BRITISH COLUMBIA

Ministry of Forests

FIA PLANTING STANDARDS

Effective April 1, 2003

These standards apply, in addition to the General FIA Standards (FS 1001), to all planting activities funded under the Forest Investment Account (FIA).

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ARTICLE 1: DEFINITIONS

1.1 In this document, the following words shall have the following meanings:

"Acceptable Microsite" means a Microsite that meets the requirements specified herein.

"Acceptable Existing Tree" means a natural tree or a previously planted tree that meets the Specified criteria as to species, size, and quality, and that is to be treated the same as a planted tree.

"Approved Planting Quality Inspection System" means the Ministry of Forests' current Planting Quality Inspection system in effect immediately prior to the commencement of Work **or** another similar system approved in writing by the District Manager prior to the commencement of Work.

"Microsite" means a portion of a site that is uniform in microtopography and surface soil materials, generally ranging in size from less than 1 m^2 to occasionally over 5 m^2.

"Minimum Inter-tree Distance" means the Specified minimum distance that must be maintained between planted trees and between a planted tree and an Acceptable Existing Tree.

"Planting Spot" or **"Plantable Spot"** means a plantable area of ground that is both an Acceptable Microsite and meets the spacing requirements.

"Target Inter-tree Distance" means the Specified desired inter-tree distance to be maintained between planted trees or between a planted tree and an Acceptable Existing Tree.

"Total Trees" means the number of trees supplied by the Province or the Recipient for a Treatment Unit.

ARTICLE 2: SEEDLING STANDARDS

Suitability of Seedlings

2.1 Seedlings planted on a Work Area must:

(a) meet the seedling specifications in a Treatment Plan or Work Plan for the the Work Area;

(b) be from the best genetic quality seed source available;

(c) unless otherwise approved by the District Manager, be from a seed source suitable for the Work Area as specified in the *Seed and Vegetative Material Guidebook*; and

(d) unless otherwise approved by an appropriate ministry officer, meet the Ministry Seedling Stock Specifications in effect at the time of sowing for the type of seedling Specified.

2.2 Seedlings which are mouldy, dry, flushed, frozen, damaged or otherwise unhealthy must not be planted without the District Manager's written approval.

Care of Seedlings

2.3 Seedlings must be stored and handled consistent with the practices in the *Silviculture Manual*.

2.4 Seedlings must not be stored in a manner or for a length of time that will result in significantly diminished seedling vigour or would result in significantly increased mortality.

2.5 Unless otherwise Specified, seedlings stored in boxes on or near Work Areas must:

(a) have inside seedling box temperatures maintained at preferably 2° to 4° Celsius but at all times less than 10° Celsius; and

(b) be stored in a manner that permits air circulation around each box.

2.6 When summer or hot lifted stock is delivered to a field cache, the cartons must be opened and bundles placed upright in locations where indirect light is available. Such stock must not be kept in closed reefers.

Seedling Containers

2.7 Where the Province provides the seedlings, all reusable seedling containers must be returned to the seedling delivery site or to another similar location specified by the District Manager.

ARTICLE 3: PLANTING STANDARDS

General Requirements

3.1 All planting must be in accordance with the FIA Standards, including any standards or specifications stated or implied in the Approved Planting Quality Inspection System which forms part of the FIA Standards.

3.2 Despite any requirement that is Specified on a per hectare basis, all Specified spacing and density requirements must be met throughout the entire Work Area, so that planted trees are as well distributed as possible.

Work Plans

3.3 Where any of the following is not specified in a Treatment Plan it must be specified by Treatment Unit in a Work Plan:

(a) the species of seedlings and stock types to be planted;

(b) the characteristics of an Acceptable Existing Tree, including species, size and quality characteristics;

(c) the criteria for selecting the best Acceptable Existing Tree when there is more than one candidate;

(d) the characteristics of an Acceptable Microsite;

(e) specifications for the type and placement of fertilizer, if any;

(f) the minimum density per hectare for planted trees;

(g) Minimum and Target Inter-tree Distance; and

(h) plot size, together with the maximum allowable Plantable Spots per plot in a planting inspection.

3.4 Where specifications made under section 3.3 vary from stocking standards approved under a forest development or forest stewardship plan, the specifications must be approved by a District Manager.

Acceptable Microsites

3.5 Acceptable Microsites are:

(a) areas that will maximize the growth and survival of planted seedlings; and

(b) those microsites Specified in a Treatment Plan or Work Plan.

3.6 Unless otherwise Specified, unacceptable Microsites are:

(a) stumps and poorly decomposed rotten logs;

(b) flooded areas or the bottom of depressions or gullies subject to flooding;

(c) cutbanks, roadside fill, raised humps or loose soil, gravel or debris subject to drought;

(d) any area within two metres of the running surface of major access roads;

(e) any area within the crown line of larger trees; or

(f) any area under overhead obstacles that could interfere with seedling growth.

Planting Spot Selection

3.7 Planting Spots must be selected and seedlings planted so that:

(a) the best available Acceptable Microsites are chosen;

(b) the best Acceptable Existing Trees are chosen;

(c) to the extent sufficient Acceptable Microsites are available, the Specified maximum number of Plantable Spots in a plot are planted as close as possible to the Target Inter-tree Distance and not closer than the Minimum Inter-tree Distance;

(d) the minimum acceptable density for planted trees per hectare is achieved; and

(e) the planting of Excess trees as defined in the Approved Planting Quality Inspection System is minimized.

Planting Spot Preparation

3.8 Planting Spots must be prepared so as to allow the seedling roots to be entirely planted in acceptable medium and the seedling shoot to be left free of debris.

Planting Techniques

3.9 The planting techniques used will be chosen to permit maximum survival and growth of the seedling.

3.10 Each seedling must be planted as follows.

(a) The planting hole must be deep enough and wide enough so that the entire root system may be fully accommodated in a natural position.

(b) The root systems must be positioned in the planting hole in a natural arrangement and must not be jammed, bent, twisted or otherwise distorted or damaged.

(c) The seedling must be planted so that the roots and stem are aligned along a vertical axis.

(d) The seedling must be planted to a depth such that after filling and tamping the root collar must be at or below the surface of the acceptable planting medium with no branches or needles buried. Containerized seedlings must have the top of the "plug" below the soil surface.

(e) The planting hole must be filled with acceptable planting medium leaving no air channels or air pockets and firmly tamped so that the seedling will not pull loose with a gentle tug.

(f) Fertilizer, if any, must be placed in a location and manner so as to not risk damage to the seedling.

Handling of Seedlings During Planting

3.11 To prevent stress or damage to seedlings during planting:

(a) seedlings must not be root or top pruned;

(b) seedlings must not be damaged from scarring, bending, crushing, root stripping or other causes during handling or planting;

(c) planting bags must be of a type designed for the seedlings being planted and in good condition;

(d) seedling roots must be kept moist while inside planting bags;

(e) the number of seedlings in planting bags must not exceed that which can be carried and removed without injury to the seedlings, or which can be planted before critical heating or drying occurs;

(f) seedlings must only be removed from the protection of the bag one at a time and immediately prior to planting; and

(g) where "plug" type seedlings are being planted, plastic wrap must not be removed from bundles until immediately before the seedlings are needed for planting.

Re-planting Not Permitted

3.12 Seedlings must not be re-planted.

ARTICLE 4: INSPECTION & NOTIFICATION

Planting Quality Inspection

4.1 All Work must be inspected by a person (the "Inspector") who is:

(a) the Registered Professional Forester (RPF), or operates under the direction of the RPF, who will sign and professionally seal reports for the Work;

(b) experienced and competent in conducting inspections of planting operations;

(c) familiar with the Treatment Plans and Work Plans for the Work Areas; and

(d) not engaged in the direct conduct of the planting operations.

4.2 An Inspector must inspect the Work in accordance with an Approved Planting Quality Inspection System in a timely manner to ensure all Work is performed to the FIA Standards.

4.3 Quality inspection plots must be marked in the field and recorded on a survey map such that they can be located for a period of up to three months after their establishment or until they may be covered for an extended period by snow, whichever is sooner.

4.4 Trees that lie within inspection plots selected in accordance with the Approved Planting Quality Inspection System must be evaluated for damage, selection of the Planting Spot, and the planting quality as described in the Approved Planting Quality Inspection System.

Wastage of Trees

4.5 Seedlings must be deemed wasted or unaccounted for when the number of trees planted, as measured using an Approved Planting Quality Inspection System, plus 10 percent (or the standard error of the estimate, whichever is greater) is less than the Total Trees.

Determination of Satisfactory Treatment

4.6 A Treatment Unit may be considered satisfactorily treated when:

(a) the average performance quality of all plots is 85% or higher;

(b) the number of trees planted per hectare meet or exceed the Specified minimum density requirement; and

(c) unless otherwise approved by the District Manager, there are no contiguous areas greater than one tenth (1/10) hectare that do not meet the performance quality and density requirements.

Requirement to Notify the District Manager

4.7 Further to the notification requirements contained in the FIA General Standards (FS 1001) a Recipient must immediately notify the District Manager whenever:

(a) on any contiguous area greater than one-tenth (1/10) hectare planting quality is not satisfactory as defined in section 4.6 and, in the case of performance quality, the nature and extent of the errors are such that performance quality cannot be raised to at least 85%, or

(b) trees have been wasted, abandoned or stashed.

4.8 The Recipient must include with a notice of unsatisfactory performance a statement of the actions it has taken or will take to remedy the unsatisfactory performance.