

| <b>U.S. FOREST OFFSET PROJECT DATA REPORT</b><br><b>INITIAL REPORTING PERIOD - IMPROVED FOREST MANAGEMENT</b>                                                                                                                                                                                                                                              |                       |                                                    |                             |                                                       |                                                                                       |
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| <b>OPR Staff Use Only</b>                                                                                                                                                                                                                                                                                                                                  | Date Report Received: | OPR Tracking Number:                               | Date Report Reviewed:       | <b>OPR Staff Use Only</b>                             |                                                                                       |
| Entities submitting the project's first Offset Project Data Report must submit the information requested in both <b>Initial Reporting Period</b> and the <b>Annual Reporting</b> forms to the appropriate Offset Project Registry. For every reporting year thereafter, submit only the information requested in the Annual Reporting form.                |                       |                                                    |                             |                                                       |                                                                                       |
| <b>PART I. ENTITY SUBMITTING REPORT</b>                                                                                                                                                                                                                                                                                                                    |                       |                                                    |                             |                                                       |                                                                                       |
| Is this form being submitted by the Offset Project Operator (OPO) or by the Authorized Project Designee (APD)? <i>Note: The person completing this form should be an OPO/APD employee.</i>                                                                                                                                                                 |                       |                                                    |                             |                                                       | <input checked="" type="checkbox"/> <b>OPO</b><br><input type="checkbox"/> <b>APD</b> |
| Report Version Number:<br>5.1.1.2                                                                                                                                                                                                                                                                                                                          |                       | Date Report Completed:<br>7/30/2025                |                             | Date Report Submitted:<br>8/5/2025                    |                                                                                       |
| Person Completing Report:<br>Emily Warms                                                                                                                                                                                                                                                                                                                   |                       | Phone Number:<br>(415) 321-3300                    |                             | Email Address:<br>carbon@newforests.com               |                                                                                       |
| <b>PART II. OFFSET PROJECT INFORMATION</b>                                                                                                                                                                                                                                                                                                                 |                       |                                                    |                             |                                                       |                                                                                       |
| Offset Project Name:<br>Klamath Forest Carbon Project                                                                                                                                                                                                                                                                                                      |                       |                                                    | OPR Project ID#:<br>CAR1614 |                                                       | ARB Project ID# (if known):<br>CAFR6614                                               |
| Offset Project Commencement Date:<br>July 1, 2022                                                                                                                                                                                                                                                                                                          |                       | First Reporting Period Start Date:<br>July 1, 2022 |                             | First Reporting Period End Date:<br>December 31, 2023 |                                                                                       |
| Provide an explanation and justification for the commencement date. Specify the action(s) that identify the offset project commencement date.<br>The date on which the Project was submitted for listing denotes the Project's commencement date.<br>Optional: Provide the nearest town/city to the Project Area:                                          |                       |                                                    |                             |                                                       |                                                                                       |
| <b>PART III. OPO / APD INFORMATION</b>                                                                                                                                                                                                                                                                                                                     |                       |                                                    |                             |                                                       |                                                                                       |
| <b>A. OPO</b>                                                                                                                                                                                                                                                                                                                                              |                       |                                                    |                             |                                                       |                                                                                       |
| OPO Name:<br>Acer Klamath Forest, LLC                                                                                                                                                                                                                                                                                                                      |                       |                                                    |                             | OPO's CITSS ID#:<br>CA 3360                           |                                                                                       |
| Mailing Address:<br>580 California Street, Ste 1210                                                                                                                                                                                                                                                                                                        |                       |                                                    | City:<br>San Francisco      |                                                       | State: Zip:<br>CA 94104                                                               |
| Contact Person:<br>JD Marshall                                                                                                                                                                                                                                                                                                                             |                       | Phone Number:<br>(415) 321-3300                    |                             | Email Address:<br>carbon@newforests.com               |                                                                                       |
| <b>B. APD (if applicable)</b>                                                                                                                                                                                                                                                                                                                              |                       |                                                    |                             |                                                       | <input checked="" type="checkbox"/> <b>No APD / Not Applicable</b>                    |
| APD Name:                                                                                                                                                                                                                                                                                                                                                  |                       |                                                    |                             | APD's CITSS ID#:<br>CA _ _ _                          |                                                                                       |
| Mailing Address:                                                                                                                                                                                                                                                                                                                                           |                       |                                                    | City:                       |                                                       | State: Zip:                                                                           |
| Contact Person:                                                                                                                                                                                                                                                                                                                                            |                       | Phone Number:                                      |                             | Email Address:                                        |                                                                                       |
| <b>PART IV. LAND OWNERSHIP</b>                                                                                                                                                                                                                                                                                                                             |                       |                                                    |                             |                                                       |                                                                                       |
| <b>A. Is the Offset Project Operator (OPO) the owner in fee for the Project Area?</b><br>Further documentation is required for all projects. Submit as attachment labeled "Attachment A." See Part X of this OPDR document for more information.<br>If "no," explain how the entity identified as the OPO has the right to undertake and list the project. |                       |                                                    |                             |                                                       | <input checked="" type="checkbox"/> <b>Yes</b><br><input type="checkbox"/> <b>No</b>  |

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| <p><b>B. Optional:</b> List all Forest Owners. This includes owners in fee as well as third parties with existing property interests within the Project Area that affect the trees and standing timber located in the Project Area (e.g. mineral rights, timber rights, easements, rights of way, leases, etc.).</p> <p>Acer Klamath Forest, LLC (AKF) is the single owner in fee of the real property which is enrolled in the carbon project. AKF is the Offset Project Operator and holds the legal rights for implementation of the project.</p>                                                                                                                                                                                                                                                                                                                                       |                                                                        |                                                                                              |
| <p><b>C. Does the offset project occur on public or private lands?</b><br/> <i>If the project occurs on public lands, proceed to questions C1 and C2. Otherwise, skip to question D. Further documentation is required if project occurs on public lands. Submit copies of documentation demonstrating explicit approval of the project's management activities and baseline, as well as the public vetting process used; attachment should be labeled "Attachment B." See Part X of this document for more information.</i></p>                                                                                                                                                                                                                                                                                                                                                           |                                                                        | <input checked="" type="checkbox"/> <b>Private</b><br><input type="checkbox"/> <b>Public</b> |
| <p><b>1. Describe the public process that was used to evaluate the forest management activities and policy decisions concerning the offset project.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                        |                                                                                              |
| <p><b>2. Describe the explicit approval process used by the public entity to initiate and maintain this offset project, including the offset project's management activities and baseline.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                        |                                                                                              |
| <p><b>D. Does the project employ a Qualified Conservation Easement (QCE)?</b><br/> <i>If employing a QCE, proceed to questions D1, D2, and D3. Otherwise, skip to question E. Supporting documentation for a QCE is required. Submit as attachment labeled "Attachment C." See Part X of this document for more information.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                        | <input type="checkbox"/> <b>QCE</b><br><input type="checkbox"/> <b>Public Ownership</b>      |
| <p><b>1. Date that the QCE was recorded.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                        |                                                                                              |
| <p><b>2. Optional:</b> Is the project located in a state that requires third-party beneficiaries to sign the easement (i.e., to "accept and record that acceptance"), such as Arizona, Pennsylvania, or West Virginia?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                        | <input type="checkbox"/> <b>Yes</b><br><input type="checkbox"/> <b>No</b>                    |
| <p><b>3. Provide the terms within the easement that affect forest management.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                        |                                                                                              |
| <p><b>E. Does the offset project occur on any of the following categories of land?</b> (check all that apply)</p> <p> <input type="checkbox"/> Land that is owned by, or subject to, an ownership of possessory interest of a Tribe<br/> <input type="checkbox"/> Land that is "Indian lands" of a Tribe as defined by 25 U.S.C. §81(a)(1)<br/> <input type="checkbox"/> Land that is owned by any person, entity, or Tribe, within the external borders of such Indian lands<br/> <input checked="" type="checkbox"/> <b>None of the above</b> </p> <p><i>If "none of the above," skip to Part V. Otherwise, proceed to Optional questions E1 and E2. Further documentation is required for projects occurring on land listed in the first three categories. Submit supporting documents as attachments labeled "Attachment D." See Part X of this document for more information.</i></p> |                                                                        |                                                                                              |
| <p><b>1. Optional:</b> Does a limited waiver of sovereign immunity between ARB and the governing body of the Tribe exist?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                        | <input type="checkbox"/> <b>Yes</b><br><input type="checkbox"/> <b>No</b>                    |
| <p><b>2. Optional:</b> Provide a description of land ownership within the Project Area.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                        |                                                                                              |
| <p><b>PART V. OFFSET PROJECT AREA</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                        |                                                                                              |
| <p><b>Maps depicting specific elements of the Project Area are required for all projects.</b><br/> <i>Submit supporting documentation as attachments labeled "Attachment E." See Part X of this document for more information.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                        |                                                                                              |
| <p><b>Latitude of Offset Project Location:</b><br/>See Addendum V</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p><b>Longitude of Offset Project Location:</b><br/>See Addendum V</p> | <p><b>Project Area Total Acreage:</b><br/>188,556.73</p>                                     |
| <p><b>A. Identify the assessment area (or assessment areas, if project crosses more than one) that contain Project Area lands and list the acreage of project lands within each assessment area.</b><br/>See Addendum to Initial OPDR V.A.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                        |                                                                                              |
| <p><b>B. Identify and describe the governing jurisdiction(s) applicable to the Project Area.</b><br/>See Addendum to Initial OPDR V.B.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                        |                                                                                              |
| <p><b>C. Describe how the Project Area was determined.</b><br/>See Addendum to Initial OPDR V.C.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                        |                                                                                              |
| <p><b>D. Describe the existing land cover, and land use of the Project Area.</b><br/>See Addendum to Initial OPDR V.D.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                        |                                                                                              |
| <p><b>E. Describe the forest vegetation types within the Project Area boundary.</b><br/>See Addendum to Initial OPDR V.E.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                        |                                                                                              |

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| <b>F. Describe the site classes within the Project Area boundary.</b><br>See Addendum to Initial OPDR V.F.                                                                                                                                                                                                                                                                                                                     |                                                                                             |
| <b>G. Describe the land pressures and climate zone /classification applicable to the Project Area.</b><br>See Addendum to Initial OPDR V.G.                                                                                                                                                                                                                                                                                    |                                                                                             |
| <b>H. Describe the historical land uses, current zoning, and projected land use within the Project Area and surrounding areas.</b><br>See Addendum to Initial OPDR V.H.                                                                                                                                                                                                                                                        |                                                                                             |
| <b>I. Describe the forest conditions within the Project Area, including species composition, age class distribution, and management history.</b><br>See Addendum to Initial OPDR V.I.                                                                                                                                                                                                                                          |                                                                                             |
| <b>PART VI. OFFSET PROJECT ELIGIBILITY</b>                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                             |
| <b>A. Does the Project Area have a canopy cover that is greater than 10 percent?</b><br><i>Supporting documentation is required. Submit as attachment labeled "Attachment F." See Part X of this document for more information.</i><br>See Addendum to Initial OPDR VI.A.                                                                                                                                                      | <input checked="checked" type="checkbox"/> <b>Yes</b><br><input type="checkbox"/> <b>No</b> |
| <b>B. Optional:</b> Are the associated project lands currently in compliance with all local, state, and federal regulatory requirements?                                                                                                                                                                                                                                                                                       | <input checked="checked" type="checkbox"/> <b>Yes</b><br><input type="checkbox"/> <b>No</b> |
| <b>Optional:</b> If no, provide an explanation of the non-compliance.                                                                                                                                                                                                                                                                                                                                                          |                                                                                             |
| <b>C. Does the entity submitting this report declare that the offset project <u>has not</u> and <u>does not</u> employ broadcast fertilization?</b>                                                                                                                                                                                                                                                                            | <input checked="checked" type="checkbox"/> <b>Yes</b><br><input type="checkbox"/> <b>No</b> |
| <b>D. Indicate how the offset project meets the definition of Natural Forest Management per Table 3.2 in the U.S. Forest protocol:</b>                                                                                                                                                                                                                                                                                         |                                                                                             |
| <b>1. Native species:</b>                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                             |
| <b>a) Does the project consist of at least 95 % native species based on the estimated sum of carbon in the standing live carbon pool? Improved Forest Management Projects are assessed using estimates of basal area per acre.</b><br><i>If "no," proceed to question 1b. Otherwise, skip to question D2.</i>                                                                                                                  | <input checked="checked" type="checkbox"/> <b>Yes</b><br><input type="checkbox"/> <b>No</b> |
| <b>b) Describe how the project will meet this requirement.</b>                                                                                                                                                                                                                                                                                                                                                                 |                                                                                             |
| <b>2. Composition of native species:</b>                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                             |
| <b>a) Does the Project Area naturally consist of a mixed species distribution where no single species' prevalence, measured as the percent of basal area of all live trees in the Project Area, exceeds the percentage value of standing live carbon shown under the heading 'Species Diversity Index' in the Assessment Area Data File?</b><br><i>If "no," proceed to questions 2b and 2c. Otherwise skip to question D3.</i> | <input checked="checked" type="checkbox"/> <b>Yes</b><br><input type="checkbox"/> <b>No</b> |
| <b>b) Explain how the project will demonstrate a trend toward achieving the Species Diversity Index of native species and meet this requirement within 25 years.</b>                                                                                                                                                                                                                                                           |                                                                                             |
| <b>c) If the Project Area does not naturally consist of a mixed species distribution: Will or have you provided a written statement from the government agency in charge of forestry regulation in the state where the project is located stipulating that the Project site is not capable of meeting the requirement of mixed species distribution?</b>                                                                       | <input type="checkbox"/> <b>Yes</b><br><input type="checkbox"/> <b>No</b>                   |
| <b>3. Distribution of age classes/sustainable management:</b>                                                                                                                                                                                                                                                                                                                                                                  |                                                                                             |
| <b>a) Indicate how the project will meet the requirement for sustainable management if regeneration or commercial harvesting is either planned or initiated within the Project Area demonstrating sustainable long-term harvesting practices. This applies to all forest landholdings of the Forest Owner(s)</b><br>(check one of the boxes).                                                                                  |                                                                                             |
| <input type="checkbox"/> <b>Not applicable; no commercial harvesting is occurring within the Project Area.</b>                                                                                                                                                                                                                                                                                                                 |                                                                                             |
| <input checked="checked" type="checkbox"/> <b>Third party certification under the Forest Stewardship Council, Sustainable Forestry Initiative, or Tree Farm System, whose certification standards require adherence to and verification of harvest levels which can be permanently sustained over time.</b>                                                                                                                    |                                                                                             |
| <input checked="checked" type="checkbox"/> <b>Adherence to a renewable long-term management plan that demonstrates harvest levels which can be permanently sustained over time and that is sanctioned and monitored by a state or federal agency.</b>                                                                                                                                                                          |                                                                                             |
| <input type="checkbox"/> <b>Employ uneven-aged silvicultural practices and maintain canopy retention averaging at least 40 % across the forest, as measured on any 20 acres within the entire forestland owned by the Forest Owner, including land within and outside of the Project Area (areas impacted by Significant Disturbance may be excluded from this test).</b>                                                      |                                                                                             |

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| <p><b>b) On a watershed scale up to 10,000 acres (or the Project Area, whichever is smaller), projects must maintain, or make progress toward maintaining, a maximum of 40% of the project's forest lands in ages that are less than 20 years old. (Areas impacted by Significant Disturbance are exempt from this test until 20 years after reforestation of such areas.) Does the acreage within this project meet this requirement?</b><br/> <i>If "no," proceed to question 3c. Otherwise, skip to question D4.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No |
| <p><b>c) If the project does not meet the age class requirement at this time, explain how the project intends to demonstrate progress to meet this requirement over time; such that forest lands in ages less than 20 years old are reduced and make up no more than 40% of the Project Area.</b><br/>         See Addendum to Initial OPDR VI.D.3.b</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                        |
| <p><b>4. Structural elements (standing and lying dead wood):</b><br/>         How does the project ensure that structural elements are retained in sufficient quantities throughout the project life?<br/>         See Addendum to Initial OPDR VI.D.4.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                        |
| <p><b>E. Describe the management activities that will result in increased carbon stocks in the Project Area, compared to the baseline.</b><br/>         See Addendum to Initial OPDR VI.E.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                        |
| <p><b>F. Is this project being implemented and conducted as the result of any law, statute, regulation, court order, or other legally binding mandate?</b><br/>         If "yes," explain:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No |
| <p><b>G. Does the offset project take place on land that was part of a previously listed and registered Forest Offset Project?</b><br/> <i>This question is applicable to both voluntary and compliance markets. If "yes" proceed to questions G1 and G2. Otherwise, skip to Part VII.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No |
| <p><b>1. Optional:</b> Was the previous Forest Offset Project terminated due to an Unintentional Reversal?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No |
| <p><b>2. Optional:</b> Has this project transitioned to the Compliance Offset Protocol U.S. Forest Projects after previously being listed as an early action offset project?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No |
| <b>PART VII. CARBON STOCK INVENTORY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                        |
| <p><b>A. Provide a description of the inventory methodology used to quantify carbon stocks for each required carbon pool in the forest project's offset boundary. The inventory methodology must describe the information required in Appendix A.3 of either the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 or the Compliance Offset Protocol U.S. Forest Projects, November 14, 2014.</b><br/> <b>IFM-1 Standing Live:</b><br/>         See Addendum to Initial OPDR VII.A.<br/> <b>IFM-3 Standing Dead:</b><br/>         See Addendum to Initial OPDR VII.A.<br/> <b>IFM-6 Soil (if applicable):</b><br/>         See Addendum to Initial OPDR VII.A.<br/> <b>IFM-7 Carbon in in-use forest products:</b><br/>         See Addendum to Initial OPDR VII.A.<br/> <b>IFM-8 Forest product carbon in landfills (if applicable):</b><br/>         See Addendum to Initial OPDR VII.A.<br/> <b>IFM- 9 Biological emissions from site preparation:</b><br/>         See Addendum to Initial OPDR VII.A.<br/> <b>IFM-14 Biological emissions/removals from change in harvesting on forestland outside project area:</b><br/>         See Addendum to Initial OPDR VII.A.<br/> <b>IFM-17 Biological emissions from decomposition of forest products:</b><br/>         See Addendum to Initial OPDR VII.A.</p> |                                                                        |
| <p><b>B. Describe the calculation methodologies used to determine metric tons per acre for each of the carbon pools included in the Offset Project Data Report.</b><br/> <b>IFM-1 Standing Live:</b><br/>         See Addendum to Initial OPDR VII.B.<br/> <b>IFM-3 Standing Dead:</b><br/>         See Addendum to Initial OPDR VII.B.<br/> <b>IFM-6 Soil (if applicable):</b><br/>         See Addendum to Initial OPDR VII.B.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                        |

**IFM-7 Carbon in in-use forest products:**

See Addendum to Initial OPDR VII.B.

**IFM-8 Forest product carbon in landfills (if applicable):**

See Addendum to Initial OPDR VII.B.

**IFM- 9 Biological emissions from site preparation:**

See Addendum to Initial OPDR VII.B.

**IFM-14 Biological emissions/removals from change in harvesting on forestland outside project area:**

See Addendum to Initial OPDR VII.B.

**IFM-17 Biological emissions from decomposition of forest products:**

See Addendum to Initial OPDR VII.B.

**C. Provide a summary of the inventory of carbon stocks for each carbon pool (or approach used, if inventory is not applicable).**

**IFM-1 Standing Live:**

See Addendum to Initial OPDR VII.C.

**IFM-3 Standing Dead:**

See Addendum to Initial OPDR VII.C.

**IFM-6 Soil (if applicable):**

See Addendum to Initial OPDR VII.C.

**IFM-7 Carbon in in-use forest products:**

See Addendum to Initial OPDR VII.C.

**IFM-8 Forest product carbon in landfills (if applicable):**

See Addendum to Initial OPDR VII.C.

**IFM- 9 Biological emissions from site preparation:**

See Addendum to Initial OPDR VII.C.

**IFM-14 Biological emissions/removals from change in harvesting on forestland outside project area:**

See Addendum to Initial OPDR VII.C.

**IFM-17 Biological emissions from decomposition of forest products:**

See Addendum to Initial OPDR VII.C.

**D. Provide a summary of inventory confidence statistics.**

See Addendum to Initial OPDR VII.D.

**E. Provide the calculation of the offset project's reversal risk rating and contribution to the Forest Buffer Account.**

See Addendum to Initial OPDR VII.E.

**PART VIII. OFFSET PROJECT BASELINE**

**A. Required for ALL Improved Forest Management Projects**

**1. Describe the project's modeling plan, following the requirements and methods in Appendix B, Section B.3 of the U.S. Forest protocol.**

Please see the Modeling Plan included as Attachment M.

**2. Describe and estimate the project's baseline onsite carbon stocks. Explain any annual changes in baseline carbon stocks over time.**

*A graph of the baseline onsite carbon stocks, labeled "Attachment G," must be portrayed depicting time on the x-axis and metric tons CO<sub>2</sub>-e on the y-axis. Include a written characterization describing any annual change in baseline carbon stocks over time. See Part X of this document for more information. A diagram of the baseline incorporating all required carbon stocks, labeled "Attachment H," is also required.*

Please see the Modeling Plan included as Attachment M.

**3. Optional:** Identify the approved growth model that will be used for the project.

Forest Vegetaion Simulator (FVS)

**4. Harvest Planning**

**a. Is harvesting planned in the Project Area?**

If "yes," proceed to question 4b. Otherwise, skip to question A5.

☒ Yes  
☐ No

**b. Optional:** Does the project use a harvest schedule model?

If "yes," proceed to question 4c. Otherwise, skip to question A5.

☒ Yes  
☐ No

**c. Optional:** Explain how you are addressing age class and stratification as part of your harvest scheduling?

Please see Addendum to Initial OPDR VIII.A.4.c

**5. Provide an estimate of carbon that will be stored long-term in harvested wood products in the baseline.**

See Addendum to Initial OPDR VIII.A.5.

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| <b>6. Provide a projection of baseline and actual harvesting volumes from the Project Area over 100 years.</b><br><i>A projection may be provided in an attachment, labeled "Attachment I". Include a narrative with a clear explanation of how the OPO/APD arrived at the baseline and actual harvest volumes is determined</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                            |
| <b>B. Required for Improved Forest Management Projects on <u>Private Lands ONLY</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                            |
| <b>1. Provide the initial above ground standing live carbon stock (per acre) for the project.</b><br>79.24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                            |
| <b>2. Provide the Common Practice statistic (per acre) associated with the Project Area.</b><br>109.81                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                            |
| <b>3. Summarize how the Project's initial above-ground standing live carbon stock compares to Common Practice.</b><br>At the Project's commencement date, the Project's initial above-ground standing live carbon stocks were below the Common Practice statistic listed above.<br><b>Are the initial above-ground standing live carbon stocks above or below Common Practice?</b><br><br><b>If below Common Practice, what is the High Stocking Reference for the Project Area? Describe the Project Area's live tree carbon stocks over the previous 10 years.</b><br><i>Further documentation is required if project is below Common Practice. Submit supporting documents as attachments labeled "Attachment J." See Part X of this document for more information. An affidavit must be submitted testifying that the inventory depicted over the past 10 years is reasonably accurate.</i><br>See Addendum to Initial OPDR VIII.B.3 | <input type="checkbox"/> Above<br><input checked="" type="checkbox"/> Below                                |
| <b>4. Optional:</b> Does the Forest Owner(s) and its affiliate(s) own land in fee or hold timber rights on land outside the Project Area?<br>If "no," skip to question B.5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No                                     |
| <b>Optional:</b> If "yes" does the Protocol require the use of a weighted average carbon stock on lands in the same Logical Management Unit (LMU, as defined in Section 6.2.1.1)?<br>If "no," skip to question B.5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No                                     |
| <b>Optional:</b> If "yes," is inventory data available for the LMU or will the OPO use a stratified vegetation analysis?<br>If "no," skip to question B.5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> Data available for LMU<br><input type="checkbox"/> Stratified Vegetation Analysis |
| <b>Optional:</b> Identify the Minimum Baseline Level for above-ground standing live carbon stocks for the Project Area:<br>See Addendum to Initial OPDR VIII.B.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                            |
| <b>5. Provide a description of any and all legal constraints affecting forest management activities in the Project Area. Include documentation of legal constraints and a description of each constraint (referring to Section 6.2.1.2); for each constraint provide a narrative that constraint has on forest management.</b><br><i>Submit supporting documents as attachment labeled "Attachment K". See Part X of this reporting document for more information.</i><br>This information is contained in the Modeling plan included as Attachment M.                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                            |
| <b>6. Provide a description of the modeling techniques used to simulate the effect of any constraints on carbon stocks.</b><br>This information is contained in the Modeling plan included as Attachment M.<br><b>Optional:</b> Provide a description of the modeling techniques used to simulate forest management activities that may affect carbon stocks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                            |
| <b>7. How does the OPO demonstrate financial feasibility of the growth and harvesting regime assumed for the baseline?</b> (check one of the boxes)<br><input checked="" type="checkbox"/> Conducting a financial analysis of the anticipated growth and harvesting regime that captures all relevant costs and returns, taking into consideration all legal, physical, and biological constraints, using regional norms or documented costs and returns for the project area or other properties in the Forest Project's Assessment Area<br><input type="checkbox"/> Providing evidence that activities similar to the proposed baseline growth and harvesting regime have taken place on other properties within the Forest Project's Assessment Area within the past 15 years<br><i>Supporting documentation is required. Submit as attachment labeled "Attachment L." See Part X of this listing document for more information.</i>  |                                                                                                            |
| <b>C. Required for Improved Forest Management Projects on <u>Public Lands ONLY</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                            |
| <b>1. Provide a projection of future changes to Project Area forest carbon stocks extrapolating from historical trends.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                            |
| <b>2. Explain how current public policy affects onsite carbon stocks and how the baseline modeling incorporates constraints imposed by all applicable statutes, regulations, policies, plans, and activity-based funding.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                            |
| <b>3. Have carbon stocks in the Project Area been increasing or declining over the preceding ten-year period?</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> Increasing<br><input type="checkbox"/> Declining                                  |

**PART IX. OTHER OFFSET PROGRAMS**

|                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                        |                    |                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------|----------------------------------|
| <b>A. Have any GHG reductions or GHG removal enhancements associated with the Project Lands ever been listed or registered with, or otherwise claimed by, another registry or program, or sold to a third party prior to listing?</b><br><i>If "yes," identify the registry or program and provide details on the issued credits below.</i>                                                                       | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |                    |                                  |
| <b>B. Have any lands within the Project Area ever been listed or registered with an offset project registry or program in the past?</b><br><i>If "yes," identify the registry or program and provide details on the issued credits below.</i>                                                                                                                                                                     | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No |                    |                                  |
| <b>C. Have greenhouse gas emission reductions or removal enhancements associated with lands within the Project Area been credited or claimed for the purpose of greenhouse gas mitigation or reduction goals, whether in a voluntary or regulatory context?</b><br><i>If "yes," identify the goal(s) and provide details on the reductions and removal enhancements (under "Number of Credits Issued") below.</i> | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No |                    |                                  |
| <b>Registry/Program/Goal(s):</b>                                                                                                                                                                                                                                                                                                                                                                                  | <b>Reporting Period(s):</b>                                            | <b>Vintage(s):</b> | <b>Number of Credits Issued:</b> |

**PART X. ATTACHMENTS**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>A. If the answer to Part IV.A is "yes," provide documentation (e.g., deed of trust, title report, etc.) showing the OPO's ownership interest in the property and its interest in the trees and standing timber on the property. If the answer to Part IV.A is "no," provide documentation supporting the explanation of the OPO's right to undertake and list the project.</b></p> <p><b>B. If the answer to Part IV.C is "public," provide documentation demonstrating explicit approval of the offset project's management activities and baseline including any public vetting processes necessary to evaluate management and policy decisions concerning the offset project. If the project is a private lands project, mark "N/A" in the box below. The OPO may provide an "Attachment B" page with a "This Page Left Intentionally Blank - Private Lands Project" notation on the page.</b> <input checked="" type="checkbox"/> N/A</p> <p><b>C. If a Qualified Conservation Easement (QCE) has been recorded, provide a copy. The information contained in this form and the documents attached to it will be submitted to ARB so submitting a copy of the QCE as an attachment to this document fulfills the requirement in 9.1.1.1(18)(a) of the U.S. Forest protocol to provide ARB with a copy.</b> <input checked="" type="checkbox"/> N/A</p> <p><b>D. If the project is located on one of the categories of Tribal land listed in Part IV.E, provide documentation demonstrating that the land within the Project Area is owned by a tribe or private entity. Also provide documentation that demonstrates the existence of a limited waiver of sovereign immunity between ARB and the governing body of the Tribe entered into pursuant to section 95975(l) of the Cap-and-Trade Regulation.</b> <input checked="" type="checkbox"/> N/A</p> <p><b>E. Attach map(s) of the Project Area including:</b></p> <ol style="list-style-type: none"><li>1. Public and private roads</li><li>2. Towns</li><li>3. Major watercourses (4<sup>th</sup> order or greater), water bodies, and watersheds</li><li>4. Topography</li><li>5. Townships, ranges, and sections or latitude and longitude</li><li>6. Existing land cover and land use (optional)</li><li>7. Forest vegetation types (optional)</li><li>8. Site classes (optional)</li><li>9. Land pressures and climate zone/classification (optional)</li><li>10. Historical land uses, current zoning, and projected land use within the Project Area (optional)</li><li>11. A georeferenced shape file (or other electronic file that can be read in a geographic information system) that clearly identifies the Project Area and boundaries. <i>Note that the georeferenced shape file may constitute the required map if it includes the required map information listed above.</i></li></ol> <p><b>F. Provide supporting documentation demonstrating that the offset project takes places on land that has greater than 10 percent tree canopy cover.</b></p> <p><b>G. Attach a graph portraying the baseline onsite carbon stocks with time depicted on the x-axis and metric tons CO<sub>2</sub>e depicted on the y-axis.</b></p> <p><b>H. Attach a diagram of <u>the final baseline</u> incorporating <u>all</u> required carbon stocks.</b></p> <p><b>I. Provide a projection of baseline and actual harvesting volumes from the Project Area over 100 years.</b></p> <p><b>J. For IFM projects on <u>private lands ONLY</u>: If the Project Area's initial above-ground standing live carbon stocks are below Common Practice, submit an affidavit testifying that the inventory depicted over the past 10 years (used to determine the High Stocking Reference for the Project Area) is reasonably accurate. Also include a summary of</b></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

volume harvested over the past 10 years.

☐ N/A

K. For IFM projects on private lands ONLY: Attach supporting documentation identifying the legal constraints within the Project Area. A 'constraints' table with the following categories may be provided for simplicity with the following information: narrative of legal constraint, identification of specific governing law guiding the constraint, acreage, silviculture method, retention strategy. ☐ N/A

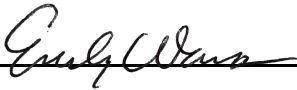
L. For projects on private lands ONLY: Provide a description and supporting evidence, if applicable, that the growth and harvesting regime assumed for the baseline is financially feasible based on the qualifications in Section 6.2.1.3 of the Protocol. ☐ N/A

#### PART XI. OPO SIGNATURE

*Note: The person signing this Initial Reporting Period report should be the same person signing the accompanying U.S. Forest Offset Project Data Report Annual Reporting Period – All Project Types report.*

**In signing this form, I certify under penalty of perjury of the laws of California that the information contained in this form is true, accurate, and complete. I further certify that I am an Account Representative of the Offset Project Operator (OPO).**

SIGNATURE:



PRINTED NAME:

Emily Warms

TITLE:

Associate Director, Operations

DATE:

August 5, 2025

## **Background for U.S. Forest Offset Project Data Report Initial Reporting Period – Improved Forest Management**

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Section 95976(d) of the Cap-and-Trade Regulation specifies reporting requirements for offset projects participating in the Compliance Offset Program. Offset Project Operators (OPO) or Authorized Project Designees (APD) are required to submit an Offset Project Data Report (OPDR) within four months of the end of each (annual) Reporting Period. The Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 and Compliance Offset Protocol U.S. Forest Projects, November 14, 2014 both require additional information to be included with the initial OPDR. This form is designed to help OPOs and APDs provide the extra information required for an initial OPDR by U.S. Forest offset projects. (However, this form may be insufficient for reporting all information required by the Compliance Offset Protocol U.S. Forest Projects, June 25, 2015.) The information in this form is submitted to the approved Offset Project Registry that is listing the offset project and should also be provided to the ARB-accredited verification body that will be verifying the Offset Project Data Report.

The information to be provided in this form closely mirrors information provided in the application for listing a U.S. Forest offset project. OPOs and APDs may wish to copy the information in their project's application for listing to the extent that the information provided at the time of that application has not changed.

### **Where to Submit Information Contained in This Form**

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Please complete the information on the form using your computer. Then print, sign, and scan the form. The completed and signed information and all supporting documentation should be submitted to the appropriate [Offset Project Registry](#).

Copies of this form can be downloaded from the ARB website at:  
<http://www.arb.ca.gov/cc/capandtrade/offsets/forms/forms.htm>

## **Detailed Instructions for U.S. Forest Offset Project Data Report Initial Reporting Period – Improved Forest Management**

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This form is protected with restricted editing to facilitate completing the form. If the applicant wishes to unprotect the form, the password is "form".

### **Part I. Entity Submitting Report:**

- Indicate whether the Offset Project Operator (OPO) or Authorized Project Designee (APD) is submitting the Offset Project Data Report.
- Regulatory amendment in section 95976(d)(10) requires that each version of the OPDR specifies the version number and the date submitted. Moreover, the protocol requires that each OPDR include the date of completion. Please include the OPDR version number, the date of OPDR completion, and the date of OPDR submission to the Offset Project Registry.
- The person submitting the information should indicate the date the form is completed.
- List the name, phone, and email address of the person submitting the information. This person should be an employee of the OPO or APD. The person submitting the information need not be the contact person listed for the OPO or APD in Part III and also need not be the OPO's CITSS account representative signing the OPDR in Part XI.

### **Part II. Offset Project Information:**

- Provide the name for the offset project. Also provide the project's identification number from the approved Offset Project Registry listing the project. The ARB project identification number may also be provided if known.
- Indicate the offset project commencement date and the start and end dates of the first reporting period. Unlike with the listing form, approximations are no longer acceptable for these dates since precise dates should be known.
- Project commencement for an Improved Forest Management Project must be linked to a discrete, verifiable action that delineates a change in practice that increases sequestration and/or decreases emissions relative to the forest project's baseline. This date could be triggered by the transfer of property ownership, recordation of a conservation easement on the Project Area, or when submitting the offset project listing information.

### **Part III. OPO/APD Information:**

- Enter contact information for the OPO and APD submitting the report. Every offset project will have an OPO. If an offset project does not have an APD, please mark the box indicating the Offset Project does not have an APD and leave the remaining fields blank.
- For both the OPO and, if applicable, the APD, enter the entity's name, its mailing address, and the name, phone number, and email address of a contact person for the entity. Also include its CITSS ID number. The CITSS ID is six characters in length, with two letters followed by four numbers (e.g., "CA1234"). **DO NOT PROVIDE THE CONFIDENTIAL CITSS ACCOUNT NUMBER**, which begins with the CITSS ID number followed by a hyphen and more numbers.

### **Part IV. Land Ownership:**

- This part includes questions regarding land ownership and property interests.
- Further documentation is required based on the responses to some questions. See Part X of this report for more information on the precise requirements.

### **Part V. Offset Project Area:**

- This part asks for qualitative descriptions of the offset Project Area.
- Maps are required to complement the descriptions provided in this part. See Part X of this report for more information on the precise requirements.
- The Project Area should be determined following the requirements of Section 4 of the U.S. Forest protocol.
- Assessment areas shall be determined by referencing the Assessment Area Data File available at: <http://www.arb.ca.gov/cc/capandtrade/protocols/usforestprojects.htm>

### **Part VI. Offset Project Eligibility:**

- The questions in this part are designed to facilitate the determination of project eligibility for Improved Forest Management Projects.
- Further documentation is required based on the responses to some questions. See Part X of this report for more information on the precise requirements.
- Details on the eligibility requirements for Improved Forest Management Projects can be found in Sections 2.1.2, 3.1, and 3.8 of the U.S. Forest protocol.
- Details on the Natural Forest Management criteria can be found in Table 3.2 in the U.S. Forest protocol.

### **Part VII. Carbon Stock Inventory:**

- Projects are required to have completed a full carbon stock inventory for the initial Offset Project Data Report. Unlike the inventory provided at the time of listing, a general description of the project's inventory methods with preliminary best estimates is no longer sufficient to meet the regulatory requirements. If the project's inventory methodology changed between the time of listing and submission of the initial OPDR, this change should be reported as a change to the information submitted at project listing when submitting the first OPDR.
- Section 6.2 of either the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 or the Compliance Offset Protocol U.S. Forest Projects, November 14, 2014 outlines the approved quantification methodologies for Improved Forest Management Projects. Further details on completing a forest project carbon inventory can be found in Appendix A of the Protocol. (There are some differences in section 6.2 and Appendix A between the two versions.)
- Follow the steps in Appendix D of the U.S. Forest protocol to quantify the project's reversal risk rating.
- The project's expected contribution to the Forest Buffer Account is determined annually based upon the project's risk of reversal and is calculated by multiplying the project specific reversal risk rating by the total net GHG reductions/removals achieved by the project. Unlike the listing application, for this OPDR an approximation of the contribution to the Forest Buffer Account is not acceptable.

### **Part VIII. Offset Project Baseline:**

- For this OPDR, unlike the project listing application, projects are required to have a finalized baseline. A modeling plan with preliminary best estimates is no longer sufficient to meet the regulatory requirements. If the project's modeling plan or baseline estimates changed between the time of listing and submission of the initial OPDR, this change should be reported as a change to the information submitted at project listing when submitting the first OPDR.
- Note that IFM projects located on public land must present documentation demonstrating explicit approval of the offset project's management activities and baseline. These projects may report changes to the baseline within the initial OPDR if the changes have gone through a public review process and meet the Protocol requirements regarding explicit approval of the project's baseline.

- This part is divided into three sections: questions required for all Improved Forest Management Projects; questions for Improved Forest Management Projects on private lands; and questions for Improved Forest Management Projects on public lands. Answer the questions applicable to the project.
- A diagram and graph are required to complement the descriptions provided in this part. See Part X of this report for more information on the precise requirements.
- Section 6.2 of either the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 or the Compliance Offset Protocol U.S. Forest Projects, November 14, 2014 outlines the approved quantification methodologies for Improved Forest Management Projects. Instructions for considering legal and financial constraints can be found in Sections 6.2.1.2 and 6.2.1.3, respectively. Further details on modeling carbon stocks can be found in Appendix B. (There are some differences in section 6.2 and Appendix B between the two versions.)
- ARB approved growth models can be found in Appendix B, Section B.1 of either the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 or the Compliance Offset Protocol U.S. Forest Projects, November 14, 2014. (There are some differences in Appendix B between the two versions.)

**Part IX. Other Offset Programs:**

- Answer all questions. If the answer to any question is “yes,” identify the registry or program and provide details on the issued credits in the space provided.

**Part X. Attachments:**

- Provide each attachment on a separate sheet of paper and submit along with the completed Initial Reporting Period-Offset Project Data Reporting Form.
- To aid with tracking each attachment, it is recommended that the attachments are labeled to correspond with the letter in Part X that they refer to (e.g. “Attachment B”).
- When an attachment is not applicable to the project being listed, please select the “N/A” (Not Applicable) checkbox next to the requirement so that it is clear that the attachment was not inadvertently left off.

**Part XI. OPO Signature:**

- The individual signing the document must be registered in CITSS as the OPO’s Primary Account Representative or Alternate Account Representative for the entity submitting the information. The individual signing the document may be an APD employee and/or representative; but to sign the document, the individual must be an Account Representative on the OPO’s CITSS account.
- Please provide the individual’s signature, printed name, corporate title, and date signed.
- There are no attestations within this form. The attestations required for the Offset Project Data Report are included in the form U.S. Forest Offset Project Data Report Annual Reporting Period – All Project Types.

Please contact your Offset Project Registry with any questions regarding the OPDR.



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# **KLAMATH FOREST CARBON PROJECT**

**CAR1614, CAFR6614**

**Addendum to OPDR for the Initial Reporting Period Form**

**Under Air Resources Board**

**Compliance Offset Protocol – U.S. Forest Projects, Adopted: June 25, 2015**

**Prepared July 30, 2025**

**Version 5.1.1.2**

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### Offset Project Operator

Acer Klamath Forest, LLC  
580 California Street, Ste 1210  
San Francisco, CA 94104  
(415) 321-3300

### Reporting Period

The first reporting period for this Project is from 7/1/2022 to 12/31/2023.

### Protocol Version

Air Resources Board  
Compliance Offset Protocol – U.S. Forest Projects  
Adopted: June 25, 2015

The OPDR and all other project documentation and reports that reference carbon stocks have been prepared and submitted by James D. Clark, California Registered Professional Forester (No. 2528).

### Introduction

The Klamath Forest Carbon Project is an Improved Forest Management (IFM) Project that is seeking registration under the California Air Resources Board Compliance Offset Protocol – U.S. Forest Projects Adopted: June 25, 2015. The Offset Project Operator (OPO) and Forest Owner is Acer Klamath Forest, LLC. The Project is approximately 188,557 acres in size and includes approximately 6,195 acres associated with roads which are excluded from the calculation of the Project's carbon stocks.

The Project Area is located within Siskiyou County adjacent to the I-5 corridor surrounding the Shasta Valley.

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## V.

Project Location (approximate):

| Tract          | Latitude | Longitude | Acres      |
|----------------|----------|-----------|------------|
| Klamath Forest | 41.7327  | -122.5921 | 188,556.73 |
|                |          | Total     | 188,556.73 |

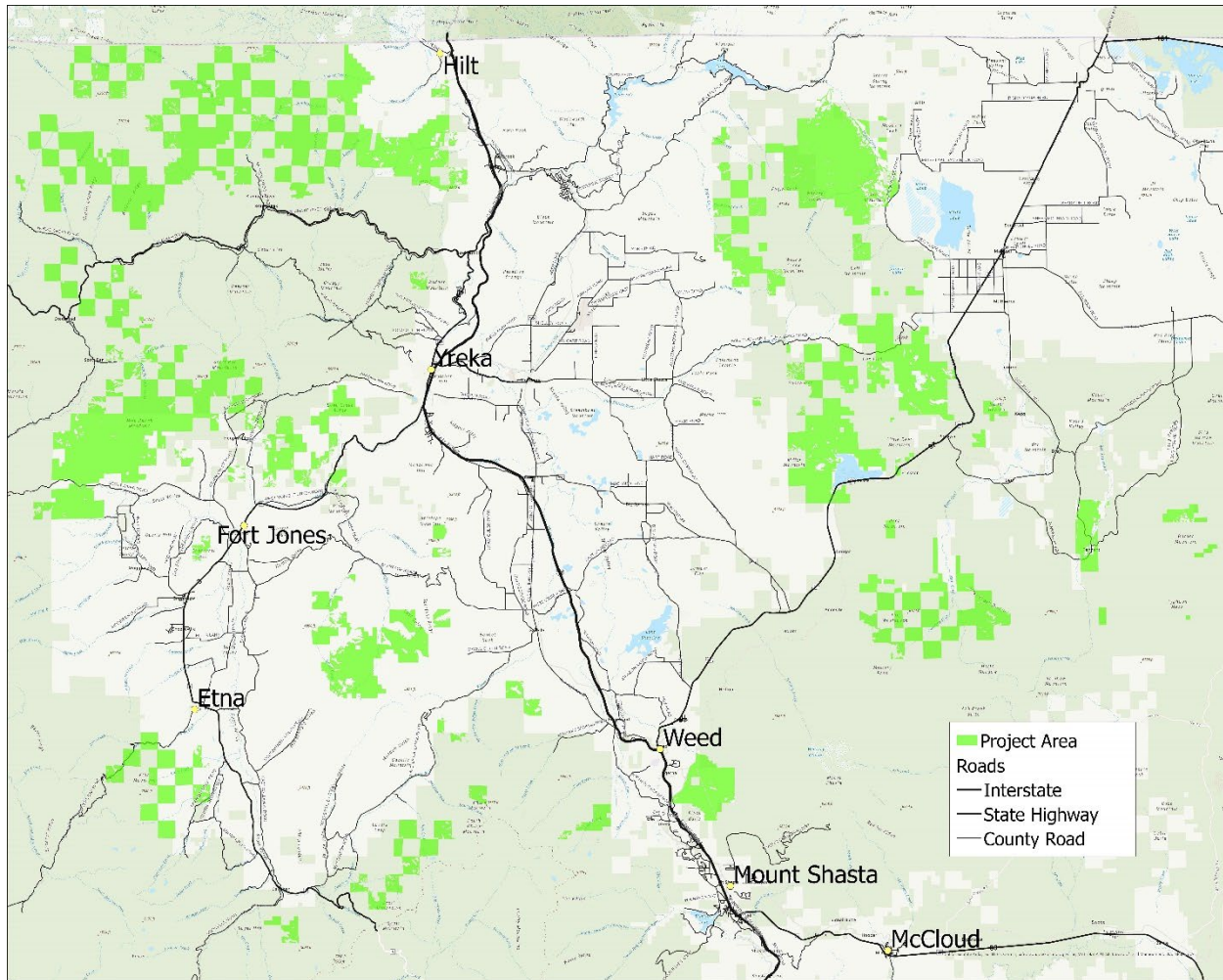
### V.A.

The entire project is located within the Southern Cascades Supersection, and within the Southern Cascade Mixed Conifer, Southern Cascade High Elevation Conifer, or Southern Cascade Mixed Oak Woodland Assessment Areas and is classified as high or low site class timberland. The assignment of portions of the Project Area that are either high or low site utilizes a forest productivity analysis developed from soil survey data and follows guidance provided by ARB on December 1, 2018.

| Supersection      | Assessment Area                         | Site Class | Acres      |
|-------------------|-----------------------------------------|------------|------------|
| Southern Cascades | Southern Cascade Mixed Conifer          | High       | 136,436.89 |
|                   |                                         | Low        | 3,837.27   |
|                   | Southern Cascade High Elevation Conifer |            | 30,950.99  |
|                   | Southern Cascade Mixed Oak Woodland     | High       | 11,080.85  |
|                   |                                         | Low        | 55.41      |
| Total Acreage     |                                         |            | 182,361.41 |

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## Klamath Forest Carbon Project Vicinity Map



### V.B.

The Project Area is subject to the governing jurisdiction of Siskiyou County, the State of California, and the United States of America.

### V.C.

The Project Area has been determined based on the best available data representing the legal description described in the Title Reports included as Attachment A. The Project Area boundary is described and represented by the maps included as Attachment E, and the GIS data file

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supplied as a part of this OPDR. For the purpose of calculating GHG stocks, the Project Area acreage is taken from the GIS data provided with the OPDR.

The Project Area was developed through a GIS analysis exercise that first sought to combine the property boundaries of the two previous ownerships GIS layers that comprise the ownership boundaries of the Fruit Growers' tract, and the Michigan-California tract. This GIS process was guided by and aligned where appropriate with the BLM PLSS Townships, Sections, and Quarter Sections data to ensure an accurate depiction of the Acer Klamath Forest LLC. ownership boundary. The resulting ownership boundary was reviewed against Siskiyou County Assessor Parcel ownership data and adjusted as necessary to confirm that the ownership outer extent boundaries did not encroach on neighboring property owners.

Non timbered and non-operable portions of the Acer Klamath Forest LLC ownership have been excluded from the Project Area, as have portions of the property subject to recent natural disturbance. Other portions of the ownership have been excluded from the Project Area due to unique attributes as detailed in Attachment O and further described in response to Part VIII.B.4 of this OPDR.

#### V.D.

The existing land cover on the Project Area is generally timberland with small areas of brush land, grasslands and rock outcroppings. Current uses of the Property generally include timber production, recreation, ranching, and farming.

#### V.E.

The Project Area is primarily dominated by mixed Sierra Nevada conifer forest with smaller acreages of intermingled herbaceous, shrub and hardwood dominated zones. The tree species composition in the Project Area consists of majority species Douglas-fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), and ponderosa pine (*Pinus ponderosa*). There is a minor amount of incense-cedar (*Calocedrus decurrens*), California black oak (*Quercus kelloggii*), sugar pine (*Pinus*

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lambertiana), and assorted lower elevation hardwoods. All species present in the project area are native to the region.

Age class distribution is a result of forest management activities carried out by previous landowners over the past half century. Approximately 20% of the property is in age classes less than 20 years old.

#### V.F.

The Project Area is classified as high to low site class timberland. Please see the Modeling Plan included as Attachment M for a more detailed description of the determination of site index.

#### V.G.

The Project Area as well as much of the surrounding land is utilized for timber production, and recreation. The predominant land pressure is timber harvest.

The Project Area is found within the Warm-summer Mediterranean climate of Northern California which is characterized by hot dry summers and wet winters.

The Project Area lands lie in regions with wide precipitation variation, ranging from over 80-inches to less than 20-inches per year. The wetter areas are to the west, while the drier locations are primarily to the east. Yearly mean temperatures are primarily determined by elevation, precipitation is determined by many other factors. For instance, rain shadow conditions prevail east of the Cascade Crest. In contrast, local topography and orographic lift create a number of unusual precipitation regions.

#### V.H.

Acer Klamath Forest, LLC (AKF) acquired the lands underlying the Project Area from Fruit Growers Supply Company in 2021 and Michigan-Cal in 2022. Prior to AKF's acquisition the lands were managed for timber production and recreation.

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The Project Area is primarily zoned Timber Production (TPZ), Rural Residential Agriculture (R-R), or Non-Prime Agriculture (AG). The permitted uses on TPZ, R-RL and AG land are timber production, row crops (including vineyard) and one single-family residence per legal parcel.

Current uses of the Property generally include timber production, and recreation. Uses on surrounding areas generally include timber production, ranching, farming, recreation and rural residential use. These uses are expected to continue into the foreseeable future.

#### V.I.

The Project Area is generally characterized by mixed conifer forests. Species composition across the Project Area is as follows:

| Species                           | Basal Area per Acre | Relative Percentage |
|-----------------------------------|---------------------|---------------------|
| Douglas-fir                       | 29.0                | 27.01%              |
| white fir                         | 22.2                | 20.70%              |
| California red fir                | 4.6                 | 4.26%               |
| incense-cedar                     | 11.3                | 10.52%              |
| Ponderosa pine                    | 25.0                | 23.35%              |
| sugar pine                        | 3.2                 | 2.97%               |
| Jeffrey pine                      | 1.6                 | 1.50%               |
| lodgepole pine                    | 0.4                 | 0.36%               |
| western white pine                | 0.1                 | 0.05%               |
| whitebark pine                    | 0.0                 | 0.04%               |
| canyon live oak                   | 2.9                 | 2.66%               |
| California black oak              | 2.0                 | 1.85%               |
| Pacific madrone                   | 1.4                 | 1.30%               |
| western juniper                   | 1.1                 | 1.04%               |
| bigleaf maple                     | 0.8                 | 0.78%               |
| Oregon white oak                  | 0.8                 | 0.74%               |
| mountain hemlock                  | 0.3                 | 0.26%               |
| red alder                         | 0.3                 | 0.25%               |
| tanoak                            | 0.2                 | 0.14%               |
| black cottonwood                  | 0.2                 | 0.17%               |
| Pacific dogwood                   | 0.0                 | 0.04%               |
| giant chinkapin, golden chinkapin | 0.0                 | 0.02%               |
| <b>Total</b>                      | <b>107.3</b>        | <b>100.00%</b>      |

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Several age classes of timber stands exist across the Project Area as the result of past land management activities with age classes ranging from over 80 years to 1 year. Timber harvesting on the Project Area occurs from time to time. Currently, there are several active timber harvest permits on the Project Area. Portions of the Project Area were harvested during the initial reporting period.

#### VI.A.

The Project Area meets condition 3 under section 2.2(b)(3) (page 13) of the Compliance Offset Protocol by maintaining greater than 10% tree canopy cover. Compliance is substantiated by the Orthophoto map of the Project site, that may be found in Attachment F, clearly showing canopy closure for the Project Area greater than 10%.

#### VI.D.3.a

Regeneration cuts and commercial harvesting are both planned and ongoing within the Project Area and therefore a demonstration of sustainable harvesting practices is required. Sustainable harvesting practices are demonstrated through a forest certification program, adherence to a renewable long-term management plan, and meeting harvest unit size and buffer requirements. The project fully complies with all pertinent State and Federal laws germane to forest management on lands owned by the OPO, including the CA Forest Practice Rules.

All forested landholdings of Acer Klamath Forest, LLC are operating under a renewable long-term management plan that demonstrates harvest levels which can be permanently sustained over time. It is sanctioned and monitored by the state of California, administered by CalFIRE. The forest management applied at AKF is in line with submission of Option A documents per California Forest Practice Rules (FPRs) 14CCR 933.11, which considers management effects on timber resources, watersheds, fisheries, wildlife, recreation, and employment. In addition to satisfying Option 2, AKF is certified under the Forest Stewardship Council (FSC).

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#### VI.D.3.b

The Project Area was intersected by the CalWater watershed layer. The project is located within 137 watersheds. Stand age derived from the operational timber inventory data was utilized to classify stands across the Project by age. After identifying stands impacted by Significant Disturbance due to past fires (within 20 years of the project start date), there are seven watersheds where greater than 40% of the Project acreage in the watershed is less than 20-years old. Management activities on the Project Area will enable these identified watershed to meet the 40% goal within 25 reporting periods.

| Watershed            | Acreage <20 years | Project Area in Watershed | %    |
|----------------------|-------------------|---------------------------|------|
| Cottonwood Creek     | 15.39             | 24.94                     | 62%  |
| Ikes Ranch           | 91.40             | 210.84                    | 43%  |
| Lower Humbug Creek   | 63.06             | 146.79                    | 43%  |
| Lower Oro Fino Creek | 143.94            | 352.59                    | 41%  |
| North Noyes Valley   | 1.84              | 1.85                      | 100% |
| Spaulding Creek      | 1.04              | 1.05                      | 99%  |
| Upper Oro Fino Creek | 30.44             | 30.53                     | 100% |

#### VI.D.4.

The Project does not remove incidental lying dead wood as a part of its stand management activities. It is expected that the accumulation of lying dead wood will be commensurate with recruitment from standing dead trees, or as the result of harvest activities which result in increased lying dead wood following harvest. The Project is committed to maintaining, if not increasing, the number of standing dead trees within the Project Area as a component of its forest management objectives.

A portion of the Project Area has recently undergone salvage harvesting during the initial reporting period. Therefore, all that must be demonstrated is that the greater of one metric ton of carbon per acre or 1% of standing live carbon stocks is present in standing dead wood, or

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that progress towards these targets is ongoing on those portions of the Project Area where salvage operations have not been conducted, and the greater of two metric tons of carbon per acre is present in standing dead wood, or that progress towards these targets is ongoing on those portions of the Project Area where salvage operations have been conducted. The project currently contains an average of 1.60 Mg C per acre and 5.69% of standing live carbon stocks in standing dead wood, and 1.55 Mg C per acre and 5.28% of standing live carbon stocks on those portions of the Project Area subject to salvage operations. Therefore, the Project Area outside of areas salvage harvested currently meets the aforementioned standing dead wood target, while the portions of the Project Area subject to salvage currently do not meet the standing dead wood target. It is expected that the project will be able to demonstrate ongoing progress towards meeting the two metric tons of carbon per acre target on portions of the Project Area where salvage operations have been conducted. Future salvage harvesting within the Project Area will be designed to ensure the retention of sufficient standing dead stocks as a means of demonstrating ongoing progress towards the standing dead targets across all portions of the Project Area subject to salvage operations. Ongoing progress toward the standing dead targets will be assessed through subsequent reporting of standing dead stocks as required by the COP.

#### VI.E.

The OPO intends to increase carbon stocks over time by practicing uneven-aged management with occasional even-aged management where necessary to balance age classes, which will lead to increased carbon stocks when compared to the baseline management in absence of the carbon project. Future timber harvests within the Project Area will never exceed sustained yield levels.

At a minimum, management activities conducted on the Project Area must exceed the minimum standards which define the baseline, while also conforming to specific requirements of the Forest Project Protocol. Changes in Project carbon stocks over time will also be governed by economic decisions such that more or less carbon may be sequestered over any given period. Therefore, a combination of economic decisions by the OPO as to whether or not to

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commercially harvest the Project Area combined with the constraints imposed by the California Forest Practice Rules, and the specific terms of the Forest Project Protocol will guide carbon stock levels over time.

#### VII.A.

##### IFM-1 Standing Live:

Standing live carbon was inventoried based on sample plots installed as part of a forest inventory installed in 2022 and 2023. The inventory specifications are included as Attachment N. The cruise design consists of the installation of sample points on a systematic grid across the Project Area.

The sample design includes the installation of fixed area plots to measure both live and dead conifers and hardwoods. A 1/100th acre fixed area plot was installed at each sample point to sample trees 1.0" DBH to 4.99" DBH; and a 1/15th acre fixed area plot was installed at each sample point to sample trees 5" DBH and larger.

Attachment N describes the procedures for collecting field measurements, specific criteria pertaining to data collection, stratification rules, and documentation on quality assurance and quality control. Documentation of analytic methods and biomass equations used to translate field measurements into volume or biomass carbon estimates are included in part VII.B below.

As timber management activities take place on the Project Area, or disturbances such as fire or mortality resulting from pathogens or other factors occur, plots installed in 2022 or 2023 will be relocated and remeasured within areas that have been harvested, or subject to disturbance. By 2035, all of the plots installed in 2022 or 2023 will have been remeasured regardless of whether or not the plot had been harvested, or subject to other disturbance. On this basis, the Project will maintain a forest inventory system that will meet the inventory specifications and

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requirements contained in Appendix A of the Protocol, with plots which are no more than 12 years old.

The inventory methodology included as Attachment N to this Initial OPDR provides a detailed description of the method of maintaining an up to date inventory for the Project.

**IFM-3 Standing Dead:**

As described above, and in Attachment N, standing dead trees were sampled in conjunction with standing live trees.

**IFM-6 Soil (if applicable):**

Excluded because the conditions in Table 4.2 of the Protocol that would require inclusion of this pool (site preparation involving deep ripping, furrowing, or plowing where soil disturbance exceeds 25 percent of the Project Area over the Project Life, or mechanical site preparation activities not conducted on contours) are not planned.

**IFM-7 Carbon in in-use forest products:**

Carbon in in-use forest products have been generated by the Project as harvesting has occurred since the Offset Project Commencement Date. Part VII.B below includes documentation of analytic methods and biomass equations used to translate current and future harvest volumes delivered to the mill into appropriate carbon in in-use forest products values.

**IFM-8 Forest product carbon in landfills (if applicable):**

Carbon in landfills is a component of carbon related to forest products. Forest products have been generated by the Project since the Offset Project Commencement Date. Part VII.B below includes documentation of analytic methods and biomass equations used to translate current and future harvest volumes delivered to the mill into appropriate forest products carbon in landfill values.

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IFM-9 Biological emissions from site preparation:

As IFM-6 is an excluded carbon pool, IFM-9 is also an excluded pool.

IFM-14 Biological emissions/removals from change in harvesting on forestland outside Project Area:

Part VII.B below includes documentation of analytic methods and biomass equations used to translate current and future harvest volumes delivered to the mill into appropriate values for the calculation of this carbon pool.

IFM-17 Biological emissions from decomposition of forest products:

This is quantified as a component of IFM-7 and IFM-8 per Appendix C of the Protocol.

## VII.B.

IFM-1 Standing Live:

Above-ground standing live carbon in trees 1" DBH and larger has been calculated using the appropriate biomass equation by species taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB's website. The current biomass equation documentation provided by ARB is included in the ARB document "Volume Estimation for Species in Projects Located in CA, OR, WA (Last updated: 09/19/2014)." Specific gravities for bark and live branch equations were obtained from approved ARB document "Biomass equations for species in projects located in CA, OR, WA (updated: 09/19/2014)." These equations are used to generate biomass estimates for the above-ground portion of standing live trees, and hard snags. These equations will be referred to as the "FIA equations" herein.

Tonnes of standing live biomass per sample plot are calculated as follows:

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For equations that use total tree height in meters, tree height is calculated by multiplying the trees total height in feet by 0.3048. Trees per hectare are calculated by multiplying trees per acre by 2.471. Tree diameter at breast height ("DBH") in centimeters (cm) is calculated by multiplying its DBH in inches by 2.54.

#### Bole Biomass:

The cubic foot volume of each tree is calculated as the volume of the total stem from ground to tip (includes the top and stump). FIA refers to this value as CVTS. Bole biomass is calculated by multiplying the cubic volume by the wood density, and then dividing by 2.20462 to calculate weight in kilograms (kg). Above-ground biomass in kilograms (Kg) per acre is calculated by multiplying the FIA calculated kg per tree by each tree's per acre value.

#### Bark and Live Branches Biomass:

The above referenced FIA equations produce biomass in kg for the various parts of the above-ground portion of each tree. Above-ground biomass in kilograms (Kg) per acre is calculated by multiplying the FIA calculated kg per tree by each trees per acre value.

Missing volume of each tree is recorded as a percentage missing by 1/3<sup>rd</sup> segment of the tree (top, middle, bottom) as adapted from the Climate Action Reserve's "Quantification Guidance for Use with Forest Carbon Projects" dated November 15, 2012. The total heights of trees with broken tops use a phantom height recorded in the field. Cloud FVS uses the height to the break or the truncated height and the phantom height to determine the missing volume associated with the broken top.

Missing volumes by 1/3rds that were recorded in the field were then added to the estimated volume missing if there was a broken top. The total missing percentage of each tree is calculated based on 65% of the trees biomass being in the bottom 1/3<sup>rd</sup>, 25% in the middle 1/3<sup>rd</sup>, and 10% in the top 1/3<sup>rd</sup>. The total percentage of the tree that is missing is

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then calculated and multiplied by various biomass components of the tree as calculated above to calculate the net biomass of each component.

The net Kg per acre value of each tree on the plot is summed to derive above-ground live biomass Kg per acre for the plot. This value is used to calculate the respective below-ground live biomass component for the plot.

Below-ground live carbon is calculated at the plot level using the model provided by Cairnes et. al. specified on page 111 of Appendix A of the Protocol. The formula has as its input, above-ground live and dead biomass in Mg per hectare, and outputs below-ground biomass in Mg per hectare. Total net above-ground live carbon in Kg per acre for each plot is converted to Mg of biomass per hectare by multiplying by 2.471, and then dividing by 1000. After calculating the below ground component in Mg per hectare using the Cairnes model and the ratio of above-ground live biomass to above-ground dead biomass, the results are converted to Kg per acre by multiplying by 1000 and dividing by 2.471.

Total standing live biomass for each plot is the sum of the above-ground and below-ground live biomass Kg per acre. Mg of carbon (Mg C) per acre per plot is then calculated by multiplying by 0.5 to estimate carbon biomass. Mg C per acre is converted to CO<sub>2</sub>-equivalent by multiplying by 3.667.

### IFM-3 Standing Dead:

Data on standing dead trees was collected as a part of the project inventory. In general, the amount of carbon stored in a standing dead tree is based on the proportion of the tree remaining standing, and the condition of the tree, or its decay class. The standing dead carbon pool includes trees 5" DBH and larger, with a minimum height of 15'.

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Standing dead trees from the inventory data are classified into five decay classes based on descriptions contained in Research Paper NRS-15 (Harmon et al, 2011). These decay classes are generally described as follows:

- Class 1    All limbs and branches are present; the top of the crown is still present; all bark remains; sapwood is intact, with minimal decay; heartwood is sound and hard.
- Class 2    There are few limbs and no fine branches; the top may be broken; a variable amount of bark remains; sapwood is sloughing with advanced decay; heartwood is sound at base but beginning to decay in the outer part of the upper bole.
- Class 3    Only limb stubs exist; the top is broken; a variable amount of bark remains; sapwood is sloughing; heartwood has advanced decay in upper bole and is beginning at the base.
- Class 4    Few or no limb stubs remain; the top is broken; a variable amount of bark remains; sapwood is sloughing; heartwood has advanced decay at the base and is sloughing in the upper bole.
- Class 5    No evidence of branches remains; the top is broken; <20 percent of the bark remains; sapwood is gone; heartwood is sloughing throughout.

Biomass for standing dead trees includes the bole and bark components calculated using the FIA biomass equations described above and following the same procedures as for live trees other than the manner in which missing volume is calculated.

Missing volume of each tree is recorded as a percentage missing by 1/3<sup>rd</sup> segment of the tree (top, middle, bottom) as adapted from the Climate Action Reserve's "Quantification Guidance for Use with Forest Carbon Projects" dated November 15, 2012. The total heights

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of trees with broken tops are estimated by the cruiser in the field. If  $1/3^{\text{rd}}$  of the calculated tree height is less than the measured top height, then the break is assumed to be above the bottom  $3^{\text{rd}}$  of the tree. Likewise, if  $2/3^{\text{rds}}$  of the calculated tree height is less than the measured tree height, the break is assumed to be in the top  $3^{\text{rd}}$  of the tree.

Missing volumes of damaged trees that are recorded in the field are then added to the estimated volume missing if there was a broken top. The total missing percentage of each tree is calculated based on 65% of the trees biomass being in the bottom  $1/3^{\text{rd}}$ , 25% in the middle  $1/3^{\text{rd}}$ , and 10% in the top  $1/3^{\text{rd}}$ . The total percentage of the tree that is missing is then calculated and multiplied by various biomass components of the tree as calculated above to calculate the net biomass of each component.

Once the net biomass of each tree has been calculated, a relative density is applied by species and decay class. The relative density is in relation to the green density of sound wood, or the tree's wood density and is taken from Differences Between Standing and Downed Dead Tree Wood Density Reduction Factors (Harmon et al, 2011).

Biomass components by Decay Class included in the calculation of standing dead carbon stocks are listed in the table below. Classes 3 through 5 are considered "Highly Decayed", and only bole volume is included.

| Decay Class | Conifers                      | Hardwoods                     |
|-------------|-------------------------------|-------------------------------|
| 1           | All Aboveground tree portions | All Aboveground tree portions |
| 2           | Bole and Bark only            | Bole and Bark only            |
| 3           | Bole only                     | Bole only                     |
| 4           | Bole only                     | Bole only                     |
| 5           | Bole only                     | Bole only                     |

Below-ground standing dead carbon is calculated at the plot level using the model provided by Cairnes et. al. specified on page 111 of Appendix A of the Protocol. The formula has as its input, above-ground live and dead biomass in Mg per hectare, and outputs below-

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ground biomass in Mg per hectare. After calculating the below ground component in Mg per hectare using the Cairnes model and the ratio of above-ground live biomass to above-ground dead biomass, the results are converted to Kg per acre by multiplying by 1000 and dividing by 2.471.

Total standing dead biomass for each plot is the sum of the above-ground and below-ground standing dead biomass Mg per acre. Mg of carbon (Mg C) per acre per plot is then calculated by multiplying by 0.5 to estimate carbon biomass. Mg C per acre is converted to CO<sub>2</sub>- equivalent by multiplying by 3.667.

IFM-6 Soil (if applicable):

Excluded because the conditions in Table 4.2 of the Protocol that would require inclusion of this pool (site preparation involving deep ripping, furrowing, or plowing where soil disturbance exceeds 25 percent of the Project Area over the Project Life, or mechanical site preparation activities not conducted on contours) are not planned.

IFM-7 Carbon in in-use forest products:

Baseline wood products delivered to the mill in any period is calculated beginning with the cubic volume of harvested conifer trees that can produce at least one 16' log to a 5.5" merchantable top. Conifers below this merchantability standard are not included as they are too small to be delivered to the mill. The dry weight of wood products in pounds is calculated by multiplying the wood density in lbs/cubic foot by the cubic volume for each softwood species harvested based on the CV6 values derived from the FIA equations listed above. Bark and branch biomass are not included in the volume harvested. The wood densities utilized are those specified in the FIA equation for biomass and volume equations.

Actual wood products delivered to the mill in any period is calculated beginning with the volume of harvested conifer and hardwood trees as reported from mill receipts. Reported volumes are converted to cubic feet using the multipliers listed in the following table. The

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dry weight of wood products in pounds is calculated by multiplying the wood density in lbs/cubic foot by the cubic volume for each species harvested. Bark and branch biomass are not included in the volume harvested. The wood densities utilized are those specified in Smith et al 2008.

**Multipliers for converting volume units to cubic feet**

| Unit                             | Factor |
|----------------------------------|--------|
| Cords                            | 75     |
| Cubic Feet                       | 1      |
| Cubic Meters                     | 35.3   |
| Cunits-Chips (CCF)               | 100    |
| Cunits-Roundwood                 | 100    |
| Cunits-Whole tree chip           | 126    |
| MBF-Doyle                        | 222    |
| MBF-International 1/4"           | 146    |
| MBF-Scribner ("C" or "Small")    | 165    |
| MBF-Scribner ("Large" or "Long") | 145    |
| MCF-Thousand Cubic Feet          | 1000   |

Source: American Forest & Paper Association, Sustainable Forestry Initiative Program Annual Progress Reporting Form

The dry weight is multiplied by 0.5 to convert the weight to carbon weight only. The weight of carbon in lbs is divided by 2,204.6 to get the carbon weight in metric tonnes (Mg).

Mg of carbon by species is then multiplied by either 0.675 for softwoods, or 0.568 for hardwoods to account for mill efficiencies, taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB's website.

The resulting Mg carbon value after accounting for milling efficiencies is then passed to the wood products worksheets for calculating long-term in-use wood products storage. The wood products carbon is separated into product classes and multiplied by the respective 100-year average storage factor. The tables below list the assignment of wood products by

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class per the most current Assessment Area Data File taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB’s website, as well as the 100-year average storage factors applied to each wood product class per table C.1 (Baseline) or C.3 (Actual) of Appendix C of the Protocol.

**Wood Products by Class**

|                          |         |
|--------------------------|---------|
| % Softwood Lumber        | 69.501% |
| % Hardwood lumber        | 0.656%  |
| % Softwood Plywood       | 27.695% |
| % Oriented Strandboard   | 0.000%  |
| % Non Structural Panels  | 0.095%  |
| % Miscellaneous Products | 0.553%  |
| % Paper                  | 1.500%  |

**100-year Storage Rates Average Values from Appendix C, In-Use**

|                        |       |
|------------------------|-------|
| Softwood Lumber        | 0.463 |
| Hardwood lumber        | 0.250 |
| Softwood Plywood       | 0.484 |
| Oriented Strandboard   | 0.582 |
| Non Structural Panels  | 0.380 |
| Miscellaneous Products | 0.176 |
| Paper                  | 0.058 |

Average carbon stored in in-use wood products is calculated using equation C.4 (Baseline) or C.13 (Actual). Carbon is converted to CO<sub>2</sub>-equivalent by multiplying by 3.667. This value is combined with IFM-8 using equation C.9 (Baseline) or C.18 (Actual) to represent  $BC_{WP,y}$  or  $AC_{WP,y}$  respectively for the reporting period.

Average in-use wood products produced by the baseline analysis ( $BC_{wp,y}$ ) are deducted from actual wood products produced each reporting period ( $AC_{wp,y}$ ) in equation 5.1 and the resulting calculation is multiplied by 80% to account for the “Market Response”.

IFM-8 Forest product carbon in landfills (if applicable):

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Baseline wood products delivered to the mill in any period is calculated beginning with the cubic volume of harvested conifer trees that can produce at least one 16' log to a 5.5" merchantable top. Conifers below this merchantability standard are not included as they are too small to be delivered to the mill. The dry weight of wood products in pounds is calculated by multiplying the wood density in lbs/cubic foot by the cubic volume for each softwood species harvested. The wood densities utilized are those specified in the FIA equation for biomass and volume equations.

Actual wood products delivered to the mill in any period is calculated beginning with the volume of harvested conifer and hardwood trees as reported from mill receipts. Reported volumes are converted to cubic feet using the multipliers listed in the table under IFM-7 above. The dry weight of wood products in pounds is calculated by multiplying the wood density in lbs/cubic foot by the cubic volume for each species harvested. Bark and branch biomass are not included in the volume harvested. The wood densities utilized are those specified in Smith et al 2008.

The dry weight is multiplied by 0.5 to convert the weight to carbon weight only. The weight of carbon in lbs is divided by 2,204.6 to get the carbon weight in metric tonnes (Mg).

Mg of carbon by species is then multiplied by either 0.675 for softwoods, or 0.568 for hardwoods to account for mill efficiencies, taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB's website.

The resulting Mg carbon value after accounting for milling efficiencies is then passed to the wood products worksheets for calculating long-term landfill wood products storage. The wood products carbon is separated into product classes and multiplied by the respective 100-year average storage factor. The tables below list the assignment of wood products by class per the most current Assessment Area Data File taken from the Compliance Offset

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Protocol U.S. Forest Offset Projects page on ARB’s website, , as well as the 100-year average storage factors applied to each wood product class per table C.2 (Baseline) or C.4 (Actual) of Appendix C of the Protocol.

**100-year Storage Rates Average Values from Appendix C, In Landfill**

|                        |       |
|------------------------|-------|
| Softwood Lumber        | 0.298 |
| Hardwood lumber        | 0.414 |
| Softwood Plywood       | 0.287 |
| Oriented Strandboard   | 0.233 |
| Non Structural Panels  | 0.344 |
| Miscellaneous Products | 0.454 |
| Paper                  | 0.178 |

Average wood products carbon stored in landfills is calculated using equation C.7 (Baseline) or C.16 (Actual). Carbon is converted to CO<sub>2</sub>-equivalent by multiplying by 3.667. This value is combined with IFM-7 using equation C. 9 (Baseline) or C.18 (Actual) to represent BC<sub>WP,y</sub> or AC<sub>WP,y</sub> respectively for the reporting period.

Average in-use wood products produced by the baseline analysis (BC<sub>wp,y</sub>) are deducted from actual wood products produced each reporting period (AC<sub>wp,y</sub>) in equation 5.1 and the resulting calculation is multiplied by 80% to account for the “Market Response”.

**IFM-9 Biological emissions from site preparation:**

As IFM-6 is an excluded carbon pool, IFM-9 is also an excluded pool.

**IFM-14 Biological emissions/removals from change in harvesting on forestland outside Project Area:**

The Protocol refers to this carbon pool as Secondary Effects which are calculated using equation 5.10 of the Protocol. Secondary Effects of harvesting less than the average wood products produced by the baseline growth and yield analysis are calculated by subtracting

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the average carbon in harvested trees prior to delivery to a mill (PDM) generated by the baseline analysis from the actual carbon in harvested trees prior to delivery to a mill, and then multiplying the difference by 20%. As Secondary Effects are only calculated in years when actual wood products produced are less than the annual average under the baseline analysis, the resulting calculation is either zero, or a negative number.

The PDM calculation each annual reporting period will be calculated based on a ratio between the average volume of wood delivered to the mill generated by the baseline analysis, and the average PDM value generated by the baseline analysis. Each reporting period, this ratio will be applied to the actual volume of wood delivered to a mill.

IFM-17 Biological emissions from decomposition of forest products:

This is quantified as a component of IFM-7 and IFM-8 as described above.

#### VII.C.

IFM-1 Standing Live: This carbon pool will be calculated each year as described in parts A and B above. The current standing live carbon pool is [18,792,679](#) MgCO<sub>2</sub>e.

IFM-3 Standing Dead: This carbon pool will be calculated each year as described in parts A and B above. A preliminary estimate of the current standing dead carbon pool is [1,068,922](#) MgCO<sub>2</sub>e.

IFM-6 Soil (if applicable): N/A

IFM-7 Carbon in in-use forest products: This carbon pool will be calculated each year as described in parts A and B above. As timber harvesting occurred during this initial reporting period, this carbon pool is calculated as [30,941](#) MgCO<sub>2</sub>e for the initial reporting period.

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IFM-8 Forest product carbon in landfills (if applicable): This carbon pool will be calculated each year as described in parts A and B above. As timber harvesting occurred during this initial reporting period, this carbon pool is calculated as 19,845 MgCO<sub>2</sub>e for the initial reporting period.

IFM-9 Biological emissions from site preparation: N/A

IFM-14 Biological emissions/removals from change in harvesting on forestland outside Project Area: This carbon pool will be calculated each year as described in parts A and B above. As timber harvesting occurred during this initial reporting period, this carbon pool is calculated as -112,818 MgCO<sub>2</sub>e for the initial reporting period.

IFM-17 Biological emissions from decomposition of forest products: This is quantified as a component of IFM-7 and IFM-8 as described above.

#### VII.D.

Stratified random sampling formulas taken from Shiver and Borders (1996) were used to calculate the sampling error for the Project once mean standing live and standing dead pools have been determined for the 2022-2023 inventory. Estimates of the inventory confidence statistics as of the end of the initial reporting period, 12/31/2023, are as follows:

|                                                   |        |                             |
|---------------------------------------------------|--------|-----------------------------|
| <b>Mean standing live and standing dead pools</b> | 108.91 | Mg CO <sub>2</sub> per acre |
| <b>SE of mean</b>                                 | 3.83   | Mg CO <sub>2</sub> per acre |
| <b>SE of mean as %</b>                            | 3.52   | 3.83 ÷ 108.91               |
| <b>Sampling Error of 90% CI</b>                   | 5.78*  | (3.52%) * 1.645             |
| <b>Inventory Confidence Deduction</b>             | 0.8%   | 5.8% - 5.0%                 |

\*5.78 rounds to 5.8

#### VII.E.

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The risk rating calculated below assumes that the Project will not employ a Qualified Conservation Easement; however, a reduced wildfire risk has been applied based on the fact that extensive fire risk reduction work has been undertaken on the Project Area over the last several years, and is planned to continue. A letter from CAL FIRE regarding the fire risk reduction work and how it has contributed to lowering the fire risk for the entire project area will be obtained and will be provided during the Project’s initial site visit verification.

**Project Area Reversal Risk Rating:**

| <i>Risk Category</i>           | <i>Contribution to Reversal<br/>Risk Rating</i> |
|--------------------------------|-------------------------------------------------|
| Financial Failure              | 5.0%                                            |
| Conversion                     | 2.0%                                            |
| Over-harvesting                | 2.0%                                            |
| Wildfire                       | 2.0%                                            |
| Disease/Insect                 | 3.0%                                            |
| Other Catastrophic             | 3.0%                                            |
| Total Buffer Pool Contribution | 15.87%                                          |

*The Project’s reversal risk rating is calculated as follows:*

$$100\% - (((1-0.05)*(1-0.02)*(1-0.02)*(1-0.02)*(1-0.03)*(1-0.03)*100)) = 15.87\%$$

The contribution to the Forest Buffer Account during the initial reporting period is 59,600 ROCs.

**VIII.A.4.c**

Regeneration cuts and commercial harvesting are both planned and ongoing within the Project Area and therefore a demonstration of sustainable harvesting practices is required. Sustainable harvesting practices are demonstrated through a forest certification program, adherence to a renewable long-term management plan, and meeting harvest unit size and buffer requirements. The project fully complies with all pertinent State and Federal laws germane to forest management on lands owned by the OPO, including the CA Forest Practice Rules.

**VIII.A.5.**

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Following the calculation methodologies described in section VII.B above, the baseline modeling presented in the Modeling Plan (Attachment M) generates an average annual value for each of the above described wood products carbon pools. Actual wood products values for In-use, Landfill, and Prior to Delivery to the Mill (“PDM”) are calculated based on a flow of wood products over the 100-year planning period. The table below presents an estimate of the average wood products stored long-term values that will be generated by the baseline analysis.

| <b>Woods Products Class</b>                                            | <b>Mg CO<sub>2</sub>e/<br/>acre</b> | <b>Total Mg<br/>CO<sub>2</sub>e</b> |
|------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| Average Annual Carbon 100-year In-Use                                  | 0.402                               | 73,371                              |
| Average Annual Carbon 100-year Landfill                                | 0.258                               | 47,057                              |
| Average Annual Carbon in Harvested Trees Prior to Delivery to the Mill | 2.869                               | 523,134                             |

#### **VIII.B.3.**

The Project’s initial above-ground standing live carbon stocks are below Common Practice. Attachment J presents an analysis of carbon stocks in support of the calculation of the High Stocking Reference. Based on the information available to the Offset Project Operator at this time, the highest value for above-ground standing live carbon stocks per acre within the Project Area during the 10-year period preceding occurred in 2020. Above-ground live carbon stocks in 2020 are estimated to be 80.98 MgCO<sub>2</sub>e per acre. Therefore, the “High Stocking Reference” (HSR) is equal to 80% of the 2020 carbon stock value of 80.98 MgCO<sub>2</sub>e per acre, or 64.79 MgCO<sub>2</sub>e per acre.

#### **VIII.B.4.**

The Minimum Baseline Level (MBL) for the Klamath Forest Carbon Project is calculated using Equation 5.6 which has as its inputs the High Stocking Reference (HSR), Initial above-ground standing live tree carbon stocks (ICS), Common Practice (CP), and the weighted average above-

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ground standing live tree carbon stocks per acre for all forest owner and affiliate landholdings within the same logical management unit (LMU) as the Project Area (WCS).

Per the definition of Logical Management Unit, the Project Area as delineated represents a Logical Management Unit. Portions of the larger Acer Klamath Forest have been excluded from the Project Area due to unique biological, geographical or management attributes. Attachment O includes the rationale for excluding portions of the Acer Klamath Forest ownership from the Project Area for reasons other than the basic exclusion of non-timbered and non-operable acres. As the Project Area is identified as the LMU, WCS is equal to ICS for the purposes of Equation 5.6 and the MBL calculation.

Equation 5.6:  $MBL = \text{MAX} (\text{MAX} (HSR, ICS), \text{MIN} (CP, ICS))$

$MBL = \text{MAX} (\text{MAX} (64.79, 79.24), \text{MIN} (109.81, 79.24))$

$MBL = \text{MAX} (79.24, 79.24)$

$MBL = 79.24 \text{ MgCO}_2\text{e/ac, or ICS}$

#### VIII.B.7.

In modeling the baseline for standing live carbon stocks, the Forest Owner must incorporate financial constraints that could affect baseline growth and harvesting scenarios. The Project utilizes a financial analysis of the baseline harvesting regime that captures all relevant costs and returns, taking into account all legal, physical, and biological constraints. This financial analysis is included as Attachment L of this OPDR. Cost and revenue variables included in the financial analysis are based on documented costs and returns for the Project Area, and on other properties in the Assessment Area. This financial analysis illustrates that the baseline harvest scenario is financially feasible.

#### IX.A and B.

A portion of the Project Area was previously listed under the Hilt Forest Carbon Project with the Climate Action Reserve as Project ID CAR1006, on 7/30/2013. Project CAR1006 did not

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complete initial verification of the listing information within 30 months of submittal. Per ARB guidance “an improved forest management project initially listed under the 2011/2014 Protocols can relist under the 2015 Protocol provided the project under the 2011/2014 Protocols did not complete initial verification of the listing information within 30 months of submittal.”

The Climate Action Reserve changed the listing status of CAR1006 on 09/10/2019 to “Inactive” pursuant to Section 95987(b)(3)(A) of the Regulation as the project missed the OPDR Submission Deadline in section 95976(d) of the Regulation.

### **X Attachments**

The following attachments are included as a part of this OPDR:

**Attachment A** – Ownership Interest Documents

**Attachment E** – Map of the Project Area, including a geodatabase file that represents the Project Area

**Attachment F** – Orthophoto Map of the Project Area

**Attachment G** – A Graph Portraying the Project’s Baseline

**Attachment H** – A Diagram of the Project’s Baseline

**Attachment I** – Baseline and Actual Harvest Volumes

**Attachment J** – High Stocking Reference Affidavit

**Attachment K** - Legal Constraints Affecting Forest Management Activities on the Project Area

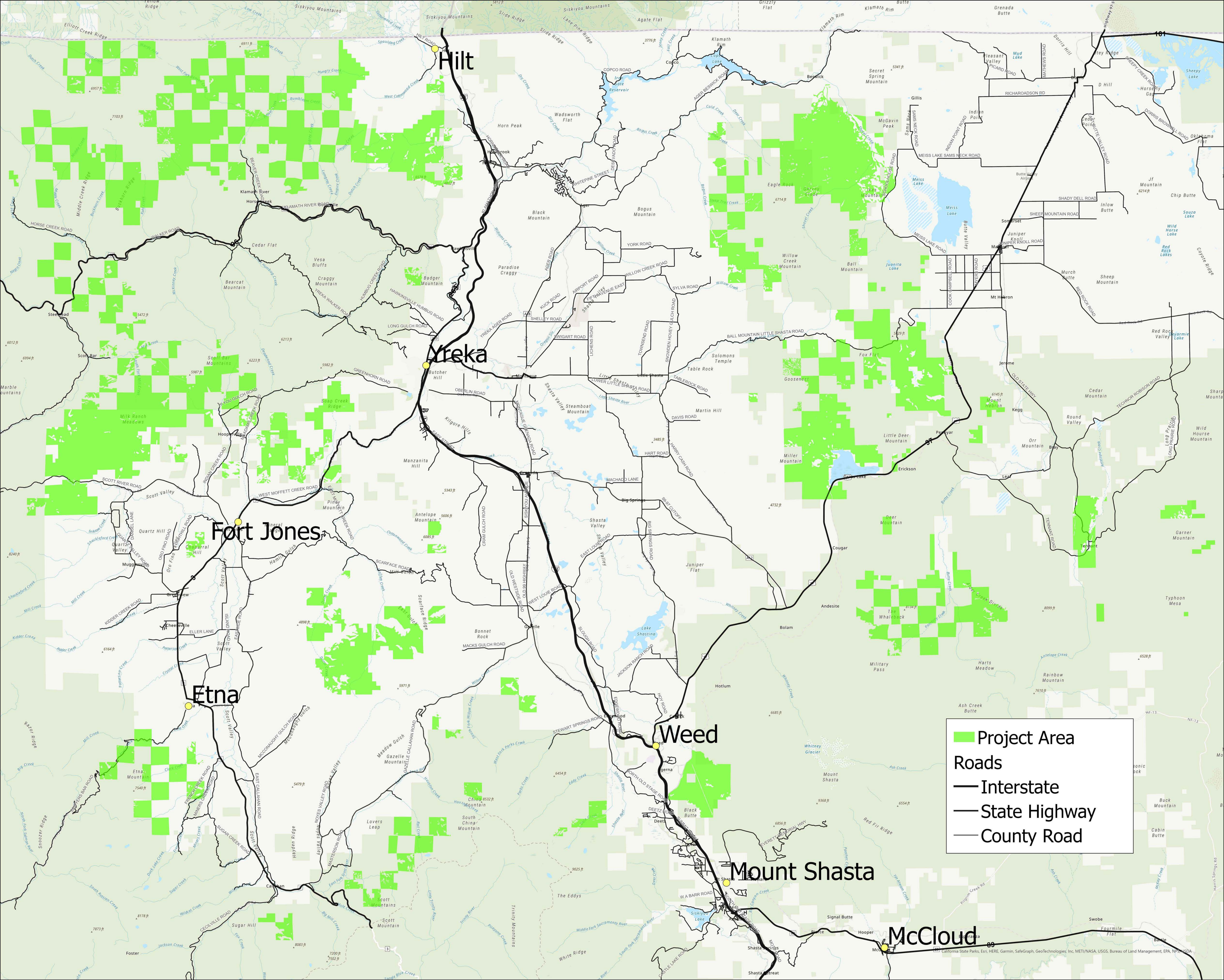
**Attachment L** – Financial Analysis of the Baseline Scenario

**Attachment M** – Modeling Plan

**Attachment N** – Inventory Specification

**Attachment O** – Documentation of LMU Determination

# ATTACHMENT E



Project Area

Roads

Interstate

State Highway

County Road

# Klamath Forest Carbon Project

This map illustrates the Klamath Forest Carbon Project area, overlaid on a grid of Public Land Survey System (PLSS) sections. The project area is highlighted in green, showing its distribution across various sections. Major watercourses are depicted in blue, and roads are shown in black. The map includes labels for cities/towns (Hilt, Yreka, Fort Jones, Etna, Weed, Mount Shasta, McCloud), county boundaries, and a legend.

**Legend:**

- City/Town
- County Boundary
- Project Area
- Major Watercourse
  - Class I
  - Class II
- Roads
  - Interstate
  - State Highway
  - County Road
- PLSS Section
- PLSS Township

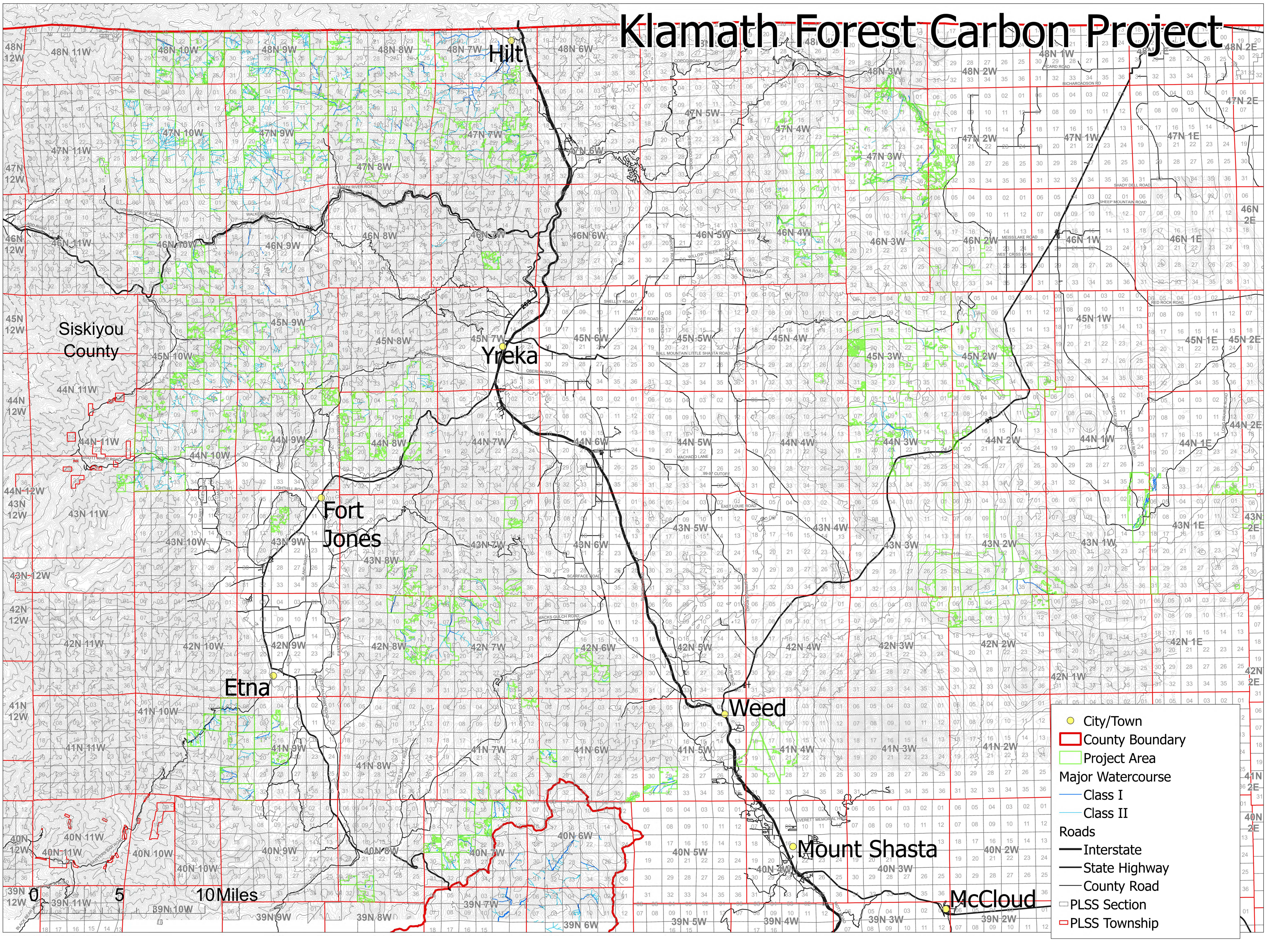
**Map Labels:**

**Cities/Towns:** Hilt, Yreka, Fort Jones, Etna, Weed, Mount Shasta, McCloud

**County:** Siskiyou County

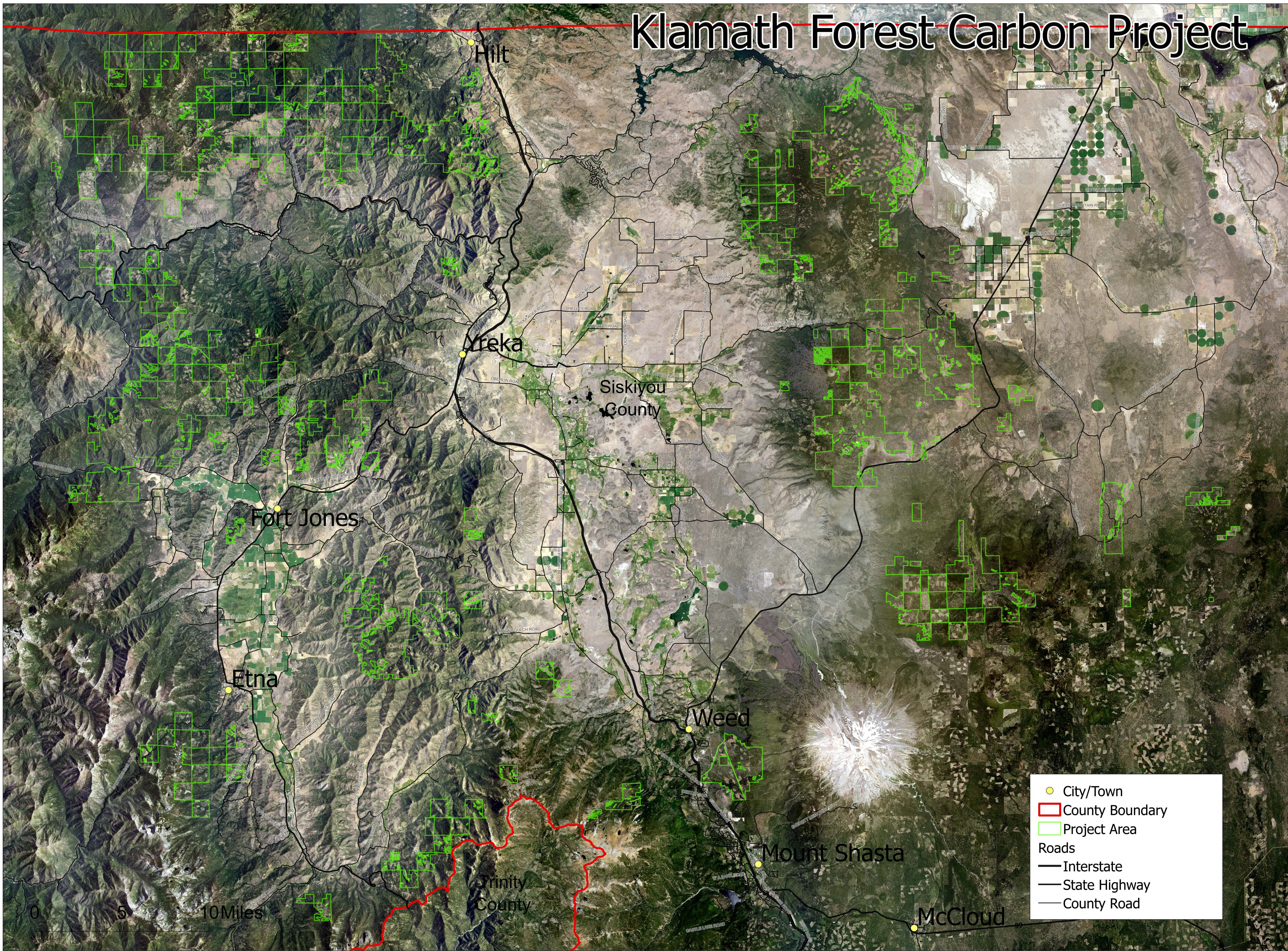
**Scale:** 10 Miles

**Grid Labels:** The map is divided into a grid of PLSS sections, labeled by Township and Range (e.g., 48N-11W, 47N-10W, 46N-9W, 45N-8W, 44N-7W, 43N-6W, 42N-5W, 41N-4W, 40N-3W, 39N-2W).



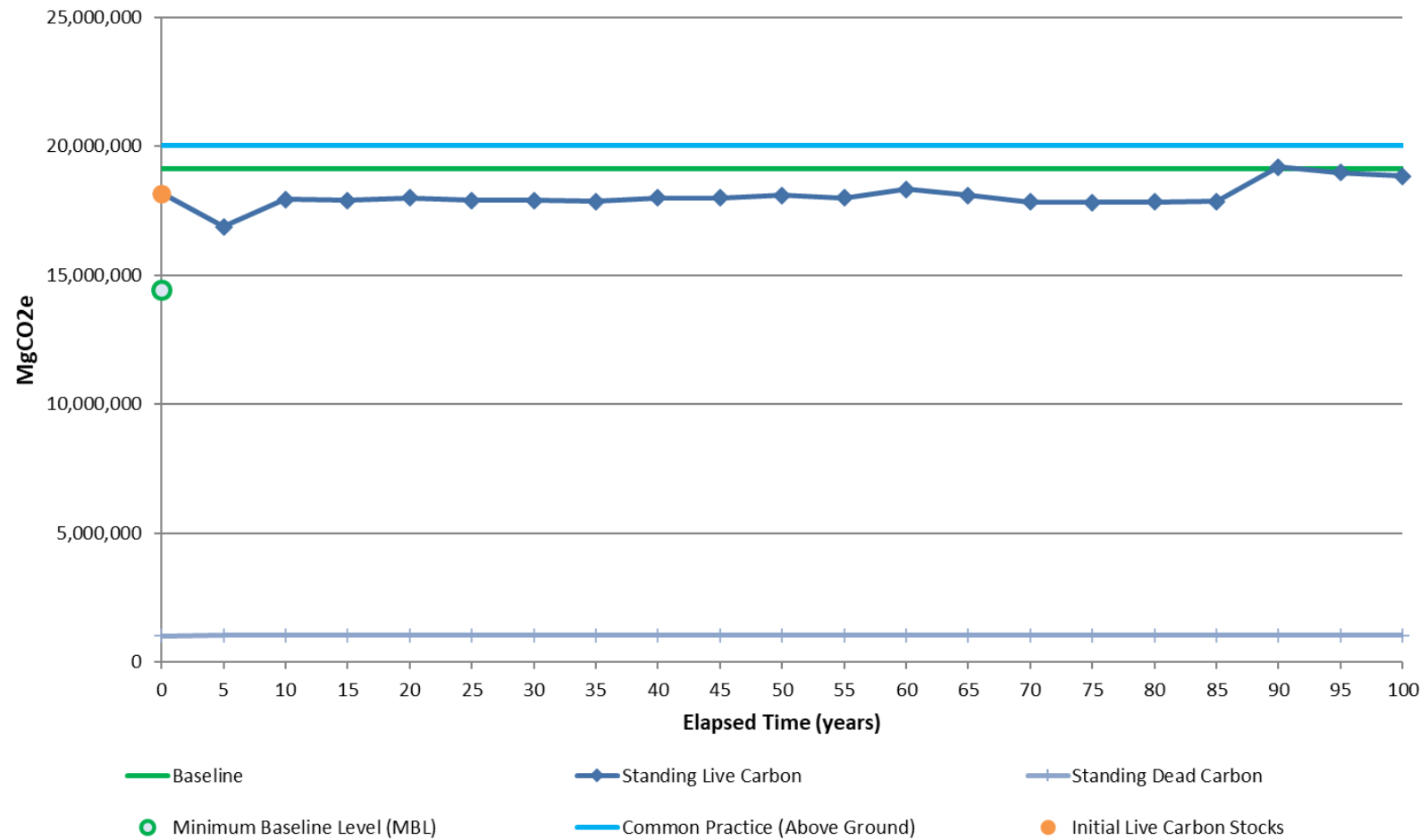
# ATTACHMENT F

# Klamath Forest Carbon Project



# ATTACHMENT G

### Attachment G Baseline Graph

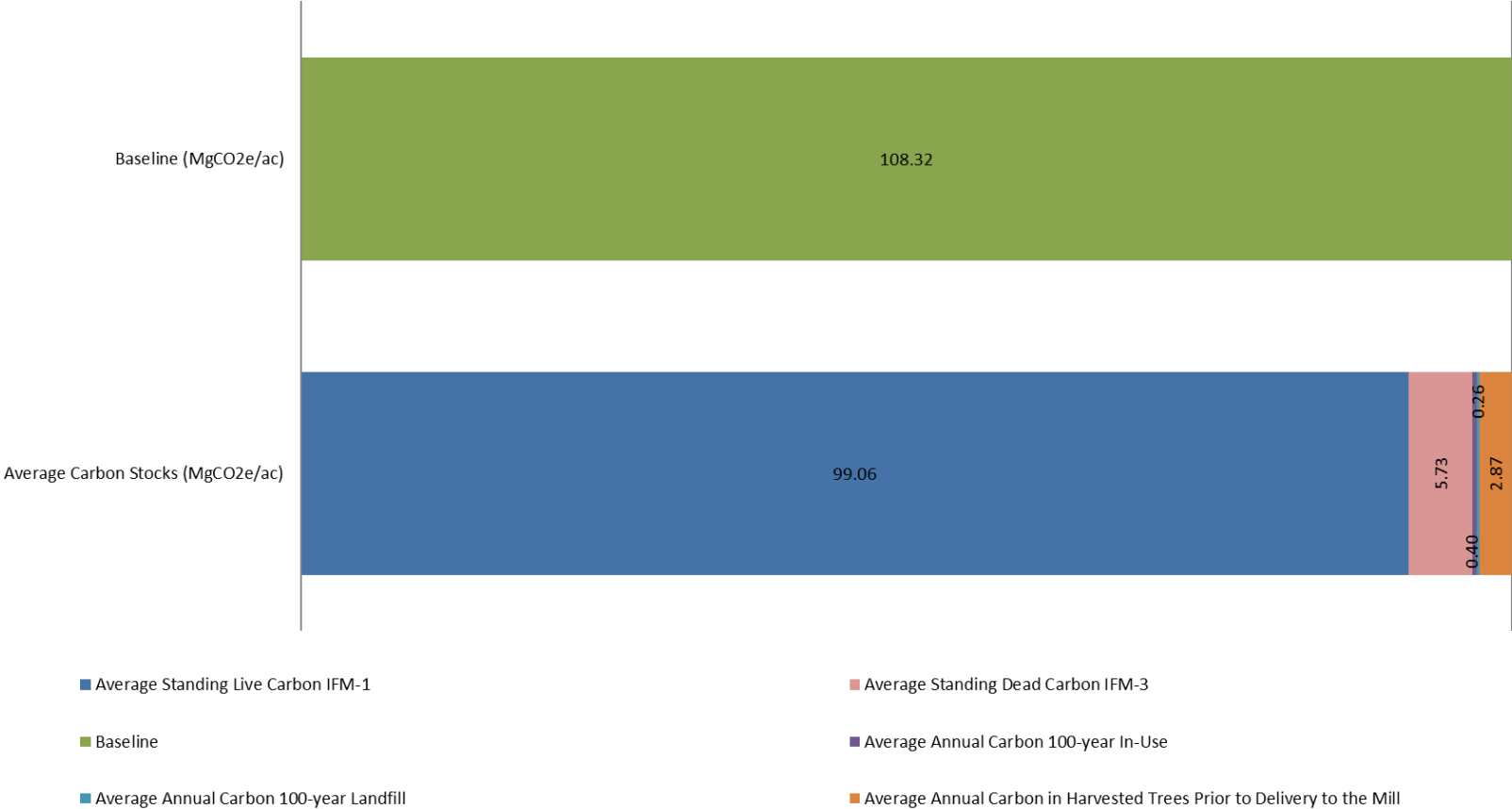


## Baseline Carbon Stocks (MgCO<sub>2</sub>e Total)

| Elapsed Time | Standing Live Carbon Pool IFM-1 | Standing Live Above Ground | Standing Live Below Ground | Standing Dead Carbon | Baseline   | MBL        | Above-Ground Common Practice | Initial Live Carbon Stocks |
|--------------|---------------------------------|----------------------------|----------------------------|----------------------|------------|------------|------------------------------|----------------------------|
| 0            | 18,181,001                      | 14,448,933                 | 3,732,051                  | 1,031,041            | 19,110,454 | 14,448,933 | 20,024,397                   | 18,181,001                 |
| 5            | 16,881,110                      | 13,428,701                 | 3,452,482                  | 1,040,282            | 19,110,454 |            | 20,024,397                   |                            |
| 10           | 17,943,205                      | 14,294,444                 | 3,648,774                  | 1,041,468            | 19,110,454 |            | 20,024,397                   |                            |
| 15           | 17,897,056                      | 14,272,521                 | 3,624,537                  | 1,044,836            | 19,110,454 |            | 20,024,397                   |                            |
| 20           | 17,989,865                      | 14,359,727                 | 3,630,139                  | 1,047,401            | 19,110,454 |            | 20,024,397                   |                            |
| 25           | 17,892,550                      | 14,288,970                 | 3,603,582                  | 1,047,416            | 19,110,454 |            | 20,024,397                   |                            |
| 30           | 17,906,096                      | 14,302,905                 | 3,603,176                  | 1,047,990            | 19,110,454 |            | 20,024,397                   |                            |
| 35           | 17,861,161                      | 14,273,268                 | 3,587,865                  | 1,047,096            | 19,110,454 |            | 20,024,397                   |                            |
| 40           | 17,991,991                      | 14,375,033                 | 3,617,042                  | 1,046,035            | 19,110,454 |            | 20,024,397                   |                            |
| 45           | 17,998,874                      | 14,376,647                 | 3,622,231                  | 1,044,921            | 19,110,454 |            | 20,024,397                   |                            |
| 50           | 18,089,511                      | 14,463,841                 | 3,625,661                  | 1,043,594            | 19,110,454 |            | 20,024,397                   |                            |
| 55           | 17,990,874                      | 14,398,113                 | 3,592,756                  | 1,044,456            | 19,110,454 |            | 20,024,397                   |                            |
| 60           | 18,321,274                      | 14,687,892                 | 3,633,368                  | 1,042,622            | 19,110,454 |            | 20,024,397                   |                            |
| 65           | 18,098,942                      | 14,504,043                 | 3,594,891                  | 1,044,917            | 19,110,454 |            | 20,024,397                   |                            |
| 70           | 17,828,471                      | 14,298,011                 | 3,530,458                  | 1,047,745            | 19,110,454 |            | 20,024,397                   |                            |
| 75           | 17,815,477                      | 14,293,542                 | 3,521,932                  | 1,049,758            | 19,110,454 |            | 20,024,397                   |                            |
| 80           | 17,830,447                      | 14,303,042                 | 3,527,404                  | 1,050,671            | 19,110,454 |            | 20,024,397                   |                            |
| 85           | 17,859,245                      | 14,325,094                 | 3,534,148                  | 1,049,540            | 19,110,454 |            | 20,024,397                   |                            |
| 90           | 19,189,531                      | 15,388,587                 | 3,800,934                  | 1,045,893            | 19,110,454 |            | 20,024,397                   |                            |
| 95           | 18,965,553                      | 15,227,765                 | 3,737,782                  | 1,045,991            | 19,110,454 |            | 20,024,397                   |                            |
| 100          | 18,836,529                      | 15,116,698                 | 3,719,833                  | 1,047,038            | 19,110,454 |            | 20,024,397                   |                            |
| Average      | 18,065,182                      | 14,448,942                 | 3,616,240                  | 1,045,272            | 19,110,454 |            | 20,024,397                   |                            |

# ATTACHMENT H

Attachment H - Carbon Stocks and Baseline



# Attachment H

## Baseline Carbon Stocks (MgCO<sub>2</sub>e per Acre)

| Elapsed Time | Standing Live Carbon Pool IFM-1 | Standing Dead Carbon Pool IFM-3 | Baseline |
|--------------|---------------------------------|---------------------------------|----------|
| 0            | 99.70                           | 5.65                            | 104.79   |
| 5            | 92.57                           | 5.70                            | 104.79   |
| 10           | 98.39                           | 5.71                            | 104.79   |
| 15           | 98.14                           | 5.73                            | 104.79   |
| 20           | 98.65                           | 5.74                            | 104.79   |
| 25           | 98.12                           | 5.74                            | 104.79   |
| 30           | 98.19                           | 5.75                            | 104.79   |
| 35           | 97.94                           | 5.74                            | 104.79   |
| 40           | 98.66                           | 5.74                            | 104.79   |
| 45           | 98.70                           | 5.73                            | 104.79   |
| 50           | 99.20                           | 5.72                            | 104.79   |
| 55           | 98.66                           | 5.73                            | 104.79   |
| 60           | 100.47                          | 5.72                            | 104.79   |
| 65           | 99.25                           | 5.73                            | 104.79   |
| 70           | 97.76                           | 5.75                            | 104.79   |
| 75           | 97.69                           | 5.76                            | 104.79   |
| 80           | 97.78                           | 5.76                            | 104.79   |
| 85           | 97.93                           | 5.76                            | 104.79   |
| 90           | 105.23                          | 5.74                            | 104.79   |
| 95           | 104.00                          | 5.74                            | 104.79   |
| 100          | 103.29                          | 5.74                            | 104.79   |
| Average      | 99.06                           | 5.73                            | 104.79   |

| Carbon Pool                                                            | Mg C/ acre | Total Mg CO <sub>2</sub> e |
|------------------------------------------------------------------------|------------|----------------------------|
| Average Standing Live and Standing Dead Pools                          | 104.79     | 19,110,454                 |
| Average Annual Carbon 100-year In-Use                                  | 0.402      | 73,371                     |
| Average Annual Carbon 100-year Landfill                                | 0.258      | 47,061                     |
| Average Annual Carbon in Harvested Trees Prior to Delivery to the Mill | 2.869      | 523,134                    |

# ATTACHMENT I

# Attachment I

Per section 7.2.1 of the protocol, the following table represents the projected actual harvesting volumes from the Project Area over 100 years.

| Elapsed Time<br>(Years) | Average Annual Harvest<br>(Board feet per acre) |
|-------------------------|-------------------------------------------------|
| 10                      | 200                                             |
| 20                      | 200                                             |
| 30                      | 200                                             |
| 40                      | 250                                             |
| 50                      | 250                                             |
| 60                      | 300                                             |
| 70                      | 300                                             |
| 80                      | 350                                             |
| 90                      | 350                                             |
| 100                     | 350                                             |

The baseline projection is provided in the Modeling plan included as Attachment M.

# ATTACHMENT J

## Carbon Stock Estimate Affidavit for the Purpose of Determining The High Stocking Reference

The HSR for the project area is defined as 80 percent of the highest value for above-ground standing live tree carbon stocks per acre within the project area during the preceding 10-year period. To determine the high stocking reference, the Offset Project Operator must document changes in the project area's above-ground standing live tree carbon stocks over the preceding 10 years. The Klamath Forest Carbon Project's commencement date is July 1, 2022 and the decade prior is 2012-2022. A tree canopy cover analysis was performed because complete timber inventory records were not available during this time. The attached Memorandum from F&W, the Asset Manager for the Project Area, describes the canopy analysis performed and summarizes the results of the analysis. A brief description of the methodology employed is as follows:

- Randomly generate 150 sample points across the project area within ArcMap.
- Obtain USDA NAIP color infrared imagery for years 2012 through 2022 with an extent equivalent to the project area. The time series obtained was 2012, 2014, 2016, 2018, 2020, and 2022.
- Visually determine if each point intercepts tree canopy for each reference year. Tree canopy intercept assignments were all made by the same experienced GIS analyst.
- Average the percentages of tree canopy cover by year for all sample points and evaluate canopy cover change over time.

The canopy cover analysis demonstrated that percent tree cover increased by 6.0% from 2012 to 2022 within the Project Area, and slightly decreased from 2020 to 2022. It is concluded that the highest value for above-ground standing live tree carbon stocks per acre within the project area during the preceding 10-year period occurred in 2020. Adjusting carbon stocks as of the project commencement date upwards by 2.2%, Initial above-ground standing live carbon stocks in 2020 are estimated to have been 80.98 MgCO<sub>2</sub>e/ac. HSR is calculated as 80% of the 2020 stocks, or  $80.98.48 \text{ MgCO}_2\text{e/ac} \times 0.80 = 64.79 \text{ MgCO}_2\text{e/ac}$ . The canopy analysis presented above for the 10-year period preceding the Project's commencement date is believed to be reasonably accurate and is based on the best available data where available.

Signed,



Emily Warms  
Associate Director, Operations

Dated: October 11, 2024

## MEMORANDUM

To: Jim Clark

From: Scott Howell, Jura Hill

Date: 9/13/2023

Subject: Forest cover analysis on Klamath Forest carbon project area

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### Objective

The objective of this analysis is to detect change in forest canopy cover on the Klamath Forest carbon project area since 2012.

### Function

This analysis is to be used to detect change in canopy cover for the project area and does not constitute a comprehensive forest canopy mapping effort.

### Methodology

150 random points were allocated across the project area using Sampling Design Tool<sup>1</sup> for ESRI Arc GIS. The only areas excluded from the analysis within the project area are those within Carbon Stratum 0 representing roads.

The points were used as an overlay over a series of color infrared (CIR) aerial images to determine contact with forest canopy. The color infrared layers used were:

- NAIP CIR for California as served on ArcGIS Online by California Department of Fish and Wildlife
  - 1 meter resolution 2012 and 2014
  - 60 centimeter resolution 2016, 2018, 2020, 2022

A scale of 1:500 was used to visually determine if the point contacted forest canopy. For each reference year, if the point contacted forest canopy it was assigned a value of "Y", if not, a value of "N". Counting the points assigned a "Y" for each year allows for change detection.

### Results

The results of this analysis show that the number of points contacting forest canopy has increased by 6.0% since 2012. However, the number of points contacting forest canopy peaked in 2020 with 91 out of 150. Table 1 below summarizes the findings for each period.

Table 1. Summary of Forest Canopy Point Analysis

| Metric                             | 2012 | 2014 | 2016 | 2018  | 2020 | 2022  |
|------------------------------------|------|------|------|-------|------|-------|
| # Points where Forest Canopy = Yes | 84   | 86   | 88   | 87    | 91   | 89    |
| Total # Points                     | 150  | 150  | 150  | 150   | 150  | 150   |
| Canopy Cover %                     | 56%  | 57%  | 59%  | 58%   | 61%  | 59%   |
| Annual % Change                    |      | 2.4% | 2.3% | -1.1% | 4.6% | -2.2% |
| Overall % Change Since 2012        |      | 2.4% | 4.8% | 3.6%  | 8.3% | 6.0%  |

<sup>1</sup> <https://coastalscience.noaa.gov/project/sampling-design-tool-arcgis/>



**ATTACHMENT K**

## Legal Constraints Affecting Forest Management Activities on the Project Area

| <b>Constraint Description</b>                                                                                                                                                                                                                                                                        | <b>Geographic Range</b> | <b>Agency</b>                         | <b>Effect on Forest Management</b>                                                                                                                                                                                    | <b>Modeling of Constraint</b>                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Z'Berg-Nejedly Forest Practice Act of 1973 (California Public Resources Code – Division 4, Chapter 8): Designed to protect, enhance & restore California's timberland.                                                                                                                               | California              | CALFIRE                               | Provides guidelines regarding forest management.                                                                                                                                                                      | Not specifically modeled.                                                                                              |
| California Forest Practice Rules (Title 14, California Code of Regulations, Chapter 4): Regulations used to implement the Forest Practice Act that govern timber operations. (FPRs)                                                                                                                  | California              | CALFIRE                               | Places limits on silviculture activities. This includes the requirements for minimum basal area retention, rotation ages, harvest adjacency restrictions, watercourse buffer widths and sustained yield requirements. | Baseline harvest strategy complies with silvicultural requirements, and watercourse protection standards per the FPRs. |
| California Timberland Productivity Act of 1982 (Gov.C. 51100 et seq.): The intent of this Act is to <i>"encourage investment in timberlands based on reasonable expectation of harvest"</i> , and to <i>"discourage premature or unnecessary conversion of timberland to urban and other uses"</i> . | California              | CALFIRE                               | Guides general land use associated with timberlands.                                                                                                                                                                  | Not specifically modeled.                                                                                              |
| California Environmental Quality Act (CEQA) (Pub.Res.C. 21000 et seq.): statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.                                                       | California              | CALFIRE, California Fish and Wildlife | Guides the development of projects in California, including Timber Harvest Plans.                                                                                                                                     | Not specifically modeled.                                                                                              |

| <b>Constraint Description</b>                                                                                                                                                                                                                | <b>Geographic Range</b> | <b>Agency</b>                         | <b>Effect on Forest Management</b>                                                                              | <b>Modeling of Constraint</b>                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Porter-Cologne Water Quality Control Act (California Water Code, Division 7. Water Quality): This is the primary vehicle for implementation of California's responsibilities under the federal 1972 Clean Water Act.                         | California              | Water Quality Control Board           | Provides guidelines for the protection of beneficial uses of water. Limits harvesting adjacent to watercourses. | Modeled through the retention of sufficient basal area and canopy retention per the FRPs.                                   |
| Clean Water Act of 1972 (33 U.S.C. §1251 et seq.): The Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.           | USA                     | Water Quality Control Board           | Provides protection of water resources.                                                                         | Not specifically modeled.                                                                                                   |
| California Endangered Species Act (Fish & G.C. 2050 et seq.): Protects and Preserves all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, that are threatened with extinction. | California              | CALFIRE, California Fish and Wildlife | Limits harvesting associated with the retention of sufficient habitat for endangered species.                   | Habitat retention standards designed to retain sufficient habitat for the Northern Spotted Owl and other protected species. |
| Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884): The Act provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend.                                   | USA                     | US Fish and Wildlife Service          | Limits harvesting associated with the retention of sufficient habitat for endangered species.                   | Habitat retention standards designed to retain sufficient habitat for the Northern Spotted Owl and other protected species. |
| Constraints on timber harvest per the Grant Deed of Conservation Easement recorded in Siskiyou County on 12/27/2018 as DOC-2018-0010634-00                                                                                                   | Portion of Project Area | The Pacific Forest Trust              | Restriction on harvest levels                                                                                   | Baseline harvest strategy complies with CE terms as described in the modeling plan.                                         |

# ATTACHMENT L

## Klamath Forest Carbon Project Improved Forest Management Project

### Financial Analysis of Baseline Scenario

This analysis is provided per section 5.2.1 (e)(2)(A) of Compliance Offset Protocol U.S. Forest Projects, June 25, 2015, and is designed to demonstrate that the baseline growth and harvest regime is financially feasible. This analysis is overly conservative given that the test is simply financial feasibility. If herbicide treatments, tree planting and logging costs were significantly increased, the analysis would still demonstrate that the baseline growth and harvest is financially feasible. Delivered log values are below trended values based on Board of Equalization values, yet still demonstrate financial feasibility.

#### Model Inputs:

|                                                  |          |
|--------------------------------------------------|----------|
| Discount Rate                                    | 8.0%     |
| Inflation                                        | 0.0%     |
| Real price appreciation for delivered log values | 0.0%     |
| Yield Tax                                        | 2.9% MBF |

#### Production Costs:

| Item                                                   | Cost per acre | Quantity | Total Cost    | Cost per MBF    |
|--------------------------------------------------------|---------------|----------|---------------|-----------------|
| THP Preparation                                        | \$175         | 182,361  | \$ 31,913,247 | \$62.85         |
| Logging Supervision                                    |               |          |               | \$25.00         |
| Property Management                                    |               |          |               | \$25.00         |
| Logging and Hauling (Derived from BOE Stumpage Values) |               |          |               | \$0.00          |
| <b>Total</b>                                           |               |          |               | <b>\$112.85</b> |

#### Herbicide Treatment:

| Period | Cost per acre | % of Acres Treated | Total Cost   | Cost per MBF |
|--------|---------------|--------------------|--------------|--------------|
| 1      | \$ 300.00     | 25%                | \$13,677,106 | \$26.94      |
| 2      | \$ 300.00     | 25%                | \$13,677,106 | \$24.33      |
| 3      | \$ 300.00     | 25%                | \$13,677,106 | \$25.31      |
| 4      | \$ 300.00     | 25%                | \$13,677,106 | \$26.45      |
| 5      | \$ 300.00     | 25%                | \$13,677,106 | \$20.71      |
| 6      | \$ 300.00     | 25%                | \$13,677,106 | \$22.30      |
| 7      | \$ 300.00     | 25%                | \$13,677,106 | \$19.59      |
| 8      | \$ 300.00     | 25%                | \$13,677,106 | \$22.51      |
| 9      | \$ 300.00     | 25%                | \$13,677,106 | \$31.23      |
| 10     | \$ 300.00     | 25%                | \$13,677,106 | \$19.46      |

#### Tree Planting:

| Period | Cost per acre | % of Acres Treated | Total Cost   | Cost per MBF |
|--------|---------------|--------------------|--------------|--------------|
| 1      | \$ 380.00     | 25%                | \$17,324,334 | \$34.12      |
| 2      | \$ 380.00     | 25%                | \$17,324,334 | \$30.81      |
| 3      | \$ 380.00     | 25%                | \$17,324,334 | \$32.06      |
| 4      | \$ 380.00     | 25%                | \$17,324,334 | \$33.51      |
| 5      | \$ 380.00     | 25%                | \$17,324,334 | \$26.24      |
| 6      | \$ 380.00     | 25%                | \$17,324,334 | \$28.24      |
| 7      | \$ 380.00     | 25%                | \$17,324,334 | \$24.81      |
| 8      | \$ 380.00     | 25%                | \$17,324,334 | \$28.51      |
| 9      | \$ 380.00     | 25%                | \$17,324,334 | \$39.56      |
| 10     | \$ 380.00     | 25%                | \$17,324,334 | \$24.65      |

# Klamath Forest Carbon Project

Financial Analysis of Baseline Scenario  
Calculation of Net Present Value of Harvest Stream

**Assumptions:** Harvest levels are based on Baseline Harvest Scenario

Logging sytem mix estimated as 50% tractor, 50% cable.

Production costs per MBF are estimates based upon logging system mix.

0% Real price appreciation applied to delivered log values.

All calculations in constant dollars without inflation.

Discount Rate 8.0% Real.

| Year      | Annual Harvest Volume |           |           |           |               | Stumpage Values per MBF |                |                |                |                     | Production<br>Costs<br>\$ / MBF | Herbicide<br>Treatment<br>\$ / MBF | Tree<br>Planting<br>\$ / MBF | Yield<br>Taxes<br>\$ / MBF | Net<br>Value<br>\$ / MBF | Total<br>Net<br>Value | Present<br>Net<br>Value |
|-----------|-----------------------|-----------|-----------|-----------|---------------|-------------------------|----------------|----------------|----------------|---------------------|---------------------------------|------------------------------------|------------------------------|----------------------------|--------------------------|-----------------------|-------------------------|
|           | PP<br>MBF             | DF<br>MBF | IC<br>MBF | WW<br>MBF | Totals<br>MBF | PP<br>\$ / MBF          | DF<br>\$ / MBF | IC<br>\$ / MBF | WW<br>\$ / MBF | Camprun<br>\$ / MBF |                                 |                                    |                              |                            |                          |                       |                         |
| 2022      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 2,093,117               |
| 2023      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 1,938,071               |
| 2024      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 1,794,510               |
| 2025      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 1,661,584               |
| 2026      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 1,538,503               |
| 2027      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 1,424,540               |
| 2028      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 1,319,019               |
| 2029      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 1,221,313               |
| 2030      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 1,130,846               |
| 2031      | 10,881                | 21,102    | 3,064     | 15,726    | 50,773        | 125.00                  | 310.00         | 225.00         | 180.00         | 224.96              | 112.85                          | 26.94                              | 34.12                        | 6.52                       | 44.52                    | 2,260,566             | 1,047,079               |
| 2032      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 1,057,784               |
| 2033      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 979,430                 |
| 2034      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 906,879                 |
| 2035      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 839,703                 |
| 2036      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 777,503                 |
| 2037      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 719,910                 |
| 2038      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 666,583                 |
| 2039      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 617,207                 |
| 2040      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 571,488                 |
| 2041      | 13,889                | 21,291    | 3,180     | 17,866    | 56,225        | 125.00                  | 310.00         | 225.00         | 180.00         | 218.19              | 112.85                          | 24.33                              | 30.81                        | 6.33                       | 43.87                    | 2,466,370             | 529,155                 |
| 2042      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 292,701                 |
| 2043      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 271,019                 |
| 2044      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 250,944                 |
| 2045      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 232,355                 |
| 2046      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 215,144                 |
| 2047      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 199,207                 |
| 2048      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 184,451                 |
| 2049      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 170,788                 |
| 2050      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 158,137                 |
| 2051      | 17,533                | 16,257    | 2,548     | 17,701    | 54,040        | 125.00                  | 310.00         | 225.00         | 180.00         | 203.39              | 112.85                          | 25.31                              | 32.06                        | 5.90                       | 27.27                    | 1,473,407             | 146,423                 |
| 2052      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 81,658                  |
| 2053      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 75,609                  |
| 2054      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 70,008                  |
| 2055      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 64,822                  |
| 2056      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 60,021                  |
| 2057      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 55,575                  |
| 2058      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 51,458                  |
| 2059      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 47,646                  |
| 2060      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 44,117                  |
| 2061      | 19,783                | 13,902    | 2,009     | 16,006    | 51,700        | 125.00                  | 310.00         | 225.00         | 180.00         | 195.66              | 112.85                          | 26.45                              | 33.51                        | 5.67                       | 17.17                    | 887,429               | 40,849                  |
| 2062      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 98,014                  |
| 2063      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 90,754                  |
| 2064      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 84,031                  |
| 2065      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 77,807                  |
| 2066      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 72,043                  |
| 2067      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 66,707                  |
| 2068      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 61,765                  |
| 2069      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 57,190                  |
| 2070      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 52,954                  |
| 2071      | 23,154                | 19,457    | 2,098     | 21,316    | 66,025        | 125.00                  | 310.00         | 225.00         | 180.00         | 200.45              | 112.85                          | 20.71                              | 26.24                        | 5.81                       | 34.83                    | 2,299,652             | 49,031                  |
| 2072-2121 |                       |           |           |           |               |                         |                |                |                |                     |                                 |                                    |                              |                            |                          |                       | 415,774                 |
|           |                       |           |           |           |               |                         |                |                |                |                     |                                 |                                    |                              |                            |                          | Total                 | 26,673,227              |

# ATTACHMENT M

# Klamath Forest Carbon Project Modeling Plan

By Jim Clark, RPF #2528

July 29, 2025

|                                                                                                                                                   |                                     |
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## Growth and Yield Modeling:

The growth and yield modeling described in this modeling plan is performed using the ICASCA variant of the Forest Vegetation Simulator (FVS) model and is based on the following:

### Plot Data:

The modeling presented in this document is based on 473 inventory plots installed in 2022 and 2023 across the Project Area. The inventory design is described in the Inventory Methodology included as Attachment N to the Initial OPDR.

### Updating the Inventory:

The inventory methodology included as Attachment N to the Initial OPDR provides a detailed description of the methods that will be used to maintain and update the Klamath Forest Carbon Project inventory. FVS will be used to project inventory data either forward or backward as needed so that inventory plot data can be adjusted to the appropriate date for reporting of carbon stocks in future OPDRs. The following procedures will apply to inventory updates using average diameter and height increment data derived from 5-year FVS projections:

New plot data will be grown to the end of the reporting period by adjusting the height and diameter of each tree in the inventory database based on the number of days from the date the plot on which the tree is located was cruised to the end of the reporting period and applying a calculated height and diameter increment developed from data produced by growing the plot data five years forward in FVS.

### Volume Calculations:

Conifer board foot volumes are in board feet Scribner Scale for all conifers including at least one 16-ft log to a 5.5" top. The FIA volume and biomass equations described in the Initial OPDR are used for the calculation of all carbon stock values presented below.

## Biomass Calculations:

Biomass calculations utilized in the modeling are described in detail in the Initial OPDR. The addendum to the OPDR lists all of the species-specific volume and biomass equations utilized which are in compliance with the Compliance Offset Protocol – U.S. Forest Projects.

## Adjusting the Inventory Data to the Offset Project Commencement Date:

The cruise data was adjusted to the Offset Project Commencement date by adjusting the height and diameter of each tree in the inventory database based on the number of days from the Offset Project Commencement date to the date the plot on which the tree is located was cruised and applying a calculated height and diameter increment developed from data produced by growing the plot data five years forward in FVS.

## Projecting the Inventory Data to the end of the Initial Reporting Period:

The inventory data used to estimate carbon stocking as of the end of the first reporting period was constructed in a manner similar to the adjustment to the start date described above; however, the height and diameter of each tree was increased or decreased based on the number of days since the plot was cruised and the end of the reporting period.

## Regeneration:

Regeneration in FVS is handled through regeneration curves developed for each stratum. Regeneration curves for each stratum were developed from tree lists using planting densities and species mix information provided by Acer Klamath Forest operations foresters. Strata level regen "stands" were then assigned an associated site index based on the average site index value for each stratum and then grown in FVS.

## Site Index:

To conduct growth modeling for the property, it was necessary to develop an estimate of average 50-year base age site index by species for the Project Area. FVS calculates 50-year base age site index for all species on the project area based on 50-year site index values calculated from site tree data collected as a part of the inventory.

Site indices used to grow plots forward or to apply regimes are consistent with the site indices at the stand level.

The average Douglas-fir 50-year base age site index for each stand type are shown in Table 1 below.

**Table 1: Average 50-year base age Site Index by Stand**

| Strata | Site Index | Site Class |
|--------|------------|------------|
| 1      | 61.6       | III        |
| 2      | 58.6       | III        |
| 3      | 71.7       | III        |
| 4      | 67.4       | III        |
| 5      | 68.5       | III        |
| 6      | 75.0       | III        |

## Project Acreage:

The Project is comprised of approximately 182,362 acres of timberland. The topographic maps included in Attachment E of the Initial OPDR show the Project Area boundary. Attachment E also includes GIS data in the form of a geodatabase that includes the Project Area boundary.

## Baseline Modeling:

The baseline modeling utilizes the above-described 2022-2023 plot dataset, and a harvest strategy employing primarily even-aged management. Selection harvests are utilized prior to transitioning to even-aged harvesting.

At the Project's initiation on 7/1/2022 there were several approved or submitted timber harvest documents across the Project Area. The baseline

harvest scenario considered the harvest prescriptions within the approved or submitted harvest documents as a part of the baseline scenario.

### Baseline Harvest Strategy:

The baseline harvest strategy relies on the application of a series of harvest regimes across the Project Area timber stands over the 100-year baseline analysis period. Attachment 1 includes the silvicultural regimes modeled for the baseline harvest scenario. The silvicultural prescriptions incorporated into the regimes are designed to best accommodate local timber stand conditions, while complying with the Forest Practice Rules as well as all other legal requirements. These regimes are modeled at the stand level.

The baseline harvest strategy was developed using the Patchworks™ modelling platform developed by Spatial Planning Systems Inc. ([www.spatial.ca](http://www.spatial.ca)). Patchworks is a spatially explicit harvest scheduling model and suite of tools that can be used to develop spatial harvest schedules that achieve a broad range of forest management goals. The model utilizes a goal seeking approach and an optimization heuristic to schedule activities across time and space in order to find a solution that best balances the defined targets or goals. As a spatial model, Patchworks has the capability to incorporate and consider real world operational considerations into a strategic planning framework.

Spatial modelling provides the distinct advantage of being able to define spatially explicit targets that ensure compliance with forest practice rules. For example, in this analysis green-up delays and 300ft adjacency are explicitly modelled and used to ensure clear-cut opening sizes are constrained over the full 100-year modelling horizon. Also, the model is used to set targets and report on northern spotted owl habitat for each individual owl activity center and habitat zone explicitly over time.

The Patchworks Modelling Landbase started with the stratified stands layer and includes the following additions:

- Model specific attribution was added based on stands layer and related attribution data including legacy stand level data.
- Road Special Treatment Area buffers for 200ft on county roads to restrict clear cut harvest.
- Hydrological buffers based on stream class including multiple zones including a core zone that precludes harvest and an inner and outer zone that permits specific WLPZ harvest prescriptions.

- NSO activity centers and associated habitat zones (nest/core/outer). Each individual center is tracked for habitat reporting.
- Common practice values tied to soil layer attributes for site class were added using a raster overlay to assign common practice high/low values.
- Carbon common practice supersections, assessment areas, and CPV values based on fortype (as determined using legacy stand information) were assigned to each polygon using a cross-walk table and the soils based site index analysis.
- Timber Harvest Plan (THP) areas with treatment type.
- Tessellation - all large polygons greater than 20 acres were split into smaller polygons using 10-acre hexagons to allow model to spatially optimize harvest schedules for green-up delays, habitat, and operational considerations.
- Polygon grouping, slivers in the resultant landbase were cleaned using a polygon grouping optimization whereby similar smaller polygons are aggregated to a target polygon size for the landbase. The algorithm ensures that polygons that cross important stratification fields such as Strata, Legacy Stand Id etc. cannot be grouped together.

A strata-based model was developed with the following features:

- Plots were aggregated by strata into strata level specific growth and yield curves. Regimes were generated using FVS for even-aged silviculture including growth and regeneration as well as a suite of uneven-aged regimes for NSO habitat retention, riparian areas, commercial thinning, and selection. Since uneven-aged treatments are chosen by optimization based on time of entry, six separate alternative entry timing prescriptions were developed for each uneven-aged regime. Yield curve data includes product yields as well as carbon pool values for live/dead/above ground/below ground and harvest wood products.
- A number of additional attributes were calculated based on FVS outputs including NSO habitat for Low Foraging (LF), Foraging (F), Nesting and Roosting (NR), and High Nesting and Roosting (HNR) based on QMD for trees >5", Crown Closure, BA, and TPA for large diameter trees.
- The model formulation and scenario is set up to:

- o Track all carbon stocks within the carbon project areas.
- o Maintain live, above ground carbon stocking to the current carbon stocking level on the forest (ICS).
- o Maintain NSO low foraging, foraging, nest/roosting and high nesting roosting habitat above minimum habitat levels based on habitat zone, subunit (MCTC or FGS), and portion of the habitat zone in the carbon project area.
- o Allow any harvest type in owl circles provided habitat targets are met but no harvest in the inner nest area (1000ft).
- o Allow selection harvest only within road special treatment areas.
- o Allow only riparian harvest treatments with the inner/outer WLPZ zones and no harvesting in WLPZ core areas.
- o Force implementation of all THP areas in the first period of the model.
- o Ensure clearcut harvesting adheres to green up delay rules that do not allow adjacent clearcuts within 300ft unless adjacent area has greened up for 5 years.
- o Harvest within the conservation easement area has been constrained so as to comply with the specific restrictions to timber harvest outlined in the recorded conservation easement (CE). Attachment 4 presents a summary of how the baseline modeling complies with the terms of the CE.
- o Ensure all clearcuts based on green up and adjacency adhere to forest practice rules as estimated on the landscape based on analysis of recent harvest and approved timber harvest plans as 75% by area less than 20ac, 20% between 20-30ac, 2.5% between 30-40ac, and 0% greater than 40ac.

## General Harvest Constraints:

Harvest on the Project is constrained by several factors. Firstly, the California Forest Practice Rules (FPR) create a minimum set of silvicultural standards below in which harvest cannot occur.

Legal requirements include all laws, regulations, and legally-binding commitments applicable to the Project Area at the time of the project's

initiation that could affect standing live carbon stocks. The Project is subject to the Z'berg- Nejedly Forest Practice Act of 1973 (FPA) and the corresponding Forest Practice Rules (FPR).

The rules that specifically effect the determination of baseline are those that include limits to silviculture activities. This includes the requirements for minimum basal area retention, rotation ages, harvest adjacency restrictions, watercourse buffer widths and sustained yield requirements.

The pertinent rules include the following:

- 14 CCR 933.1: Regeneration Methods Used in Evenaged Management;
- 14 CCR 933.11(a): Maximum Sustained Production of High Quality Timber Products;
- 14 CCR 933.2: Minimum basal area retention standards for Unevenaged Regeneration Methods;
- 14 CCR 933.2 (a)(2)(B): Group selection harvest limitations;
- 14 CCR 933.4 (b): Standards for rehabilitation of Understocked Areas;
- 14 CCR 933.1 (c ): Standards for Seed Tree Seed Step;
- 14 CCR 936.5: Procedure for Determining Watercourse and Lake Protection Zone (WLPZ) Widths and Protective Measures;
- 14 CCR 936.9: Details harvest limitations for Watercourse and Lake Protection Zones around Class 1, 2 and 3 streams;
- 14 CCR 939.9: Northern Spotted Owl
- 14 CCR 932.7(b): Resource Conservation Standards for Minimum Stocking
- 14 CCR 921.3(a)(2): Silvicultural Methods [Coast, Special Treatment Area];
- 14 CCR 921.4(a): Stocking Requirements [Coast, Southern, STA];

The methods by which the Forest Practice Rule constraints listed above as well as other legally binding constraints are incorporated into the baseline harvest scenario are described in the following sections.

In addition to the Forest Practice Rule constraints, approximately 4,554 acres of the Project Area is constrained by the Black Butte Conservation Easement (CE) held by The Pacific Forest Trust. Harvest within the conservation easement area has been constrained so as to comply with the specific restrictions to timber harvest outlined in the recorded conservation easement (CE). Attachment 4 presents a summary of how the baseline modeling complies with the terms of the CE.

## Constraints Analysis:

### **Characterization:**

Timber harvesting was modeled over 100 years for the baseline scenario, taking legal constraints, financial feasibility, and physical limitations into consideration while maintaining average live above-ground carbon stocks above the Minimum Baseline Level (MBL). Forest stand development was projected using a combination of silvicultural prescriptions. Forest stands are subject to treatment types based primarily on their forest structure and site attributes as it relates to the California Forest Practice Rules, as well as other modeled constraints.

### **Baseline Legal Constraints:**

Constraints that affect land-use specific to forest management activities have been incorporated into the baseline modeling. For this project, legal constraints have the greatest effect on timber harvesting levels, as opposed to what is financially feasible or physically possible. These legal constraints dictate what types of silvicultural activities (treatment types) are allowed, and where (spatial) and when (temporal) they are allowed, that is, there are different legal constraints for different locations of the project area.). There are six general constraint types that determine what treatments are operable for any given area: 1) NSO designated habitat; 2) Watercourse core zones; 3) Water and Lake Protection Zones; 4) Approved and submitted harvest plans; 5) the existing Black Butte Conservation Easement Area; and 6) Harvest adjacent to county roads. Each constraint, and how it is applied in the modeling, is described below by constraint class.

### **Northern Spotted Owl:**

For NSO activity centers associated with the Project Area, harvest activity is restricted using parameters taken from guidance from the US Fish and Wildlife Service and as further summarized in Attachment 2. NSO habitat retention standards vary based on the landbase from which the project area originated, as the Michigan-California lands (MCTC) are covered by a Spotted Owl Resource Plan (SORP). The portions of the Project Area that were part of the Fruit Grower's (FGS) property follow the standard NSO habitat retention requirements. A summary of NSO Habitat retention standards by ownership is included as Attachment 2.

### **Class I and II no Harvest Zone:**

Utilizing the Klamath Forest Carbon Project GIS, areas located within Class I or II core zones, where harvesting is restricted, were identified pursuant to 14 CCR936.9 as indicated in tables 2 through 5 from the Forest Practice Rules, shown below. Portions of the Project area are within the Coastal Anadromy Zone. Class II-L watercourse segments are identified as those Class II watercourse segments within 1000 feet of a Class I watercourse. The majority of all other Class II watercourse segments are identified as Class II-S. Class I and Class II-L segments are given a 30-foot core zone on either side of the watercourse, and Class II-S watercourse segments are given a 15-foot core zone on either side of the watercourse.

### **Harvesting WLPZ Areas:**

Utilizing the Klamath Forest Carbon Project GIS the acreage associated with Class I and II WLPZs was determined. These WLPZ acres are harvested using selection silvicultural prescriptions. Harvest levels within the WLPZ are designed to meet FPR standards for shade canopy retention. FPR requirements for the retention of the largest trees, and restrictions on harvests within the channel zone are addressed by adhering to harvest methods allowed by zone and slope pursuant to 14 CCR 936.9 as indicated in tables 3d through 3g from the Forest Practice Rules, shown below. Attachment 3 includes watercourse buffer and harvest assumptions.

### **Special Treatment Areas:**

The provisions of 14 CCR 14 CCR 933.1(a)(6) and 14 CCR 14 CCR 933.1(a)(7) require special consideration for aesthetic enjoyment for silvicultural treatments and timber operations within 200 ft of the edge of the travelled surface of any permanent road maintained by the County. Within this STA, only selection harvesting was permitted.

**Table 3: Procedure for Determining WLPZ Widths and Protective Measures  
Class I WLPZs - Confined Channels - Coastal Anadromy Zone**

| Pursuant to 14 CCR 916.9 (f)(2)                                                                                                       |                  |                                                                                                     |                                                                                              |                                                                                        |                                                                                                                                                      |                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Zone Designation                                                                                                                      | Zone width (ft.) | Overstory Canopy Cover                                                                              |                                                                                              | Large Tree Retention                                                                   | Silviculture Requirements                                                                                                                            | Operational Requirements                                                                    |
| Channel Zone                                                                                                                          | Variable         | Retain all trees except per 916.9 [936.9, 956.9](e)(1) A-F or 916.9 [936.9 956.9] (v)               |                                                                                              | Retain all trees except per 916.9 [936.9, 956.9](e) (1) A-F or 916.9 [936.9 956.9] (v) | Retain all trees except per 916.9 [936.9, 956.9] (e) (1) A-F or 916.9 [936.9, 956.9](v)                                                              | No timber operations except per 916.9 [936.9, 956.9] (e) (1)A-F or 916.9 [936.9, 956.9](v); |
| Core Zone per 916.9 [936.9 956.9] (f)(2)(A)                                                                                           | 30 ft.           | Retain all trees except per 916.9 [936.9, 956.9](e) (1) A-F or 916.9 [936.9 956.9] (v)              |                                                                                              | Retain all trees except per 916.9 [936.9, 956.9](e)(1) A-F or 916.9 [936.9 956.9] (v)  | Retain all trees except per 916.9 [936.9, 956.9] (e) (1) A-F or 916.9 [936.9, 956.9](v); no sanitation salvage except 916.9 (s)(t)and (u).           | No timber operations except per 916.9 [936.9, 956.9] (e) (1) A-For 916.9 [936.9, 956.9](v); |
| Inner Zone per 916.9 [936.9 956.9] (f)(2)(B)                                                                                          | 70 ft.           | 80% Coast and Southern Forest District of Coastal Anadromy Zone per 916.9 [936.9 956.9] (f)(2)(B)3. | 70% in Northern Forest District of Coastal Anadromy Zone per 916.9 [936.9 956.9] (f)(2)(B)3. | 13 largest trees /ac. per 916.9 [936.9 956.9] (f)(2)(B)4.                              | Increase QMD; No sanitation salvage except 916.9 (s)(t)and (u); commercial thinning or single tree selection only.                                   | Preferred Management Practices in 916.9[936.9, 956.9] (f)(2)(D)                             |
| Outer Zone per 916.9 [936.9 956.9] (f)(2)(C)<br><br>Outer Zone applicable only where even-aged regeneration used adjacent to the WLPZ | 50 ft.           | 50% per 916.9 [936.9 956.9] (f)(2)(C).1.                                                            |                                                                                              | NA                                                                                     | Commercial thinning or single tree selection only; Retain wind firm trees.                                                                           | Preferred Management Practices in 916.9[936.9, 956.9] (f)(2)(D)                             |
| Special Operating Zone per 916.9 [936.9 956.9] (f)(2)(E)                                                                              | 50 ft.           | NA                                                                                                  |                                                                                              | NA                                                                                     | SOZ applicable only where even-aged regeneration used adjacent to the WLPZ . Retain understory and midstory trees per 916.9 [936.9, 956.9] (f)(2)(E) | All other Forest Practice Rules                                                             |

| Table 5: Core and Inner Zone widths. |                                         |                   |                                              |                   |                                         |                   |                                              |                   |
|--------------------------------------|-----------------------------------------|-------------------|----------------------------------------------|-------------------|-----------------------------------------|-------------------|----------------------------------------------|-------------------|
| Water Class                          | Class II-S (feet)                       |                   |                                              |                   | Class II-L (feet)                       |                   |                                              |                   |
| Geographic location                  | Watersheds in the coastal anadromy zone |                   | Watersheds outside the coastal anadromy zone |                   | Watersheds in the coastal anadromy zone |                   | Watersheds outside the coastal anadromy zone |                   |
| Slope class                          | Core Zone (feet)                        | Inner Zone (feet) | Core Zone (feet)                             | Inner Zone (feet) | Core Zone (feet)                        | Inner Zone (feet) | Core Zone (feet)                             | Inner Zone (feet) |
| ≤30%                                 | 15                                      | 35                | 10                                           | 40                | 30                                      | 70                | 20                                           | 80                |
| 30-50%                               | 15                                      | 60                | 10                                           | 65                | 30                                      | 70                | 20                                           | 80                |
| >50%                                 | 15                                      | 85                | 10                                           | 90                | 30                                      | 70                | 20                                           | 80                |

| Table 6: Procedures for Determining Watercourse and Lake Protection Zone Widths and Protective Measures <sup>1</sup> |                                                                                                                                                                                                                           |                    |                                                                                                                                                                                                          |                    |                                                                                                                                                                                                      |                    |                                                                                                                              |                    |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Pursuant to 14 CCR 916.5                                                                                             |                                                                                                                                                                                                                           |                    |                                                                                                                                                                                                          |                    |                                                                                                                                                                                                      |                    |                                                                                                                              |                    |
| Water Class Characteristics or Key Indicator Beneficial Use                                                          | 1) Domestic supplies, including springs, on site and/or within 100 feet downstream of the operations area and/or<br>2) Fish always or seasonally present onsite, includes habitat to sustain fish migration and spawning. |                    | 1) Fish always or seasonally present offsite within 1000 feet downstream and/or<br>2) Aquatic habitat for nonfish aquatic species.<br>3) Excludes Class III waters that are tributary to Class I waters. |                    | No aquatic life present, watercourse showing evidence of being capable of sediment transport to Class I and II waters under normal high water flow conditions after completion of timber operations. |                    | Man-made watercourses, usually downstream, established domestic, agricultural, hydroelectric supply or other beneficial use. |                    |
| Water Class                                                                                                          | Class I                                                                                                                                                                                                                   |                    | Class II                                                                                                                                                                                                 |                    | Class III                                                                                                                                                                                            |                    | Class IV                                                                                                                     |                    |
| Slope Class (%)                                                                                                      | Width Feet                                                                                                                                                                                                                | Protection Measure | Width Feet                                                                                                                                                                                               | Protection Measure | Width Feet                                                                                                                                                                                           | Protection Measure | Width Feet                                                                                                                   | Protection Measure |
|                                                                                                                      |                                                                                                                                                                                                                           |                    |                                                                                                                                                                                                          |                    | [see 916.4(c)]                                                                                                                                                                                       |                    | [see 916.4(c)]                                                                                                               |                    |

|                                                                                                                                                                                                                          |                  |     |                  |     |                                  |                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----|------------------|-----|----------------------------------|----------------------------------|
|                                                                                                                                                                                                                          |                  |     |                  |     | [see 936.4(c)]<br>[see 956.4(c)] | [see 936.4(c)]<br>[see 956.4(c)] |
| <30                                                                                                                                                                                                                      | 75               | BDG | 50               | BEI | See CFH                          | See CFI                          |
| 30-50                                                                                                                                                                                                                    | 100              | BDG | 75               | BEI | See CFH                          | See CFI                          |
| >50                                                                                                                                                                                                                      | 150 <sup>2</sup> | ADG | 100 <sup>3</sup> | BEI | See CFH                          | See CFI                          |
| <b>1 - See Section 916.5(e) for letter designations application to this table.</b><br><b>2 – Subtract 50 feet width for cable yarding operations.</b><br><b>3 – Subtract 25 feet width for cable yarding operations.</b> |                  |     |                  |     |                                  |                                  |

### **MSP:**

All forest stands and baseline activities in the project area are subject to the Maximum Sustained Production (MSP) of High Quality Timber Products section of the California Forest Practice Rules. It is assumed in the baseline model that MSP is achieved pursuant to 14 CCR 933.11(a)(2), paraphrased below:

- 1) Balancing growth and harvest over time. The projected inventory resulting from harvesting over time shall be capable of sustaining the average annual yield achieved during the last decade of the planning horizon. The average annual projected yield over any rolling 10-year period, or over appropriately longer time periods for ownerships which project harvesting at intervals less frequently than once every ten years, shall not exceed the projected long-term sustained yield.

This overall constraint is emulated in the baseline by ensuring that harvest in any 10-year rolling period does not exceed the projected long-term sustained yield.

### **Baseline Harvest Summary:**

Treatment types, or silviculture systems, are applied to forest stands in the baseline model such that they followed the silvicultural method objectives in Article 3 of the Forest Practice Rules and as additionally described in this section. Specifically, these treatments included selection, transition, commercial thinning, and rehabilitation of understocked stands. Treatments

are selected and scheduled in the baseline based on legal constraint(s) and stocking.

### Standing Dead

The standing dead carbon pool represents approximately 5.4% of the total carbon found on the Project Area and exceeds the one metric ton or 1% of live carbon test in the structural elements evaluation criteria under section 3.1(a)(1) (Table 3.1) of the protocol. The standing dead carbon pool is treated as a static pool. As the baseline analysis involves ongoing forest management and maintenance of young and vigorous stands, standing dead levels are expected to be maintained at the estimated level. It could be argued that the baseline harvesting scenario would remove poorly formed and suppressed trees, thus capturing mortality that would have otherwise occurred under a harvest scenario that removed fewer trees and less volume over time.

### Growth and Yield Analysis:

The baseline growth and yield analysis was modeled using the FVS model utilizing the above described harvest strategy and the Patchworks™ modelling platform. Table 7 shows the results of the growth and yield analysis in terms of conifer yields over the 100 year planning horizon.

**Table 7: Average Annual per Acre Conifer Growth and Yield through the Planning Horizon (Scribner Board Feet per Acre)**

| Elapsed Time (years) | Beginning Inventory (board feet) | Average Decadal Growth (board feet) | Average Decadal Harvest (board feet) | Ending Inventory (board feet) |
|----------------------|----------------------------------|-------------------------------------|--------------------------------------|-------------------------------|
| 10                   | 9,743                            | 320                                 | 291                                  | 10,035                        |
| 20                   | 10,035                           | 352                                 | 318                                  | 10,376                        |
| 30                   | 10,376                           | 320                                 | 304                                  | 10,535                        |
| 40                   | 10,535                           | 321                                 | 290                                  | 10,844                        |
| 50                   | 10,844                           | 390                                 | 367                                  | 11,071                        |
| 60                   | 11,071                           | 402                                 | 348                                  | 11,616                        |
| 70                   | 11,616                           | 376                                 | 386                                  | 11,519                        |
| 80                   | 11,519                           | 341                                 | 334                                  | 11,581                        |
| 90                   | 11,581                           | 323                                 | 241                                  | 12,399                        |
| 100                  | 12,399                           | 386                                 | 386                                  | 12,399                        |

Table 8 presents the acreage of each silvicultural regime applied to the Project Area over the 100-year baseline modeling analysis.

**Table 8: Application of Silvicultural Regimes through the 100-year Planning Horizon**

| Year | CC     | CTHN   | NSO1 | NSO2  | NSO3  | NSO4 | WLPZ  | SEL   | Total  |
|------|--------|--------|------|-------|-------|------|-------|-------|--------|
| 6    | 19,042 | 4,774  | -    | 603   | 40    | 6    | -     | 4,423 | 28,888 |
| 11   | 7,428  | 206    | 0    | 155   | 18    | 10   | -     | 317   | 8,134  |
| 16   | 12,012 | 1,915  | 12   | 571   | 98    | 0    | -     | 594   | 15,203 |
| 21   | 10,433 | 244    | 354  | 1,090 | 35    | 11   | -     | 1,759 | 13,926 |
| 26   | 8,741  | 5,847  | 7    | 734   | 489   | 0    | -     | 4,735 | 20,553 |
|      | 11,210 | 271    | 331  | 1,315 | 16    | 36   | -     | 130   | 13,311 |
| 36   | 8,919  | 8,904  | 340  | 1,471 | 33    | 6    | -     | 427   | 20,100 |
| 41   | 9,465  | -      | 594  | 1,180 | 827   | 10   | 2,104 | 1,518 | 15,697 |
| 46   | 9,010  | 1,923  | 340  | 1,369 | 505   | -    | -     | 4,831 | 17,977 |
| 51   | 8,975  | 15,450 | 338  | 1,715 | 25    | 11   | 1,410 | 646   | 28,570 |
| 56   | 18,771 | 7,045  | 108  | 1,802 | 35    | -    | -     | 621   | 28,381 |
| 61   | 11,619 | 12,633 | 5    | 2,025 | 486   | 33   | 1,468 | 1,747 | 30,016 |
| 66   | 13,830 | 5,423  | 60   | 1,155 | 926   | -    | -     | 4,531 | 25,926 |
| 71   | 14,496 | 7,475  | 40   | 2,260 | 17    | 4    | -     | 373   | 24,665 |
| 76   | 12,808 | 6,132  | 330  | 1,738 | 538   | 6    | -     | 187   | 21,739 |
| 81   | 10,843 | 4,426  | 90   | 1,529 | 32    | 10   | -     | 1,482 | 18,412 |
| 86   | 8,351  | 6,519  | 50   | 1,252 | 42    | -    | -     | 5,806 | 22,020 |
| 91   | 4,556  | 5,786  | 295  | 1,863 | 1,297 | -    | -     | 516   | 14,312 |
| 96   | 12,679 | 18,282 | 106  | 908   | 2     | 11   | -     | 482   | 32,470 |
| 101  | 12,750 | 10,858 | 13   | 1,304 | 57    | -    | -     | 220   | 25,203 |

## Baseline Carbon Stocks

The baseline modeling scenario defined in this document follows the guidelines presented in section 5.2 of the Compliance Offset Protocol U.S. Forest Projects, June 25, 2015.

Key components of the calculated baseline are as follows:

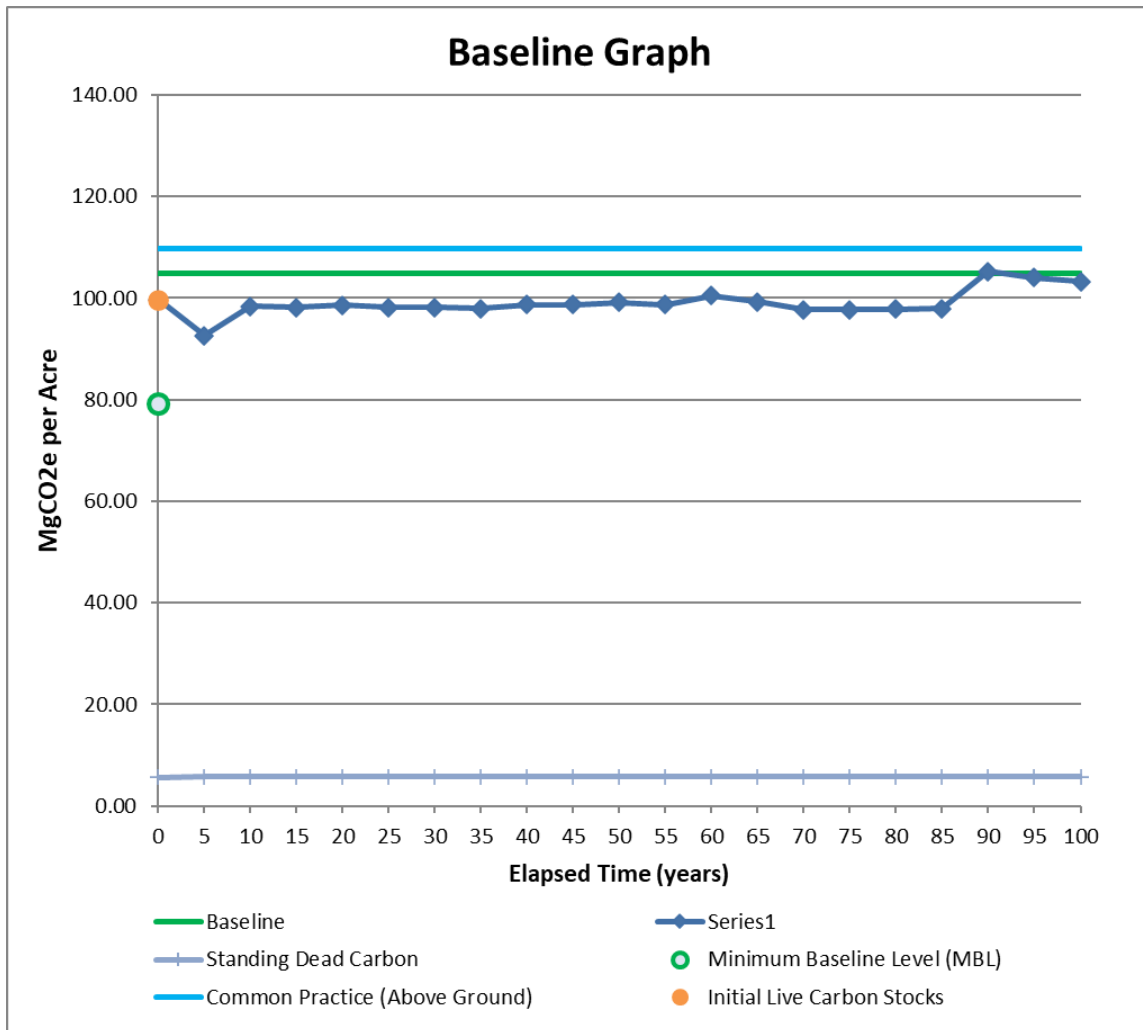
1. Initial Project live carbon stocks are below Common Practice.
2. The Project is subject to the High Stocking Reference calculation.
3. Initial live carbon stocks have been modeled subject to all legal and financial constraints for a 100-year period.
4. The average carbon stocks of the 100-year baseline growth and yield modeling scenario have been calculated.
5. The average stocks of standing dead carbon over the 100-year period have been calculated.
6. The average production of In-Use carbon, landfill carbon, and harvested carbon prior to delivery to a mill have been calculated from the 100-year baseline growth and yield scenario.

Table 9 below shows the modeled standing live carbon stocks over the 100-year baseline analysis period, the projected standing dead carbon pool, and the resulting average baseline carbon stocks on a per acre basis. These figures are plotted in Figure 1 as well.

**Table 9: Average Baseline Carbon Stocks per acre Generated by the Baseline Harvest Scenario (Mg CO<sub>2</sub>e per Acre).**

| Elapsed Time | Standing Live Carbon Pool IFM-1 | Standing Live Above Ground | Standing Live Below Ground | Standing Dead Carbon Pool IFM-3 | Baseline |
|--------------|---------------------------------|----------------------------|----------------------------|---------------------------------|----------|
| 0            | 99.70                           | 79.23                      | 20.47                      | 5.65                            | 104.79   |
| 5            | 92.57                           | 73.64                      | 18.93                      | 5.70                            | 104.79   |
| 10           | 98.39                           | 78.39                      | 20.01                      | 5.71                            | 104.79   |
|              | 98.14                           | 78.27                      | 19.88                      | 5.73                            | 104.79   |
| 20           | 98.65                           | 78.74                      | 19.91                      | 5.74                            | 104.79   |
| 25           | 98.12                           | 78.36                      | 19.76                      | 5.74                            | 104.79   |
| 30           | 98.19                           | 78.43                      | 19.76                      | 5.75                            | 104.79   |
| 35           | 97.94                           | 78.27                      | 19.67                      | 5.74                            | 104.79   |
| 40           | 98.66                           | 78.83                      | 19.83                      | 5.74                            | 104.79   |
| 45           | 98.70                           | 78.84                      | 19.86                      | 5.73                            | 104.79   |
| 50           | 99.20                           | 79.31                      | 19.88                      | 5.72                            | 104.79   |
| 55           | 98.66                           | 78.95                      | 19.70                      | 5.73                            | 104.79   |
| 60           | 100.47                          | 80.54                      | 19.92                      | 5.72                            | 104.79   |
| 65           | 99.25                           | 79.53                      | 19.71                      | 5.73                            | 104.79   |
| 70           | 97.76                           | 78.40                      | 19.36                      | 5.75                            | 104.79   |
| 75           | 97.69                           | 78.38                      | 19.31                      | 5.76                            | 104.79   |
| 80           | 97.78                           | 78.43                      | 19.34                      | 5.76                            | 104.79   |
| 85           | 97.93                           | 78.55                      | 19.38                      | 5.76                            | 104.79   |
| 90           | 105.23                          | 84.39                      | 20.84                      | 5.74                            | 104.79   |
| 95           | 104.00                          | 83.50                      | 20.50                      | 5.74                            | 104.79   |
| 100          | 103.29                          | 82.89                      | 20.40                      | 5.74                            | 104.79   |
| Average      | 99.06                           | 79.23                      | 19.83                      | 5.73                            | 104.79   |

Figure 1: Baseline Carbon Stocks



## Wood Products

The baseline growth and yield modeling generates a flow of wood products over the 100-year planning period. Table 10 below shows the average wood products generated over the 100-year period. Three average wood products numbers are presented: average wood products In-use, average wood products stored in landfills, and the average amount of carbon in standing live carbon stocks prior to delivery to a mill.

**Table 10: Average Wood Products Carbon per acre Generated by the Baseline Harvest Scenario.**

| Woods Products                                                         |  | Mg CO <sub>2</sub> e/ acre | Total Mg CO <sub>2</sub> e |
|------------------------------------------------------------------------|--|----------------------------|----------------------------|
| Average Annual Carbon 100-year In-Use                                  |  | 0.402                      | 73,371                     |
| Average Annual Carbon 100-year Landfill                                |  | 0.258                      | 47,057                     |
| Average Annual Carbon in Harvested Trees Prior to Delivery to the Mill |  | 2.869                      | 523,134                    |

## Attachments

1. Silvicultural Prescriptions Modelled
2. NSO Habitat retention standards by ownership
3. Watercourse buffer and harvest assumptions
4. Black Butte CE Modeling Matrix

Attachment 1  
Silvicultural Prescriptions Modelled

| RX description                          | RX name | RX name - depletion | Site class | Stocking trigger, basal area | Operational trigger (MINHARV) | BEFORBA | Residual stocking (RESIDBA) | Cut DBH range | Min QMD | Trees                            | Trees 2                    | Min canopy closure      | Regeneration | Regeneration assumptions                                                                                     | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                              |
|-----------------------------------------|---------|---------------------|------------|------------------------------|-------------------------------|---------|-----------------------------|---------------|---------|----------------------------------|----------------------------|-------------------------|--------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Grow with no harvest                    | GROW    | None                | All        | None                         | None                          |         | None                        | None          | None    | None                             | None                       |                         | None         | None                                                                                                         | No prescription applied - allow forest to grow 100 years into the future                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                              |
| Regen - bare earth grow                 | GR_R    | None                | Variable   | After clearcut               | None                          |         | None                        | None          |         | None                             | None                       | None                    | Yes          | None                                                                                                         | Grow only with the regen treelists based on planting assumptions.<br><br>FWS provided planting assumptions and treelists were developed off planting assumptions. Assumptions are based on tract, elevation, aspect, and site class. Assumptions were simplified to develop generalized treelists by strata.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                              |
| Regen - commercial thin                 | CT_R    | None                | Variable   |                              | 3 MBF/acre                    |         |                             | >3            |         | None                             | None                       | None                    | Yes          | None                                                                                                         | Commercial thin with regen treelists based on planting assumptions<br><br>FWS provided planting assumptions and treelists were developed off planting assumptions. Assumptions are based on tract, elevation, aspect, and site class. Assumptions were simplified to develop generalized treelists by strata.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                              |
| Selection                               | SELE    | D_SE                | I          | 200                          | 3 MBF/acre                    | 175     | 100                         | >12           | None    | None                             | None                       | None                    | Yes          | - establishment of species mix based on leading species in stand (~78 TPA)                                   | Uneven aged regime where stands are thinned based on DBH down to a residual basal area based on the site index of the stand. DBH of 12 or greater are targeted in this thin. Partial cut - yields hardcoded into this keyfile in perpetuity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                              |
|                                         |         |                     | II-III     | 175                          | 3 MBF/acre                    | 150     | 75                          |               | None    |                                  |                            |                         |              |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
|                                         |         |                     | IV-V       | 150                          | 3 MBF/acre                    | 125     | 50                          |               | None    |                                  |                            |                         |              |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| Commercial thin                         | CTHN    | D_CT                | I          | 200                          | 3 MBF/acre                    | 200     | 120                         | >3            | None    | None                             | None                       | None                    | Yes          |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Commercial thin from below where stands are thinned based on DBH down to a residual basal area based on the site index of the stand. followed by clearcut harvest (cc happens in the model.) |
|                                         |         |                     | II         | 200                          | 3 MBF/acre                    | 175     | 100                         |               | None    |                                  |                            |                         |              |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
|                                         |         |                     | III        | 185                          | 3 MBF/acre                    | 155     | 85                          |               | None    |                                  |                            |                         |              |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
|                                         |         |                     | IV-V       | 160                          | 3 MBF/acre                    | 140     | 60                          |               | None    |                                  |                            |                         |              |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| FGS owl - high quality nesting/roosting | FOW1    | D_OW                | All        |                              | 3 MBF/acre                    | 250     | 210                         |               | 15" QMD | >8 TPA of trees >26" dbh         | None                       | 60%                     | Yes          | Regeneration assumptions:<br>- establishment of species mix based on strata ForTyp (~23 TPA)                 | NSO prescriptions for FGS - MCTC has SORP for separate habitat retention requirements<br>- Thinning from above to a certainin basal area - this is triggered when there are a small amount of trees less than 24 inches in diameter in a stand. This thin only cuts trees 26" and above<br>- Thinning from above to a trees per target area. This is triggered when there is a large number of trees less than 26" in diameter. It looks to remove 5 TPA with 26" diameter and above regardless of height.<br>- Thin from a DBH range. This is triggered when there are a lot of trees less then 26 inches in diameter and less than 5 trees per acre of trees 26inches in diameter and greater. This thin targets a diameter range of 10-26 inches and cuts down to a basal area of 40 or the difference of 150 – (basal area of trees less than 10 inches in diameter added to the basal area of trees greater than 26inches in diameter), whichever value is larger is what the thin cuts to.<br><br>For MCTC - the large tree TPA retention is different but it will follow the same logic above. |                                                                                                                                                                                              |
| FGS owl - nesting/roosting              | FOW2    | D_OW                | All        |                              | 3 MBF/acre                    | 200     | 150                         |               | 15" QMD | >8 TPA of trees >26" dbh         | None                       | 60%                     | Yes          |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| FGS owl - foraging                      | FOW3    | D_OW                | All        |                              | 3 MBF/acre                    | 170     | 120                         |               | 13" QMD | ≥8 TPA of trees >26" dbh         | None                       | 40% of trees >= 11" DBH | Yes          |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| FGS owl - low quality foraging          | FOW4    | D_OW                | All        |                              | 3 MBF/acre                    | 120     | 80                          |               | 11" QMD | None                             | None                       | 40%                     | Yes          |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| MCTC owl - nesting/roosting             | MOW1    | D_OW                | All        |                              | 3 MBF/acre                    | 200     | 120                         |               | 12" QMD | >= 5 TPA of trees >22" dbh       | >= 3 TPA of trees >18" dbh | 60%                     | Yes          |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| MCTC owl - foraging                     | MOW2    | D_OW                | All        |                              | 3 MBF/acre                    | 150     | 90                          |               | 11" QMD | >= 3 TPA of trees >22" dbh       | None                       | 40%                     | Yes          |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| MCTC owl - low quality foraging         | MOW3    | D_OW                | All        |                              | 3 MBF/acre                    | 120     | 60                          |               | 10" QMD |                                  | None                       | 40%                     | Yes          |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                              |
| WLPZ ASP                                | WLPZ    |                     | All        |                              | 3 MBF/acre                    | 120     |                             |               |         | Retain 13 largest trees per acre | None                       | 70%                     | Yes          | From current NF keyword file:<br>- establishment of species mix based on strata ForType out of FVS (~45 TPA) | A canopy cover thin down to 70% of the residual canopy cover if the initial basal area is greater than 120, applies to conifers but only trees with DBH>=10 inches, add natural regen.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                              |
| WLPZ 50%                                | WLP2    |                     | All        |                              | 3 MBF/acre                    | 120     |                             |               |         | None                             | None                       | 50%                     | Yes          |                                                                                                              | A canopy cover thin down to 50% of the residual canopy cover if the initial basal area is greater than 120, applies to conifers but only trees with DBH>10 inches.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                              |

Attachment 2  
NSO Habitat retention standards by ownership

Data associated with the following five tables was taken from the U.S. Fish and Wildlife Service's *Regulatory and Scientific Basis for U.S. Fish and Wildlife Service Guidance for Evaluation of Take for Northern Spotted owls on Private Timber Lands in California's Northern Interior Region* (2009), *Northern Spotted Owl Take Avoidance Analysis and Guidelines for Private lands in California* (Attachment B: Take Avoidance Analysis-Interior; 2008), and legacy MCTC's *Spotted Owl Resource Plan* (SORP; 2022).

**Table I. Legacy FGS habitat values based on USFWS values for selected structural parameters used to classify nesting/roosting and foraging habitat for NSOs as shown in Table III.D.1 of the USFWS Guidelines.**

| Habitat Category              | Tree Size (QMD >5" DBH) | Basal Area (ft <sup>2</sup> per acre of trees >5" dbh) | Trees >26" DBH | Canopy Closure |
|-------------------------------|-------------------------|--------------------------------------------------------|----------------|----------------|
| High Quality Nesting/roosting | ≥ 15"                   | ≥210ft <sup>2</sup>                                    | 8 per acre     | ≥60%           |
| Nesting/roosting              | ≥ 15"                   | 150-180+ft <sup>2</sup>                                | 8 per acre     | ≥60%           |
| Foraging                      | ≥ 13"                   | 120-180+ft <sup>2</sup>                                | 5 per acre     | ≥60%           |
| Low Quality Foraging          | ≥ 11"                   | 80-120+ft <sup>2</sup>                                 |                | ≥40%           |

**Table II: Minimum quantities of habitat to be retained within four functional habitat types to avoid incidental take of northern spotted owls on legacy FGS lands in the Northern Interior Region, as shown in Table II.2 of the USFWS Guidelines.**

| Analysis Area              | Functional Habitat Type |                  |           |                      |                |
|----------------------------|-------------------------|------------------|-----------|----------------------|----------------|
|                            | High Quality NR         | Nesting/Roosting | Foraging  | Low-quality Foraging | Total Suitable |
| Core Area (0.5 Mile)       | 100 acres               | 150 acres        | 100 acres | 50 acres             | 400 acres      |
| Outer Ring (0.5 -1.3 Mile) |                         |                  | 655 acres | 280 acres            | 935 acres      |
| Home Range (1.3 mile)      | 100 acres               | 150 acres        | 755 acres | 330 acres            | 1335 acres     |

**Table III. Legacy MCTC habitat values for selected structural parameters used to classify nesting/roosting and foraging habitat for NSOs, taken from Table II of the SORP.**

| Habitat Category            | Tree Size (QMD >5" DBH) | Basal Area (ft <sup>2</sup> per acre of trees >5" dbh) | Trees >22" DBH | Trees > 18" DBH | Canopy Closure |
|-----------------------------|-------------------------|--------------------------------------------------------|----------------|-----------------|----------------|
| <b>Nesting/roosting</b>     | ≥ 12"                   | ≥120 ft <sup>2</sup>                                   | ≥5 per acre    | ≥3 per acre     | ≥ 60%          |
| <b>Foraging</b>             | ≥ 11"                   | 90-120ft <sup>2</sup>                                  | ≥3 per acre    |                 | ≥ 40%          |
| <b>Low Quality Foraging</b> | ≥ 10"                   | 60-90ft <sup>2</sup>                                   |                |                 | ≥ 40%          |

*No high-quality NR habitat standard for legacy MCTC lands under the SORP*

**Table IV. Minimum quantities of habitat to be retained within four functional habitat types to avoid incidental take of northern spotted owls on legacy MCTC lands in the Northern Interior Region, as shown in Attachment B (USFWS 2019), and specified in Table IV of the SORP.**

|                                    | Nesting-Roosting | Foraging  | Low Quality Foraging | Total Acres      |
|------------------------------------|------------------|-----------|----------------------|------------------|
| <b>Core Area (0.5 Mile)</b>        | 250 acres        | 150 acres |                      | 400 acres (80%)  |
| <b>Outer Ring (0.5 – 1.3 Mile)</b> |                  | 655 acres | 280 acres            | 935 acres (32%)  |
| <b>Total Range (1.3 mile)</b>      | 250 acres        | 805 acres | 280 acres            | 1335 acres (39%) |

*No high-quality NR habitat standard for legacy MCTC lands under the SORP*

**Table V. Approximate acreages associated with the four habitat analysis areas and harvest restrictions.**

| Analysis Area                                                                                                 | Radius        | Area        | Harvest Potential        |
|---------------------------------------------------------------------------------------------------------------|---------------|-------------|--------------------------|
| Nest Stand                                                                                                    | 1,000 feet    | 72 acres    | No Harvest               |
| Core Area                                                                                                     | 0.5 miles     | 502 acres   | Above retention standard |
| Outer Ring                                                                                                    | 0.5-1.3 miles | 2,896 acres | Above retention standard |
| Home Range                                                                                                    | 1.3 miles     | 3,398 acres | Above retention standard |
| <b><i>No more than 1/3 of the remaining suitable habitat may be harvested during the life of the THP.</i></b> |               |             |                          |

Attachment 3  
Watercourse buffer and harvest assumptions

| Class | Core Zone | Inner Zone | Outer Zone | SOZ | Prescriptions | Application                                                  | Overstory Cannoopy Retention | Conifer BA | Large Tree Retention               |
|-------|-----------|------------|------------|-----|---------------|--------------------------------------------------------------|------------------------------|------------|------------------------------------|
| I     | 0         | 100        | 0          | 0   | No Harvest    | I-ASP and II-L Core Zones                                    | -                            | -          | -                                  |
| I-ASP | 30        | 70         | 50         | 50  | WLPZ ASP      | I-ASP and II-L Inner Zones<br>II-S Core Zone; I, II and II-S | 70%                          | 100        | 13 largest trees<br>/ac. per 936.9 |
| II    | 0         | 75         | 0          | 0   | WLPZ 50%      | Inner Zones; I-ASP Outer                                     | 50%                          | 75         | -                                  |
| II-S  | 15        | 85         | 0          | 0   |               |                                                              |                              |            |                                    |
| II-L  | 30        | 70         | 0          | 0   |               |                                                              |                              |            |                                    |

I-ASP Outer Zone is only applicable where even-aged harvests are adjacent to a Class I-ASP WLPZ  
SOZ Special Operating Zone where even-aged harvests are adjacent to a Class I-ASP WLPZ

Attachment 4  
Black Butte CE Modeling Matrix

## CE Modeling Matrix

| Area                                   | Acres <sup>1</sup>                     | Area %            | General Approach                                                                                                                                                                                                                                     | Specific Modeling Approach                                                                                                                                                                                                                                                                                                   |
|----------------------------------------|----------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Special Habitat Management Zone (SHMZ) | 722.5, 567 designated as Mature Forest | 11.3 <sup>2</sup> | Forest management in this zone is geared towards the development of mature forests.                                                                                                                                                                  | No harvest under the baseline harvest scenario.                                                                                                                                                                                                                                                                              |
| Uneven-Aged Management Zone (UMZ)      | 904.1                                  | 18.1              | Only selection, sanitation, salvage or other partial harvest silviculture is permitted, consistent with the goal of creating and maintaining Multi-Storied Stands therein.                                                                           | <ul style="list-style-type: none"> <li>o Defer harvest until 2029 (see CE Level Testing Requirements).</li> <li>o Apply only selection silviculture.</li> <li>o Goal to retain 20 sq ft of basal area in trees between 20" to 36" DBH. QMD goal for this portion of the stand meets and then maintains 24 inches.</li> </ul> |
| Forest Management Zone (FMZ)           | 3380.1                                 | 67.5              | Forest management activities are permitted within the FMZ provided the activities are conducted pursuant to (i) the Forest Management Plan; and (ii) the Conservation Purpose, terms and conditions of the Easement, including Part II of Exhibit D. | <ul style="list-style-type: none"> <li>o Defer harvest until 2029.</li> <li>o Retain 10% by area from all even-aged harvest units as Habitat Retention Areas (HRAs). These would remain for the longer of 25 years or the next even-aged regeneration harvest.</li> </ul>                                                    |

### General Assumptions:

1. Snag and LWD requirements are assumed to be met through the various retention requirements of the CE.
2. The 20% multi-storied stand requirements will be met within the UMZ, and the SHMZs dedicated to mature forest.
3. Early-seral habitat elements in harvest openings will be assumed to be achieved as a part of PCT operations embedded in the regeneration curves for even-aged units.
4. Conifer and hardwood trees having features of structural decadence are assumed to be retained within the UMZ and even-aged 10% retention areas.

<sup>1</sup> Acreage within the CE boundary. The carbon project excludes some of the CE acreage.

<sup>2</sup> For those portions designated as Mature Forest.

5. Mix of Pine, Douglas-fir, White-fir, and Incense cedar as the dominant tree species on the property, including secondary species such as Black Oak, Alder, Aspen, and Willow based on site capability assumed to be met based on current forest structure diversity and maintenance (Exhibit D, Part II(B)(1)).

**CE Level Testing Requirements:**

1. Maximum harvest volume per decade shall not exceed 30% of standing net merchantable volume at the start of the decade<sup>3</sup> based on the carbon project inventory data. This is measured at the level of the entire CE area including the SHMZs. Since harvests occurred in the CE area during the initial decade and the scale of those harvests is unknown, harvest under the baseline will be deferred until the beginning of the second decade, or 2029.
2. Large tree retention will not decline below current levels based on the carbon project inventory data<sup>4</sup>. Retention of 7 sq. ft. per acre of basal area in conifers >30" DBH or hardwoods greater or equal to 23" DBH. Progress towards this goal must be achieved over the 100-year baseline analysis period.

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<sup>3</sup> The FMP identifies the current net merchantable forest inventory as of the start of the first decade as 26,399 MBF or approximately 5,300 board feet per acre.

<sup>4</sup> The FMP identifies 3.01 sq. ft. per acre of Large Trees as of the Effective Date of the CE.

**ATTACHMENT N**

# **KLAMATH FOREST CARBON PROJECT CARBON PROJECT INVENTORY METHODOLOGY**

**Revised April 29, 2025**

This document contains specifications for the collection of data in the field for the Klamath Forest Carbon Project inventory, as well as the data to be collected and the standards for data collection and processing. The Project includes approximately 182,361 acres of timberland characterized by mixed Sierra Nevada conifer forest with smaller acreages of intermingled herbaceous, shrub and hardwood dominated areas. The Project Boundary includes the following GHG emission sources, GHG sinks, and GHG reservoirs (SSRs or Carbon Pools) as defined in table 4.2 of the Compliance Offset Protocol U.S. Forest Projects, June 25, 2015:

- IFM-1 Standing live carbon (carbon in all portions of living trees)
- IFM-3 Standing dead carbon (carbon in all portions of standing dead trees)
- IFM-7 Carbon in in-use forest products
- IFM-8 Forest product carbon in landfills
- IFM-14 Biological emissions/removals from changes in harvesting on forestlands outside the Project Area
- IFM-17 Biological emissions from decomposition of forest products

This Forest Carbon Inventory at its core consists of a systematic sampling of the timber stands found on the Project Area. Sampling was conducted through the installation of sampling points on a systematic grid across the Project Area.

## Plot Layout

Phases I, II, III – 600 plots for the first phase, and 300 for phases II and III if needed to improve sampling error statistics.

A total of 1200 plots were laid out across the sampling frame. The plot layout software that F&W uses is called EZplot. Shapefiles of the sampling frame and specs were shared with an F&W Inventory Analyst to produce plot grid. Phases II and III were included as an offset backup grid in case more plots were needed to reach the desired sampling error statistics. To group the plots by phases, the following was done in ArcGIS Pro. To assign Phase I, a grid was overlaid, and phases assigned to each grid line, then used “Select by Attribute” to select the gridlines for Phase I. A new layer was created with the Phase I grid lines, then we used “Select by Location” to select the plots that the Phase I gridlines intersected. This was repeated for Phase II and III, using queries to select only plots with no assigned Phase.

Only Phase I plots were sampled for the 2022-2023 inventory. After the Project Area was determined, the final inventory design resulted in the installation of 473 plots across the Project Area.

The standard procedures for collecting field measurements are detailed below and are generally aimed at the collection of tree data pertaining to the quantification of the IFM-1 and IFM-3

carbon pools. Carbon in carbon pools IFM7, IFM-8, IFM-14, and IFM-17 are calculated as described in the calculation methodologies section below.

## **Inventory Methodologies**

A description of the inventory methodology for each of the carbon pools listed above is included in the Initial OPDR under section VII.A and is included herein by reference. The data collection procedures for IFM-1 and IFM-3 SSRs are described in detail in the attached Acer Klamath Forest Carbon Inventory Protocol included as Appendix B.

## **Calculation Methodologies**

A description of the calculation methodologies used to determine metric tons per acre of each of the carbon pools listed above is described below. Included are the analytic methods and biomass equation references used to translate field measurements into volume and biomass carbon estimates.

### **IFM-1 Standing Live:**

Above-ground standing live carbon in trees 1" DBH and larger has been calculated using the appropriate biomass equation by species taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB's website. The current biomass equation documentation provided by ARB is included in the ARB document "Volume Estimation for Species in Projects Located in CA, OR, WA (Last updated: 09/19/2014)." Specific gravities for bark and live branch equations were obtained from approved ARB document "Biomass equations for species in projects located in CA, OR, WA (updated: 09/19/2014)." These equations are used to generate biomass estimates for the above-ground portion of standing live trees, and hard snags. These equations will be referred to as the "FIA equations" herein.

Tonnes of standing live biomass per sample plot are calculated as follows:

For equations that use total tree height in meters, tree height is calculated by multiplying the trees total height in feet by 0.3048. Trees per hectare are calculated by multiplying trees per acre by 2.471. Tree diameter at breast height ("DBH") in centimeters (cm) is calculated by multiplying its DBH in inches by 2.54.

### **Bole Biomass:**

The cubic foot volume of each tree is calculated as the volume of the total stem from ground to tip (includes the top and stump). FIA refers to this value as CVTS. Bole biomass is calculated by multiplying the cubic volume by the wood density, and then dividing by 2.20462 to calculate weight in kilograms (kg). Above-ground biomass in kilograms (Kg) per acre is calculated by multiplying the FIA calculated kg per tree by each tree's per acre value.

#### Bark and Live Branches Biomass:

The above referenced FIA equations produce biomass in kg for the various parts of the above-ground portion of each tree. Above-ground biomass in kilograms (Kg) per acre is calculated by multiplying the FIA calculated kg per tree by each trees per acre value.

Missing volume of each tree is recorded as a percentage missing by 1/3<sup>rd</sup> segment of the tree (top, middle, bottom) as adapted from the Climate Action Reserve's "Quantification Guidance for Use with Forest Carbon Projects" dated November 15, 2012. The total heights of trees with broken tops use a phantom height recorded in the field. Cloud FVS uses the height to the break or the truncated height and the phantom height to determine the missing volume associated with the broken top.

Missing volumes by 1/3rds that were recorded in the field were then added to the estimated volume missing if there was a broken top. The total missing percentage of each tree is calculated based on 65% of the trees biomass being in the bottom 1/3<sup>rd</sup>, 25% in the middle 1/3<sup>rd</sup>, and 10% in the top 1/3<sup>rd</sup>. The total percentage of the tree that is missing is then calculated and multiplied by various biomass components of the tree as calculated above to calculate the net biomass of each component.

The net Kg per acre value of each tree on the plot is summed to derive above-ground live biomass Kg per acre for the plot. This value is used to calculate the respective below-ground live biomass component for the plot.

Below-ground live carbon is calculated at the plot level using the model provided by Cairnes et. al. specified on page 111 of Appendix A of the Protocol. The formula has as its input, above-ground live and dead biomass in Mg per hectare, and outputs below-ground biomass in Mg per hectare. Total net above-ground live carbon in Kg per acre for each plot is converted to Mg of biomass per hectare by multiplying by 2.471, and then dividing by 1000. After calculating the below ground component in Mg per hectare using the Cairnes model and the ratio of above-ground live biomass to above-ground dead biomass, the results are converted to Kg per acre by multiplying by 1000 and dividing by 2.471.

Total standing live biomass for each plot is the sum of the above-ground and below-ground live biomass Kg per acre. Mg of carbon (Mg C) per acre per plot is then calculated by multiplying by 0.5 to estimate carbon biomass. Mg C per acre is converted to CO<sub>2</sub>-equivalent by multiplying by 3.667.

#### IFM-3 Standing Dead:

Data on standing dead trees was collected as a part of the project inventory. In general, the amount of carbon stored in a standing dead tree is based on the proportion of the tree remaining standing, and the condition of the tree, or its decay class. The standing dead carbon pool includes trees 5" DBH and larger, with a minimum height of 15'.

Standing dead trees from the inventory data are classified into five decay classes based on descriptions contained in Research Paper NRS-15 (Harmon et al, 2011). These decay classes are generally described as follows:

- Class 1 All limbs and branches are present; the top of the crown is still present; all bark remains; sapwood is intact, with minimal decay; heartwood is sound and hard.
- Class 2 There are few limbs and no fine branches; the top may be broken; a variable amount of bark remains; sapwood is sloughing with advanced decay; heartwood is sound at base but beginning to decay in the outer part of the upper bole.
- Class 3 Only limb stubs exist; the top is broken; a variable amount of bark remains; sapwood is sloughing; heartwood has advanced decay in upper bole and is beginning at the base.
- Class 4 Few or no limb stubs remain; the top is broken; a variable amount of bark remains; sapwood is sloughing; heartwood has advanced decay at the base and is sloughing in the upper bole.
- Class 5 No evidence of branches remains; the top is broken; <20 percent of the bark remains; sapwood is gone; heartwood is sloughing throughout.

Biomass for standing dead trees includes the bole and bark components calculated using the FIA biomass equations described above and following the same procedures as for live trees other than the manner in which missing volume is calculated.

Missing volume of each tree is recorded as a percentage missing by 1/3<sup>rd</sup> segment of the tree (top, middle, bottom) as adapted from the Climate Action Reserve's "Quantification Guidance for Use with Forest Carbon Projects" dated November 15, 2012. The total heights of trees with broken tops are estimated by the cruiser in the field. If 1/3<sup>rd</sup> of the calculated tree height is less than the measured top height, then the break is assumed to be above the bottom 3<sup>rd</sup> of the tree. Likewise, if 2/3<sup>rd</sup>s of the calculated tree height is less than the measured tree height, the break is assumed to be in the top 3<sup>rd</sup> of the tree.

Missing volumes of damaged trees that are recorded in the field are then added to the estimated volume missing if there was a broken top. The total missing percentage of each tree is calculated based on 65% of the trees biomass being in the bottom 1/3<sup>rd</sup>, 25% in the middle 1/3<sup>rd</sup>, and 10% in the top 1/3<sup>rd</sup>. The total percentage of the tree that is missing is then calculated and multiplied by various biomass components of the tree as calculated above to calculate the net biomass of each component.

Once the net biomass of each tree has been calculated, a relative density is applied by species and decay class. The relative density is in relation to the green density of sound wood, or the tree's wood density and is taken from Differences Between Standing and Downed Dead Tree Wood Density Reduction Factors (Harmon et al, 2011).

Biomass components by Decay Class included in the calculation of standing dead carbon stocks are listed in the table below. Classes 3 through 5 are considered “Highly Decayed”, and only bole volume is included.

| Decay Class | Conifers                      | Hardwoods                     |
|-------------|-------------------------------|-------------------------------|
| 1           | All Aboveground tree portions | All Aboveground tree portions |
| 2           | Bole and Bark only            | Bole and Bark only            |
| 3           | Bole only                     | Bole only                     |
| 4           | Bole only                     | Bole only                     |
| 5           | Bole only                     | Bole only                     |

Below-ground standing dead carbon is calculated at the plot level using the model provided by Cairnes et. al. specified on page 111 of Appendix A of the Protocol. The formula has as its input, above-ground live and dead biomass in Mg per hectare, and outputs below-ground biomass in Mg per hectare. After calculating the below ground component in Mg per hectare using the Cairnes model and the ratio of above-ground live biomass to above-ground dead biomass, the results are converted to Kg per acre by multiplying by 1000 and dividing by 2.471.

Total standing dead biomass for each plot is the sum of the above-ground and below-ground standing dead biomass Mg per acre. Mg of carbon (Mg C) per acre per plot is then calculated by multiplying by 0.5 to estimate carbon biomass. Mg C per acre is converted to CO<sub>2</sub>- equivalent by multiplying by 3.667.

#### IFM-6 Soil (if applicable):

Excluded because the conditions in Table 4.2 of the Protocol that would require inclusion of this pool (site preparation involving deep ripping, furrowing, or plowing where soil disturbance exceeds 25 percent of the Project Area over the Project Life, or mechanical site preparation activities not conducted on contours) are not planned.

#### IFM-7 Carbon in in-use forest products:

Baseline wood products delivered to the mill in any period is calculated beginning with the cubic volume of harvested conifer trees that can produce at least one 16’ log to a 5.5” merchantable top. Conifers below this merchantability standard are not included as they are too small to be delivered to the mill. The dry weight of wood products in pounds is calculated by multiplying the wood density in lbs/cubic foot by the cubic volume for each softwood species harvested based on the CV6 values derived from the FIA equations listed above. Bark and branch biomass are not included in the volume harvested. The wood densities utilized are those specified in the FIA equation for biomass and volume equations.

Actual wood products delivered to the mill in any period is calculated beginning with the volume of harvested conifer and hardwood trees as reported from mill receipts. Reported volumes are converted to cubic feet using the multipliers listed in the following table. The dry weight of wood products in pounds is calculated by multiplying the wood density in

lbs/cubic foot by the cubic volume for each species harvested. Bark and branch biomass are not included in the volume harvested. The wood densities utilized are those specified in Smith et al 2008.

**Multipliers for converting volume units to cubic feet**

| Unit                             | Factor |
|----------------------------------|--------|
| Cords                            | 75     |
| Cubic Feet                       | 1      |
| Cubic Meters                     | 35.3   |
| Cunits-Chips (CCF)               | 100    |
| Cunits-Roundwood                 | 100    |
| Cunits-Whole tree chip           | 126    |
| MBF-Doyle                        | 222    |
| MBF-International 1/4"           | 146    |
| MBF-Scribner ("C" or "Small")    | 165    |
| MBF-Scribner ("Large" or "Long") | 145    |
| MCF-Thousand Cubic Feet          | 1000   |

Source: American Forest & Paper Association, Sustainable Forestry Initiative Program Annual Progress Reporting Form

The dry weight is multiplied by 0.5 to convert the weight to carbon weight only. The weight of carbon in lbs is divided by 2,204.6 to get the carbon weight in metric tonnes (Mg).

Mg of carbon by species is then multiplied by either 0.675 for softwoods, or 0.568 for hardwoods to account for mill efficiencies, taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB's website.

The resulting Mg carbon value after accounting for milling efficiencies is then passed to the wood products worksheets for calculating long-term in-use wood products storage. The wood products carbon is separated into product classes and multiplied by the respective 100-year average storage factor. The tables below list the assignment of wood products by class per the most current Assessment Area Data File taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB's website, as well as the 100-year average storage factors applied to each wood product class per table C.1 (Baseline) or C.3 (Actual) of Appendix C of the Protocol.

**Wood Products by Class**

|                          |         |
|--------------------------|---------|
| % Softwood Lumber        | 69.501% |
| % Hardwood lumber        | 0.656%  |
| % Softwood Plywood       | 27.695% |
| % Oriented Strandboard   | 0.000%  |
| % Non Structural Panels  | 0.095%  |
| % Miscellaneous Products | 0.553%  |

% Paper 1.500%

**100-year Storage Rates Average Values from Appendix C, In-Use**

|                        |       |
|------------------------|-------|
| Softwood Lumber        | 0.463 |
| Hardwood lumber        | 0.250 |
| Softwood Plywood       | 0.484 |
| Oriented Strandboard   | 0.582 |
| Non Structural Panels  | 0.380 |
| Miscellaneous Products | 0.176 |
| Paper                  | 0.058 |

Average carbon stored in in-use wood products is calculated using equation C.4 (Baseline) or C.13 (Actual). Carbon is converted to CO<sub>2</sub>-equivalent by multiplying by 3.667. This value is combined with IFM-8 using equation C.9 (Baseline) or C.18 (Actual) to represent BC<sub>WP, y</sub> or AC<sub>WP, y</sub> respectively for the reporting period.

Average in-use wood products produced by the baseline analysis (BC<sub>wp, y</sub>) are deducted from actual wood products produced each reporting period (AC<sub>wp,y</sub>) in equation 5.1 and the resulting calculation is multiplied by 80% to account for the “Market Response”.

**IFM-8 Forest product carbon in landfills (if applicable):**

Baseline wood products delivered to the mill in any period is calculated beginning with the cubic volume of harvested conifer trees that can produce at least one 16’ log to a 5.5” merchantable top. Conifers below this merchantability standard are not included as they are too small to be delivered to the mill. The dry weight of wood products in pounds is calculated by multiplying the wood density in lbs/cubic foot by the cubic volume for each softwood species harvested. The wood densities utilized are those specified in the FIA equation for biomass and volume equations.

Actual wood products delivered to the mill in any period is calculated beginning with the volume of harvested conifer and hardwood trees as reported from mill receipts. Reported volumes are converted to cubic feet using the multipliers listed in the table under IFM-7 above. The dry weight of wood products in pounds is calculated by multiplying the wood density in lbs/cubic foot by the cubic volume for each species harvested. Bark and branch biomass are not included in the volume harvested. The wood densities utilized are those specified in Smith et al 2008.

The dry weight is multiplied by 0.5 to convert the weight to carbon weight only. The weight of carbon in lbs is divided by 2,204.6 to get the carbon weight in metric tonnes (Mg).

Mg of carbon by species is then multiplied by either 0.675 for softwoods, or 0.568 for hardwoods to account for mill efficiencies, taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB’s website.

The resulting Mg carbon value after accounting for milling efficiencies is then passed to the wood products worksheets for calculating long-term landfill wood products storage. The wood products carbon is separated into product classes and multiplied by the respective 100-year average storage factor. The tables below list the assignment of wood products by class per the most current Assessment Area Data File taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB's website, , as well as the 100-year average storage factors applied to each wood product class per table C.2 (Baseline) or C.4 (Actual) of Appendix C of the Protocol.

**100-year Storage Rates Average Values from Appendix C, In Landfill**

|                        |       |
|------------------------|-------|
| Softwood Lumber        | 0.298 |
| Hardwood lumber        | 0.414 |
| Softwood Plywood       | 0.287 |
| Oriented Strandboard   | 0.233 |
| Non Structural Panels  | 0.344 |
| Miscellaneous Products | 0.454 |
| Paper                  | 0.178 |

Average wood products carbon stored in landfills is calculated using equation C.7 (Baseline) or C.16 (Actual). Carbon is converted to CO<sub>2</sub>-equivalent by multiplying by 3.667. This value is combined with IFM-7 using equation C. 9 (Baseline) or C.18 (Actual) to represent BC<sub>WP, y</sub> or AC<sub>WP, y</sub> respectively for the reporting period.

Average in-use wood products produced by the baseline analysis (BC<sub>wp, y</sub>) are deducted from actual wood products produced each reporting period (AC<sub>wp,y</sub>) in equation 5.1 and the resulting calculation is multiplied by 80% to account for the "Market Response".

**IFM-9 Biological emissions from site preparation:**

As IFM-6 is an excluded carbon pool, IFM-9 is also an excluded pool.

**IFM-14 Biological emissions/removals from change in harvesting on forestland outside Project Area:**

The Protocol refers to this carbon pool as Secondary Effects which are calculated using equation 5.10 of the Protocol. Secondary Effects of harvesting less than the average wood products produced by the baseline growth and yield analysis are calculated by subtracting the average carbon in harvested trees prior to delivery to a mill (PDM) generated by the baseline analysis from the actual carbon in harvested trees prior to delivery to a mill, and then multiplying the difference by 20%. As Secondary Effects are only calculated in years when actual wood products produced are less than the annual average under the baseline analysis, the resulting calculation is either zero, or a negative number.

The PDM calculation each annual reporting period will be calculated based on a ratio between the average volume of wood delivered to the mill generated by the baseline analysis, and the average PDM value generated by the baseline analysis. Each reporting period, this ratio will be applied to the actual volume of wood delivered to a mill.

IFM-17            Biological emissions from decomposition of forest products:

This is quantified as a component of IFM-7 and IFM-8 as described above.

### **Data Management Systems and Data Processing**

The inventory data gathered by this inventory was entered into a Production Master workbook provided by F&W. Field collected inventory data was spot checked for data entry errors. If there appeared to be errors or outliers in the data, these were reviewed with the cruisers and updated in the final plot and tree lists. (See below for more detailed QAQC checks).

The Production Master workbook was utilized to process the inventory data through the growth and yield model FVS. The calculation of volume, biomass and the ultimate conversion to carbon utilizes the inventory data and growth and yield output data and applies the volume formulas and biomass conversion factors described in the Calculation Methodologies above.

Management of inventory data over the life of the Project will include archiving of retired inventory data as the data exceeds the maximum plot life requirements prescribed by the Protocol. Archived inventory data will also include a copy of each inventory database used to develop those carbon stock estimates reported in each OPDR submitted for the Project. This series of archived inventory database files will serve as the repository of inventory data as it existed for each reporting period.

### **Stratification Methodology**

The project area has been stratified to reflect the relative carbon densities within the project area. This post-inventory stratification for the carbon project was completed using inventory data from the operational inventories of the previous Fruit Growers and Mich-Cal timberlands. Using this data, the available standing carbon volume per acre for each stand was calculated. The stratum breaks for six strata within the project area were decided using Natural Breaks (Jenks) in ArcGIS Pro for the stand carbon densities. Where previous inventory data was lacking data on carbon stocks, professional judgement based on adjacent carbon stocking, and review of aerial imagery was utilized to aid in stratification. An additional zero carbon stratum, stratum 0, was introduced to include roads within the project boundary for which carbon stocks are not sampled.

Table 1: Klamath Forest Carbon Project stratification. This table shows the area associated with each stratum during the initial reporting period and the number of plots within each stratum.

| Stratum            | Acres             | Plots      |
|--------------------|-------------------|------------|
| 0                  | 6,195.32          | NA         |
| 1                  | 42,447.23         | 126        |
| 2                  | 28,035.73         | 71         |
| 3                  | 41,447.11         | 116        |
| 4                  | 33,060.54         | 87         |
| 5                  | 26,942.86         | 46         |
| 6                  | 10,427.94         | 27         |
| <b>Grand Total</b> | <b>188,556.73</b> | <b>473</b> |

A map of the timber stand boundaries and inventory plot locations is included as Appendix C.

### Quality Assurance/Quality Control (QA/QC)

Procedures for ensuring quality control are as follows:

The field inventory contractor internally check cruised 10% of the inventory, or 60 plots. They provided check cruise results in a QAQC workbook. Adjusted errors were updated in the provided Production Master workbook. F&W reviewed the field collected data for missing entries in all fields.

1. Check number of plots cruised against plot layout
  - a. Review dropped plots
    - i. Ensure there is no tree data for dropped plots
    - ii. Check spatial data provided
  - b. Review zero tally plots
    - i. Ensure there is no tree data for zero tally plots
2. Review tree records per plots with pivot tables – make sure reasonable
3. Make sure cruised plots that are not zero tally have tree data
4. Check species – for reasonability, need to be on species list
5. Check DBHs
  - a. DBH for 1/100<sup>th</sup> acre plots can be between 1 and 4.9”
  - b. DBH for 1/15<sup>th</sup> acre plots can be 5”+
6. Check heights
  - a. Plot DBHs and heights for outliers
  - b. Dead trees must be at least 15’
  - c. Check height to break
7. Live/dead status – check
8. Check dead trees for decay status
  - a. Review decay status and defect
  - b. Look for reasonability

9. Check crown class and crown ratio for reasonability
  - a. Plot crown class and crown ratio, look for outliers
10. Review AOL
11. Check azimuths – between 0 and 360
12. Check tree count for walkthrough trees, make sure lines up with spatial data and plot notes
13. Review witness tree data – slope distance needs to be reasonable
14. Review plot notes; specifically for ‘delete,’ ‘remove tree,’ etc. notes suggesting that trees should be excluded from the tree list or updates needed to be made to the tree record.

## **Inventory Monitoring**

### Updating the Inventory

As timber management activities take place on the Klamath Forest Carbon Project Area or disturbance such as fire or mortality resulting from pathogens or other factors occurs, cruise plots installed in 2022 or 2023 will be relocated and remeasured within areas that have been harvested, or subject to disturbance. By 2034, all of the plots installed in 2022 or 2023 will have been remeasured regardless of whether or not the plot had been harvested or subject to disturbance. On this basis, the Klamath Forest Carbon Project will maintain a forest inventory system that will meet the inventory specifications and requirements contained in Appendix A of the Compliance Offset Protocol U.S. Forest Projects, with plots which are no more than 12 years old.

Updating the Project’s carbon stocks from the end of the last reporting period to the end of the current reporting period will involve the following steps:

1. For reporting stocks on an annual basis until the next inventory, the inventory update procedure will rely on growth projections from FVS. If any timber harvesting occurs in the project area, the timber harvest area will be re-inventoried within 3 years. A simulation of the harvest to update the inventory may be utilized in the interim.
2. Any newly installed inventory plots will be incorporated into the inventory estimate. Newly installed plots will be adjusted to the end of the reporting period utilizing FVS as described in the modeling plan.
3. Existing inventory plots that are less than 12 years old will be updated using FVS as described in the modeling plan. This update process will involve adjusting the plot data one year forward through the application of average annual increment based on diameter and height increment predicted by FVS over the next-five-year period.
4. Plots older than 12-years will be replaced in the database by new plot data collected at the same plot location. Retired plot data will be archived as described in the Data Management Systems section above.
5. Updating the forest inventory for harvests or disturbances will involve either the installation of new plots, or adjustments to previous plot data.
  - a. If new inventory plots are installed, they will be installed at the existing established plot locations within the harvested or disturbed portion of the Project Area.

- i. Existing inventory plot data within the harvested or disturbed area will be removed from the inventory database.
    - ii. Harvested or disturbed areas will be stratified based on the current inventory stratification or may be placed into a new stratum representing the harvested or disturbed area.
  - b. At the discretion of the OPO, inventory updates may involve adjustments to existing plot data (depletions) that will involve the following steps:
    - i. The carbon in harvested wood products delivered to the mill will be calculated using a methodology similar to the “Harvested Wood Products Worksheet” provided by CAR and included as Appendix D herein for reference.
    - ii. Using the ratio of harvested wood carbon to harvested tree carbon calculated in Table 8 of the CAR worksheet. The carbon in harvested wood products will be multiplied by this ratio to determine the total amount of carbon subject to harvest. This carbon will be subtracted from the carbon stock estimate derived through the inventory stock estimate generated by updating the existing inventory data as described above.
6. Disturbances related to fire, insect or disease, and unauthorized harvest will be monitored through annual inspections of the Project Area by the OPO. Portions of the Project Area affected by fire, insect or disease, or unauthorized harvest will be mapped and reported in the OPDR. If the mapped disturbed portion of the Project Area is less than 40 acres in cumulative size, no adjustment to the carbon stock inventory will be performed. For mapped disturbances between 40 and 100 acres of cumulative size, a depletion of the inventory based on the average stocking and acreage of each stratum disturbed will be calculated, or at the discretion of the OPO, new inventory plots may be installed following the procedures described in step 4(a) above. For mapped disturbances larger than 100 acres in cumulative size, new inventory plots will be installed following the procedures described in step 4(a) above.
7. The field collection of updated inventory data following harvest or disturbance will be conducted prior to the next field verification, and at a minimum within 36 months of the harvest or disturbance.
8. A revised inventory confidence deduction will be calculated each year following the update process.

### **Identification of Known or Potential Diseases**

Known or potential diseases that may affect the health of the project’s inventory, specifically above-ground standing live and dead trees are listed below:

There are several conifer diseases or pathogens that may affect the health of the trees in the inventory. These include: black-stain, *Heterobasidion annosum*, mistletoe, and blister-rust. Black-stain occurs primarily east of the Cascade Crest and kills patches of pine while spreading along root-grafts. *Heterobasidion* is a fungus that affects white fir and pine by spreading from fruiting bodies or from cut stumps. There are different mistletoe species for each conifer species and occasionally infestations can be heavy. Spores are spread slowly from an infected to uninfected tree or from an upper crown to lower crown position. White pine blister-rust occurs in

the five needle pines (sugar and western white pine). Spores are spread by the wind and efforts continue to find genetically-resistant trees.

Many of the described diseases problems are episodic and localized. However, in cases where a large-scale stressor is placed on many trees or an entire forest, damage of an unacceptable level can occur. When potential epidemics are found, technical assistance is frequently acquired from the State and decisions are made regarding how to reduce the potential loss. Appropriate management of conifer stands, including stocking control to reduce competition between trees, will by itself greatly reduce the risk of disease outbreaks.

### **Appendices:**

- A. Inventory Change Log
- B. Acer Klamath Forest Carbon Inventory Protocol –
- C. Plot and Strata Map
- D. CAR Harvested Wood Products Worksheet

## Appendix A

## Inventory Change Log

[illegible]

## **Appendix B**

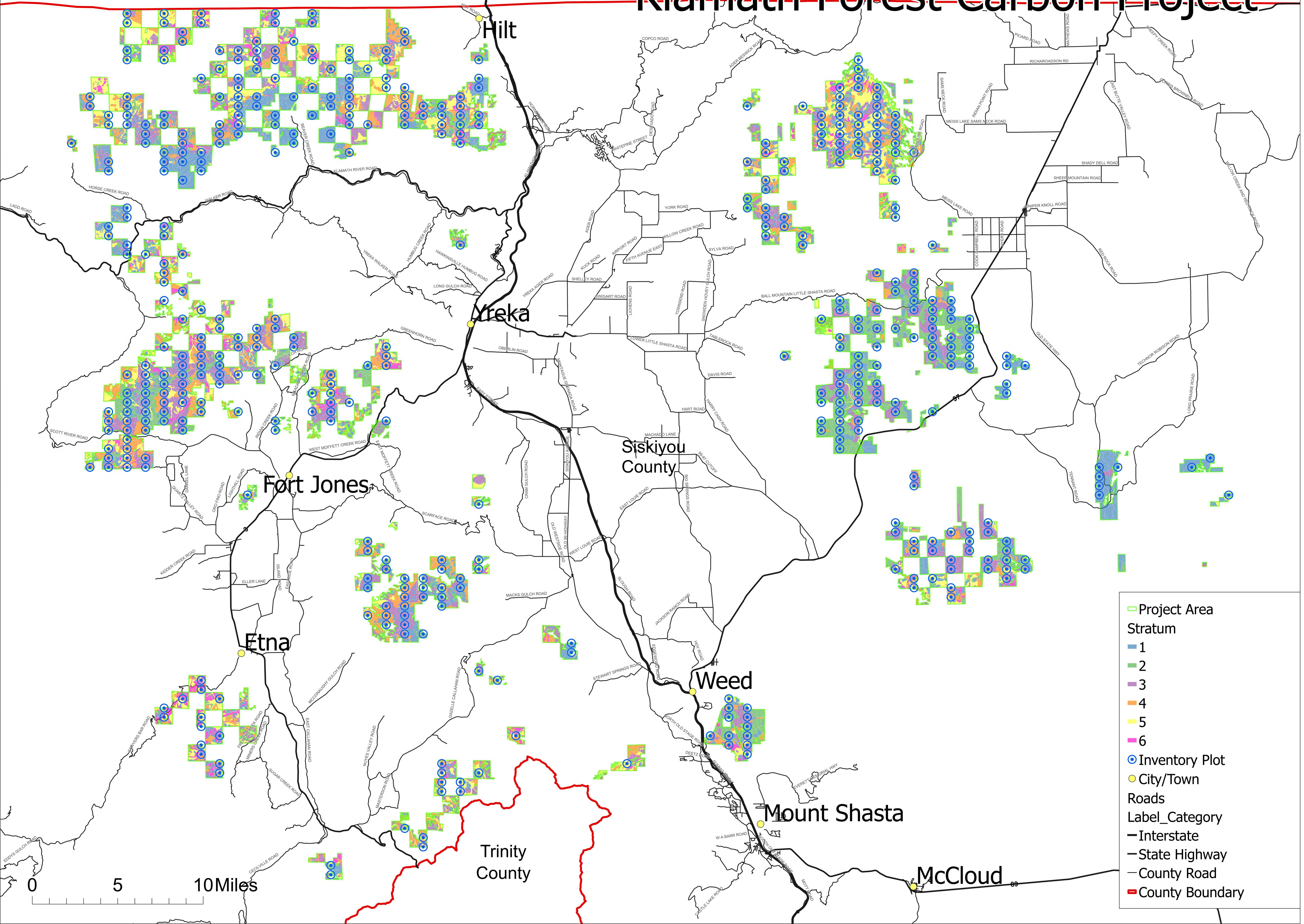
### Klamath Forest Carbon Project Inventory Protocol

**(Confidential)**

## **Appendix C**

### **Plot and Strata Maps**

# Klamath Forest Carbon Project



## **Appendix D**

### CAR Harvested Wood Products Worksheet

Harvested Wood Products Worksheet

The Harvested Wood Products (HWP) Worksheet is designed to standardize and facilitate the reporting of harvested wood products for each Reporting Period in the Calculation Worksheet. The HWP worksheet produces standardized outputs that Project Developers must insert into the Calculation Worksheet for the following areas:

- 1) Actual Project Carbon in Harvested Wood Delivered to Mill (tCO<sub>2</sub>e)
- 2) Actual Project Carbon in Trees Harvested for Wood Products (tCO<sub>2</sub>e)
- 3) Actual Project Carbon Stored Long-term in Wood Products (tCO<sub>2</sub>e) - Excl Landfill
- 4) Actual Project Carbon Stored Long-term in Wood Products (tCO<sub>2</sub>e) - Incl Landfill
- 5) Baseline Carbon Stored Long-term in Wood Products (tCO<sub>2</sub>e) - Excl Landfill
- 6) Baseline Carbon Stored Long-term in Wood Products (tCO<sub>2</sub>e) - Incl Landfill

The default values (conversions, mill efficiencies, etc) must be used unless the Project Developer can provide verifiable alternatives. The HWP worksheet is divided into 3 sections (Data Inputs, Estimates of Carbon Storage in Wood Products and Emissions associated with Harvested Trees, and Conversion Assumptions). Project Developers must make a separate copy of the HWP worksheet for each Reporting Period and submit it as part of the Annual Monitoring Report.

Section 1. Data Inputs

| Table 1. Key to worksheet inputs                                                                                                   |  |  | Table 2. Project Characteristics                                                                                                                                                                                                                                           |                                  |                                                                                                                                             | Table 3. Default Wood Products Classes; Volume Totals                                                                                                                                                                                                                                                                                                |         |                      |                       |               |          |       |  |         |
|------------------------------------------------------------------------------------------------------------------------------------|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------|-----------------------|---------------|----------|-------|--|---------|
| The key below provides a color-coded reference to cells in this worksheet. User action is required wherever a 'Step' is mentioned. |  |  | Step 1. Using the pull-down menus where provided, enter the current reporting period project data into Table 2. If multiple hardwood and/or softwood harvest units were recorded, consolidate into one hardwood and one softwood harvest unit using the values in Table 9. |                                  |                                                                                                                                             | Step 2. If the default wood products classes are being used, enter the appropriate values from the Assessment Area data file and proceed to Step 3 if harvesting occurred or Step 5 if there was no harvest. If the actual distribution of wood products generated from the reporting period harvest is known, skip this step and proceed to Step 4. |         |                      |                       |               |          |       |  |         |
| Step Guidance                                                                                                                      |  |  | Region*:                                                                                                                                                                                                                                                                   | Pacific Southwest (PSW)          | Softwood Lumber                                                                                                                             | Hardwood Lumber                                                                                                                                                                                                                                                                                                                                      | Plywood | Oriented Strandboard | Non Structural Panels | Miscellaenous | Paper    |       |  |         |
| Project data entered by Project Developer                                                                                          |  |  | Reporting Period:                                                                                                                                                                                                                                                          |                                  | 0%                                                                                                                                          | 0%                                                                                                                                                                                                                                                                                                                                                   | 0%      | 0%                   | 0%                    | 0%            | 0%       |       |  |         |
| Assumptions and/or data populated automatically                                                                                    |  |  | Hardwood Harvest Units:                                                                                                                                                                                                                                                    | Cubic Feet                       | Step 3. If the default wood products classes are being used, enter the total amount of wood delivered to the mill(s) and proceed to Step 5. |                                                                                                                                                                                                                                                                                                                                                      |         |                      | Hardwood              |               | Softwood |       |  |         |
| Default Values                                                                                                                     |  |  | Softwood Harvest Units:                                                                                                                                                                                                                                                    | MBF-Scribner ("Large" or "Long") |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                      |         |                      | Total                 |               | 0        | Total |  |         |
| Data calculated automatically for input into the Calculation Worksheet                                                             |  |  | *From the Reserve's Assessment Area Data File.                                                                                                                                                                                                                             |                                  |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                      |         |                      | %                     |               | #DIV/0!  | %     |  | #DIV/0! |

Table 4. Volume in Logs Delivered to Mill

**Step 4.** Enter the name of the mill(s) and the volume of harvested wood sent to the mill(s) during the current reporting period in Table 4. Both the hardwood and softwood volumes must be categorized based on the wood product classes shown below. If wood products class data is only partially available, categorize the unknown wood products as "miscellaneous". If wood products class data is unavailable or no wood products were harvested in the current reporting period, refer to Steps 2 and 3. Default mill efficiencies are listed in Table 12. These default values may be overwritten if mill-specific data is available and verifiable.

|              | Hardwood             |        |                      |                       |               |                 |       | Softwood             |        |         |                      |                       |               |                 |       |
|--------------|----------------------|--------|----------------------|-----------------------|---------------|-----------------|-------|----------------------|--------|---------|----------------------|-----------------------|---------------|-----------------|-------|
|              | Wood Product Classes |        |                      |                       |               |                 |       | Wood Product Classes |        |         |                      |                       |               |                 |       |
|              | Mill Efficiency      | Lumber | Oriented Strandboard | Non Structural Panels | Misc Products | Mill Efficiency | Paper | Mill Efficiency      | Lumber | Plywood | Oriented Strandboard | Non Structural Panels | Misc Products | Mill Efficiency | Paper |
|              | 56.8%                | N/A    | N/A                  | N/A                   | N/A           | 56.8%           | N/A   | 67.5%                | N/A    | N/A     | N/A                  | N/A                   | N/A           | 67.5%           | N/A   |
|              | 56.8%                | N/A    | N/A                  | N/A                   | N/A           | 56.8%           | N/A   | 67.5%                | N/A    | N/A     | N/A                  | N/A                   | N/A           | 67.5%           | N/A   |
|              | 56.8%                | N/A    | N/A                  | N/A                   | N/A           | 56.8%           | N/A   | 67.5%                | N/A    | N/A     | N/A                  | N/A                   | N/A           | 67.5%           | N/A   |
|              | 56.8%                | N/A    | N/A                  | N/A                   | N/A           | 56.8%           | N/A   | 67.5%                | N/A    | N/A     | N/A                  | N/A                   | N/A           | 67.5%           | N/A   |
|              | 56.8%                | N/A    | N/A                  | N/A                   | N/A           | 56.8%           | N/A   | 67.5%                | N/A    | N/A     | N/A                  | N/A                   | N/A           | 67.5%           | N/A   |
|              | 56.8%                | N/A    | N/A                  | N/A                   | N/A           | 56.8%           | N/A   | 67.5%                | N/A    | N/A     | N/A                  | N/A                   | N/A           | 67.5%           | N/A   |
|              | 56.8%                | N/A    | N/A                  | N/A                   | N/A           | 56.8%           | N/A   | 67.5%                | N/A    | N/A     | N/A                  | N/A                   | N/A           | 67.5%           | N/A   |
| Gross Total: |                      | -      | -                    | -                     | -             |                 | -     |                      | -      | -       | -                    | -                     | -             |                 | -     |
| Net Total:   |                      | -      | -                    | -                     | -             |                 | -     |                      | -      | -       | -                    | -                     | -             |                 | -     |

Section 2. Estimates of Carbon Storage in Wood Products and Emissions Associated with Harvested Trees

Table 5. Estimates of CO<sub>2</sub>-equivalent (CO<sub>2</sub>-e) in Harvested Wood Products associated with Project Activities

| Units                                                                    | Hardwood |                      |                       |               |       | Softwood |         |                      |                       |               |       | Sum |
|--------------------------------------------------------------------------|----------|----------------------|-----------------------|---------------|-------|----------|---------|----------------------|-----------------------|---------------|-------|-----|
|                                                                          | Lumber   | Oriented Strandboard | Non Structural Panels | Misc Products | Paper | Lumber   | Plywood | Oriented Strandboard | Non Structural Panels | Misc Products | Paper |     |
| Project carbon in harvested wood delivered to mills (Cubic Feet)         | -        | -                    | -                     | -             | -     | -        | -       | -                    | -                     | -             | -     | -   |
| Project carbon in harvested wood delivered to mills (tCO <sub>2</sub> e) | -        | -                    | -                     | -             | -     | -        | -       | -                    | -                     | -             | -     | -   |
| Project carbon transferred to wood products (Cubic Feet)                 | -        | -                    | -                     | -             | -     | -        | -       | -                    | -                     | -             | -     | -   |
| Project carbon transferred to wood products (tCO <sub>2</sub> e)         | -        | -                    | -                     | -             | -     | -        | -       | -                    | -                     | -             | -     | -   |
| % Product                                                                |          |                      |                       |               |       |          |         |                      |                       |               |       | 0%  |
| Long-term storage in in-use wood products (tCO <sub>2</sub> e)           | -        | -                    | -                     | -             | -     | -        | -       | -                    | -                     | -             | -     | -   |
| Long-term storage in wood products in landfills (tCO <sub>2</sub> e)     | -        | -                    | -                     | -             | -     | -        | -       | -                    | -                     | -             | -     | -   |

Table 6. Estimates of CO<sub>2</sub>-equivalent (CO<sub>2</sub>-e) in Harvested Wood Products associated with Baseline Activities

| Units                                                   | Hardwood |                      |                       |               |       | Softwood |         |                      |                       |               |       | Sum |
|---------------------------------------------------------|----------|----------------------|-----------------------|---------------|-------|----------|---------|----------------------|-----------------------|---------------|-------|-----|
|                                                         | Lumber   | Oriented Strandboard | Non Structural Panels | Misc Products | Paper | Lumber   | Plywood | Oriented Strandboard | Non Structural Panels | Misc Products | Paper |     |
| tCO2e                                                   | -        | -                    | -                     | -             | -     | -        | -       | -                    | -                     | -             | -     | -   |
| % Product                                               | 0%       | 0%                   | 0%                    | 0%            | 0%    | 0%       | 0%      | 0%                   | 0%                    | 0%            | 0%    | 0%  |
| Long-term storage in in-use wood products (tCO2e)       | -        | -                    | -                     | -             | -     | -        | -       | -                    | -                     | -             | -     | -   |
| Long-term storage in wood products in landfills (tCO2e) | -        | -                    | -                     | -             | -     | -        | -       | -                    | -                     | -             | -     | -   |

Table 7. Calculation Worksheet Information

| Table 7. Calculation Worksheet Information                                                   |   |                                       | Table 8. Ratio of Harvested Wood Carbon to Harvested Tree Carbon                                                                                                       |  |  |
|----------------------------------------------------------------------------------------------|---|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Calculation Sheet Inputs (for Current Reporting Period)                                      |   | Row Location in Calculation Worksheet | <b>Step 5.</b> Enter the 100-year baseline data to calculate a ratio of carbon in trees harvested for wood products to carbon in harvested wood delivered to the mill. |  |  |
| Actual Project Carbon in Harvested Wood Delivered to Mill (tCO <sub>2</sub> e)               | - | 11 (Excel 22)                         | Baseline Carbon in Trees Harvested for Wood Products (tCO <sub>2</sub> e) (from Excel Row 21 of the Monitoring Calculation Worksheet)                                  |  |  |
| Actual Project Carbon in Trees Harvested for Wood Products (tCO <sub>2</sub> e)              | - | 9 (Excel 20)                          | Baseline Carbon in Harvested Wood Delivered to Mill (tCO <sub>2</sub> e) (from Row 23 of the Monitoring Calculation Worksheet)                                         |  |  |
| Actual Project Carbon Stored Long-term in Wood Products (tCO <sub>2</sub> e) - Excl Landfill | - | 13 (Excel 24)                         | Multiplier of Carbon in Wood Delivered to Mill to Carbon in Trees Harvested for Wood Products                                                                          |  |  |
| Actual Project Carbon Stored Long-term in Wood Products (tCO <sub>2</sub> e) - Incl Landfill | - | 14 (Excel 25)                         |                                                                                                                                                                        |  |  |
| Baseline Carbon Stored Long-term in Wood Products (tCO <sub>2</sub> e) - Excl Landfill       | - | 15 (Excel 26)                         |                                                                                                                                                                        |  |  |
| Baseline Carbon Stored Long-term in Wood Products (tCO <sub>2</sub> e) - Incl Landfill       | - | 16 (Excel 27)                         |                                                                                                                                                                        |  |  |

Section 3. Conversion Assumptions

| Table 9. Volume multipliers for converting timber and chip units to Cubic Feet                                                                                                                                                                                                                                                     |        | Table 10. Conversion Factors: to convert volume estimates to CO2-e                   |              | Source      | Table 11. 100-year average storage factors                  |                    |            |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------|--------------|-------------|-------------------------------------------------------------|--------------------|------------|-----------|
|                                                                                                                                                                                                                                                                                                                                    |        | Cubic Feet / Hardwood Harvest Unit                                                   | 1            |             | Table 9.                                                    | Wood Product Class | In-Use     | Landfills |
| Unit                                                                                                                                                                                                                                                                                                                               | Factor | Cubic Feet / Softwood Harvest Unit                                                   | 145          | Table 9.    | Softwood Lumber                                             | 0.463              | 0.298      |           |
| Bone Dry Tons                                                                                                                                                                                                                                                                                                                      | 71.3   | SG of Softwoods by Region                                                            | 0.399        | Table 12.   | Hardwood Lumber                                             | 0.250              | 0.414      |           |
| Bone Dry Units                                                                                                                                                                                                                                                                                                                     | 82.5   | SG of Hardwoods by Region                                                            | 0.51         | Table 12.   | Softwood Plywood                                            | 0.484              | 0.287      |           |
| Cords                                                                                                                                                                                                                                                                                                                              | 75     | Tree Carbon:Wood Carbon                                                              | 0.00         | Table 8.    | Oriented Strandboard                                        | 0.582              | 0.233      |           |
| Cubic Feet                                                                                                                                                                                                                                                                                                                         | 1      | Pounds to Metric Tons                                                                | 0.0004535970 | -           | Non Structural Panels                                       | 0.380              | 0.344      |           |
| Cubic Meters                                                                                                                                                                                                                                                                                                                       | 35.3   | Portion of Carbon in Biomass                                                         | 0.5          | -           | Miscellaneous Products                                      | 0.176              | 0.454      |           |
| Cunits-Chips (CCF)                                                                                                                                                                                                                                                                                                                 | 100    | Carbon to CO2-e                                                                      | 3.67         | Reserve FPP | Paper                                                       | 0.058              | 0.178      |           |
| Cunits-Roundwood                                                                                                                                                                                                                                                                                                                   | 100    | Density of water (lbs/cf)                                                            | 62.43        | -           | Source: Reserve Forest Project Protocol, Appendix C.3 & C.4 |                    |            |           |
| Cunits-Whole tree chip                                                                                                                                                                                                                                                                                                             | 126    | Table 12. Average regional factors: specific gravity (SG) and mill efficiencies (ME) |              |             |                                                             |                    |            |           |
| Green tons                                                                                                                                                                                                                                                                                                                         | 31.5   |                                                                                      |              |             |                                                             |                    |            |           |
| MBF-Doyle                                                                                                                                                                                                                                                                                                                          | 222    | Hardwoods                                                                            |              | Softwoods   |                                                             |                    |            |           |
| MBF-International 1/4"                                                                                                                                                                                                                                                                                                             | 146    | Region                                                                               | SG           | Saw Log ME  | Pulp ME                                                     | SG                 | Saw Log ME | Pulp ME   |
| MBF-Scribner ("C" or "Small")                                                                                                                                                                                                                                                                                                      | 165    | Northeast (NE)                                                                       | 0.518        | 0.614       | 0.650                                                       | 0.371              | 0.569      | 0.513     |
| MBF-Scribner ("Large" or "Long")                                                                                                                                                                                                                                                                                                   | 145    | Northern Lake States (NLS)                                                           | 0.473        | 0.585       | 0.685                                                       | 0.360              | 0.630      | 0.514     |
| MCF-Thousand Cubic Feet                                                                                                                                                                                                                                                                                                            | 1000   | Northern Prairie States (NPS)                                                        | 0.537        | 0.585       | 0.685                                                       | 0.434              | 0.630      | 0.514     |
| Oven Dried Tonnes                                                                                                                                                                                                                                                                                                                  | 75.8   | Pacific Northwest, East (PWE)                                                        | 0.424        | 0.568       | 0.568                                                       | 0.396              | 0.637      | 0.637     |
| Source: American Forest & Paper Association, Sustainable Forestry Initiative Program Annual Progress Reporting Form                                                                                                                                                                                                                |        | Pacific Northwest, West (PWW)                                                        | 0.415        | 0.531       | 0.531                                                       | 0.426              | 0.740      | 0.500     |
|                                                                                                                                                                                                                                                                                                                                    |        | Pacific Southwest (PSW)                                                              | 0.510        | 0.568       | 0.568                                                       | 0.399              | 0.675      | 0.675     |
|                                                                                                                                                                                                                                                                                                                                    |        | Rocky Mountain, North (RMN)                                                          | 0.389        | 0.568       | 0.568                                                       | 0.394              | 0.704      | 0.704     |
|                                                                                                                                                                                                                                                                                                                                    |        | Rocky Mountain, South (RMS)                                                          | 0.353        | 0.568       | 0.568                                                       | 0.369              | 0.704      | 0.704     |
|                                                                                                                                                                                                                                                                                                                                    |        | Southeast (SE)                                                                       | 0.508        | 0.609       | 0.591                                                       | 0.462              | 0.636      | 0.553     |
|                                                                                                                                                                                                                                                                                                                                    |        | South Central (SC)                                                                   | 0.529        | 0.587       | 0.581                                                       | 0.463              | 0.629      | 0.570     |
| Sources: USDA Forest Service, Forest Inventory and Analysis Program database of forest surveys (SG) andTechnical Guidelines for Voluntary Reporting of Greenhouse Gas Program (ME). Average wood specific gravity is the density of wood divided by the density of water based on wood dry mass associated with green tree volume. |        |                                                                                      |              |             |                                                             |                    |            |           |