Summary of Approved AHCP Minor Modifications

Revised 8-24-2011

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4) Clarification of the Application of AHCP Measures to Road Bank Cuts
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2) Inclusion of Biomass Harvesting as a Site Preparation Activity (Sections 2.2.2 and 2.4.1)
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Attachment A

Consistency Determination Minor Modification Language

1) Tier A Class III Protection Measures

Green Diamond Resource Company ("Green Diamond") will apply Modified Tier A Class III protection measures within Known Tracts, which have been determined to contain a high proportion of Highly Erodible Soils, and to areas within Coho Planning Watersheds in the AHCP Planning Area, where Highly Erodible Soils exist.

The Known Tracts are depicted in Figure 1 and are: (1) Mather, (2) McKinleyville, (3) Ryan Creek (McKay Tract), (4) Salmon/SF Elk River, (5) Rio Dell, and (6) Carlotta. On areas outside of Known Tracts within Coho Planning Watersheds in the AHCP/CCAA planning area, when a forester finds soil conditions that may constitute Highly Erodible Soils during THP layout, Green Diamond will consult with a Professional Geologist to confirm the presence and extent of the Highly Erodible Soils on the THP areas. Coho Planning Watersheds are defined by CDFG as all CalWater 2.2 Planning Watersheds where CDFG has documented coho salmon to be present during or after 1990.

Highly Erodible Soils are soils that are prone to surface erosion. These include Tonnini's or Wildcat Group derived soils, or soils with similar properties that are derived from uplifted marine sediments, and that are composed primarily of sands or silts (See, e.g., Section 6.3.4.9 of AHCP). There are several mapped bedrock units (composed of no competent bedrock material - i.e., gravels, cobbles, or boulders are not present) in the region that are known to possess these characteristics and they include, but are not limited to, uplifted marine terraces, the Hookton formation, the Falor formation, the lower member of the Rio Dell formation, and the upper member of the Eel River formation.

The Modified Tier A Class III Protection Measures are as follows:

(1) Establish a 30-foot EEZ except for (a) existing roads; (b) road watercourse crossings; and (c) skid trail watercourse crossings.
(2) Retain all LWD on the ground (not including felled trees) within the EEZ.
(3) No ignition of fire will occur during site preparation within the EEZ.
(4) Retain all sub-merchantable conifers.
(5) Retain a minimum of 15 square feet of basal area of hardwoods per acre where it exists before harvest, including the largest hardwoods available for this purpose. Retain all hardwoods when less than 15 square feet basal area is present before harvest.
(6) Retain all channel trees and trees that have boles that overlap the edge of the channe1 zone.
(7) Retain all safe snags.
(8) Retain at least 50% of understory vegetation following completion of yarding operations.

2) Fine Sediment Generation at Road Watercourse Crossings

Green Diamond will apply Supplemental Road Mitigation Measures to: (1) areas that are within
1 ,000 feet of Class I watercourses where coho are present; (2) all Class I, II, and III watercourse crossings on seasonal dirt surfaced roads in Known Tracts; and (3) all Class I, II, and III watercourse crossings within Coho Planning Watersheds in the AHCP planning area that are identified as containing Highly Erodible Soils.

Known Tracts are depicted on Figure 1 and include: (1) Mather, (2) McKinleyville, (3) Ryan Creek (McKay Tract), (4) Salmon/SF Elk River, (5) Rio Dell, and (6) Carlotta. On areas outside of Known Tracts within Coho Planning Watersheds in the AHCP/CCAA planning area, when a forester finds soil conditions that may constitute Highly Erodible Soils during THP layout, Green Diamond will consult with a Professional Geologist to confirm the presence and extent of the Highly Erodible Soils on the THP areas.

Coho Planning Watersheds are a defined by CDFG as all CalWater 2.2 Planning Watersheds where DFG has documented coho salmon to be present during or after 1990.

Highly Erodible Soils are soils that are prone to surface erosion. These include Tonnini's or Wildcat Group derived soils, or soils with similar properties that are derived from uplifted marine sediments, and that are composed primarily of sands or silts (See, e.g., Section 6.3.4.9 of AHCP). There are several mapped bedrock units (composed of no competent bedrock material- i.e., gravels, cobbles, or boulders are not present) in the region that are known to possess these characteristics and they include, but are not limited to, uplifted marine terraces, the Hookton formation, the Falor formation, the lower member of the Rio Dell formation, and the upper member of the Eel River formation.

Seasonal dirt surfaced roads are defined as those roads that are not adequately surfaced with rock providing a stable running surface capable of allowing all-winter use of both heavy equipment and pickups.

Each road approach to a watercourse crossing shall be treated to create and maintain a stable operating surface, and to minimize the generation of fine sediment during use, in accordance with subsection (A) through (E) below.

The Road Approach encompasses either of the following areas, whichever is less:

(i) the area from the watercourse channel to the nearest drainage facility, but not less than 50 feet; or
(ii) the area from the watercourse channel to the first high point on the road where road drainage flows away from the watercourse.

The Supplemental Road Mitigation Measures include:

(A) Road approach surfaces on the following shall consist of high-quality, durable, compacted rock or paving:
  (i) permanent roads
  (ii) seasonal roads crossing Class I watercourses

(iii) roads used for hauling (logs, rock, heavy equipment) from October 16* to May 14*.

(B) Road approach surfaces on the following shall be treated with either: rock, slash, seed and straw mulch, seed and stabilized straw, or seed and slash:
  (i) all seasonal roads used for hauling in the current year
  (ii) all seasonal roads used from October 16* to May 14* for purposes other than hauling

(C) Ditches exhibiting downcutting within the road approach along the following shall be lined with high-quality, durable rock:
  (i) permanent roads
  (ii) seasonal roads crossing Class I watercourses
  (iii) roads used for hauling from October 16* to May 14*.

(D) Ditches exhibiting scour within the road approach along the following shall be treated with either rock or seed and straw mulch:
  (i) seasonal roads used for hauling in the current year
  (ii) seasonal roads used October 16* to May 14* for purposes other than hauling.

(E) Bare soil on associated fill slopes, shoulders, and cuts shall be treated to minimize erosion where sediment can be delivered to a watercourse.

***Note:** If antecedent weather conditions described below occur, seasonal road use for hauling may be modified, consistent with the AHCP, within the following periods: l) hauling may continue from October 16th through November 15th if an "unseasonably dry fall" occurs (less than four inches of cumulative rainfall from September 1st through October 15th), and 2) hauling may begin May 1st through May 14th when "early spring drying" has occurred (no measurable rainfall occurred within the last 5 days and no rain forecasted by the National Weather Service for the next 5 days). All hauling during these periods shall be subject to turbidity restrictions in 6.2.3.10.1 of the AHCP.

**NOTE - The following clarifications and measures apply within coho planning watersheds, in the AHCP planning area.*

3) Hydrologic Disconnection of Plan Area Roads

Green Diamond will, within Coho Planning Watersheds in the Plan Area, conduct the following:

(1) All appurtenant dirt roads associated with THPs will be hydrologically disconnected during the life of the THP throughout the AHCP area.

(2) During implementation of the Roads Management Plan, the Company will evaluate remaining non-dirt roads within the AHCP area and apply the basin priority system to evaluate road remediation work within these basins consistent with other AHCP goals and objectives.

Coho Planning Watersheds are a defined by CDFG as all CalWater 2.2 Planning Watersheds where CDFG has documented coho salmon to be present during or after 1990.

4) Clarification of the Application of AHCP Measures to Road Bank Cuts

Green Diamond will implement the following clarification in Coho Planning Watersheds to the AHCP, which reflects that Section 6.2.3.5.13 of the AHCP and related sections are intended to

require the Company to evaluate road bank cuts on both new and existing roads, and to apply remediation to such road bank cuts where necessary and appropriate:

For both new road construction and existing road maintenance in areas where existing road bank cuts have exhibited failures and have the potential to deliver to a watercourse, Green Diamond will implement the following measures to the extent feasible to prevent sediment discharges to watercourses: hydrologically disconnecting the bank cut discharge from watercourses, buttressing, or other measures and by installing and maintaining effective erosion control materials.

Coho Planning Watersheds are defined by CDFG as all CalWater 2.2 Planning Watersheds where DFG has documented coho salmon to be present during or after 1990.

5) Clarification of the AHCP Regarding Inspection of Existing Roads

Green Diamond will implement the following clarification in Coho Planning Watersheds to the AHCP, which reflects that Sections 6.2.3.6.13, 6.2.3.9.5, and related sections of the AHCP are intended to require the Company to inspect both new and existing roads, and to undertake measures on such roads where necessary and appropriate to minimize sediment delivery to watercourses.

Coho Planning Watersheds are defined by CDFG as all CalWater 2.2 Planning Watersheds where DFG has documented coho salmon to be present during or after 1990.

Section 6.2.3.4.9 will be clarified as follows (strikeout and underline denote deletion and addition, respectively):

6.2.3.4.9 Additional Ditch Relief Structures

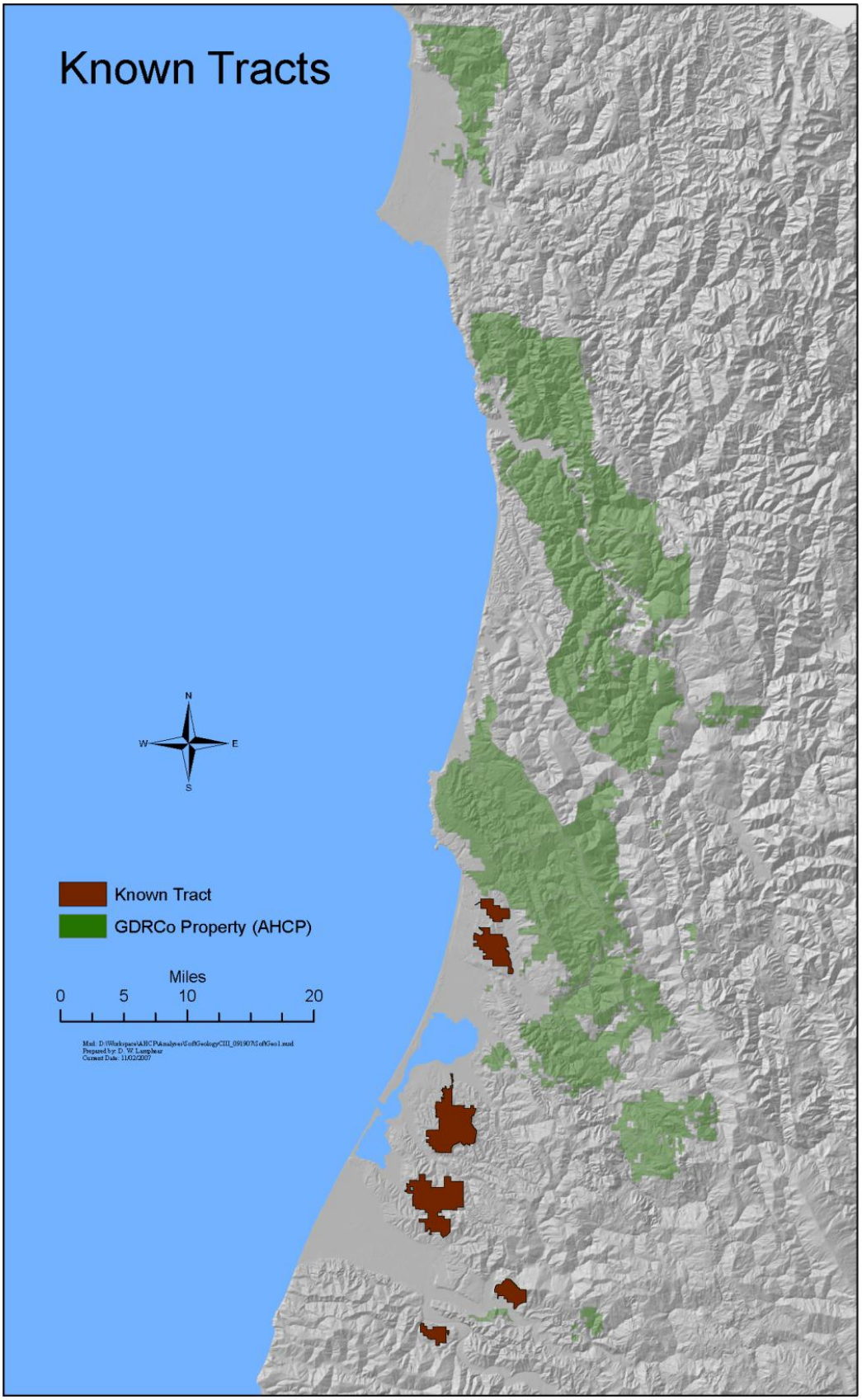
Green Diamond will install additional ditch relief ~~culverts~~ structures to adequately disconnect roads from watercourses and to meet the maximum spacing specifications of 6.2.3.6.12.

Section 6.2.3.9.5 will be clarified as follows (strikeout and underline denote deletion and addition, respectively):

2. The inspections will assess the following:

   a. Adequate waterbar spacing, depth, ~~interception of the ditch line~~ and complete diversion of water flow onto undisturbed soil.
   b. Interception of the ditch line by ditch relief structures.
   ~~b.~~c. Areas having poorly drained low spots or inadequately breached outside berms.
   ~~c.~~d. That ditches are open and properly functioning, free of debris that could plug the ditch or a culvert and cause a diversion of water onto the road surface.
   ~~d.~~e. Culverts are functioning properly (i.e., the culvert is not rusted out or separated at a joint; water is flowing through the pipe and not underneath; sediment and debris is not reducing the pipe capacity).
   f. Forest floor discharge sites below the outlets of drainage facilities for evidence of sediment delivery to Class I, Class II, or Class III watercourses.

3. Green Diamond will prioritize maintenance or repairs that are needed based on treatment inu11ediacy (a subjective combination of event probability and potential sediment delivery evaluated as either low, moderate, or high). Green Diamond's goal will be to complete all the priority tasks prior to the winter period. If the priority workload exceeds that which can be accomplished in the current maintenance year, lower priority sites, including those identified under 6.2.3.9.5(2)(a-f) will be held over until the following maintenance year.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Attachment B

Mechanized Site Prep, Emergency Road Repair, and Equipment Exclusion Zone

(strikeout and underline denote deletion and addition, respectively)

1) Mechanized Site Preparation Methods with Shovel Logging Equipment

6.2.4.2.3 (Mechanized Site Preparation Methods)

1. Green Diamond will minimize use of machine piling with tractor-and-brushrake; other mechanized methods or equipment will be used preferentially.

2. Use of mechanized site preparation methods will be limited to the period beginning May 15th and ending October 15th.

3. Mechanized slash piling with shovel logging (Helms, 1998) equipment may be conducted concurrent with shovel harvesting operations during the winter period, subject to all limitations under Section 6.2.4.7 and items (a) and (b) below.
   a. Site preparation operations with shovel logging equipment are limited to slopes averaging less than 30% gradient.
   b. Shovel logging equipment will operate on a slash surface during site preparation operations.

2) Emergency Road Repair and Unscheduled Road Maintenance Repairs on Seasonal Roads

6.2.3.11 (Emergency Road Repair and Unscheduled Road Maintenance Repairs on Seasonal Roads)

1. If there is an imminent threat to life, property, or public safety, or a potential for a massive sediment input with catastrophic environmental consequences, and the appropriate emergency response action is otherwise prohibited by this Section of this Plan, Green Diamond will notify the Services' designated contacts, but a formal notification will not be required prior to response actions being taken.

2. During winter road inspections, GDRCo may discover a condition on a seasonal road that is causing or may cause environmental impacts, in the form of sediment delivery to Class I, II, or III watercourses. GDRCo will apply all the guidelines listed below to determine if the maintenance problem can be remedied during the winter period.
   a. The environmental impact of accessing the site with appropriate equipment and conducting the repairs during the winter period is less than the potential environmental impact of delaying the repair until the summer period.
   b. Repairs, including installation of erosion control devices, can be accomplished in one day.
   c. The equipment used to repair the site will not cause deformation that causes rutting and loss of integrity of the road surface at the repair site and along the road accessing the repair site.

d. All needed erosion control devices are in place and functional upon completion of maintenance repairs at the repair site itself, and along the seasonal road used to access the repair site. This includes pre-existing devices on the seasonal access road and devices installed as part of the repair. At least once during the remainder of the winter period, GDRCo will assess the installed erosion control devices for effectiveness and repair/replace materials as necessary and feasible.
e. The smallest equipment necessary to complete the job will be used (e.g. mini excavator, small backhoe, grader, etc.).
f. No rain forecasted for the next 24 hours.

3) Skid Trail Intrusions within Class III Equipment Exclusion Zones

6.2.1.6.1 Equipment Exclusion Zone

Green Diamond will establish a 30-foot EEZ, except for a) existing roads; b) road watercourse crossings; c) skid trails; and d) skid trail watercourse crossings.

The exception for skid trail watercourse crossings is only applicable when the following conditions are met:

1. Construction and use of skid trail watercourse crossings within the Class III EEZ may occur only when construction and use of alternative routes to otherwise inaccessible areas outside of the RMZ would result in substantially greater impacts to aquatic resources. Preference shall be given to utilizing existing skid trail watercourse crossing sites in the Class III over establishing new skid trail watercourse crossing sites in the Class III.

2. Within Class III EEZs, trees may be felled and harvested to facilitate skid trail watercourse crossing construction and use.

3. Green Diamond will submit to the Services an explanation, justification, and map of any proposed skid trail watercourse crossings as part of the informational copy of the THP notice of filing (see Section 6.2.7.2).

The exception for skid trail intrusions is only applicable when the following conditions are met:

1. EEZ hillslopes are less than 25 percent.
2. The location and use of skid trails within the EEZ may occur only when the use of alternative routes to otherwise inaccessible areas outside of the EEZ would result in substantially greater impacts to aquatic resources. Intrusion into the EEZ is preferred if the alternative routes would result in greater road length and additional watercourse crossings. Preference will be given to utilizing shovel logging equipment and using existing skid trails in the EEZ over locating new skid trails in the EEZ.
3. Skid trails will not be used in the EEZ to provide access to EEZs for the purpose of their harvest.
4. All bare mineral soil greater than 100 square feet created by management activities within the EEZ, will be mulched or treated with slash to adequately cover the exposed soil area prior to any onset of rain or upon completion of operations, whichever occurs first.

5. Green Diamond has submitted to the Services an explanation, justification, and map of the proposed entry into the EEZ as part of the informational copy ofthe THP notice of filing (see Section 6.2.7.2).

6.2.1.7.1 Equipment Exclusion Zone

Green Diamond will establish a 50-foot EEZ, except for a) existing roads; b) road watercourse crossings; c) skid trails; and d) skid trail watercourse crossings.

The exception for skid trail watercourse crossings is only applicable when the following conditions are met:

1. Construction and use of skid trail watercourse crossings within the Class III EEZ may occur only when construction and use of alternative routes to otherwise inaccessible areas outside of the RMZ would result in substantially greater impacts to aquatic resources. Preference shall be given to utilizing existing skid trail watercourse crossing sites in the Class III over establishing new skid trail watercourse crossing sites in the Class III.
2. Within Class III EEZs, trees may be felled and harvested to facilitate skid trail watercourse crossing construction and use.
3. Green Diamond will submit to the Services an explanation, justification, and map of any proposed skid trail watercourse crossings as part of the informational copy of the THP notice of filing (see Section 6.2.7.2)

The exception for skid trail intrusions is only applicable when the following conditions are met:

1. EEZ hillslopes are less than 25 percent.
2. The location and use of skid trails within the EEZ may occur only when the use of alternative routes to otherwise inaccessible areas outside of the EEZ would result in substantially greater impacts to aquatic resources. Intrusion into the EEZ is preferred if the alternative routes would result in greater road length and additional watercourse crossings. Preference will be given to utilizing shovel logging equipment and using existing skid trails in the EEZ over locating new skid trails in the EEZ.
3. Skid trails will not be used in the EEZ to provide access to EEZs for the purpose of their harvest.
4. All bare mineral soil greater than 100 square feet created by management activities within the EEZ, will be mulched or treated with slash to adequately cover the exposed soil area prior to any onset of rain or upon completion of operations, whichever occurs first.
5. Green Diamond has submitted to the Services an explanation, justification, and map of the proposed entry into the EEZ as part of the informational copy of the THP notice of filing (see Section 6.2.7.2).

Attachment C

Road Treatment Program Based on a Calendar Year

(strikeout and underline denote deletion and addition, respectively)

1) Road Treatment Program based on a Calendar Year

6.2.3.2.1 Acceleration of Implementation Plan

1. Green Diamond will provide for an average of $2.5 million per year (to be inflation adjusted in 2002 dollars for each year of the acceleration period) for the first 15 years of the Permits' 50-year term (the "acceleration period") to implement the treatment of high and moderate priority sediment sites identified in the implementation plan, for a total of $37.5 million (unless the acceleration period is adjusted as provided in 6.2.3.2.3). The funds provided for the accelerated implementation plan to treat road-related sediment will be based on a calendar year.

2. All funds provided by Green Diamond to treat high and moderate sites during the acceleration period, including high and moderate sites on roads appurtenant to THPs, will be counted toward the $2.5 million per year commitment.

3. During any of the first three years of the acceleration period, Green Diamond may provide for substantially more or less than $2.5 million, as long as a total of $7.5 million (inflation adjusted in 2002 dollars for each year) has been provided from the effective date through ~~by~~ the end of the third calendar year of AHCP implementation (December 31, 2010)~~three-year period~~.

4. On an annual basis the $2.5 million per year will be adjusted proportionally to reflect the current acreage of the Plan Area in relation to the acreage of the Initial Plan Area.

Attachment D

Channel Migration and Floodplain Delineation Project

(strikeout and underline denote deletion and addition, respectively)

1) Floodplain Delineation Project

6.2.1.8.1 Floodplains

1. Green Diamond will map all floodplains of Class I watercourses within the Plan Area concurrent with THP development throughout the duration of ~~within the Plan Area within five years after~~ the Permits.~~' effective date. For any lands added to the Plan Area after the end of the third year, Green Diamond will complete mapping within two years of the addition.~~

2. Any sites that show the potential attributes of a floodplain based on LiDAR data ~~geographic information system (GIS) analysis~~ will be further analyzed using geographic information system (GIS) analysis, aerial photographs, maps, and historic field information.

3. The final determination of the boundaries of all floodplains within the Plan Area will be based on field verification from trained personnel with ~~the~~ oversight ~~of a team of experts that may include a~~ from a qualified hydrologist, fluvial geomorphologist, professional geologist, or ~~and~~ fisheries biologist ~~representing the Green Diamond and the Services~~.

4. Following field verification, the floodplains (with any additional buffers as provided in 6.2.1.1) will be flagged in the field and mapped on Green Diamond's GIS.

2) Channel Migration Zone Delineation Project

6.2.1.8.2 CMZ's

1. Green Diamond will map all CMZs of Class I watercourses within the Plan Area concurrent with THP development throughout the duration of ~~within the Plan Area within five years after~~ the Permits.~~' effective date. For any lands added to the Plan Area after the end of the third year, Green Diamond will complete mapping within two years of the addition.~~

2. Any sites that show the potential attributes of a CMZ based on LiDAR data ~~GIS analysis~~ will be further analyzed using GIS analysis, aerial photographs, maps, and historic field information.

3. The final determination of the boundaries of all CMZs within the Plan Area will be based on field verification from trained personnel with ~~the~~ oversight ~~of a team of experts that may include a~~ from a qualified hydrologist, fluvial geomorphologist, professional geologist, ~~and~~ or fisheries biologist. ~~representing the Green Diamond and the Services.~~

4. Following field verification, the CMZs will be flagged in the field and mapped on Green Diamond's GIS.

Attachment E

Effectiveness Monitoring Program, Biomass Harvesting and Coastal Klamath HPA SSS Results

(strikeout and underline denote deletion and addition, respectively)

1) Effectiveness Monitoring Program

1. **Property-wide Water Temperature Monitoring:** Green Diamond proposes to reassess "yellow light" and "red-light" thresholds outlined in the AHCP/CCAA. Green Diamond proposes to reassess these thresholds because they believed the AHCP/CCAA Prediction Interval (PI) is too narrow, and results for some locations where the thresholds have been exceeded are without causal links to harvesting under AHCP/CCAA prescriptions. Green Diamond is concerned that the small percentage of sites that exceed either the yellow or red-light thresholds are in fact "false positives" (i.e., thresholds were exceeded absent any management activities or influence upstream of the site). Green Diamond also believes there are enough additional data points at this time to reassess the yellow and red-light thresholds based on a more comprehensive data set to develop a new PI.

Services Response: The Services acknowledge Green Diamond's temperature monitoring program has detected threshold exceedances that are not related to management activities under the AHCP/CCAA. We also appreciate the careful thought Green Diamond has put into analyzing the extensive water temperature data set in relation to the current PI. However, we believe the current thresholds should be maintained at this time for the following reasons: 1) we consider false positives "normal" and expected, particularly in interior areas of the AHCP Plan Area where above average summer air temperatures can elevate water temperatures regardless of management activities; 2) conducting an evaluation of the yellow and red-light thresholds may be important to document long-term trends in regional water temperatures (e.g., for potential changes associated with regional climate change); and 3) it is important to document whether exceedances are associated with management activities (positively or negatively), so that the Services and the public can have a better understanding of current relationship trends between management activities and water temperatures. Therefore, current AHCP/CCAA yellow and red-light water temperature thresholds should be maintained while Green Diamond continues to track water temperature and management activity associations. Additional data collection warrants a reevaluation of the threshold criteria.

2. **Class II BACI Water Temperature Monitoring:** Because Green Diamond has been observing inconsistent results to date on the comparison of Class II watercourse treatment reaches, versus control reaches, they propose to increase the power and accuracy of the effectiveness monitoring program by including Class II BACI water temperature monitoring in one or more of the Experimental Watersheds Program in 2012. Green Diamond believes doing so will allow for a better understanding of other factors in a watercourse that can affect temperature (e.g., groundwater inputs).

Services Response: The Services concur that it may be more appropriate to place the controlled BACI Class II Water Temperature Monitoring under the Experimental Watersheds Program where site conditions and treatment design can be better controlled, and more thorough assessments of Class II watercourses can be made in a more systematic fashion than the way the program is currently implemented. We look forward to reviewing Green Diamond's proposal for how this study can be conducted in an experimental watershed. Please provide us with a preliminary study design by March 31, 2012, so that a final study plan can be agreed upon prior to warmest summer months in 2012.

3. **Spawning Substrate Permeability:** Green Diamond proposes to discontinue this monitoring effort until an alternative is identified that will meet the original monitoring objectives. The current permeability monitoring technique has been shown to yield invalid results, due to the somewhat experimental nature of the methodology and wide variations in results observed in the field trials.

Services Response: The Services concur with Green Diamond that the permeability monitoring should be discontinued, until a more accurate method to assess the effects of the AHCP/CCAA on spawning substrate permeability is identified and agreed upon. To date, the Services have been unable to find a suitable replacement method, but will continue to explore ideas with Green Diamond. Absent a suitable replacement for the permeability study, the Long- Term Habitat Assessments performed under the AHCP/CCAA will provide information on trends in watercourse sediment deposition associated with management activities.

4. **Road-Related Surface Erosion Turbidity Monitoring:** Green Diamond proposes to discontinue road-related turbidity monitoring, and instead rely upon the processes described in Green Diamond's Long-Term Streambed Alteration Agreement (SAA) issued by the California Department of Fish and Game (CDFG), and Green Diamond's programmatic road waste discharge requirement (WDR) permit received from the Regional Water Quality Control Board. Green Diamond believes both the SAA and WDR address the issue of controlling road- related surface erosion via implementation monitoring of best management practices (BMPs) designed to reduce sediment delivery to streams. Green Diamond also believes that more current research projects have confirmed that roads are chronic contributors of fine sediment to streams, and that a better way to address the issue is by tracking how effective BMPs are at controlling this delivery of sediment.

Services Response: The Services concur with Green Diamond's proposal to end the Road-Related Surface Erosion (Turbidity) Monitoring, and replace this monitoring effort with the requirements of the SAA and WDR. Our concurrence is based on the following reasons. Implementing road-related turbidity monitoring is difficult as it often requires staffing personnel to be available for the first significant rain events of the winter period that generate run-off. This may require personnel to be "on call" at any time of the day or evening, 7 days a week. In addition, elevated levels of turbidity may not be related to the effectiveness of the road treatment program (e.g., a tree that has toppled in a watercourse will cause sediment to be washed from the root-wad during a storm event giving false positives or confusing results in the turbidity monitoring). Monitoring the effectiveness of BMPs at minimizing road-

related sediment delivery during the winter period is a more effective measure of whether sediment delivery is being minimized to the maximum extent practicable under the AHCP/CCAA. In addition, this allows Green Diamond to more effectively control sediment by choosing the appropriate BMPs to implement and determine how best to apply them. This adaptive strategy, the Services believe, will be more effective in reducing delivery of fine sediment to watercourses that support aquatic life.

5. **Tailed Frog and Southern Torrent Salamander Monitoring:** Green Diamond has been incorporating new elements in the tailed frog *(Ascaphus truei)* and southern torrent salamander *(Rhyacotriton variegatus)* monitoring programs. Green Diamond wants to refine these monitoring programs so that they are more meaningful for the understanding of tailed frog and southern torrent salamander life histories and movements within the Plan Area. Green Diamond also found that the original AHCP/CCAA monitoring protocols have the potential to degrade important aquatic habitat of sample reaches. Green Diamond proposes to update the monitoring protocols and project descriptions to reflect current activities that are less disturbing of habitat and more meaningful to the conservation of these species within the Plan Area.

Services Response: We concur with Green Diamond's proposal to update the tailed frog and southern torrent salamander monitoring protocols and project descriptions. Please provide the Fish and Wildlife Service (FWS) with the new protocol prior to the beginning of the next monitoring season for review and approval.

6. **Class I Channel Monitoring:** Green Diamond does not propose to discontinue this monitoring or reassess thresholds, but does propose to update methodology protocols in AHCP/CCAA Appendix D.2.2.2.2 to reflect the current equipment and protocols being utilized.

Services Response: We concur with Green Diamond's proposal and request that the updated protocols be submitted to the Services for review and approval by August, 2011.

7. **Class III Sediment Monitoring:** Green Diamond proposes to discontinue channel morphology, turbidity and sediment tray components of the Class III sediment monitoring. Green Diamond proposes to monitor Class III sediment associated with management activities by developing an improved BACI study that utilizes check dams (silt fences) in Class III watercourses. Green Diamond believes this check dam methodology shows the most promise for quantifying sediment budgets in Class III streams.

Services Response: The Services concur with Green Diamond's request to reduce this sampling program to the check dam methodology proposed. The Services acknowledge the difficulty in finding a reliable method to monitor sediment in Class III watercourses that is repeatable and statistically valid. Please work with the Services to develop a new monitoring design prior to the sampling period in 2011.

8. **Road-Related Mass Wasting Monitoring:** Green Diamond proposes to substitute the original AHCP/CCAA monitoring protocols with the BMP monitoring standards developed for their programmatic road permits (SAA and WDR).

Services Response: As with the Road-Related Surface Erosion Turbidity Monitoring, the Services concur that Green Diamond can substitute the BMP effectiveness monitoring associated with the SAA and WDR permits for the road- related mass wasting monitoring. Any mass-wasting failures associated with road treatments should be detected in these monitoring efforts and possible causation linked back to effective or ineffective BMPs. The Services ask that Green Diamond track road-related mass wasting events and describe whether the failure may have been caused by an ineffective BMP and what steps Green Diamond has taken to improve identified BMPs in response to their assessment. Please provide this information in the biennial AHCP/CCAA reports.

9. **Summer Juvenile Salmonid Population Estimates and Out-Migrant Trapping:** Green Diamond proposes to update AHCP/CCAA Appendix D 3.8 and 3.9 to reflect the current field protocols and population estimators used in this monitoring program. This modification is associated with Green Diamond's change in protocol to implement diver counts more frequently over electrofishing in an effort to reduce mortality associated with electrofishing. Changes in the out- migrant trapping protocols have also been implemented over the years to reduce potential mortality associated with marking and release of trapped fish.

Services Response: The Services concur with Green Diamond's proposal to update the summer population monitoring and out-migrant trapping protocols and appreciate the significant population monitoring efforts Green Diamond has made over the years. Monitoring programs, such as this one, are giving resource managers invaluable information on population trends and potential factors that can influence survival rates at different life history stages.

2) Inclusion of Biomass Harvesting as a Site Preparation Activity

2.2.2 Yarding Timber

Yarding, also referred to as skidding, is the movement of logs from the stump to the log landing. There are three major classifications of yarding systems; ground based, cable, and aerial logging. An additional form of yarding of non-traditional forms of wood products (not exclusively in log form) is biomass (slash debris) yarding which is discussed under Section 2.4 “Timber stand Regeneration and Improvement”.

2.4.1 Site Preparation, Prescribed Burning, and Slash Treatment

Site preparation may be required where accumulations of slash following timber harvesting constitute a physical barrier to effective planting, or where weed species (brush or non-merchantable trees) remaining on the site would comprise severe competition for planted seedlings. In either situation, prescribed burning, machine piling, mechanical scarification,

biomass harvesting, or a combination of these methods may be used to prepare the site for hand planting and reduce fuel concentrations for fire safety.

Table 2-2. Initial Plan Area acreage per age class.

HPA	Forested Land by Age Class (acres)						Non-Forest (acres)	Total
	0-20 yrs	21-40 yrs	41-60 yrs	61-80 yrs	81-100 yrs	>100 yrs		
Smith River	9,524	16,852	12,266	1,105	794	1,418	2,220	44,177
Coastal Klamath	19,638	46,283	15,496	530	504	3,842	2,468	88,760
Blue Creek	3,496	8,962	1,108	162	221	624	820	15,393
Interior Klamath	8,491	31,989	15,165	2,370	3,946	2,012	2,168	66,139
Redwood Creek	4,728	15,266	8,746	2,620	703	154	822	33,038
Coastal Lagoons	7,662	6,008	20,456	4,985	180	136	553	39,981
Little River	14,564	3,391	1,156	5,541	1,294	0	96	26,041
Mad River	16,771	4,253	14,435	4,436	3,267	533	5,680	49,376
North Fork Mad River	8,205	5,120	11,270	2,496	260	150	708	28,209
Humboldt Bay	7,640	3,029	3,396	2,230	871	141	176	17,484
Eel River	4,465	695	1,633	1,015	24	0	100	7,933
Total	105,183	141,849	105,126	27,490	12,064	9,012	15,810	416,533

In general, slash created by logging is retained on site without treatment if the site can be otherwise planted and fuel concentrations are not considered excessive. The California FPRs require that accidental deposits of slash within Class I and Class II watercourses be removed. Slash deposited into Class III watercourses must be removed unless it is stable within the channel. In all logging areas, slash developed on log landings as a result of yarding and truck loading activities may be piled and burned on the landing.

Site preparation is done as soon as possible after completion of logging so that planting will not be delayed. Mechanical site preparation may be done concurrently with logging operations. If prescribed burning is required, it is scheduled during the first spring or fall following completion of timber harvesting. Timing of such burns is predicated upon temperature, wind, humidity, and fuel moisture conditions that will result in low intensity burns. Such conditions minimize the probability of escape and allow retention of large woody debris and the finer organic matter

concentrated at the soil/litter interface. Ignition patterns are used that are designed to keep fire from intruding into RMZs.

Prescribed burning is used to reduce slash concentrations or to reduce vegetative levels or control species composition. This practice involves the introduction of fire under controlled conditions to remove specified forest elements with little risk of catastrophic fire damage. Fire may be broadcast across large areas, or may be used in specific sites. Prescribed burning is also used for slash control and to reduce fuel concentrations ~~in established stands~~ for fire ~~prevention~~ hazard abatement. The practice of utilizing prescribed burning – especially broadcast burning – has been greatly diminished over recent years due to increased air quality regulatory standards. It has become increasingly difficult to burn the necessary acres each year to meet the site requirements needed to properly prepare the site for the planting of seedlings as well as remove fuel concentrations to insure appropriate fire prevention standards yet meet all air quality regulations.

Biomass harvesting techniques have been developed and implemented in recent years as a potential viable and efficient alternative to broadcast burning. In areas where slash and other logging debris is accessible to ground based equipment, a portion of the logging slash is removed (harvested) form harvest units and landings as a site preparation and hazard abatement treatment. Advanced specialized harvesting equipment and techniques such as mechanized feller-bunchers, shovel logging and piling loaders, articulated off highway dump trucks and forwarders with low ground pressure capabilities, and high capacity mobile slash chippers and grinder equipment are used to gather up and process previously unutilized woody material. The biomass that is harvested is in the form of limbs, tops, chunks and slabs that were previously considered non-merchantable and uneconomical to retrieve from the landscape.

Where feasible and concurrent to harvesting operations, shovel logging operators are instructed to pile excessive slash into piles located along the roadway and also within the harvest units. Mechanized delimber operators are also instructed to pile tops and other debris in piles along the roadway, adjacent to landings, and also within the units. After normal log harvesting operations are completed, specialized biomass harvesting equipment (often a shovel loader with specialized tongs designed to pick up slash) is utilized to gather up slash in areas that were not previously piled and deposit it into a specialized articulated dump truck capable of driving over uneven topography and slash. Alternatively, in areas already pre-piled, the piled slash is loaded into the specialized dump trucks. These trucks deliver the biomass to a centrally located landing where a mobile slash chipper grinds/chops the material into chips and then loads large chip truck vans that deliver the chips to conversion facilities such as paper chip utilizers or co-generation plants. ~~In general, slash created by logging activity is retained on site without treatment. The California FPRs require that accidental deposits of slash within Class I and Class II watercourses be removed. Slash deposited into Class III watercourses must be removed unless it is stable within the channel. When timber harvest is accompanied by restocking (planting of young conifers) after the harvest is complete, slash is either retained untreated, mechanically cleared from small circular planting spots, or broadcast burned. In all logging areas, slash developed on log landings as a result of yarding and truck loading activities may be piled and burned on the landing.~~

3) Biomass Harvesting with Off-highway Dump Trucks

6.2.4.2.3 (Mechanized Site Preparation Methods)

1. Green Diamond will minimize use of machine piling with tractor-and-brushrake; other mechanized methods or equipment will be used preferentially.
2. Use of mechanized site preparation methods will be limited to the period beginning May 15th and ending October 15th.
3. Mechanized slash piling with shovel logging (Helms, 1998) equipment may be conducted concurrent with shovel harvesting operations during the winter period, subject to all limitations under Section 6.2.4.7 and items (a) and (b) below.

    a. Site preparation operations with shovel logging equipment are limited to slopes averaging less than 30% gradient.
    b. Shovel logging equipment will operate on a slash surface during site preparation operations.
4. Forwarding slash material (biomass) with articulated off-highway dump trucks may be conducted subject to the following conditions:
    a. The RPF or his designee shall review details of each operating unit with the LTO prior to biomass harvest operations.
    b. Protected locations that are not obvious on the ground following logging shall be reflagged prior to biomass harvest operations.
    c. Articulated trucks will only operate on slopes ≤ 30%.
    d. Articulated trucks will only operate on rocked surfaces during the winter period.
    e. No new skid trial construction will occur for the sole purpose of operating the articulated trucks.
    f. Operations will cease during storm events where operations, combined with significant rainfall, are likely to cause delivery of sediment in RMZs or EEZs along Class I, II, or III watercourses.
    g. Trails used by articulated trucks shall be ripped and mulched where tire tracks are capable of channeling water for more than fifty feet.
    h. Landings used for biomass harvesting operations that contain areas of exposed soil will be mulched with hog fuel upon completion of operations.
    i. Large residual woody debris providing high wildlife value will be retained on site.
    j. Abandoned roads used as trails by the articulated trucks will be drained and blocked in accordance with the specifications in the THP. Abandoned roads re-sloped to the topography upon completion of timber operations will not be reconstructed for purposes of biomass harvest.

4) Revised Coastal Klamath HPA SSS Slope Distance and Gradient Thresholds

Coastal Klamath SSS Maximum Slope Distance and Minimum Slope Gradient (%) Thresholds			
SSSMU	Class I	Class 2-2	Class 2-1
1	240' @ 65%	110' @ 70%	135' @ 75%
2	425' @ 75%	195' @ 85%	

Attachment F

Routine Road Maintenance and Inspection Plan Schedule

(strikeout and underline denote deletion and addition, respectively)

1) Road Maintenance Schedules for All Secondary Management Roads or Roads Not Yet Decommissioned

6.2.3.9.4 Road Maintenance Schedules for All Secondary Management Roads or Roads Not Yet Decommissioned

1. Green Diamond will maintain all secondary management roads or roads yet to be decommissioned that are accessible to maintenance crews.
2. The initial maintenance schedule (one time) will be completed in three 2-year periods (6-year window) in accordance with the following:

Three 2-year Periods	Routine Maintenance Areas
1	Smith River HPA
1	Coastal Klamath HPA (on northern side of the Klamath River) minus the Bear Creek RWU
2	Coastal Klamath HPA (on southern side of the Klamath River)
2	Blue Creek HPA plus the Bear Creek RWU
3	Interior Klamath HPA
3	Redwood Creek HPA
2	Coastal Lagoons HPA
1	Little River HPA
1	Mad River HPA minus the Boulder Creek RWU
2	North Fork Mad River HPA
3	Humboldt Bay HPA plus the Boulder Creek RWU
3	Eel River HPA

3. The rotating maintenance schedule will be completed on a three-year rotating basis in accordance with the following:

Rotating Annual Schedule	*Routine Maintenance Areas*
1	*Smith River HPA*
1	*Coastal Klamath HPA (on northern side of the Klamath River) minus the Bear Creek RWU*
2	*Coastal Klamath HPA (on southern side of the Klamath River)*
2	*Blue Creek HPA plus the Bear Creek RWU*
3	*Interior Klamath HPA*
3	*Redwood Creek HPA*
2	*Coastal Lagoons HPA*
1	*Little River HPA*
1	*Mad River HPA minus the Boulder Creek RWU*
2	*North Fork Mad River HPA*
3	*Humboldt Bay HPA plus the Boulder Creek RWU*
3	*Eel River HPA*