-Permanence Risk Report (Short) - Darkwoods 2011-12 Verification, Sections 1.2

Finding: VCS AFOLU Non-Permanence Risk Tool allows a mitigation risk score of -2 in instances where a "Project has available as callable financial resources at least 50% of total cash out before project reaches breakeven."

Additionally, the Darkwoods risk report claims this risk score of -2, however, given that the project has already reached breakeven, no mitigation score can be claimed for this item of the risk tool. Please remove this mitigation score from the Darkwoods risk report.

Client Response: The client response was provided outside the cover of this findings workbook.

Auditor Response: The Darkwoods Non-Permanence Risk Report was updated to remove the mitigation score previously referenced in this finding, therefore resolving this issue.

Closing Remarks: The Client's response adequately addresses the finding.

APPENDIX B: NON-PERMANENCE RISK ASSESSMENT

In accordance with Section 3.7.3 of the AFOLU Requirements, the project's non-permanence risk report was assessed by the audit team. The non-permanence risk report upon which the risk analysis assessment was based is contained within the risk report (Version 1.0, dated 12 September 2013). The findings and conclusion regarding the non-permanence risk analysis undertaken for the project are summarized below for each risk category and factor. Unless noted otherwise, the audit team agrees with the conclusion stated in the non-permanence risk report.

The findings of the audit team regarding the risk scores applied for each factor are as follows.

Project Management		
Risk Factor	Verification Findings	Risk Rating
a)	The audit team was able to confirm through interviews with project personnel, as well as with a local expert, familiar with the project area that no non-native species are used in the project. Furthermore, no non-native species were encountered by the audit team while on site.	0
b)	The audit team interviewed local experts and confirmed that illegal logging is not an issue in the British Columbia Region of Canada. Utilizing a web based review; the audit team was able to confirm that all timber in Canada is required by law to have a mark unique to the property (http://www.for.gov.bc.ca/hth/private-timber-marks.htm - accessed 7 November 2013). It is the professional judgment of the audit team that ongoing enforcement is not required to protect previously issued GHG emission reductions or removals.	0
c)	The audit team was able to confirm, through interviews with project personnel and review of the control systems associated with the delivery of GHG information, that the management team includes individuals with significant experience in each of the skills required for effective project implementation. The management team has successfully managed the Darkwoods project through validation and verification. As SCS was engaged to perform the validation audit, the audit team can confirm that project personnel are highly competent, with a wealth of experience in forest management, GHG accounting and social projects.	0
d)	The audit team can confirm that the project proponent operates an office in Nelson, BC which is approximately a 30 minute drive from the project area. Moreover, NCC has offices in both Vancouver and Victoria, both of which are less than a day's travel.	0

e)	The audit team can affirm that the management team includes individuals that have already guided the project through successful validation and verification of the project under the VCS Program. In addition, project personnel have successfully developed and implemented the VCS methodology VM0012.	-2
f)	The audit team agrees that an adaptive management plan is in place. This plan is contained within the Darkwoods Conservation Area Property Management Plan 2011-2016. The plan was developed around an adaptive management framework and is consistent with feedback received by the audit team from project stakeholders.	-2
Total Project Management (PM) [as applicable, (a + b + c + d + e + f)]		-4
Total may be less than zero.		

Financial Viability		
Risk Factor	Verification Findings	Risk Rating
a)	During meetings via Skype, the audit team was provided a detailed description of the costs and expenditures associated with the project. The audit team was also presented with a spreadsheet documenting the projected expenditures and revenue streams for the project. The audit team reviewed a sample of invoices in order to determine the costs of project activities. In addition, the audit team was provided with evidence of past carbon sales. The audit team was able to confirm, based on the evidence provided, that the project has already reached breakeven.	0
b)		
c)		
d)		
e)	The audit team was provided with evidence that the project has created an endowment to fund the project in perpetuity. This endowment has been created through the sale of Verified Carbon Units (see above) and supports the claims in by the project proponents that the project has already reached breakeven.	0
f)		
g)		
h)		
i)	The project has already reached breakeven, therefore this mitigation item is no longer applicable.	0
Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)]		0

Total may not be less than zero.	
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Opportunity Cost		
Risk Factor	Verification Findings	Risk Rating
a)	During meetings via Skype, the audit team was provided with a detailed description of the NPV analysis for the baseline and project scenarios. The initial timber valuation of the project area was performed by a reputable Canadian firm (Thrower 2004) ⁴ . The audit team was able to confirm that, while timber markets are highly variable, a discount rate of approximately 6-7% is not outside the current range of variability within similar forest types. It is the professional understanding of the audit team that, based on the most conservative estimates of carbon sales, the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities. Finally, the audit team confirmed that the discount values used for the analysis were based on published sources and that the analysis was performed in a transparent manner, including all relevant assumptions, parameters, and data sources such that a reader may reproduce the analysis and determine the same results.	0
b)		
c)		
d)		
e)		
f)		
g)	The audit team can confirm that the project proponent is a not-for-profit organization.	0
h)	The audit team was presented with a legally binding agreement as required for the mitigation risk score. The audit team was provided with evidence that the Darkwoods property is taking part in the Canadian Ecological Gifts Program which requires the project continue management practices that protect the credited carbon stocks over the length of the project crediting period.	-2
i)	The audit team was presented with a legally binding agreement as required for the mitigation risk score. The audit team was provided with evidence that the Darkwoods property is taking part in the Canadian Ecological Gifts Program which requires the project to continue management practices that protect the credited carbon stocks in perpetuity. The audit team confirmed that the Canadian Ecological Gifts Program is a legal agreement with the Canadian	-8

⁴ *Appraisal of Timber Value on Darkwoods Forest Property* performed by Thrower and Associates prior to the purchase of the Darkwoods property.

	government that requires the conservation of the lands (left intact), as defined in the program certificate (in this case the project area), that would otherwise be harvested in the absence of the agreement.	
Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g or h)]		0
Total may not be less than 0.		

Project Longevity		
Risk Factor	Verification Findings	Risk Rating
a)	As discussed with respect to items (h) and (i) of the opportunity cost sub-category, the audit team can confirm that the concession contracts constitute a legal agreement to continue the management practice for over 100 years. As required by the Canadian Ecological Gifts Program, the management activities must be continued in perpetuity. The audit team confirmed that the Canadian Ecological Gifts Program is a legal agreement with the Canadian government that requires the conservation of the lands (left intact), as defined in the program certificate (in this case the project area), that would otherwise be harvested in the absence of the agreement.	0
b)		
Total Project Longevity (PL)		0
May not be less than zero		

Land Ownership and Resource Access/Use Rights		
Risk Factor	Verification Findings	Risk Rating
a)	The audit team agrees that the ownership and resource access/use rights are held by the same entity. The audit team found no evidence to consider that any ownership changes have occurred since the last verification. Interviews while onsite, as well as signage and locked gates provided further evidence that NCC is still the owner in fee of the Darkwoods property.	0
b)		
c)	The audit team can confirm, through ownership documents reviewed during the initial verification (also performed by SCS) that NCC are the simple fee owners of the Darkwoods property and therefore no disputes exist within the project area.	0
d)	The audit team agrees with the claims made by the project proponents that no disputes exist over access or use rights. The audit team interviewed local	0

	loggers who confirmed that thoroughfare agreements are honoured, as was also evidenced by access to locked gates.	
e)	Not applicable, as this is not a WRC project.	0
f)	As discussed with respect to items (h) and (i) of the opportunity cost sub-category, the audit team can confirm that the Canadian Ecological Gifts contract constitutes a legal agreement to continue the management practice for over 100 years. As required by the Canadian Ecological Gifts, the management activities must be continued in perpetuity.	-2
g)	As no overlapping or disputed access/use rights currently exist, this item is not applicable to the project.	0
Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e+ f)]		0
Total may not be less than zero.		

Community Engagement		
Risk Factor	Verification Findings	Risk Rating
a)	The audit team can confirm that there are no communities living within the project area.	0
b)	Through interviews while on site, the audit team was able to confirm that there are no households within 20km of the project area who are reliant on the project area.	0
c)	No communities are reliant on the project area for their livelihoods; therefore this mitigation item is not applicable to the project.	0
Total Community Engagement (CE) [where applicable, (a+b+c)]		0
Total may be less than zero.		

Political Risk		
Risk Factor	Verification Findings	Risk Rating
a)	Through an independent analysis of governance data for Canada from the years 2007-2011 (the last five years of available data at the time of the assessment), the audit team was able to confirm the calculation of the governance score indicated in the risk report.	0
b)		
c)		
d)		
e)		
f)	Since Canada does not meet any of the listed criteria for implanting REDD+ Readiness, this item is not applicable to the project.	0
Total Political (PC) [as applicable ((a, b, c, d or e) + f)]		0
Total may not be less than zero.		

Natural Risk		
Risk Factor	Verification Findings	Risk Rating
F	Project personnel provided the audit team with a study by the B.C. Ministry of Forestry estimating the historical frequency and severity of natural disturbance in the region where the project is located. The audit team confirmed that based on the literature provided, the risk score claimed by the project is conservative with respect to historical events in the region for fire. Given the proximity to communities, the region has a history of successful fire protection. The audit team can confirm that the project areas contains an extensive road network necessary for fire protection, as well as that the project has management in place to remove high fire risk areas from the project area (salvage logging). While on site the audit team saw evidence of fire in which the areas had fully recovered.	.5
PD	As stated above, project personnel provided the audit team with a study by the B.C. Ministry of Forestry estimating the historical frequency and severity of natural disturbance in the region where the project is located. The audit team confirmed that based on the literature provided, the risk score claimed by the project is conservative with respect to historical events in the region for pest and	.5

	disease. While on site, the audit team was able to confirm that the project area is comprised of diverse forest conditions which present natural resistance to pests and disease. In addition, the audit team was able to confirm that management is in place to harvest affected stands, as well as having monitoring systems in place to address incidents before they result in outbreaks or infestations.	
W	As stated above, project personnel provided the audit team with a study by the B.C. Ministry of Forestry estimating the historical frequency and severity of natural disturbance in the region where the project is located. The audit team confirmed that based on the literature provided, the risk score claimed by the project is conservative with respect to historical events in the region for extreme weather events. While drought, flooding, and wind events, occur annually, the location and terrain of the project area result in relatively insignificant impacts to carbon stocks. The audit team can confirm that monitoring systems are in place to account for any damage that may occur as a result of weather events and current modelling is set up to account for such losses.	.5
G	The audit team agrees that the risk of landslides in the project area is low. The audit team also agrees that the risk of other geological hazards is not applicable to the project area.	0
Total Natural Risk (as applicable, F + PD + W + G + ON)		1.5

In summary, the overall risk rating that was determined for the project, in accordance with the VCS Non-Permanence Risk Tool, is 10%. The audit team has concluded that the above risk rating is in conformance with the VCS rules.

Thus, the audit team can confirm that 83,637 buffer credits, as calculated using the guidance provided in Equation 59 of the VCS VM0012 Methodology, should be deposited into the AFOLU pooled buffer account.

APPENDIX C: MARKET LEAKAGE ASSESSMENT

In accordance with Section 3.6.4 of the AFOLU Requirements, the quantity of market leakage caused by the project was assessed at verification.

Section 8.3.2 of the VCS VM0012 Methodology allows two options for quantifying leakage for instances in which a project significantly reduces the production of a commodity causing a change in the supply and market demand equilibrium that results in a shift of production elsewhere to make up for the lost supply. The audit team confirmed that the project appropriately applied Option 2 under Section 8.3.4 of the VCS VM0012 Methodology.

In summary, the total quantity of market leakage emissions is estimated to be 84,441 tCO₂e over the monitoring period. The audit team has concluded that the reporting of market leakage emissions is in conformance with the VCS rules and the methodology.