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**Botanical survey
Fundy Tidal Power Demonstration Site—
Shore Facility**

Cape Sharp, Cumberland County, Nova Scotia

2009

**Jim Jotcham
Marbicon Inc.
February 22 2010**

In 2008 and 2009, Marbicon Inc. was contracted to perform a botanical survey of a site on the north shore of the Bay of Fundy, about 7 km southwest of Parrsboro. The site was located at approximately 45° 22' 19'' N and 64° 24' 21'' W. Figure 1 is an aerial view of the study area. Figure 2 is a map provided by the Atlantic Canada Conservation Data Centre (ACCDC).

The site was inventoried by botanist Jim Jotcham on October 2, 2008 and on June 11, August 26, and September 22, 2009. Appendix 1 shows the list of plant species found (sorted by habitat), plus their sub-national (S rank) and provincial (NSDNR) status.

The property contained several distinct plant communities. Bordering the Bay of Fundy is an exposed barrier stony/gravel beach (Figure 3) dominated by low shrubs such as chokecherry (*Prunus virginiana*) and Virginia rose (*Rosa virginiana*). The raised beach protects a small saltwater pond surrounded by a salt marsh (Figure 4). Typical salt marsh plants such as cord-grasses (*Spartina spp.*) were close to the pond, and above the drift line freshwater species such as cat-tails became abundant. The dominant graminoid between the pond and the cat-tails was Chaffy sedge (*Carex palacea*).

The shore immediately above the marsh on the west side of the site is a high shrub community (Figure 5) dominated by chokecherries and speckled alder (*Alnus incana*). On the east side of the property the marsh meets forest (Figure 6). Both the shrub and forest communities rise over an escarpment.

Additional communities above the small escarpment include old fields (Figure 7), residential areas with mowed lawns, and a couple of forested areas (Figures 8 and 9). The sampled old field was diverse, and included some small wet areas. A gully led from the central upper portion of the site and flowed down through the escarpment to the lower saltmarsh. The gully (Figure 10) had freely running water, flowing down to the salt marsh. The gully sides were rocky with occasional cover such as buttercups (*Ranunculus repens*), ferns, and raspberry (*Rubus idaeus*). Solitary roseroot plants occasionally grew along the banks. A second gully was noted to the west, but this was not sampled separately. It also had a stream with running water and a similar floristic composition.

The west forest was quite open (Figure 8), with occasional white spruce and balsam fir intermingled with speckled alders. The east forest was a dense conifer forest dominated by white spruce (*Picea glauca*) and balsam fir (*Abies balsamea*) between the road and the escarpment (Figure 9). Below the escarpment the forest opened into an open deciduous/mixed forest with white and yellow birches (*Betula allegheniensis* and *B. papyrifera*) and shrubs such as alder and chokecherry.

White-tail deer tracks were seen in the eastern forest stand.

No rare plant species or special habitats were identified on the site. Because the site was quite small, no specific sampling pattern was utilized. All parts of the site were examined from West Bay Road down to the shore. No quantitative sampling was performed.

It must be noted that no conclusions may be drawn as to the presence or absence of

species more easily seen or identified in other seasons.

Appendix 1 shows the list of plant species identified on site, sorted by habitat. Scientific names are from Zinck (1998). Common names are from NSDNR.

Appendix 2 is a summary of the botany report from the Heritage Division, Nova Scotia Department of Tourism, Culture and Heritage. The appended list of species at risk provided by them includes flora of both aquatic and terrestrial habitats.

Appendix 3 is a summary of the botany portion of the report supplied by the Atlantic Canada Conservation Data Centre (ACCDC). The list shown is for all rare flora identified within 10 km, with no sorting by habitat.

There is some overlap in the lists in Appendices 2 and 3, although there are some differences. Note that *Asplenium viride* (on the Heritage Division list) is a synonym for *Asplenium trichomanes* (on the ACCDC list). Because the site includes several habitats, many of the listed species were potentially on site. However, none were found during this survey. Some of the listed species prefer habitats that were not found during the survey. For example, some of the species are usually found on exposed cliffs, a habitat missing from the study site, although this habitat is nearby.

Plants can be opportunistic and do not always follow expected patterns. However, based on habitat descriptions found in Zinck (1998), several species that might fit the site include the following:

Alopecurus aequalis is found on ...gravel margins.

Aster (Symphyotrichum) ciliolatus is found in open fields, lawns, and the edges of woods.

Botrychium dissectum is found on sandy, gravelly, turfy, or open soils.

Campanula aparinoides is found in meadows and ditches.

Cardamine parviflora is found in dry woods.

Carex albicans var. *emmonsii* is found in ...thickets and clearings.

Huperzia selago is found in rock crevices on stream cliffs and moist ravines.

Juncus dudleyi is found in fields, roadsides, and open ditches.

Lobelia spicata is found in dry fields.

Platanthera grandiflora is found in wet meadows.

Polystichum braunii is found on ...ravines and seepy hillsides.

Rubus pensilvanicus is found in thickets, the edges of woods, and clearings.

Although the habitats described above fit at least parts of the site, none of the listed species of concern were identified on the site.

In conclusion, no rare or unusual plants or habitats were identified. Any proposal for work at this site should include a reference to mitigating factors for the wetland (the pond and surrounding salt marsh).

A handwritten signature in cursive script that reads "Jim Jotcham".

Jim Jotcham
February 22 2010

(north)

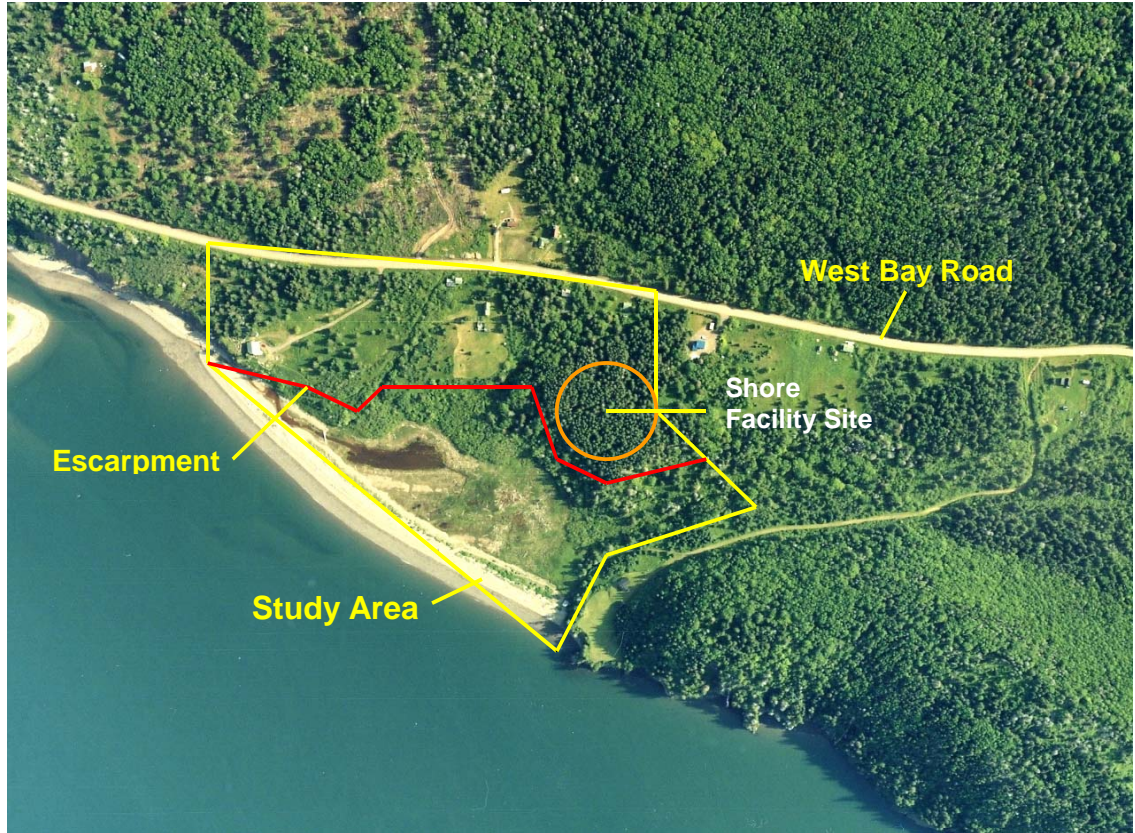


Figure 1. Aerial view of the study area on the north shore of the Bay of Fundy, south of the West Bay Road. The escarpment separates the pond and marsh from the shrub/forest areas.

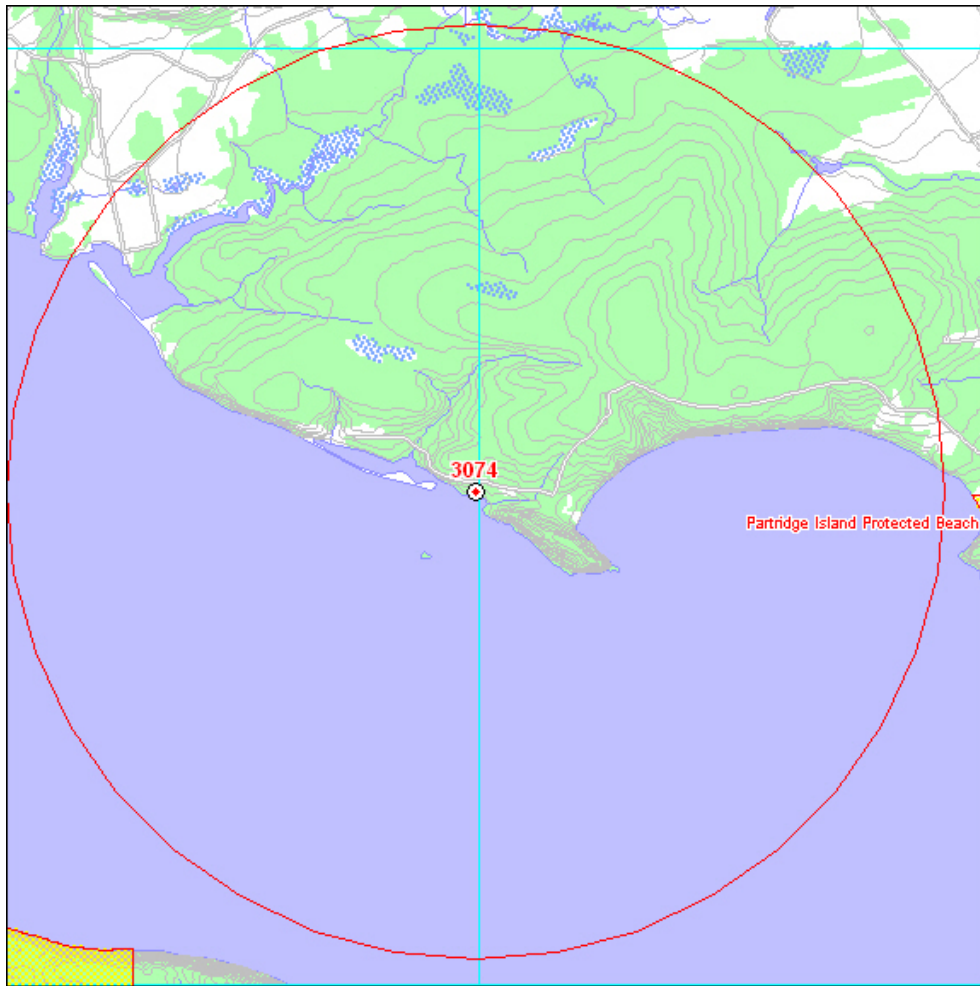


Figure 2. Map of the area provided by ACCDC. The centre point is the study area (defined here as No. 3074). The circle is a 10 km radius.



Figure 3. Barrier beach between the pond/salt marsh complex and the Bay of Fundy. There were no plants growing on the exposed side.



Figure 4. Pond/saltmarsh complex behind the barrier beach. Note the forest on the right background (behind the saltmarsh), and the high shrubs to the left.



Figure 5. View of the shrub thicket from the top of the escarpment, looking south toward the pond and barrier beach.



Figure 6. Looking into the forest on the northeast part of the saltmarsh. White Spruce, balsam fir, and American mountain-ash are shown.



Figure 7. The old field above the escarpment; with abundant low shrubs.



Figure 8. Eastern woodland. White spruce/balsam fir softwood forest, shown here with a groundcover of wild sarsaparilla.



Figure 9. Western woodland – mostly fairly open speckled alder with white spruce and balsam fir.



Figure 10. The central gully, showing the flowing water, the rocky sides, and occasional patches of vegetation.

Appendix 1. List of species identified October 2, 2008 and June 11, 2009. Scientific names are from Zinck (1998). Synonyms are in brackets. Species with population status below S5 are highlighted. No native species had other than a Green NSDNR rank. S-ranks are defined in Appendix 3. NSDNR ranks are restricted to native species:

- Red = known to be, or that is thought to be at risk.
- Yellow = sensitive to human activities or natural events.
- Green = not believed to be sensitive or at risk.

Common Name	Binomial	Sub-national status (ACCDC)	NSDNR Status
Plant species found on the exposed gravel barrier beach (and directly behind the crest):			
Pearly everlasting	<i>Anaphalis margaritacea</i>	S5	Green
Small white aster	<i>Aster (Symphyotrichum) lateriflorus</i>	S5	Green
Rough aster	<i>Aster (Symphyotrichum) puniceus</i>	S5	Green
Parasol white-top	<i>Aster (Doellingeria) umbellatus</i>	S5	Green
American sea-rocket	<i>Cakile edentula</i>	S5	Green
Wild morning-glory	<i>Calystegia sepium</i>	S5	Green
Ox-eye daisy	<i>Chrysanthemum leucanthemum</i>	SE	--
Bull thistle	<i>Cirsium vulgare</i>	SE	--
American dune grass	<i>Elymus (Leymus) mollis</i>	S5	Green
Common eyebright	<i>Euphrasia officinalis (nemorosa)</i>	S5SE	Green
Strawberry	<i>Fragaria virginiana</i>	S5	Green
Hemp-nettle	<i>Galeopsis tetrahit</i>	SE	--
Mouse-eared hawkweed	<i>Hieracium pilosella</i>	SE	--
Hawkweed	<i>Hieracium piloselloides</i>	SE	--
Sea-beach sandwort	<i>Honckenya peploides</i>	S5	Green
Beach pea	<i>Lathyrus maritimus (japonicus)</i>	S5	Green
Fall dandelion	<i>Leontodon autumnalis</i>	SE	--
Scotch lovage	<i>Ligusticum scoticum</i>	S5	Green
Sea lavender	<i>Limonium carolinianum</i>	S5	Green
Butter-and-eggs	<i>Linaria vulgaris</i>	SE	--
Mayweed	<i>Matricaria maritima</i>	SE	--
Evening primrose	<i>Oenothera biennis</i>	S5	Green
White spruce	<i>Picea glauca</i>	S5	Green
Seashore plantain	<i>Plantago maritima</i>	S5	Green
Fowler knotweed	<i>Polygonum fowleri</i>	S5	Green
Chokecherry	<i>Prunus virginiana</i>	S5	Green
Gooseberry	<i>Ribes hirtellum</i>	S5	Green
Multiflora rose	<i>Rosa rugosa</i>	SE	--
Common wild rose	<i>Rosa virginiana</i>	S5	Green
Raspberry	<i>Rubus idaeus</i>	S5	Green
Common groundsel	<i>Senecio vulgaris</i>	SE	--
White goldenrod	<i>Solidago bicolor</i>	S5	Green
Perennial sow-thistle	<i>Sonchus arvensis</i>	SE	--

Cord grass	<i>Spartina alterniflora</i>	S5	Green
Salt hay	<i>Spartina patens</i>	S5	Green
Cord grass	<i>Spartina pectinata</i>	S5	Green

Plant species found in the saltmarsh zone:

Orach	<i>Atriplex prostrata</i>	S5	Green
Chaffy sedge	<i>Carex paleacea</i>	S5	Green
Spikegrass	<i>Distichlis spicata</i>	S4	Green
Soft rush	<i>Juncus effusus</i>	S5	Green
Black-grass rush	<i>Juncus gerardii</i>	S5	Green
Sea lavender	<i>Limonium carolinianum</i>	S5	Green
Seashore plantain	<i>Plantago maritima</i>	S5	Green
American alkali grass	<i>Puccinellia americana</i>	S4S5	Green
Holy grass	<i>Hierochloe odorata</i>	S4S5	Green
Water dock	<i>Rumex orbiculatus</i>	S5	Green
Glasswort	<i>Salicornia europaea</i>	S5	Green
Saltmarsh bulrush	<i>Schoenoplectus maritimus</i>	S4S5	Green
Seaside goldenrod	<i>Solidago sempervirens</i>	S5	Green
Cord grass	<i>Spartina alterniflora</i>	S5	Green
Salt hay	<i>Spartina patens</i>	S5	Green
Cord grass	<i>Spartina pectinata</i>	S5	Green
Sea-blite	<i>Suaeda maritima</i>	S5SE	Green
Arrow-grass	<i>Triglochin maritima</i>	S5	Green
Cat-tail, broad-leaved	<i>Typha latifolia</i>	S5	Green

(found above the drift line)

Plant species found along the forest/saltmarsh edge northeast of the saltmarsh pond:

Balsam fir	<i>Abies balsamea</i>	S5	Green
Green alder	<i>Alnus viridis</i>	S5	Green
New Belgium american aster	<i>Aster (Symphyotrichum) novi-belgii</i>	S5	Green
Blue-joint reedgrass	<i>Calamagrostis canadensis</i>	S5	Green
Rough bedstraw	<i>Galium asprellum</i>	S5	Green
White spruce	<i>Picea glauca</i>	S5	Green
Arrow-leaved tear-thumb	<i>Polygonum sagittatum</i>	S5	Green
Trembling poplar	<i>Populus tremuloides</i>	S5	Green
Creeping buttercup	<i>Ranunculus repens</i>	SE	--
Red raspberry	<i>Rubus idaeus</i>	S5	Green
American mountain-ash	<i>Sorbus americana</i>	S5	Green

Plant species found along the shrub/saltmarsh edge west of the forest edge:

Speckled alder	<i>Alnus incana</i>	S5	Green
Green alder	<i>Alnus viridis</i>	S5	Green
Sweet vernal grass	<i>Anthoxanthum odoratum</i>	SE	--
Sandwort	<i>Arenaria lateriflora</i>	S5	Green
Fringed sedge	<i>Carex crinita</i>	S4S5	Green
Shallow sedge	<i>Carex lurida</i>	S5	Green

Stalk-grain sedge	<i>Carex stipata</i>	S5	Green
Water horsetail	<i>Equisetum fluviatile</i>	S5	Green
Narrow-leaved goldenrod	<i>Euthamia graminifolia</i>	S5	Green
Northern manna-grass	<i>Glyceria X laxa</i>	S4?	Green
Blue flag	<i>Iris versicolor</i>	S5	Green
Japanese knotweed	<i>Polygonum cuspidatum</i>	SE	--
Lady's-thumb	<i>Polygonum persicaria</i>	SE	--
Creeping buttercup	<i>Ranunculus repens</i>	SE	--
Cottongrass bulrush	<i>Scirpus cyperinus</i>	S5	Green
Hemlock water-parsnip	<i>Sium suave</i>	S5	Green
Canada goldenrod	<i>Solidago canadensis</i>	S5	Green
Rough-leaf goldenrod	<i>Solidago rugosa</i>	S5	Green
Meadow-rue	<i>Thalictrum pubescens</i>	S5	Green
Coltsfoot	<i>Tussilago farfara</i>	SE	--
Cat-tail, broad-leaved	<i>Typha latifolia</i>	S5	Green
Tufted vetch	<i>Vicia cracca</i>	SE	--

Plant species found in the shrub zone (including the escarpment):

Red maple	<i>Acer rubrum</i>	S5	Green
Speckled alder	<i>Alnus incana</i>	S5	Green
Green alder	<i>Alnus viridis</i>	S5	Green
Meadow foxtail	<i>Alopecurus pratensis</i>	SE	--
Parasol white-top	<i>Aster (Doellingeria) umbellatus</i>	S5	Green
Yellow sedge	<i>Carex flava</i>	S5	Green
Graceful sedge	<i>Carex gracillima</i>	S4S5	Green
Fireweed	<i>Epilobium angustifolium</i>	S5	Green
Strawberry	<i>Fragaria virginiana</i>	S5	Green
Hemp-nettle	<i>Galeopsis tetrahit</i>	SE	--
Common apple	<i>Malus pumila</i>	SE	--
Sensitive fern	<i>Onoclea sensibilis</i>	S5	Green
White spruce	<i>Picea glauca</i>	S5	Green
Arrow-leaved tearthumb	<i>Polygonum sagittatum</i>	S5	Green
Chokecherry	<i>Prunus virginiana</i>	S5	Green
Common blackberry	<i>Rubus allegheniensis</i>	S5	Green
Red raspberry	<i>Rubus idaeus</i>	S5	Green
Common wild rose	<i>Rosa virginiana</i>	S5	Green
Sheep sorrel	<i>Rumex acetosella</i>	SE	--
Rough-leaf goldenrod	<i>Solidago rugosa</i>	S5	Green
Little starwort	<i>Stellaria graminea</i>	SE	--
Meadow-rue	<i>Thalictrum pubescens</i>	S5	Green
Red Clover	<i>Trifolium pratense</i>	SE	--
Gypsy-weed	<i>Veronica officinalis</i>	S5SE	--
Possum-haw viburnum	<i>Viburnum nudum</i>	S5	Green

Plant species found in the old fields above the escarpment):

Yarrow	<i>Achillea millefolium</i>	S5	Green
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Speckled alder	<i>Alnus incana</i>	S5	Green
Green alder	<i>Alnus viridis</i>	S5	Green
Meadow foxtail	<i>Alopecurus pratensis</i>	SE	--
New York aster	<i>Aster (Symphyotrichum) novi-belgii</i>	S5	Green
Hedge bindweed	<i>Calystegia sepium</i>	S5	Green
Fringed sedge	<i>Carex crinita</i>	S4S5	Green
Yellow sedge	<i>Carex flava</i>	S5	Green
Marsh straw sedge	<i>Carex hormathodes</i>	S4S5	Green
Pale sedge	<i>Carex pallescens</i>	S5	Green
Pointed broom sedge	<i>Carex scoparia</i>	S5	Green
Poverty oat-grass	<i>Danthonia spicata</i>	S5	Green
Parasol white-top	<i>Doellingeria umbellata</i>	S5	Green
Quack-grass	<i>Elymus repens</i>	SE	--
Wild mock-cucumber	<i>Echinocystis lobata</i>	SE	--
Fireweed	<i>Epilobium angustifolium</i>	S5	Green
Hairy willow-herb	<i>Epilobium ciliatum</i>	S5	Green
Woodland horsetail	<i>Equisetum sylvaticum</i>	S5	Green
Narrow-leaved goldenrod	<i>Euthamia graminifolia</i>	S5	Green
Hair fescue	<i>Festuca filiformis</i>	SE	--
Red fescue	<i>Festuca rubra</i>	S5	Green
Strawberry	<i>Fragaria virginiana</i>	S5	Green
Brittle-stem hemp nettle	<i>Galeopsis tetrahit</i>	SE	--
Fowl manna-grass	<i>Glyceria striata</i>	S5	Green
Orange day-lily	<i>Hemerocallis fulva</i>	SE	--
Mouse-eared hawkweed	<i>Hieracium pilosella</i>	SE	--
Hawkweed	<i>Hieracium piloselloides</i>	SE	--
Common bluets	<i>Houstonia (Hedyotis) caerulea</i>	S5	Green
Spotted jewel-weed	<i>Impatiens capensis</i>	S5	Green
Blue flag	<i>Iris versicolor</i>	S5	Green
Soft rush	<i>Juncus effusus</i>	S5	Green
Ground juniper	<i>Juniperus communis</i>	S5	Green
Hairy woodrush	<i>Luzula acuminata</i>	S5	Green
Common apple	<i>Malus pumila</i>	SE	--
Musk cheeseweed	<i>Malva moschata</i>	SE	--
Sensitive fern	<i>Onoclea sensibilis</i>	S5	Green
Timothy	<i>Phleum pratense</i>	SE	--
Kentucky bluegrass	<i>Poa pratensis</i>	S5	Green
Arrow-leaved tearthumb	<i>Polygonum sagittatum</i>	S5	Green
Tall buttercup	<i>Ranunculus acris</i>	SE	--
Creeping buttercup	<i>Ranunculus repens</i>	SE	--
Smooth gooseberry	<i>Ribes hirtellum</i>	S5	Green
Common wild rose	<i>Rosa virginiana</i>	S5	Green
Common blackberry	<i>Rubus allegheniensis</i>	S5	Green
Bristly Dewberry	<i>Rubus hispidus</i>	S5	Green
Raspberry	<i>Rubus idaeus</i>	S5	Green
Bulrush	<i>Scirpus atrocinctus</i>	S5	Green

Rough-leaf goldenrod	<i>Solidago rugosa</i>	S5	Green
American mountain-ash	<i>Sorbus americana</i>	S5	Green
Narrow-leaved meadowsweet	<i>Spiraea alba</i>	S5	Green
Rabbit-foot clover	<i>Trifolium arvense</i>	SE	--
Red Clover	<i>Trifolium pratense</i>	SE	--
Possum-haw viburnum	<i>Viburnum nudum</i>	S5	Green
Tufted vetch	<i>Vicia cracca</i>	SE	--

Plant species found in the east forest zone:

Balsam fir	<i>Abies balsamea</i>	S5	Green
Red Maple	<i>Acer rubrum</i>	S5	Green
Speckled alder	<i>Alnus incana</i>	S5	Green
Green alder	<i>Alnus viridis</i>	S5	Green
Wild sarsaparilla	<i>Aralia nudicaulis</i>	S5	Green
Whorled aster	<i>Aster (Oclemena) acuminatus</i>	S5	Green
Yellow birch	<i>Betula allegheniensis</i>	S5	Green
Paper birch	<i>Betula papyrifera</i>	S5	Green
Softleaf sedge	<i>Carex disperma</i>	S5	Green
Graceful sedge	<i>Carex gracillima</i>	S4S5	Green
Bladder sedge	<i>Carex intumescens</i>	S5	Green
Alternate-leaf dogwood	<i>Cornus alternifolia</i>	S5	Green
Dwarf dogwood	<i>Cornus canadensis</i>	S5	Green
Poverty oat-grass	<i>Danthonia spicata</i>	S5	Green
Eastern hay-scented fern	<i>Dennstaedtia punctilobula</i>	S5	Green
Crinkled hairgrass	<i>Deschampsia flexuosa</i>	S5	Green
Spinulose shield fern	<i>Dryopteris carthusiana</i>	S5	Green
Strawberry	<i>Fragaria virginiana</i>	S5	Green
Brittle-stem hempnettle	<i>Galeopsis tetrahit</i>	SE	--
Rough bedstraw	<i>Galium asprellum</i>	S5	Green
Common bluets	<i>Houstonia (Hedyotis) caerulea</i>	S5	Green
American fly honeysuckle	<i>Lonicera canadensis</i>	S5	Green
Wild Lily-of-the-valley	<i>Maianthemum canadense</i>	S5	Green
Common apple	<i>Malus pumila</i>	SE	--
Indian-pipe	<i>Monotropa uniflora</i>	S5	Green
Interrupted fern	<i>Osmunda claytoniana</i>	S5	Green
Cinnamon fern	<i>Osmunda cinnamomea</i>	S5	Green
Upright yellow wood sorrel	<i>Oxalis stricta</i>	S5	Green
Timothy	<i>Phleum pratense</i>	SE	--
White spruce	<i>Picea glauca</i>	S5	Green
Trembling poplar	<i>Populus tremuloides</i>	S5	Green
Old-field cinquefoil	<i>Potentilla simplex</i>	S5	Green
Chokecherry	<i>Prunus virginiana</i>	S5	Green
Bracken fern	<i>Pteridium aquilinum</i>	S5	Green
Creeping buttercup	<i>Ranunculus repens</i>	SE	--
Skunk currant	<i>Ribes glandulosum</i>	S5	Green
Common blackberry	<i>Rubus allegheniensis</i>	S5	Green

Raspberry	<i>Rubus idaeus</i>	S5	Green
Red Elderberry	<i>Sambucus racemosa</i>	S5	Green
Rough-leaf goldenrod	<i>Solidago rugosa</i>	S5	Green
American mountain-ash	<i>Sorbus americana</i>	S5	Green
Meadow-rue	<i>Thalictrum pubescens</i>	S5	Green
Northern starflower	<i>Trientalis borealis</i>	S5	Green
Velvet-leaf blueberry	<i>Vaccinium myrtilloides</i>	S5	Green
Gypsy-weed	<i>Veronica officinalis</i>	S5SE	Green
Poosum-haw viburnum	<i>Viburnum nudum</i>	S5	Green
Wooly blue violet	<i>Viola sororia</i>	S5	Green

Plant species found in the west forest zone:

Balsam fir	<i>Abies balsamea</i>	S5	Green
Red Maple	<i>Acer rubrum</i>	S5	Green
Speckled alder	<i>Alnus incana</i>	S5	Green
Woodland horsetail	<i>Equisetum sylvaticum</i>	S5	Green
Wild lily-of-the-valley	<i>Maianthemum canadense</i>	S5	Green
Common apple	<i>Malus pumila</i>	SE	--
Cinnamon fern	<i>Osmunda cinnamomea</i>	S5	Green
White spruce	<i>Picea glauca</i>	S5	Green
Creeping buttercup	<i>Ranunculus repens</i>	SE	--
Common wild rose	<i>Rosa virginiana</i>	S5	Green
Raspberry	<i>Rubus idaeus</i>	S5	Green
Rough-leaf goldenrod	<i>Solidago rugosa</i>	S5	Green
Northern starflower	<i>Trientalis borealis</i>	S5	Green

Plant species found in the central gully:

Balsam fir	<i>Abies balsamea</i>	S5	Green
Speckled alder	<i>Alnus incana</i>	S5	Green
Whorled aster	<i>Aster (Oclemena) acuminatus</i>	S5	Green
Parasol white-top	<i>Aster (Doellingeria) umbellatus</i>	S5	Green
Large-leaved avens	<i>Avens macrophyllum</i>	S5	Green
Paper birch	<i>Betula papyrifera</i>	S5	Green
Fringed sedge	<i>Carex crinita</i>	S4S5	Green
Creeping thistle	<i>Cirsium arvense</i>	SE	--
Alternate-leaf dogwood	<i>Cornus alternifolia</i>	S5	Green
Spinulose shield fern	<i>Dryopteris carthusiana</i>	S5	Green
Wild mock-cucumber	<i>Echinocystis lobata</i>	SE	--
Hairy willow-herb	<i>Epilobium ciliatum</i>	S5	Green
Hemp-nettle	<i>Galeopsis tetrahit</i>	SE	--
Rough bedstraw	<i>Galium asprellum</i>	S5	Green
American fly honey-suckle	<i>Lonicera canadensis</i>	S5	Green
Common apple	<i>Malus pumila</i>	SE	--
Sensitive fern	<i>Onoclea sensibilis</i>	S5	Green

White spruce	<i>Picea glauca</i>	S5	Green
Chokecherry	<i>Prunus virginiana</i>	S5	Green
Creeping buttercup	<i>Ranunculus repens</i>	SE	--
Common blackberry	<i>Rubus allegheniensis</i>	S5	Green
Red raspberry	<i>Rubus idaeus</i>	S5	Green
Dwarf red raspberry	<i>Rubus pubescens</i>	S5	Green
Water dock	<i>Rumex orbiculatus</i>	S5	Green
Mad dog skullcap	<i>Scutellaria lateriflora</i>	S5	Green
Roseroot	<i>Sedum rosea</i>	SE	--
Bulrush	<i>Scirpus atrocinctus</i>	S5	Green
Marsh fern	<i>Thelypteris palustris</i>	S5	Green
Colt's-foot	<i>Tussilago farfara</i>	SE	--
Gypsy-weed	<i>Veronica officinalis</i>	S5SE	Green
Possum-haw viburnum	<i>Viburnum nudum</i>	S5	Green

Plant species found in the eastern gully:

Balsam fir	<i>Abies balsamea</i>	S5	Green
Red Maple	<i>Acer rubrum</i>	S5	Green
Mountain maple	<i>Acer spicatum</i>	S5	Green
Speckled alder	<i>Alnus incana</i>	S5	Green
Farewell summer	Aster (Symphyotrichum) lateriflorum	S5	Green
Fringed sedge	<i>Carex crinita</i>	S4S5	Green
Shallow sedge	<i>Carex lurida</i>	S5	Green
Stalk-grain sedge	<i>Carex stipata</i>	S5	Green
White turtlehead	<i>Chelone glabra</i>	S5	Green
Spinulose shield fern	<i>Dryopteris carthusiana</i>	S5	Green
Hairy willow-herb	<i>Epilobium ciliatum</i>	S5	Green
Hemp-nettle	<i>Galeopsis tetrahit</i>	SE	--
Fowl manna-grass	<i>Glyceria striata</i>	S5	Green
Spotted jewel-weed	<i>Impatiens capensis</i>	S5	Green
Cinnamon fern	<i>Osmunda cinnamomea</i>	S5	Green
Arrow-leaved tearthumb	<i>Polygonum sagittatum</i>	S5	Green
Self-heal	<i>Prunella vulgaris</i>	S5	Green
Chokecherry	<i>Prunus virginiana</i>	S5	Green
Creeping buttercup	<i>Ranunculus repens</i>	SE	--
Bristly black current	<i>Ribes lacustre</i>	S5	Green
Dwarf red raspberry	<i>Rubus pubescens</i>	S5	Green
Meadow-rue	<i>Thalictrum pubescens</i>	S5	Green
Northern starflower	<i>Trientalis borealis</i>	S5	Green
Gypsy-weed	<i>Veronica officinalis</i>	S5SE	Green

Appendix 2. List of species provided by the Heritage Division, Nova Scotia
Department of Tourism, Culture and Heritage.

Staff have reviewed the museum records for the area provided and offer the following list of species-at-risk that could be impacted by development at this site. The presence or absence of the following species should be determined prior to site disturbance and recorded in the site report. any field assessment should be conducted when the species can be positively identified.

<i>Allium tricoccum</i>	Red
<i>Alopecurus aequalis</i>	Yellow
<i>Arabis drummondi</i>	Yellow
<i>Asplenium viride</i>	Yellow
<i>Campanula aparinoides</i>	Yellow
<i>Cardamine parviflora</i>	Yellow
<i>Draba arabisans</i>	Yellow
<i>Draba glabella</i>	Red
<i>Dryopteris fragrans</i>	Yellow
<i>Festuca subverticillata</i>	Red
<i>Impatiens pallida</i>	Yellow
<i>Laportea canadensis</i>	Yellow
<i>Poa glauca</i> var. <i>glauca</i>	Yellow
<i>Saxifraga paniculata</i>	Yellow
<i>Sphenopholis intermedia</i>	Yellow
<i>Woodsia glabella</i>	Yellow

The colour rank refers to the designation assigned under the NS Department of Natural Resources status review process.

Appendix 3: Botanical data summary from the Atlantic Canada Conservation Data Centre (ACCDC).

Definitions of Provincial (subnational) ranks - SRANKS

- S1 Extremely rare throughout its range in the province (typically 5 or fewer occurrences or very few remaining individuals). May be especially vulnerable to extirpation.
- S2 Rare throughout its range in the province (6 to 20 occurrences or few remaining individuals). May be vulnerable to extirpation due to rarity or other factors.
- S3 Uncommon throughout its range in the province, or found only in a restricted range, even if abundant in at some locations. (21 to 100 occurrences).
- S4 Usually widespread, fairly common throughout its range in the province, and apparently secure with many occurrences, but the Element is of long-term concern (e.g. watch list). (100+ occurrences).
- S5 Demonstrably widespread, abundant, and secure throughout its range in the province, and essentially ineradicable under present conditions.
- S#S# Numeric range rank: A range between two consecutive numeric ranks. Denotes range of uncertainty about the exact rarity of the Element (e.g., S1S2).
- SH Historical: Element occurred historically throughout its range in the province (with expectation that it may be rediscovered), perhaps having not been verified in the past 20 - 70 years (depending on the species), and suspected to be still extant.
- SU Unrankable: Possibly in peril throughout its range in the province, but status uncertain; need more information.
- SX Extinct/Extirpated: Element is believed to be extirpated within the province.
- S? Unranked: Element is not yet ranked.
- SA Accidental: Accidental or casual in the province (i.e., infrequent and far outside usual range). Includes species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range; a few of these species may even have bred on the one or two occasions they were recorded.
- SE Exotic: An exotic established in the province (e.g., Purple Loosestrife or Coltsfoot); may be native in nearby regions.
- SE# Exotic numeric: An exotic established in the province that has been assigned a numeric rank.
- SP Potential: Potential that Element occurs in the province, but no occurrences reported.
- SR Reported: Element reported in the province but without persuasive documentation which would provide a basis for either accepting or rejecting (e.g., misidentified specimen) the report.
- SRF Reported falsely: Element erroneously reported in the province and the error has persisted in the literature.
- SZ Zero occurrences: Not of practical conservation concern in the province, because there are no definable occurrences, although the species is native and appears regularly. An NZ rank will generally be used for long distance migrants whose occurrences during their migrations are too irregular (in terms of repeated visitation to the same locations) or transitory. In other words, the migrant regularly passes through the province, but enduring, mappable Element Occurrences cannot be defined.

Appendix 3 (continued): Plant species of note within 10 km of the Cape Sharp site (AACDC data).

Family/Scientific Name	Common Name	Provincial	Sub-National
Apiaceae <i>Osmorhiza longistylis</i>	Smoother Sweet-Cicely	Yellow	S2
Aspleniaceae <i>Asplenium trichomanes</i>	Maidenhair Spleenwort	Yellow	S2
Asteraceae <i>Symphotrichum ciliolatum</i>	Lindley's Aster	Yellow	S2S3
Brassicaceae	<i>Arabis drummondii</i>	Drummond Rockcress	Yellow S2
	<i>Cardamine maxima</i>	Large Toothwort	Red S1
	<i>Draba arabisans</i>	Rock Whitlow-Grass	Yellow S2
	<i>Draba glabella</i>	Rock Whitlow-Grass	Red S1
Campanulaceae	<i>Campanula aparinoides</i>	Marsh Bellflower	Yellow S3?
	<i>Lobelia spicata</i>	Pale-Spiked Lobelia	Red S1S2SE
Cyperaceae	<i>Carex albicans</i> var. <i>emmonsii</i>	Emmons Sedge	(not listed) S3S4
	<i>Eleocharis nitida</i>	Slender Spike-Rush	Green S3
Dryopteridaceae	<i>Dryopteris fragrans</i> var. <i>remotiuscula</i>	Fragrant Fern	Yellow S2
	<i>Polystichum braunii</i>	Braun's Holly-Fern	Green S3S4
Juncaceae <i>Juncus dudleyi</i>	Dudley's Rush	Yellow	S2?
Liliaceae	<i>Allium tricoccum</i>	Small White Leek	Red S1
	<i>Trillium erectum</i>	Ill-Scent Trillium	Green
Lycopodiaceae <i>Huperzia selago</i>	Fir Clubmoss	Undetermined	S1S3
Orchidaceae	<i>Goodyera repens</i>	Dwarf Rattlesnake-Plantain	Yellow S2S3
	<i>Malaxis brachypoda</i>	White Adder's-Mouth	Red S1
	<i>Platanthera grandiflora</i>	Large Purple-Fringe Orchis	Green S3
Ophioglossaceae <i>Botrychium dissectum</i>	Cutleaf Grape-Fern	Green	S3
Poaceae	<i>Alopecurus aequalis</i>	Short-Awn Foxtail	Yellow S2S3
	<i>Festuca subverticillata</i>	Nodding Fescue	Red S1S2
	<i>Milium effusum</i> var. <i>cisatlanticum</i>	Tall Millet-Grass	Green S3
	<i>Poa glauca</i>	White Bluegrass	Yellow S2S3
	<i>Trisetum spicatum</i>	Narrow False Oats	Green S3
Polygonaceae <i>Rumex salicifolius</i> var. <i>mexicanus</i>	Willow Dock	Yellow	S2
Rosaceae	<i>Amelanchier nantucketensis</i>	Nantucket Shadbush	Red S1
	<i>Rubus pensilvanicus</i>	Pennsylvania Blackberry	Green S3?
Saxifragaceae <i>Saxifraga paniculata</i> ssp. <i>neogaea</i>	a White Mountain Saxifrage	Yellow	S2

Literature Cited:

NS Department of Natural Resources: www.speciesatrisk.ca/coastalplainflora

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