

BCTS Coastal Windthrow Likelihood Assessment FORM 2 – Side A

ADMINISTRATIVE				
Location	Opening ID	Block #	Examiner/Date	Segment/Portion

TOPOGRAPHIC EXPOSURE TO WIND:			
DIAGNOSTIC QUESTION 1: Is this a windy area?			
CONSIDERATIONS - Regional windiness increases with: <ul style="list-style-type: none"> • Proximity to the open ocean, large inlet or lake. Consider general wind direction and sheltering features (question 2) • Plateaus, rolling plateaus, or Coastal Plain (lowlands near ocean). • Increasing elevation. 			
DIAGNOSTIC QUESTION 2: Are local wind speeds accelerated by terrain constrictions, OR is wind reduced by sheltering influences?			
CONSIDERATIONS – Windiness increases with: <ul style="list-style-type: none"> • Proximity to ridge crest for winds perpendicular to valleys. • Valley floor and lower side walls for winds parallel to valleys. • Mid or upper slope shoulders. • Valley gaps, constrictions or ridge saddles where winds are funnelled. • Tree-level indicators – flagging (asymmetry) of tree crowns. 	CONSIDERATIONS – Windiness decreases with: <ul style="list-style-type: none"> • Proximity to lower slopes for winds perpendicular to valleys. • Ridges, hills, knobs and other topographic features that can deflect winds. • Sheltering features must be high enough to deflect the general wind profile up and over the stand. • If the backside slope of a sheltering feature is steep – turbulent winds may carry a considerable distance down the leeward side. 		
Topographic Hazard Class:	<input type="checkbox"/> High (very wind exposed)	<input type="checkbox"/> Moderate (intermediate)	<input type="checkbox"/> Low (very wind sheltered)

STAND STABILITY		
DIAGNOSTIC QUESTION 1. Are trees poorly acclimated to wind loading?		
CONSIDERATIONS - Acclimation decreases with: <ul style="list-style-type: none"> • Long term shelter of individual trees from wind. • Closed canopied stands. • Away from natural stand edges (e.g., margins of wetlands, lakeshores, rivers, rock-bluffs, meadows, etc). • Tall stands on high quality sites. • <u>Tree level indicators</u>: Small live crowns and high degree of slenderness - height to diameter ratio closer to 100 than 50 - with 100 being very slender. 	TREE-LEVEL INDICATOR OF ACCLIMATION: <ul style="list-style-type: none"> • Relatively thick stems with long live crowns. • High degree of taper – height to diameter ratio close to or less than 60. 	
DIAGNOSTIC QUESTION 2. If uprooted, would trees fall through the canopy to the ground?		
CONSIDERATIONS - Potential for damage progression increases: <ul style="list-style-type: none"> • With increasing stand maturity, height, and a reduction in stem numbers (below high densities). • Where similar clearcut edges indicate few trees leaning or supported by their neighbours following a windthrow event, i.e., most windthrown trees fell through the canopy. 		
Stand Hazard Class:	<input type="checkbox"/> High (very unstable)	<input type="checkbox"/> Moderate (neutral) Low (very stable)

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SOIL ANCHORAGE			
DIAGNOSTIC QUESTION 1. Is root anchorage restricted by an impeding layer, low strength soil, or poor drainage?			
<p>CONSIDERATIONS - Restricted anchorage contributes to instability:</p> <ul style="list-style-type: none"> • Where local variations in drainage and soil depth restrict rooting in otherwise closed canopied stands (e.g. in draws and gullies). • In conspicuous pockets of higher productivity, e.g., seepage over basal till or bedrock; saturated or seasonally saturated riparian soils. • On smooth rock outcrops or bedrock where roots cannot penetrate cracks and fissures. • Where root balls are shallow, flat and plate-like, rather than deep and bowl-shaped (look at windthrown trees on similar edges or at root systems in road cuts). • Where root systems are asymmetrical along gully sidewalls or on steep slopes. 			
DIAGNOSTIC QUESTION 2. Is this a closed-canopied stand?			
COMMENT: On low quality sites where short stands are open-canopied, root-system strength and short acclimated stems compensate for restricted rooting depth. Therefore, STAND HAZARD = LOW			
Soil Hazard Class:	<input type="checkbox"/> High (very restricted)	<input type="checkbox"/> Moderate (neutral)	<input type="checkbox"/> Low (unrestricted)

TREATMENT				
DIAGNOSTIC QUESTION. Will the proposed harvesting strategy substantially increase wind loading on trees along the stand edge or retained trees?				
<p>CONSIDERATIONS - Post harvest wind loading increases where:</p> <ul style="list-style-type: none"> • Fetch increases (wind loading increases linearly as distance across an opening increases from 0 to 5 tree lengths with no further increases after 10 tree lengths). • Boundaries face directly toward damaging winds. • Boundaries are exposed to multiple wind directions (boundary projections, small patches/groups). • Narrow strips or small patches/groups are retained. • Tree removal in uniform partial cuts is increased (dispersed retention or thinned areas). • NOTE: It is common to have more than one damaging wind direction – make observations on similar edges. 				
Treatment Hazard Class:	<input type="checkbox"/> High (large increase)	<input type="checkbox"/> Moderate (moderate increase)	<input type="checkbox"/> Low (minimal increase)	<input type="checkbox"/> Very Low (no susceptible timber)

WINDTHROW LIKELIHOOD EVALUATION						
<i>Add Topographic, Stand and Soil Hazards to get Biophysical Hazard; then add Treatment Hazard to Biophysical Hazard to get Windthrow Likelihood. If Treatment Risk is 'None', then Windthrow Likelihood is 'None'.</i>						
	Very High	High	Moderate	Low	Very Low	None
Topographic Hazard		3	2	1	-	-
Stand Hazard		3	2	1	-	-
Soil Hazard		2	1	0	-	-
Biophysical Hazard	8	6-7	4-5	<4	-	-
Treatment Hazard		6	4	2	-	✓
Windthrow Likelihood	14	12-13	10-11	6-9	<6	