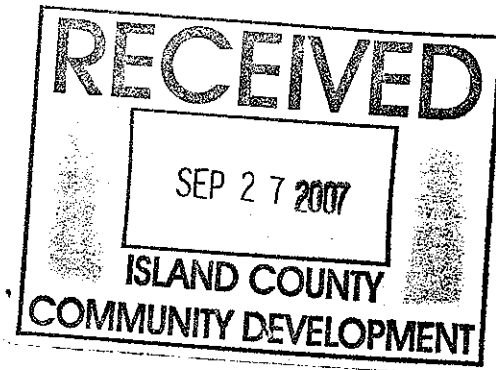


Camp Casey
Forest Management Plan



Prepared by Bruner Forestry

**In association with
Kellor Associates**

September 27, 2007

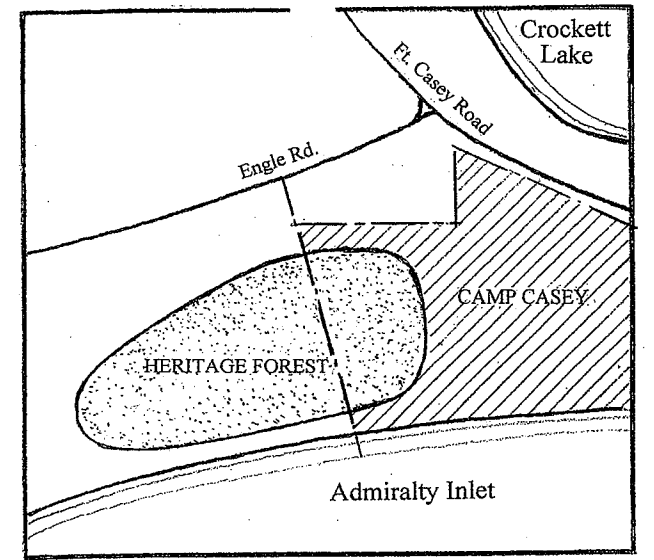
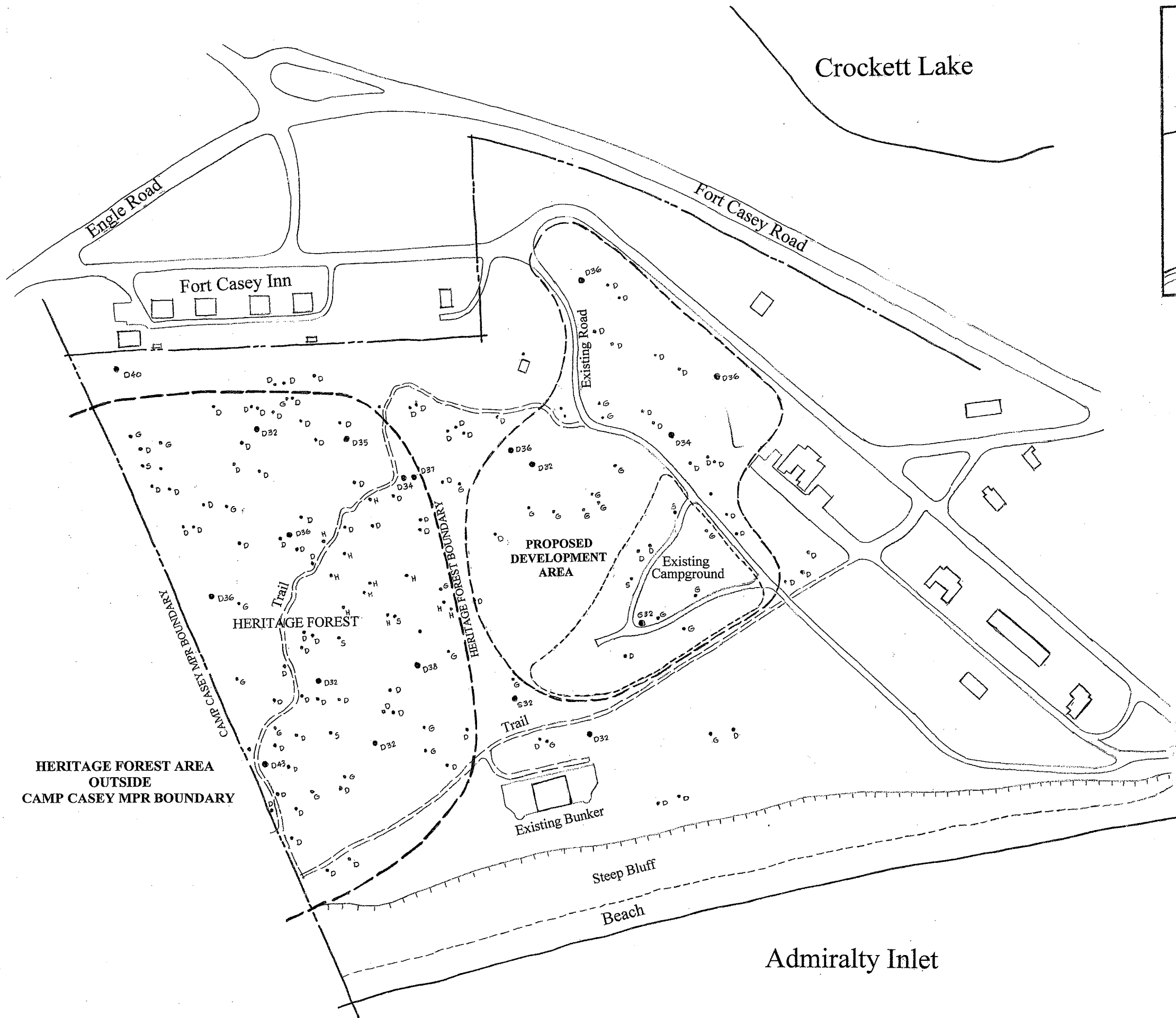
Introduction

The Camp Casey Master Plan boundaries include approximately nine acres of a portion of a larger forest (totaling approximately 25 acres) that has been identified by Island County as a Critical Area. The forest was designated as a Critical Area based on its inclusion in the Washington State Department of Natural Resources (DNR) Washington Natural Heritage Program Inventory. It is not, however, a designated State natural area preserve or State natural resource conservation area. The boundary of the forest shown on a DNR Natural Heritage Program map was used as the boundary of a map prepared by Island County, dated October 11, 1999, that shows "all areas designated by the Department of Natural Resources ("DNR") through the Washington Natural Heritage Program as high quality wetland ecosystems and high quality terrestrial ecosystems..." (ICC 17.02.110.C.1.j). In this Forest Management Plan (FMP), the forest shown on this map that is located within the Camp Casey boundaries shall be referred to informally as the "Camp Casey heritage forest", or more simply, the "heritage forest". Except when indicated otherwise, the forest management recommendations contained in this FMP shall apply only to the portion of the heritage forest that is contained within Camp Casey's Master Plan boundaries, as shown on Figures 1 and 2.

It should be emphasized that none of the development or clearing proposed in the Camp Casey Master Plan lies within the heritage forest boundary. However, two of the proposed buildings are to be constructed within 100 feet of the Casey heritage forest. Figures 1 and 2 shows the relationship of the proposed development sites to the southern boundary of the heritage forest. A description of the proposed development is provided in a following section of this FMP.

It should be noted that the owner of the Camp Casey heritage forest, Seattle Pacific University, has questioned the appropriateness of the designation of the heritage forest as an Island County Critical Area, since it has not been designated or registered as a natural area by the Washington Department of Natural Resources and was included on the Washington Natural Heritage Program Inventory without the owner's knowledge or consent. Nevertheless, since it is currently designated as an Island County Critical Area, Seattle Pacific University has authorized the completion of this Forest Management Plan (BSA/HMP) to accompany its application for the designation of Camp Casey as an Existing Master Planned Resort and approval of the Camp Casey Master Plan.

This FMP has been prepared by Bruner Forestry and has incorporated information provided by the Washington State Department of Natural Resources, Kellor Associates, Davido Consultants, and Thatcher/Morrison, Inc.



HERITAGE FOREST KEY MAP

LEGEND

Tree Size

- Tree with 25-31 inches diameter trunk
- Tree with 32-43 inches diameter trunk
- 36 Specific size of trunks of largest trees (over 31 inches)

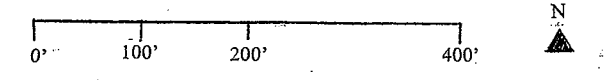
Notes: Trunk diameters measured at chest height in 2004. Trees with trunk diameters less than 25 inches are not depicted.

Tree Types

- D Douglas Fir
- G Grand Fir
- H Hemlock
- S Sitka Spruce

Figure 1:

CAMP CASEY
HERITAGE FOREST BOUNDARY
AND LARGE TREE INVENTORY



Description of the Camp Casey Heritage Forest

The boundary of the Camp Casey heritage forest is shown on Figure 1. Although a larger, 25 acres forest area has been included in the Department of Natural Resources Natural Heritage Information System, only 8.7 acres are located within the proposed boundaries of the Camp Casey Master Planned Resort. The remaining acreage is located on undeveloped forest land owned by Seattle Pacific University.

Based on the tree inventory and field study conducted to prepare this report, the boundary of the heritage forest Critical Area that is located within the proposed the Camp Casey Existing Master Planned Resort (EMPR), as depicted in both the DNR Washington Natural Heritage Inventory and the Island County Critical Areas maps, appears to be reasonable. As shown on Figure 1, the density of the trees with a trunk diameter greater than 24 inches is substantially less in the forest south of the heritage forest boundary than in the area designated as the heritage forest. This is particularly evident in the campground and much of the forested area east of the campground. In addition, the campground area has little understory vegetation, while other portions of this forest have a thicker understory than that found in most portions of the more natural heritage forest to the north. This understory vegetation includes sizeable patches of invasive species, including Himalayan blackberries and English holly, which are less prevalent in the heritage forest. The southern portion of the Camp Casey forest has been substantially impacted by the development and use of the campground and adjacent amphitheater, as well as the heavily utilized trail and service road leading to the amphitheater. Fewer of these impacts are evident in the area designated as the heritage forest.

The Camp Casey heritage forest (the entire 25 acres) was described in a March 19, 2003 letter to Jeff Tate of the Island County Planning and Community Development Department, by Sandy Swope Moody, Environmental Review Coordinator of the Washington Department of Natural Resources Washington Heritage Program as follows:

The WNHP identified the Camp Casey natural forest community in 1994. The site is not designated or registered as a natural area by the Department of Natural Resources. Using Natural Heritage methodology, the site was evaluated and found to meet minimum criteria for inclusion in the Natural Heritage Information System. The site was determined to have fair ecological integrity. While the ecological condition of the site is good, its site is small and the surrounding landscape is not in a natural condition.

Forest communities in the Puget Sound Trough ecoregion have mostly been converted to other uses or significantly disturbed by past logging. This example of a Douglas fir – western hemlock / oceanspray / swordfern forest, occurring in the SE quarter of Section 16, T31N R01E, is a multi-aged stand of about 25 acres comprised of Douglas Fir, grand fir, and western hemlock. It has many mature Douglas fir and grand fir (125-130 years old) with a shrubby understory – Pacific yew is common. Due to its close proximity to the strait, windthrow has played a

large role in creating openings for new growth. The site has not been logged but there are some trails through the site. This occurrence is one of only 7 known occurrences in the state of the oceanspray variant of a more common forest type.

The Douglas fir – western hemlock / swordfern forest community is globally ranked as vulnerable, but in Washington it is considered to be rarer. Approximately 50 occurrences of this community type are known in the state and the Camp Casey occurrence is toward the low end of the group in terms of ecological integrity. However, the oceanspray variant of this community is tracked by our state and could in the future be recognized as a distinct association at the national level.

The following additional information regarding the heritage forest was provided in a March 12, 2004 email sent to Dan Bruner by Chris Chappell, Washington Natural Heritage Program Vegetation Ecologist, (as a follow-up to a February 13, 2004 meeting with Dan Bruner and Seattle Pacific University representatives):

As I said at the meeting, this occurrence of the community is in good condition, but its size is very small, and its landscape context is fair at best, and it probably therefore has low long-term viability. The overall rank of an occurrence of a community is calculated using the size, landscape context and condition ranks. The rank of this one is right at the border of C and D, fair to poor overall ecological integrity.

A detailed inventory of the trees in the Camp Casey heritage forest was conducted in 2004 by Pacific Forest Resources, Inc. (The field study was conducted by a forester, Dan Bruner, who is now the owner and principal of Bruner Forestry.) Based on a survey conducted by Thatcher/Morrison, Inc., every tree with a diameter at breast height (DBH) of 18 inches or greater was identified as to size and species. This information was used to prepare Figure 1, which shows the size range and species of all trees having a DBH of 25 inches or greater. As indicated by Figure 1, most of the trees in the Camp Casey heritage forest are Douglas fir and grand fir, with Douglas fir being the predominant species. Other conifer species include western hemlock, Sitka spruce and Pacific yew.

The stand of trees in the Camp Casey heritage forest was established over time by natural seeding and therefore has a large variation in age classes. Most of the trees within the heritage forest are between 100 and 130 years old. The forest also contains a few trees that appear to be over 200 years old. These older trees are all Douglas fir and can be distinguished on the ground by the deeply furrowed thick bark, difference in color and large limbs growing higher up in the canopy. Most of these trees have a DBH of three feet or larger. The largest tree found in the survey of the Camp Casey heritage forest was a Douglas fir with a DBH of 43 inches.

The species of the trees located in most of the heritage forest area north of Camp Casey's Master Plan boundaries are similar to those shown on Figure 1. However, many larger trees are located in the northern portion of the forest, including trees with trunk diameters

of 48 to 60 inches. South of the heritage forest, in the area proposed for development, there are fewer large trees and grand fir is the predominate species.

When walking through the heritage forest the impression conveyed from a forestry perspective is that of an over-mature timber stand with a large number of holes in the canopy that are created by blow-down. This stand has a high percentage of defect (rot), evidenced both the numbers of conks that can be seen growing on the sides of many of the standing trees and by the dead trees that have already fallen and are decomposing on the ground. Many of the trees that have blown over did not uproot as would be expected, but instead broke off from 10' – 20' above the ground, leaving a short standing snag. The reason these trees broke off was because of the advanced decay that was present, making the stem weaker than the root system. The defective trees still standing will continue to decay and blow down over time at a higher rate than would be experienced if the timber stand were healthier. This blow-down will occur whether or not any additional site work is performed on or near the forest. (During the extremely heavy rains and high winds that were experienced on Whidbey Island during November and December of 2006, a total of five large trees were uprooted and blown-down in the heritage forest, including two trees that were located in the portion of the forest that is within the Camp Casey boundaries.)

The high level of decay and timber loss in this stand would be a concern in a timber production oriented forest, but in the heritage forest this phenomenon merely provides more opportunities for on site education. The decaying and/or fallen trees provide important forest diversity and habitat structures for wildlife, including cavity nesting for several bird species. Many of the fallen trees have become nurse logs, both for their own species as well as for other species that have established themselves on the decaying logs. As these trees decay further they will continue to provide shelter and foraging habitat for these and additional species of plants and animals including insects and other less visible life forms.

In addition to the pockets of blowdown noted above an extensive blow-down occurred during the winter of 1990 along the northeastern edge of the forest (outside of the proposed Camp Casey boundaries). This blow-down occurred at the edge of an open field that becomes heavily saturated with water during the winter rains. Most of the trees that blew down were grand firs, while the great majority of the Douglas firs are still standing. Some of the blown down trees were removed while many were left on the ground to decay. Very few conifers have seeded into this blow-down area and it is now mostly occupied by brush species, dominated by salmonberry. The brush species were already present in large quantities because of the "edge effect" existing in this area. This "edge effect" was present because the lack of trees on the east side of the stand allowed more light to reach the forest floor, something that is common where a timber edge ends abruptly against an open area such as a road. Red alder has also started to seed in on a portion of this area.

This same "edge effect" is not as prevalent on the western side of the heritage forest because of the cliff and the effect that it has on the winds that predominantly blow

westerly off of the water. These winds have resulted in the stunting of the trees growing along the cliff. At the edge of the cliff the western side of the conifers tend to have green limbs all the way to the ground, while on the eastern side of these same trees the green limbs will not be even close to the ground. The result is trees whose canopies tend to "slope" upward from west to east, thus giving the effect of going up hill as they get further away from the cliff. The winds blowing off of the water accelerate as they go up and over the forest canopy, both shaping the tree growth and limiting the overall height that the trees attain. This sloped canopy is also typically denser than that on the eastside of the forest, thus reducing the light reaching the forest floor and diminishing the "edge effect" on this side of the forest, while at the same time minimizing any holes in the canopy where the wind could increase blow-down. These winds have had an especially important impact on the shaping of the Douglas firs growing along the cliff. These trees tend to be very large at the base, but then quickly diminish in diameter and attain a total height of 60' or less. Near the large bases are commonly big limbs, which, like the tree trunks themselves, rapidly decrease in diameter to help form the sloping canopies. These very unusual trees have been uniquely shaped by their environment and will be a valuable resource for learning and enjoyment on the Camp Casey property for a long time to come.

Smaller openings in the canopy occur at numerous locations throughout the forest, mostly the result of blow-down. The size of these openings can vary tremendously depending on such factors as the number of trees that blew over, the number that had already fallen in the immediate vicinity and the size of the canopies of the remaining trees. When these openings are relatively small the increased amount of light reaching the forest floor is less and the under-story vegetation responds less dramatically. Larger openings tend to result in more vegetation and conditions similar to that present in the large blow-down area described previously. In a younger more vigorous forest these openings in the canopy would be quickly occupied by the surrounding trees, but in this older more defective stand the trees respond to the increased room at a much slower rate.

The under-story of the heritage forest, similar to almost all native forests, contains a large number of plant species, both low-level growing close to the ground and mid-level species that can attain heights of 15' or more. As indicated previously in the Sandy Swope Moody description the most prevalent under-story species in the forest are swordfern and oceanspray. Swordfern is present in almost all areas except where the larger holes in the canopy have resulted in taller more aggressive plants dominating the site. Oceanspray occupies a lower percentage of the forest than swordfern but is still the predominant midlevel under-story species. Other midlevel species common are elderberries, snowberry, hawthorn and wild rose. Small pockets, between 200 – 2000 square feet, of salal can also be found at a few scattered locations. These pockets will likely expand in size slowly and tend to have little or no swordfern present. Wild cherry and red alder are also present in several locations and, although these are technically tree species, they currently are more of a mid-level brush species in the heritage forest. Most of the under-story species are healthy and well established; however, if left alone, the species mix in the forest gradually will change, due in part to continued blow-down and also because of increased edge effect and invasive species.

Invasive species are already present in the heritage forest, but are more prevalent in the forest area south of the heritage forest. Himalaya blackberry can be found in numerous locations including several along the trails. This is a very aggressive species that is capable of climbing and smothering various mid-level under-story species. It will eventually grow into thick mats, which will block out most other plant species but does provide excellent cover for several small species of wildlife. The blackberry will be very difficult to eradicate since they are established in several locations, are difficult to work with and will re-sprout if cut and not treated. English holly trees can also be found scattered around the forest, most in the 5' – 12' size range. These are individual trees and could be fairly easily cut and removed at this stage of development. A diligent effort will be necessary to remove and keep the blackberry from spreading while at the same time trying to keep any new invasive species from establishing itself. A program outlining timing of inspections and methodology of removal will be needed once construction begins. The small size of the heritage forest results in a proportionally high percentage of forest edge where invasive species can more easily enter and increased human and vehicle traffic following development will also be a factor.

The soils of the Camp Casey heritage forest are primarily Whidbey Gravelly Sandy Loam. This soil is relatively shallow (20 to 40 inches) and underlain with a compacted layer that limits root penetration and water percolation. The topography of the site is relatively flat, ranging from 0 to 10 percent. However, on the western boundary, the heritage forest is located adjacent to a steep bluff area with slopes of 40 to 100+ percent.

The heritage forest provides habitat for many animals. Mammals that have been sighted in the forest include the following: black-tailed deer, Douglas squirrel, northern flying squirrel, least chipmunk, cottontail rabbit, deer mouse, coyote, meadow vole, raccoon, and weasel.

Birds that have been sighted in the forest include the northern goshawk, red-tailed hawk, great horned owl, pileated woodpecker, red-shafted flicker, hairy woodpecker, raven, winter wren, rufous-sided towhee, Oregon junco, northern harrier, northern kestrel, ring-necked pheasant, valley quail, morning dove, meadowlark, barn swallow, American robin, goldfinch and humming bird. Bald eagles also are frequently sighted in or near the heritage forest. An eagle nest has been reported to be located in a portion of the heritage forest that is north of Camp Casey and the Fort Casey Inn. However, no bald eagle nests have been identified within the Camp Casey Master Plan heritage forest boundaries or within 400 feet of any proposed development.

Description of the Proposed Project

The development that is proposed near the southern boundary of the Camp Casey heritage forest is part of the proposed expansion of the Camp Casey facilities, as described in detail in the Camp Casey Master Plan. No development is proposed within the boundaries of the heritage forest. (This differs significantly from an earlier Master Plan approved for a Special Review District, which included proposals to locate substantial development in the heritage forest.) Sites for four 8-unit retreat buildings, 40

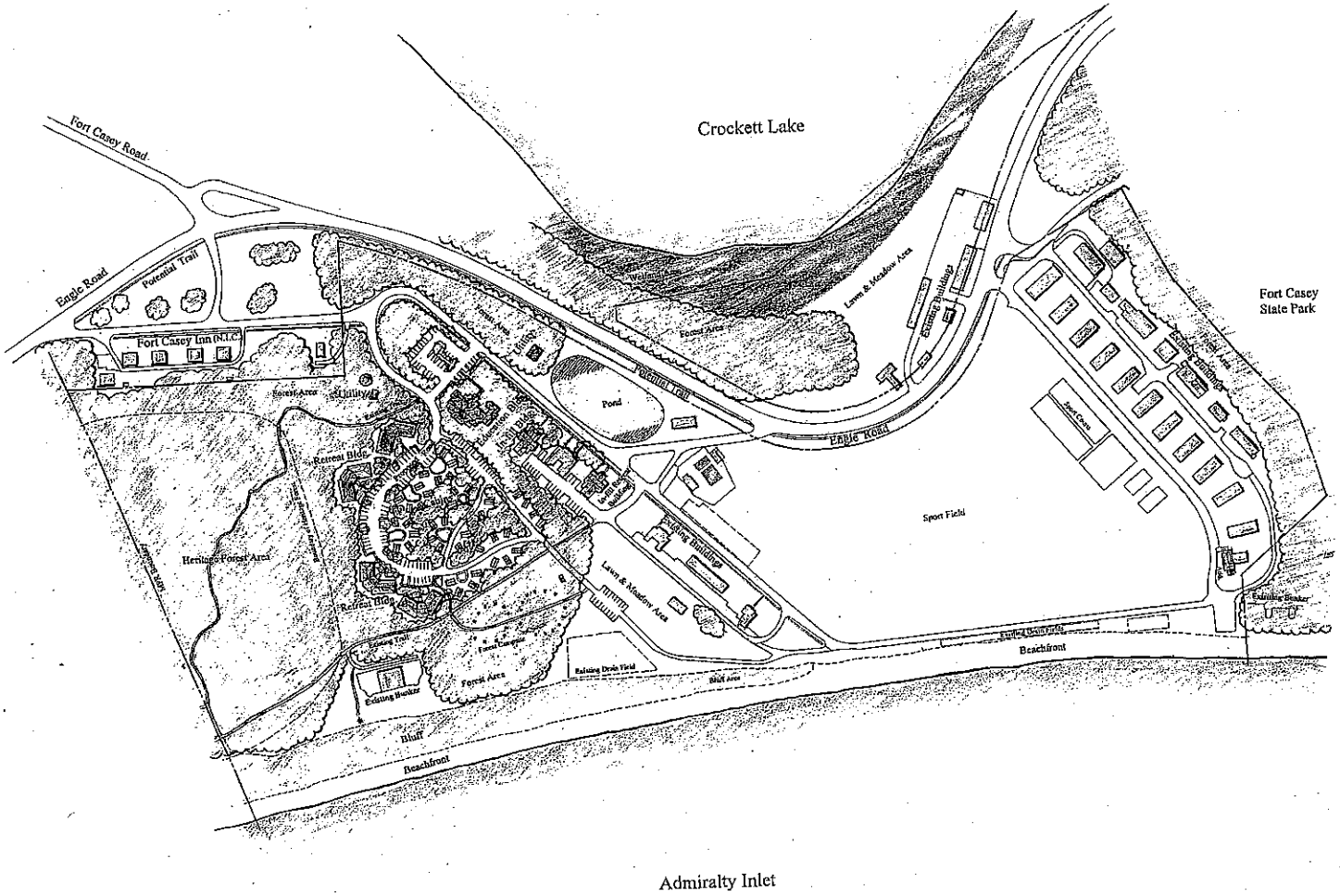
small cabins, and associated parking areas have been proposed in this forested area which includes the existing campground. Two of the proposed retreat buildings (each with building footprints of approximately 4,000 sq. ft - 5,000 sq. ft.) will be sited approximately 100 ft. from the southern boundary of the heritage forest. None of these buildings will be close enough to affect the root zones of any heritage forest trees. All other proposed buildings will be further away from the heritage forest boundary. The sites of these buildings and other proposed Casey development are shown on Figure 2, the Camp Casey Illustrative Development Plan (Figure 5 in the Camp Casey Master Plan). Detailed information regarding the proposed development is included in the Camp Casey Master Plan.

Most of the proposed development at Camp Casey will occur within six forested acres (including the existing campground) adjacent to the southern boundary of the Camp Casey heritage forest. Within this area, approximately 40 percent of the existing trees will be removed for building sites, parking and access roads. An average of approximately 60 percent of the trees in the forested areas proposed for development (including a relocated campground) will be retained. No trees with a trunk diameter 36 inches or larger will be removed to construct the proposed buildings, parking and access roads. No sewer system drain fields will be constructed in any forest area. All proposed utilities will be located below grade. No grading is proposed within the forested areas, except as will be required for the construction of bio-swales for storm water filtration, roads, parking areas, and building sites.

The proposed development will occur in phases over a 15-20 year period. The phasing plan contained in the Camp Casey Master Plan suggests that the proposed development that will be located approximately 100 feet from the Camp Casey heritage forest will be constructed during 2012 and 2021. However, some site work involved with infrastructure improvements could occur in this area as early as 2010.

Figure 2: Camp Casey Illustrative Development Plan

(See Camp Casey Master Plan Figure 5 for a larger, colored version of this figure.)



Impacts to the Camp Casey Heritage Forest

The proposed development is entirely located outside of the Camp Casey heritage forest. Any impacts to the forest itself would thus be indirect and minor, as described below.

Clearing will obviously be required to create the building sites and roads as shown on Figure 2 and a small percentage of this clearing will occur within 100 feet of the heritage forest. Over the entire development area the plans call for the retention of as many of the large trees as possible, approximately 60% well distributed is anticipated. This high percentage of retention will serve two main purposes. The first is to continue the forested effect that currently exists on the site and the second is to minimize the potential for increased blow-down of the trees remaining after the development is completed. Blow-down has occurred on the site in the past and will continue to occur with or without development. The high percentage of tree retention will help to minimize any large areas with no trees, thus reducing "edge areas" where wind gusts might have a greater impact on individual trees. To further help minimize blow-down there will be a substantial buffer along the western side of the development keeping any activity at least 100' from the cliff. This forest buffer will also completely block any view of the development from the water. The overall effect of the tree retention and buffers is to keep as much of a contiguous forest canopy in the development area south and west of the heritage forest as is practical. On a smaller scale this is what was done when the existing campground was constructed. There is no evidence of substantial blow-down in or adjacent to that site. Further, when the cliff-side bunker was constructed west of the campground a fairly large clearing was created. Despite that, there is little or no evidence of increased blow-down east of the bunker and certainly no large pocket of blow-down exists as a result of that construction, even though it was completed many decades ago.

When the proposed buildings and roads are laid out on the ground additional consideration should be given to the trees which are intended to stay but might be close enough to any clearing to have their roots disturbed. When possible, clearings should be shaped in order to miss the root zone of those trees. In some cases a certified arborist should be utilized to supervise any root pruning that might be necessary to complete the clearing while still retaining a healthy tree. An arborist should also be utilized to identify individual trees that show signs of decay or stress and make recommendations for substitute trees to leave that have a higher chance to survive and prosper. This should also apply to trees whose current physical condition makes them "dangerous" if left too close to occupied buildings.

With the additional retreat buildings and cabins near the southern perimeter of the Camp Casey heritage forest will come an increase in the number of people who access the forest for recreational and educational purposes. This increased use of the forest should be restricted to the existing trail system (with some slight realignments as shown in the Master Plan), as is the current policy. This will prevent damage to the under-story vegetation minimize impacts on the wildlife that currently utilize that habitat. If properly

monitored, there is sufficient under-story vegetation and/or wildlife cover to maintain current conditions in the forest and still allow increased human use of the trails.

With the new construction will also come newly cleared areas near the southern edge of the heritage forest that will be replanted. The landscaping of these areas should utilize all native plants with the goal of utilizing many of the same species already found in the heritage forest. As these mature they will both blend in well to the surrounding vegetation and add a small amount of additional habitat for other native creatures.

Regulatory Summary

Development that would impact the Camp Casey heritage forest would be subject to all applicable Island County development regulations and environmental review provisions, including the Critical Area requirements of ICC 17.02 and the Site Plan Review requirements of ICC 16.15. After all applicable county permits are in place then a Forest Practice Permit (FPA) from the Washington State Department of Natural Resources will be required in order to remove the trees designated for removal. The FPA is a tree removal formality only, the manner and method of the tree removal project will be regulated by Island County.

Mitigation Plan

As recommended by WAC 197-197-11-766, the primary mitigation measure will be to avoid development in the forest area designated as a Critical Area. With this mitigating measure, no significant impacts to the heritage forest are considered to be likely. However, the following is recommended as a mitigation plan to minimize the potential indirect impacts described above:

1. Strictly enforce the Camp Casey Master Plan tree retention, site coverage and open space standards;
2. Avoid excavation or substantial grading of areas over the root zones of trees that are designated to be retained;
3. Design building and road locations to avoid as many large trees as practical within the scope of the proposed layout. If construction within the root zone of a designated leave tree becomes necessary then enlist the aid of qualified arborist who can oversee "root pruning" or other accepted method for safely removing some roots while maintaining overall rooting integrity;
4. Avoid motorized vehicle and trail bike access within the Camp Casey heritage forest and restrict pedestrian access to existing trails;
5. Prohibit the gathering of wood from the Camp Casey heritage forest and adjacent forest areas for fireplaces and campfires;

6. Use only native plants in the landscaping of developed areas in Camp Casey; and
7. Develop and implement an annual program of identifying and eradicating invasive species, both within the developed area and the Camp Casey heritage forest.

Best Management Practices

These practices will help to ensure that the heritage forest continues to exist in a natural state at the Camp Casey site for the foreseeable future.

The existing trail is heavily used at certain times and this use will increase with the addition of new facilities. Maintenance of the trail should continue to emphasize its role as a means to view and learn about the forest and the adjoining areas. For this reason walking should be the means of travel on the trail and work performed on the surface of the trail should be only that required to allow walkers easy access. Encroaching vegetation should be hand pruned or pulled when necessary. Trees that blow down within the heritage forest should be left where they fall, except when they cross an existing trail where they should be cut-out to match the trail width.

The heritage forest should be monitored on an annual basis for such things as invasive species, danger tree evaluation and tree health issues. The invasive species part of the plan will be especially important for the understory vegetation since these shorter plant species can be overtaken and crowded out much more quickly than the already mature trees. The invasive species already present on the site, English holly and Himalaya blackberry, should be treated first and can be expected to need consistent monitoring to keep them from re-establishing in the forest.

Danger tree evaluation should occur on an annual basis for trees that are close to the trail and/or buildings. In order to allow the heritage forest to remain as natural as possible, the danger tree evaluations within the heritage forest should be utilized primarily for developing warning signs for trail users about potential dangers and possibly restricting trail use during times of very strong winds, rather than for the removal of trees. The existing high degree of decay present in the heritage forest makes it impractical and/or undesirable to consider cutting down all of the trees that can reach the trail if they were to blow over in that direction.

