BRUSH CREEK CARBON PROJECT

Addendum to Application for Listing Form

Under

Air Resources Board

Compliance Offset Protocol – U.S. Forest Projects

Adopted: October 20, 2011

Prepared December 10, 2013

Offset Project Operator	Authorized Project Designee
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Reporting Period

The reporting period for this Application is from 12/10/2013 to 06/09/2014.

Protocol Version

Air Resources Board
Compliance Offset Protocol – U.S. forest Projects
Adopted: October 20, 2011

Introduction

The Brush Creek 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: October 20, 2011. The Offset Project Operator, Brush Creek Project is owned by Steve Miller and Florence Miller Co-Trustees of the Edward Miller Trust, who are in the process of creating a permanent conservation easement on the property for the purpose of preserving the property as a small working forest in perpetuity. The Project Area is approximately 2,000 acres in size.

IV.B.

The OPO is the only Forest Owner with property interests within the Project Area that affect the trees and standing timber located on the Project Area. All mineral rights associated with the Project Area are owned by the OPO.

V.A.

The Project is located entirely within the Northern California Coast Supersection, and within the Coast Redwood/Douglas-fir Mixed Conifer Assessment Area and is classified as low to high site class III timberland and as such is within the "Low" "Site Class" portion of the Assessment Area.

V.C.

The Project Area has been determined based on the best available data representing the legal description described in the title report included as Attachment A. The Project Area boundary is described and represented by the map included as Attachment E. The Mendocino County Assessor's office list the Project Area acreage as 2,050; however, for the purpose of calculating carbon stocks, the Project Area acreage is 2,000 acres taken from the Project's GIS data .

V.D.

The Brush Creek Project Area supports a healthy, diverse forest community comprised of redwood, Douglas-fir, tanoak, pacific madrone, California bay laurel, sugar pine, red alder, and assorted native hardwoods and is bordered by properties containing similar forest comunities. Across the Property, the ecological community shifts with aspect, transitioning from red alder-rich shaded riparian areas to Redwood and Douglas-fir groves.

V.E.

Habitat types on the Brush Creek Property, according to the California Wildlife Habitat Relationship (WHR) system, include Redwood, Douglas-fir, Montane Hardwoods Conifer, Coast Oak Woodland, and Valley Foothill Riparian habitats. The Project Area is composed of a diverse mosaic of topography and habitat types. Plant diversity is relatively high on the Property due to convergence of many different habitat types that results from the Property's topographic and geologic heterogeneity.

V.F.

The entire Project Area is classified as as site class III timberland. These estimates are based upon knowledge of the property and professional experience. In conducting growth modeling on the property following the installation of the inventory, it will be necessary to develop an estimate of average 50- year base age site index by species for the project area. Douglas-fir and redwood site indices will be based on Krumland and Eng 50-year breast height age curves. The modelling plan submitted with the Offset Project Data Report (OPDR) will provide a description of the methodology employed is the calculation of site index for the Project Area.

V.G.

The Property, as well as the general region, is characterized by a rural forest landscape with large and small private timber holdings, as well as individual rural residential lots. Properties in the general vicinity are zoned by Mendocino County as Timber Production Zone (TPZ),

Commercial Agriculture (CA), and Unclassified. The Brush Creek Property borders agricultural and private timber holdings. Approximately 3 miles to the west, Brush Creek, itself, passes through Manchester State Park.

The Brush Creek Project Area consists of both Maritime & Mediterranean climates influenced by the proximity to the Pacific Ocean and topography. Summers are mild and winters are mild and wet. Temperatures range from an average low of 45 degrees F in December to an average high of 75 degrees F in July. Average annual rainfall for the property is approximately 40-50 inches per year.

V.H.

Before European-Americans began to settle this region, places including the present Brush Creek Property were inhabited by Native Americans. In the 1800's, the area surrounding and including the Brush Creek Project Area was split by several homesteads under patent parcels filed at the local land office. Later in the early 1900's the patent parcels were combined to form a larger property configuration. The property has been managed for timber production since Edward Miller purchased a large portion of it in the 1950's.

The current landowners, Steve Miller and Florence Miller, acquired a majority of the Property from the estate trust of Mr. Edward Miller, who passed away in 1971. In 1990, the Miller Trust applied for and was granted certificates of compliance across the Brush Creek Property creating a number of 160 acre or larger parcels. In 1991, the Trust utilized the certificated parcels to create clustered development of smaller parcels along Mountain View Road, while at the same time creating a single TPZ zoned parcel represented by the current Brush Creek property configuration. The clustered development agreement with Mendocino County required that the Brush Creek property remain as open space for 20 years without the potential for subdivision. Given the expiration of the 20-year restriction on development, the Brush Creek parcel is capable of being subdivided into 12 conforming legal parcels under TPZ zoning. To

prevent further subdivision, the Miller Trust wishes to create a permanent Conservation Easement to protect the open space values, riparian zones, and other areas of special biological concern and to conserve the Brush Creek Property as a viable small working forest in perpetuity.

The entire Property is comprised of fifteen Assessor's Parcels and is zoned Timber Production Zone (TPZ). The TPZ ordinance is an agricultural designation, intended primarily for timber production. The Property contains one certified legal parcel.

V.I.

The Miller Forest Project Area is characterized by a mix of redwood, Douglas-fir, Port Orford Cedar and other mixed conifers, tanoak, madrone, and other native hardwoods. As of 7/1/2013, the Project Area is composed of approximately 26% Douglas-fir, 3% other conifers, 49 % tanoak, and 22% other hardwoods by basal area. As these figures show, the property is dominated by hardwood species. The Miller Forest intends to manage the timber stands to reduce the hardwood component and increase the component of conifers.

Several age classes of timber stands exist across the Project Area as the result of past land management activities with age classes ranging from 80 years to 20 years.

There has been one timber harvest plan on the Miller Forest Property in the past 15 years. This plan was approximately 228 acres in size. Forest uses on the Property were traditionally focused on Port Orford cedar. However, recent silvicultural practices have preserved Port Orford cedar and focused on uneven aged management of Douglas-fir and hardwoods. Presently, the Property does not have an active harvest plan.

VI.A.

The Brush Creek Project Area meets condition 1 under section 2.1.2 (page 10) 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 and, will be substantiated by the results of the carbon stock inventory.

VI.B.1.

The Brush Creek Project Area is characterized by a mix of redwood, Douglas-fir, tanoak, pacific madrone, California bay laurel, sugar pine, red alder, and assorted native hardwoods. 100% of the Project's biomass is in native species and thus the Project meets the 95% criteria for carbon in native species.

VI.B.2.

The Brush Creek Project Area is characterized by a mix of redwood, Douglas-fir, tanoak, pacific madrone, tanoak, California bay laurel, sugar pine, red alder, and assorted native hardwoods. It is estimated that the Project Area is composed of approximately 25% redwood, 22% Douglas-fir, 3% other conifers, 35 % tanoak, and 15% other hardwoods by basal area. The Miller Land Trust intends to manage the timber stands to maintain or increase conifer stocking, ensuring that the Project continues to meet the requirements for composition of native species under Table 3.2 (page 20) of the Compliance Offset Protocol by maintaining species' basal are percentage below 65% , the Species Diversity Index from the Assessment Area Data File.

VI.B.3.

(a) The Brush Creek Carbon Project meets condition 3 under Section 3.8.1 (page 18) of the Compliance Offset Protocol by employing uneven-aged silvicultural practices and maintianing canopy cover averaging atleast 40% on all forestland owned by the

Edward Miller Trust in this Assessment Area. Of the additional acreage of commercial timberland owned by the Edward Miller Trust in this Assessment Area, 95% has canopy cover of 40% or greater.

(b) There are currently no immediate plans to harvest on the Brush Creek Project Area. In the future, Brush Creek may employ uneven-aged management practices which meet the sustainable management requirements under Table 3.2 (page 21) of the Compliance Offset Protocol by maintaining less than 40% of the Project's forested acreage in ages less than 20 years. Present conditions for the Project site already satisfy these requirements.

VI.B.4.

Brush Creek does not actively remove 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. Brush Creek 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. Brush Creek does not currently, nor does it intend in the future to actively pursue salvage operations on its timberlands. Brush Creek has a policy of allowing standing dead trees to remain and recruiting large specimen trees across its ownership as components of its overall timber management strategy.

The Brush Creek Project Area has not recently undergone any salvage harvesting. 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 that progress towards these targets is ongoing. Following the inventory, calculations will be made for standing live carbon stocks and percent of standing live carbon stocks in standing dead wood. The project will maintain the aforementioned standing dead wood target throughout the project life.

VI.C.

The OPO intends to allow conifer stocking levels to develop on the Project Area in excess of the minimum requirements of the California Forest Practice Rules. Riparian areas will be subject to increased protction measures.

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 forest owner as to whether or not to commercially harvest the Project Area combined with the constraints imposed by the California Forest Practice Rules, specific terms of the Forest Project Protocol, and the terms of the recorded Conservation Easement will guide carbon stock levels over time. As this is the case, it is impossible to characterize a definite set of activities over time which will define the Project.

VII.A.

IFM-1 Standing Live:

Standing live carbon will be inventoried based on sample plots installed in the spring of 2014. The inventory specifications are included as Attachment L. The cruise design will consist of the installation of sample points on a systematic grid 8 chains by 8 chains in size anchored with a random starting location.

The sample design will include the installation of fixed area plots to measure both live and dead conifers and hardwoods. A 1/100th acre fixed area plot will be installed at each sample point to sample trees >0.5" DBH and less than 3.6" DBH, a 1/50th acre fixed area plot will be

installed at each sample point to sample trees >3.6" DBH and less than 11.6" DBH, and a 1/5th acre fixed area plot will be installed at each sample point to sample trees >11.6" DBH.

Attachment L 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 B below.

Cruise data from field cards will be reviewed for completeness and entered into an Access database. Plot data within the database will be extensively sorted and queried to look for data entry errors. This process will result in a final data set for cruise processing. The Access database will serve as the repository for inventory data and is accessed by the growth and yield model during growth and yield simulations.

As timber management activities take place on the Brush Creek Project Area, or disturbance such as fire or mortality resulting from pathogens or other factors occurs, plots installed in 2014 will be relocated and remeasured within areas that have been harvested, treated for hardwood reduction, or subject to other disturbance. By 2026, all of the plots installed in 2014 will have been remeasured regardless of whether or not the plot had been harvested, treated for hardwood reduction, or subject to other disturbance. On this basis, the Brush Creek will maintain a forest inventory system that will meet the inventory specifications and requirements contained in Appendix A of the Protocol, with plots which are no more than 12 years old.

Updating the Project's carbon stocks from year to year will involve the following steps:

1. Any newly installed inventory plots will be incorporated into the inventory estimate.
2. Existing inventory plots will be updated using FORSEE as described in the modeling plan.

3. Updating the forest inventory for harvests or disturbances that have occurred during the previous year through the installation of new plots, or adjustments to previous plot data.

4. Where necessary, the inventory update process may result in restratification of portions of the timber strata.

5. Inventory updates following harvest or disturbance will be re-measured within 12 months of the harvest or disturbance.

6. A revised inventory confidence deduction will be calculated following the update process in years when a field verification will be conducted, otherwise the last verified inventory confidence deduction shall be applied.

IFM-3 Standing Dead:

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

IFM-6 Soil (if applicable):

Excluded because the conditions in Table 5.2 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 has not been generated by the Project as no harvesting is planned after the Offset Project Commencement Date. Part B below will include documentation of analytic methods and biomass equations used to translate 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. No forest products will be generated by the Project as no harvesting is planned occurred after the Offset Project Commencement Date. Part B below will include documentation of analytic methods and biomass equations used to translate future harvest volumes delivered to the mill into appropriate forest products carbon in landfill values.

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 B below will include documentation of analytic methods and biomass equations used to translate 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 will be calculated using the appropriate biomass equation by species taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB's website (http://www.arb.ca.gov/cc/capandtrade/protocols/usforestprojects.htm). The current biomass equation documentation provided by ARB is included as Attachment M. The equations referenced below are not reproduced here for the sake of minimizing redundancy. 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.

Each species can have as many as three FIA equations in order to calculate tree biomass. The FIA equations used by species are as follows:

Species	Bole Cubic Ft Volume	Bark Biomass	Live Branches Biomass
Douglas-fir	Equation 3	Equation 8	Equation 6
Port Orford Cedar	Equation 8	Equation 13	Equation 10
Sugar pine	Equation 20	Equation 10	Equation 8
Ponderosa pine	Equation 5	Equation 9	Equation 7
Incense Cedar	Equation 19	Equation 12	Equation 10
White fir	Equation 23	Equation 1	Equation 1
Tanoak	Equation 34	None	None
Pacific madrone	Equation 40	None	None
Live oak	Equation 43	None	None
Black oak	Equation 38	None	None
White oak	Equation 41	None	None
California laurel	Equation 33	None	None
Golden chinkapin	Equation 32	None	None
Bigleaf maple	Equation 37	None	None
Red Alder	Equation 26	Equation 20	Equation 16
Other hardwood	Equation 41	Equation 20	Equation 16

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 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 1/3rd 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 were calculated from their measured top heights using FORSEE. If 1/3rd of the calculated tree height was less than the measured top height, then the break was assumed to be above the bottom 3rd of the tree. Likewise, if 2/3^{rds} of the calculated tree height was less than the measured tree height, the break was assumed to be in the top 3rd of the tree.

Missing volumes of damaged trees recorded in the field will be 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 1/3rd , 25% in the middle 1/3rd, and 10% in the top 1/3rd. 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 86 of Appendix A of the protocol. The formula has as its input, above-ground live 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, 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 of carbon per acre is converted to CO2- equivalent by multiplying by 3.664.

IFM-3 Standing Dead:

Data on standing dead trees will be collected as a part of the Brush Creek 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 10'.

Standing dead trees from the inventory data are classified into six decay classes based on descriptions contained on page 12 of General Technical Report NRS-29 (Harmon et al, 2008)(the numbering of decay classes is modified below to 1-6 as opposed to 0-5 in Harmond). These decay classes are generally described as follows:

Class 1 Tree has recently died with leaves intact.

Class 2 Leaves mostly still attached, intact bark, fine twigs, and branches.

Class 3 Leaves mostly gone, fine branches mostly gone, bark loose and starting to fall off.

Class 4 A few large branches or stubs remain, bark falling off in large patches, softwood sloughing is evident.

Class 5 Highly decomposed, no branches, little bark, broken off top.

Class 6 Mostly decomposed, no branches, very little bark, broken off close to the ground.

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 1/3rd 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 calculated from their measured top heights using FORSEE. If

1/3rd of the calculated tree height is less than the measured top height, then the break is assumed to be above the bottom 3rd of the tree. Likewise, if 2/3rds of the calculated tree height is less than the measured tree height, the break is assumed to be in the top 3rd 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 1/3rd , 25% in the middle 1/3rd, and 10% in the top 1/3rd. 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. The table below lists the relative densities applied by species and decay class taken from General Technical Report NRS-29 (Harmon et al, 2008).

Relative Density by Species and Decay Class:

	Decay Class (DC)					
Species	**DC1**	**DC2**	**DC3**	**DC4**	**DC5**	**DC6**
Douglas-fir Interior	1	0.858	0.723	0.444	0.305	0.329
Incense Cedar	1	1.000	0.845	0.760	0.420	0.366
Ponderosa pine	1	0.889	0.876	0.868	0.339	0.495
Sugar Pine	1	1.000	0.788	0.553	0.364	0.407
White fir	1	0.958	0.759	0.470	0.381	0.330
Port Orford Cedar	1	0.956	0.827	0.678	0.426	0.366
Bigleaf maple	1	0.941	0.709	0.533	0.317	0.241
California black oak	1	0.981	0.779	0.665	0.416	0.428
Golden chinkapin	1	0.944	0.734	0.583	0.370	0.282
Pacific madrone	1	0.944	0.734	0.583	0.370	0.282
Other Interior Hardwoods	1	0.944	0.734	0.583	0.370	0.282
Oregon white oak	1	0.981	0.779	0.665	0.416	0.428
Red alder	1	0.990	0.836	0.505	0.277	0.300
Tanoak	1	0.944	0.734	0.583	0.370	0.282

Below-ground standing dead carbon is calculated at the plot level using the model provided by Cairnes et. al. specified on page 86 of Appendix A of the protocol. The formula has as its input, above-ground biomass in Mg per hectare, and outputs below-ground biomass in Mg per hectare.

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 of carbon per acre is converted to CO2- equivalent by multiplying by 3.664.

IFM-6 Soil (if applicable):

Excluded because the conditions in Table 5.2 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:

Wood products delivered to the mill in any period is calculated beginning with the cubic volume of harvested conifer trees 10” DBH and larger. Conifers smaller than 10" DBH 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 for the Redwood forest type and are included in Table C.1 of Appendix C of the Protocol. 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 is then multiplied by 0.675 to account for mill efficiencies, taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB’s website (http://www.arb.ca.gov/cc/capandtrade/protocols/usforestprojects.htm).

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 (http://www.arb.ca.gov/cc/capandtrade/protocols/usforestprojects.htm), as well as the 100-year average storage factors applied to each wood product class per table C.2 of Appendix C of the protocol.

Wood Products by Class

% Softwood Lumber	97.067%
% Hardwood lumber	0.002%
% Softwood Plywood	1.874%
% Oriented Strandboard	0.000%
% Non Structural Panels	0.244%
% Miscellaneous Products	0.095%
% Paper	0.717%

100-year Storage Rates Average Values from Appendix C, In-Use Table C.2

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
Weighted Average	0.310

Average carbon stored in in-use wood products is calculated using equation C.1. Carbon is converted to CO2-equivalent by multiplying by 3.67.

Average in-use wood products produced by the baseline analysis are deducted from actual wood products produced each reporting period, and the resulting calculation is multiplied by 80% to account for the "Market Response". This represents the Total Quantified GHG Reduction/Removal for carbon stored in in-use wood products.

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

Wood products delivered to the mill in any period is calculated beginning with the cubic volume of harvested conifer trees 10" DBH and larger. Conifers smaller than 10" DBH 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 for the Redwood forest type and are included in Table C.1 of Appendix C of the Protocol. 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 is then multiplied by 0.675 to account for mill efficiencies, taken from the Compliance Offset Protocol U.S. Forest Offset Projects page on ARB's website (http://www.arb.ca.gov/cc/capandtrade/protocols/usforestprojects.htm).

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, (http://www.arb.ca.gov/cc/capandtrade/protocols/usforestprojects.htm), as well as the 100-year average storage factors applied to each wood product class per table C.3 of Appendix C of the protocol.

Wood Products by Class

% Softwood Lumber	97.067%
% Hardwood lumber	0.002%
% Softwood Plywood	1.874%
% Oriented Strandboard	0.000%
% Non Structural Panels	0.244%
% Miscellaneous Products	0.095%
% Paper	0.717%

100-year Storage Rates Average Values from Appendix C, In Landfill Table C.3	
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
Weighted Average	0.199

Average wood products carbon stored in landfills is calculated using equation C.2. Carbon is converted to CO2-equivalent by multiplying by 3.67.

Average landfill wood products produced by the baseline analysis are deducted from actual in-use wood products produced each reporting period for years when actual wood products produced are less than the baseline average, and the resulting calculation is multiplied by 80% to account for the "Market Response". This represents the Total Quantified GHG Reduction/Removal for carbon stored in wood products in landfills.

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 6.10 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.

VII.C.

IFM-1 Standing Live: This carbon pool will be calculated each year as described in parts A and B above. The inventory is still in progress. A preliminary estimate of the current standing live carbon pool is 480,000 MgCO2e.

IFM-3 Standing Dead: This carbon pool will be calculated each year as described in parts A and B above. The inventory is still in progress. A preliminary estimate of the current standing dead carbon pool is 4,000 MgCO2e.

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. No harvesting is planned during the initial reporting period.

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. No harvesting is planned during 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. The inventory is still in progress. A preliminary estimate of biological emissions/removals due to this leakage is 944 MgCO2e annually.

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) will be used to calculate the sampling error for the Brush Creek Forest once mean standing live and standing dead pools have been determined. The inventory is still in progress. Preliminary estimates of the inventory confidence statistics are as follows:

Standard Error of the mean as %	3.064%	
Sampling Error of 90% CI	5.040%	(3.064%) * 1.645
Inventory Confidence Deduction	0.0%	5.040% - 5.0%

VII.E.

The risk ratings shown below assume that the Project will not employ a Qualified Conservation Easement.

Project Area Reversal Risk Rating:

Risk Category	Contribution to Reversal Risk Rating
Financial Failure	5.0%
Conversion	2.0%
Over-harvesting	2.0%
Social	2.0%
Wildfire	4.0%
Disease/Insect	3.0%
Other Catastrophic	3.0%
Total Buffer Pool Contribution	19.2%

The Project's reversal risk rating is calculated as follows:

100% - (((1-0.05)*(1-0.02)*(1-0.02)*(1-0.02)*(1-0.04)*(1-0.03)*(1-0.03)*100)) = 19.2%

VIII.A.5.

Following the calculation methodologies described in section VII B above, the baseline modeling presented in the draft Modeling Plan (Attachment J) will generate 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.

Woods Products Class	Mg C/ acre	Total Mg CO2e
Average Annual Carbon 100-year In-Use	0.118	866.12
Average Annual Carbon 100-year Landfill	0.075	550.50
Average Annual Carbon in Harvested Trees Prior to Delivery to the Mill	0.643	4,719.62

VIII.B.5.

Although the OPO owns land outside of the Project Area but within the same Logical Management Unit (LMU), the Project Area's initial above ground standing live carbon stocks are above Common Practice. The minimum baseline level (MBL) for the Project is determined through the use of equation 6.5 which does not require the calculation of the Project's weighted average above-ground standing live carbon stocks (WCS) within the LMU. No calculation of WCS will be performed.

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 Compliance Offset Protocol provides two means by which the Forest Owner may demonstrate that the growth and harvesting regime assumed for the baseline is financially feasible. The first approach involves a financial analysis of the growth and harvesting regime, while the second approach provides evidence that activities similar to the assumed baseline growth and harvest scenario have taken place on other properties within the Forest Project's Assessment Area within the past 15 years and that harvesting activities have taken place on sites comparable to the Project Area. The Brush Creek Carbon Project will demonstrate financial feasibility using the second approach under section 6.2.1.3 (page 52).

Within CAL watersheds intersected by the Project Area, approximately 4,907 acres of timber harvest documents have been approved over the 15-year period leading up to the Project start date in 2014. These past harvesting activities have taken place on slopes similar to those of the Project Area, on equivalently zoned lands, with similar species composition to the Project Area, and with similar road access and yarding method constraints. An overview map of these past harvesting activities derived from data maintained by the California Department of Forestry and Fire Protection is included as Attachment N

Based on a review of the harvesting history adjacent to the Project Area presented above and shown on the map attached as Attachment N, there is strong evidence of the financial feasibility of the assumed baseline growth and harvest scenario.