

## **APPENDIX A**

### **BC Parks Impact Assessment Process: Screening Matrix, Significance Matrix, Cumulative Effects Screening Matrix and Audit Record**





## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: A. Screening Matrix

(See Users Guide, pp. 15 to 17)

**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
**Proponent:** VANOC  
**Review Date(s):** November 28, 2005 – May 3, 2006 **Page:** see footer

Phase: Construction	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
<b>Ancillary and General Activity/Disturbance:</b>												
Surveying for CM facilities/trails/runs	-13	-13	-13	L <sup>14</sup>	L <sup>14</sup>	-13	L <sup>15</sup>	L <sup>16</sup>	L <sup>17</sup>	L <sup>18</sup>	L <sup>20</sup>	L <sup>20</sup>
Delivery of heavy equipment	L <sup>21</sup>	L <sup>21</sup>	L <sup>21</sup>	L <sup>21</sup>	L <sup>21</sup>	L <sup>21</sup>	-22	L <sup>23</sup>	-22	L <sup>24</sup>	L <sup>24</sup>	L <sup>24</sup>
Temporary storage	L <sup>26</sup>	L <sup>26</sup>	L <sup>26</sup>	L <sup>26</sup>	L <sup>26</sup>	-25	L <sup>26</sup>	L <sup>23</sup>	L <sup>26</sup>	L <sup>26</sup>	L <sup>26</sup>	L <sup>26</sup>
Clearing for Baden-Powell trail	L <sup>27</sup>	L <sup>27</sup>	L <sup>27</sup>	L <sup>27</sup>	L <sup>27</sup>	M <sup>28</sup>	M <sup>29</sup>	H <sup>30</sup>	L <sup>31</sup>	L <sup>32</sup>	L <sup>33</sup>	L <sup>34</sup>
<b>Freestyle Venue Activity/Disturbance:</b>												
Vegetation clearing and grubbing for freestyle skiing runs	L <sup>35</sup>	L <sup>35</sup>	L <sup>35</sup>	M <sup>36</sup>	M <sup>36</sup>	-37	M <sup>38</sup>	M <sup>43</sup>	L <sup>39</sup>	L <sup>40</sup>	L <sup>41</sup>	L <sup>42</sup>
Blasting cliff for freestyle skiing venue	L <sup>44</sup>	L <sup>44</sup>	L <sup>44</sup>	L <sup>45</sup>	L <sup>46</sup>	-L <sup>47</sup>	L <sup>48</sup>	L <sup>49</sup>	L <sup>50</sup>	L <sup>51</sup>	L <sup>51</sup>	L <sup>42</sup>
Acid rock drainage generation	-52	-52	-52	-53	-53	-53	L <sup>52</sup>	-53	-53	-53	-53	-53
Minimal re-grading of freestyle venue slopes	M <sup>54</sup>	M <sup>54</sup>	M <sup>54</sup>	L <sup>55</sup>	L <sup>55</sup>	-56	-56	L <sup>55</sup>	L <sup>39</sup>	L <sup>40</sup>	L <sup>41</sup>	L <sup>42</sup>
Construction of permanent mogul and aerial ski judges' hut	L <sup>57</sup>	L <sup>57</sup>	L <sup>57</sup>	L <sup>57</sup>	L <sup>57</sup>	-58	L <sup>59</sup>	L <sup>23</sup>	-58	L <sup>60</sup>	L <sup>60</sup>	L <sup>60</sup>
Construction of permanent moguls starting hut	L <sup>61</sup>	L <sup>61</sup>	L <sup>61</sup>	L <sup>61</sup>	L <sup>61</sup>	-58	L <sup>62</sup>	L <sup>23</sup>	-58	L <sup>61</sup>	L <sup>61</sup>	L <sup>61</sup>
Construction of temporary freestyle skiing facilities (e.g., tents, media compound, seating, etc.)	L <sup>63</sup>	L <sup>63</sup>	L <sup>63</sup>	L <sup>63</sup>	L <sup>63</sup>	-58	L <sup>63</sup>	L <sup>23</sup>	-58	L <sup>63</sup>	L <sup>63</sup>	L <sup>63</sup>
<b>Snowboarding Venue Activity/Disturbance:</b>												
Vegetation clearing for snowboarding venue	-64	-64	-64	L <sup>65</sup>	L <sup>65</sup>	-64	L <sup>65</sup>	L <sup>23</sup>	L <sup>66</sup>	L <sup>65</sup>	L <sup>65</sup>	L <sup>65</sup>



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: A. Screening Matrix

(See Users Guide, pp. 15 to 17)

**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
**Proponent:** VANOC  
**Review Date(s):** November 28, 2005 – May 3, 2006 **Page:** see footer

Phase: Construction	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
Minimal re-grading of snowboarding slopes and excavation for half pipe	M <sup>67</sup>	M <sup>67</sup>	M <sup>67</sup>	L <sup>68</sup>	L <sup>68</sup>	-.69	-.69	L <sup>23</sup>	-.69	L <sup>70</sup>	L <sup>70</sup>	L <sup>71</sup>
Construction of transportable half pipe judges' hut	-.72	-.72	-.72	L <sup>73</sup>	L <sup>73</sup>	-.72	L <sup>74</sup>	L <sup>23</sup>	-.58	L <sup>75</sup>	L <sup>75</sup>	L <sup>75</sup>
Construction of temporary snowboarding facilities (e.g., tents, media compound, seating, etc.)	-.72	-.72	-.72	L <sup>73</sup>	L <sup>73</sup>	-.72	L <sup>74</sup>	L <sup>23</sup>	-.58	L <sup>70</sup>	L <sup>70</sup>	L <sup>76</sup>
<b>Snowmaking Activity/Disturbance:</b>												
Land clearing and excavation for water reservoir (50 m x 130 m)	M <sup>77</sup>	M <sup>77</sup>	-.78	L <sup>79</sup>	L <sup>79</sup>	M <sup>80</sup>	M <sup>80</sup>	L <sup>23</sup>	L <sup>81</sup>	L <sup>82</sup>	L <sup>82</sup>	L <sup>82</sup>
Installation of creek pump-house	M <sup>83</sup>	M <sup>83</sup>	M <sup>83</sup>	L <sup>84</sup>	L <sup>84</sup>	-.85	M <sup>83</sup>	L <sup>23</sup>	-.85	L <sup>84</sup>	L <sup>84</sup>	L <sup>84</sup>
Installation of main pump-house	L <sup>86</sup>	L <sup>86</sup>	L <sup>86</sup>	L <sup>87</sup>	L <sup>87</sup>	-.85	L <sup>88</sup>	L <sup>23</sup>	-.85	L <sup>87</sup>	L <sup>87</sup>	L <sup>87</sup>
Installation of reservoir pump-house	M <sup>89</sup>	M <sup>89</sup>	M <sup>89</sup>	L <sup>90</sup>	L <sup>90</sup>	M <sup>91</sup>	M <sup>89</sup>	L <sup>23</sup>	L <sup>81</sup>	L <sup>92</sup>	L <sup>92</sup>	L <sup>92</sup>
Trenching for water pipelines and high-voltage conductors	L <sup>93</sup>	L <sup>93</sup>	L <sup>93</sup>	L <sup>94</sup>	L <sup>94</sup>	-.95	L <sup>96</sup>	L <sup>23</sup>	-.95	L <sup>94</sup>	L <sup>94</sup>	L <sup>93</sup>



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: A. Screening Matrix

(See Users Guide, pp. 15 to 17)

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Phase: Operations	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
<b>Ancillary and General Activity/Disturbance:</b>												
Testing of sport facilities	L <sup>97</sup>	L <sup>97</sup>	L <sup>97</sup>	L <sup>97</sup>	L <sup>97</sup>	L <sup>97</sup>	- <sup>98</sup>	L <sup>99</sup>	- <sup>98</sup>	L <sup>100</sup>	L <sup>100</sup>	L <sup>100</sup>
Garbage disposal	L <sup>101</sup>	L <sup>101</sup>	L <sup>101</sup>	L <sup>102</sup>	L <sup>102</sup>	- <sup>103</sup>	- <sup>103</sup>	- <sup>103</sup>	- <sup>103</sup>	- <sup>103</sup>	- <sup>103</sup>	- <sup>103</sup>
Road/parking lot maintenance (salt/sand)	L <sup>104</sup>	L <sup>104</sup>	L <sup>104</sup>	L <sup>104</sup>	L <sup>104</sup>	L <sup>104</sup>	L <sup>104</sup>	- <sup>105</sup>	L <sup>106</sup>	- <sup>107</sup>	- <sup>107</sup>	- <sup>107</sup>
Distribution lines	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>	- <sup>108</sup>
Light pollution	- <sup>109</sup>	- <sup>109</sup>	- <sup>109</sup>	M <sup>110</sup>	M <sup>110</sup>	- <sup>109</sup>	- <sup>109</sup>	- <sup>109</sup>	L <sup>111</sup>	- <sup>109</sup>	- <sup>109</sup>	L <sup>111</sup>
Vehicle traffic, esp. buses	L <sup>112</sup>	L <sup>112</sup>	L <sup>112</sup>	L <sup>112</sup>	L <sup>112</sup>	- <sup>116</sup>	- <sup>116</sup>	- <sup>116</sup>	L <sup>113</sup>	L <sup>114</sup>	L <sup>115</sup>	L <sup>113</sup>
<b>Freestyle Venue Activity/Disturbance:</b>												
Freestyle skiing venue and associated noise	- <sup>117</sup>	- <sup>117</sup>	- <sup>117</sup>	L <sup>118</sup>	L <sup>118</sup>	- <sup>117</sup>	- <sup>117</sup>	L <sup>119</sup>	L <sup>119</sup>	- <sup>117</sup>	L <sup>119</sup>	L <sup>119</sup>
<b>Snowboarding Venue Activity/Disturbance:</b>												
Snowboarding venue and associated noise	- <sup>120</sup>	- <sup>120</sup>	- <sup>120</sup>	L <sup>121</sup>	L <sup>121</sup>	- <sup>120</sup>	- <sup>120</sup>	L <sup>119</sup>	L <sup>119</sup>	120	L <sup>119</sup>	L <sup>119</sup>
<b>Snowmaking Activity/Disturbance:</b>												
Snowmaking and application	L <sup>122</sup>	L <sup>122</sup>	L <sup>122</sup>	L <sup>122</sup>	L <sup>122</sup>	L <sup>123</sup>	L <sup>123</sup>	- <sup>105</sup>	L <sup>123</sup>	L <sup>123</sup>	L <sup>123</sup>	L <sup>123</sup>
Discharge of snowmelt/stormwater run-off	M <sup>124</sup>	M <sup>124</sup>	M <sup>124</sup>	- <sup>125</sup>	- <sup>125</sup>	L <sup>126</sup>	L <sup>126</sup>	- <sup>127</sup>	- <sup>127</sup>	- <sup>127</sup>	- <sup>127</sup>	- <sup>127</sup>
Pumping water from Cypress Creek for snowmaking	M <sup>128</sup>	M <sup>128</sup>	M <sup>128</sup>	L <sup>129</sup>	L <sup>129</sup>	L <sup>129</sup>	L <sup>129</sup>	- <sup>127</sup>	- <sup>127</sup>	- <sup>133</sup>	L <sup>132</sup>	- <sup>133</sup>
Operating noise from pumps	- <sup>130</sup>	- <sup>130</sup>	- <sup>130</sup>	L <sup>131</sup>	L <sup>131</sup>	- <sup>130</sup>	- <sup>130</sup>	L <sup>132</sup>	L <sup>132</sup>	- <sup>133</sup>	L <sup>132</sup>	- <sup>133</sup>



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: A. Screening Matrix

(See Users Guide, pp. 15 to 17)

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Phase: Decommissioning and Legacy	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
<b>Activity/Disturbance:</b>												
Decommissioning temporary facilities	L <sup>134</sup>	L <sup>134</sup>	L <sup>134</sup>	L <sup>134</sup>	L <sup>134</sup>	- <sup>135</sup>	- <sup>135</sup>	L <sup>136</sup>	- <sup>135</sup>	L <sup>137</sup>	L <sup>137</sup>	L <sup>137</sup>
Rehabilitating temporary venue footprints	L <sup>138</sup>	- <sup>138</sup>	L <sup>138</sup>	L <sup>139</sup>	L <sup>139</sup>	M+ <sup>140</sup>	M+ <sup>140</sup>	L <sup>136</sup>	- <sup>138</sup>	- <sup>138</sup>	- <sup>138</sup>	M+ <sup>140</sup>
Maintenance of facilities	L <sup>141</sup>	L <sup>141</sup>	L <sup>141</sup>	L <sup>141</sup>	L <sup>141</sup>	- <sup>142</sup>	- <sup>142</sup>	L <sup>143</sup>	L <sup>143</sup>	L <sup>143</sup>	L <sup>143</sup>	L <sup>143</sup>
Maintenance of vegetation	L <sup>144</sup>	L <sup>144</sup>	L <sup>144</sup>	L <sup>144</sup>	L <sup>144</sup>	L <sup>144</sup>	L <sup>144</sup>	L <sup>143</sup>	L <sup>144</sup>	L <sup>144</sup>	L <sup>144</sup>	L <sup>144</sup>
Increased venue use post-Games	M <sup>145</sup>	M <sup>145</sup>	M <sup>145</sup>	M <sup>145</sup>	M <sup>145</sup>	M <sup>145</sup>	M <sup>145</sup>	M+/- <sup>146</sup>	M <sup>145</sup>	M <sup>145</sup>	M <sup>145</sup>	M+/- <sup>146</sup>
Continued use of snowmaking equipment	M <sup>147</sup>	M <sup>147</sup>	M <sup>147</sup>	L <sup>148</sup>	L <sup>148</sup>	M <sup>147</sup>	M <sup>147</sup>	M+ <sup>149</sup>	L <sup>132</sup>	- <sup>133</sup>	L <sup>132</sup>	- <sup>133</sup>



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: B. Significance Matrix

(See Users Guide, pp. 18 to 20)

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Phase: Construction	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>5</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
<b>Ancillary and General Interactions and Effects:</b>												
Clearing for Baden-Powell trail												
- Impedance to Park access	-	-	-	-	-	-	-	M <sup>150</sup>	-	-	-	-
- Negative effect upon natural experience	-	-	-	-	-	-	-	M-L <sup>151</sup>	-	-	-	-
- Sensory disturbance, with possible displacement	-	-	-	L <sup>152</sup>	L <sup>152</sup>	-	-	L <sup>153</sup>	-	-	-	-
- Habitat loss or alteration	L <sup>155</sup>	-	-	L <sup>154</sup>	L <sup>154</sup>	L <sup>155</sup>	L <sup>156</sup>	-	-	-	-	-
- Physical harm to nesting birds or indirect disruption to breeding birds	-	-	-	L <sup>154</sup>	-	-	-	-	-	-	-	-
- Disruption of natural drainage	L <sup>157</sup>	L <sup>157</sup>	-	-	-	L <sup>157</sup>	-	-	-	-	-	-
- Increase risk of forest fire	L <sup>158</sup>	L <sup>158</sup>	-	L <sup>158</sup>	L <sup>158</sup>	-	H <sup>159</sup>	- <sup>158</sup>	-	-	-	-
- Incremental increase in greenhouse gases	-	-	-	-	-	-	-	-	-	-	-	-
- Increase in forest fragmentation	-	-	-	L <sup>160</sup>	L <sup>160</sup>	-	-	-	-	-	-	-
<b>Freestyle Venue Interactions and Effects:</b>												
Vegetation clearing for freestyle skiing lifts and runs												
- Impedance to Park access	-	-	-	-	-	-	-	M <sup>161</sup>	-	-	-	-
- Effect upon natural experience	-	-	-	-	-	-	-	-	-	-	-	-



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Phase: Construction	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
- Sensory disturbance, with possible displacement	-	-	-	L <sup>152</sup>	L <sup>152</sup>	-	-	-	-	-	-	-
- Disruption of natural drainage	L <sup>162</sup>	L <sup>162</sup>	- <sub>162</sub>	-	-	L <sup>162</sup>	-	-	-	-	-	-
- Physical harm to nesting birds or indirect disruption to breeding birds	-	-	-	L <sup>163</sup>	-	-	-	-	-	-	-	-
- Habitat loss or alteration	-	-	-	L <sup>163</sup>	L <sup>164</sup>	-	L <sup>165</sup>	-	-	-	-	-
- Increase risk of forest fire	L <sup>158</sup>	L <sup>158</sup>	-	L <sup>158</sup>	L <sup>158</sup>	H <sup>159</sup>	H <sup>159</sup>	- <sub>158</sub>	-	-	-	-
- Incremental increase in greenhouse gases	-	-	-	-	-	-	-	-	-	-	-	-
- Increase in forest fragmentation	-	-	-	L <sup>166</sup>	L <sup>166</sup>	-	-	-	-	-	-	-
- Increase in berry producing shrub land	-	-	-	L <sup>+</sup> <sub>167</sub>	L <sup>+</sup> <sub>167</sub>	-	-	-	-	-	-	-
- Loss of old-growth trees	-	-	-	L <sup>168</sup>	-	L <sup>169</sup>	L <sup>169</sup>	H-L <sup>170</sup>	-	-	-	-
Minimal re-grading of freestyle venue slopes												
- Disruption of natural drainage and sediment input to watercourses	L <sup>171</sup>	L <sup>171</sup>	- <sub>171</sub>	-	-	-	-	-	-	-	-	-
<b>Snowboarding Venue Interactions and Effects:</b>												
Vegetation clearing for snowboarding venue												
- Impedance to Park access	-	-	-	-	-	-	-	- <sub>161</sub>	-	-	-	-
- Effect upon natural experience	-	-	-	-	-	-	-	-	-	-	-	-
- Sensory disturbance, with possible displacement	-	-	-	L <sup>152</sup>	L <sup>152</sup>	-	-	-	-	-	-	-
- Disruption of natural drainage	L <sup>162</sup>	L <sup>162</sup>	- <sub>162</sub>	-	-	L <sup>162</sup>	-	-	-	-	-	-



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: B. Significance Matrix

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Phase: Construction	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
- Physical harm to nesting birds or indirect disruption to breeding birds	-	-	-	L <sup>163</sup>	-	-	-	-	-	-	-	-
- Habitat loss or alteration	-	-	-	L <sup>163</sup>	L <sup>164</sup>	-	L <sup>165</sup>	-	-	-	-	-
- Increase risk of forest fire	L <sup>158</sup>	L <sup>158</sup>	-	L <sup>158</sup>	L <sup>158</sup>	H <sup>159</sup>	H <sup>159</sup>	- <sup>158</sup>	-	-	-	-
- Incremental increase in greenhouse gases	-	-	-	-	-	-	-	-	-	-	-	-
- Increase in forest fragmentation	-	-	-	L <sup>166</sup>	L <sup>166</sup>	-	-	-	-	-	-	-
- Increase in berry producing shrub land	-	-	-	L+ <sup>167</sup>	L+ <sup>167</sup>	-	-	-	-	-	-	-
- Loss of old-growth trees	-	-	-	L <sup>168</sup>	-	L <sup>169</sup>	L <sup>169</sup>	H-L <sup>170</sup>	-	-	-	-
Minimal re-grading for snowboarding slopes and half pipe												
- Disruption of natural drainage and sediment input to watercourses	L <sup>171</sup>	L <sup>171</sup>	L <sup>171</sup>	-	-	-	-	-	-	-	-	-
<b>Snowmaking Interactions and Effects:</b>												
Land clearing and excavation for water reservoir												
- Sensory disturbance	-	-	-	L <sup>152</sup>	L <sup>152</sup>	-	-	-	-	-	-	-
- Increase in suspended sediment	H-L <sup>172</sup>	-	L <sup>173</sup>	-	-	-	-	-	-	-	-	-
- Loss of habitat or alteration of vegetation	-	-	-	L <sup>174</sup>	L <sup>174</sup>	-	L <sup>175</sup>	-	-	-	-	-
Installation of creek pump-house												
- Sensory disturbance	-	-	-	L <sup>152</sup>	L <sup>152</sup>	-	-	-	-	-	-	-
- Creek bed disturbance	H-L <sup>176</sup>	-	H-L <sup>176</sup>	-	-	-	-	-	-	-	-	-
- Increase in suspended sediment	L <sup>172</sup>	-	L <sup>173</sup>	-	-	-	-	-	-	-	-	-



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**Proponent:** VANOC  
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Phase: Construction	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
- Grizzly bars may disrupt natural debris flow and bed load dynamics and trap small mammals and amphibians in the sump	-	-	L <sup>177</sup>	-	L <sup>177</sup>	-	-	-	-	-	-	-
- Loss of riparian vegetation	U <sup>178</sup>	-	-	U <sup>179</sup>	-	-	U <sup>179</sup>	-	-	-	-	-
Installation of reservoir pump-house												
- Sensory disturbance	-	-	-	L <sup>152</sup>	L <sup>152</sup>	-	-	-	-	-	-	-
- Loss of unique habitat	-	-	-	-	-	L <sup>180</sup>	L <sup>180</sup>	L <sup>180</sup>	-	-	-	-
- Change in micro-climate/drainage	-	-	-	-	-	L <sup>181</sup>	L <sup>182</sup>	-	-	-	-	-
Phase: Operation	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
<b>Ancillary and General Interactions and Effects:</b>												
Increased Light pollution												
- Increased sensory disturbance	-	-	-	L <sup>183</sup>	L <sup>183</sup>	-	-	-	-	-	-	-
- Disruption of songbird migration pattern	-	-	-	- <sup>184</sup>	-	-	-	-	-	-	-	-
<b>Freestyle Venue Interactions and Effects:</b>												



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: B. Significance Matrix

(See Users Guide, pp. 18 to 20)

**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
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Phase: Construction	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
<b>Snowboarding Venue Interactions and Effects:</b>												
<b>Snowmaking Interactions and Effects:</b>												
Discharge of snowmelt/stormwater run-off												
- Effect on water volume during summer low-flow	H+ <sup>185</sup>	H+ <sup>185</sup>	H+ <sup>185</sup>	-	-	-	-	-	-	-	-	-
- Potential higher peak flows leading to erosion problems leading to sediment inputs and sediment deposition into downstream creeks	L <sup>186</sup>	L <sup>186</sup>	L <sup>186</sup>	-	-	-	-	-	-	-	-	-
- Transportation of deleterious substances (e.g., salt) to streams and wetlands	H-L <sup>187</sup>	-	L <sup>188</sup>	-	-	-	L <sup>188</sup>	-	-	-	-	-
Redirection of Cypress Creek for snowmaking												
- Decrease in water volume during water uptake	-	L <sup>189</sup>	- <sup>189</sup>	-	-	-	L <sup>189</sup>	-	-	-	-	-



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: B. Significance Matrix

(See Users Guide, pp. 18 to 20)

**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
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Phase: Decommissioning and Legacy	Values											
	Water Quality <sup>1</sup>	Water Quantity <sup>2</sup>	Fish Resources <sup>3</sup>	Avifauna <sup>4</sup>	Terrestrial Wildlife <sup>5</sup>	Sensitive Sites <sup>6</sup>	Vegetation <sup>7</sup>	Recreation Access and Use <sup>8</sup>	Cultural Environment <sup>9</sup>	Air Quality <sup>10</sup>	Noise <sup>11</sup>	Viewshed <sup>12</sup>
<b>Interactions and Effects:</b>												
Increased use post-Games (Use of permanent Legacy facility)												
- Increased sensory disturbance to wildlife, possible displacement	-	-	-	L <sup>190</sup>	L <sup>190</sup>	-	-	-	-	-	-	-
- Increase competition in adjacent areas due to displacement	-	-	-	L <sup>191</sup>	L <sup>191</sup>	-	-	-	-	-	-	-
- Increase in public summer use	L <sup>192</sup>	-	L <sup>192</sup>	L <sup>192</sup>	L <sup>192</sup>	L <sup>192</sup>	L <sup>192</sup>	M+/ M-L <sup>193</sup>	-	-	-	M+/ M-L <sup>193</sup>
- Increased risk of forest fire	L <sup>158</sup>	L <sup>158</sup>	-	L <sup>158</sup>	L <sup>158</sup>	H <sup>159</sup>	H <sup>159</sup>	L <sup>158</sup>	-	-	-	-
- Increase in public winter use	L <sup>194</sup>	-	L <sup>194</sup>	L <sup>194</sup>	L <sup>194</sup>	-	-	M+/M <sup>-195</sup>	-	-	-	M+/M <sup>-195</sup>
- Increase sediment and erosion on trails due to increased public use	M-L <sup>196</sup>	-	M-L <sup>196</sup>	-	-	-	-	-	-	-	-	-
Continued use of snowmaking equipment												
- Effect on water volume during summer low-flow	H <sup>+185</sup>	H <sup>+185</sup>	H <sup>+185</sup>	-	-	-	-	-	-	-	-	-
- Potential higher peak flows leading to erosion problems leading to sediment inputs and sediment deposition into downstream creeks	L <sup>186</sup>	L <sup>186</sup>	L <sup>186</sup>	-	-	-	-	-	-	-	-	-
- Transportation of deleterious substances (e.g., salt) to streams and wetlands	L <sup>187</sup>	L <sup>187</sup>	L <sup>187</sup>	-	-	-	L <sup>188</sup>	-	-	-	-	-



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: C. Cumulative Effects Screening Matrix

(See Users Guide, pp. 21 to 23)

**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
**Proponent:** VANOC  
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Effects Due to Action Under Review	Other Actions				
	Installation and operation of the new Black Mountain chair lift <sup>197</sup>	Construction and operation of new Day Lodge	Expansion of ski area and bike park on Black Mountain		
<b>Value: Water Quality</b>					
Sensory Disturbance	-198	-198	-198		
Contaminant Transport	<b>M</b> <sup>199</sup>	<b>M</b> <sup>199</sup>	<b>M</b> <sup>199</sup>		
Habitat Loss and Fragmentation	-200	-200	-200		
Viewshed Degradation	-201	-201	-201		
Experiential Degradation	-202	-202	-202		
<b>Value: Water Quantity</b>					
Sensory Disturbance	-198	-198	-198		
Contaminant Transport	-199	-199	-199		
Habitat Loss and Fragmentation	-200	-200	-200		
Viewshed Degradation	-201	-201	-201		
Experiential Degradation	-202	-202	-202		
<b>Value: Fish Resources</b>					
Sensory Disturbance	-198	-198	-198		
Contaminant Transport	-199	-199	-199		
Habitat Loss and Fragmentation	-200	-200	-200		
Viewshed Degradation	-201	-201	-201		
Experiential Degradation	-202	-202	-202		



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: C. Cumulative Effects Screening Matrix

(See Users Guide, pp. 21 to 23)

**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
**Proponent:** VANOC  
**Review Date(s):** November 28, 2005 – May 3, 2006 **Page:** see footer

Effects Due to Action Under Review	Other Actions				
	Installation and operation of the new Black Mountain chair lift <sup>197</sup>	Construction and operation of new Day Lodge	Expansion of ski area and bike park on Black Mountain		
<b>Value: Avifauna</b>					
Sensory Disturbance	<b>M</b> <sup>203</sup>	<b>M</b> <sup>203</sup>	<b>M</b> <sup>203</sup>		
Contaminant Transport	-199	-199	-199		
Habitat Loss and Fragmentation	<b>M</b> <sup>204</sup>	<b>M</b> <sup>204</sup>	<b>M</b> <sup>204</sup>		
Viewshed Degradation	-201	-201	-201		
Experiential Degradation	-202	-202	-202		
<b>Value: Terrestrial Wildlife</b>					
Sensory Disturbance	<b>M</b> <sup>205</sup>	<b>M</b> <sup>205</sup>	<b>M</b> <sup>205</sup>		
Contaminant Transport	-199	-199	-199		
Habitat Loss and Fragmentation	<b>M</b> <sup>206</sup>	<b>M</b> <sup>206</sup>	<b>M</b> <sup>206</sup>		
Viewshed Degradation	-201	-201	-201		
Experiential Degradation	-202	-202	-202		
<b>Value: Sensitive Sites</b>					
Sensory Disturbance	-198	-198	-198		
Contaminant Transport	-199	-199	-199		
Habitat Loss and Fragmentation	-200	-200	-200		
Viewshed Degradation	-201	-201	-201		
Experiential Degradation	-202	-202	-202		



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: C. Cumulative Effects Screening Matrix

(See Users Guide, pp. 21 to 23)

**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
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Effects Due to Action Under Review	Other Actions				
	Installation and operation of the new Black Mountain chair lift <sup>197</sup>	Construction and operation of new Day Lodge	Expansion of ski area and bike park on Black Mountain		
<b>Value: Vegetation</b>					
Sensory Disturbance	-198	-198	-198		
Contaminant Transport	-199	-199	-199		
Habitat Loss and Fragmentation	<b>M<sup>207</sup></b>	<b>M<sup>207</sup></b>	<b>M<sup>207</sup></b>		
Viewshed Degradation	-201	-201	-201		
Experiential Degradation	-202	-202	-202		
<b>Value: Recreational Use and Access</b>					
Sensory Disturbance	-198	-198	-198		
Contaminant Transport	-199	-199	-199		
Habitat Loss and Fragmentation	-200	-200	-200		
Viewshed Degradation	<b>M<sup>208</sup></b>	<b>M<sup>208</sup></b>	<b>M<sup>208</sup></b>		
Experiential Degradation	<b>M<sup>209</sup></b>	<b>M<sup>209</sup></b>	<b>M<sup>209</sup></b>		
<b>Value: Air Quality</b>					
Sensory Disturbance	-198	-198	-198		
Contaminant Transport	<b>M<sup>210</sup></b>	<b>M<sup>210</sup></b>	<b>M<sup>210</sup></b>		
Habitat Loss and Fragmentation	-200	-200	-200		
Viewshed Degradation	-201	-201	-201		
Experiential Degradation	-202	-202	-202		



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: C. Cumulative Effects Screening Matrix

(See Users Guide, pp. 21 to 23)

**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
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Effects Due to Action Under Review	Other Actions				
	Installation and operation of the new Black Mountain chair lift <sup>197</sup>	Construction and operation of new Day Lodge	Expansion of ski area and bike park on Black Mountain		
<b>Value: Noise</b>					
Sensory Disturbance	<b>M</b> <sup>211</sup>	<b>M</b> <sup>211</sup>	<b>M</b> <sup>211</sup>		
Contaminant Transport	-199	-199	-199		
Habitat Loss and Fragmentation	-200	-200	-200		
Viewshed Degradation	-201	-201	-201		
Experiential Degradation	<b>M</b> <sup>211</sup>	<b>M</b> <sup>211</sup>	<b>M</b> <sup>211</sup>		
<b>Value: Viewshed</b>					
Sensory Disturbance	-198	-198	-198		
Contaminant Transport	-199	-199	-199		
Habitat Loss and Fragmentation	-200	-200	-200		
Viewshed Degradation	<b>M</b> <sup>212</sup>	<b>M</b> <sup>212</sup>	<b>M</b> <sup>212</sup>		
Experiential Degradation	<b>M</b> <sup>212</sup>	<b>M</b> <sup>212</sup>	<b>M</b> <sup>212</sup>		



## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: D. Audit Record

(See Users Guide, pp. 14)

**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
**Proponent:** VANOC  
**Review Date(s):** November 28, 2005 – May 3, 2006 **Page:** see footer

Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
<b>Rationale for Identified Values</b>			
1	Identified Value: Water Quality Water quality is an important element of a healthy aquatic ecosystem; specifically it is required for human health (drinking water supply) fish and benthic invertebrate health. Important parameters for monitoring water quality are pH, salinity, conductivity, temperature, turbidity and dissolved oxygen. Water quality was identified as an important value during the multi-stakeholder scoping process.		
2	Identified Value: Water Quantity Sufficient water volume is important in maintaining fish populations especially during summer low flow periods. The low-flow regime can affect fish populations by stranding salmonid fry and increasing the temperature and reducing dissolved oxygen. High water volume during the Fall/Winter floods or the spring freshet can lead to bank instability and erosion, thus affecting water quality. Water quantity was identified as an important value during the scoping process.		
3	Identified Value: Fish Resources The commercial and traditional fisheries are an acknowledged and important element in the society, culture, economic and aesthetic environment of British Columbia and Canada, fish and fish habitat is of prime concern from both a public and scientific perspective, locally, nationally and internationally.		
4	Identified Value: Avifauna British Columbia, specifically Cypress Provincial Park (hereafter CPP or Park) supports a significant avian population during all seasons. They are important socially, culturally, economically, aesthetically, ecologically and scientifically. Also, the national populations of some bird species (e.g., spotted owl, marbled murrelet) do not occur outside of B.C.		
5	Identified Value: Terrestrial Wildlife Terrestrial wildlife are key elements in the social and biological environments of the Assessment Area, and B.C. in general. Some mammal species are hunted as game (e.g., deer), contributing to recreational opportunities and the economy of B.C. Other terrestrial species are prey for large species and can be an indicator of a functioning ecosystem.		
6	Identified Value: Sensitive Sites Sensitive sites relates to habitat that has been confirmed as supporting at-risk wildlife (e.g., black petaltail dragonfly) or vegetation species and communities that are considered particularly sensitive to disturbance (e.g., wetlands) and/or sites that have a high degree of public interest (e.g., old growth forest).		
7	Identified Value: Vegetation Vegetation was included as a valued component because of the potential loss of rare and endangered species, the loss or alteration of vegetated habitat, including a number of veteran trees, and the effect of this disturbance on other value components.		





## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: D. Audit Record

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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
8	Identified Value: Recreational Use and Park Access Due to the potential effect upon all-season public access to Cypress Provincial Park (CPP), and the mandate of BC Parks, recreational use and park access have been included in the environmental assessment.		
9	Identified Value: Cultural Environment Cultural values, in terms of traditional use and archeological significance, is included in the environmental assessment because these values would be of concern to First Nations and to government regulators and local citizens.  The Level 2 detailed screening for traditional use and archeological importance is provided in a separate document entitled the Archeological Overview Assessment.		
10	Identified Value: Recreational Use and Park Access Air Quality is selected as a value based on the level of concern from regulatory agencies (i.e., Canadian Heritage and Environment Canada).		
11	Identified Value: Noise Noise is selected as a value based on the level of concern from regulatory agencies (i.e., Canadian Heritage).		
12	Identified Value: Viewshed The viewshed is selected as a value based on the level of concern from regulatory agencies (i.e., Canadian Heritage) and stakeholders		
<b>Screening Matrix</b>			
<b>Construction – Ancillary and General</b>			
13	Surveying within the Assessment Area to ground-truth and flag out clearing, construction and operation pads will have almost no interaction with the aquatic environment (i.e., water quality and quantity and fish resources) and sensitive sites. The activity will likely be limited to 2-3 person topographic survey crews and will be conducted during spring, i.e., the pre-construction period. The sensitive sites will be marked off by no-disturbance ribbon; surveyors and contractors will be informed about their location. Due to the short-term duration and small magnitude of the interaction this activity <b>No</b> effect is anticipated.		Good
14	Surveying within the Assessment Area to ground-truth and flag out clearing, construction and operation pads will be conducted during spring; therefore there will be the potential to disturb nesting birds and resident or transient mammals. Due to the short-term duration and small magnitude of the interaction this activity has been rated as <b>Low</b> . The activity will likely be limited to 2-3 person topographic survey crews and will be conducted during the pre-construction period. Crews will be briefed on First-Aid, wildlife encounters, fire-prevention, and will be directed to avoid disturbing nesting birds. Should nesting birds be discovered, surveyors will be directed to map and conspicuously flag the nest site, to ensure that the nests are not disturbed until after the chicks have fledged. Destroying an active or inactive nest that is protected by the <i>Wildlife Act</i> <sup>1</sup> will require a <i>Wildlife Act</i> exemption prior to work.	BCMWLAP 2004a	Good

<sup>1</sup> Bald eagle, peregrine falcon, gyrfalcon, osprey, heron or burrowing owl





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
15	Surveying within the Assessment Area to ground-truth and flag out clearing may require minimal amounts of clearing for line-of-sight during surveying of any forested areas. Due to the short-term duration and small magnitude of the interaction this activity has been rated as <b>Low</b> . Clearing will be minimised to only that which is absolutely necessary to provide line-of-sight for surveying in forested areas.		Good
16	Cypress Provincial Park access will not be affected by surveying; however, the natural experience for users would be minimally affected by surveying activities within the Assessment Area. However, given the size of the Park, the temporary nature of survey work and the availability of other similar recreational areas in the North Shore the effect on CPP users is rated as <b>Low</b> .		Good
17	Activities are limited to clearing vegetation for line of sight and will occur in previously disturbed areas.		Good
18	Surveying activities will be conducted on foot. Clearing to provide line-of-sight would use a small chainsaw that would have a negligible effect on air quality and is rated as <b>Low</b> .		Good
19	Surveying activities will be conducted on foot. Clearing to provide line-of-sight would use a small chainsaw that would have a very short term effect on the noise levels and is rated as <b>Low</b> .		Good
20	Clearing for line-of-sight will be minimised to only that which is absolutely necessary to in forested areas. Sight lines are typically less than one meter to ensure that they only visible for surveyors. This type of clearing will only occur in areas that are planned to future clearing so this effect is rated <b>Low</b> .		Good
21	Any interaction between the delivery of heavy equipment and the aquatic environment, avian, terrestrial wildlife or sensitive sites will be short-term therefore; this disturbance has been rated as <b>Low</b> . Furthermore, interactions will be minimized to negligible levels provided that best management practices for land development (see Environmental Protection Plans) are followed.	BCMWLAP 2004a and b; Chilibeck <i>et al.</i> 1992	Fair
22	Delivery of heavy equipment will utilised existing roads and infrastructure, and therefore, will not disturb any existing vegetation, therefore <b>No</b> effect has been identified.	VANOC no date	Fair
23	To ensure public safety, Park access may be negatively affected by construction and staging activities. Although, Olympic organisers have not made final decisions, Park access could be restricted during pre-construction and construction activities. These activities would result in restricted access for the general public within the Assessment Area. According to the BC Parks Impact Assessment Process this activity and all activities related to the Assessment Area that affect access would result in a <b>Low</b> rating because less than one-year would be required for Park access to recover from the effect after the Games.	BC Parks 1999; VANOC pers. comm.	Fair
24	Any interaction between the delivery of heavy equipment and the atmospheric environment will be short-term therefore; this disturbance has been rated as <b>Low</b> . Furthermore, interactions will be minimized to negligible levels provided that best management practices for land development (see Environmental Protection Plans) are followed.		





## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: D. Audit Record

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**Name of Action:** Cypress Venue for the 2010 Olympic Winter Games  
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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
25	Temporary storage of equipment and supplies will have <b>No</b> effect on sensitive sites. Storage will be located away from identified sensitive habitat and any future areas that are identified as sensitive.		Good
26	Temporary storage of equipment and supplies could interact with the aquatic environment if it results in an input of sediment or toxins into watercourses. Storage may also be hazardous to ground-nesting birds and existing vegetation if staging areas are not limited to previously disturbed areas. Storage may be a source of passive sensory disturbance to terrestrial wildlife. Effects from this activity will be <b>Low</b> due to the short-term nature and low magnitude of disturbance and the fact that the implementation of the Environmental Management Plan will limit interactions.	BCMWLAP 2004a and b; Chilibeck <i>et al.</i> 1992	Good
27	Clearing for the re-routed Baden-Powell trail is rated as a <b>Low</b> effect to water resources, downstream fish, avifauna, and terrestrial wildlife, this is due to the fact that tree clearing for the trails will be site-specific and minimized. These VC should recover within a one year period. Fish populations should not be affected because water bodies within the Assessment Area do not support fish-bearing streams; the nearest population is below Cypress Falls.	ENKON 2002b; BCMWLAP 2004a and b; Chilibeck <i>et al.</i> 1992	Fair  Trail route has not been finalised as of November 2005
28	Clearing for the re-routed Baden-Powell trail is rated as a potentially <b>Moderate</b> effect on sensitive sites, this ranking has been assigned because it may take more than one year for the recovery of sensitive ponds adjacent to the proposed trail. Mitigation and best management practices should be explored in the significance screening.	BCMWLAP 2004a and b; Chilibeck <i>et al.</i> 1992	Fair
29	Clearing for the re-routed Baden-Powell trail is rated as a potentially <b>Moderate</b> effect on vegetation due to the permanence of the disturbance, despite the small scale of the clearing necessary for the proposed trail. Mitigation and best management practices should be explored in the significance screening.		Good
30	Clearing for the re-routed Baden-Powell trail is rated as having a potentially <b>High</b> effect on recreational assess and use. The trail's re-routing will be permanent and although trail use will recover within one year of its re-opening, park users' experiences will be affected because of the heritage nature of the Baden-Powell trail.		Good
31	The Baden Powell trail reroute is planned for an old trail that is currently unmaintained. Based on work completed in the Archaeological Overview Assessment the probability of archaeological sites in this area is Low; however an Archaeological Impact Assessment will be completed for the Assessment Area.	Alexander Heritage Consulting 2005	Good
32	Clearing for the re-routed Baden-Powell trail is rated as a <b>Low</b> effect to air quality. Clearing activities will be conducted by hand using hand tools and/or small chainsaws. Effects to air quality would be negligible.		Good
33	Clearing for the re-routed Baden-Powell trail is rated as a <b>Low</b> effect on noise. Clearing activities will be conducted by hand using hand tools and/or small chainsaws. Effects would occur sporadically and over the short term.		Good





## BC Parks Impact Assessment Process Level 2, Detailed Screen Report: D. Audit Record

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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
34	Clearing for the re-routed Baden-Powell trail is rated as a <b>Low</b> effect on viewshed. The activities will not be viewable based on the extent of the forest cover. The trail will be closed to the general public during construction, for safety reasons, and will not be viewable until it is completed.		Good
<b>Construction – Freestyle Venue</b>			
35	Vegetation cleared for the freestyle skiing venue will consist of 5% old-growth, 80% second-growth conifers, and 15% shrub and brush. Clearing will be limited to approximately 2 ha of second-growth forest and 6 old-growth trees to accommodate a ~250m x ~40m run for the mogul competition and 5 to 9 veteran trees for the aerial competition venue. There are direct risks to water and fish resources from vegetation clearing but the effect are expected to be <b>Low</b> , with the implementation of the Sediment and Erosion Control Plan. Other mitigation measures will be to limit the amount of grubbing were possible. Mitigation for habitat losses will focus upon immediately re-vegetating previously cleared areas with native plant species.	ENKON 2002a; Coast River 1997; BCMWALP 2004a and b	Good
36	Due to the loss of unique wildlife habitat from tree clearing, the possibility of recovery requiring up to 10 years, and the risk of physical harm to birds and disturbing terrestrial wildlife this activity is rated as having a <b>Moderate</b> effect. Mitigation and best management practices should be explored in the significance screening.	MCA 2003	Good
37	Sensitive sites should not be significantly disturbed due to the clearing of vegetation for the freestyle venue. There are no significant wetlands or habitats for at-risk species within the freestyle venue construction area. The effect on sensitive areas is therefore considered <b>Low</b> .	BCMOE 1997; ENKON 2002a	Good
38	Vegetation cleared for the freestyle skiing venue will consist of 5% old-growth, 80% second-growth conifers, and 15% shrub and brush. Clearing will be limited to approximately 2 ha of second-growth forest and possibly six old-growth trees to accommodate a ~250m x ~50m run for the mogul competition. It is possible that 5 to 9 veteran trees will be affected for the aerial competition venue along with ~120m x ~50m. As the disturbance is confined locally, with duration for recovery greater than 10 years and a low magnitude, this activity has been rated as <b>Moderate</b> . Mitigation and best management practices should be explored in the significance screening.	ENKON 2002a; VANOC no date	Good
39	The Freestyle facilities are planned in a previously logged area. Based on work completed in the Archaeological Overview Assessment the probability of archaeological sites in this area is Low; however an Archaeological Impact Assessment will be completed for the Assessment Area.	Alexander Heritage Consulting 2005	Good
40	Only a relatively small area will be cleared and graded for the Freestyle facilities. Conventional clearing techniques will be used. This will be a short-term activity that will have a <b>Low</b> effect on air quality.		Good
41	Clearing activities will be short term in nature. Effects to noise are predicted to be <b>Low</b> .		Good
42	The Freestyle facilities are planned in a previously logged area and are within the alpine ski area of the park. Effects from clearing and blasting on the viewshed are considered <b>Low</b> .		Good





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
43	Recreation Use due to vegetation clearing for the freestyle venue. Park access would not likely be impeded for more than one year, due to the vegetation clearing for the freestyle venue, but the public enjoyment of the natural environment at the freestyle venue would be negatively affected and due to the permanent nature of the disturbance it has been evaluated as a <b>Moderate</b> effect. Mitigation and best management practices should be explored in the significance screening.		Unknown
44	Blasting of the cliff area near the parking lot is required to develop the freestyle skiing venue but will be short term in duration and limited to the minimum area required. In addition, water quality will be monitored at all times as part of the EMP. Due to the limited scope of rock blasting and the precautions that will be taken this activity has been rated as <b>Low</b> for the aquatic environment. Rock material will be utilized on-site for construction pads.	Wright and Hopky 1998	Extent of blasting unknown
45	Blasting of the parking lot cliff area to develop the freestyle skiing venue is required but will be short term in duration and recovery, and therefore a the effect on birds is expected to be <b>Low</b> . Blasting areas should be minimized and conducted outside of the breeding bird period, or a survey for active bird nests should be conducted prior to blasting and any other activities where there could be harm to nesting birds.	Wright and Hopky 1998; MCA 2003; BCMWLAP 2004a	Good
46	Blasting areas and duration will be minimized to ensure effects on terrestrial wildlife are minimized. Because the recovery period for terrestrial wildlife is expected to be in the short-term the effect is rated as <b>Low</b> .	Wright and Hopky 1998; BCMWLAP 2004a	Good
47	Blasting is not expected to occur at identified sensitive sites; therefore <b>No</b> effect has been identified.	VANOC no date	Good
48	The parking lot cliff is a locally unique habitat that may provide habitat for rare plants that require rocky, dry conditions ( <i>i.e.</i> alpine anemone, cliff paintbrush, lace fern and smooth douglasia). This habitat would be permanently lost due to the blasting however, only a small portion of this habitat within the Assessment Area will be lost. As a result, the effect is expected to be <b>Low</b> .	Jacques Whitford Baseline Survey 2005	Good
49	Blasting would be a significant disruption of Park use and because access is expected to prohibited within the affected areas. However, because the blasting will be short-term, Park access and Park use are expected to return to normal within 1 year, therefore the effect is rated as <b>Low</b> .	VANOC 2005	Good
50	The area to be blasted has been previously disturbed. Based on work completed in the Archaeological Overview Assessment the probability of archaeological sites in this area is Low; however an Archaeological Impact Assessment will be completed for the Assessment Area.	Alexander Heritage Consulting 2005	Good
51	Shock matting will be used to minimize effect to air quality from blasting. Noise will also be minimized using shock matting and through the use of minimal effective charge. Effects are rated as <b>Low</b> .	EMP	Good





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
52	Acid rock drainage generation has been evaluated as having <b>No</b> effect on water resources and vegetation as there are no known mineral deposits within the Assessment Area.	VANOC 2005 pers comm.; VANOC no date	Good
53	Acid rock drainage generation has been evaluated as having <b>No</b> effect on wildlife species, sensitive sites, recreational users, air quality, noise and viewshed as there are no known mineral deposits and rock exposure is expected to be minimal within the Assessment Area.	VANOC 2005 pers comm.; VANOC no date;	Good
54	Re-grading of freestyle venue slopes may have a <b>Moderate</b> effect upon water quality and quantity and downstream fish resources due to the risk of sediment input into Cypress Creek. Mitigation and best management practices should be explored in the significance screening.	BCMWLAP 2004a and b; Chilibeck <i>et al.</i> 1992	Good
55	Re-grading of freestyle venue slopes is estimated to have <b>Low</b> effect upon birds, terrestrial wildlife and recreational users. Any effect would result primarily due to sensory disturbance and the Values would be able to recover within one-year.	BCMWLAP 2004a	Good
56	Re-grading of freestyle venue slopes should have <b>No</b> effect on vegetation and sensitive sites. The slopes will have been previously cleared of existing vegetation during the vegetation clearing stage and sensitive sites have not been documented at the freestyle venue.	ENKON 2002a	Good
57	Construction of permanent mogul and aerial ski judges' hut will affect a small area of approximately 3m x 9m and 3m x 12m, respectively. The effect on water and fish resources, avifauna and terrestrial wildlife is expected to be <b>Low</b> . There is sufficient wildlife habitat available outside of the construction area to provide the life requisites for avifauna and terrestrial wildlife and if displacement would be short-term (< 1 year).	VANOC no date; ENKON 2002a	Good
58	Construction of permanent and/or temporary structures at the freestyle and snowboarding venues will affect a relatively small area. The construction of the structures is not expected to affect sensitive and/or archaeological sites. <b>No</b> effect has been identified.	VANOC no date; Jacques Whitford Baseline Surveys 2005; Alexander Heritage Consulting 2005	Good
59	Construction of permanent mogul and aerial ski judges' hut will affect a small area of approximately 3m x 9m and 3m x 12m, respectively. There will be permanent loss of vegetation but the magnitude will be low, therefore the effect on vegetation is expected to be <b>Low</b> .	VANOC no date	Good





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60	Construction of permanent mogul and aerial ski judges' hut will affect a small area and will be a short term activity. Effect to air quality, noise and viewshed are expected to be <b>Low</b> .		Good
61	Construction of permanent mogul starting hut will affect a relatively small area and additional clearing is not required. Therefore the effect on water and fish resources, avifauna, terrestrial wildlife and the atmospheric environment is expected to be <b>Low</b> . There is sufficient wildlife habitat available outside of the construction footprint to provide the life requisites for the avifauna and terrestrial wildlife plus displacement would be short-term (<1 year).	VANOC no date	Good
62	The permanent mogul starting hut will affect a relatively small area approximately 3m x 9m and will not require additional. Therefore, the effect on vegetation is expected to be <b>Low</b> .	VANOC no date	Good
63	Construction of temporary freestyle skiing facilities is not expected to cause major effects on the freshwater, terrestrial and atmospheric environment due to the short-term nature of the facilities, <i>i.e.</i> , they will be removed after the close of the 2010 Games. The effect is therefore expected to be <b>Low</b> . There may be a limited amount of sensory disturbance to wildlife and disturbance to vegetation but these Values would recover in less than one year from this activity. In addition, there should not be a great deal of earth and concrete work related to this activity.	VANOC no date;	Fair
<b>Construction – Snowboarding Venue</b>			
64	The snowboard facility will primarily utilize existing runs and an existing chair lift. There would be <b>No</b> effect to aquatic resources from minimal clearing, because it is expected to occur during the drier summer period and will be limited in magnitude. Effects to sensitive sites should not be a factor as these sites are located outside the snowboard venue footprint.	VANOC no date; BCMWLAP 2004a and b; Chilibeck <i>et al.</i> 1992	Good
65	The snowboard facility will utilize existing runs and an existing chair lift. Due to the fact that only minimal clearing, mostly shrubs and brush, is necessary this activity is rated as having a <b>Low</b> effect on the terrestrial and atmospheric environment provided that clearing occurs outside of the breeding bird window and that protected nests are retained. Mammals would be faced with sensory disturbance from clearing activities and may be displaced to adjacent habitats for duration of the construction period.	ENKON 2002a, VANOC no date; BCMWLAP 2004a; MCA 2003	Good
66	The Snowboard facilities are planned in a previously disturbed area. Based on work completed in the Archaeological Overview Assessment the probability of archaeological sites in this area is Low; however an Archaeological Impact Assessment will be completed for the Assessment Area.	Alexander Heritage Consulting 2005	Good
67	Minimal re-grading for the giant slalom course is required and excavation for the half pipe is required to build it to its required dimensions (4.5-4.7m high, 195m long and 31m wide, with a slope of 16-17 degrees). Due to the risk of sediment input into watercourses the effects are rated as <b>Moderate</b> . Mitigation and best management practices should be explored in the significance screening.	VANOC no date; BCMWLAP 2004a and b; Chilibeck <i>et al.</i> 1992	Good





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68	Minimal re-grading for the giant slalom course is required and excavation for the half pipe is required to build it to required specifications. Due to the previously disturbed nature of the snowboarding venue this activity effect has been rated as <b>Low</b> for avifauna and terrestrial wildlife because very little re-grading and grubbing will be necessary and the area provides habitat of low suitability. If mammals and herptiles remain in the zone of disturbance they would be subject to sensory disturbance, alternatively wildlife species may be temporarily displaced to adjacent areas during the re-grading. These effects would be short-term.	VANOC no date; MCA 2003; BCMWLAP 2004a	Good
69	Minimal re-grading for the giant slalom course is required and excavation for the half pipe is required. Limited clearing activities will have occurred prior to the re-grading/excavation. Sensitive habitats and archaeological sites have not been recorded at the snowboard venue. <b>No</b> effects have been identified.	VANOC no date; ENKON 2002a; Alexander Heritage Consulting 2005	Good
70	Emissions and noise for these activities will be of short term duration and restricted to the local area around the site.		Fair
71	These activities will not be unlike the regular maintenance of the ski facilities at the Cypress Mountain ski area. Effects are considered <b>Low</b> .		
72	The effects from construction of the transportable half pipe judges' hut (3m x 9m) and temporary snowboard facilities are expected to have <b>No</b> effect on water quality, quantity, fish resources and sensitive sites due to the small footprint for snowboard structures and their temporary nature. In addition, because there should be very little disruption of soils during the actual erection of structures there should be little interaction with the aquatic environment.	VANOC no date; ENKON 2002a	Fair
73	The effects from construction of the transportable half pipe judges' hut and temporary snowboard facilities is expected to have a <b>Low</b> effect on birds and terrestrial wildlife due to the small dimensions of the structures and their temporary nature. The habitat in the affected area is of low suitability to birds and terrestrial wildlife, consequently effects due construction are expected to be restricted to sensory disturbance.	VANOC no date; ENKON 2002a	Fair
74	The effects from construction of the half pipe judges' hut and temporary snowboarding facilities is rated as a <b>Low</b> for vegetation due to the short-term nature of the facilities, <i>i.e.</i> , they will be removed after the 2010 Games. These sites are expected to be reclaimed after the closure of the Games.	VANOC no date	Fair
75	The effects from construction of the half pipe judges' hut and temporary snowboarding facilities is rated as a <b>Low</b> on air quality, noise and viewshed due to the short-term nature of the facilities, <i>i.e.</i> , they will be removed after the 2010 Games; and the small area that they will occupy.	VANOC no date	Fair
76	The facilities will be temporary in nature and constructed only for the Games period. They will be in place for less than one year and will be completely removed after the Games. Effects to viewshed are considered <b>Low</b> .		Fair





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<b>Construction – Snowmaking</b>			
77	Land clearing and excavation for the water reservoir (approximately 1 ha) is expected to have a <b>Moderate</b> effect on water quality and quantity due to the permanence and the reservoir site's micro-climate. Due to the risk of disturbing a sensitive micro-habitat this activity requires mitigation measures.	VANOC no date; Snow Engineering 2004	Fair
78	Land clearing and excavation of the reservoir site are not expected to directly affect downstream fish resources because fish are not known to occur in the Assessment Area. <b>No</b> effect has been identified.	ENKON 2002b	Fair
79	Land clearing and excavation for the water reservoir is considered to have a <b>Low</b> effect on birds and terrestrial wildlife. This effect is primarily due to sensory disturbance, the long-term nature of the feature and risk of affecting a sensitive micro-habitat. However, bird and terrestrial wildlife populations would likely recover within a short time period.		Fair
80	The effect of land clearing and excavation for the water reservoir on vegetation and sensitive areas is expected to have a <b>Moderate</b> effect. This effect is primarily due to the permanent nature of the structure, the effect to breeding habitat for a rare dragonfly species and the presence of a unique ecosystem that currently exists on the site and adjacent the site ( <i>i.e.</i> , Yew Lake old-growth stand). Mitigation and best management practices should be explored in the significance screening.	VANOC no date; ENKON 2002b;	Fair
81	The snow making reservoir is planned in a previously disturbed area. Based on work completed in the Archaeological Overview Assessment the probability of archaeological sites in this area is Low; however an Archaeological Impact Assessment will be completed for the Assessment Area.	Alexander Heritage Consulting 2005	Good
82	Only a relatively small area will be cleared and excavated for the reservoir. Conventional clearing techniques will be used with only a few excavators employed. This will be a short-term activity that will have a <b>Low</b> effect on the atmospheric environment.		Fair
83	Installation of the creek pump-house is expected to have a <b>Moderate</b> effect on water resources and vegetation due to the long-term nature of the feature and the risk of affecting aquatic resources, wetland habitat and the riparian location. Detailed design and design drawings are required to confirm this rating.	VANOC no date; Snow Engineering 2004	Unknown
84	Installation of the creek pump-house is expected to have a Low effect on the terrestrial and atmospheric environment due to the localised and short-term effect, and the fact that the sump and pump arrangement will be pre-fabricated and dropped into placed.	Snow Engineering 2004	Good
85	Installation of the creek pump-house and main pump-house is expected to have <b>No</b> effect on sensitive and archaeological sites because, with the exception of in-stream and riparian habitat, sensitive sites have not been identified at the proposed Cypress Creek pump-house or the main pump-house. The pump-houses will be located at disturbed sites.	Snow Engineering 2004; Alexander Heritage Consulting 2005	Good





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86	Installation of the main pump-house is expected to have a <b>Low</b> effect on water resources. It does not directly affect a body of water and it is to be located in a land depression, away from Cypress Creek. Consequently, surface water during construction would not naturally drain into the Creek. Sediment and erosion control would further avoid sediment input into the Creek.	Snow Engineering 2004	Good
87	Installation of the main pump-house is expected to have a <b>Low</b> effect on the terrestrial and atmospheric environment because a disturbed site, near Eagle Express Chair, has been selected for its location. The activity will be short term in duration and effects will be localized. There would be some sensory disturbance to birds and terrestrial wildlife, but this would be of short duration and local populations would quickly recover.	Snow Engineering 2004	Good
88	Installation of the main pump-house is expected to have a <b>Low</b> effect on vegetation because a disturbed site, near Eagle Express Chair, has been selected for its location.	Snow Engineering 2004	Good
89	Installation of the reservoir pump-house is expected to have a <b>Moderate</b> effect on water, fish and vegetation due to the long-term nature of the feature, its location in a sensitive micro-habitat, and the relative inability to recover from the disturbance.	Snow Engineering 2004	Good
90	Installation of reservoir pump house is expected to have a <b>Low</b> effect on bird and wildlife populations, primarily due to sensory disturbance. The reservoir is located at an inactive gravel pit. Bird and terrestrial wildlife populations would quickly recover and valuable bird and terrestrial wildlife habitat would not be affected because of the previously disturbed nature of the site.	ENKON 2002a	Good
91	Installation of the reservoir pump-house is expected to have a <b>Moderate</b> effect on sensitive sites due to the presence of dragonfly breeding habitat and a locally unique vegetation community at and adjacent to the reservoir site. The reservoir is a permanent feature; it is located in a sensitive micro-habitat, and the habitat would not recover from the disturbance. Mitigation and best management practices should be explored in the significance screening.	ENKON 2002a	Good
92	Installation of the reservoir pump house is expected to have a <b>Low</b> effect on the atmospheric environment. The activity will be short term in duration.		Fair
93	Trenching for the water pipelines and high-voltage conductors is expected to have a <b>Low</b> effect on the freshwater environment and viewshed because the disturbance and the trenches will be temporary in nature as they would be quickly in-filled. In addition, based on Snow Mountain Engineering (2004) drawings trenching would be primarily along disturbed areas (i.e., roads and trails).	Snow Engineering 2004	Good
94	Trenching for the water pipelines and high-voltage conductors is expected to have a <b>Low</b> effect on avifauna and terrestrial wildlife because the disturbance and the trenches will be temporary in nature as they would be quickly in-filled. There will be sensory disturbance to birds and terrestrial wildlife but the Values are expected to recover within one year. Effects to air quality are expected to be <b>Low</b> as this activity will be short term in duration.	Snow Engineering 2004	Good





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95	No effects on sensitive and archaeological sites are expected from the high-voltage trenching and installation or the pipeline installation because these activities will occur within existing roads and/or trails.	Snow Engineering 2004; Alexander Heritage Consulting 2005	Good
96	Trenching for the water pipelines and high-voltage conductors is expected to have a <b>Low</b> effect on vegetation because the period for recovery of vegetation to pre-disturbance conditions is short-term and the magnitude is low. Based on Snow Mountain Engineering (2004) drawings, the proposed trenching is to be located primarily along disturbed areas and along the edge of ski runs.	Snow Engineering 2004	Unknown
<b>Operation – Ancillary and General</b>			
97	Testing of sport facilities is expected to have a <b>Low</b> effect on the terrestrial and aquatic environment, because the disturbance will be temporary, with a short recovery period and is primarily a sensory disturbance. The interaction will be limited to the winter season, therefore, minimizing the effect on birds and the aquatic environment. In addition, no sensitive wintering areas for terrestrial wildlife have been identified in the Assessment Area.	ENKON 2002a; VANOC no date	Good
98	There will be no disturbance to existing vegetation and/or any unidentified archaeological sites due to the testing of sport facilities. All clearing work will have been completed by this point. <b>No</b> effect has been identified		Good
99	To ensure public safety, Park access may be negatively affected during the period of facility pre-Olympic test competitions and Olympic operations. Although, Olympic organisers, BC Parks and the RCMP have not made final decisions, Park access will likely be restricted at some established check point along the Cypress Bowl Road. There will be restricted access to the public however, according to the BC Parks Impact Assessment Process this activity and all activities related to CM that affect access would result in a <b>Low</b> effect because less than one-year would be required for Park access to recover from the effect.	VANOC 2005	Good
100	Effects from the testing of sport facilities are expected to have a <b>Low</b> effect on the atmospheric environment. This activity will occur during the winter season and will be similar in scope to the current level of activity that occurs at the Cypress Mountain ski area.		Fair
101	Garbage disposal is expected to have a <b>Low</b> effect on the freshwater environment because plastic and metal material will be recycled when possible and trash and recyclables will be removed daily to an existing off-site transfer station and will be stored away from watercourses.	VANOC no date	Good
102	During the winter very few animals will be affected by garbage storage because they will not be present or will be hibernating at this time. Despite the anticipated <b>Low</b> effect, bear-proof trash bins will likely be utilized on-site.		Good





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103	Garbage disposal during Olympic operations will not affect sensitive sites, vegetation, recreation access, air quality and noise. The effect is rated to be <b>Low</b> because garbage will not be stored overnight and will be contained in disturbed areas.	Jacques Whitford 2005	Good
104	Road/parking lot maintenance and the use of salt and/or sand is an existing effect at Cypress Mountain. If there is an increase in sand/salt use the increase would be incremental – thus the effect is expected to be <b>Low</b> . The EMP will require VANOC and the Ministry of Transportation to avoiding the use of salt on roads thereby minimizing the affect on water quality, downstream fish populations, vegetation and vehicle collisions with winter-resident birds and mammals that might be attracted to salt on roadways.	Environment Canada 2004	Good
105	The interaction between road/parking lot maintenance and recreation access and Park use is irrelevant because access will already be restricted due to athlete and public security during Olympic operations. <b>No</b> effect has been identified	VANOC 2005	Good
106	Road/parking lot maintenance will be occurring on previously disturbed areas.		Good
107	Road/parking lot maintenance are activities that are presently occurring and are required for the safe operation and enjoyment of Cypress Provincial Park and the Cypress Mountain ski area. Effects to the atmospheric environment are expected to be negligible.		Good
108	Electrical distribution lines are expected to have <b>No</b> effect on the freshwater environment, birds, terrestrial wildlife, air quality, noise and viewshed or archaeological sites because all new power distribution will be via underground high conductor cables that are located in trenches on previously disturbed areas.	VANOC no date	Good
109	Light pollution will have <b>No</b> effect on water resources and habitats, air quality and noise.		Good
110	Light pollution during the winter months may disturb resting birds and mammals at night but poses a greater threat during the spring and fall migration of songbirds. Due to potential effects outside of the winter season the use of outdoor lighting at CM is expected to have a <b>Moderate</b> effect.	Longcore, T and C. Rich 2004	Good
111	Overall, the effects of light pollution and changes to the viewshed will be minimal when compared to baseline conditions. While the overall look of the Cypress Mountain ski area will be changed for the Games period this will be short-term and temporary. Effects to the viewshed are considered <b>Low</b> .		Fair
112	Overall vehicle traffic is not expected to increase during the 2-week Games period relative to traffic during a peak period in the ski season. Traffic will be restricted to small vehicles used by the Games personnel and bus traffic. A traffic management plan will be implemented therefore the effects from vehicle traffic on the Assessment Area are rated as <b>Low</b> .	VANOC no date; ENKON 2002a	Good
113	Effects from traffic will be short term (over a two week period). The level of traffic will not be very different than the current traffic levels that are occurring within Cypress Provincial park during the winter.		Fair
114	It is anticipated that the overall emissions from the total bus trips would not be greater than what is presently occurring from vehicular traffic on the Cypress Bowl Road. Effects are considered <b>Low</b> .		Fair





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115	Noise levels from vehicular traffic and crowds during the Games period is not expected to be significantly different than the noise levels that are occurring at present from recreational skiers. Effects will be over a short period (two weeks) and are considered <b>Low</b> .		Fair
116	Vehicle traffic will have <b>No</b> effect on existing vegetation or sensitive sites, as vehicles will be confined to existing roads.	VANOC no date	Good
<b>Operation – Freestyle Venue</b>			
117	There will be no inputs to aquatic resources, sensitive sites, vegetation and air quality from the operation of the freestyle venue, thus there will be <b>No</b> effect.		
118	For the freestyle skiing venue and associated noise the primary effect will be sensory disturbance to the few wildlife species that are active during the winter. Due to the relative lack of wildlife during the winter season, and the short-recovery period, the effect from this activity is expected to be <b>Low</b> .	ENKON 2002a	Good
119	Based on known noise levels from the snowguns (64.0 to 73.0 decibels), noise disturbance is expected to have a Low effect and a short-term recovery period for recreation use and access. Low-noise pumps will be used for the snow making system and pump houses will be appropriately sound-proofed. Activities will be short term in duration. Effects are considered <b>Low</b> .		
<b>Operation – Snowboarding Venue</b>			
120	There will be no inputs to aquatic resources, sensitive sites, vegetation and air quality from the operation of the snowboarding venue, thus <b>No</b> effect is expected.		
121	For the snowboarding venue and associated noise the primary effect will be sensory disturbance to the few wildlife species that are active during the winter. Due to the relative lack of wildlife during the winter season, and the short-recovery period, the effect from this activity is expected to be <b>Low</b> .	ENKON 2002a	Good
<b>Operation – Snowmaking</b>			
122	Snowmaking and application is expected to have a <b>Low</b> effect on birds and terrestrial wildlife, water parameters and fish populations due to the relative absence of birds during winter and the passive nature of artificial snow application.	VANOC no date; Snow Engineering 2004	Good
123	Snowmaking and application is expected to have a <b>Low</b> effect on existing vegetation and sensitive sites. The application of snow will be short-term in duration and recovery with a low magnitude. Effects to the atmospheric environment and cultural are also considered <b>Low</b> . Noise from this activity is addressed in record #119.	VANOC no date; Snow Engineering 2004	Good
124	Discharge of snowmelt/stormwater run-off has the potential to <b>Moderately</b> affect water parameters and fish populations due to the potential for higher than normal volume flows in the spring and the increased risk of sediment inputs into watercourses. Mitigation and best management practices should be explored in the significance screening.	BCMWLAP 2004a; Chillibeck <i>et al.</i> 1992	Good
125	Discharge of snowmelt/stormwater run-off should have <b>No</b> effect on birds and terrestrial wildlife because the lack of interaction between snowmelt and wildlife.		Good





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126	Discharge of snowmelt/stormwater run-off is expected to have a <b>Low</b> effect on existing vegetation and sensitive habitats. Increase in moisture levels in soils due to snowmelt will be short-term in duration with a low magnitude.	VANOC no date; ENKON 2002a	Good
127	Discharge of snowmelt/stormwater run-off will have <b>No</b> effect to recreation access and Park use, air quality, noise and viewshed or on the cultural environment. The disturbance to the creek caused by increased spring flows and the winter redirection of the creek would not affect access or Park use. However, Cypress Creek must be adequately protected against erosion to ensure that Park user can continue to enjoy the natural condition of the creek.	VANOC no date; ENKON 2002a	Good
128	Pumping water from of Cypress Creek for snowmaking has the potential to <b>Moderately</b> affect water quality, water quantity and fish populations (and tailed-frog) due to the removal of water from Cypress Creek and the potential disturbance to the creek substrate. Mitigation and best management practices should be explored in the significance screening.	ENKON 2002b; Coast River 1997	Good
129	Pumping water from Cypress Creek for snowmaking should have a <b>Low</b> effect on birds and terrestrial wildlife, sensitive sites and vegetation, due to the absence of any winter interaction between Cypress Creek and these Values.	ENKON 2002b; Coast River 1997	Good
130	The noise from snowmaking pumps would have <b>No</b> effect on water quality or quantity, fish populations or sensitive habitat and vegetation.	ENKON 2002b, Coast River 1997	Good
131	The noise from pumps may have a <b>Low</b> level of effect upon birds and terrestrial wildlife due to sensory disturbance to active winter-resident birds and mammals. Effects are expected to be short-term and localized.	VANOC no date; Snow Engineering 2004	Good
132	The operating noise from the pumps will be minimal because the low-noise pumps will be chosen and they will be appropriately sound-proofed and will operate only during the winter season when ambient noise is already a factor. Based on information from Snow Mountain Engineering, noise disturbance is expected to have a <b>Low</b> effect and a short-term recovery period for recreation use and access	Snow Engineering 2004	Good
133	Pumps will be electric therefore there should be no effects to air quality. This activity should not affect the viewshed.		
	<b>Decommissioning and Legacy</b>		
134	Decommissioning temporary facilities is predicted to have a <b>Low</b> effect on water parameters and fish resources due to the short-term recovery period and low magnitude of sediment input from decommissioning activities. A low level of temporary sensory disturbance to avifauna and terrestrial wildlife is expected. These Values will likely require a short recovery period for populations to return to normal ( <i>i.e.</i> , pre-Games construction).	VANOC no date; VANOC 2005	Good
135	Decommissioning temporary facilities will have <b>No</b> effect on vegetation, sensitive sites and archaeological sites.		Good





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136	Decommissioning of temporary facilities and rehabilitation of footprints is expected to have a Low effect on recreation access and Park use. Access will be impeded, due to safety considerations, for a relatively short period of time after the closure of the Games. However, Park use and access would recover to pre-Olympic Games use in less than one-year after decommissioning has been completed.	VANOC no date; VANOC 2005	Good
137	Decommissioning temporary facilities will take place over a few weeks in the spring of 2010. Equipment used will be of a similar nature to those used for the construction. Activities will be short term in duration and any effects should be reversible. Effects are considered <b>Low</b> .		
138	Rehabilitating temporary venue footprints would have a <b>Low</b> effect on water parameters due to the addition of topsoil for native planting. These will require mitigation to prevent sediment inputs as per the EMP and would recover within 1 year. Because creeks in the Assessment Area are non-fish bearing, <b>No</b> effect to fish populations has been identified. There should be <b>No</b> effects to air quality and noise.		Good
139	Rehabilitating temporary venue footprints is predicted to have a Low effect, because of sensory disturbance and short recovery period, on birds and terrestrial wildlife. Once re-vegetation is in place there will be a net gain of habitat.		Good
140	Rehabilitating temporary venue footprints is expected to have a <b>Moderate</b> positive effect on vegetation, sensitive site and viewshed. These areas will be permanently re-vegetated with appropriate native plants enhancing soil stability, water filtration, and helping to retain water within the soil.		Good
141	The maintenance of permanent CV legacy facilities would be similar to existing maintenance activities executed within the Controlled Recreation Area (CRA). Maintenance of facilities is predicted to have a <b>Low</b> effect on water parameters, birds, terrestrial wildlife and fish resources due to the low risk of sediment or toxic input from maintenance activities and the low level of temporary sensory, seasonal disturbance to birds and terrestrial wildlife. If affected, these Values would recover within one year.		Good
142	The maintenance of permanent CM legacy facilities would be similar to existing maintenance activities executed within the Controlled Recreation Area (CRA). Maintenance of facilities is predicted to have <b>No</b> effect on sensitive sites and vegetation.		Good
143	The maintenance of permanent CM legacy facilities would be similar to existing maintenance activities executed within the Controlled Recreation Area (CRA). In addition, these activities would only take place within the CRA and would thus not affect the rest of the Park and would have short-term recover for users and access to the CRA. . Thus, these activities are expected to have a <b>Low</b> effect.		Good
144	Vegetation maintenance is expected to have a Low effect provided that it be localized using small machines and hand-work. This activity would be temporary in nature.		





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145	Increased venue use post-Games could potentially have a <b>Moderate</b> effect on water and fish resources, birds and terrestrial wildlife, sensitive sites and vegetation because some of the venue features are permanent and increased human disturbance has the potential to 1) increase sediment input into watercourses and ponds from trail use and 2) increase sensory disturbance to birds and terrestrial wildlife during the four seasons and 3) increase disturbance to vegetation and sensitive sites if visitors venture off-trails. Mitigation and best management practices should be explored in the significance screening. Air quality and noise and the cultural environment may also be <b>Moderately</b> affected from and increase in vehicular and foot traffic associated with increase use of the venue facilities.	ENKON 2002a	Good
146	Due to the long-term nature of the permanent venue facilities, effects to recreation access and Park use are rated as <b>Moderate</b> . It can be expected that the Park would be used more frequently and by more users after the Games. In addition, the CRA recently began offering mountain bike access during the summer season thus; CRA is now a four-season facility. The increased venue legacy use has a positive and negative result in that the Park is used more often, likely by more people, which can negatively affect the natural experience of users and affect the physical quality of the Park (e.g., erosion on trails).	ENKON 2002a; CBRL 2005	Good
147	Continued use of snowmaking equipment could potentially have a <b>Moderate</b> effect on water quality and quantity, associated downstream fish populations, vegetation and sensitive sites. Mitigation and best management practices should be explored in the significance screening.	ENKON 2002a	Good
148	Continued use of snowmaking equipment would have a <b>Low</b> effect upon birds and terrestrial wildlife because it would affect only winter-resident birds and mammals and would be passive in nature and localized to cleared skiing runs only.	ENKON 2002a	Good
149	Effects from snowmaking on recreation would have a <b>Moderate</b> effect on recreation use and access because it would allow the CRA to operate during mild winters and for a longer winter season, which would positively affect park access and use. This may also allow elite athletes to train at CM thereby enhancing their Park experience and perhaps the public's Park experience.		Good
<b>Significance Matrix</b>			
<b>Construction - Ancillary and General</b>			
150	Impedance to recreation and park access due to Baden-Powell clearing is rated as <b>Moderate</b> significance. A percentage of the user groups would still be dissatisfied with the disruption to trail access. There will likely be a safety-required closure of the trail and venue footprint during clearing activities. Mitigation to the satisfaction of user groups would require action by BC Parks and cooperation by user groups.	VANOC no date; User Groups 2005	Good
151	Clearing for the Baden-Powell trail is rate as having <b>Moderate</b> significance to the natural experience of recreation users, due in part to alteration of a historically significant hiking trail. Mitigation and compensation measures were proposed by the various user groups. With the implementation of BC Parks mitigation measures this effect could be down-rated to Low.	User Groups 2005	Fair





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152	The significance of the effect of disturbance to birds and terrestrial wildlife is expected to be <b>Low</b> due to the short term nature of vegetation clearing and the minimal amount of clearing necessary for the trail and CM facilities. Sensory disturbance from clearing would be spatially limited to the trail alignment and facility areas, therefore only a small portion of the wildlife populations within CPP would be affected. Local populations should recover in a relatively short time period and if birds and wildlife are displaced it would be temporary. To help minimize direct and indirect effects to birds, and avoid contravening the <i>Wildlife Act</i> , vegetation clearing should be conducted prior to April 1 or after July 31, if possible; a nest survey should be conducted within the tree clearing boundary immediately prior to clearing to protect active nests; wildlife trees should be retained where possible. To provide additional terrestrial wildlife habitat, large woody debris features should be left on the forest floor and at the edge of ski runs, if doing so does not pose a fire or safety hazard.	ENKON 2002a	Good
153	Human sensory disturbance from trail clearing is rated to have <b>Low</b> significance because although there will be a disturbance, most users, during venue and trail clearing can use other areas of the park or nearby parks for recreation. This effect may in fact be irrelevant because the CM footprint may be closed to the public during all clearing activities.	VANOC 2005	Good
154	Habitat loss from clearing will result in the loss of forest that has been affected by the edge effect. This significance of this effect is considered <b>Low</b> because only a small portion of forest is earmarked for trail clearing, and bird and terrestrial wildlife populations that may use the area will quickly recover. There is a low rated risk of physically harming a small percentage of nesting birds from the Park therefore clearing should be conducted prior to April 1 or after July 31, a nest survey should be conducted by an R.P.Bio. within the tree clearing boundary immediately prior to clearing to protect active nests and wildlife trees should be retained where possible. Clearing areas should be minimised, disturbed areas should be utilised where possible, wildlife trees should be retain where safe to do so, and large woody debris should be placed on the forest floor to proved habitat for small mammals, if permitted.	ENKON 2002a	Good
155	The significance of the disruption of natural drainage patterns and disruption of soil is rated as <b>Low</b> for on pond ecosystems, and water quality, found along the proposed trail. Only a small (<1%) portion of the ecosystem may be affected. The majority of the preferred proposed Baden-Powell trail alignment is along an existing un-maintained trail, thus drainage patterns will not be greatly affected. In fact, there is the potential to improve the existing drainage pattern.  The new trail alignment should avoid sensitive areas such as springs, ponds, and sensitive plants and should be designed and constructed with appropriately sized culverts to maintain natural drainage patterns into the forest floor. The effective implementation of Best Management Practices to minimize sediment input into the local ponds should control effects to water quality.	VANOC no date	Fair





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156	Habitat loss from clearing will result in the loss of primarily second-growth forest that is used by birds and terrestrial wildlife. The significance of this effect is considered <b>Low</b> because only a small portion of forest is earmarked for trail clearing. In addition, mitigation could take the form of retaining wildlife trees where possible and placing large woody debris features to enhance mammal habitat.		Good
157	The significance of the disruption of natural drainage patterns are considered <b>Low</b> for water quality and quantity and relatively sensitive ponds. Only a small area of forest may require tree clearing, the majority of the preferred proposed Baden-Powell trail alignment is along an existing un-maintained trail, and thus drainage patterns will not be greatly affected. Fish populations will not be affected because the nearest confirmed fish population is outside the Assessment Area. The effective implementation of the Environmental Management Plan to minimize sediment input into local watercourses and wetlands should control effects to water quality and quantity. In addition the new trail will be aligned to avoid sensitive areas such as springs, ponds, and sensitive plants and will be designed and constructed with appropriately sized culverts to maintain natural drainage patterns into the forest floor.	ENKON 2002a and b; Coast River 1997; BCMWLAP 2004a and b; Chillibeck <i>et al.</i> 1992	Good
158	The risk of a forest fire will be minimal, assuming that necessary precautions are taken, so the significance of this effect is considered <b>Low</b> . Water used for combating forest fires would not significantly affect the quality or quantity of water in Montizambert and Cypress Creek. Most, if not all of the water used in combating fires would be absorbed into the dry soil, only a very small amount may find its way to watercourses. Sediment and erosion control measures would help to protect watercourses. Water quantity may be positively affected because summer low-flowing creeks may benefit from the addition of off-site water used in fighting fires. However, it is preferable to utilise the reservoir as a source of fire fighting water. Downstream fish would not be affected because water quality would be normal at fish-bearing sections of Cypress Creek. Recreational users would not be affected by forest fires because public use of CM would already be restricted.	VANOC 2005	Good
159	The effects from the risk of forest fire is considered to have a <b>High</b> significance on vegetation/sensitive sites. Although only a small area of forest will require clearing, a forest fire could have a much greater effect on the forest habitat. Mitigation measures will be in place to prevent forest fires. During construction all full-time contract personnel should have S-100 training and all contracting companies should have fire fighting equipment on-site. The secondary function of the snow making reservoir should be for fire fighting capabilities. During construction seasons of moderate or high forest fire risk, a fire warden should be regularly on site, and CM should be monitored 24-hours a day during summer season. Construction of CM during forest fire season will likely be at the discretion of BC Parks, BC Forest and the CRA. In addition, during the clearing and grubbing phase, on-site, open burning should be avoided when possible.		Good





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160	The significance of forest fragmentation from vegetation clearing is considered to be <b>Low</b> for birds and terrestrial wildlife. Although the clearing is permanent in nature; birds and terrestrial wildlife will recover from the clearing activities and loss of habitat very quickly due to the limited area to be cleared. The majority of the proposed trail alignment is along an existing un-maintained trail. Mitigation will entail minimising the clearing area by using existing trails/clearings where possible, avoiding or minimising the number of old-growth trees to be cleared, feathering the forest edge where possible, retaining wildlife trees if feasible, re-planting and roping-off sections of the existing trail that will be routed around, and ensuring that there are secure forested linkages for bird and mammal movement.	VANOC 2005; CBRL 2005	Good
<b>Construction - Freestyle and Snowboard Venue</b>			
161	Recreation and park access from CM due to freestyle and snowboarding venue clearing would likely be completely restricted in order to minimise risks to public safety and to prevent malicious acts. The significance of this effect is considered <b>Moderate</b> because a percentage of the user groups would still be dissatisfied with the disruption to trail access even after mitigation is completed. Recreation and park access outside of the Assessment Area will likely not be greatly affected because the assumption has been made that Cypress Provincial Park access to areas that are not adjacent to the Assessment Area will not be affected. Mitigation would require leadership from BC Parks.	User Groups 2005	Fair
162	The significance of the disruption of natural drainage patterns is considered to be <b>Low</b> for water quality and quantity and relatively sensitive ponds. Only a small area of forest from the CRA will require tree clearing for the freestyle and snowboard venues thus drainage patterns will not be greatly affected. Fish populations will not be affected because the nearest confirmed fish population is outside the Assessment Area. The effective implementation of the EMP to minimize sediment input into local watercourses and wetlands should control effects to water quality and quantity.	ENKON 2002a and b; Coast River 1997; VANOC no date	Good
163	Habitat loss from the freestyle and snowboarding venue vegetation clearing will result in the loss of mostly second-growth and possibly a few mature-veteran trees that are used by avifauna for nesting and foraging. There may be a loss of veteran conifers that contribute to the avian community. It is difficult to estimate how many birds use the habitat at the freestyle and snowboarding venue for nesting and foraging but based on the small footprint of this facility relative to the habitat area provided by the CRA and CPP, an estimate that <1% of the resident bird population use the freestyle venue is not unreasonable. The significance of these effects is considered <b>Low</b> . To minimize the risk to nesting birds clearing should be conducted prior to April 1 or after July 31. Due to scheduling requirements, if this cannot be adhered to, a nest survey should be conducted by an R.P.Bio. within the tree clearing boundary immediately prior to clearing to protect active nests; wildlife trees should be retained where possible. Wildlife trees should be retained where possible.	ENKON 2002a; VANOC no date	Good





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164	<p>Clearing for the freestyle and snowboarding venue will result in the loss of terrestrial wildlife habitat but given the amount of habitat that will remain untouched within the Assessment Area and the CPP; this disturbance is considered to be of <b>Low</b> significance after the implementation of mitigation or compensation.</p> <p>Potential mitigation or compensation specific for mammals are: 1) minimise the amount of clearing necessary; 2) feather the forest edges to soften the fragmentation effect; and place large woody debris features on the forest floor or at forest edges (if permitted to do so by BC Parks, BC Forests, and the CRA).</p>	ENKON 2002a	Good
165	<p>Habitat loss from the freestyle and snowboarding venue vegetation clearing will result in the loss of mostly second-growth and possibly a few mature-veteran trees, plus a small portion of old-growth forest. There may be a loss of isolated veteran conifers; however, it may be possible during design to avoid the loss of all or some of these trees. Based on the small area occupied by these facilities, relative to the habitat area provided by the CRA and CPP, it is estimated that &lt;1% of these habitats will be affected by the freestyle and snowboarding venue. Therefore the significance of this effect is considered to be <b>Low</b>. Mitigation would involve minimising the clearing area, avoid old-growth losses, retain habitat linkages, and retain wildlife trees. During revegetation, local-stocks of native plants, especially native wildflowers should be used.</p>	ENKON 2002a	Good
166	<p>Since forest fragmentation due to vegetation clearing, is occurring in an already fragmented habitat, the significance of this effect is considered to be <b>Low</b> on avifauna and terrestrial wildlife. Furthermore, due to the small, minimised footprint of the freestyle and snowboarding venues; avifauna and terrestrial wildlife will recover from the clearing activities and loss of habitat very quick due to the limited area to be cleared.</p> <p>Mitigation will entail minimising the clearing area and the number of old-growth trees to be cleared, feathering the forest edge where possible to avoid abrupt habitat changes, placing large woody debris at forest edges if feasible, retaining wildlife trees if feasible, ensuring that there are forested linkages or patches for bird and terrestrial wildlife movement. Mitigation would also be by way of native species re-planting and roping-off of previously disturbed areas to allow these areas to naturally regenerate.</p>	BCMWLAP 2004a; ENKON 2002a	Good
167	<p>There should be an increase in berry producing shrubs due to clearing of trees for the freestyle and snowboard venues; this will benefit berry-eating birds and mammals during the summer months. The significance of this effect is considered to be positive.</p>		
168	<p>The significance of the loss of old-growth trees is considered to be <b>Low</b> for avifauna based on the fact that only a small portion of the bird population would be affected because very few, if any old-growth trees would be removed and there are no relatively large contiguous old forest stands in the venue areas. In addition, only a few bird species (e.g., Northern Goshawk, Northern Spotted-owl) are dependent on old-growth stands and these species are not expected to occur in areas of disturbance.</p> <p>Recommended mitigation measures to compensate for the loss of cavity nesting sites normally found in veteran trees would be to retain wildlife trees that do not pose a safety hazard.</p>	ENKON 2002a; BCMWLAP 2004a; MCA 2003	Good





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169	The significance of the loss of old-growth trees, which would be considered a sensitive area due to public concern, is considered <b>Low</b> because through mitigation measures and design modifications it is possible that no old-growth trees would be lost at the freestyle venue. For the snowboarding venue the area of old-growth to be lost is of low value given the current effects from being located next to an open area (i.e., edge effect). If veteran trees must be removed the number affected will be minimise. For veteran trees that must be removed, VANOC could consider donating these trees to local First Nations carvers.	ENKON 2002a; VANOC no date; VANOC 2005; Jacques Whitford Baseline Surveys 2005	Good Detailed design is required to determine extent of old-growth loss
170	The removal of old-growth trees has been initially expected to be of <b>High</b> significance due to the fact that several user groups have voiced opposition to loss of old-growth trees. However, detailed venue design will attempt to avoid old-growth trees. If the loss of isolate old-growth trees cannot be avoided through design changes, mitigation measure described below may reduce opposition to the residual loss of old-growth trees and reduce the significance to <b>Low</b> .  Mitigation options would begin with freestyle and snowboard venue designs modifications to avoid the loss of old-growth trees; however, if removal cannot be avoided the number of trees to be removed will be minimised by design changes. For veteran trees that must be removed, VANOC could consider donating these trees to local First Nations carvers.	User Groups 2005	Good Detailed design is required to determine extent of old-growth loss
171	The significance of the disruption of natural drainage patterns is considered to be <b>Low</b> on water quality and quantity after the implementation of sediment and erosion control measures. With mitigation water parameters would return to normal within one year after construction. Only a relatively small area of mostly second-growth forest and shrub will be cleared. Fish populations will not be affected because the nearest confirmed fish population is outside the Assessment Area. The effective implementation of the EMP to minimize sediment input into local watercourses and wetlands should control effects to water quality and quantity. Earth works should be completed during dry-periods, and qualified environmental monitors will have the ability to stop work if required	ENKON 2002a; BCMWLAP 2004a and b; Chillibeck <i>et al.</i> 1992	Good
<b>Construction – Snowmaking</b>			





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172	<p>There is a risk of increased suspended sediment input into Montizambert and Cypress Creeks from land clearing and excavation for the snowmaking reservoir and the installation of the creek pump-house. The significance of this effect is considered <b>High</b> before mitigation because sediment and/or contaminant inputs into the creeks will affect downstream water quality conditions. The actual effect on water quality is unknown at this time because final detailed designs have not been confirmed.</p> <p>Effective sediment and erosion control will partially mitigate for effects on water quality by preventing or minimising sediment input into watercourses. In addition, through design modifications, riparian areas can be avoided and buffered from construction work where possible. Any in-stream works will follow DFO guidelines (e.g., during low-flows, stream diversions, during in-stream window). Water quality would return to normal within one year of reservoir construction and creek-pump installation. The implementation of the above mitigation and designs considerations could the significance is expected to be reduced to <b>Low</b>.</p>	<p>BCMWLAP 2004b; Chillibeck <i>et al.</i> 1992; BCMOE 1997</p>	<p>Unknown Detailed design is required, potential sediment input is dependent on the proximity to Montizambert Creek</p>
173	<p>Due to potentially poor water quality from land clearing and excavation for the snowmaking reservoir and the installation of the creek pump-house benthic invertebrate production may decrease due to an increase in fine materials settling on the creek bed, which would affect food and nutrient level for downstream fish. Dilution of turbid water and settling out of sediment would tend to minimize any downstream effects of turbidity on fish-bearing sections of Cypress Creek.</p> <p>The significance of these effects on fish populations are considered to be <b>Low</b> because sections of creeks that may be affected by construction are non-fish-bearing and fish populations are a significant distance downstream.</p> <p>The sediment and erosion control plan will decrease the risk of affecting benthic invertebrates and downstream fish and should be implemented to ensure that the <i>Fisheries Act</i> is not violated. In addition, a sediment and erosion control plan will ensure that local Coastal-tailed frog populations are not adversely affected.</p>	<p>ENKON 2002b Coast River 1997; BCMWLAP 2004b; Chillibeck <i>et al.</i> 1992; BCMOE 1997</p>	Good
174	<p>Habitat loss from the reservoir site clearing and excavation will result in the loss of avian habitat that is of low suitability. The reservoir site is an abandoned gravel quarry pit where early succession shrubs and plants are becoming established. Based on the small footprint of the reservoir and the disturbed nature of the site we estimate that &lt;1% of the resident bird population will be affected and there is ample habitat in surrounding areas. The significance of this effect is considered <b>Low</b>.</p> <p>A small percentage of nesting bird population may be effected therefore clearing should be conducted prior to April 1 or after July 31; a nest survey should be conducted by an R.P.Bio. within the tree clearing boundary immediately prior to clearing to protect active nests if clearing must occur within the breeding bird window. During revegetation, native plants will be used, including native wildflowers.</p>	<p>ENKON 2002a; BCMWLAP 2004a; MCA 2003</p>	Good





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175	The significance of habitat loss from the reservoir site clearing and excavation is considered to be <b>Low</b> on the species present. Although the reservoir site is an abandoned gravel pit where early succession shrubs and plants are becoming established, it has formed a somewhat unique, wetland habitat. The Vancouver Natural History Society has suggested that locally, unique plant have established themselves at the gravel quarry but these species are not rare; they are unique because they are not normally seen in sub-alpine areas, but are common at lower elevations. Measures will be taken to reduce the clear as small an area as possible to ensure the survival of unique vegetation. During revegetation, native plants will be used, including native wildflowers.	User Groups 2005	Good
176	The significance of the disturbance of the creek bed of Cypress Creek from the installation of the creek pump-house is considered to be <b>High</b> on water quality and downstream fish populations (and Coastal-tailed frog) prior to mitigation by increasing the sediment load and changing the natural bed load dynamics. However, with careful, design of the creek pump-house and with the implementation of the sediment and erosion control plan in the EMP this significance can be reduced to <b>Low</b> . In addition, the pumps will only be operated during snowmaking times. During dormant snowmaking periods the creek pump-house sump should be completely covered if possible so that water can bypass the sump and flow naturally in the stream channel.	BCMWLAP 2004b; Chillibeck <i>et al.</i> 1992; BCMOC 1997	Good
177	The installation of grizzly bars over the creek pump-house sump could pose as a source of direct mortality to small mammals and amphibians (negligible risk to birds) if small animals become entrapped in the water sump due to the grizzly bars. Less than one percent of the small mammal/amphibian population would be potentially affected; therefore the significance of this effect would be <b>Low</b> . The grizzly bars may also disrupt natural debris flow and bed load dynamics if sediment becomes trapped in the sump. By ensuring that sediment properly exits the bottom of the sump via an opening in the sump floor, bed load dynamics should not be significantly affected. To avoid small mammal and amphibian mortality the grizzly bar should prevent the entrapment of small animals.		Good
178	Depending on the final location of the creek pump-house there may be a loss of riparian habitat which may affect water quality by reducing the amount of shade and increasing the temperature during hot weather, this is not significant enough to effect downstream fish populations or water quantity. Detailed designed of the creek pump-house has not been completed, thus the loss of riparian habitat is <b>Unknown</b> – a small area of riparian shrubs may be effected, or if the creek pump-house is located in a disturbed area it is likely that no bank vegetation will be affected.  To avoid affecting water quality the pump-house should be sited at a disturbed area so that riparian habitat is not affected. If the pump-house is located in a disturbed ( <i>i.e.</i> , cleared) riparian area, there will be no effect to riparian habitat. If riparian habitat disruption cannot be avoided, discussions with DFO and MOE would be required and a compensation plan would need to be developed.	ENKON 2002a	Unknown Detailed design is required





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
179	Loss of riparian habitat and effect on birds due to loss of habitat can be avoided if the pump-house is sited at a previously disturbed area, but because the location has not yet been determined in detailed design the significance of the loss of riparian vegetation is <b>Unknown</b> . The relative portion of riparian habitat that might be used by birds is minimal and bird populations would recover from the disturbance in less than one year and similar habitat in the area would be left undisturbed at any one time for avian use. To ensure minimal disturbance to avifauna, clearing of riparian habitat and other habitats should occur before April 1 or after July 31. If riparian habitat is lost, the effect to avifauna would be limited due to a small area and the ability to recover in less than one year.	ENKON 2002a	Unknown Detailed design is required
180	There is the potential to lose unique dragonfly habitat at the proposed snowmaking reservoir, but this specific area can be avoided through design resulting in little effect to breeding dragonflies and their habitat. Provided that the dragonfly habitat and local drainage are not affected the breeding potential of the site would be maintained. This effect would require re-evaluation if the dragonfly nesting area simply cannot be avoided during construction of the reservoir.  This reservoir site is proposed at a disturbed, abandoned gravel quarry pit thus it would not affect intact habitats. However, several common plant species have established themselves at this locale; they are common for the region but unique for sub-alpine areas. Some recreational user may visit the gravel pit to view these locally, unique plant species.  The significance of this effect is considered <b>Low</b> because with a native species re-planting plan during decommissioning most people would tend to accept the loss of the quarry's vegetation community.	User Groups 2005	Fair Detailed design is required at the reservoir site to evaluate impact to dragonfly habitat
181	There is the potential to lose unique dragonfly breeding habitat at the proposed snowmaking reservoir, if a change in drainage occurred. This effect would require re-evaluation if the dragonfly breeding area simply cannot be avoided during construction of the reservoir. This reservoir site is proposed at a disturbed, abandoned gravel quarry pit thus it would not affect intact habitats. However, several common plant species have established themselves at this locale; they are common for the region but unique for sub-alpine areas. Some recreational user may visit the gravel pit to view these locally, unique plant species.  The significance of this effect is considered <b>Low</b> because with a native species re-planting during decommissioning and the implementation of migration measures such as minimising the footprint and utilising a disturbed site. Other mitigation measure would require the leadership of BC Parks.	User Groups 2005	Detailed design is required at the reservoir site to evaluate impact to dragonfly habitat
182	The significance of the change in micro-climate/ drainage patterns is considered to be <b>Low</b> on vegetation because it is estimated that <1% of vegetation will be affected.		Good
<b>Operation - Ancillary and General</b>			





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
183	<p>Increase sensory disturbance to nocturnal mammals, owls and winter resident birds from outdoor lights during the Games could disrupt the natural hunting patterns of nocturnal animals and the resting period of winter resident passerine birds and mammals. The significance of this effect is considered <b>Low</b>, for the following reasons: this is an incremental increase in existing outdoor lights, it will occur only during the Games operations, only winter resident birds and mammals will be affected, and only forest habitat adjacent to light standards would be affected (although there will be some residual light in edge habitat). Interior forests would remain relatively free of artificial light.</p> <p>Mitigation, such as limiting the use of outdoor lights during the Games and switching off the majority of CM facility outdoor lights when the facility does not have winter users or immediately after the completion of regular nightly grooming (if feasible and safe). Limiting the use of lights will also have considerable power savings.</p>		Good
184	<p>The extent of disturbance to songbird migration due to outdoor lights during the Games is considered to be <b>Not</b> significant because songbirds do not migration during the winter months.</p>		Good
<b>Operation - Snowmaking</b>			
185	<p>Increased snowmelt discharge and stormwater run-off due to snowmaking would to reduce the likelihood of a low snow year and associated low snowmelt runoff. It would have a minimal effect on an average to above-average snowfall year. The intent of snowmaking is to ensure a snowbase of 100 cm to 140 cm for the 2010 Games. Based on a four-year average, the CRA has had an average of 171 cm snowbase during the February 5-21 period for the Games. If snowmaking is necessary for snowbase preparation for the Games, the increased snowbase from below average snowfall conditions may increase water quantity during an early summer low flow period which could improve water quality by moderating water quality parameters such as temperature, dissolved oxygen, pH, etc. The improved water quantity and quality conditions are considered to be significantly <b>High</b> because retaining water in the snowbase would benefit all creeks in the venue area. The improved water quality and quantity conditions would also benefit downstream fish populations by improving water quality parameters and prevent the death of fish fry during low flow by maintaining minimum summer flow.</p>	<p>Snow Engineering; 2004  VANOC no date;  McElhanney 2002</p>	Good





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
186	<p>The snowmaking regime may create higher peak flows during the freshet of 2010 which may slightly increase the potential for channel erosion in Cypress Creek and sediment input to the creek. However, the water volume from the snowmelt is not expected to be higher than an average or slightly above average year because the required snowbase for the Games can be achieved with an average February snowbase at CM, based on Environment Canada Weather data. To prepare for the Games the 1992-1999 average snowbase of 171 cm will be sufficient for competition snow conditions. If this is true, the spring snowmelt water volume would not be higher than an average spring and will certainly not be higher than the natural snowmelt during the 1999 high snowfall year. Based on this assumption, the snowmelt after the Games should not produce higher than average higher peak water flow, and cause erosion problems beyond the extent to which Cypress Creek is already subject, consequently the significance of this effect on water quality, quantity and fish resources is considered to be <b>Low</b>.</p> <p>This would require re-evaluation if Olympic Games snow production is significantly increased beyond an average snowfall for February (<i>i.e.</i>, more than 171 cm). By implementing the sediment and erosion control plan, minimising surface run-off and encouraging absorption of water underground the effect of the potential interaction could be mitigated for water parameters and downstream fish populations.</p>	<p>VANOC no date; ENKON 2002a; McElhanney 2002; BCMWLAP 2004a; Chillibeck <i>et al.</i> 1992</p>	Good
187	<p>There is an increased risk of transportation of deleterious substances. This increase in risk could significantly affect water quality. The significance of the effect of deleterious substances on water quality is considered to be <b>High</b> because deleterious substances that enter water courses would affect downstream water quality (<i>i.e.</i>, may affect &gt;10% of the water resource in the Assessment Area).</p> <p>Mitigation of the risk if deleterious substances entering streams is important and subject to Provincial and federal Regulations, including the <i>Fisheries Act</i>. By implementing the EMP the significance of toxic substances entering watercourse can be reduced to <b>Low</b>. Water quality affected by spill of contaminants likely to occur as a result of the project may be restored to meet Regulatory criteria within 1 year.</p>	<p>ENKON 2002a; Environment Canada 2005</p>	Good
188	<p>The significance of the effect on downstream fish populations and wetland vegetation from the transportation of deleterious substances is considered to be <b>Low</b> because less than 1% of downstream fish resources and wetlands are expected to be affected. Fish occurrence has only been recorded outside the Assessment Area and if deleterious substances were accidentally added to watercourses, downstream fish resources and wetlands would likely not be affected due to the dilution effect of water.</p> <p>The EMP will provide procedures to guide construction practices to minimize the risk that toxic substances may not enter watercourses (see previous Audit Record).</p>	<p>ENKON 2002a</p>	Good





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
189	The decrease in winter water volumes due to Olympic snow making activities will decrease the amount of water flowing in Cypress Creek during the winter Olympic season. However, winter flows are not critical for fish populations or vegetation. Summer low flow periods are generally a more important factor in fish survival. In addition, according to the preliminary Environmental Assessment a minimum of 30% of mean annual discharge must be maintained at all times. The mean annual discharge of Cypress Creek should remain relatively unchanged because water from Cypress Creek is being used for snowmaking and meltwater will be directed back into Cypress Creek. The minimum of 30% of mean annual discharge during water uptake periods will be maintained through a low flow release structure at the creek pump-house. By ensuring that minimum winter season flows are maintained the significance of this effect on water quantity can be considered <b>Low</b> , and <b>Not</b> significant to fish given that minimum winter flows are maintained and that Cypress Creek flow will be unobstructed during the summer, non-snowmaking months.	ENKON 2002a	Good
	<b>Decommissioning and Legacy</b>		
190	There will likely be an increase in sensory disturbance to birds and terrestrial wildlife due to increased public use of legacy facilities, which can lead to temporary abandonment of nests, resulting in nest predation and avoidance by terrestrial wildlife. The significance of this effect is considered to be <b>Low</b> because it is estimated that less than 1% of the resident bird and wildlife population of the Assessment Area, and the existing use of the CRA, is affected. Mitigation to control sensory disturbance to birds and wildlife would require the leadership of BC Parks, but some measures have been put forth by various user groups.	ENKON 2002a	Good
191	The significance of the effect of an increase in intra and interspecific competition in adjacent areas due to displacement out of the Assessment Area is considered to be <b>Low</b> . Much of the CRA habitat will be unaffected by the legacy configuration and the areas outside the CRA will remain unchanged. If animals are displaced to areas outside the CRA, less than 1% of bird and wildlife populations will likely be affected by increase competition in adjacent areas and most would adapt to the increased competition. Possible mitigation would require the leadership of BC Parks, but some measures have been put forth by various user groups.	ENKON 2002a	Good





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
192	<p>The significance of an increase in public summer use is considered to be <b>Low</b> on water quality, vegetation and birds and terrestrial wildlife, while downstream fish populations remain unaffected. It is likely that summer use would increase after the Games but would return to pre-Games conditions in less than 10 years. The increased use of hiking trails may affect water quality by eroding trails and causing sediment inputs into watercourses and wetlands that drain into watercourses, which may affect benthic invertebrate production and affect downstream fish populations to an insignificant level. Increased trail use may also disturb a small portion of (&lt;1%) nesting birds during the nesting period. However, more tolerant bird species tend to nest along forest edges, less tolerant species will concentrate in intact forest areas. Increased summer use may contribute to an increase off-trail traffic in forested areas (&lt;1%).</p> <p>Possible mitigation would require the leadership of BC Parks, but some measures have been put forth by various user groups.</p>	User Groups 2005	Good
193	<p>Increase in summer public use would affect Park use. Public access could indirectly be affected because more people will be aware of the Park's summer amenities due to the prominence of the 2010 Games, thereby making CPP more assessable. The public would visit CM and CPP due to the natural (<i>i.e.</i>, flora and fauna) and constructed (<i>e.g.</i>, hiking and biking trails) amenities. The significance of the increase in CPP access and use would have a <b>Moderate</b> ranking in a positive direction, but it is unknown if the predicted trend of increase use of CPP would last. The significance of the effect of increase summer use could also have a <b>Moderate</b> ranking in a negative direction because the increased use may negatively affect the natural experience of some CCP users. However, based on the positive effect of many of the NGO proposed measures this <b>Moderate</b> significance could be adjusted to <b>Low</b>. Possible mitigation would require the leadership of BC Parks, but some measures have been put forth by various user groups..</p>	User Groups 2005	Unknown
194	<p>Increased public winter use may affect water quality, downstream fish populations, mammals and over-wintering birds. The significance of this would be <b>Moderate</b> based on the permanence of the new winter recreational opportunities at the CRA due to the 2010 legacy. However, the effects on water, fish and wildlife would be of <b>Low</b> significance based on the presence of a snow and ice cover in winter that will prevent most sediment inputs into watercourses under normal circumstances and most birds will be absent from CPP during the winter. There is a risk of inputs of sand and salt to watercourses due to the sanding and/or salting of the access highway. However, this is an existing effect and is not expected to increase in duration, magnitude or extent during legacy operations.</p>	ENKON 2002a	Good





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
195	Increased winter use of CPP is expected to increase over several years and may perhaps decline to pre-Games levels at some time in the future. In light of this, the significance of the effect of the interaction of increased public use and recreational use/access is considered to be <b>Moderate</b> in both a positive and negative direction. The rating is M + because more winter users will likely visit and be able to take advantage of the winter amenities offered in CPP due to an increase level of public awareness due to the promotion of CM before and during the Games. This increased use will, simultaneously negatively affect some users natural experience of the Park and their experience of CM legacy facilities. Hence the M - ranking.	User Groups 2005	Unknown
196	The significance of an increase in sediment and erosion on trails due to increased public use is considered to be <b>Moderate</b> . Increased trail use may cause erosion, sediment inputs into watercourses and wetlands that drain into watercourses affecting downstream fish populations, and possible destruction of plants adjacent to the trail. Mitigation measures that would effectively improve water quality and positively affect fish populations involve improving drainage patterns on the Baden-Powell and Howe Sound Crest Trail, ensuring that trails are directed away from springs, wetlands and sensitive areas, and using native plants during the decommissioning work.  Implementing mitigation measures such as those suggested by user groups would require leadership of BC Parks, but if implemented may reduce the significance of the effect to <b>Low</b> .	ENKON 2002a; User Groups 2005	Good
<b>Cumulative Effects Screening Matrix (CESM)</b>			
197	It was beyond the scope of the environmental assessment to investigate effects from the installation and operation of the new Black Mountain chair lift because it is part of the ski resort's revised Master Plan. However, because clearing and lift construction, and operation will affect identified VCs it is included as part of the CESM. Lift construction will likely parallel CM clearing and construction, with the lift base being located less than a kilometre away from the freestyle venue.		
198	There will be no sensory disturbances to water quality, water quantity, fish resources, sensitive sites, air quality and viewshed.		Good
199	The likelihood of cumulative effects exists from clearing, construction and operation of other activities because of potential sediment inputs into Cypress Creek. However, sediment input potential should only be a risk factor during land clearing activities and this can be avoided by ensuring that contractors have implemented an erosion and sediment control plan and use best management practices. A qualified environmental monitor should also be on site to regularly monitor sediment and erosion issues and provide full-time monitoring during in-stream works (if they are necessary). Sediment transport is not expected to cumulatively affect downstream fish populations because the sediment and erosion control plan will limit sediment inputs and the natural dilution of turbid water will ensure acceptable water quality conditions for fish-bearing creek sections.  <b>No</b> cumulative effect is expected on water quantity, fish resources, avifauna, terrestrial wildlife, sensitive sites, recreation, noise and viewshed.		





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
200	Loss and fragmentation should have <b>No</b> cumulative effects on water quality and quantity, fish, sensitive sites, recreation use and access, air quality, noise and viewshed.		Unknown
201	Viewshed degradation will have <b>No</b> cumulative effects on biological and physical-chemical VCs.		Good
202	Experiential degradation will have <b>No</b> cumulative effects on biological and physical-chemical VCs.		Good
203	There will be an incremental cumulative effect from sensory disturbance to avifauna from the construction and operation of the new facilities. This effect is expected to be <b>Moderate</b> because much of the Assessment Area and CPP will remain disturbance-free, leaving habitat available for bird nesting and foraging. To help minimize direct and indirect effects to birds, and avoid contravening the <i>Wildlife Act</i> , vegetation clearing should be conducted prior to April 1 or after July 31; or a nest survey should be conducted within the tree clearing boundary immediately prior to clearing to protect active nests and wildlife trees should be retained where possible. Operational effects to avifauna will be minimal during the winter months because most bird species are non-resident or migratory.	ENKON 2002a; MCA 2004	Good
204	There will be additional forest clearing for the new activities and this will be a source of cumulative effects upon avifauna, as will its operation. This cumulative effect is expected to be <b>Moderate</b> because it is expected to be only slightly detrimental as avifauna have the ability to seek out alternative habitat and the effect is mitigable once areas of CM have been decommissioned and replanted. In addition, effects from operation should be limited to the winter months. Mitigation will entail minimising the clearing area by using existing clearings where possible, minimising the number of old-growth trees to be cleared, feathering the forest edge where possible, retaining wildlife trees wherever feasible, re-planting identified previously disturbed area, and ensuring that there are forested linkages for bird movement.	ENKON 2002a	Good
205	There will be an incremental cumulative effect from sensory disturbance to terrestrial wildlife from the construction of the new facilities. This effect is expected to be <b>Moderate</b> because much of the Assessment Area and CPP will remain disturbance-free, leaving habitat available for terrestrial wildlife. The majority of operation should be limited to the winter season, thereby restricting affected species to only those that are known to be active or semi-active during the winter (e.g., subnivean species). To help minimize cumulative effects to mammals clearing areas should be minimised and large woody debris should be placed in enhancement areas, where safe to do so, to help improved small mammal habitat. In addition a BC Park initiative could be to line trails with educational signs describing the wildlife species resident in the CPP and explaining how park users can minimise their environmental footprint on the park.	ENKON 2002a; User Groups 2005	Good





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
206	Additional habitat loss and forest fragmentation from clearing and construction of the new facilities will result in a <b>Moderate</b> cumulative effect to terrestrial wildlife. Mitigation will entail minimising the clearing area by using existing clearings where possible, minimising the number of old-growth trees to be cleared, feathering the forest edge where possible, placing large woody debris features for mammals, retaining wildlife trees if feasible, and re-planting or reclaiming disturbed areas. Unrelated to habitat loss would be mitigation for mammals by way of replacing standard, existing garbage bins with bear-proof garbage bins.	ENKON 2002a	Good
207	Habitat loss and fragmentation from the construction of the new facilities will cause a <b>Moderate</b> cumulative effect upon vegetation. First, clearing should be minimised as much as possible. This may be achieved by using existing clearings where possible, minimising the number of old-growth and mature trees to be cleared, feathering the forest edge where possible, retaining wildlife trees if feasible, and re-planting or reclaiming disturbed areas. Clearing material, such as woody debris, blasted rock and topsoil, should be re-used on-site or within the CPP and adjacent areas as part of the compensation, enhancement and reclamation program.	ENKON 2002a	Good
208	There will be an incremental effect upon viewshed degradation from the installation and operation of the new facilities and the cumulative effect is expected to be <b>Moderate</b> . This is primarily due to the existing disturbed condition of Black Mountain due to current ski trails and facilities.		Good
209	Viewshed degradation from the installation and operation of the new facilities will have a <b>Moderate</b> cumulative effect on experiential degradation. This is primarily because some user groups utilise CM area as a starting point for hikes into more undisturbed areas of CPP. These users of CPP will be affected by the new activities because of the effect it will have upon their natural experience. The users of the ski facility portion of CPP do not use the area for the natural experience; therefore their experience of the area will not be negatively affected. These users will in fact be positively affected.	User Groups 2005	Good
210	Air quality is expected to be affected at a local scale by the Cypress Venue and other projects during construction activities, but should not contribute significantly to a reduction in the air quality of Cypress Provincial Park. Heavy equipment used in the activities such as blasting, clearing, grubbing, cut and fill operations and trenching will all generate emissions. Fugitive dust from these construction activities will also affect air quality by increasing airborne particulate matter. However, the extent of the effects depends on existing air quality and weather (humidity), size of affected area, and extent of dust-producing activities. Construction schedules with the Cypress Venue and the other activities proposed for Black Mountain will likely coincide. At the time of preparation of this report, the type, number and duration of heavy equipment operations for the other activities is unknown, but the effects are expected to be short-term, intermittent, and reversible in nature and only affect a local area. Therefore the cumulative effects to air quality are considered not significant.		





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Audit #	Assumptions, Evidence, Data, Rationale	Data Source	Reliability of Data*
211	Noise from the construction of the Cypress Venue has the potential to act cumulatively with noise from other construction activities during the two construction seasons that are planned. It is expected that the cumulative effect of noise will be slightly detrimental and is rated as <b>Moderate</b> . However, the construction seasons are relatively short (i.e., less than one year in total) with the majority of heavy equipment use planned for the first season. This effect would only affect a small proportion of the overall park users. Wildlife may be temporarily disturbed but there is extensive suitable habitat in the park for wildlife to use. Therefore, the cumulative effect of noise is considered not significant.		
212	The cumulative effect upon the viewshed degradation from the historic activities at the Cypress Mountain ski area and installation and operation of the new facilities, in conjunction with the Cypress Venue, is rated as being Moderate. These activities are occurring within the Controlled Recreation Area in the Intensive Recreation Zone of Cypress Provincial Park. They are also within the scope of both the Cypress Provincial Park Master Plan and the Controlled Recreation Area Master Plan. Aside from the Intensive Recreation Zone, there are portions of Special Feature and Natural Environment zones within the Cumulative Effects Assessment Area that offer access to undisturbed natural environment. Considering that the cumulative effects to the viewshed are restricted to the Controlled Recreation Area, these effects are considered not significant.		

### References

- Alexander Heritage Consulting. 2005. An Archaeological Overview Assessment of the Cypress Mountain Olympic and Paralympic Ski Venue, Cypress Provincial Park. Prepared for the Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games, Vancouver, BC. 23 pp/
- BCMOE (BC Ministry of Environment). 1998. *British Columbia Approved Water Quality Guidelines (Criteria) 1998 Edition*. Victoria, BC. Government of BC. Available from [http://wlapwww.gov.bc.ca/wat/wq/BCguidelines/approv\\_wq\\_guide/approved.html](http://wlapwww.gov.bc.ca/wat/wq/BCguidelines/approv_wq_guide/approved.html). Accessed November 3, 2005.
- BCMOE. 1997. *Access Near Aquatic Areas: A Guide to Sensitive, Planning Design and Management*. Victoria, BC. Government of BC. Available from [http://www.stewardshipcentre.bc.ca/sc\\_bc/stew\\_series/bc\\_stewseries.asp#access](http://www.stewardshipcentre.bc.ca/sc_bc/stew_series/bc_stewseries.asp#access). Accessed November 3, 2005.
- BCMWLAP (BC Ministry of Water, Land and Air Protection). 2004a *Environmental Best Management Practices for Urban and Rural Land Development in British Columbia*. Victoria, BC. Government of BC. Available from [http://wlapwww.gov.bc.ca/wld/documents/bmp/urban\\_ebmp/EBMP%20PDF%201.pdf](http://wlapwww.gov.bc.ca/wld/documents/bmp/urban_ebmp/EBMP%20PDF%201.pdf). Accessed November 3, 2005.
- BCMWLAP. 2004b. *Standards and Best Practices for Instream Works*. Victoria, BC. Government of BC. Available from <http://wlapwww.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf>. Accessed November 3, 2005.
- BC Parks. 1999. *BC Parks Impact Assessment Process Part 2 Users Guide*. Victoria, BC. Government of BC. Available from [http://wlapwww.gov.bc.ca/bcparks/conserves/impact/ia\\_proc/ia\\_guid.pdf](http://wlapwww.gov.bc.ca/bcparks/conserves/impact/ia_proc/ia_guid.pdf). Accessed November 3, 2005.
- CBRL. 2005. Cypress Bowl Recreation Ltd. Available from <http://www.cypressmountain.com>. Accessed November 8, 2005.





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- Chilibeck, B., G. Chislett and G. Norris (Editors.). 1992. Land Development Guidelines for the Protection of Aquatic Habitat. Department of Fisheries and Oceans Canada and BC Ministry of Environment, Lands and Parks. 128 pages.
- Coast River. 1997. Letter report to Paul Christie of Talisman Land Resource Consultants, Inc. From John Millar regarding the proposed culvert replacement on upper Cypress Creek. Prepared by Coast River Environmental Services Ltd. 12 pp.
- ENKON. 2002a. Preliminary Environmental Assessment of the Proposed 2010 Olympic Venues: Cypress Provincial Park. ENKON Environmental Ltd. Report prepared for the Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games.
- ENKON. 2002b. Fish and Fish Habitat Survey of Cypress Creek WSC: 900-073500. ENKON Environmental Ltd. Report prepared for the Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games.
- Environment Canada. 2005. Available from: <http://www.ec.gc.ca/nopp/roadsalt/cop/en/code.htm>. Accessed November 8, 2005.
- Jacques Whitford. 2005. Terms of Reference for Environmental Screening under CEAA: Cypress Mountain Venues.
- Longcore, T. and C. Rich. 2004. Ecological light pollution. *Frontiers in Ecology and the Environment*. 2(4): 191-198.
- McElhanney. 2002. Report for Preliminary Hydrological Assessment of the Proposed 2010 Olympic Venues: Cypress Provincial Park. Prepared by McElhanney Consulting Services Ltd. for 2010 Olympic Bid Corporation.
- MCA (Manning, Cooper and Associates). 2003. *DRAFT: Best Management Practices for the Maintenance of Raptors during Land Development in Urban/Rural Environments of Vancouver Island Region (Region 1) MWLAP Discussion Document*. Report prepared for BCMWLAP.
- Modern Apprentice. 2005. Available from <http://www.themodernapprentice.com/electrocution.htm>. Accessed November 8, 2005
- Snow Engineering (Snow Mountain Engineering Inc). 2004. *Cypress Mountain 2010 Olympic Sites Conceptual Snow Making Plan*. 15 pp + 6 drawings.
- VANOC. No date. 2010 Olympic Winter Games Cypress Provincial Park Freestyle Skiing and Snowboard Venue. Prepared by the Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games
- Wright, D.G. and G.E. Hopky. 1998. *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*. Can.Tech. Rep. Fish. Aquat. Sci. 2107. Available from [http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/guidelines-conseils/guides/explosguide/index\\_e.asp](http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/guidelines-conseils/guides/explosguide/index_e.asp). Accessed November 3, 2005.

### Personal Communications

- VANOC. 2005. Various communications with VANOC representatives.
- Cypress Provincial Park User Groups. 2005. Personal Communication with Backroads Outdoor, Federation of BC Mountain Clubs, Friends of Cypress Provincial Park, Hollyburn Heritage Society, Hollyburn Jackrabbit Ski Club, Hollyburn Ridge Association, North Shore Hiker and Sierra Club – Lower Mainland.
- CBRL. 2005. Cypress Bowl Recreation Ltd. Various Communication with CBRL.



# **APPENDIX B**

## **Vegetation Species Observed within the Assessment Area**



## Appendix B – Vegetation Species Observed within the Assessment Area

SNOWMAKING RESERVOIR				
Scientific Name	Common Name	Provincial Status	Srank	COSEWIC
<b>TREE LAYER</b>				
<i>Tsuga heterophylla</i>	western hemlock	Yellow	S5	
<i>Tsuga mertensiana</i>	mountain hemlock	Yellow	S5	
<i>Pseudotsuga menziesii</i>	Douglas-fir	Yellow	S5	
<i>Abies amabilis</i>	amabilis fir	Yellow	S5	
<i>Pinus monticola</i>	western white pine	Yellow	S4	
<i>Chamaecyparis nootkatensis</i>	yellow-cedar	Yellow	S5	
<i>Alnus rubra</i>	red alder	Yellow	S5	
<i>Populus balsamifera ssp. tricarpa</i>	black cottonwood	Yellow	S5	
<i>Betula papyrifera</i>	paper birch	Yellow	S5	
<b>SHRUB LAYER</b>				
<i>Gaultheria ovatifolia</i>	western tea-berry	Yellow	S4	
<i>Gaultheria humifusa</i>	alpine wintergreen	Yellow	S3S4	
<i>Vaccinium alaskaense</i>	Alaskan blueberry	Yellow	S5	
<i>Vaccinium membranaceum</i>	black huckleberry	Yellow	S5	
<i>Vaccinium uliginosum</i>	bog blueberry	Yellow	S5	
<i>Menziesia ferruginea</i>	false azalea	Yellow	S5	
<i>Elliottia pyroliflorus</i>	copperbush	Yellow	S5	
<i>Rhododendron albiflorum</i>	white rhododendron	Yellow	S5	
<i>Cassiope mertensiana</i>	white moss heather	Yellow	S5	
<i>Phyllodoce empetriformis</i>	pink mountain-heather	Yellow		
<i>Kalmia microphylla ssp. occidentalis</i>	western bog-laurel	Yellow	S4	
<i>Ledum groenlandicum</i>	Labrador tea	Yellow	S5	
<i>Linnaea borealis</i>	twinline	Yellow	S5	
<i>Sambucus racemosa var. arborescens</i>	red elderberry	Yellow	S5	
<i>Sorbus sitchensis</i>	Sitka mountain-ash	Yellow	S5	
<i>Rubus spectabilis</i>	salmonberry	Yellow	S5	
<i>Rubus parviflorus</i>	thimbleberry	Yellow	S5	
<i>Rubus pedatus</i>	five-leaved bramble	Yellow	S5	
<i>Spiraea douglassii ssp. douglassii</i>	hardhack	Yellow	S5	
<i>Spiraea splendens ssp. splendens</i>	subalpine spirea	Yellow	S3S4	
<i>Oplopanax horridus</i>	devil's club	Yellow	S5	
<i>Ribes lacustre</i>	black gooseberry	Yellow S5		
<i>Ribes bracteosum</i>	stink current	Yellow	S4	
<i>Salix sitchensis</i>	sitka willow	Yellow	S5	
<i>Alnus viridis ssp. sinuata</i>	Sitka alder	Yellow	S5	
<b>HERB LAYER</b>				
<i>Streptopus amplexifolius</i>	clasping twistedstalk	Yellow	S5	
<i>Streptopus roseus</i>	rosy twistedstalk	Yellow	S4	
<i>Streptopus streptopoides</i>	small twistedstalk	Yellow	S5	
<i>Trillium spp.</i>	trillium			



<i>Maianthemum dilatatum</i>	false lily-of-the-valley	Yellow	S5	
<i>Maianthemum stellatum</i>	star-flowered false Solomon's-seal	Yellow	S5	
<i>Tofieldia glutinosa</i>	sticky false asphodel			
<i>Clintonia uniflora</i>	queen's cup	Yellow	S5	
<i>Veratrum viride</i>	Indian hellebore	Yellow	S5	
<i>Corallorhiza maculate ssp. meretensiana</i>	western coralroot	Yellow	S5	
<i>Goodyera oblongifolia</i>	rattlesnake-plantain	Yellow	S5	
<i>Listera caurina</i>	northwestern twayblade	Yellow	S3S4	
<i>Listera convallarioides</i>	broad-leaved twayblade	Yellow	S3S4	
<i>Listera cordata</i>	heart-leaved twayblade	Yellow	S5	
<i>Platanthera aquilonis</i>	northern green rein orchid	Yellow	S5	
<i>Platanthera stricta</i>	slender rein orchid	Yellow	S5	
<i>Saxifraga ferruginea</i>	Alaska saxifrage	Yellow	S4	
<i>Leptarrhena pyrolifolia</i>	leatherleaf saxifrage	Yellow	S4	
<i>Mitella pentandra</i>	five-stamened mitrewort	Yellow	S4	
<i>Boykinia occidentalis</i>	coast boykinia	Yellow	S4	
<i>Tiarella trifoliata</i>	three-leaved foamflower	Yellow	S5	
<i>Caltha leptosepala</i>	white marsh-marigold	Yellow	S4	
<i>Ranunculus repens</i>	creeping buttercup	No status	SNA	
<i>Ranunculus acris</i>	meadow buttercup	No status	SNA	
<i>Parnassia fimbriata</i>	fringed grass-of-Parnassus	Yellow	S5	
<i>Coptis asplenifolia</i>	fern-leaved goldthread	Yellow	S5	
<i>Coptis trifolia</i>	three-leaved goldthread	Yellow	S4	
<i>Aruncus dioicus</i>	goatsbeard	Yellow	S5	
<i>Fragaria vesca</i>	woodland strawberry	Yellow	S5	
<i>Luetkea pectinata</i>	partridge-foot	Yellow	S5	
<i>Geum macrophyllum</i>	large-leaved avens	Yellow	S5	
<i>Vicia glabella</i>	tufted vetch	No status	SNA	
<i>Lupinus arcticus</i>	arctic lupine	Yellow	S5	
<i>Viola palustris</i>	marsh violet	Yellow	S5	
<i>Viola glabella</i>	stream violet	Yellow	S4	
<i>Viola sempervirens</i>	trailing yellow violet	Yellow	S4	
<i>Viola orbiculata</i>	round-leaved violet	Yellow	S4	
<i>Epilobium angustifolium</i>	fireweed	Yellow	S5	
<i>Epilobium latifolium</i>	broad-leaved willowherb	Yellow	S5	
<i>Epilobium ciliatum</i>	purple-leaved willowherb	Yellow	S5	
<i>Osmorhiza chilensis</i>	mountain sweet-cicely	Yellow	S5	
<i>Orthilia secunda</i>	one-sided wintergreen	Yellow	S5	
<i>Chimaphila menziesii</i>	Menzies' pipsissewa	Yellow	S3S4	
<i>Veronica beccabunga ssp. americana</i>	America brooklime	Yellow	S5	
<i>Mimulus guttatus</i>	yellow monkey-flower	Yellow	S5	
<i>Mimulus lewisii</i>	pink monkey-flower	Yellow	S4	
<i>Achillea millefolium</i>	yarrow	Yellow	S5	
<i>Erigeron peregrinus</i>	subalpine daisy	Yellow	S5	
<i>Aster foliaceus</i>	leafy aster	Yellow	S5	
<i>Solidago canadensis</i>	Canada goldenrod	Yellow	S5	



<i>Arnica latifolia</i>	mountain arnica	Yellow	S5	
<i>Senecio triangularis</i>	arrow-leaved groundsel	Yellow	S5	
<i>Anaphalis margaritacea</i>	pearly everlasting	Yellow	S5	
<i>Dicentra formosa</i>	Pacific bleeding heart	Yellow	S5	
<i>Hypericum anagalloides</i>	bog St. John's-wort	Yellow	S4	
<i>Cornus canadensis</i>	bunchberry	Yellow	S5	
<i>Trientalis europaea ssp. arctica</i>	northern starflower	Yellow	S4	
<i>Valeriana sitchensis</i>	sitla valerian	Yellow	S5	
<i>Fauria crista-galli</i>	deer-cabbage	Yellow	S5	
<i>Lysichiton americanus</i>	skunk cabbage	Yellow	S5	
<i>Menyanthes trifoliata</i>	buck bean	Yellow	S5	
<i>Nuphar lutea ssp. polysepala</i>	yellow pond-lily	Yellow	S5	
<i>Drosera rotundifolia</i>	round-leaved sundew	Yellow	S5	
<i>Pinguicula vulgaris</i>	common butterwort	Yellow	S4	
<i>Hypopitys monotropa</i>	pinemap	Yellow	S3S4	
<i>Carex nigricans</i>	black alpine sedge	Yellow	S5	
<i>Carex mertensii</i>	Merten's sedge	Yellow	S5	
<i>Carex spp.</i>				
<i>Trochophorum cespitosum</i>	tufted clubrush	Yellow	S5	
<i>Eriophorum angustifolium</i>	narrow-leaved cotton-grass	Yellow	S5	
<i>Eriophorum chamissonis</i>	Chamisso's cotton-grass	Yellow	S5	
<i>Juncus effusus</i>	common rush	Yellow	S5	
<i>Juncus ensifolius</i>	dagger-leaf rush	Yellow	S4	
<i>Juncus spp.</i>				
<i>Luzula parviflora</i>	small-flowered wood rush	Yellow	S5	
<i>Blechnum spicant</i>	deer fern	Yellow	S5	
<i>Polystichum munitum</i>	sword fern	Yellow	S5	
<i>Athyrium filix-femina</i>	lady fern	Yellow	S5	
<i>Gymnocarpium dryopteris</i>	oak fern	Yellow	S3S4	
<i>Botrychium multifidum</i>	leathery grape fern	Yellow	S4	
<i>Equisetum spp.</i>	horsetail			
<i>Lycopodium clavatum</i>	running club-moss	Yellow	S4	
<i>Diphasiastrum sitchense</i>	Alaska club-moss	Yellow	S5	
<b>MOSS LAYER</b>				
<i>Sphagnum spp.</i>	Sphagnum moss			
<b>FREESTYLE VENUE</b>				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Provincial Status</b>	<b>Srank</b>	<b>COSEWIC</b>
<b>TREE LAYER</b>				
<i>Tsuga mertensiana</i>	mountain hemlock	Yellow	S5	
<i>Abies amabilis</i>	amabilis fir	Yellow	S5	
<i>Abies lasiocarpa</i>	subalpine fir	Yellow	S5	
<i>Chamaecyparis nootkatensis</i>	yellow-cedar	Yellow	S5	
<b>SHRUB LAYER</b>				
<i>Vaccinium alaskaense</i>	Alaskan blueberry	Yellow	S5	
<i>Vaccinium membranaceum</i>	black huckleberry	Yellow	S5	
<i>Gaultheria shallon</i>	salal	Yellow	S5	
<i>Menziesia ferruginea</i>	false azalea	Yellow	S5	



<i>Sorbus sitchensis</i>	Sitka mountain-ash	Yellow	S5	
<i>Arctostaphylos uva-ursi</i>	kinnikinnick	Yellow	S5	
<i>Rubus spectabilis</i>	salmonberry	Yellow	S5	
<i>Rubus pedatus</i>	five-leaved bramble	Yellow	S5	
<b>HERB LAYER</b>				
<i>Streptopus amplexifolius</i>	clasping twistedstalk	Yellow	S5	
<i>Saxifraga ferruginea</i>	Alaska saxifrage	Yellow	S4	
<i>Arctostaphylos columbiana</i>	hairy manzanita	Yellow	S3S4	
<i>Clintonia uniflora</i>	queen's cup	Yellow	S5	
<i>Cornus canadensis</i>	bunchberry	Yellow	S5	
<i>Epilobium angustifolium</i>	fireweed	Yellow	S5	
<i>Anaphalis margaritacea</i>	pearly everlasting	Yellow	S5	
<i>Gaultheria humifusa</i>	alpine-wintergreen	Yellow	S3S4	
<i>Gaultheria ovatifolia</i>	western tea-berry	Yellow	S4	
<i>Salix</i> spp.				
<i>Carex mertensii</i>	Merten's sedge	Yellow	S5	
<i>Hierochloë alpina</i>	alpine sweetgrass	Yellow	S5	
<i>Juncus effusus</i>	common rush	Yellow	S5	
<i>Athyrium filix-femina</i>	lady fern	Yellow	S5	
<i>Blechnum spicant</i>	deer fern	Yellow	S5	
<i>Gymnocarpium dryopteris</i>	oak fern	Yellow	S3S4	
<i>Polystichum munitum</i>	sword fern	Yellow	S5	
<i>Pteridium aquilinum</i>	bracken fern	Yellow	S5	
<i>Lycopodium clavatum</i>	running club-moss	Yellow	S4	
<b>SNOWBOARD VENUE</b>				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Provincial Status</b>	<b>Srank</b>	<b>COSEWIC</b>
<b>TREE LAYER</b>				
<i>Tsuga mertensiana</i>	mountain hemlock	Yellow	S5	
<i>Abies amabilis</i>	amabilis fir	Yellow	S5	
<b>SHRUB LAYER</b>				
<i>Vaccinium alaskaense</i>	Alaskan blueberry	Yellow	S5	
<i>Vaccinium membranaceum</i>	black huckleberry	Yellow	S5	
<i>Elliottia pyroliflorus</i>	copperbush	Yellow	S5	
<i>Alnus viridis</i> ssp. <i>sinuata</i>	Sitka alder	Yellow	S5	
<i>Sorbus sitchensis</i>	Sitka mountain-ash	Yellow	S5	
<i>Spiraea splendens</i> ssp. <i>splendens</i>	subalpine spirea	Yellow	S3S4	
<b>HERB LAYER</b>				
<i>Epilobium angustifolium</i>	fireweed	Yellow	S5	
<i>Anaphalis margaritacea</i>	pearly everlasting	Yellow	S5	
<i>Carex mertensii</i>	Merten's sedge	Yellow	S5	
<i>Epilobium latifolium</i>	broad-leaved willowherb	Yellow	S5	
<i>Hypochaeris radicata</i>	hairy cat's-ear		SNA	
<i>Luetkea pectinata</i>	partridge-foot	Yellow	S5	
<i>Rumex acetosa</i>	green sorrel	Yellow	S5	
<i>Salix</i> spp.				
<i>Saxifraga ferruginea</i>	Alaska saxifrage	Yellow	S4	



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<i>Juncus compressus</i>	compressed rush		SNA	
<i>Athyrium filix-femina</i>	lady fern	Yellow	S5	
<i>Polystichum munitum</i>	sword fern	Yellow	S5	



## **APPENDIX C**

### **Mammal Species that are Known to Occur within Cypress Provincial Park**



Appendix C – Mammal species that are known to occur within Cypress Provincial Park

Scientific Name	Common Name	Provincial Status	Srank	COSEWIC
<i>Ursus americanus</i>	Black Bear	Yellow	S5	Not at Risk (1999)
<i>Canis latrans</i>	Coyote	Yellow	S5	
<i>Odocoileus hemionus ssp. sitchensis</i>	Coastal Black-tailed Deer	Yellow	S5	
<i>Oreamnos americanus</i>	Mountain Goat	Yellow	S4	
<i>Martes americana</i>	Marten	Yellow	S4S5	
<i>Glaucomys sabrinus</i>	Northern Flying Squirrel	Yellow	S5	
<i>Ochotona princeps</i>	Common Pika	Yellow	S5	
<i>Tamiasciurus douglasii</i>	Douglas' Squirrel	Yellow	S4S5	
<i>Tamias amoenus</i>	Yellow-Pine Chipmunk	Yellow	S5	
<i>Lepus americanus</i>	Snowshoe Hare	Yellow	S5	
<i>Puma concolor</i>	Cougar	Yellow	S4	
<i>Procyon lotor</i>	Raccoon	Yellow	S5	
<i>Mustela erminea</i>	Ermine	Yellow	S5	
<i>Rattus rattus</i>	Black Rat	No Status	SNA	
<i>Mus musculus</i>	House Mouse	No Status	SNA	
<i>Sorex cinereus</i>	Common Shrew	Yellow	S5	
<i>Microtus oregoni</i>	Creeping Vole	Yellow	S5	
<i>Peromyscus maniculatus</i>	Deer Mouse	Yellow	S5	
<i>Sorex monticolus</i>	Dusky Shrew	Yellow	S5	
<i>Zapus trinotatus</i>	Pacific Jumping Mouse	Yellow	S4S5	
<i>Sorex vagrans</i>	Vagrant Shrew	Yellow	S5	



## **APPENDIX D**

### **Birds Species Known to Occur within Cypress Provincial Park**



Appendix D – Birds Species Known to Occur within Cypress Provincial Park

Scientific Name	Common Name	*	Spring	Summer	Fall	Winter
<i>Gavia immer</i>	Common Loon (fo)			r	r	
<i>Podilymbus podiceps</i>	Pied-billed Grebe			r	r	
<i>Ardea herodias</i>	Great Blue Heron			r	r	
<i>Cygnus columbianus</i>	Tundra Swan (fo)				r	r
<i>Cygnus buccinator</i>	Trumpeter Swan (fo)				r	r
<i>Chen caerulescens</i>	Snow Goose (fo)				r	
<i>Branta canadensis</i>	Canada Goose (fo)				r	
<i>Anas platyrhynchos</i>	Mallard			r	r	
<i>Anas acuta</i>	Northern Pintail			ac		
<i>Anas crecca</i>	Green-winged Teal				r	
<i>Bucephala albeola</i>	Bufflehead			r	r	
<i>Bucephala islandica</i>	Barrow's Goldeneye				r	
<i>Lophodytes cucullatus</i>	Hooded Merganser				r	
<i>Cathartes aura</i>	Turkey Vulture		r	u	r	
<i>Pandion haliaetus</i>	Osprey			r		
<i>Haliaeetus leucocephalus</i>	Bald Eagle		f	f	f	f
<i>Circus cyaneus</i>	Northern Harrier			r	r	
<i>Accipiter striatus</i>	Sharp-shinned Hawk		r	r	u	r
<i>Accipiter cooperii</i>	Cooper's Hawk		r	r	u	r
<i>Accipiter gentilis</i>	Northern Goshawk				ac	r
<i>Buteo platypterus</i>	Broad-winged Hawk				ac	
<i>Buteo jamaicensis</i>	Red-tailed Hawk	*	u	u	u	u
<i>Buteo lagopus</i>	Rough-legged Hawk				r	
<i>Aquila chrysaetos</i>	Golden Eagle		r	r	r	
<i>Falco sparverius</i>	American Kestrel			r	ac	
<i>Falco columbarius</i>	Merlin			ca	ca	
<i>Falco peregrinus</i>	Peregrine Falcon				r	
<i>Dendragapus obscurus</i>	Blue Grouse	*	r	c	c	c



<i>Falciennis canadensis</i>	Spruce Grouse					
<i>Lagopus mutus</i>	Rock Ptarmigan		ca	-	-	ca
<i>Rallus limicola</i>	Virginia Rail			ca		
<i>Tringa flavipes</i>	Lesser Yellowlegs					r
<i>Tringa solitaria</i>	Solitary Sandpiper			r		r
<i>Actitis macularia</i>	Spotted Sandpiper			r		
<i>Larus glaucescens</i>	Glaucous-winged Gull (fo)			u		u
<i>Brachyramphus marmoratus</i>	Marbled Murrelet (fo)			ac		
<i>Columba fasiata</i>	Band-tailed Pigeon	*	u	u	u	-
<i>Otus kennicottii</i>	Western Screech-Owl	*	ca	ca	ca	-
<i>Bubo virginianus</i>	Great Horned Owl	*	r	r	r	r
<i>Glaucidium gnoma</i>	Northern Pygmy-Owl	*	r	r	r	r
<i>Strix occidentalis</i>	Spotted Owl	*	-	ac	ac	-
<i>Strix varia</i>	Barred Owl	*	r	r	r	r
<i>Chordeiles minor</i>	Common Nighthawk	*		r		
<i>Cypseloides niger</i>	Black Swift	*		u		
<i>Chaetura vauxi</i>	Vaux's Swift	*		u		
<i>Stellula calliope</i>	Calliope Hummingbird			ca		
<i>Selasphorus rufus</i>	Rufous Hummingbird	*	r	f	r	
<i>Ceryle alcyon</i>	Belted Kingfisher			r	r	
<i>Sphyrapicus ruber</i>	Red-breasted Sapsucker	*	u	f	u	u
<i>Picoides pubescens</i>	Downy Woodpecker	*	r	r	r	r
<i>Picoides villosus</i>	Hairy Woodpecker	*	u	u	u	u
<i>Picoides tridactylus</i>	Three-toed Woodpecker	*	r	r	r	r
<i>Colaptes auratus</i>	Northern Flicker	*	r	f	f	r
<i>Dryocopus pileatus</i>	Pileated Woodpecker	*	u	u	u	u
<i>Contopus cooperi</i>	Olive-sided Flycatcher	*		u		



<i>Contopus sordidulus</i>	Western Wood-Pewee	*		r			
<i>Empidonax traillii</i>	Willow Flycatcher	*		f			
<i>Empidonax hammondii</i>	Hammond's Flycatcher			f			
<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	*		c			
<i>Vireo cassinii</i>	Cassin's Vireo	*		u			
<i>Vireo huttoni</i>	Hutton's Vireo	*		r			
<i>Vireo gilvus</i>	Warbling Vireo	*		f			
<i>Perisoreus canadensis</i>	Gray Jay	*	r	f	f	f	
<i>Cyanocitta stelleri</i>	Steller's Jay	*	f	c	f	r	
<i>Corvus caurinus</i>	Northwestern Crow	*	c	c	c	c	
<i>Corvus corax</i>	Common Raven	*	c	c	c	c	
<i>Tachycineta bicolor</i>	Tree Swallow	*	-	u			
<i>Tachycineta thalassina</i>	Violet-green Swallow			f			
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow			r			
<i>Hirundo rustica</i>	Barn Swallow			c			
<i>Poecile atricapilla</i>	Black-capped Chickadee	*	f	f	f	r	
<i>Poecile gambeli</i>	Mountain Chickadee					r	
<i>Poecile rufescens</i>	Chestnut-backed Chickadee	*	c	c	c	c	
<i>Psaltriparus minimus</i>	Bushtit			r	r		
<i>Sitta canadensis</i>	Red-breasted Nuthatch	*	u	u	u	u	
<i>Certhia americana</i>	Brown Creeper	*	u	u	u	u	
<i>Troglodytes troglodytes</i>	Winter Wren	*	c	c	c	r	
<i>Cinclus mexicanus</i>	American Dipper	*	r	r	r	-	
<i>Regulus satrapa</i>	Golden-crowned Kinglet	*	f	f	f	f	
<i>Regulus calendula</i>	Ruby-crowned Kinglet		f		f		
<i>Myadestes townsendi</i>	Townsend's Solitaire		r	r	r		
<i>Catharus ustulatus</i>	Swainson's Thrush	*		c			
<i>Catharus guttatus</i>	Hermit Thrush	*		c	r		



<i>Turdus migratorius</i>	American Robin	*	r	c	r	ca
<i>Ixoreus naevius</i>	Varied Thrush	*	c	c	c	u
<i>Anthus rubescens</i>	American Pipit		r		r	
<i>Bombycilla garrulus</i>	Bohemian Waxwing					ac
<i>Bombycilla cedrorum</i>	Cedar Waxwing	*		u	r	
<i>Vermivora celata</i>	Orange-crowned Warbler	*		f		
<i>Dendroica petechia</i>	Yellow Warbler			r		
<i>Dendroica coronata</i>	Yellow-rumped Warbler	*	f	r	f	
<i>Dendroica nigrescens</i>	Black-throated Gray Warbler	*		u		
<i>Dendroica townsendi</i>	Townsend's Warbler	*		f		
<i>Oporornis tolmiei</i>	MacGillivray's Warbler	*		f		
<i>Wilsonia pusilla</i>	Wilson's Warbler		r	u	r	
<i>Piranga ludoviciana</i>	Western Tanager	*		f		
<i>Pipilo maculatus</i>	Spotted Towhee	*	r	f	f	-
<i>Passerculus sandwichensis</i>	Savannah Sparrow			r	r	
<i>Passerella iliaca</i>	Fox Sparrow	*		r		
<i>Melospiza melodia</i>	Song Sparrow	*	-	ca	ca	-
<i>Melospiza lincolni</i>	Lincoln's Sparrow		ac		ac	
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	*	r	u	r	
<i>Zonotrichia atricapilla</i>	Golden-crowned Sparrow			r		
<i>Junco hyemalis</i>	Dark-eyed Junco	*	f	f	f	f
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	*		f		
<i>Molothrus ater</i>	Brown-headed Cowbird	*		r		
<i>Leucosticte tephrocotis</i>	Gray-crowned Rosy-Finch					r
<i>Pinicola enucleator</i>	Pine Grosbeak					ac
<i>Carpodacus purpureus</i>	Purple Finch	*	u	f	u	r
<i>Carpodacus mexicanus</i>	House Finch			ca		
<i>Loxia curvirostra</i>	Red Crossbill	*	u	u	u	c
<i>Loxia leucoptera</i>	White-winged Crossbill				ca	ca
<i>Carduelis pinus</i>	Pine Siskin	*	c	c	c	c
<i>Coccothraustes vespertinus</i>	Evening Grosbeak	*	r	r	r	r



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## Explanation of Symbols

### Seasonal Occurrence

Sp = Spring (March - May)

S = Summer (June - mid August)

F = Fall (mid August - November)

W = Winter (December - February)

### Relative Abundance

c = common [almost always seen; large numbers]

f = fairly common [usually seen; moderate numbers]

u = uncommon [often seen, but not on every visit]

r = rare [seen a few times each year; may be hard to find]

ca = casual [few known records, but to be expected]

ac = accidental [only 1 or 2 records; outside normal range]

### Other Symbols

fo = flyover [sighting(s) of birds flying over the park and general area]

\* = species to breed in the checklist area

[I] = introduced species

### Sources:

Cypress Provincial Park Bird Checklist (<http://www3.telus.net/driftwood/cyprbl.htm>)

Jacques Whitford 2005 Field observations

Martin, K. and S. Ogle. 2000. The use of alpine habitats by migratory birds in B.C. Parks: 1998 summary. Unpublished report, Department of Forest Sciences, Univ. of British Columbia and Canadian Wildlife Service, Pacific and Yukon Region. 15 p. (<http://www.forestry.ubc.ca/alpine/docs/alpmig-2.pdf>)



# **APPENDIX E**

## **Environmental Management Plan**



VANOC will address high significance activities in each phase of the project as part of the VANOC commitment to sustainability, through mitigation and through the development and implementation of an Environmental Management Plan (EMP). This EMP will be developed in consultation with BC Parks and Cypress Bowl Recreations Ltd., and will comply with federal and provincial regulatory requirements. Prior to construction VANOC is committed to meeting with BC Parks and Cypress Bowl Recreations Ltd. to review the details of the EMP and update it accordingly with respect to the site conditions at that time.

### ***VANOC Sustainability Principles***

During the international bid phase, the Vancouver 2010 Bid Corporation formally committed to moving beyond environmental stewardship, to embrace the economic and social components of sustainability in order to support balanced decision making, a long term view, inclusiveness, equity and healthy communities. Moving beyond environmental management, sustainability has been formally integrated within the Games' operational plans through a Sustainability Management System that is comprised of stages of commitment, planning, implementation, monitoring and reporting.

VANOC has formally indicated that it will adopt this integrated approach to identifying opportunities, so that it can:

- Incorporate sustainability into designs, and adopt appropriate sustainable actions in the construction and implementation phases of venues;
- Practice and demonstrate sustainability as a key aspect of the Games; and then
- Following the Games, account / report out as to how these sustainability commitments were achieved.

In order to integrate sustainability into all aspects of the Games, a sustainability policy based on key Sustainability Principles was developed. These six Sustainability Principles define the values and beliefs that form the basis of VANOC's commitment:

- **ECOLOGICAL LIMITS** – Society must live within the earth's capacity to sustain life;
- **INTERDEPENDENCE** – Economic and social prosperity are dependent upon the natural environment;
- **LONG TERM VIEW** – Today's decisions and actions must not compromise the choices available to future generations;
- **INCLUSIVENESS** – Participation by all people must be promoted and decisions must be based on input from key stakeholders;



- EQUITY – People must be empowered to live sustainably and resources must be used fairly and efficiently in order to meet basic human needs worldwide;
- HEALTHY COMMUNITIES – Community health and quality of life is integral to global sustainability.

VANOC is committed to sport development and sustainable environmental, economic and social practices in its plans and actions, and intends to ensure that its successors would meet its commitments to sport development and sustainable environmental, economic and social practices through:

#### Environmental Stewardship

- Conserving resources;
- Preventing pollution; and
- Protecting and enhancing natural systems.

#### Maximizing Economic Opportunity

- Supporting international trade and investment;
- Advancing social equity through economic opportunities; and
- Strengthening community and stakeholder partnerships.

#### Social Responsibility

- Communicating openly and consulting with stakeholders;
- Promoting diversity and celebrating cultural heritage;
- Increasing understanding of sustainability;
- Hosting inclusive and accessible Games; and
- Contributing to sport development and health promotion.

In developing the sustainable design objectives for this project, it has also been necessary to consider the overall project schedule to have the improvements completed by 2008, as well as budget constraints. The sustainable design process has involved the design team and VANOC to define and agree to specific sustainable design objectives and goals. Basic objectives have been identified, as follows:

- Employ strategies to protect and restore natural resources by designing the site to limit disruption to existing vegetated areas, and to use natural stormwater treatment systems and best management practices if and where practical.
- Reduce environmental impacts related to energy use by reducing reliance on fossil fuels by using cleaner sources of power. When evaluating systems options, consider overall source energy usage.



- Reduce water, chemical, construction materials, maximize materials efficiency in construction and operation and, reduce the generation of wastes.
- Conserve water and consider water re-use systems by employing water efficient design solutions.
- Use environmentally preferable building materials by evaluating the environmental impacts, resource efficiency, and performance of proposed building materials over their full life cycle. Use non-toxic materials from local, renewable, sustainably acquired resources that minimize waste and pollution from manufacturing, installation, and maintenance.
- Use plant material native to suit the local climate to ensure survival while reducing maintenance. Explore opportunities to provide habitat for wildlife and to restore degraded site areas.
- Plan for recycling during construction, demolition and occupancy by providing collection bins for recyclable materials for both construction and final occupancy usage.

VANOC and the Contractor will work to ensure these sustainability commitments are communicated and understood, and achieved to the greatest degree that the Cypress Venue project permits.

***Components of the Environmental Management Plan include:***

- Notification of Concerned Parties
- General Measures
- Heritage Resource Protection Measures
- Wildlife Protection - General Measures
- Fisheries Protection – General Measures
- Noise
- Site Preparation
  - Surveying and Clearing
  - Grubbing, Grading and Soil Handling
- Cleanup and Revegetation
- Weed Management Measures
- Vegetation Debris Management Plan
- Waste Management Plan



- Contingency Plans
  - Fire Contingency Plan
  - Hazardous Material Spill Contingency Plan
- Sediment and Erosion Control Plan
- VANOC Sustainability Commitments

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## 11.1 Environmental Management Plan

This Environmental Management Plan (EMP) describes the environmental protection and mitigation measures to be implemented during the construction of the Cypress Olympic Venue (the Project). The Project will be designed and constructed in accordance with VANOC's sustainability principles. The measures provided also adhere to relevant provincial and federal guidelines and regulations and are also consistent with best management practices. Where applicable, the plans have been modified to address regional and site-specific conditions.

This EMP:

- outlines environmental protection measures related to Project activities;
- provides VANOC personnel and contractors (Project personnel) with instructions for carrying out construction activities to minimize environmental effects;
- is a component of both the clearing and construction contract documents and provides the primary reference for specific environmental protection instructions contained in project contract documents;
- will be used as a basis for the orientation and training of project personnel; and
- provides the groundwork for environmental monitoring during construction to ensure compliance with Project specific commitments.

Within this EMP, environmental protection measures are written under specific activity headings. They should be read in conjunction with the venue design drawings. The EMP also provides a number of resource protection, management and contingency plans that apply throughout the project area and to all phases of construction.

The EMP is based on environmental assessment work conducted in the course of project regulatory review and permitting, as well as information arising from stakeholder consultation. In addition to the EMP, applicable supporting documentation will be accessible in the construction field offices.



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#### 11.1.1 Notification of Concerned Parties

1. VANOC shall notify all stakeholders affected by the project of the intended project schedule prior to construction startup to prevent or reduce impacts to their operations or activities.
2. Prior to ground-breaking, VANOC shall hold a pre-job, management level meeting to review project concerns and to detail required procedures. Attendance should be at VANOC's discretion but may include representatives from VANOC; appropriate construction, engineering, environmental, and field inspection teams; and interested government regulatory personnel.
3. The Contractor's Supervisory personnel shall be available for VANOC's Environmental Education Program in advance of construction. In addition, all workers and visitors will be required to attend an environmental orientation workshop, from which they will receive a certification sticker. No person will be allowed on site without a valid hardhat sticker.
4. Appropriate federal and provincial resource agencies, as well as interested municipal officials, will be informed of project developments by way of regular liaison with key project personnel.
5. VANOC shall have the contractor post appropriate signs along access trails and at road crossings in the vicinity of construction activities to warn park visitors of construction dangers.

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#### 11.1.2 General Measures

General environmental protection measures are provided below. These are followed by detailed specifications for each phase of construction.

1. The EMP will form part of the clearing and construction contract documents. Should any conflict arise between contract and EMP requirements, the more stringent conditions will apply.
2. All necessary provincial and federal licences, permits and approvals will be obtained by VANOC prior to construction. Inconsistencies between conditions of different permits will be resolved prior to the start of construction where practical.
3. Contractor(s) shall abide by all environmental timing constraints for construction as applicable to provincial and federal licences and approvals. Unless otherwise approved by the appropriate regulatory agency, all instream work at fish-bearing watercourses will be conducted during the prescribed fisheries window (August 1 – September 15). Clearing activities will be undertaken outside of the peak migratory bird nesting season (May 1 to July 31) if feasible; if this is unreasonable due to construction timelines, a comprehensive survey for active



- nests should be conducted to identify and protect nests from machine work until the nests are confirmed inactive. It is acknowledged that disturbance of inactive nests protected by the *Wildlife Act* will require permission from the Ministry of Environment.
4. Contractor staff will be provided with relevant results of pre-construction surveys in order to identify any known locations of environmentally sensitive features. Flagging, fencing or footprint adjustments will be used to identify and protect particularly sensitive features in the field.
  5. Contractor staff will take appropriate precautions when pouring concrete and sealing forms, that runoff from curing concrete is monitored for acceptable pH levels and if the pH is outside the allowable limits, that the runoff is contained and neutralized and ensure that pH levels in receiving waters are monitored during concrete pouring and curing to ensure acceptable levels.
  6. In the event that previously unidentified sensitive features are encountered during construction, the following measures are to be undertaken:
    - a. Contractor shall suspend work in the vicinity of the sensitive feature and shall not resume until authorized by the Environmental Monitor; and
    - b. The Environmental Monitor will assess the feature and determine the appropriate course of action in consultation with a specialist and/or applicable government agency, as appropriate.
  7. Contractor shall continuously collect construction debris and other garbage and disposed of it at an approved facility.
  8. Construction crews will be informed of fire hazards, locations of fire-fighting equipment and fire suppression procedures during regular safety briefings. Contractor shall ensure that all personnel are aware of proper disposal methods for welding rods, cigarette butts and other hot or burning material.
  9. Equipment will be maintained in good condition and equipped with standard emission control devices to minimize air pollution and unnecessary noise. Heavy equipment not in use shall be shut down instead being left to idle.
  10. When traffic and wind conditions result in excessive dust drift during construction activities, access roads and/or work areas will be dampened with water or an acceptable dust suppressant. The Environmental Monitor will have authority to require watering when and where warranted.
  11. All vehicles and equipment will be parked in cleared, open areas within the approved work limits as opposed to on highly combustible areas such as tall dry grass or shrubs when the fire hazard is high.



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### 11.1.3 Heritage Resource Protection Measures

1. VANOC has committed to retain a qualified archaeological consultant to conduct an AIA for the lands to be disturbed by the Cypress venue plans. Sites documented, flagged or fenced to protect sensitive site-specific features such as archaeological, heritage or traditional use sites, will be avoided.
2. During orientation sessions, the Environmental Monitor will ensure all employees and contractors involved in project construction are instructed in requirements and protocols regarding discovery of archaeological remains.
3. If a previously unidentified archaeological or heritage site is encountered during construction, work at that location may not resume until the Environmental Monitor has been notified and the appropriate provincial cultural and historical resources division (Archaeology Branch, B.C., Ministry of Tourism Sports and the Arts) has been informed.
4. Further work in the immediate vicinity of the previously unidentified archaeological or heritage site will not be undertaken until a qualified archaeologist and the First Nations examines it and permission to proceed is granted by the provincial agency pending the implementation of one or more of the following mitigation measures:
  - reduction/relocation of the footprint and protection of the site using fencing or flagging;
  - installation of geotextile, wooden mats and/or corduroy to temporarily ramp over the site;
  - assignment of a qualified archaeologist or palaeontologist to monitor construction operations; and/or
  - excavation of the site, under the supervision of a qualified archaeologist or palaeontologist to salvage, preserve and record artefacts according to provincial heritage resource guidelines.
5. During orientation sessions, the Environmental Monitor will ensure all employees and contractors involved in project construction are instructed in the location of identified archaeological resources within the project site (if any) and the means to protect them.
6. If work is initiated in any area ahead of the completion of the AIA an archaeologist will be brought to the site to review and assess the risk of impact in those areas prior to any disturbance. The level of risk will determine what if any work can proceed.



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#### 11.1.4 Wildlife Protection - General Measures

1. The feeding, harassment or destruction of any wildlife by project personnel on or about the construction site or project facilities will be prohibited.
2. Garbage will be continually collected and disposed of at an approved facility to avoid the attraction of nuisance animals. Bear-proof waste containers shall accompany each working unit.
3. Sites noted, flagged or fenced to protect sensitive wildlife habitat will be avoided.
4. Any anticipated interference with previously unidentified aquatic furbearer habitats, bird nests, mineral licks, or bear dens is to be reported to the Environmental Monitor. The Environmental Monitor will then notify the provincial and federal wildlife authorities and, in consultation with those agencies, develop agreed upon mitigation measures.
5. Recreational use of ATVs by construction and operational personnel will be prohibited in the park.
6. The speed limit for construction and operational vehicles will be 40 km/hr, but may be lower under specific conditions such as areas of high erosion hazard, or areas where specific wildlife concerns have been identified, as identified by the Environmental Monitor.
7. Unauthorized vehicle travel on the project site during construction will be discouraged.
8. The location and details of any vehicle collisions with wildlife and any incidence with nuisance wildlife are to be reported to the Environmental Monitor. The Environmental Monitor will notify the local Provincial Conservation Officer, and, if warranted, the local police detachment.

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#### 11.1.5 Fisheries Protection – General Measures

1. Prior to initiation of any clearing or construction activities adjacent to watercourses, the Contractor will review site specific mitigation measures with the Environmental Monitor to ensure compliance with approved crossing plans and permit conditions. The review will address proposed procedures for site preparation, sediment and erosion control, temporary crossing installation, specific crossing details, water management, and materials handling methods.
2. The contractor will install and maintain appropriate erosion control measures, such as siltation fencing, temporary diversion berms, and sandbag, rock or straw bales, as determined by a qualified environmental monitor and discussed with DFO.



3. The Contractor will inspect all equipment for fluid leaks prior to entering or crossing over any watercourse. All equipment that enters or passes over the watercourse area shall be clean and free from leaks to ensure that deleterious material is not deposited.
4. Where feasible, construction traffic will utilize existing access structures (*i.e.* road bridges and culverts) across watercourses.
5. Where access is required, at fish-bearing watercourses (Class S1 to S4 in Table 1), temporary bridge crossings (PL-ENV-3) shall be used. To the extent practical, ramps will be used in preference to bank grading to install a vehicle crossing structure.
6. Temporary culverts (PL-ENV-2), swamp mats, corduroy and/or suitable geotextile will be used to gain access over other non fish-bearing watercourses (Class S5 and S6 in Table 1) and ephemeral swales.
7. Temporary workspace will be set back a minimum of 15 m from the banks of watercourses that are known to be fish-bearing. At other riparian areas, no temporary workspace will be taken within a minimum of 15 m.
8. Sediment and erosion control measures, such as silt fencing, temporary diversion berms, erosion control blankets, straw mulch, timber, sandbags, rock or straw bales will be installed and maintained as determined appropriate by the Environmental Monitor. These strategies will be employed at works venue footprints, approaches to watercourses, access roads and staging areas.
9. Cross ditches and diversion berms will be excavated across work areas on steep disturbed slopes to divert surface run-off into well vegetated areas.
10. All construction and operations equipment, including buses used to transport spectators, athletes, *etc.* to the venues, will be inspected for leaks on a regular basis and maintained in good working order.
11. The contractor will store equipment in previously disturbed areas.

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#### 11.1.6 Noise

1. Noise generated during blasting will be minimized through the use of minimal effective charge, shock matting, *etc.*
2. Efforts will be made to minimize construction noise during the breeding season so as to avoid wildlife disturbance.
3. The use of engine brakes will be prohibited whenever possible.



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## 11.1.7 Site Preparation

### 11.1.7.1 Surveying and Clearing

1. The locations of additional required workspace will be identified prior to construction and permissions will be sought from the relevant regulators before the clearing/use of such sites. The preliminary locations of extra workspace required for the storage of spoil, slash, merchantable timber, or timber for rollback, will be indicated on the construction drawings.
2. Prior to start of construction, the clearing boundaries (including pre-approved temporary workspace) will be clearly staked to prevent disturbance to unauthorized areas.
3. Clearing will be confined to the construction areas and approved extra workspace. It is acknowledged that clearing from areas which have not been identified in the construction plan requires Environmental Monitor and provincial authority approval.
4. Trees will be felled into the surveyed construction areas. 'Leaners' or felled trees that inadvertently fall into adjacent undisturbed vegetation will be salvaged, or bucked into manageable lengths and moved to construction areas.
5. A 'danger tree' assessment will be conducted after the clearing boundaries are marked... Leaning or damaged trees will be felled in accordance with Workers' Compensation Board standards for safety regarding danger trees (Occupational Health and Safety Regulation).
6. Sites noted, flagged or fenced by VANOC to protect sensitive features will be avoided. The size of avoidance zones will be determined by the Environmental Monitor (in consultation with BC Parks, appropriate specialists and/or regulatory agency as required) prior to clearing.
7. Where feasible, timber will be close-cut to reduce the need to grub and grade the sites for smoothing.
8. Where grading is not required, non-merchantable small diameter shrub stands encountered in construction areas or in required extra workspace will be cleared mechanically, leaving the root mat intact.
9. During clearing, trees will be felled away from watercourses. Trees and slash inadvertently introduced into any watercourse will be removed immediately.
10. Salvaged logs will not be skidded across any watercourse unless a suitable temporary vehicle crossing structure such as a temporary bridge span or swamp mat is in place.
11. Merchantable timber will be salvaged in accordance with BC Parks requirements.



12. Timber salvage operations will be conducted in a manner that minimizes butt shatter, breakage and off-construction-area disturbance.
13. Timber deck sites will be located on approved workspaces within existing cleared areas, or in non-merchantable stands of timber. Where terrain conditions permit, timber deck sites will be located approximately 800 to 1000 m apart (*i.e.*, skidding distances of 400 to 500 m) in timbered areas. The sites will be located near existing access roads, if feasible, to expedite merchantable timber removal.
14. Salvaged logs will be limbed and topped before decking, and decked with butt ends facing the same direction. Log decks will be oriented to best facilitate loading by picker trucks.
15. The Contractor will cooperate with the timber salvage operator(s) to ensure that all decked timber can be removed from the right-of-way and transported to designated all-weather access points or mills. The Contractor will aid and support the timber salvage operator(s) to provide access for timber removal.
16. Non-merchantable timber and slash will be stockpiled for use as rollback for erosion control. Exact locations and the amount of timber to be retained will be monitored in the field by the Environmental Monitor.
17. Slash not retained for erosion control rollback will be disposed of according to VANOC's vegetation management plan.
18. There will be no burning of slash or construction materials on site within the Park.

#### 11.1.7.2 Grubbing, Grading and Soil Handling

1. Grubbing will be conducted only as necessary at grade areas or to create a suitable working surface. Graded material will not be spread off the development site.
2. To the extent feasible, grubbing and grading of watercourse banks will be restricted to that required to install intake pumps.
3. In areas requiring grading, surface organic and mineral material (topsoil) will be stripped to a minimum depth of 15 cm. The stripping depth will be increased to include all topsoil where topsoil depths exceed 15 cm, as identified by color change and/or as directed by the Environmental Monitor.
4. Stripped materials will be temporarily stored adjacent to work areas, unless the Environmental Monitor approves alternate storage locations and appropriate mitigation.
5. Sufficient separation will be maintained between surface material and subsoil piles to ensure that the piles do not mix. If workspace is restricted and complete separation is not feasible, surface material and subsoil piles can, if approved by



- the Environmental Monitor, be overlapped a maximum of 30% (but must be separated during clean-up).
6. Vehicle traffic and soil handling activities may be restricted or suspended during wet soil conditions, pending the approval of the Environmental Monitor.
  7. The decision to continue or halt particular construction activities on lands with excessively wet soils will be made by the Environmental Monitor. Criteria to be considered in this decision include:
    - storm/high precipitation events;
    - failure to control sediment or run-off into flowing watercourses;
    - rutting of unstripped surface materials to the extent that surface organic and mineral soil become mixed with the underlying subsoil;
    - excessive wheel slip;
    - excessive build-up of mud on tires and cleats, and/or
    - tracking of mud down access roads as vehicles leave work areas.
  8. The contingency measures with regards to wet soil conditions listed below will be implemented individually or in combination, as required, based on site-specific conditions:
    - restrict construction traffic, where feasible, to equipment with wide pad tracks or balloon tires which provide low ground pressure;
    - work only in non-problem areas, such as well drained soil or rocky surface lands, until conditions improve;
    - install corduroy, swamp mats or geotextiles in problem areas;
    - salvage surface materials from the work areas in problem locations, and/or
    - suspend construction activities in affected areas until soils dry out.
  9. Where surface stabilization remains inadequate to support equipment travel, swamp mat deployment or log corduroy installation will be undertaken. Sources to be used for corduroy (in order of preference) include:
    - non-merchantable timber cleared from work areas;
    - merchantable deciduous timber cleared from the work areas;
    - merchantable coniferous timber cleared from the work areas;
    - non-merchantable timber cleared from outside of work areas, and/or
    - merchantable timber cleared from outside of work areas.

(Note: Clearing from outside of work areas which have not been identified in the construction plan requires Environmental Monitor and BC Parks approval).



10. Subsoil will be used to construct bar ditch ramps.
11. Grading on steep slopes will be minimized and limited to that required for access and infrastructure installation.
12. Graded material will not be stored on steep slopes, within 10 m of the crest of a steep slope or within 15 m of a watercourse.
13. Any necessary grading of watercourse banks will be pulled away from the stream bank to minimize the risk of material entering the watercourse.
14. Disturbance to natural drainage channels will be minimized during grading. All grading will be undertaken with the objective that original contours and drainage patterns will be re-established during clean-up, as is feasible, unless otherwise authorized by the Environmental Monitor or geotechnical engineer.

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#### 11.1.8 Construction of Freestyle and Snowboarding Venues

1. Blasting of the bedrock cliff for the freestyle venue will be minimized to that which is strictly required for the venue construction.
2. Blasting will be undertaken outside of the peak migratory bird nesting season (May 1 to July 31) if feasible; if this is unreasonable due to construction timelines, a comprehensive survey for active nests should be conducted to identify and protect nests from work until the nests are confirmed inactive. It is acknowledged that disturbance of active nests protected by the *Wildlife Act* will require permission from the Ministry of Environment.
3. Blasted bedrock material will be utilized on site for construction pads. Any excess bedrock material will be disposed of at locations approved by the Environmental Monitor and BC Parks.
4. To reduce heavy traffic associated with construction activities, on-site construction will be kept to a minimum. The majority of building components will be pre-fabricated in an existing off-site plant, when possible, and transported to the site for assembly. Hard surfaces will be in place prior to transportation of pre-fabricated components. The material used to surface roads and paths will not contain salt or other water-soluble chemicals, and will represent a form of erosion control for the site.
5. All construction and operations equipment will be inspected for leaks on a regular basis and maintained in good working order.
6. Mobile equipment will be refueled, lubricated and serviced only at designated and approved locations.



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#### 11.1.9 Construction of Snowmaking Facilities

1. Material excavated for the reservoir will be utilized in berm construction around the excavated reservoir. Any excess excavated material will be disposed of at locations approved by the Environmental Monitor.
2. Existing roadways will be utilized for truck/equipment transport to and from the reservoir site.
3. To reduce traffic associated with construction activities, on-site construction will be kept to a minimum. The majority of pump house components will be pre-fabricated in an existing off-site plant, when possible, and transported to the site for assembly.
4. Equipment used for installation of intake pump house at Cypress Creek will remain above top-of-bank. Only when absolutely necessary will equipment enter the wetted channel of the creek.
5. Material excavated for high voltage conductor and water pipeline trenches will be side-cast and utilized for backfilling once conductors/water lines have been installed.
6. The trench will be inspected for trapped animals at the start of each day before lowering-in, backfilling or conducting any activity that may harm an animal in the trench.
7. If ditch dewatering is required in high groundwater areas, water will be pumped into settling ponds, or onto stable, well-vegetated areas, tarpaulins, sheeting, rocks, sand bags, straw bales, silt fencing, or other appropriate sediment filtering devices in a manner that does not cause erosion or permit any unfiltered water to re-enter a watercourse.
8. Ditch plugs (bentonite, sand bag or foam plugs) will be installed on slopes to minimize the potential for the water movement along the ditch, and subsequent erosion.
9. Subsurface drains will be installed where there is evidence of seepage or flowing springs on a slope once the trench has been excavated.
10. The exact locations of ditch plugs and sub-surface drains shall be finalized in the field in consultation with the Environmental Monitor. A geotechnical engineer will be consulted where the Environmental Monitor consider further geotechnical input is warranted.
11. Extended periods of open trench are anticipated at road and foreign line crossings, at welding tie-in locations, at testing sections, where blasting or ripping of rock is required, and where select backfill or geotechnical measures such as ditch plugs and sub-drains may be required. In order to minimize the existence



- duration of any open ditch, trenching operations will be followed as closely as practical by lower-in and backfill operations.
12. Where trench settlement is a concern, the trench will be roached with available spoil material during backfill. Gaps in this roach will be left at obvious drainage channels to prevent alteration of natural surface drainage patterns.
  13. Mobile equipment will be refueled, lubricated and serviced only at designated and approved locations.

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#### 11.1.10 Concrete Works

Concrete works will be completed at least 15 m from existing water bodies and will be completed during dry conditions. In the event of rainfall during or shortly after a pour, where feasible, uncured concrete will be covered with polyethylene sheeting or tarps to protect it from the rain. Sediments ponds will be established on site as part of the Sediment and Erosion Control Plan if appropriate. If concrete leachate or wash water is suspected of entering the sediment pond, the water will be tested for pH levels in the drainage ditches leading to the sediment pond, where possible. If necessary, the water will be treated as necessary at the pour location using a CO<sub>2</sub> bubbler. The Environmental Monitor will be responsible for monitoring the pH and for bringing it to acceptable levels prior to discharge.

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#### 11.1.11 Cleanup and Revegetation

1. Weather permitting, cleanup will occur as soon as practical following construction operations where continued construction access is no longer required.
2. Cross ditches and diversion berms will be installed on moderate to steep slopes to divert surface water off the site.
3. The exact locations of cross ditches and diversion berms shall be finalized in the field in consultation with the Environmental Monitor. A geotechnical engineer will be consulted if the Environmental Monitor determines further geotechnical input is warranted.
4. At all watercourse crossings, streambank and approach slopes will be restored to stable contours with local material and will be revegetated with the native seed mix. A cover crop may also be incorporated to provide surface stability during vegetation establishment.
5. As part of final cleanup, salvaged shrubs will be replanted and supplemented with willow clump and/or willow staking, as required, on disturbed banks at fish-bearing watercourse crossings.



6. Disturbed land will be re-established with self-perpetuating, indigenous plant communities that will provide slope stability, surface runoff control, aesthetics and valuable wildlife habitat. The reclamation plan includes the alpine ski runs (mid-Panorama; middle and lower Fork) to be used for the snowboard training runs and parallel giant slalom runs. Therefore, at the completion of re-grading of these runs for the Olympic venues, these areas should be reseeded with a native grass/clover mixture, broadcasting of native lupine and wildflower seeds as approved by BC Parks. The same treatment should be applied to the aerial and mogul runs.
7. Slash material salvaged for use as rollback for erosion control will be spread on steep slopes as directed by the Environmental Monitor. Rollback for erosion control shall be flattened and walked down with a dozer or other heavy tracked equipment.
8. Corduroy, if utilized, will be removed from locations with mineral soils and where disruption of drainage is likely. Adequate drainage will be provided in any corduroy sections that are left in place.
9. Removed corduroy materials shall be used as wildlife travel berms or rollback for erosion control, where feasible, or secondarily disposed of by off-site burning or chipping.
10. Where compaction has been identified, subsoil will be ripped to a depth of 30 cm, or to the satisfaction of the Environmental Monitor, over the affected area.
11. Seed mixes will be developed in consultation with BC Parks. The mixes will be designed to: i) control erosion; ii) encourage rapid revegetation for weed species competition; and iii) establish vegetation that is compatible with surrounding vegetation and land-use. Seed mixes may include a cover crop species such as annual rye, oats or barley.
12. In areas such as temporary work spaces, where ground vegetation will be left to naturally regenerate, soils will not be seeded. However, if the Environmental Monitor identifies that an area is at risk of erosion or invasion by weed species, seeding and/or erosion control measures will be applied.
13. All seed mixes used will be sourced from within BC. A Certificate of Seed Analysis for each seed lot will be obtained. For cover crop species, Canada #1 Certified Seed will be used.
14. Appropriate fertilizers, approved by BC Parks, may be used at the time of seeding to promote revegetation. Fertilizer will not be applied within a minimum 15 m of stream banks, nearer than the first significant and regular break in slope to a watercourse or during heavy rain forecasts.



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#### 11.1.12 Weed Management Measures

1. All equipment will be required to arrive on site in a clean condition to minimize the risk of weed introduction. Any equipment that arrives in a dirty condition, as determined by the Environmental Monitor will not be permitted on site until it has been cleaned off by hand (track shovel), high pressure water or compressed air.
2. Weed clean-off stations will be constructed at appropriate locations, as necessary, by stripping topsoil and constructing containment berms out of subsoil. The size of the station is to be adequate to accommodate the maximum size of equipment expected. Cleaning pads will be constructed of filter fabric under skids. Filter fabric will be removed to an acceptable landfill when the station is dismantled.
3. Reclamation seed mixes will be checked to ensure, to the extent practical, that they are devoid of noxious or nuisance weed seeds.
4. A revegetation program will be initiated as soon as possible after construction, weather permitting, to ensure that desirable species are quickly established. Approved seed mixes will be applied, where appropriate. All seed mixes will be sourced from within BC and only Certified Canada #1 seed from a local source that is free, to the extent practical, of noxious or nuisance weed species. A Certificate of Seed Analysis for each seed lot will be obtained prior to purchase.

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#### 11.1.13 1.1.1 Vegetation Debris Management Plan

1. VANOC will commit to utilizing vegetation debris on site by chipping, habitat enhancement, and other where appropriate and possible.
2. Vegetation debris will not leave the site and will not be burned.
3. Avoidance cutting techniques will be used to minimize clearing of tree cover, as this type of cutting avoids removing larger standing trees.
4. Slash debris will be used for erosion control where appropriate.
5. Windrowed slash will not be pushed into the adjacent timber.
6. Coniferous and deciduous timber with a diameter at breast height of 15 cm or more will be salvaged or, as appropriate, remain on site as habitat for birds and wildlife (i.e., coarse woody debris).
7. Smaller pieces of slash will be limbed and bucked to lie flat on the ground to allow them to decompose and to minimize the fire hazard, where appropriate.
8. Low shrub and ground vegetation will be kept intact where appropriate and possible.



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#### 11.1.14 Waste Management Plan

The following measures are to be employed to reduce the potential of an accidental release of contaminants generated or utilized during construction. These measures will apply to all VANOC employees and contractors transporting materials during the construction of the project on site, in staging areas, at construction yards, and on public or private roadways.

All project personnel will abide by federal, provincial and project-specific requirements for the storage, handling, transport, disposal and spill reporting of products and waste materials that are potentially hazardous to the environment.

The Contractor is responsible for ensuring compliance with all permits, applicable codes, regulations and industrial standards for waste management. The Environmental Monitor will ensure that the construction waste management policies and procedures used to handle and dispose of all wastes associated with construction are followed. In the event of a spill, the Spill Contingency Plan (Section 9.1.13.2) will be implemented.

##### 11.1.14.1 Guiding Principles

VANOC is committed to performing its activities in an environmentally responsible manner. The following general guidelines are to be implemented:

1. Where a choice of products exists to perform the same function, the most benign product for the application will be selected.
2. Wherever reasonable to do so, wastes will be recycled.
3. Hazardous and waste materials will, to the extent feasible, be moved to or disposed of at a secure staging area on a daily basis.
4. All reasonable preventative measures to avoid the release of wastes or hazardous materials into the environment will be taken.
5. All waste and hazardous material spills will be reported to the Environmental Monitor and, in accordance with regulations, to the appropriate regulatory authorities.
6. All waste and hazardous material spills will be cleaned up immediately and thoroughly.

##### 11.1.14.2 Description of Wastes and Hazardous Materials

Waste and hazardous materials are defined below:

1. *Solid, Non-Hazardous Wastes*: garbage and debris generated through the activities of personnel during venue construction and reclamation. Although non-



toxic in nature and unlikely to result in any harmful effects, these materials are generally considered as a nuisance and can be further be divided into domestic type and building and industrial type wastes, including the following:

- Domestic type wastes:
    - garbage (food and consumable product wrappings)
  - Building and non-hazardous industrial type wastes:
    - spent welding rods
    - grinder pads
    - wood
    - wire
    - survey stakes and flagging tape
    - used geotextile
    - polyethylene
2. *Industrial Wastes:* wastes and products generated during construction. These waste materials may contain small quantities of residual substances (e.g. used lube oil, antifreeze), which, if released into the environment, may cause localized contamination of soil, vegetation, surface water or groundwater. Materials include:
- pipe coating materials
  - used lube filters
  - spent grease cartridges
  - containers and cans (oil, antifreeze, etc.)
  - contaminated soil, vegetation and/or absorbents which may contain hydraulic fluid, gasoline, diesel fuel, or lube oil
3. *Liquid Products and Waste:* Liquid wastes pose the greatest threat to the environment due to their ability to flow and seep into porous material if not properly contained at all times. Some liquid wastes such as lubricating oil, methanol and antifreeze contain components that are toxic to plants and animals. In addition, many of these materials are readily flammable or explosive. Antifreeze (ethylene glycol) has a sweet smell and may attract wildlife. Should these products enter the environment, localized contamination would require either removal of contaminated soil and vegetation or in situ remediation. Materials that are likely to be found on the construction site include:
- fuels (gasoline, diesel, propane)



- lubricants (engine oil, transmission / drive train oil, hydraulic oil, gear oil, lubricating grease)
- coolants (ethylene glycol, propylene glycol)
- methanol
- sewage
- paints and solvents

#### 11.1.14.3 Handling, Storage, Use and Disposal

When engaging in the storage, handling, and disposal of the above wastes and hazardous materials, the following minimum requirements will apply:

1. The Contractor's equipment will be clean and maintained in good operating condition to minimize potential mechanical malfunctions.
2. Personnel who will be handling potentially hazardous materials will possess valid WHMIS training.
3. Hazardous materials will be appropriately labeled in accordance with the TDG and WHMIS regulations for worker protection during handling and incident response. Materials Safety Data Sheets (MSDS) will be available for each product stored at a construction yard or staging area. MSDSs will be provided to the Environmental Monitor.
4. All fuel truck drivers will have current Transportation of Dangerous Goods (TDG) certification.
5. The servicing and fueling of mobile equipment will be conducted only in areas designated by the Environmental Monitor. In addition, the Environmental Monitor will ensure the installation of an impervious tarp designed to prevent contamination when servicing equipment with the potential for accidental spills (*e.g.*, oil changes, servicing of hydraulic systems, *etc.*). Spent oils, lubricants and filters, *etc.*, shall be collected and disposed of at an approved location.
6. Waste materials will be contained, transported and disposed of in accordance with provincial and federal standards, as well as VANOC's policies and procedures at approved facilities.
7. Fuel and service vehicles will carry:
  - fire extinguishers;
  - shovels and fire blankets;
  - polyethylene sheet lining, or equivalent, for placing under vehicles to be serviced; and



- a minimum of 10 kg of commercial sorbent material as well as sorbent pads and booms suitable for spill containment clean-up on open water.
8. Prior to the initiation of construction activities, the Contractor will ensure all spill response equipment and materials are on-site, or contained within a spill / emergency response trailer, and readily available.
  9. Construction yards and staging areas will be selected and designated to:
    - avoid waterbodies and runoff channels, sensitive vegetation, highly permeable soils, and steep slopes;
    - prevent vehicle incidents by providing unobstructed access (for delivery vehicles, emergency vehicles);
    - provide safe storage areas, including secondary containment, for all liquid hazardous materials and wastes; and
    - provide unobstructed access emergency response materials and equipment.
  10. Wastes and bulk products will be stored in construction yards or other designated areas except for quantities generated or required for the daily construction activities. Fuel, oil or hazardous materials required to be stored on site will not be located within 100 m of a watercourse or waterbody.
  11. Immobile bulk storage tanks will be contained in a bermed area lined with an impervious polyethylene liner. Containment berms will be large enough to contain 125 % of the largest tank within the containment area. Any rainwater that accumulates within the containment structure may be removed if authorized by the Environmental Monitor. If there is visible hydrocarbon sheen, the water will be collected for proper storage and disposal.
  12. The Contractor will visually inspect above-ground tanks on a regular basis as well as when the tank is refilled. Inspection records will be maintained for each tank and will be regularly audited by the Environmental Monitor. Should a leak be detected, remedial action will be taken as soon as possible.
  13. Hazardous waste and material storage areas will be clearly identified and secured.
  14. Containers and tanks will be closed when not in use. Drain valves will be locked to prevent accidental or unauthorized releases.
  15. Procedures for safe loading and unloading of bulk products will be as follows:
    - service vehicles must be equipped with automatic shut-off valves,
    - the vehicle will be grounded if the product is flammable,
    - the operator will observe loading and unloading operations at all times, and



- when completed, the operator will examine all outlets for leakage and take corrective action if warranted.
16. Each construction crew will be equipped with adequate garbage receptacles for solid non-toxic wastes and debris. These materials will be collected daily or as they are generated, being disposed of at approved locations.
  17. Receptacles for industrial wastes generated during pipeline construction will be provided in order to keep them segregated from non-toxic waste. Used oil and oil filters will be placed in sealed containers and delivered for disposal by a qualified service contractor. Copies of waste manifests will be provided to the Environmental Monitor upon request.
  18. Portable domestic sewage facilities and vacuum truck services will be provided where feasible.

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#### 11.1.15 Contingency Plans

##### 11.1.15.1 Fire Contingency Plan

###### Introduction

The Fire Contingency Plan was developed in accordance with the Forest Practices Code of British Columbia and the Forest Fire Prevention and Suppression Regulations in British Columbia. VANOC, the Contractor and the Environmental Monitor will implement the Fire Contingency Plan as required and ensure that personnel are suitably trained in fire suppression (*i.e.*, S-100 Basic Fire Suppression). The Contractor will be responsible for ensuring that all necessary fire-fighting equipment and water sources are located at the job site.

A Fire Boss (onshift foreman) is to be designated prior to commencement of construction. The Fire Boss will be suitably trained in the areas of fire suppression techniques, fire behavior and fire line safety, and will be familiar with fire-fighting techniques and equipment. The Fire Boss will be equipped with mobile communication equipment so that contact with local fire protection agencies is not delayed. In the event of a fire, BC Parks, Cypress Mountain ski area operations and applicable provincial government agencies will be notified, as soon as feasible, by the Fire Boss, that contingency measures have been implemented. The 24 Hour Fire Dispatch Coordinator (British Columbia) phone number is **1-800-663-5555**.

###### Fire Suppression

2. Fire suppression measures will be commenced immediately upon detection of fire.



2. The location and size of the fire, and wind direction will be immediately reported to the Fire Boss (*i.e.* onsite foreman).
3. The Fire Boss will report any fires and relevant information Environmental Monitor, who will then notify the BC Forest Service.
4. The Fire Boss will deploy firefighting equipment and crew to plow or clear fire breaks or to extinguish the fire directly if possible. All equipment and personnel will be made available to control the fire.
5. The Fire Boss will inspect the fire site as soon as possible and take charge of directing suppression measures.
6. Moveable material, particularly explosives or flammable materials, vehicles, *etc.*, will be promptly moved to a safe location whenever there is a possibility of being endangered by fire.
7. The Fire Boss will deploy additional crew and machinery as needed and will request the assistance of the BC Forest Service if the Contractor resources are inadequate.
8. Fire suppression measures will continue until the fire is extinguished or until otherwise notified by above agencies (if involved in the fire fighting).
9. The Fire Boss will ensure that all burning embers are extinguished and will monitor the burn area for smoldering material. Infrared scanning equipment may be required to detect hot spots.

#### 11.1.15.2 Hazardous Material Spill Contingency Plan

VANOC is committed to responding rapidly and effectively to any possible emergency events and/or spill incidents that may occur during all phases of construction and operation of the Cypress Olympic Venue to minimize effects and risks to the general public, on-site workers and the environment. Although not expected, a response plan has been developed below:

##### Initial Response

3. In the event of a spill of hazardous material, the first person on the scene will:
  - if possible without further assistance, control danger to human life (*i.e.* remove ignition sources);
  - identify the material spilled and implement appropriate safety procedures, based on the nature of the hazard;
  - cut off the source of the spill if possible;
  - immediately obtain the assistance of others and begin to contain and clean up the spill; and
  - notify the Environmental Monitor.



2. When notified of a spill, the Environmental Monitor or Contractor (whomever is on the scene first) will immediately ensure that:
  - action is taken to control danger to human life;
  - an on-site Safety Supervisor is designated;
  - the appropriate provincial services, local police and/or RCMP have been notified if a risk to the public exists; and
  - the necessary equipment and personnel are mobilized and measures are being implemented to stop the source of the spill and commence clean-up.
3. The Contractor will make all necessary resources available to contain and clean-up the spill. Since impacts from small spot spills can generally be minimized if immediate action is taken, all small spot spills will be cleaned up immediately and then reported to the Environmental Monitor.
4. Once the emergency contacts are made and the initial efforts to contain and clean-up the spill are underway, the Environmental Monitor will notify VANOC's Cypress venue-project manager and the appropriate government agencies.

### **General Spill Containment Procedures**

4. Containment measures will be immediately initiated to limit the spread of the spill and to minimize impacts on water bodies or other areas of environmental concern and to prevent damage to property.
2. If the spill source is from a leaking fuel truck, the tanker will be pumped dry and transferred into another tanker or other appropriate and secure container(s).
3. Culverts will be blocked to limit spill travel.
4. A shallow depression will be excavated or surface berm constructed in the path of the spill to stop and contain flow. If feasible without delaying containment efforts, topsoil will be salvaged and stored separately during excavations.
5. All free product will be collected with a vacuum truck and transported to an approved waste treatment facility.
6. Sorbent materials will be applied to contain and recover spilled material.
7. Heavily contaminated soil and vegetation, as well as sorbent material, will be collected and disposed of at an approved waste treatment facility.
8. Traffic will be minimized on contaminated soils.
9. The Environmental Monitor will document the spill by preparing a sketch with dimensions showing the spill location and a report describing the type of spill,



- cause of spill, clean-up and reclamation procedures undertaken. Should the spill, in the opinion of the Environmental Monitor, warrant a spill report, such information documents will be provided to both VANOC and the Responsible Agency in a timely fashion.
10. If deemed necessary, wildlife will be restricted from entering the affected area by fencing.
  11. Final clean-up and reclamation will be conducted following appropriate laboratory analysis of contaminants.

### **Spills Adjacent To or Into a Water Body**

5. Berms or trenches will be constructed to contain spilled product prior to entry into a water body.
2. If spilled material enters a water body, booms, skimmers and sorbents will be deployed, if feasible, to contain and recover the spilled material.
3. Free product will be recovered.
4. Contaminated areas, including downstream shorelines, will be cleaned up in consultation with spill response specialists and the appropriate government agencies.

### **Reclamation of Spill Area**

1. The Environmental Monitor, in consultation with the BC Parks and Ministry of Environment staff, will determine appropriate methods to remove or restore contaminated soils. Heavily contaminated soil and vegetation will be disposed of at an approved facility.
2. Reclamation in situ will only be conducted if approved by VANOC's environmental staff and appropriate government agencies.
3. Lightly contaminated soil areas will be fertilized and then cultivated to below the depth of contamination. This procedure will be repeated as required.
4. In the case of oil spills, soil will be restructured by adding fiber and incorporating it into the upper 15 cm using a rototiller or disc. Acceptable fibrous materials are:
  - peat,
  - wood shavings,
  - straw or hay (free of noxious and restricted weeds), and/or
  - sawdust.
5. If approved by the Responsible Agency, fertilizer (200 kg of nitrogen per hectare) will be added to the site. The precise application will depend on site conditions.



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## 11.2 Sediment and Erosion Control Plan

All sediment control provisions implemented will be in accordance with the *Land Development Guidelines for the Protection of Aquatic Habitat* (Chillibeck *et al.* 1992) and current best management practices. Erosion control measures must be installed prior to commencing work. Measures will be implemented in anticipation of run-off of sediment laden water during all phases of the construction works (e.g., silt fences, hay bales, check dams, interception ditches) and will be implemented as necessary in accordance with permits and anticipated field conditions. Erosion control measures will be overseen by and acceptable to the Environmental Monitor.

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### 11.2.1 Clearing, Grubbing and Stripping

Grubbing and stripping will be confined to areas designated for construction, stockpile, laydown and access. Where clearing is required to access the site, grubbing and stripping limits will be marked in the field and fenced, using an appropriate fencing material, prior to the commencement of work to ensure vegetation in adjoining areas is not disturbed. VANOC will ensure that clearing, stripping and grubbing does not disturb vegetation in adjoining areas.

The grubbing and stripping of soils is to be limited to that which is absolutely necessary to satisfy the construction requirements of the project (*i.e.*, access roads, venue construction and reservoir construction). Where construction can be completed without grubbing and stripping, none shall occur. Grubbing will not proceed more than five days in advance of any subsequent activity without the installation of appropriate surface drainage control. Grubbing will be suspended during and immediately after intense rainstorms that have resulted in excessive run-off.

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### 11.2.2 Runoff Interception and Control

Prior to commencement of construction, runoff interception and control facilities will be in place. French drains, energy dissipaters, geotextiles, and interception ditches will be used as needed on a site-specific basis to control erosion. The interception and control facilities consist of silt fences, diversion berms, interception ditches and sediment traps.

Diversion berms will be constructed on slope faces to intercept sheet flow on exposed soil surfaces, re-routing the water to more stable areas, away from disturbed soils or to sediment ponds. Berms will be provided at regular intervals along the work areas,



determined by the width and grade of the area to be protected. Berms will be placed so as to ensure that water will not drain back onto the disturbed areas. Where and when erosion protection measures are required at berm outlets (*i.e.* where large flows are anticipated and dissipation of the flow is required), shallow check dams (<300 mm high) formed by rock will be used. Any collected water will be forced to spread into sheet flow through the stable areas.

Sediment traps may be used where interceptor berms and ditches are required. Sediment traps are any structure that is constructed for the purpose of effectively removing suspended soil particles from run-off. The construction of sediment traps typically involves the manufacture of a containment area to retain run-off for a long enough period of time that suspended materials can settle out. Sediment traps and silt fences will be cleaned regularly to maintain maximum efficiency.

The impoundment for the intake in Cypress Creek will be constructed under dry conditions and in isolation of creek flows. A check dam and pump or other equipment (e.g., flumes) will be used as necessary to divert Cypress Creek around the work area. Silt fencing will be installed downstream of the work area before starting work on the diversion. The Environmental Monitor will notify the appropriate agencies before the commencement of work.

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### 11.2.3 Stockpiling

Temporary stockpiles of excavated material or backfill may be kept on-site. Any piles of earth or erodible construction materials stockpiled on-site will be placed a minimum of 30 m from any existing watercourses and where stockpile will not impede any drainage. All stockpiles with side slopes greater than 3H:1V will be covered with tarpaulins or plastic sheeting for erosion control and a silt fence will be required around the toe of stockpiles to prevent sediment escaping. All silt fencing will be dug in a minimum 200 mm into the ground. Any runoff that does originate from stockpiled materials will be collected and directed to the closest sediment pond or trap.

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### 11.2.4 Wheel Wash

A wheel/truck wash will be provided at the site, at the entrance to the site. The truck wash will be provided to clean sediment from the wheels and undercarriage of the vehicles prior to leaving the site. The truck wash will consist of a concrete or asphalt lined basin 400 mm deep, with 200 mm of water, and will be provided with a constant fresh water supply of approximately 10 L/min. The overall plan dimensions of a truck



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wash would be about 5 m by 12 m. Overflow and discharge from truck wash facilities would be conveyed to a sediment pond.

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#### 11.2.5 Road Sweeping

During the construction period, road surfaces affected by the construction activities will be swept on an as-needed basis. To minimize the requirements for road sweeping, vehicles and equipment will be restricted to the work site and designated access roads.

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#### 11.2.6 Slope Protection

Erosion protection measures will be used to reduce and eliminate the detachment or migration of slope soils at all times and especially during rain events and will be used in conjunction with the run-off control measures described above. Wherever possible, exposed slopes with slopes greater than 3H:1V will be covered by tarpaulins and/or polyethylene sheeting. Tarpaulins and plastic sheeting will be secured with stakes and staples, and may be bordered by silt fences. Erosion control blankets can also be used on sensitive slopes. The blankets will be secured at the top of the slope by trenching the blanket into a shallow trench and by stapling the blanket to the ground. The sides of each roll of blanketing will be overlapped with 5 to 15 cm and the ends of each roll will be shingled with a 10 to 20 cm overlap.

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#### 11.2.7 Contingency Planning & Work in Rain

Rainfall events can result in significant erosion due to the erosive impact of the water on soil surfaces. It will be the responsibility of VANOC and its Environmental Monitor to monitor current weather predictions. In the event of heavy run-off, diversion berms and check dams will be used to slow flows and prevent erosion. Tarpaulins and plastic sheeting over exposed soils will also reduce erosion. Check dams may be constructed of clear crushed gravel, sand bags, or silt fences. Materials required to handle excess runoff following a storm event will be stored on-site at all times. In the event of a severe storm event that results in run-off that exceeds the capacity of the sediment control provisions, the Environmental Monitor may halt work on site.



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### 11.3 Water Quality Monitoring

A surface water quality monitoring program will be implemented as a component of the environmental monitoring program during construction of the Cypress Venue. The purpose of the ongoing water monitoring activity is to document water quality throughout construction in nearby watercourses and to confirm and demonstrate that downstream water quality is not being negatively affected by construction. Water quality measurements will be reviewed on an ongoing basis and used to make appropriate modifications to on-site activities to ensure that the Cypress Venue construction does not affect downstream water quality.

Water quality will be monitored for pH and Turbidity / Total Suspended Solids (TSS). A hand-held turbidity meter (NTU) will be used on site to allow for immediate water quality results. A series of background samples will be collected early in the Project, however, and analyzed for TSS. This will allow the Environmental Monitor to make a correlation between TSS and turbidity. As well as turbidity, pH levels will be monitored using a hand-held pH pen, with an additional temperature reading.

Water quality monitoring will be conducted both upstream and downstream of the Project site. The results of the monitoring will be recorded in the weekly monitoring reports completed by the Environmental Monitor. Any high levels of pH or turbidity will be reported immediately to VANOC and mitigation measures will be taken.

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### 11.4 Dam Safety Plan

To be added once complete

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### 11.5 Operation, Maintenance and Surveillance Manual and Emergency Preparedness Plan

Completed in February 2006 and submitted in application for the Water Licence. Once the water licence application is approved it will be added to the EMP.



# **APPENDIX F**

## **Baseline Reports**





# **APPENDIX G**

## **Consultation Record**



Draft Chronology of meetings, communications, and agreements related to Cypress Mountain

August 4, 2005	VANOC sent an email invitation to Wanona Scott (Musqueam Nation), Melanie Rapada (Squamish Nation) and Evan Stewart (Tsleil-Waututh Nation) to participate in the Cypress EA kick-off meeting.
August 5, 2005	VANOC contacted Sonny McHalsie (Sto:lo Nation) by email to determine interest in participating in Cypress Mountain EA Review
August 9, 2005	VANOC followed up with Dave Schaepe of Sto:lo Nation who confirmed that Sto:lo would appreciate being kept in the loop on venue development, but will not attend the meeting.
August 11, 2005	VANOC followed up with Joe Hall of Sto:lo Nation
August 16, 2005	Cypress EA Working Group kick-off meeting In attendance: Leona Sparrow (Musqueam Nation), Melanie Rapada (Squamish Nation), David Harper (Westland Resource Group for Squamish Nation), Mike George (Tsleil-Waututh Nation, lunch only), Evan Stewart (Tsleil-Waututh Nation, lunch only)  Agenda: <ul style="list-style-type: none"> <li>• Meet at Cypress Day Lodge / Introductions.</li> <li>• Overall venue concept</li> <li>• Tour of the freestyle and then snowboard locations, walk to reservoir site review snowmaking concept</li> <li>• Introduce and review EA process schedule</li> <li>• Review of EA work to date and work to be completed</li> <li>• BC Parks impact assessment, CEAA screening, Public and First Nations consultation</li> <li>• September stakeholders meeting.</li> </ul>
August 31, 2005	VANOC received proposal for participation in EA process from Musqueam Nation
Sept. 8, 2005	Cypress EA Stakeholders meeting held at Cypress Mountain, invitation sent out to EA Working Group list, including Evan Stewart (Tsleil-Waututh Nation), Leona Sparrow (Musqueam Nation), Melanie Rapada (Squamish Nation) and Sonny McHalsie (Sto:lo Nation).
Sept. 20, 2005	VANOC received unsigned proposal from Squamish Nation regarding participation in EA process
September 21, 2005	VANOC sent a letter to Evan Stewart (Tsleil-Waututh Nation) to request feedback on participation in the EA process. No response received.
November 3, 2005	VANOC received signed participation proposal from Melanie Rapada (Squamish Nation).
November 3, 2005	VANOC asked Evan Stewart (Tsleil-Waututh Nation), Leona Sparrow (Musqueam Nation) and Melanie Rapada (Squamish Nation) by email whether there is interest in the community VANOC present to Council, or co-host an open house to invite the community to understand plans to date for project and EA process. No response received from Evan; Leona responded that there could be interest and she would follow up with



	Council; and Melanie responded that there would be more interest further along in the design process.
November 10, 2005	VANOC sent a follow-up letter to Evan Stewart requesting feedback on participation in the EA process, and whether the community or Council is interested in having VANOC providing information on EA process and Cypress project in an open house or presentation. No response received.
November 14, 2005	VANOC issued update by email on a Cypress Mountain open house on December 8, 2005 in West Vancouver. Update sent to Evan Stewart (Tsleil-Waututh Nation), Leona Sparrow (Musqueam Nation), Melanie Rapada (Squamish Nation), Dave Schaepe, Sonny McHalsie (both Sto:lo Nation), Dave Harper (Westland Resource Group) and Leslie Giroday (Ratcliff).
December 8, 2005	VANOC hosted an Open House in District of West Vancouver. Invitation sent to EA Working Group distribution list, and Cypress Stakeholders distribution list.
December 8, 2005	Katherine Steig of the Friends of Cypress provided VANOC with a document entitled: "Friends of Cypress Provincial Park's expectations and questions regarding 2010 Winter Olympics events at Cypress – Friends of Cypress Provincial Park Society." VANOC responds by letter on January 31, 2006.
January 4, 2006	Steve Matheson of VANOC sent Chief Bill Williams of Squamish Nation a Participation Agreement for the Cypress EA process.
January 13, 2006	VANOC provided a preliminary email response to the Friends of Cypress expectations and questions.
January 20, 2006	Invitation sent by email to Evan Stewart, Melanie Rapada, Leona Sparrow to attend the EA Working Group January 25 <sup>th</sup> , and to ask whether a presentation to community would be of interest. Leona Sparrow attends the Jan. 25 <sup>th</sup> meeting. Squamish Nation indicates that their new representative will be Chief Ian Campbell.
January 20, 2006	VANOC couriered the draft EA report by hard copy and CD to the District of West Vancouver, the West Vancouver Memorial Library, the North Vancouver Public Library and the Vancouver Public Library. The District of West Vancouver posts the draft EA report to their home web page at westvancouver.ca.
January 20, 2006	Katherine Steig of Friends of Cypress requested a breakdown of the Communications Plan for the second open house, and how to access the draft EA report. VANOC responds the same day.
January 25, 2006	Second Cypress EA Working Group meeting held at VANOC offices. Attendees from VANOC: George McKay, Joel Roy, Neil Turner, Stephanie Herdman, and Kristen Harvey. From Musqueam Nation, Leona Sparrow attended. David Harper attended on behalf of Squamish Nation. Agenda reviewed: <ul style="list-style-type: none"> <li>• Update on changes to Cypress Mountain venue design plans</li> <li>• Review and work group feedback and comments of draft EA review</li> <li>• Comments and feedback on the AOA report</li> <li>• EA commitments request</li> <li>• Open house information</li> <li>• Schedule review</li> </ul>



	<ul style="list-style-type: none"> <li>• Next steps</li> </ul>
January 27, 2006	<p>BC Parks posted the draft EA report on their Cypress Provincial Park website  <a href="http://www.env.gov.bc.ca/bcparks/explore/parkpgs/cypress.html">http://www.env.gov.bc.ca/bcparks/explore/parkpgs/cypress.html</a></p>
January 27, 2006	<p>VANOC followed up on previous invitation regarding a community or Council presentation, and advises of the Feb. 8<sup>th</sup> Open House in West Vancouver. Squamish Nation offers to respond by Feb. 1<sup>st</sup> regarding a presentation to community or Council.</p>
January 27, 2006	<p>Alex Wallace of the Friends of Cypress notified VANOC by email of his concerns regarding publicity for the Feb. 8<sup>th</sup> Open House. On January 30<sup>th</sup>, George McKay responds by email on behalf of VANOC:</p> <ul style="list-style-type: none"> <li>• VANOC is spending about \$3000 on advertising for the Public meeting on Feb 8<sup>th</sup></li> <li>• ¼ page ads will be appearing in the paper next week: Feb 1 &amp; 5 in the North Shore News and Feb 2 in the North Shore Outlook.</li> <li>• Ad advertisement for the Open House is scheduled to appear in the next edition of West Vancouver TIDINGS newsletter for Feb 5<sup>th</sup></li> <li>• The report has been posted to the District of West Vancouver website (<a href="http://www.westvancouver.ca">www.westvancouver.ca</a>) as well as the BC Parks Website (<a href="http://www.env.gov.bc.ca/bcparks/explore/parkpgs/cypress.html">http://www.env.gov.bc.ca/bcparks/explore/parkpgs/cypress.html</a>)</li> <li>• The report is available at the Main Public Libraries in West Vancouver, North Vancouver and downtown Vancouver (as a CD and a hardcopy). The librarians have all been contacted and provided with a 'poster' for them to print and post.</li> </ul>
January 31, 2006	<p>VANOC hand delivered a written response to document entitled "Friends of Cypress Provincial Park's expectations and questions regarding 2010 Winter Olympics events at Cypress – Friends of Cypress Provincial Park Society."</p>
February 1, 2006	<p>VANOC contacted Evan Stewart, Leona Sparrow, David Harper by telephone to ask whether there is interest in having VANOC present Cypress Venue plans to the Nation's councils or community. Left a voice mail message with Evan and Leona. David indicated he would seek an answer and provide an answer by February 2.</p>
February 1, 2006	<p>VANOC replies by letter to questions from Friends of Cypress regarding public communication efforts and legacy considerations.</p>
February 2, 2006	<p>VANOC contacted Evan Stewart (Tsleil-Waututh) by telephone. Evan confirmed he would ask his caucus whether there is interest in having VANOC present venue and EA plans to the Council or community. He confirmed he will reply back to VANOC by Wednesday February 8.</p>
February 2, 2006	<p>VANOC met with Chief Ian Campbell (Squamish Nation) and Dave Harper in North Vancouver. VANOC attendees include George McKay and Gary Youngman. Squamish Nation requested that a discussion regarding the Cypress EA be removed from the agenda because not all concerned First Nations are present.</p>
February 2, 2006	<p>Leona Sparrow contacted VANOC by email to confirm that she has</p>



	forwarded the offer for VANOC to provide a venue update to Council or the liaison committee. She will let VANOC know if Council or the liaison committee accepts the offer of a presentation.
February 2, 2006	Alex Wallace sent a map of trails in Cypress Provincial Park to VANOC by fax. VANOC reviews and responds by email on February 7.
February 3, 2006	VANOC followed through on a request from the December 8 Open House to forward a copy of the draft EA report to Dr. Paul Richard, Chair of the Environmental Protection Technology program, and Thomas Nichols.
February 3, 2006	Katherine Steig sent a map of trails in Cypress Provincial Park to VANOC by mail to VANOC. VANOC responds by email on February 7.
February 8, 2006	VANOC hosted second Open House in District of West Vancouver Council Chambers.
February 14, 2006	Squamish Nation sent VANOC comments on the draft EA report.
February 21, 2006	Alex Wallace of Friends of Cypress sent a concern to George McKay of VANOC via email regarding a Cypress culvert at KM 14. VANOC forwards concern to BC Ministry of Transportation Feb. 21.
February 22, 2006	Peter Miller sent John Furlong of VANOC a concern about Eagle Ridge Bluffs development plans. He asks whether VANOC will request that the BC Ministry of Transportation reconsider its plans.
February 24, 2006	Kick-off meeting to discuss legacy for Cypress Provincial Park. Meeting held at BC Parks offices in North Vancouver. Attendees: George McKay, VANOC Katherine Steig, Friends of Cypress Alex Wallace, Friends of Cypress Don Grant, Hollyburn Heritage Society Evan Loveless, Federation of Mountain Clubs of BC Doug Leavers, West Vancouver Parks Tom Bell, Ministry of Environment Larry Syroishko, BC Parks (Ministry of Environment) Vicki Haberl, Ministry of Environment First Nations representatives to be invited to ongoing legacy discussions.
April 5, 2006	VANOC issued an invitation to Musqueam Nation, Tsleil-Waututh Nation, Sto:lo Nation and Squamish Nation for an Archaeological Impact Assessment field visit.
April 12, 2006	VANOC presented project and EA review update to Squamish Nation Council.
April 12, 2006	VANOC received correspondence from Alexander Heritage Consulting (AHC) indicated that based on design adjustments and assessment of a low archaeological potential, AHC believes construction can commence without concern.
April 13, 2006	VANOC received a letter from Ratcliff and Company on behalf of Squamish Nation that provides support for the commencement of construction.
April 18, 2006	Project review complete. Post-approval discussions to continue as required.

