LUCK CREEK RESTORATION PROJECT – PHASE II

WORK SUMMARY

This project involves the following work:

1. Collecting approximately 126 cut trees (logs) and approximately 200 trees keeping the rootwad attached (trees) from designated areas within the Luck Lake Watershed (Exhibits 1&2) or as supplied and transported to the Luck Lake Watershed by the person submitting the offer ("Offeror").
2. Transport by helicopter a total of 326 logs and trees to the tributaries of Luck Lake. Approximately 221 trees to the East Fork Luck Creek and approximately 105 trees to the Mainstem Luck Creek (Exhibit 2). Trees will be transported from:
    a. Identified young growth harvest areas (Exhibit 2, Table 2);
    b. Windthrow trees within previously harvested units approximately 1.25 miles or less from the source to designated stream site (Exhibit 2). These windthrow trees will be full trees with their rootwad attached (Table 2).
    c. Forest Service designated stockpile areas stocked with logs and trees provided by the Offeror.
3. Use a tracked excavator within the channel of East Fork Luck Creek to place and construct instream structures at designated sites using previously helicopter decked trees. Work will require working with 60 foot trees, bank excavation, and stream bed excavation while minimizing streamside vegetation disturbance.

Party Definitions:
USFS or FS - United States Forest Service or Forest Service
Offeror - Persons submitting an offer
Contractor - Offeror awarded the contract.

Supplies or Services *

Item #	Work Item	Method of Measurement	Unit	Estimated Quantity
1	**Miscellaneous**			
1.1	Ground Based Equipment Mobilization	LSQ	LS	1
A.	**A. Wood Collection**			
A.1	All Wood Collection from Forest Service identified source	LSQ	LS	1
A.2	Partial Wood Collection from Forest Service identified source	LSQ	LS	1
A.3	All Bidder Supplied Wood Source	LSQ	LS	1
A.4	Partial Bidder Supplied Wood Source	LSQ	LS	1
B.	**B. Helicopter Transport - (20,000 pound hook capacity)**			
B.1	Mobilization	LSQ	LS	1
B.2	Helicopter Transport full 326 pieces from FS sources	LSQ	LS	1
B.3	Helicopter Transport partial pieces from FS sources	LSQ	LS	1
B.4	Helicopter Transport full 326 pieces with item A.3	LSQ	LS	1
B.5	Helicopter Transport full 326 pieces with items A.2 & A.4	LSQ	LS	1
B.6	Helicopter Fuel Surcharge	LSQ	LS	1
C.	**C. Instream Equipment Access**			
C.1	Excavator Access. Includes clean-up	LSQ	LS	1
D.	**D. Instream Work**			
D.1	Hydraulic Fluid Conversion	LSQ	LS	1
D.2	50,000-65,000 CVW Hydraulic Excavator	LSQ	LS	1
D.3	Timber Faller/General Labor	LSQ	LS	1
E.	**E. Materials**			
E.1	Erosion Control Materials and associated labor	LSQ	LS	1
E.2	Seed and Fertilizer	LSQ	LS	1

STATEMENT OF WORK

1. Background/Introduction

The purpose and intent of this contract item is to secure services for collecting and transporting cut logs and trees with rootwads attached to implement instream restoration on the tributaries of Luck Lake. This project is a continuation of Luck Creek Restoration Phase I and is contingent on measured results from the Phase I efforts. This commencement of this phase cannot start until two years after the end of Phase I have elapsed. The stream segments this phase will focus on are the East Fork Luck Creek and instream structure construction on the Mainstem (Exhibits 2-3).

The collected and transported logs and trees will be used to construct instream log structures and or will be placed out of the channel on floodplains adjacent to the creek channel. An excavator will be used to construct a portion of the instream structures and the remaining placement will be completed by helicopter.

Approximately 326 trees and logs are needed for the project. The required dimensions and quantities of the trees and logs are specified in Table 1. This Statement of Work will provide available sources identified by the Forest Service for the quantities and dimensions specified. It is up to the Offeror as to whether to utilize all of, or a portion of, the Forest Service identified source(s). The Offeror has the option to produce the entirety or a portion of the required quantities of logs and trees from an alternate source(s). This item will be further described in the following sections.

2. Objectives

The objective of this instream restoration project is to return a source of large coniferous wood to the stream channels and the floodplains of the Luck Lake tributaries with the objective to maintain, stabilize, and improve existing instream habitat and riparian productivity.

3. Tasks

A. Wood Collection

Table 1 provides the specifications for the quantities and dimensions of the approximately 326 logs and trees required of this contract item.

Table 1: Large Wood Specifications

CUT Logs				**FULL Trees with Rootwad Attached**		
Minimum DBH (inches)	Length (feet) (Greater than or equal to)	Quantity		Minimum DBH (inches)	Length (feet) (Greater than or equal to)	Quantity
Key (20")	60	20		Key (20")	60	50
Med (16")	60	30		Key (20")	*50*	25
Small (12")	60	76		Med (16")	60	60
				Small (12")	60	65
	Total	126			Total	200

The Forest Service (FS) has identified sources to obtain the quantities and dimensions of logs and trees needed. Exhibit 2 depicts the FS identified wood sources and Table 2 specifies the approximate quantities available from each source ***less the utilization from Phase I*** and *with the addition of Area 9*. Offeror must note that the same sources are identified as shown in the Luck Creek Restoration Phase I Statement of Work (Stewardship Mandatory Item 92) so the quantities shown in Table 2 may not be accurate post Phase I. Wood collection areas 0 through 9 are previously harvested units with windthrow trees with rootwads attached that may be salvaged and utilized for this contract item. Areas 10 through 20 are young growth units.

(1) Young Growth Harvest - The maximum harvest allowed from the young growth units as a combination of both cut logs and full trees with rootwad attached is approximately 130 trees for this contract item. Areas 10 and 12 are limited to cut logs only, no rootwad extraction. The rootwad extraction that may take place in the remaining areas may only occur within approximately 75 feet of the road prism that intersects these areas. Trees shall be selected for cutting and/or tipping so that gaps or open areas *created* by harvest in the stand will not exceed approximately 0.20 acres (48,700 square feet). This acreage includes any connected shovel trail area. Short trails for off road excavator travel may be required to access and tip rootwad trees. The following guidelines shall be followed for off-road travel to obtain rootwad trees:

(a) Cut the small non-merchantable trees. Leave the stumps of these small trees intact and use the wood for slash to support equipment and cover exposed mineral soils.

(b) Shovel trails shall not exceed 150 feet off the road prism.

(c) Shovel trails will *not* exceed slopes greater than 20 percent gradient, and where possible slopes less than 10 percent gradient is preferable. On main shovel trails use high volumes of slash and fluff the slash following wile exiting.

(d) Where possible select trees for tipping or cutting along routes to other selected rootwad extraction trees to minimize the number of trails needed.

(e) Avoid rootwad collection near stream courses, live streams, or wetlands.

Rootwad extraction involves excavating the root area of trees and pushing over of the trees to maintain as much of the rootwad as possible. Falling also includes the preparation and directional felling of trees while minimizing breakage and damage to the subject stem and preserving the surrounding stand. The trees to be harvested shall be extracted as follows:

(a) For all timber that will be felled by standard methods, stumps shall be kept as low to the ground as possible not more than 12 inches in height. Cut trees are not required to be limbed or bucked to minimum specified length (60 feet). Cut trees may be limbed and/or bucked to 60 feet if determined it is needed to reduce weight for helicopter transport. Tipped trees with rootwads left attached will be limbed on at least 2 sides and will be bucked to minimum specified length. Trees and logs from these areas will be left where they fell or tipped in a manner suitable for subsequent helicopter transport.

(b) Excavating and pulling/pushing over of both second growth and mature trees has been safely accomplished on many restoration projects. If a tree is determined to be unsafe by Contractor then the tree may be felled by cutters or a replacement tree can be identified and approved by USFS. Before falling alternate trees, Contractor shall identify the trees that are deemed unsafe for rootwad log extraction.

(c) Typical weight class range of excavators used for the rootwad extraction varies and is dependent on trees size; for this Item, Contractor shall provide one excavator 50-65,000 GVW.

(d) Rootwads shall be shaken to remove as much dirt on the rootwad at the site of harvest as possible. Roots and root structure of the rootwad shall be preserved to the greatest extent possible; grabbing the roots with the excavator bucket and thumb should occur on a very limited basis.

(e) The limbs and tops from tipped trees will be used as slash to cover disturbance from rootwad extraction. Slash from the tipped trees as well as from brushing the roads will be used to cover 100% of exposed soils with FS oversight.

Young growth harvest from this project requires no transport prior to helicopter yarding to the creek. Therefore, fell or tipped trees shall only be moved enough to make them easily accessible for helicopter, to access other trees selected for rootwad harvest, or to remove from a road.

(2) Windthrow Salvage – Areas 0 through 9 have windthrow trees with rootwad attached and may have wind-snapped trees without rootwad attached. Table 2 has the estimated quantities available from each area as reconned by the FS. Forest Service recon of these areas may not have identified the entire quantity available from these sources; particularly 4, 5, and 7. The Offeror is not limited to the quantities identified in Table 2. It is the responsibility of the Offeror to perform any additional reconnaissance. Trees from these areas would be helicopter yarded from where they lay now, directly to the creek/s with *the possible exception of trees from Area 9.*

Trees and/or logs from Area 9 may be either helicopter yarded at an average distance over 1.25 miles or shovel yarded and hauled to a stockpile area in closer proximity to their creek destination. Stockpile areas would be the Phase I utilized rock pit (Exhibit 2) located on Forest Service Road 3030000, milepost 0.07 (approximate 3.5 mile on-way) or as needed, stockpile areas will be available for staging Area 9 trees as described below for Offeror supplied trees.

Table 2 - following page.

Table 2: Quantities from Forest Service Identified Wood Collection Areas

Windthrow Salvage Areas								
Area #	**Area (acres)**	**RW Key (>20")**	**RW Med (>16")**	**RW Small (12-16")**	**WS Key (>20")**	**WS Med (>16")**	**WS Small (12-16")**	**Totals**
0	66	32	32	6	3	2	0	75
1 & 3	63	14	37	17	7	5	0	80
2	11	No Recon available. Older Harvest Unit, down trees may have substantial rot.						
4 & 5	56	19	39	21	0	0	0	79
6	24	2						2
7	51	26	36	30	0	0	2	94
9	101	15	40	45	20	15	0	135
TOTALS	372	108	184	119	30	22	2	465
Young Growth Harvest Areas								
Area #	**Area (acres)**	**RW Key (>20")**	**RW Med (>16")**	**RW Small (12-16")**	**Cut Key (>20")**	**Cut Med (>16")**	**Cut Small (12-16")**	**Totals**
10	15					20	20	40
11	6					10	40	50
12	11					10	15	25
17	6		10	10		10	10	40
18	13	6	35	15				56
19	34		15	20		20	20	75
20	5	15	25	20				60
TOTALS	90	21	85	65	0	70	105	346

*RW=Rootwad attached to tree, WS=Windsnapped. RW trees identified in harvest units may also be utilized as cut trees.

(3) Offeror Supplied Logs and Trees – The Offeror has the option to produce the entirety of, or a portion of, the remaining required quantities of logs and trees with wood from an alternate source.

(a) If the Offeror proposes to produce the entirety of the needed wood, the cost of acquiring, staging, and transporting the bidder supplied wood must be less than or equal to using the sources identified by the Forest Service depicted on Exhibit 2 and in Table 2;

(b) If the Offeror proposes to use a combination of Forest Service identified sources and wood supplied by the bidder, the combined cost for acquiring, staging, and transporting

from all sources must be less than or equal to using the sources identified by the Forest Service and depicted on Exhibit 2 and in Table 2;

(c) The size specifications (Table 1) are met;

(d) The log or tree with rootwad is of sound enough condition to maintain the specified size during transportation and structure construction.

As needed, stockpile areas will be available for staging bidder supplied trees and will be identified by the Forest Service prior to staging need. These areas will be located within 0.5 miles or less of the stream restoration reaches and includes roads surfaces and ditch lines or side slopes adjacent to open roads. The road surfaces may be dominated by larger alders and small conifer and may require hand crew and/or mechanical clearing for access and storage. Brushed material may be side-cast in a manner to not interfere with helicopter yarding, and future equipment access. The Phase I utilized rock pit located on Forest Service Road 3030000, milepost 0.07 may also be used as a staging area (Exhibit 2).

B. Helicopter Transport

All logs and trees gathered and identified will be transported to the creeks by helicopter. The dimensions of a portion of trees and cut logs for this project will require the lift capacity of a heavy-lift helicopter (e.g., 20,000 pound hook capacity). The quantity and dimensions of logs and trees needed at *each stream reach* is included in Exhibit 4 and is as follows. Depending on the stream reach (Exhibit 2&3) the helicopter work will: 1) deliver trees and logs to designated instream decking areas; 2) deliver and place trees and logs at designated sites to create instream structures; and 3) deliver and place trees and logs to designated sites on floodplains adjacent to the creek channel. All flight distances to Forest Service identified wood sources are less than approximately 1.25 miles as shown on Exhibit 2. Helicopter placement and decking on each stream reach will require working though a dense alder canopy

(1) Mainstem Luck Creek – All Mainstem work for Phase II is direct helicopter placement of logs and trees in instream structures at designated locations in the creek channel (Exhibit 2). A total of approximately 105 trees and logs will be transported and used to construct approximately six (6) structures with logs and trees interwoven, stacked, and strategically "jackstrawed" together. Structures may range from 3 to 35 pieces per structure. As shown in the per reach wood specifications, Exhibit 4, the Mainstem instream work requires the majority of material to be Key or Medium size with rootwad attached, and minimum length of 60 feet. Due to the relative larger channel size of the Mainstem the specified dimensions are critical to construct stable structures therefore the largest available trees shall be utilized on the Mainstem.

(2) East Fork Luck Creek – The East Fork includes both direct placement by helicopter in the floodplains adjacent to the creek and decking logs and trees at 7-10 designated decking locations in the creek for subsequent excavator manipulation. The specific decking locations will be identified prior to implementation but will spread relatively evenly through the Phase II stream reach identified on Exhibit 3. Approximately 79 trees will be placed in the floodplains and approximately 143 trees and logs are to be decked by the helicopter for excavator placement (Exhibit 3). The 143 helicopter decked trees and logs will be used to

construct approximately 10 instream structures. The dimensions and quantities of trees and logs for the East Fork are included in Exhibit 4.

C. Instream Equipment Access

(1) East Fork - The East Fork is the only stream reach that requires a tracked excavator for structure construction. The 3000305 road and the 3000305_0.35R road will provide equipment access to the East Fork (Exhibit 3). This same access was designated for use in the Phase I project. The 3000305 crosses the East Fork at one location. The Forest Service will provide an approved route through the creek at this point. One (1) short "puncheon" trails less than 200 feet will be required off of the 3000305_0.35R road to access the stream. The same route established during Phase I shall be utilized. The approximate location of this trail is shown on Exhibit 5 and the maximum width of the trails will be flagged by the Forest Service before project commencement. The width of the trail and vegetation removed will be kept to the minimum necessary for safe excavator travel. The road surface should be relatively clear of larger alders and small conifer due to Phase I work. If necessary, any brushed material may be side-cast in a manner to not interfere with helicopter yarding, and future equipment access. This material may be used for puncheon trail construction.

(2) Road Work – Upon completion of the instream work, the following work items along the access route shall be completed:

(a) Puncheon Trails - Upon completion of work utilizing puncheon trails, puncheon material shall be de-compacted (fluffed).
(b) Water bars and Culvert Removals – If altered or disturbed for access, the side slopes left from previous water bar and culvert removals shall be repaired as needed. All slopes should be no steeper than 1(V):3(H). If disturbance removes vegetative cover, slopes and fill areas will be seeded with the approved seed and fertilizer mix designated in Exhibit 5.

D. Instream Work

(1) Equipment – The instream work will require one (1) tracked excavator. The required excavator needs to be minimum 50,000 GVW, and 65,000 GVW maximum. The excavators shall have general purpose excavation bucket with hydraulic thumb. Excavators shall have qualified operators with timber and forest pioneering experience. The excavators shall be used to pioneer and construct puncheon trail access routes, transport trees and logs from helicopter decks to structure sites, place trees and logs for structures, excavate pools in stream channel, construct gravel bar structures, decommission access routes and rehabilitate wood collection areas under the oversight of the FS. Excavators will be in good working condition.

Equipment crossings within the wetted stream channel will be required to access and construct the log complexes. Mitigation measures will be incorporated into the project in order to minimize potential impacts to water quality. All heavy equipment (i.e., excavator) operating within the active stream channel shall utilize an approved non-toxic, biodegradable hydraulic fluid. The following requirements shall apply to all use of heavy equipment:

(a) Heavy equipment entering the stream channel shall be power-washed prior to mobilization onto FS lands;

(b) Excavators working in the stream channel shall use approved non-toxic biodegradable hydraulic fluid. Verification of hydraulic fluid conversion will be required; and
(c) All heavy equipment (working terrestrially or aquatically) shall carry a supply of oil absorbent pads capable of containing a failed hydraulic line or fitting and method of affixing pads and carry two oil absorbent booms, each long enough to cover the width of the wetted channel. Booms are to be deployed downstream during all excavator instream activity.
(d) Upon each entry to the stream channel during the project duration, in consultation with the Forest Service, the tracks of the excavator must be shoveled free of excessive upland soil accumulation.

Due the limited work window imposed by State permitting agencies, it is imperative to have a functioning excavator at all times. Forest Service personnel has the right to inspect heavy equipment to be used on the project at the Contractors place of business prior to mobilizing to the project site and right to reject a piece of equipment and request a replacement. Potential reasons for rejection of equipment are, but are not limited to, the following:

(a) Visual leakage of fuel, oil, excessive grease, or any fluid from the machine;
(b) Equipment components are loose or unstable such as tracks, track pads, bucket, hydraulic thumb, etc.;
(c) Visual presence of vegetation, mud, petroleum product, or other foreign debris that should be cleansed during required power-wash.

(2) Structure Construction

Approximately 10 instream structures will be constructed by excavator in the East Fork. Locations will be flagged and confirmed with the FS prior to construction. Instream structures designated to be built by tracked excavator shall be built in consultation with the Forest Service and as follows:

(a) The tracked excavators shall be used to construct log jams and large wood complexes along stream channels, gravel bars, and floodplains. Each of the log structures will be strategically located to accomplish specific restoration objectives as directed by the FS. Most of the structures will be constructed along the edges of the current stream channel or on the floodplain. The excavators may at times work in or around flowing water up to five feet deep.
(b) The amount of wood per structure will depend on the structure type and location and will range from approximately 4 to about 30 pieces of wood per structure. All of the log jams shall be designed and constructed to remain stable during large flood events. A large portion of each structure will be buried below the streambed or trenched into the stream banks. Pools located adjacent to these log structures shall be excavated and the stream materials shall be incorporated into adjacent bars and riffles and/or placed behind the logjam with oversight by the FS. The structures also utilize an interlocking construction technique similar to other large wood supplementation projects on Prince of Wales Island (see templates in Exhibit 8).
(c) In consultation with FS staff at the instream work site, the structures shall be created using criteria provided in Exhibit 6 and as depicted on the templates.

(3) Instream Travel

The excavator will travel to structures and helicopter decked wood from within the stream channel on the hard gravel and cobble stream bed. Unless required and under consultation with Forest Service staff, the excavator will not leave the streambed or travel on stream banks. The two puncheon trail stream access sites are the only locations acceptable for travel over stream banks unless otherwise identified in the field to complete the work.

(4) Laborers/Fallers – Site preparation and hand manipulation of helicopter or excavator placed logs may be necessary. The following, at minimum, will be provided by the Contractor.

(a) Multiple chainsaws with spare bars/oil/fuel/chaps/eye protection/ear protection/hard hat
(b) Multiple chokers
(c) Ground working tools including shovels, Pulaskis, pry bars, etc.

E. Materials

The following materials will be provided by the contractor in addition to the above.

The contractor shall supply 300 feet of certified weed-free straw wattles and wood stakes as needed for staking once per five feet. Installation of wattles will be as needed and locations will be identified by the FS.

Following the guidelines in Exhibit 5; one (1) acres worth of seed, 10-20-10 fertilizer, and urea will be supplied by the Contractor. Seed and fertilizer is to be spread at an approximate rate of 25 pound of seed per acre with the specified ratio of fertilizer and urea. An Erosion Control Pan will be developed by the offeror outlining the erosion control measures that will be utilized during contract implementation. This plan will be approved by the Contracting Officer.

4. Place of Performance

The activities in the Statement of Work take place within the Luck Lake watershed on Prince of Wales Island (Exhibits 1 & 2) approximately 16 miles south of the town of Coffman Cove. The only activity that may take place outside of the watershed is the possible supply of logs and trees by the Bidder.

5. Period of Performance

The activities in this Statement of Work are contingent on the instream work timing window provided by the Alaska Department of Fish & Game (ADF&G). The FS anticipates a timing window of approximately June 22 – July 15. These dates are based on preliminary consultation with ADF&G and are a conservative estimate. The Forest Service will provide the timing window to the contractor once notified by ADF&G.

Given the limited timing window for completing any instream activities, the wood collection and helicopter transport to the creek must be completed prior to, or completed within 3 days after the start date of the instream timing window to allow adequate time to complete all instream activities. Wood transport to the streams for subsequent excavator placement must happen immediately prior to scheduled instream construction. Logs and trees may only be decked in the stream up to 4 days prior to the initiation of excavator placement in that reach.

Young growth harvest or the transport of offeror supplied wood as a part of wood collection can happen at any time within 1 calendar year prior to scheduled instream restoration so far as: the down or stockpiled trees do not inhibit traffic on open roads, interfere with future equipment access, or require an instream activity outside of the timing window without prior written consent from the FS in consultation with ADF&G.

Exhibit 1 – Luck Lake Watershed Vicinity Map

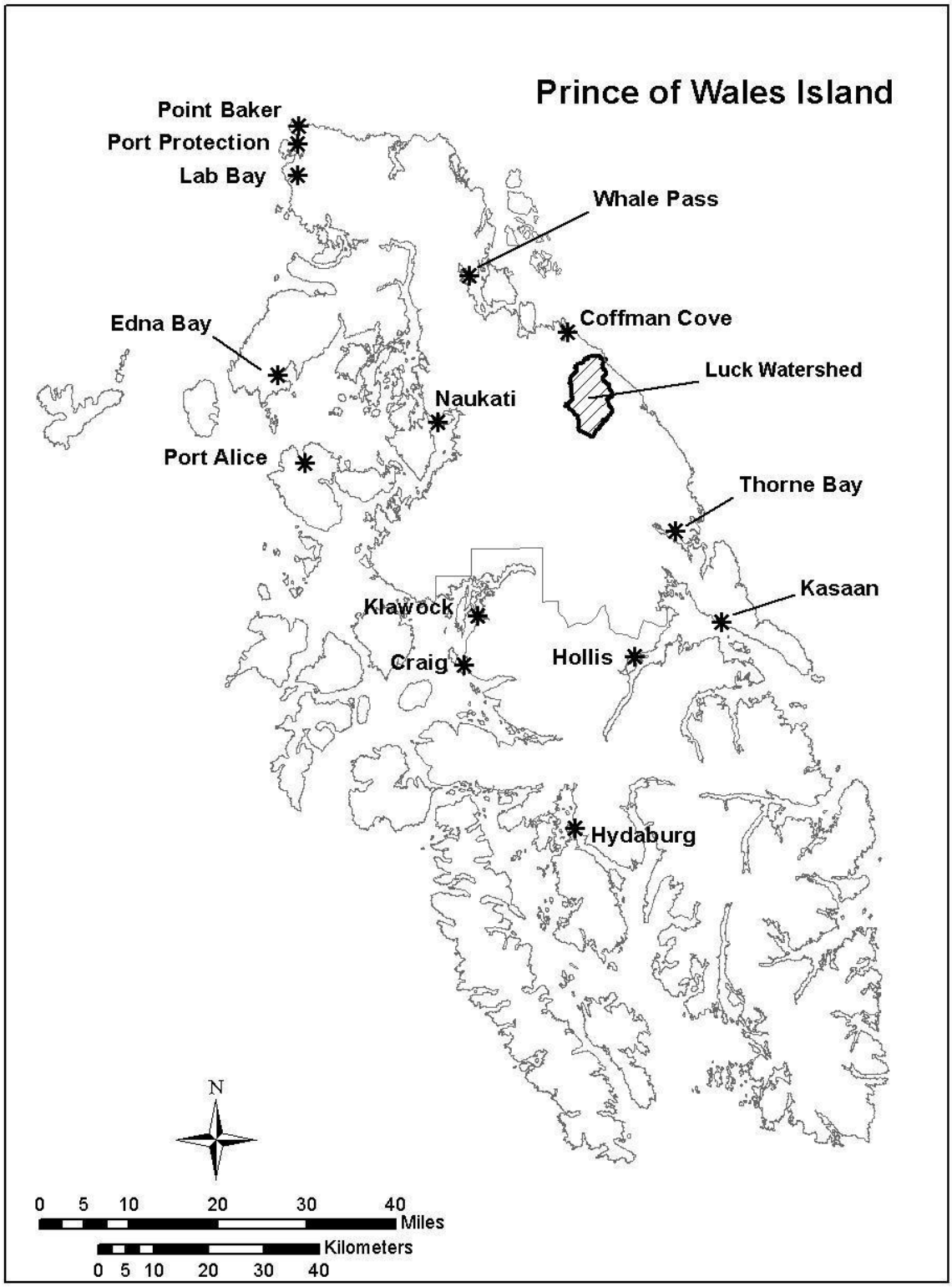


Exhibit 2 – Luck Creek Phase II Restoration Overview Map

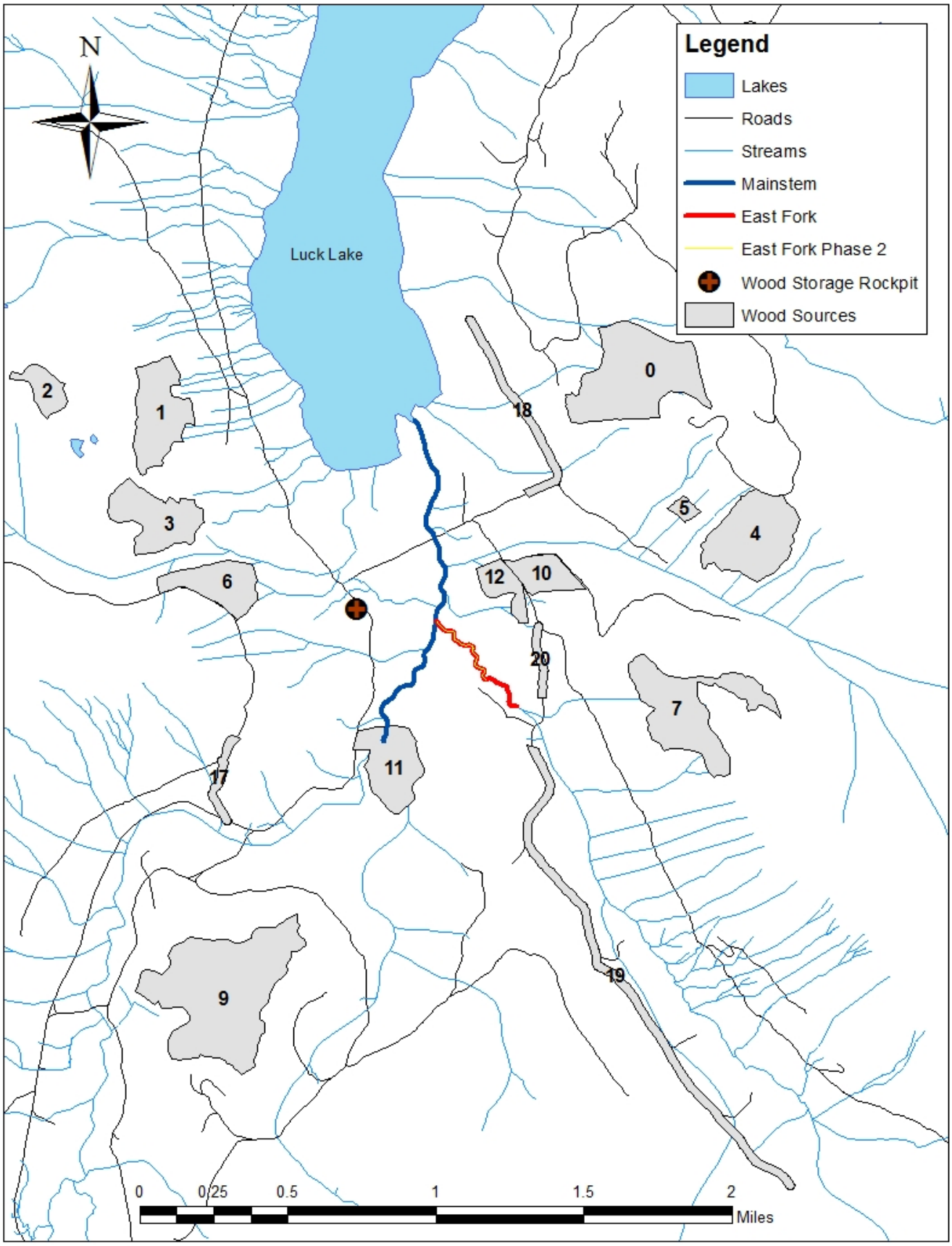


Exhibit 3 – East Fork Luck Creek Instream Work and Equipment Access

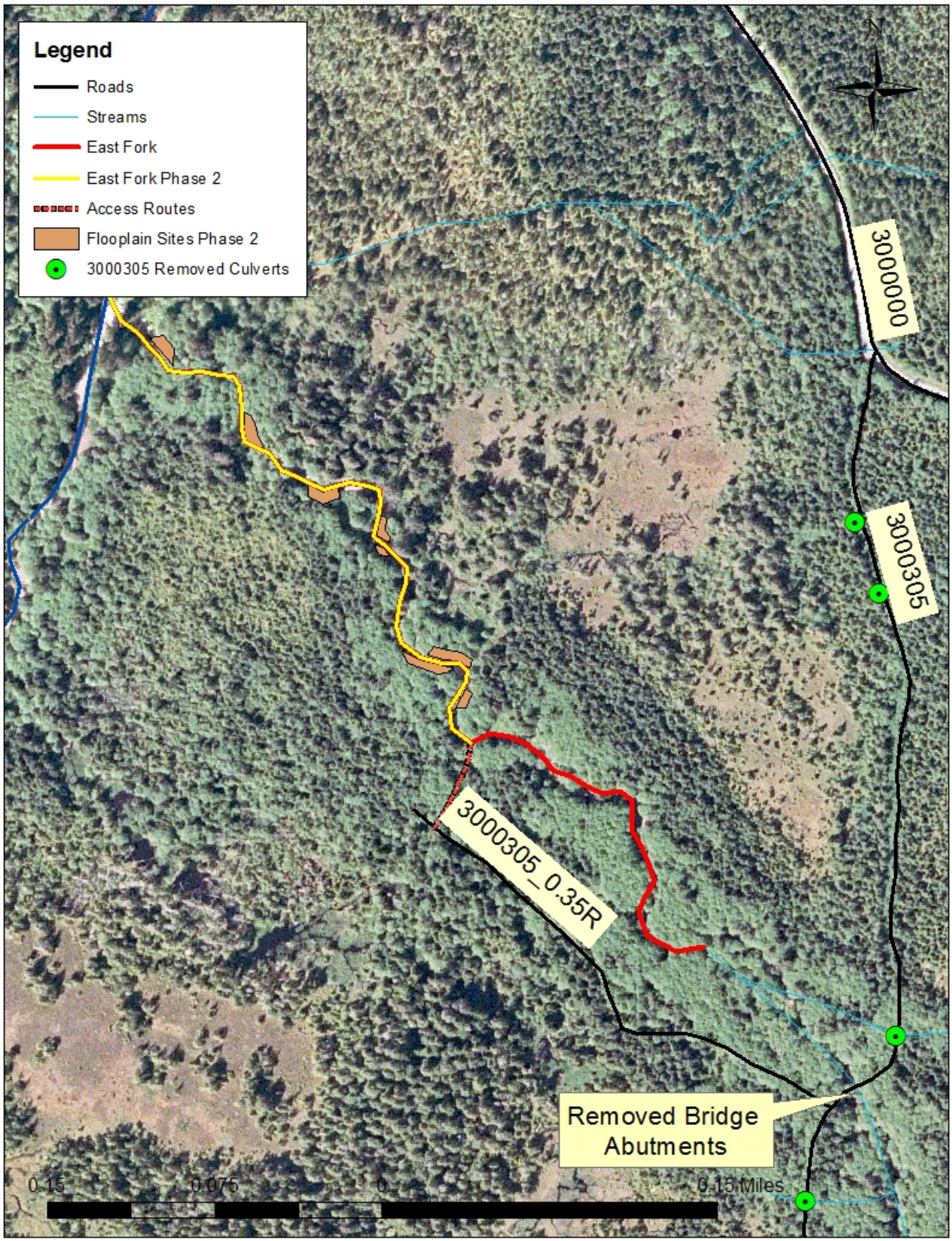


Exhibit 4 – Wood Quantities and Dimensions per Stream Reach

East Fork						
CUT Logs				**FULL Trees with Rootwad Attached**		
Minimum DBH (inches)	Length (feet) (Greater than or equal to)	Quantity		Minimum DBH (inches)	Length (feet) (Greater than or equal to)	Quantity
Key (20")	60	20		Key (20")	50	25
Med (16")	60	30		Med (16")	60	35
Small (12")	60	46		Small (12")	60	65

Mainstem						
CUT Logs				**Full Trees with Rootwad Attached**		
Minimum DBH (inches)	Length (feet) (Greater than or equal to)	Quantity		Minimum DBH (inches)	Length (feet) (Greater than or equal to)	Quantity
Key (20")	60	0		Key (20")	60	50
Med (16")	60	0		Med (16")	60	25
Small (12")	60	30		Small (12")	60	0

Exhibit 5 – Seed and Fertilizer Specifications

The Tongass National Forest has a standard seed mix and fertilizer application rate that is compatible with invasive plant policy. It includes non-native, non-invasive seed varieties that are known to grow well in SE AK:

Apply seed and fertilizer to disturbed areas between **April 15 and September 15**.

Quantity of Pure

Kind of Seed	Live Seed (Lbs/Acre)
1. Boreal Red Fescue*	10
2. Annual Ryegrass	10
3. Arctared Fescue*	5
Total	25

* If either Boreal red fescue or Arctared fescue are unavailable, Fawn Tall fescue may be substituted. If Fawn Tall Fescue is unavailable, then the amounts of the available two may be adjusted to total 100%. **Seed mixture contains no more than 0.01% other seed, whether identified or not.**

Fertilizer shall be applied at a rate of 200 pounds of 10-20-10 fertilizer plus 100 pounds of urea per acre in all applications.

Exhibit 6 – Instream Structure Construction and Structure Templates

This Exhibit provides criteria in addition to the included descriptions in the Statement of Work for instream structure construction. Also included are templates of typical structure types. These drawings are only templates as each structure will be built to site specific conditions as determined in the field in consultation with FS staff.

In consultation with FS staff at the instream work site, the structures shall be created using the following criteria:

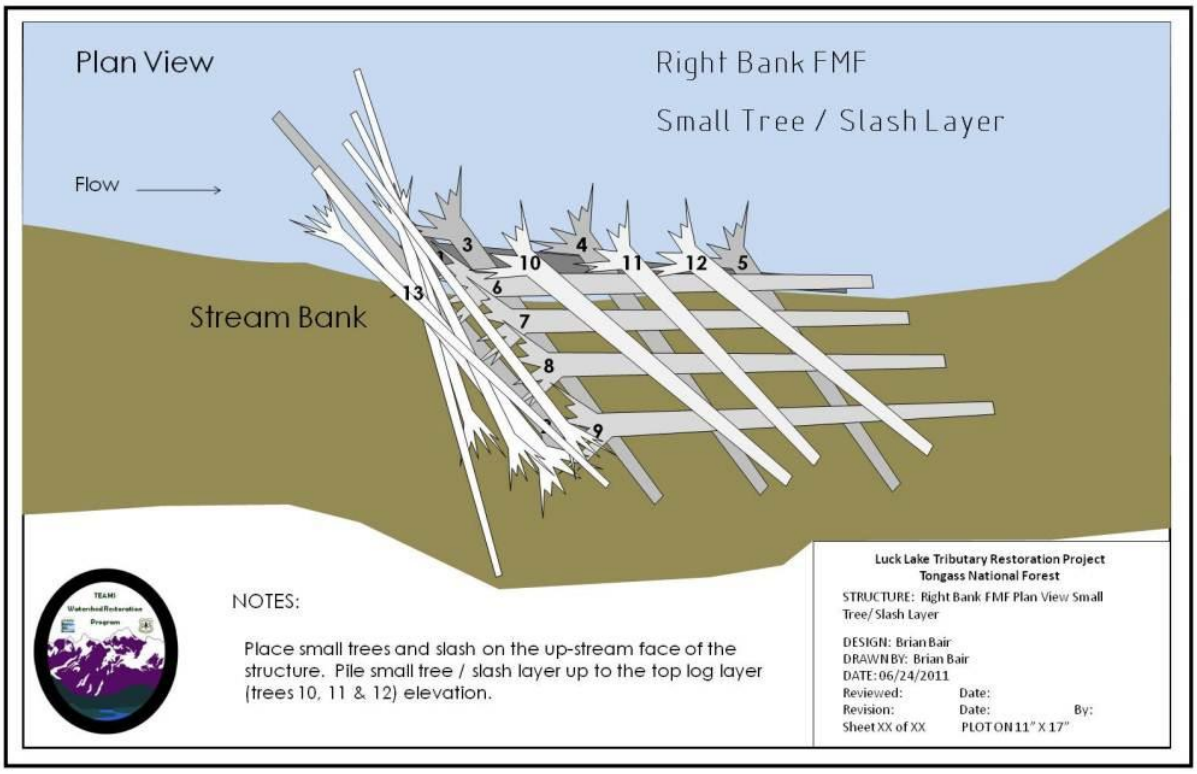
(A) A typical structure buried along the stream bank will consist of several anchor trees, the tops of which will be buried or driven into the ground at an angle to the river. If rootwads are attached, they will be exposed and face the water typically pointing upstream. Other trees would be "woven" through these anchors, and smaller woody debris and slash will be jackstrawed and packed into the orifices of the woven matrix of trees. These structures are typically placed on the downstream end of the bends where woody debris typically accumulates. This type of placement should encourage initiating and maintaining pool scour.

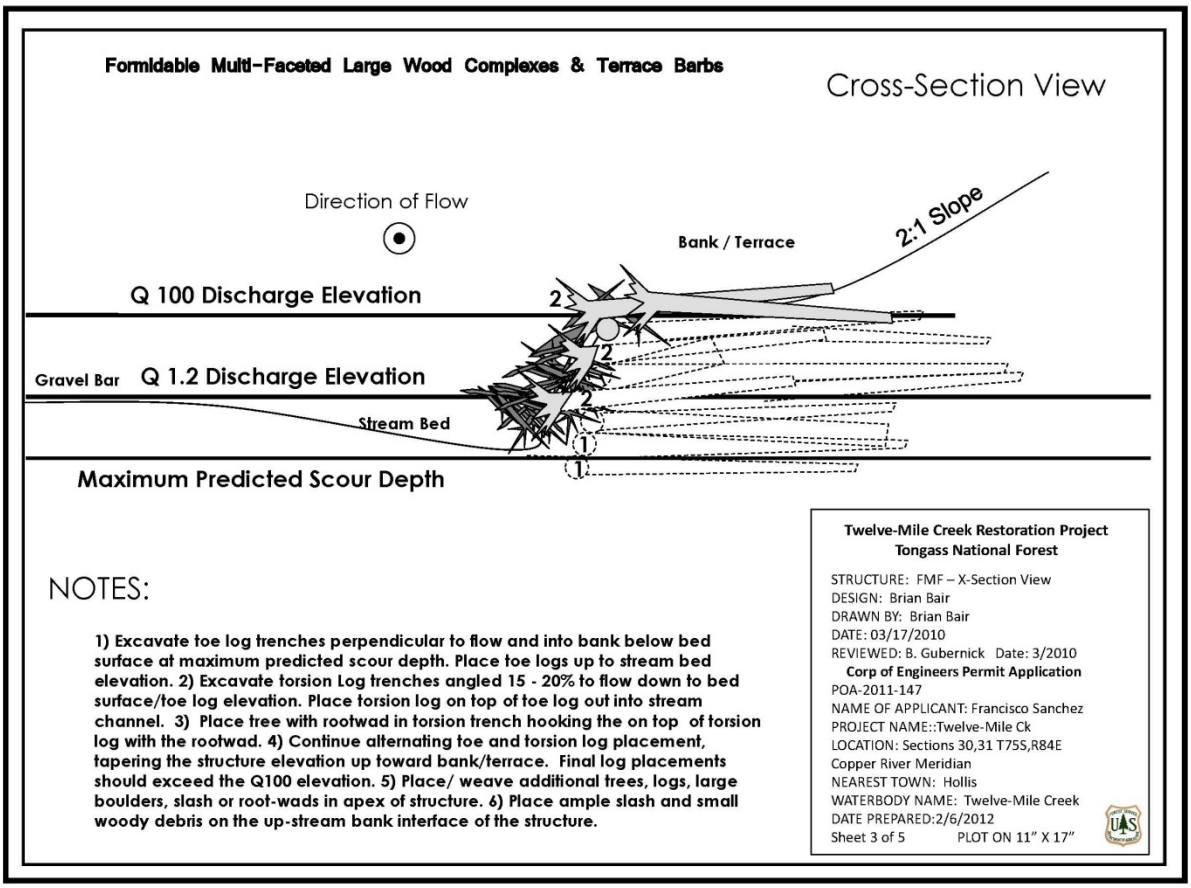
(B) Gravel bar and island point bar structures are designed to work in concert with stream bank structures to scour and maintain pools and to develop or maintain island and side channel habitat. The typical log structure on gravel bars and island point bars are constructed by burying several logs into the ground to serve as pilings followed by placing additional trees and slash on the upstream side of pilings and weaving them into pilings.

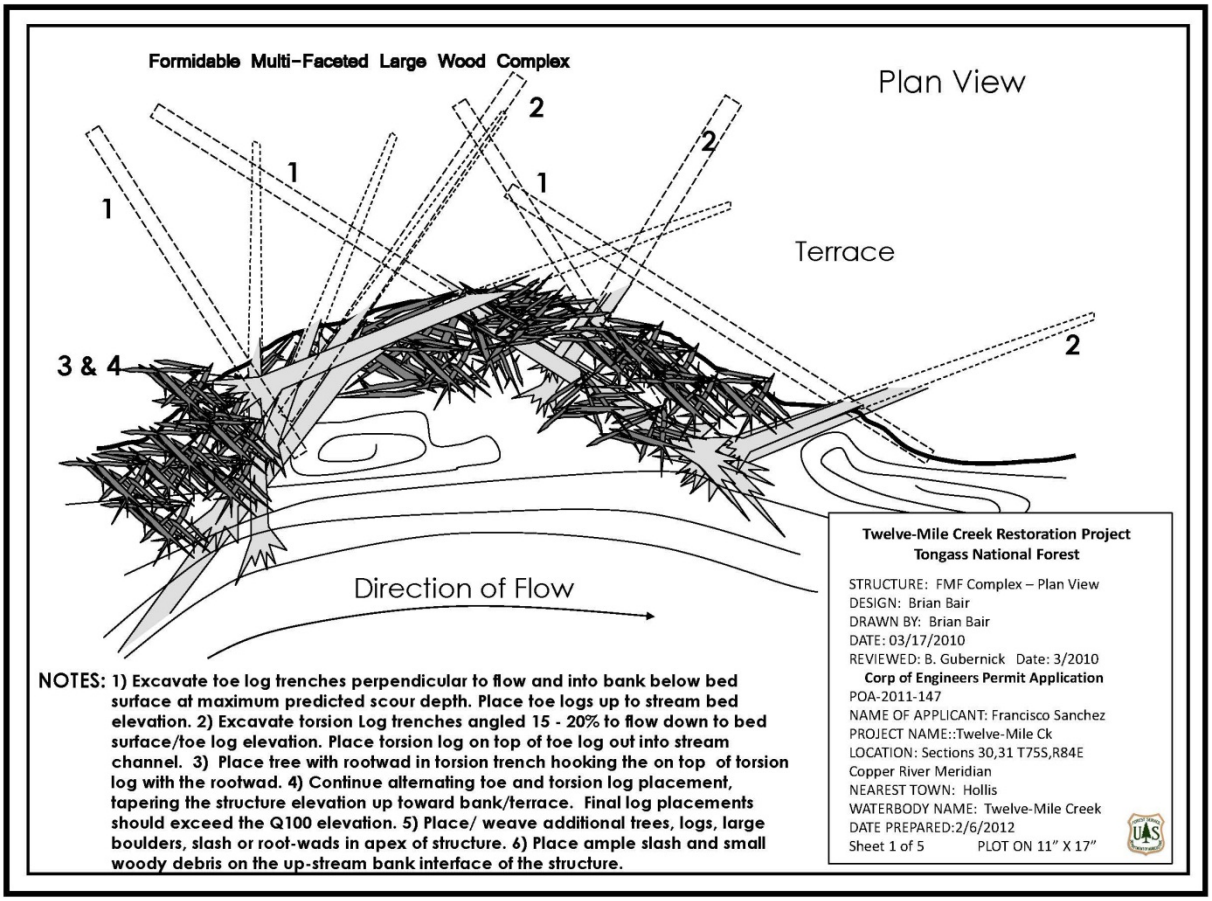
(C) Channel excavation and wood structure placement will be conducted out of flowing water wherever practical.

Templates follow on next page.

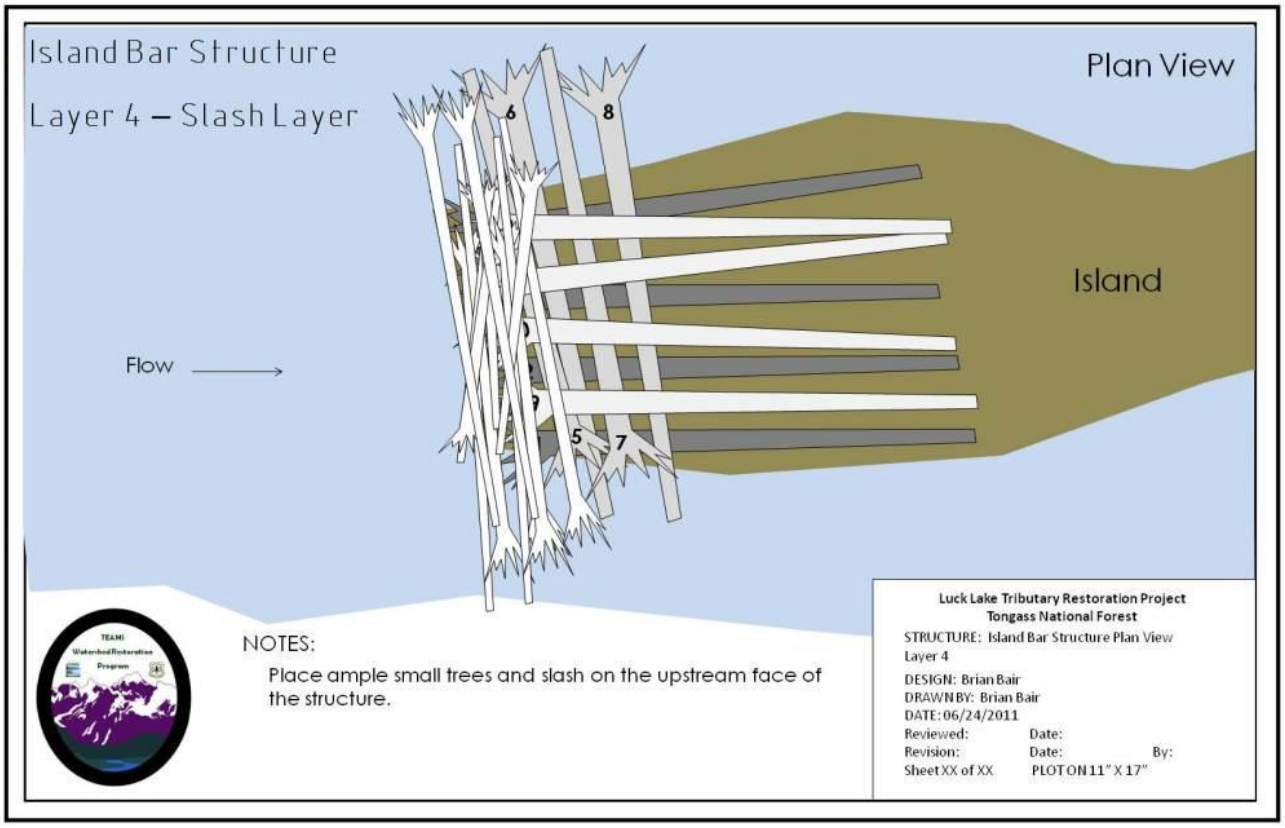
Example Templates of bank structure:
"Formidable Multi-Faceted Structure" or "FMF"





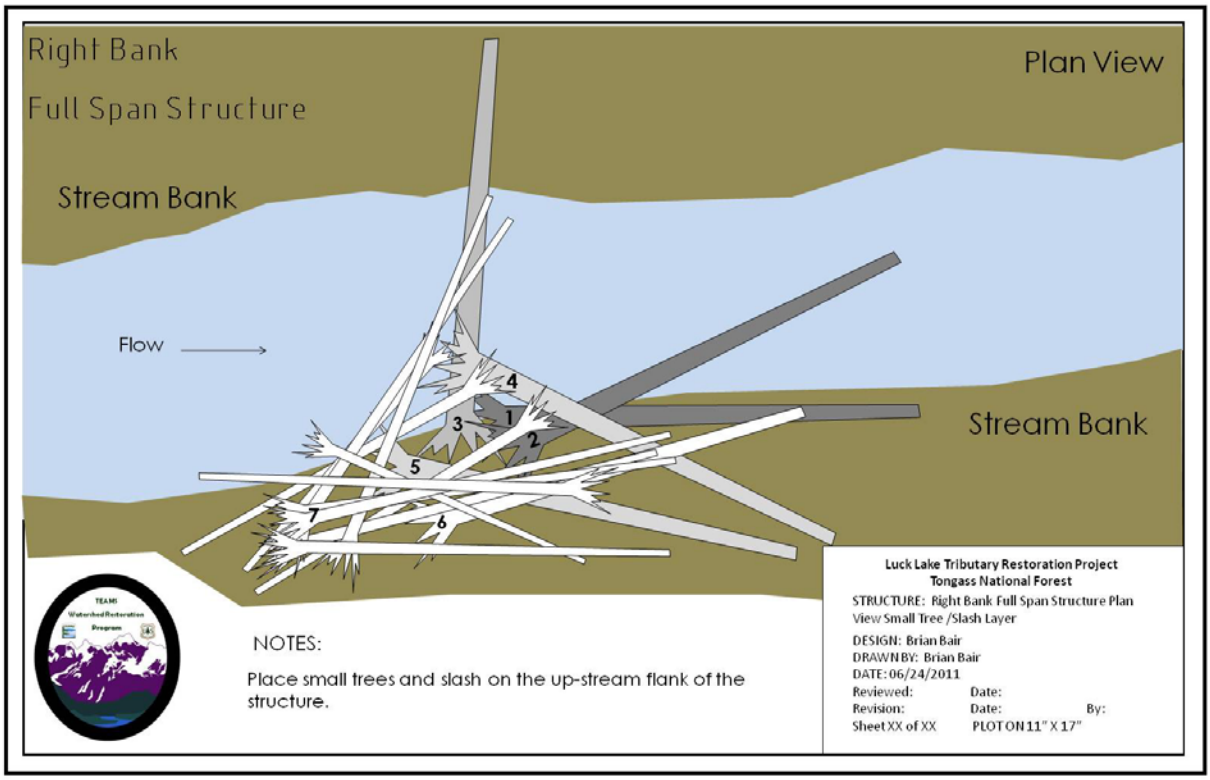

Formidable Multi-Faceted Large Wood Complex
Plan View
1
2
1
2
1
Terrace
3 & 4
2
Direction of Flow
NOTES: 1) Excavate toe log trenches perpendicular to flow and into bank below bed surface at maximum predicted scour depth. Place toe logs up to stream bed elevation. 2) Excavate torsion Log trenches angled 15 - 20% to flow down to bed surface/toe log elevation. Place torsion log on top of toe log out into stream channel. 3) Place tree with rootwad in torsion trench hooking the on top of torsion log with the rootwad. 4) Continue alternating toe and torsion log placement, tapering the structure elevation up toward bank/terrace. Final log placements should exceed the Q100 elevation. 5) Place/ weave additional trees, logs, large boulders, slash or root-wads in apex of structure. 6) Place ample slash and small woody debris on the up-stream bank interface of the structure.
Twelve-Mile Creek Restoration Project
Tongass National Forest
STRUCTURE: FMF Complex – Plan View
DESIGN: Brian Bair
DRAWN BY: Brian Bair
DATE: 03/17/2010
REVIEWED: B. Gubernick Date: 3/2010
Corp of Engineers Permit Application
POA-2011-147
NAME OF APPLICANT: Francisco Sanchez
PROJECT NAME::Twelve-Mile Ck
LOCATION: Sections 30,31 T75S,R84E
Copper River Meridian
NEAREST TOWN: Hollis
WATERBODY NAME: Twelve-Mile Creek
DATE PREPARED:2/6/2012
Sheet 1 of 5 PLOT ON 11" X 17"

Example Template of a bar structure:
"Island Bar Structure"

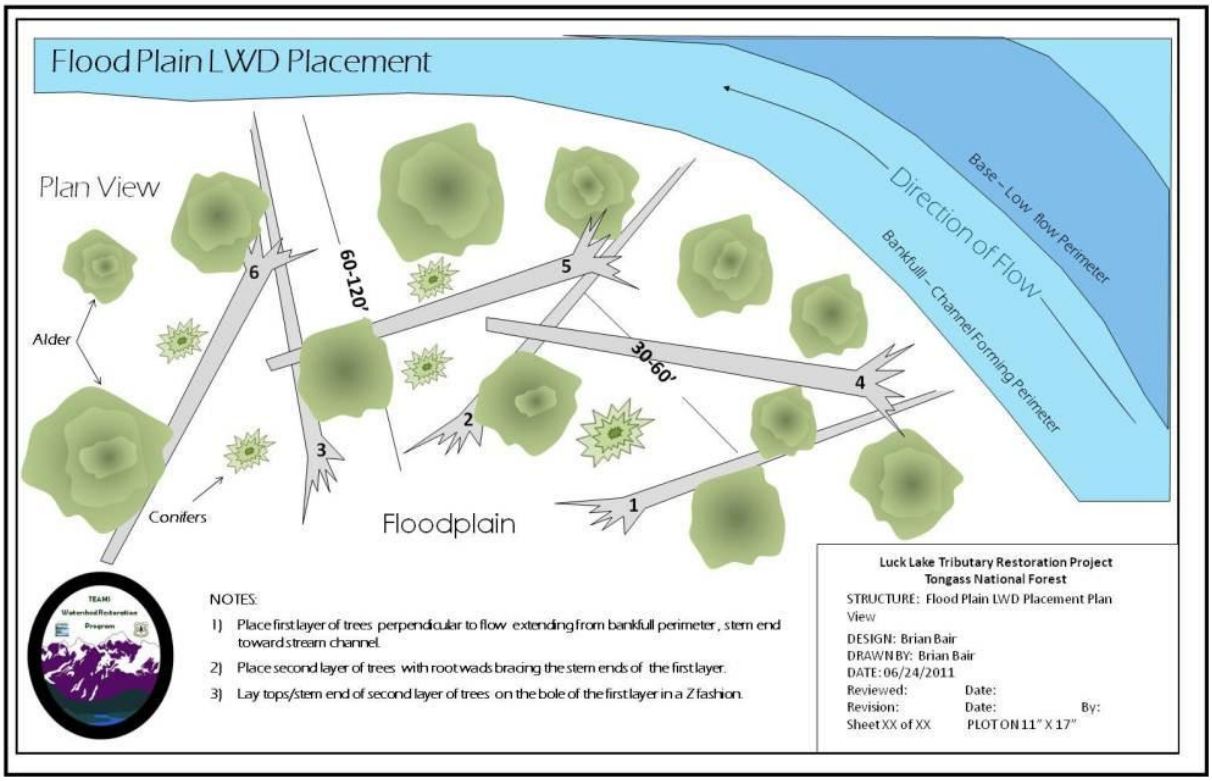


Similar structures could be built on the upstream end of point bars.

Example Template of a bank structure with a full spanning member:
"Full Span Structure"



Example Template of Floodplain Wood Placement:



END

SECTION H – SPECIAL CONTRACT REQUIREMENTS

AGAR 452.236-73 ARCHAEOLOGICAL OR HISTORIC SITES (FEB. 1988)

If a previously unidentified archaeological or historic site(s) is encountered, the Acontractor shall discontinue work in the general area of the site(s) and notify the Contracting Officer immediately.

H. 1 ORDER OF PRECEDENCE - REQUIREMENTS, SPECIFICATIONS, DRAWINGS

Resolve any inconsistencies in the Specifications of this solicitation and any resultant contract by giving precedence in the following order:

(a) Section H - Special Contract Requirements
(b) Special Project Specifications (Latest date highest precedence)
    1. Tongass NF. Special Project Specifications
    2. Region 10 Special Project Specifications
(c) Standard Specifications
(d) Drawings
    1. Drawings, figured dimensions over scaled dimensions
    2. Drawings, large scale contract drawings over small scale contract drawings
    3. Schedules on contract drawings over any conflicting notations on contract drawings.
    4. Shop Drawings - (The term "Shop Drawings", includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract.)

H. 2 LANDSCAPE PRESERVATION

(a) Confine operations to within the clearing limits or other areas designated in contract documents, and prevent the depositing of rocks, excavated materials, stumps, or other debris outside of these limits. Unless otherwise agreed to by the CO, retrieve material which falls outside of these limits and either incorporate the material in the work or dispose of the material as directed by the CO.

(b) Schedule and conduct operations to minimize erosion of soils and to prevent silting and muddying of streams, rivers, irrigation systems, and impoundments (lakes, reservoirs, etc.). Install silt fencing around areas immediately next to streams and ponds to mitigate suspended sediments when designated on the drawings.

Do not discharge pollutants such as raw sewage, and other harmful materials into or near rivers, streams, and impoundments or into natural or manmade channels leading thereto. Do not allow wash water or waste water from concrete or aggregate operations to enter live streams prior to treatment by filtration, settling, or other means sufficient to reduce the sediment content to not more than that of the stream into which it is discharged.

Collect and return waste motor oils, fuels, lubricants, bitumens and similar hydrocarbons to the supplier. Comply with the requirements of 40 CFR 279, Standards for the Management of Used Oil. Do not discharge hydrocarbon products on the ground, use them for road oiling, or bury them in a landfill.

Do not operate mechanized equipment in live streams without written approval of the Contracting Officer.

(c) CREEK CROSSINGS: Schedule and conduct bridge and instream work to minimize disturbance to streams.

1. Do not cross streams without Contracting Officer approval.

2. Submit a written equipment crossing plan to the Contracting Officer for approval 14 calendar days before creek crossing is planned.

Obtain necessary permits for floating camps, floats, shore ramps, and other appurtenances associated with project operations from the following State of Alaska and Federal Agencies:

1. ADNR - Alaska Department of Natural Resources.
2. ADEC - Alaska Department of Environmental Conservation.
3. ADGC – Alaska Department of Governmental Coordination.
4. EPA – US Environmental Protection Agency.
5. DA, COE – US Army Corps of Engineers.
6. USCG – US Coast Guard.

H. 3 USE OF PREMISES

(a) Obtain written approval from the Contracting Officer before opening or operating on National Forest land or lands administered by the Forest Service any camp, quarry, borrow pit, storage area, detour, or bypass site, other than SHOWN ON THE DRAWINGS. A camp is interpreted to include the camp site or trailer parking area of any employee working on the project for the Contractor. Such approval, if granted, will be without charge to the Contractor.

(b) Sanitation Facilities: Provide and maintain the following facilities for the work force at the camp, unless provided otherwise.

1. Meet State of Alaska drinking water regulations 18 AAC 80 regarding potable water supplies for drinking, washing and cooking.

2. Comply with State of Alaska wastewater disposal regulations 18 AAC 72 for domestic sewage.

3. Ensure that the design, operation, and maintenance of all solid waste systems under Forest Service jurisdiction meet all Federal, State, and local requirements. Meet State of Alaska solid waste management regulations (18 AAC 60) and Federal regulations contained in 40 CFR 243, 40 CFR 245, 40 CFR 257, and 40 CFR 258. Remove solid wastes and/or residues and dispose of in approved commercial landfills.

4. Meet the requirements of 40 CFR 112 (Oil Pollution Prevention) for fuel storage. Meet the requirements of 33 CFR 150 and 33 CFR 154 for facilities transferrring oil or hazardous materials in bulk.

(c) Do not begin any camp development, either land based or floating, until a plan for development, occupation, and cleanup is submitted and approved by the Contracting Officer. Include the following informationon this plan:

1. Location and size of the proposed camp development, including a map.
2. Wastewater system.
3. Number of people who will use the site and proposed dates of occupancy.
4. Power supply system.
5. Water supply system.
6. Building layout, shop area, living quarters.
7. Road and trail layout.
8. Clearing limits and slash disposal locations.
9. Borrow areas.
10. Dock and access location.
11. Equipment and fuel storage area and Spill Prevention Control and Countermeasure (SPCC) plan.
12. Incinerator location and ash disposal plan.

Forest Service will review plan as submitted for completeness and applicability. Proposed modifications of Contractor's plans will be discussed with the Contractor prior to approval. Any modifications agreed upon will be incorporated in a revised set of plans.

H. 4 CONTRACTOR'S USE AND MAINTENANCE OF EXISTING ROADS

The Contractor is authorized to use roads in the immediate construction project area for performance of work under this contract. Such roads are those which are necessary for direct access to designated borrow sites, quarries, stockpile sites, waste areas, campsites, equipment unloading ramps, and other approved work areas. The roads authorized for use will be subject to the following general conditions:

(a) Federal Regulations contained in 36 CFR 261.12; except vehicle weight will not exceed that of AASHTO HS20-44 and/or U80 Loading. Submit written requests to the CO for approval to use L90 and U102 overload Loadings on roads authorized for use. Regulations prohibit damaging a road or blocking a road open to use by others, except as otherwise provided in Special Project Specification 104.

(b) The Government will not snowplow roads for the Contractor's use. The Contractor may snowplow any road designated for his use. A permit defining snowplowing requirements is required and will be issued by the District Ranger, upon request by the Contractor. Repair any damage to the road structure caused by snow removal operations. Vehicles, other than conventional over-the-snow vehicles (snowmobiles), will not be permitted to use roads when there is an average of more than 4" of snow unless the road has been snowplowed.

The Contractor is responsible for and will perform road maintenance on Forest Service roads in the construction area commensurate with his use. Perform road maintenance at such intervals that prevent deterioration of the roadway, or as directed by the Contracting Officer.

H. 5 ROAD MAINTENANCE REQUIREMENTS

Perform road maintenance work on the required roads in accordance with the following:

(a) Maintain existing roadbed by blading and shaping the traveled way and shoulders. Do not undercut banks. Maintain established drainage structures and/or berms, and place additional drainage structures/berms where necessary to protect embankments.

(b) Perform all seasonal weather cleanup, including removal of bank sloughs, minor slides and fallen timber, which can be accomplished by a motor patrol grader equipped with a front end blade, or comparable equipment, and by the use of hand tools. Replace material eroded from fill slopes and clean out drainage ditches and culverts subject to the above equipment limitations.

Deposit the material removed from slides or other sources in locations approved by the Contracting Officer.

H. 6 EMERGENCY CONTROL

(a) Immediately extinguish without expense to the Government all fires on or in the vicinity of the project which are caused by the Contractor's employees, whether set directly or indirectly as a result of construction operations, with or without direction by the Forest Service. The Contractor may be held liable for all damages and costs of additional labor, subsistence, equipment, supplies, and transportation deemed necessary by the Government resulting from fires set or caused by Contractor's employees or resulting from construction operations.

(b) Contractor's Responsibility for Controlling Other Emergencies - When requested by the Contracting Officer, allow the Forest Service to temporarily use employees and equipment for emergency control work. Payment will be made at not less than the current area rate established by the Forest Service.

(c) Fire fighting equipment will be required during the fire season from May 10 to August 31, and during any other period of fire danger designated by the Contracting Officer.

Furnish rust-free fire tools to equip all workers employed in Contractor's operations at each separate work site. Maintain tools in serviceable condition and keep tools in one or more weather-tight fire tools boxes. Paint fire tools boxes red, mark "tools for Fire Only" with letters at least 3" high, and keep sealed. Post a list of the contents inside each fire tool box so as to be visible when opened.

Kind of Tool	**No. of People Working in Area**			
	1-4	**5-9**	**10-15**	**16-20**
Axe, d.b chopping, 32-inch min. handle	1	1	2	3
Shovels, L.H. R.P., No. 0 or larger	1	3	6	7
Pulaski, 32-inch min. handle	2	3	7	10
File, 10-inch mill bastard	1	1	1	2
Pumps, backpack cans, 5-gal filled with water	1	2	2	3

Equip each internal combustion engine with a spark arrester qualified and rated USDA-Forest Service, Standard 5100-1, unless it is:

(a) Equipped with a turbine-driven exhaust supercharger such as the turbocharger. There shall be no exhaust bypass.

(b) A multi-position engine, such as on a chain saw, which is equipped with screen arrester, as described in the Forest Service Spark Arrester guide.

A spark arrester, which does not meet the requirements in this guide may be approved upon submission of acceptable proof that the arrester is at least 80 percent efficient in retention, attrition, or destruction of carbon particles. Such arrester may be required to meet higher standards as improvements in design and efficiency are discovered.

(c) A passenger-carrying vehicle or light truck intended primarily for use on roads, and equipped with a factory designed muffler and exhaust system.

(d) A heavy duty truck, such as a dump or log truck, or other vehicle used for commercial hauling, used only on roads and equipped with a factory designed muffler and with a vertical stack exhaust system extending above the cab.

Properly install and constantly maintain in serviceable condition all exhaust equipment described in this Subsection, including spark arresters and mufflers.

Equip each unit of mobile or stationary power equipment, including trucks, with one shovel, and at least one fire extinguisher meeting one of the following specifications:

1. 2-1/2 pound size or larger dry chemical type.
2. 4-pound size or larger carbon dioxide type.

Test or check each extinguisher for proper functioning prior to the beginning of fire precautionary period.

Provide each gasoline power saw with one chemical-pressurized fire extinguisher of not less than 8-ounce capacity by weight. Maintain the extinguisher in good working order at all times.

Do not burn camp refuse, brush, slash, or debris such as that resulting from clearing around camps or on rights-of-way, without the written approval of the Contracting Officer. Submit written requests for burning to the Contracting Officer at least 48 hours in advance of intended burning. The Contracting Officer will approve routine camp refuse disposal incineration in the camp development proposal.

H. 7 CONSTRUCTION STAKES, LINES, AND GRADES

Contractor's Responsibilities: {Roads }
Perform all construction staking in accordance with the requirements of Section 152 except for the following item(s):

The Government will mark the clearing limits around rock borrow sources on National Forest Land.

Contractor's Responsibilities: {Roads }
Perform all construction staking and grade establishment, except for the following item(s):

The Government will provide initial centerline and reference controls to establish road alignment and timber structures. Drainage structure survey and staking will be provided by the contractor and paid under pay item 15204.

H. 8 PROSECUTION OF WORK

Areas of weak ground are crossed on this project. The initial embankment depth shall be as SHOWN ON THE DRAWINGS or determined by the Contracting Officer. Reestablish design centerline grade and alignment in accordance with Section 152 as construction progresses, and prior to the placement of borrow excavation. Reestablished design grades may be re-staked by the Contracting Officer to meet local conditions. Final grades may be at elevations other than those SHOWN ON THE DRAWINGS, but in no instance will they be lower than that of the surrounding ground elevations. When directed by the CO, return to previously constructed road or trail embankments and place additional borrow material where subsidence has occurred as a result of construction traffic displacing unstable or weak soil underlying the roadway.

Linear Grading reflects estimated borow excavation volumes, based on previous designs including additional material for anticipated subsidence. The estimated quantities may vary locally depending on extent of subsidence or the condition of the existing road (ground for trail). Payment for additional material placed in areas of subsidence is included in the appropriate Borrow Excavation pay item in the Schedule of Items.

H. 9 DISPOSAL OF MERCHANTABLE TIMBER

All timber meeting Forest Service merchantability standards logged during prosecution of this contract, remains the property of the Government. Deck logs in the immediate vicinity in accordance with Section 201 of the specifications.

Buck trees in various lengths to obtain the greatest utilization of material meeting the following utilization standards. The Minimum merchantable piece shall be 6" in diameter inside bark at small end, 12 feet in length, have a net scale of 33 1/3 percent of its gross scale for a sawlog or produce not less than 50 percent of its gross volume in firm usable pulp chips.

Trim allowance shall be a maximum of 12" for log lengths up to 40 foot. An additional 2" of trim shall be allowed for each 10 foot of log length over 40 foot.

Use humbolt undercut in felling merchantable timber. Buck all limbs flush with merchantable logs.

All dead trees which are sufficiently tall to reach the roadbed are designated for cutting. Fell other fire-dangerous dead trees or unstable live trees within 200 foot slope distance of the center line of the road, when marked by the Forest Service. Treat all timber under this subsection meeting utilization standards in accordance with Specification 201 Subsection 201.04, unless relieved in writing.

Cut and use timber designated by the Contracting Officer for construction, without charge.

H. 10 LOCAL MATERIAL SOURCES

Submit a development plan to the CO for approval prior to commencing any development activities.

H. 11 ACCESS TO THE PROJECT

Project Location: The proposed work site is located on the Prince of Wales Road System on Prince of Wales Island. The site is located approximately 8 miles from Coffman Cove in the Luck Lake drainage.

H. 12 GOVERNMENT FURNISHED MATERIALS

The Government will supply the contractor with the decked logs identified in the scope of work.