Appendix 1

Stocking Standards

1.0 FORWARD

Pursuant to the Forest Planning and Practices Regulation section 16, the following tables are the stocking standards that are to be applied to cutblocks harvested under this Forest Stewardship Plan (FSP) for the areas included under this plan within the Sunshine Coast Timber Supply Area that may be harvested by the Holder. These standards are to be used in-conjunction with site plans where required under the Forest and Range Practices Act.

The standards recognize several silviculture systems and regeneration situations that may occur as a result of harvesting or other disturbances.

The tables and standards herein are based on the Provincial publications:

- Tree Species and free Growing Stocking Standards Guidelines (May 2000) for the Vancouver Forest Region;
- Establishment to Free Growing Guidebook (Version 2.2, revised May 2000);
- A Field Guide for Site Identification and Interpretation for the Vancouver Forest region (1994, Land Management Handbook Number 28)

2.0 EVEN-AGED MANAGEMENT

The following standards apply to blocks and/or standards units where even aged management is practiced and are applicable to the following silviculture systems:

- Clearcut;
- Clearcut with (Group and/or Dispersed) Reserves;
- Retention, where edge influence is less than 100%, within openings only.

The tables cover site series commonly found within the Sunshine Coast Timber Supply Areas for the following biogeoclimatic (BEC) variants: CDFmm, CWHxm, CWHdm, CWHds1, CWHms1, CWHvm1, CWHvm2, & MHmm1

2.1 Stocking Standards for FL A19229 (Sunshine Coast Forest District). The following tables outline the stocking standards that apply to even-aged management and layer 4 of multi-layered stands.

Table 1			***Regeneration Guide***						
ID # Assigned	**BGC Classification**		**Species**		**Stocking**			**Min Inter-tree Spacing**	**Regen. Delay** (Max yrs)
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	
	CDFmm	01	Fd/2.0 Pl[6]/1.25	Cw/1.0	900	500	400	2.0	3
		02	Fd/2.0 Pl[6]/1.25		400	200	200	2.0	3
		03	Fd/2.0 Pl[3]/1.25		800	400	400	2.0	6
		04	Fd/3.0	Bg/1.75 Cw/1.5	900	500	400	2.0	3
		05	Fd/3.0	Cw/1.5	900	500	400	2.0	3
		06	Cw/2.0 Fd/4.0	Bg/2.25	900	500	400	2.0	3
		07	Cw/2.0 Fd/4.0	Bg/2.25	900	500	400	2.0	3
		08	Cw[1]/2.0	Bg[1]/2.25	900	500	400	2.0	3
		10	Pl[1]/1.25	Cw[1]/1.0	400	200	200	2.0	3
		11	Cw[1]/1.0		800	400	400	2.0	3
		12	Cw[1]/2.0 Fd[1]/4.0	Bg[1]/2.25	900	500	400	2.0	3
		13	Bg[1]/2.25 Cw[1]/2.0 Fd[1]/4.0		900	500	400	2.0	3
		14	Cw[1]/1.0	Bg[1]/1.4	800	400	400	2.0	3
		Root Rot Sites All	Cw/1.5 Pw/2.5	Pl/1.25	900	500	400	2.0	3

Table 1			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	(Max yrs)
	CWHdm	01	Fd/3.0 Hw[24]/3.0	Cw/1.5 Pw[31]/2.5	900	500	400	2.0	3
		02	Pl/1.25 Fd/2.0		400	200	200	2.0	3
		03	Fd/2.0	Cw/1.0 Hw/2.0	800	400	400	2.0	3
		04	Fd/3.0	Cw/1.5 Pw[31]/2.5	900	500	400	2.0	3
		05	Cw/2.0 Fd/4.0	Hw/4.0 Pw[31]/2.5	900	500	400	2.0	3
		06	Cw/1.5 Hw/3.0	Fd[1]/3.0	900	500	400	2.0	6
		07	Cw/2.0 Fd/4.0 Bg/3.5	Hw/4.0 Ss[35,56]/4.0	900	500	400	2.0	3
		08	Bg/3.5 Cw/2.0	Ss[35,56]/3.5	900	500	400	2.0	3
		09	Cw[1]/2.0	Bg[1]/3.5 Ss [35,56]/3.5	900	500	400	2.0	3
		11	Pl[1]/1.25	Cw[1]/1.0	400	200	200	2.0	3
		12	Cw[1]/1.0	Hw[1,2]/2.0 Pw[31]/2.5 Ss[35,56]/3.0	800	400	400	2.0	3
		13	Bg/3.5 Cw/2.0 Fd[1]/4.0	Ss[35,56]/4.0	900	500	400	2.0	3
		14	Bg[1]/3.5 Cw[1]/2.0	Ss[35,56]/3.5	900	500	400	2.0	3
		15	Cw[1]/1.0		800	400	400	2.0	3
		Root Rot Sites All	Cw/1.5 Pw/2.5	Pl/1.25	900	500	400	2.0	3

Table 1			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	(Max yrs)
	CWHds1	01	Fd/2.25	Cw/1.5 Hw1.0 Pw[31]/2.5	900	500	400	2.0	3
		02	Pl/1.25 Fd/1.5		400	200	200	2.0	3
		03	Fd/1.5 Pl[6]/1.25	Py[7,18,23]/1.0 Cw/1.0 Hw/0.8	800	400	400	2.0	3
		04	Fd/2.25	Cw/1.5 Pw[31]/2.5	800	400	400	2.0	3
		05	Fd/2.25 Se[13,18]/1.0	Cw/1.5 Hw/1.0 Pw[13,31]/2.5	900	500	400	2.0	3
		06	Hw/1.0 Fd/2.25	Cw/1.5	900	500	400	2.0	6
		07	Cw/2.0 Fd/3.0	Bg/2.0 Hw/1.25 Ss[35, 56]/3.0	900	500	400	2.0	3
		08	Cw/2.0	Ss[35]/3.0 Bg/2.0	900	500	400	2.0	3
		09	Cw[1]/2.0	Bg[1]/2.0 Ss[35, 56]/2.0	900	500	400	2.0	3
		11	Pl[1]/1.25	Cw[1]/1.0	400	200	200	2.0	3
		12	Cw[1]/1.0	Pl[7]/1.25	800	400	400	2.0	3

Table 1			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay (Max yrs)
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	
	CWHms1	01	Cw/1.5 Fd/2.25 Se[13,18]/1.0 Hw[10,13]/1.5 Ba[10,13]/.75		900	500	400	2.0	3
		02	Pl/1.25 Fd/1.5		400	200	200	2.0	3
		03	Cw/1.5 Fd/2.25 Se[13,18]/1.0	Hw/1.5 Ba[10,13]/.75	800	400	400	2.0	3
		04	Cw/2.0 Fd/3.0 Se[13,18]/1.25 Ba[10,13]/1.0	Hw[10,13]/2.0 Pw[31]/2.5 Yc[13,17]/2.0	900	500	400	2.0	3
		05	Cw/1.5 Hw/1.5 Yc[13,17]/1.5 Ba[10,13]/0.75		900	500	400	2.0	6
		06	Cw/2.0 Fd/3.0 Yc[13,17]/2.0 Se[13]/1.25	Ba[13]/1.0 Bg[14,17]/2.5 Hw/2.0	900	500	400	2.0	3
		07	Ba[13]/1.0 Cw/2.0 Ss[35]/4.0	Fd[1]/3.0 Se[18]/1.25	900	500	400	2.0	3
		08	Cw[1]/2.0	Ba[1]/1.0	900	500	400	2.0	3
		10	Pl[1]/1.25	Cw[1]/1.0	400	200	200	2.0	3
		11	Cw[1]/1.0 Yc[13,17]/1.0	Pw[31]/2.5 Se[1]/0.75	800	400	400	2.0	3

Table 1			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		(Max yrs)
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	
	CWHvm1	01	Cw/1.5 Hw/3.0 Fd[9,16]/3.0 Ba[26]/1.75	Ss[7,35]/3.0	900	500	400	2.0	6
		02	Pl/1.25 Cw/1.0 Fd[9,16]/2.0	Hw/2.0	400	200	200	2.0	3
		03	Cw/1.0 Hw/2.0 Fd[9,16]/2.0	Pl[53]/1.25	800	400	400	2.0	6
		04	Cw/1.5 Hw/3.0 Fd[9,16]/3.0	Ba/1.75	900	500	400	2.0	3
		05	Ba/1.75 Cw/1.5 Hw/3.0 Fd[1,9,16]/3.0	Ss[35]/3.0	900	500	400	2.0	3
		06	Ba[26]/1.75 Cw/1.5 Hw/3.0	Ss[7,35]/3.0 Fd[1,9,23]/3.0	900	500	400	2.0	6
		07	Ba/2.25 Cw/2.0 Fd[1,9,23]/4.0 Hw[2]/4.0	Ss[35]/4.0	900	500	400	2.0	3
		08	Ba/2.25 Cw/2.0 Hw[2]/4.0	Ss[35]/4.0	900	500	400	2.0	3
		09	Ba/2.25 Cw/2.0 Hw/4.0	Ss[35]/4.0	900	500	400	2.0	3
		10	Ba[1]/2.25 Cw[1]/2.0	Ss[1,35]/4.0	900	500	400	2.0	3
		12	Cw[1]/1.0 Hw[1]/2.0 Yc[1]/1.0	Pl[1]/1.25	800	400	400	2.0	3
		13	Pl[1]/1.25	Cw[1]/1.0	400	200	200	2.0	3
		14	Cw[1]/1.5	Hw[1]/3.0 Ss[1,35]/3.0	800	400	400	2.0	3

Table 1			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay (Max yrs)
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	
	CWHvm2	01	Fd[1,9,23]/2.25 Hw/2.50 Cw/1.5 Yc/1.5 Ba/1.75	Ss[7,15,35]/3.0 Hm[13]/1.0	900	500	400	2.0	6
		02	Pl/1.25 Cw/1.0 Fd[9,16]/1.5 Yc/1.0	Hw/1.75 Hm[13]/0.75	400	200	200	2.0	3
		03	Cw/1.0 Hw/1.75 Fd[9,16]/1.5 Yc/1.0	Pw[16,31]/2.5 Hm[13]/0.75	800	400	400	2.0	6
		04	Cw/1.0 Hw/1.75 Fd[9,16]/1.5 Yc/1.0	Ba/1.5 Pw[16]/2.5 Hm[13]/0.75	900	500	400	2.0	6
		05	Cw/1.5 Hw/2.5 Yc/1.5 Ba/1.75	Fd[1,8,9,23]/2.25 Ss[15,35]/3.0 Hm[13]/1.0	900	500	400	2.0	3
		06	Cw/1.5 Hw/2.5 Yc/1.5 Ba/1.75	Fd[1,9]/2.25 Ss[7]/3.0 Hm[13]/1.0	900	500	400	2.0	6
		07	Cw/2.0 Hw[2]/3.5 Yc/2.0 Ba/2.25	Ss[15,35]/4.0 Hm[13]/1.0	900	500	400	2.0	3
		08	Cw[14]/2.0 Hw[2,30]/3.5 Yc/2.0 Ba/2.25	Ss[30,35]/4.0 Hm[13]/1.0	900	500	400	2.0	3
		09	Cw[1]/1.0 Hw[1]/1.75 Yc[1]/1.0	Ba/1.5 Hm[13]/0.75	800	400	400	2.0	3
		10	Pl[1]/1.25 Yc[1]/1.0	Hm/0.75	400	200	200	2.0	3
		11	Cw[1]/1.0 Yc[1]/1.0	Hw[1]/1.75 Ss[35]/2.0 Hm[13,53]/0.75	800	400	400	2.0	3

Table 1			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay (Max yrs)
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	
	CWHxm	01	Fd/3.0	Hw[24]/2.0 Cw/1.5 Pw[31]/2.5	900	500	400	2.0	3
		02	Pl/1.25 Fd/2.0		400	200	200	2.0	3
		03	Fd/2.0 Pl[6]/1.25	Cw/1.0	800	400	400	2.0	3
		04	Fd/3.0	Cw/1.5 Pw[31]/2.5	900	500	400	2.0	3
		05	Cw/2.0 Fd/4.0	Hw/1.75 Pw[31]/2.5 Bg[53]/3.5	900	500	400	2.0	3
		06	Cw/1.5 Hw/2.0 Fd[18]/3.0		900	500	400	2.0	6
		07	Cw/2.0 Fd/4.0	Bg/3.5 Hw/1.75 Ss[35,56]/4.0	900	500	400	2.0	3
		08	Cw/2.0 Ss[35]/4.0	Bg/3.5	900	500	400	2.0	3
		09	Cw[1]/2.0	Bg[1]/3.5 Ss[35,56]/3.5	900	500	400	2.0	3
		11	Pl[1]/1.25	Cw[1]/1.0	400	200	200	2.0	3
		12	Cw[1]/1.0	Hw[1]/2.0 Pw[31]/2.5 Ss[35,56]/2.5	800	400	400	2.0	3
		13	Cw/2.0 Bg/3.5 Fd/4.0	Ss[35,56]/4.0	900	500	400	2.0	3
		14	Bg[1]/3.5 Cw[1]/2.0	Ss[35,56]/3.5	900	500	400	2.0	3
		15	Cw[1]/2.0		800	400	400	2.0	3
		Root Rot Sites All	Cw/1.5 Pw/2.5	Pl/1.25	900	500	400	2.0	3

Table 1			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		(Max yrs)
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	
	MHmm1	01	Ba/0.6 Hm/1.0 Yc/1.0	Se[23]/1.0 Hw[14,53]/1.0	900	500	400	2.0	7
		02	Hm/.75 Yc/.75	Ba/.6 Se[23]/0.75	800	400	400	2.0	4
		03	Ba/.6 Hm/1.0 Yc/1.0	Hw[14,53]/1.0	900	500	400	2.0	4
		04	Ba/0.6 Hm/1.0 Yc/1.0	Hw[14,53]/1.0	900	500	400	2.0	7
		05	Ba/0.6 Yc/1.0	Hm/1.0 Hw[14,53]/1.0	900	500	400	2.0	4
		06	Hm[1]/0.75 Yc[1]/0.75	Ba[1]/0.6	800	400	400	2.0	7
		07	Ba[1]/0.6 Yc[1]/0.75	Hm[1]/0.75	900	500	400	2.0	4
		08	Hm[1]/0.75 Yc[1]/0.75		400	200	200	2.0	4
		09	Yc[1]/0.75	Hm[1]/0.75	800	400	400	2.0	4

Conifer Tree Species

"Ba" means amabilis fir;
"Bg" means grand fir;
"Bl" means subalpine fir;
"Bp" means noble fir;
"Cw" means western red cedar;
"Fd" means Douglas-fir;
"Hm" means mountain hemlock;
"Hw" means western hemlock;
“Lt” means tamarack;
"Lw" means western larch;
“Pa” means whitebark pine;
"Pl" means lodgepole pine;
"Pw" means white pine;
"Py" means ponderosa pine;
“Sb” means black spruce;
“Se” means Engelmann spruce;
"Ss" means Sitka spruce;
“Sw” means white spruce;
"Sx" means hybrid spruce or interior spruce;
"Sxs" means hybrid Sitka spruce;
“Sxw” means hybrid white spruce;
"Yc" means yellow cedar.

Broadleaf Tree Species

“Acb” means balsam poplar;
“Act” means black cottonwood;
“At” means trembling aspen;
“Dr” means red alder;
“Ep” means common paper birch;
“Mb” means bigleaf maple;
“Qg” means garry oak;
“Ra” means arbutus;

“**Biogeoclimatic unit**” or “**BGC classification**” means the zone, subzone, variant and site series described in the most recent field guide published by the Ministry of Forests for the identiication and interpretation of ecosystems, as applicable to a harvested area.

“**MIN** or “**Min**” means minimum

Footnote

1	elevated microsites are preferred
2	suitable on thick forest floors
3	restricted to coarse-textured soils
4	restricted to medium-textured soils
5	footnote retired
6	restricted to nutrient-very-poor sites
7	restricted to nutrient-medium sites
8	restricted to steep slopes
9	restricted to southerly aspects
10	restricted to northerly aspects
11	restricted to crest slope positions
12	suitable on cold air drainage sites
13	restricted to upper elevations of biogeoclimatic unit
14	restricted to lower elevations of biogeoclimatic unit
15	restricted to northern portion of biogeoclimatic unit in region
16	restricted to southern portion of biogeoclimatic unit in region
17	restricted to western portion of biogeoclimatic unit in region
18	restricted to eastern portion of biogeoclimatic unit in region
19	restricted, not in Queen Charlotte Islands
20	restricted, not near outer coast
21	restricted to mainland
22	restricted to southern Gardner Canal-Kitlope area
23	restricted to trial use
24	suitable (as a major species) in wetter portion of biogeoclimatic unit
25	suitable on sites lacking salal
26	suitable minor species on salal-dominated sites
27	partial canopy cover required for successful establishment
28	limited by moisture deficit
29	risk of heavy browsing by moose

30	risk of porcupine damage
31	risk of white pine blister rust
32	limited by growing-season frosts
33	footnote retired and replaced with footnote 'a'
34	risk of snow damage
35	risk of weevil damage
36	suitable major species on salal-dominated sites
37	risk of heart rots
38	footnote retired
39	avoid exposed and windy sites
40	risk of redheart
41	limited by poorly drained soils
42	restricted to fresh soil moisture regimes
43	suitable on mainland coast only (QCI only)
44	suitable in areas with stronger maritime influence
45	suitable in areas with stronger continental influence
46	restricted to area north of the Dean Channel
47	risk of balsam wooly adelgid
48	risk of heavy browsing by deer
49	applies only to rust resistant, planted stock.
50	restricted to sites where the species occurs as a major species in a pre-harvest, natural stand
51	restricted to areas with proven Pl performance
52	restricted to sheltered microsites with deep soil
53	minor component
54	risk of unsuccessful release of advance regeneration
55	acceptable in sx-sm portion of site series
56	Must be present in the pre-harvest stand and be restricted to weevil resistant stock
61	acceptable on cold air drainage sites only

#	**Broadleaf Management Constraints**
a	productive, reliable, and feasible regeneration option
b	limited in productivity, reliability and/or feasibility

2.2 Elk Stocking Standards

The following standards apply to blocks and/or standards units located within identified elk management zones where even aged management is practiced and are applicable to the following silviculture systems:

- Clearcut;
- Clearcut with (Group and/or Dispersed) Reserves;
- Retention, where edge influence is less than 100%, within openings only.

The tables cover site series commonly found within the Sunshine Coast Timber Supply Areas for the following biogeoclimatic (BEC) variants that are most impacted by elk: CWHdm, CWHds1, and CWHxm.

Application of Elk Stocking Standards

Elk stocking standards apply to Sechelt, Salmon, Jervis, Quatam and Homathko FDU where elk are known to occur. The standards can only be applied for those blocks where elk damage has occurred and continues to occur and impedes the Holder from meeting stocking standards as identified in Appendix 1.0 – "*Sunshine Coast Stocking Standards",* under normal operating conditions (i.e. prior to elk translocation). Prior to adopting the elk stocking standards the Holder through survey will confirm the amount and extent of elk damage and apply the elk standards to those blocks and/or standard units where damage is occurring. The use of elk stocking standards will be supported in a rationale and signed by the prescribing forester.

Elk Stocking Standards			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay (Max yrs)
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	
	CWHdm	01	Fd/3.0 Hw[24]/3.0 Cw/1.5 Pw[31]/2.5		900	300	300	2.0	6
		03	Fd/2.0	Cw/1.0 Hw/2.0	800	300	200	2.0	6
		05	Cw/2.0 Fd/4.0 Hw/4.0 Pw[31]/2.5		900	300	300	2.0	6
		06	Cw/1.5 Hw/3.0	Fd[1]/3.0	900	300	300	2.0	6
		07	Cw/2.0 Fd/4.0 Bg/3.5	Hw/4.0 Ss[35,56]/4.0	900	300	300	2.0	6

Elk Stocking Standards			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay (Max yrs)
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	
	CWHds1	01	Fd/2.25 Cw/1.5 Hw1.0 Pw[31]/2.5		900	300	300	2.0	6
		03	Fd/1.5 Pl[6]/1.25	Py[7,18,23]/1.0 Cw/1.0 Hw/0.8	800	300	200	2.0	6
		04	Fd/2.25 Cw/1.5 Pw[31]/2.5		800	300	300	2.0	6
		05	Fd/2.25 Se[13,18]/1.0 Cw/1.5 Hw/1.0 Pw[13,31]/2.5		900	300	300	2.0	6
		06	Hw/1.0 Fd/2.25	Cw/1.5	900	300	300	2.0	6
		07	Cw/2.0 Fd/3.0	Bg/2.0 Hw/1.25 Ss[35, 56]/3.0	900	300	300	2.0	6

Elk Stocking Standards			Regeneration Guide					Min	
ID # Assigned	BGC Classification		Species		Stocking			Inter-tree Spacing	Regen. Delay (Max yrs)
			Species/Minimum FG Height (m)		Target	MIN p&a	MIN p		
	Zone/SZ	Series	Preferred (p)	Acceptable (a)	(well-spaced/ha)			(m)	
	CWHxm	01	Fd/3.0 Cw/1.5 Pw[31]/2.5 Hw[24]/2.0		900	300	300	2.0	6
		03	Fd/2.0 Pl[6]/1.25	Cw/1.0	800	300	200	2.0	6
		05	Cw/2.0 Fd/4.0 Pw[31]/2.5 Bg[53]/3.5	Hw/1.75	900	300	300	2.0	6
		06	Cw/1.5 Hw/2.0 Fd[18]/3.0		900	300	300	2.0	6
		07	Cw/2.0 Fd/4.0 Bg/3.5 Hw/1.75	Ss[35,56]/4.0	900	300	300	2.0	6

2.3 Rules for Modifying General Stocking Standards

RULE NUMBER ONE **- Site Series Mosaics/Complexes**

Where more than one site series is located within a logical standards unit area the standard that applies will be that of the dominant site series. This standard can be modified with the inclusion of additional species selected from the standard of the subdominant site series for those specific areas of the mosaic or complex. These additional components to the standard will be supported by a rationale, documented and should be incorporated into the Site Plan.

RULE NUMBER TWO - **Transitional Sites**

On transitional sites occurring between two BEC units the standard that applies will be that of the dominant BEC unit. This standard can be modified with the inclusion of components of the standard associated with the sub-dominant BEC unit. These additional components to the standard will be supported by a rationale, documented and should be incorporated into the Site Plan.

RULE NUMBER THREE **- Minimum Inter-tree Distance (MITD)**

The general MITD of 2.0 metres can be reduced down to 1.5 metres for any given site where productive and plantable sites are limited by pre-harvest site characteristics. These can include but are not limited to colluvial, hygric and subhygric sites. Justification for a reduced MITD will be supported by a rationale, documented and should be incorporated into the Site Plan.

RULE NUMBER FOUR **- Leave Trees**

The minimum characteristics of any leave trees that contribute toward the free growing stand must be of good form, health and vigor and otherwise meet the stocking standards for that site. In situations where leave trees will not contribute to the free growing stand the leave trees within the harvest area must have characteristics appropriate to meet forest management objectives developed for the site. The forest management objectives must be supported by a rationale, documented and should be incorporated into the site plan

2.4 Forest Health Factors

Laminated Root Rot - Alternate stocking standards have been listed for sites infected by laminated root rot and armillaria in the CWH dm and CWHxm subzones of the Sunshine Coast Forest District. These standards will be applied to infected sites when an alternate species management strategy is prescribed.

White Pine Blister Rust - Western White Pine (Pw) occurs naturally within the plan area and is susceptible to White Pine Blister Rust. In order for Pw to be an acceptable crop tree at free growing it must be either grown from resistant stock or first-lift pruned. Pruned means that the lowest live branches have been removed to a height of 1.3m when trees are greater than or equal to 2.5m tall. For trees < 2.5m tall, at least 40% of tree height will remain as live crown.

Spruce Weevil - Risk for Spruce Weevil is high for most of the plan area below 700m in elevation. For this reason, sitka spruce and spruce hybrids will be limited to minor components (<20%) of planted and regenerated stands. Planted spruce is to be from seed which has been selected for resistance to spruce weevil.

Dwarf Mistletoe – Where dwarf mistletoe is considered a forest health concern on or adjacent to a cutblock an alternate species management strategy will be used.

3.0 UNEVEN-AGED MANAGEMENT

The following standards apply to blocks and/or standards units where uneven-aged management is practiced and are applicable to the following silviculture systems:

- High Retention Holdover Cut;
- Intermediate Cut;
- Retention (group and/or dispersed), where edge influence is 100%; and
- Group Selection.

The tables cover site series commonly found within the Sunshine Coast Timber Supply Areas for the following biogeoclimatic (BEC) variants: CDFmm, CWHxm, CWHdm, CWHds1, CWHms1, CWHvm1, CWHvm2 & MHmm1.

Table 2 – Stocking Standards for Multi-storied Stands

Target	Layer*	Stocking (well spaced/Ha)		
		Target p & a	Minimum p & a	Minimum p
900	1	400	200	200
	2	500	300	250
	3	700	400	300
	4	900	500	400
800	1	300	150	150
	2	400	200	200
	3	600	300	300
	4	800	400	400
600	1	300	150	150
	2	400	200	200
	3	500	300	300
	4	600	400	400
400	1	200	100	100
	2	300	125	125
	3	300	150	150
	4	400	200	200

3.1 Applying Uneven-Aged (Multi-layered) Stocking Standards

The multi-storied stocking standards may be applied, where ecologically suitable, to partial harvesting silviculture systems that include single or multiple entry harvesting designated to create multi-storied stands. Multi-storied stands generally have two or more dominant age classes or layers that are created by partial cutting silviculture systems in both even and uneven aged stands. The purpose of these standards is to allow retention trees from different layers to contribute towards the stocking and to avoid additional stocking in the under-story that will never attain acceptable growth and vigor. The "Standards for Retained Trees" section outlines the criteria for trees that count towards stocking.

To apply the multi-layered stocking standards, first select the appropriate site from the biogeoclimatic ecosystem classification (BEC) site series (Table 1) to determine the preferred and acceptable tree species (p & a) and applicable free growing heights. Then select the set of target and minimum stocking densities from the Stocking Standards for Uneven-Aged Stands (Table 2) that correspond to the target density in Table 1. Where standards units (SU) are comprised of more than one site series, the practice will be to manage the stocking standards of the dominant site series provided that the tree species are suitable for all the site series contained in the SU.

Uneven-aged stocking standards may be applied in partial harvesting plans that are designed to meet specific management objectives. Some examples where these standards are appropriate include:

- when operating in visually constrained areas;
- wildlife enhancement areas where the removal of some stand volume is appropriate;
- partial cutting in stands with a naturally occurring multi-storied stand structure; and
- feathering of cut-block edges to meet wind-throw or riparian management objectives.

Openings created using partial cutting silviculture systems will generally not exceed one hectare. The establishment and growth of the regeneration layer occurs under the influence of existing leave trees of one or more additional age classes.

***Stand Layer Definition**

Layer 1 Mature trees $\geq$ 12.5 cm dbh
Layer 2 Pole trees 7.5 cm to 12.4 cm dbh

Layer 3 Sapling trees >= 1.3 height to 7.4 cm dbh
Layer 4 Regeneration trees < 1.3 m height

3.2 Regeneration Date / Free Growing Height

Maximum regeneration delay is one year more than what is listed in the even-aged stocking standards. The free growing heights where applicable are as listed in the even-aged stocking standards. Regeneration delay can be met immediately following harvest if the residual stand has no significant damage or pest problems and meets the minimum stocking standards. If regeneration is achieved immediately following harvest, earliest free growing date is 12 months after completion of harvest.

3.3 Preferred and Acceptable Species

The preferred and acceptable species listed in the even-aged stocking standards by biogeoclimatic zone, variant and site series are to be considered "preferred" with the exception of locally shade-intolerant species Douglas-fir (Fd) which in layer 4 is considered "acceptable".

3.4 Standards for Retained Trees:

Leave trees retained through various silviculture systems may contribute to the stocking of the future stand and/or provide biodiversity value.

For mature (layer 1), pole size (layer 2), sapling (layer 3), and regeneration (layer 4) trees to contribute to stocking in the future stand and be considered free growing they must have the following minimum characteristics:

- Have good form, health, and vigour and otherwise meet the stocking requirements for the site.
- Scars and damage should be minimal and there should be no stem infection caused by dwarf mistletoe; no other externally visible pathological indicators should be present including broken tops, frost cracks, conk, extreme basal sweep, or unacceptable forks and crooks.
- Continuous live crown must be greater than 20% for layers 1 and 2 and 30% for layer 3 trees.
- Layer 3 trees will be free of significant disease or insect damage, have potential for post harvest release, and no open injuries (scars) with a horizontal width greater than 25% of the circumference of the tree at that point.

- A higher percentage of stem defect, scars, and rot are acceptable for layer 1 and layer 2 western red cedar and yellow cedar leave trees. The forest products derived from Cw and Yc are unique and these trees will likely provide economic value to the next stand entry.

3.5 Trees Retained for Biodiversity

Trees left for biodiversity, that will not contribute to the free growing stand, may include very old dominant trees (veteran trees), trees with broken tops, candelabras, heart rot, as well as under-story trees and advanced regeneration if deemed safe to do so. These trees will add structural value, potential wildlife habitats, and coarse woody debris inputs to the next stand. Leave trees infected with dwarf mistletoe or root rot should not be retained for biodiversity.

4.0 STOCKING STANDARDS FOR HIGH RETENTION HARVESTING (HIGH RETENTION HOLDOVER CUT / INTERMEDIATE CUT)

Single Stem Harvest - is the removal of individual stems or small groups of trees using either “standing stem” harvest by helicopter, or conventional falling and yarding by helicopter or other equipment where the remaining stand post-harvest is held over for a subsequent entry with a specified silviculture system; this is considered an “Intermediate Cut”. A “High Retention Holdover Cut” varies from an Intermediate Cut in that the silvicutural system is not specified, but rather the resulting stand will be in a suitable condition to apply a silvicultural system with another harvesting entry in the near future. The residual stand that remains following an intermediate cut (even-aged management) or high retention holdover cut (uneven-aged management) does not have a free growing requirement. There are no reforestation requirements for high retention harvesting systems.

This type of harvesting system may be used in constrained areas to address cut-block adjacency, terrain stability, wildlife, riparian and visual management issues.

4.1 Stewardship & Biodiversity

High retention harvesting will remove a small volume of timber while retaining a similar species and stand composition and still provide for the removal of a future volume of timber.
Old growth trees within the proposed harvest areas will only be harvested as incidental take with worker safety as the priority. Stand level biodiversity will be maintained by leaving old growth trees (>250 yrs old) and a mixed age class and species distribution as part of the remaining stand. To meet the requirement for

Wildlife Trees, a component of stand structures suitable for wildlife habitat (large, trees with defects, snags, veteran trees) and wildlife habitat attributes will be retained and continue to contribute to stand level biodiversity. Small gaps in the stand canopy should increase stand biodiversity through the promotion of understory vegetation that will increase forage for birds and small mammals. Increased abundance of prey species will in turn help existing predator species in the area.
All other resource values including visual landscape management will be managed consistent with results and strategies approved under A&A's Forest Stewardship Plan and practice requirements under the Forest Planning and Practices Regulation.

4.2 Stocking Standards

The minimum acceptable stocking level of layer 1 and layer 2 for high retention harvesting systems when a stocking standard for established regeneration is not required is;

- Second Growth Stands: Retained trees are well distributed (with no gaps exceeding twice the normal spacing for a given density), healthy and be greater than 300 stems/ha; or

- Old Growth Stands: Retained trees are well distributed (with no gaps exceeding twice the normal spacing for a given density), healthy and be greater than 200 stems /ha.

Species composition of the retained trees in layers 1 and 2 are similar in percentage (+/- 15%) to the pre-harvest block species composition. There will be a maximum 30% reduction in pre-harvest stand basal area (m2/ha) and/or a maximum 30% reduction in pre-harvest merchantable stand volume (m3/ha). Residual stand composition will be listed in the Site Plan for each Standards Unit.

The following minimum opening size or situation applies to small openings;

- When opening size or gap size is > 0.1 ha. then even age stocking standards apply. Small openings >0.1 hectares in size would only occur in circumstances where worker safety was an issue.

- Small openings or gaps $\leq$ 0.1 ha do not require stocking standards.

The quantity and distribution of trees retained must be to a level that will ensure the area will remain adequately stocked for a period of 12 months after completion of harvest (FPPR s.44(4)) such that a stand has future growth

potential considering the objectives for the site and the health and vigor of the existing stand.

4.3 Standards for Retained Trees:

The preferred and acceptable species listed in the even-aged stocking standards by biogeoclimatic zone, variant and site series are to be considered “preferred” and be based on the pre-harvest stand composition.

Leave tree form, health and vigor will be representative of the original stand condition.

Excessively scared and/or damaged trees caused by harvesting should also be removed.