

Appendix C

Vegetation

Appendix C.1

Haisla and Tsimshian Botanical Resources

Table 1: Haisla General Ethnobotany

| Specific Name | Family | Common Name | Haisla Name | Habitat* | Frequency* | Season Harvested | Food | Medicine** | Technology | Spiritual Ceremonial | Additional Information |
|-----------------------------------|--------------|------------------|------------------------------|--|--|------------------|------|------------|------------|----------------------|--|
| Trees – Conifers | | | | | | | | | | | |
| <i>Abies amabilis</i> | Pinaceae | amabilis fir | mudūlas (First Voices) | Moist to mesic forests; well-drained soils; lowland to subalpine. | Common in BC but not on Haida Gwaii | spring | | X | X | X | Pitch used medicinally for a variety of conditions and spiritual purposes; lumber for building; boughs used for food preparation (Smith 1929; Compton, 1993; Davis & Wilson, 1995). |
| <i>Abies lasiocarpa</i> | Pinaceae | subalpine fir | mnxᑭaᑭās (First Voices) | Moist to mesic slopes in the montane to alpine zones. | Common in BC east of Coast-Cascade mountains | spring | | | X | X | Plant used as design associated with a particular clan; wood used for boxes and chairs (Compton, 1993) |
| <i>Picea sitchensis</i> | Pinaceae | Sitka spruce | skaas (First Voices) | Moist to mesic slopes and river terraces in the lowland and montane zones. | Common in some parts of BC | spring | X | X | X | X | Roots used for baskets; wood used for tools, arrows bark peelers, construction; pitch chewed for food; used for medicine, used as cement; ceremonial use (Smith 1929; Compton, 1993; Davis & Wilson, 1995). |
| <i>Pinus contorta</i> | Pinaceae | lodgepole pine | tl'ikw'as (Turner, nd) | Wet to dry bogs, lower slopes and high river terraces in the lowland, montane and subalpine zones. | Common throughout BC | spring-fall | | X | X | X | Wood used for tools; medicinal purposes; twigs used for grooming; twigs used for pigment in spiritual ceremonies (Compton, 1993; Turner, 2001) |
| <i>Pseudotsuga menziesii</i> | Pinaceae | Douglas fir | māwas (First Voices) | Moist to dry slopes, river terraces and flats in the lowland and montane zones. | Common in southern BC; less frequent northward | spring-fall | | X | X | | Wood used for fishing tools; pitch used for bindings; used medicinally for a variety of ailments (Compton, 1993) |
| <i>Taxus brevifolia</i> | Taxaceae | yew | tl'humq' (Turner, nd) | Moist to mesic slopes, creek sides in the lowland and montane zones. | Common along the coast and in SC and SE BC but less frequent in the study area | summer-fall | | X | X | X | Wood used for ax handles; stem used for medicine; more widely used by Tsimshian peoples; little documented medicinal use by Haisla (Turner, nd; Compton, 1993; Davis & Wilson, 1995) |
| <i>Thuja plicata</i> | Cupressaceae | red cedar | dúny'asnd (First Voices) | Wet to moist floodplain; rich site river terraces and slopes; lowland to montane. | Common in coastal areas | spring | | X | X | X | Wood for lumber, canoes, totem poles, boxes; inner bark for basketry, ropes; outer bark for roofs; boards used in food preparation; spiritually important (Compton, 1993; Turner, 2001). |
| <i>Tsuga heretophylla</i> | Pinaceae | western hemlock | lūq as (First Voices) | Moist to dry slopes, river terraces and flats in the lowland and montane zones. | Common in and W of the Coast-Cascade Mountains | spring | X | | X | X | Inner bark (secondary phloem) harvested in spring for food; branches used for collecting food; camouflage; role in stories; branches used by shamans; wood used for regalia, labrets (Compton, 1993; Davis & Wilson, 1995; Turner, 1995) |
| <i>Tsuga mertensiana</i> | Pinaceae | mountain hemlock | unavailable | Wet to dry slopes in the lowland to subalpine zones. | Common at high elevations along W BC | fall | | | X | | Branches at the tip of the tree used for bedding; wood and branches good for drying mountain goat meat (Compton, 1993) |
| <i>Xanthocyparis nootkatensis</i> | Cupressaceae | yellow cedar | kwán'alas (Turner, nd) | Wet to mesic slopes and bogs in the lowland, montane and subalpine zones; common in and W of the Coast-Cascade Mountains | Common in and west of coastal mountains | spring | | | X | | Bark used for making blankets and clothing; wood used for carving, paddles etc.; mountain in Kitimaat area known for its abundance of this species (Compton, 1993; Turner, 2001). |
| Trees – Deciduous | | | | | | | | | | | |
| <i>Acer glabrum.</i> | Aceraceae | Douglas maple | ts'aw'ikal'as (Turner, nd) | Mesic to dry forests and rocky slopes in the lowland and montane zones. | Common throughout BC except Haida Gwaii | summer-fall | | | X | X | Wood used for snowshoes, spoons, ax handles, masks; wood used for spiritual purposes for rattles and regalia (Compton, 1993; Turner, 2001) |
| <i>Alnus rubra</i> | Betulaceae | red alder | tl'áqw'tl'al'as (Turner, nd) | Moist woodlands, forests, floodplains and clearcuts in the lowland and montane zones. | Common in coastal BC | spring-fall | | X | X | X | Wood used for carving, dye; green wood used to smoke meat; infusion of bark used for general medicinal; role in spiritual stories; one of first trees (Compton, 1993; Davis & Wilson, 1995; Turner, 2001). |
| <i>Alnus incana</i> | Betulaceae | mountain alder | kwnq'ts'ay'as (Turner, nd) | Moist forests, streamsides, bogs and fens in the montane zone. | Common in BC east of the Coast-Cascade Mtns | spring-fall | | | | X | Considered to be one of the first trees to grow on recently formed mountain slides; one of first trees sent down by a supreme deity (Compton, 1993). |
| <i>Alnus viridis</i> | Betulaceae | green alder | Unavailable | Moist slopes, streambanks, avalanche tracks, bogs and fens. | Found throughout BC. ssp. <i>crispa</i> common in N BC; | spring-fall | | | X | | Wood used for carving utensils (Compton, 1993) |
| <i>Betula papyrifera</i> | Betulaceae | paper birch | Unavailable | Moist to mesic woodlands, forests, clearcuts, burns and open areas in the lowland, steppe and montane zones | var. <i>papyrifera</i> common in BC east of Coast-Cascade Mtns. | spring | | | X | | Wood used for carving; potential for commercial development birch syrup (Compton, 1993) |
| <i>Crataegus douglasii</i> | Rosaceae | black hawthorn | Unavailable | Moist to mesic, open rocky slopes, bluffs, streambanks, lakeshores, gullies, thickets, edges of forests in the lowland to montane zones. frequent in S BC north to 56o | Frequent N to 56° | late summer-fall | X | | | | Fruits eaten (Compton, 1993; Davis & Wilson, 1995; Turner, 1995) |

Table continues...



| Specific Name | Family | Common Name | Haisla Name | Habitat* | Frequency* | Season Harvested | Food | Medicine** | Technology | Spiritual Ceremonial | Additional Information |
|--|-----------------|--------------------|--|---|--|----------------------|------|------------|------------|----------------------|---|
| <i>Malus fusca</i> | Rosaceae | Pacific crabapples | cix˘a (First Voices) | Moist to wet, open forests, streambanks, shorelines, estuary fringes, swamps, bogs in the lowland. | Common on coastal islands and adjacent mainland | summer-fall | X | X | X | X | Fruit eaten; juice of peeled trunk used for medicine, bark scraping used for intestinal disorders & as a tonic; wood for tools; ceremonial uses (Compton, 1993; Davis & Wilson, 1995; Turner, 1995, 2001) |
| <i>Populus balsamifera</i> | Salicaceae | black cottonwood | kw'l'unn-n'as; xwayo' (cambium) (Turner, nd) | Moist uplands and floodplains in the montane zone; ssp. balsamifera - common in N and E BC; ssp. trichocarpa - common throughout BC except rare on Queen Charlotte Islands; | Common throughout BC but some subspecies rare in certain areas | spring-summer | X | X | X | X | Inner bark scraped for food in spring; sap used for medicines; wood used for canoes; seed fluff woven with mountain goat hair for clothing; role in stories (Compton, 1993; Davis & Wilson, 1995) |
| <i>Populus tremuloides</i> | Salicaceae | trembling aspen | Unavailable | Moist to dry ravines, depressions, meadows, ridges, upland forests and occasionally on floodplains in the lowland and montane zones. | Common throughout BC | spring-summer | | X | | | Bark and leaves used for medicinal purposes (Compton, 1993) |
| <i>Prunus emarginata</i> | Rosaceae | bitter cherry | h'um'adus t'ism (Turner, nd) | Moist open forests, thickets, rocky slopes and streambanks in the lowland, steppe and montane zones | Common in S BC, less frequent northward | summer | | X | X | | Leaves used medicinally, bark used for making baskets, wood used for carving (Compton, 1993) |
| Shrubs & Dwarf Shrubs | | | | | | | | | | | |
| <i>Amelanchier alnifolia</i> | Rosaceae | Saskatoon berry | t'il'as; t'ilhm (berry) (Turner, nd) | Dry to mesic, open rocky slopes, bluffs, gullies, thickets, forest margins and open forests in the lowland to subalpine zones. | Common throughout BC, | summer | X | | | | Fruits eaten; dried into cakes (Compton, 1993) |
| <i>Arctostaphylos uva-ursi</i> | Ericaceae | kinnikinnick | wimix (First Voices) | Dry forests and exposed, often rocky, sites in the lowland to lower alpine zones. | Common throughout BC; circumboreal | fall | X | | | | Although mealy, the fruits were eaten (Compton, 1993) |
| <i>Cornus stolonifera</i> | Cornaceae | red-osier dogwood | waay'alas (Turner, nd) | Wet to mesic streamsides, lakesides, swamps and forests in the lowland, steppe and montane zones. | Common throughout BC | summer-fall | | | X | | Branches used for stringing fish; leaves used to wipe fish when cleaning (Compton, 1993) |
| <i>Cornus canadensis</i> <i>Cornus unalaschkensis</i> | Cornaceae | Alaskan bunchberry | thlum koli; tlmkw'auli (First Voices) | Moist to mesic forests and openings | Common in BC; common in the study area | late summer-fall | X | | | | Fruits eaten (Compton, 1993; Davis & Wilson, 1995; Turner, 1995) |
| <i>Empetrum nigrum</i> | Ericaceae | crowberry | unavailable | Wet to moist bogs, meadows, open forests, alpine fellfields and cliffs in the lowland to alpine zones. | Frequent throughout BC; circumpolar | summer-fall | X | | | | Fruits eaten fresh by Tsimshian peoples (Turner, 1995) |
| <i>Gaultheria shallon</i> | Ericaceae | salal | nk˘lh; nkw'lh (berries)(Turner, nd) | Dry to wet forests and bogs in the lowland and montane zones. | Common in W BC. | summer | X | | | | Fruits eaten (Compton, 1993; Davis & Wilson, 1995; Turner, 1995) |
| <i>Juniperus communis</i> | Cupressaceae | common juniper | ts'ixts'as hsq'nts'yalas (Turner, nd) | Dry slopes and open forests to wet coastal muskeg in the lowland to alpine zones. circumpolar | Common in BC; circumpolar | summer-fall | | X | X | X | Decoctions made from branches and berries for making various medicines; spiritual tools made for shamans from the wood; ceremonial articles made from wood (Smith 1929; Turner, and Bell 1973). |
| <i>Kalmia microphylla</i> | Ericaceae | bog laurel | unavailable | Peat bogs, wet peaty forests and meadows from the lowland through alpine zones. | Frequent throughout BC | spring-fall | X | | | | Leaves used to make a beverage; may be confused with <i>Rhododendron groenlandicum</i> and could be toxic in concentrated doses (Compton, 1993; Turner, 1995) |
| <i>Menziesia ferruginea</i> | Ericaceae | false azalea | tlnqw'as (Turner, nd) | Dry to wet forests in the lowland, montane and subalpine zones. | Common on the coast and in WC to NW BC | summer-fall | X | | | | Galls of <i>Exobasidium</i> sp.grow on <i>Menziesia ferruginea</i> shrubs and are eaten incidentally (Compton, 1993) |
| <i>Oplopanax horridus</i> | Araliaceae | devil's club | hu'iq'as (Turner, nd) | Wet to moist streambanks and forests in the lowland to subalpine zones. common throughout all but NE BC | Common throughout all but NE BC | early spring or fall | | X | X | X | Inner bark, roots and berries used for a wide variety of medicines, highly regarded for medicinal and spiritual purposes; black face paint from burnt stems; still used today (Compton, 1993; Davis & Wilson, 1995; Turner, 2001) |
| <i>Rhododendron groenlandicum</i> | Ericaceae | Labrador tea | puy'as (Turner, nd) | Bogs and moist to wet forests in the lowland and montane zones. | Common throughout most of BC' | spring-fall | X | X | | | Leaves used to make a drink for food and medicinal purposes (Compton, 1993; Turner, 1995) |
| <i>Ribes bracteosum</i> | Grossulariaceae | stink currant | q'ísina (Turner, nd) | Moist woodlands, forests, streambanks, shorelines, thickets and avalanche tracks in the lowland to the subalpine zones. | BC west of the Coast-Cascade Mtns.; frequent on Haida Gwaii | late summer-fall | X | X | | X | Fruit eaten; winter storage food; roots used for medicine; have a role in a traditional story (Compton, 1993; Davis & Wilson, 1995) |

Table continues...

| Specific Name | Family | Common Name | Haisla Name | Habitat* | Frequency* | Season Harvested | Food | Medicine** | Technology | Spiritual Ceremonial | Additional Information |
|-------------------------------|-----------------|---------------------------|--|---|--|--------------------|------|------------|------------|----------------------|---|
| <i>Ribes spp.</i> | Grossulariaceae | gooseberries and currants | unavailable | Moist to mesic thickets, meadows, open woodlands, and forests in the lowland zone. | Found throughout BC | summer-fall | X | | | | Fruits eaten (Compton, 1993; Turner, 1995) |
| <i>Rosa nutkana</i> | Rosaceae | Nootka rose | balhbule' (the rosehip) (First Voices) | Mesic to moist thickets, forest edges, river terraces, shorelines, streambanks, clearings and roadsides in the lowland and montane zones. | Common throughout BC south of 55°N., less frequent northward | late summer - fall | X | | | X | Fruits eaten, but seeds not ingested; leaves used for beverage; flowers used in ceremonies (Compton, 1993) |
| <i>Rubus idaeus</i> | Rosaceae | red raspberry | galth gun (First Voices) | Mesic to moist thickets, rocky slopes, clearings, burns, old fields and open forests in the lowland and montane zones. | Common throughout BC, mostly E of Coast/Cascade Mtns. | late spring-summer | X | | | | Fruits eaten fresh or dried into cakes, leaves used for tea (Compton, 1993; Turner, 1995) |
| <i>Rubus leucodermis</i> | Rosaceae | blackcap raspberry | k'°lk'°lt (First Voices) | Dry to moist thickets, rocky slopes, clearings and open forests of the lowland to montane zones. | Infrequent on Haisla territory | late spring-summer | X | | | | Fruits eaten fresh, dried into cakes or bottled (Turner, 1995) |
| <i>Rubus parviflorus</i> | Rosaceae | thimbleberry | l'qaᖃh'ál'as; l'qaᖃhá (berry); qw'alhm (shoots) (Turner, nd) | Moist to mesic open forests, thickets, streambanks, clearings and roadsides in the lowland to subalpine zones. | Common in BC, less frequent northward | summer | X | | X | | Fruits eaten fresh, leaves used to whip soapberries; shoots eaten in early spring (Compton, 1993; Davis & Wilson, 1995; Turner, nd) |
| <i>Rubus spectabilis</i> | Rosaceae | salmonberry | gula'li (First Voices) | Moist to wet forests, swamps and streambanks in the lowland and montane zones. | Common in coastal BC | summer | X | | | X | Fruits eaten, early shoots eaten; leaves used to whip soapberries; flowers used in ceremonies (Compton, 1993; Davis & Wilson, 1995; Turner, 1995) |
| <i>Rubus ursinus</i> | Rosaceae | trailing blackberry | unavailable | Dry to moist thickets, clearings, waste places and open forests in the lowland to lower montane zones. | Common in S BC, less frequent northward | summer | X | | | | Fruits eaten when encountered (Compton, 1993) |
| <i>Salix spp.</i> | Salicaceae | willow | zaw'as (Pacific willow); dim'al'as (Sculers) (Turner, nd) | Various ecosystems from moist to dry sites, depending on species | Found throughout BC; different species in different areas | spring-fall | | | X | | Branches used for preparing food; wood used for tools; walking sticks; games; leaves used to wipe slime from fish (Compton, 1993) |
| <i>Sambucus racemosa</i> | Adoxaceae | red elderberry | kl bat; kibá t(Turner, nd) | Moist to mesic meadows, ditches, streambanks, grasslands, shrublands, disturbed areas, forests in the lowland, steppe, montane zones | Found throughout BC; different varieties in different areas | summer | X | X | X | | Fruits eaten; leaves used for medicines; leaves used to whip soapberries; wood used for spear Tips for hunting and fishing (Compton, 1993) |
| <i>Shepherdia canadensis</i> | Elaeagnaceae | soapberry | unavailable | Mesic to dry sites in the lowland and steppe to subalpine zones; common throughout BC | Common throughout BC except Haida Gwaii; interior species | summer | X | X | | | Fruit eaten and stored for winter; whipped into soapberry icecream, medicinal uses; still used today (Compton, 1993; Turner, 1995). |
| <i>Vaccinium alaskaense</i> | Ericaceae | Alaska blueberry | siákwnalh (First Voices) | Mesic to moist forests and forest openings in the lowland, montane, and subalpine zones. | Common along the coast of BC | late summer-fall | X | | | | Fruits eaten fresh or dried into cakes (Compton, 1993; Davis & Wilson, 1995; Turner, 1995) |
| <i>Vaccinium caespitosum</i> | Ericaceae | dwarf blueberry | sikwsgwis(?) (Turner, nd) | Dry to wet forests, bogs, meadows, rocky ridges and tundra in the lowland to alpine zones. | Common throughout BC | late summer-fall | X | | | | Fruits eaten fresh or dried into cakes (Compton, 1993; Turner, 1995) |
| <i>Vaccinium membranaceum</i> | Ericaceae | black huckleberry | sikwsgwis (Turner, nd) | Dry to moist forests and openings in the montane and subalpine zones. common throughout BC, except on the Queen Charlotte Islands | Common throughout BC, except on Haida Gwaii | late summer-fall | X | | | | Fruits eaten fresh or dried into cakes (Compton, 1993; Turner, 1995) |
| <i>Vaccinium ovalifolium</i> | Ericaceae | oval-leaved blueberry | p'p'ᖃsúm (Turner, nd) | Mesic to wet forests and openings, and bogs in the lowland to subalpine zones. | Common throughout C and S BC | late summer-fall | X | | | | Fruits eaten fresh or dried into cakes (Compton, 1993; Davis & Wilson, 1995; Turner, 1995) |
| <i>Vaccinium oxycoccus</i> | Ericaceae | bog cranberry | tl'msdait's' (Turner, nd) | Bogs in the lowland and montane zones. | Frequent throughout BC; circumboreal | late summer-fall | X | | | | Fruits eaten (Compton, 1993; Turner, 1995) |

Table continues...

| Specific Name | Family | Common Name | Haisla Name | Habitat* | Frequency* | Season Harvested | Food | Medicine** | Technology | Spiritual Ceremonial | Additional Information |
|-----------------------------------|---------------|--------------------------|--|--|---|--------------------|------|------------|------------|----------------------|--|
| <i>Vaccinium parvifolium</i> | Ericaceae | red huckleberry | gwaṭ'as (bush); ḡ°adm (berry) (First Voices) | Dry to moist forests and on decaying wood in the lowland and montane zones. | Common in W BC, mainly west of the Coast-Cascade Mtns. | mid-summer-fall | X | | | | Fruits eaten (Compton, 1993; Davis & Wilson, 1995; Turner, 1995) |
| <i>Vaccinium uliginosum</i> | Ericaceae | bog blueberry | unavailable | Bogs, dry to wet rocky tundra, meadows, thickets and boggy forests in the lowland to alpine zones. | Frequent in coastal BC | late spring-summer | X | | | | Fruits eaten (Compton, 1993) |
| <i>Viburnum edule</i> | Adoxaceae | highbush cranberry | ṭis (First Voices) | Wet to moist streambanks, swamps and forests in the lowland, steppe and montane zones. | Frequent throughout BC | fall | X | | | | Fruits eaten; winter storage food, stored in oolichan grease (Compton, 1993; Davis & Wilson, 1995) |
| Herbaceous Layer | | | | | | | | | | | |
| <i>Achillea millefolium</i> | Asteraceae | common yarrow | kwantayás (Turner, nd) | Mesic to dry coastal bluffs, meadows, grasslands, rocky slopes and open forests in all vegetation zones. | Common throughout BC | summer | | X | | | Whole above ground plant used medicinally (Compton, 1993) |
| <i>Allium cernuum</i> | Liliaceae | nodding onion | mḡwts'l (Turner, nd) | dry to mesic rocky bluffs, grassy slopes, meadows and open forests in the lowland and steppe to subalpine zones | Common S of 56° N. | late spring-summer | X | | | | Bulbs eaten, leaves used for flavouring (Compton, 1993; Turner, 1995) |
| <i>Angelica genuflexa</i> | Apiaceae | kneeling angelica | pits'as (Turner, nd) | Moist streambanks and open forests in the montane zone. | Common in BC except in and round Haida Gwaii | spring-fall | X | | X | X | Early leaves and stems eaten post contact; leaves mixed with devil's club to mask human smell; stems used for storage vessels (Compton, 1993) |
| <i>Aquilegia formosa</i> | Ranunculaceae | Sitka columbine | h'ixp'a hspl̥h'a (Turner, nd) | msic to moist meadows, rocky slopes, thickets, clearings, roadsides and open forests in all zones except the alpine | Common throughout BC | late spring | X | | | | Nectar sipped by children (Compton, 1993) |
| <i>Conioselinum gmelinii</i> | Apiaceae | Pacific hemlock parsley | ṡtm (Turner, nd) | Moist to mesic coastal bluffs, sandy beaches, tidal marshes and bog woodlands in the lowland zone. | Common along the coast in BC | spring | X | | | | Early spring roots eaten, as early as February (Compton, 1993) |
| <i>Epilobium angustifolium</i> | Onagraceae | fireweed | ts'aṡm (Turner, nd) | open areas open forests, meadows, along rivers | Abundant throughout BC; more common on the coast than the interior | spring-fall | X | | X | | Shoots harvested for food in spring; fibrous stem tissue used to make twine or cordage; leaves used to wipe fish slime from hands (Compton, 1993; Davis & Wilson, 1995; Turner, 2001). |
| <i>Fragaria chiloensis</i> | Rosaceae | coastal strawberry | ḡuṡwṡwits'as; ḡuṡwḡwis (berry) (Turner, nd) | Dry to mesic sand dunes and rocky coastal bluffs, just above high tide, in the lowland zone. | Frequent in coastal BC | summer | X | | | | Fruits eaten (Compton, 1993) |
| <i>Fritillaria camschatcensis</i> | Lilaceae | riceroot | xu'k°m (First Voices) | Moist tideflats, meadows, open forests, rocky beaches and streambanks in the lowland to subalpine zones. | Common along coast, infrequent inland | spring | X | | | | Rice-like bulbets harvested in spring and eaten (Compton, 1993; Davis & Wilson, 1995 Turner, 1995) |
| <i>Gentiana douglasiana</i> | Gentianaceae | swamp gentian | unavailable | Wet bogs and meadows from the lowland to alpine zones. | Common in coastal BC | spring-summer | X | | | | Nectar sipped by children (Compton, 1993) |
| <i>Heracleum maximum</i> | Apiaceae | cow parsnip | ḡisd̥m (Turner, nd) | Habitat wet to moist areas from the lowland to the alpine zone. | Common throughout BC; amphiberingian | spring | X | X | X | | Stems and petioles eaten in early spring; roots used for medicine; stems used for whistles (Compton, 1993; Davis and Wilson, 1995; Turner, 1995, 2001) |
| <i>Lupinus littoralis</i> | Fabaceae | seashore lupine | unavailable | Moist sand beaches and dunes in the lowland zone. | Infrequent along the coast | summer | X | | | | Roots eaten; people of Kitimat gathered them from the mountains; eaten raw or cooked with other roots (Compton, 1993; Turner, 1995) |
| <i>Lupinus nootkatensis</i> | Fabaceae | Nootka lupine | qw'nts'asqw'an; qw'an (roots) (Turner, nd) | Mesic to moist meadows, riverbars, streambanks, shorelines, clearings, roadsides, thickets and forest openings in the lowland to lower alpine zones. | Common along the coast south to N Vancouver Island. frequent in Coast Mtns. | summer | X | | | | Roots eaten; people of Kitimat gathered them from the mountains; eaten raw or cooked with other Roots (Compton 1993; Turner, 1995) |
| <i>Lysichiton americanus</i> | Araceae | skunk cabbage | k'k'ukw' (Turner, nd) | Swamps, wet ditches and moist forests in the lowland and montane zones | Common in S BC; less frequent in other areas | spring-summer | | X | X | | Roots used medicinally; leaves used to wrap and store food and collecting berries (Compton, 1993; Davis & Wilson, 1995; Turner, 2001) |
| <i>Maianthemum dilatatum</i> | Asparagaceae | false lily-of-the-valley | t'iit'mts'; t'mts' (berries) (Turner, nd) | Mesic to wet forests and streambanks in the lowland and montane zones. | Common in coastal BC | summer | X | | | | Fruits occasionally eaten (Compton, 1993) |

Table continues...

| Specific Name | Family | Common Name | Haisla Name | Habitat* | Frequency* | Season Harvested | Food | Medicine** | Technology | Spiritual Ceremonial | Additional Information |
|---|---------------|----------------------------|----------------------------|---|---|---------------------------|------|------------|------------|----------------------|---|
| <i>Maianthemum racemosum</i> | Asparagaceae | false Solomon's seal | unavailable | Moist to mesic forests, streambanks, meadows and clearings in the lowland and steppe to subalpine zones. common throughout BC south of 56degreeN | Common throughout BC south of 56°N | summer | X | | | | Juice from fruit mixed with other fruits (Compton, 1993) |
| <i>Mentha arvensis</i> | Lamiaceae | field mint | unavailable | Found in wet alluvial flats and estuarine flats | Common throughout BC, circumboreal | spring-fall | X | X | X | | Refreshing drink, medicinally to soothe stomach and as an air freshener (Compton, 1993; Davis & Wilson, 1995.) |
| <i>Moneses uniflora</i> | Ericaceae | one-flowered wintergreen | unavailable | Mesic forests in the montane zone. | Frequent in BC except SC BC, circumboreal | summer | | X | | | Leaves chewed for medicinal purposes (Compton, 1993) |
| <i>Potentilla anserina</i> | Rosaceae | Pacific silverweed | dlksam (Turner, nd) | Margins of streams, lakes and ponds, mudflats, and moist alkaline meadows and grasslands in the montane zone. | Common in S BC east of the Coast-Cascade Mtns., infrequent northward. | early spring or late fall | X | | | | Roots were dried and stored for winter food (Compton, 1993; Turner, 1995; Davis & Wilson, 1995) |
| <i>Rumex acetosella</i> | Polygonaceae | sheet sorrel | unavailable | Mesic to dry gardens, fields, roadsides and waste places; common in S BC. | Common in S BC, less frequent northward | late spring | X | | | | Sour leaves nibbled by children especially; eaten as spring vegetable (Compton, 1993; Davis & Wilson, 1995) |
| <i>Rumex aquaticus</i> | Polygonaceae | western dock; wild rhubarb | tu'x°siwali (First Voices) | Moist to wet meadows, tidal marshes or shorelines in the lowland, steppe and montane zones | Frequent throughout BC | spring | X | | | | Stems and leaves consumed as spring vegetable (Compton, 1993; Davis & Wilson, 1995) |
| <i>Stachys sp.</i> | Lamiaceae | hedge nettle | unavailable | Wet to mesic swamps, waste places, roadsides, open woodlands and forest margins in the lowland and lower montane zone | Common in BC, infrequent on Haida Gwaii | spring-fall | | | X | | Fibrous tissue used for nets (Compton, 1993) |
| <i>Trifolium wormskioldii</i> | Fabaceae | springbank clover | t'xwsus (Turner, nd) | Wet to moist meadows, tidal marshes, streambanks, beaches and dunes in the lowland and steppe zones. | Common along the BC coast | spring | X | | | | Rhizomes eaten (Compton, 1993; Turner, 1995) |
| <i>Urtica dioica</i> ssp. <i>gracilis</i> | Urticaceae | stinging nettle | duXwa (Turner, nd) | Moist to mesic streamsid es, deciduous woodlands, thickets, avalanche tracks, and alluvial floodplains in the lowland and steppe to lower subalpine zones | Common throughout BC' | spring | X | X | X | | Shoots used in spring for food; roots have medicinal uses; stem fibres used for making ropes nets (Compton, 1993; Davis & Wilson, 1995) |
| <i>Veratrum viride</i> | Liliaceae | Indian hellebore | h'awxwsuli (Turner, nd) | Moist to wet meadows, streambanks, swamps, thickets and open forests from the lowland to alpine zones; | Common throughout all but NE BC | fall | | X | | X | Roots used for medicine; highly toxic can paralyze you so used with care; ritual and spiritual use (Smith 1929; Compton, 1993; Davis & Wilson, 1995) |
| <i>Zigadenus venenosus</i> | Melanthiaceae | meadow death camas | unavailable | Dry to mesic grassy or rocky slopes, meadows, forest edges and open forests in the lowland to subalpine zones | Mostly found S of 52° but can occur northward | summer | | | | | This poisonous species is noted to occur along with lupine, silverweed and other edible root food plants; not used by the Haisla, but good to be aware of its toxicity (Compton, 1993). |
| Grasses, Sedges, Rushes | | | | | | | | | | | |
| <i>Hierochloe alpina</i> | Poaceae | northern sweet grass | unavailable | Mesic to dry meadows and rocky slopes in the subalpine and alpine zones; common in N BC, | Common in northern BC | late spring-summer | | | X | | Used in basketry because of its sweet smell (Compton, 1993; Turner, 2001) |
| <i>Leymus mollis</i> | Poaceae | dune grass; Sea Lyme grass | saḡwan (Turner, nd) | Moist to mesic sandy or gravelly beaches and shoreline forests in the lowland zone. common in coastal BC; amphiberingian | Common in coastal BC; amphiberingian | fall | | | X | | Used to line food pits; oolichan bins; used to tie up silverweed and other food roots when steaming (Compton, 1993) |
| <i>Schoenoplectus pungens</i> | Cyperaceae | American bulrush | unavailable | | | summer-fall | | | X | | Used to snare fish by children (Compton, 1993) |
| <i>Scirpus microcarpus</i> | Cyperaceae | small-flowered bulrush | unavailable | Marshes, swamps and wet meadows in the lowland, steppe and montane zones; common throughout BC except absent in NW BC; amphiberingian | Common NW BC coast | summer-fall | | | | X | Possible role in stories (Compton, 1993) |

Table continues...

| Specific Name | Family | Common Name | Haisla Name | Habitat* | Frequency* | Season Harvested | Food | Medicine** | Technology | Spiritual Ceremonial | Additional Information |
|---|-----------------|-------------------------------|---|--|-------------------------------|------------------|------|------------|------------|----------------------|---|
| <i>Juncus arcticus</i> | Juncaceae | Arctic rush | unavailable | Tidal flats and lakeshores in the lowland and montane zones; ssp. alaskanus | Common in coastal BC | summer | | | | X | Possible role in stories (Compton, 1993) |
| Ferns & Fern Allies | | | | | | | | | | | |
| <i>Dryopteris carthusiana</i> | Dryopteridaceae | toothed wood fern | t'ip'ás (fern); t'ibám (rootstock) (Turner, nd) | Wet forests, swamps, avalanche tracks in lowland, steppe montane zones. | Infrequent in BC; circumpolar | fall | X | | | | Rhizomes harvested in fall (and possibly early spring), root vegetable (Compton, 1993) |
| <i>Dryopteris expansa</i> | Dryopteridaceae | spiny wood fern | t'ip'ás (fern); t'ibám (root) (Turner, nd) | Mesic to wet forests, forest margins, scree slopes from the lowland and steppe to subalpine zones. | Common in BC; circumpolar | fall | X | | | | Rhizomes harvested in fall (and possibly early spring), root vegetable (Compton, 1993) |
| <i>Polypodium glycyrrhiza</i> | Polypodiaceae | licorice fern | k'ts'a'am (Turner, nd) | Dry & seasonally wet rocks, trees and soil humus in the lowland and montane zones. | Common in coastal BC | summer-fall | | X | | | Rhizomes used for medicinal purposes, can be found growing on alder trees, western hemlock trees and under the moss on Sitka spruce trees and under rocky ledges (Compton, 1993) |
| <i>Lycopodium clavatum</i> | Lycopodiaceae | running club-moss | w'sigms kw'lsq'áixda (Turner, nd) | Dry to moist open places, forest clearings, roadcuts, forests, heath and bogs in lowland and steppe to subalpine, rarely alpine zones. | Frequent throughout BC | summer-fall | | | X | X | Plant used as belt; had spiritual and mythical value (Compton, 1993) |
| Seaweed | | | | | | | | | | | |
| <i>Porphyra abbottae</i> | Bangiaceae | black seaweed; edible seaweed | lhla'qs (First Voices) | Found in low tidal flats from northern Washington, along BC Coast to Alaska | Common along coastal waters | spring-summer | X | X | | | Seaweed dried in sun for food; collected in spring when salmonberry blossoms used for digestive ailments, poultice for deep wounds (Compton, 1993; Davis &Wilson, 1995) |
| <i>Fucus gardneri</i> | Fucaceae | bladder wrack kelp | lhla'qs (First Voices) | Perennial seaweed, found in the cold temperate intertidal regions of the Northeastern Pacific, from Northern California to Alaska | Common | late spring | X | | X | | Various purposes related to food; e.g. collecting herring roe (Compton, 1993). |
| Fungi | | | | | | | | | | | |
| <i>Bovista pila</i> | Lycoperdaceae | puffball | baxwbaxwa (Turner, nd) | Single or in groups, in grassy areas, stables, corrals, or open woods. | Common | summer-fall | | | | X | Spores of <i>Bovista</i> and other related "puffball" species considered dangerous and associated with ghosts (Compton, 1993). |
| <i>Exobasidium</i> sp. affin. <i>vaccinii</i> | Exobasidiaceae | ghost's ear fungus | unknown | Fungus grows on various species found on Haisla territories | Common | spring-fall | X | | | X | Fungus growing on <i>Menziesii ferruginea</i> ; occasionally eaten; roll in myths and stories (Compton, 1993) |
| <i>Fomitopsis</i> spp. | Fomitopsidaceae | shelf fungi; larch polypore | kakani (Turner, nd) | Perennial, single or many on living or dead conifers, single on living conifers, continuing decay and fruiting on dead trees and stumps. | Infrequent to common | spring-fall | | X | X | X | Some species have medicinal uses; shelf fungi used for target practice; as a ball in games (Compton, 1993), |
| <i>Fomitopsis officinalis</i> | | shelf fungi | kakani (Turner, nd) | Perennial, single or many on living or dead conifers, single on living conifers, continuing decay and fruiting on dead trees and stumps. | Infrequent to common | spring-fall | | X | | X | Medicinal and spiritual uses; believed to be source of ghosts-protective power; found especially on old growth western larch, Douglas-fir, but also on pine, spruce, fir, and hemlock (Compton, 1993) |
| Lichens | | | | | | | | | | | |
| <i>Bryoria capillaris</i> | Alectoriaceae | black tree lichen | Unavailable | Common over trees in open to sheltered/shaded forests, low to mid elevations, frequent at forest edges near standing water (Government of BC, nd) lower to middle elevations throughout, | Common | spring-fall | | | X | | Burned to provide pigment for paint (Compton, 1993) |
| <i>Usnea longissima</i> | Alectoriaceae | old man's beard | Unavailable | Found in old-growth, late-successional conifer stands, riparian areas, particularly in coastal climates where humidity is high (USDA, nd) | Common | spring-fall | | | X | | Used as bedding material at seasonal camps; grows in abundance in Haisla crabapple groves (Compton, 1993; Davis and Wilson, 1995 Turner, nd) |

Table continues...

| Specific Name | Family | Common Name | Haisla Name | Habitat* | Frequency* | Season Harvested | Food | Medicine** | Technology | Spiritual Ceremonial | Additional Information |
|-----------------------------|-----------------|-----------------|--------------------------|--|---|------------------|------|------------|------------|----------------------|--|
| Bryophytes | | | | | | | | | | | |
| <i>Conocephalum conicum</i> | Conocephalaceae | snake liverwort | Unavailable | Found in open areas of woodlands, wet cliffs, behind waterfalls, damp depressions, sandy banks, wet rocks, moist inorganic soils (UBC, nd) | Infrequent to common | spring-fall | | X | X | | Mixed with other plant and animal materials to treat skin conditions; used as a base for paint (Compton, 1993; Turner, nd) |
| <i>Sphagnum species</i> | Sphagnaceae | sphagnum | p'ap'alms?? (Turner, nd) | Habitat differs dependent on species; usually in wet bogs, fens | Infrequent to common - dependent on species | spring-fall | | | X | | Various species used for diapers, bedding, bandages etc. (Compton, 1993) |
| Various hanging mosses | various | various | p'ap'alms (Turner, nd) | Habitat differs dependent on species | Rare to common – dependent on species | spring-fall | | | X | X | Used when pit cooking in rock ovens; some mosses believed to cause insanity or used by wild people; negatively affect the value of devil's club medicine (Compton, 1993) |

Notes: *Unless otherwise noted, habitat and frequency data from Douglas et al., accessed on E Flora: available online at: <http://ibis.geog.ubc.ca/biodiversity/eflora/>
**Exact collection, preparation and application procedures for traditional medicines are considered proprietary so no specific details are given

Table 2: Tsimshian General Ethnobotany – Traditional Plant Use

| Scientific Name | Family | Common Name | Tsimshian Name* | Habitat** | Frequency** | Season Harvested | Tsimshian Food | Medicine*** | Technology | Spiritual Ceremonial | Additional Information |
|---|--------------|--------------------|---|--|--|------------------|----------------|-------------|------------|----------------------|--|
| Trees – Conifers | | | | | | | | | | | |
| <i>Abies amabilis</i> | Pinaceae | amabilis fir | hooks | Moist to mesic forests, well drained soils, lowland to subalpine. | Common in BC but not on Haida Gwaii | spring | X | X | | | Inner bark eaten, bark used for medicinal purposes (Compton 1993) |
| <i>Picea sitchensis</i> | Pinaceae | Sitka spruce | se'mn | Moist to mesic slopes and river terraces in the lowland and montane zones. | Common in some parts of BC | spring-fall | X | | X | X | Inner bark (cambium) eaten, branches used to build temporary shelter, prickly leaves deter animals, boughs used for spiritual and ceremonial purposes, some areas on territory are abundant spruce sites (Compton 1993; Turner 1995) |
| <i>Pinus contorta</i> | Pinaceae | lodgepole pine | sginiis | Wet to dry bogs, lower slopes and high river terraces in the lowland, montane and subalpine zones. | Common throughout BC | fall | | | X | | Boughs used to build temporary shelter for hunters (Compton 1993) |
| <i>Taxus brevifolia</i> | Taxaceae | yew | sahakwdak | Moist to mesic slopes, creek sides in the lowland and montane zones. | Common along the coast and in SC and SE BC but less frequent in the study area | summer-fall | | X | X | | Wood used for ax handles, wood used for medicine (Compton 1993, Davis & Wilson 1995) |
| <i>Tsuga heretophylla</i> | Pinaceae | western hemlock | giák (tree); ksi'w (edible inner bark) (Turner nd2) | Moist to dry slopes, river terraces and flats in the lowland and montane zones. | Common in and W of the Coast-Cascade Mountains | spring | X | | X | X | Inner bark (secondary phloem) harvested in spring for food, branches used for collecting food, camouflage, role in stories (Compton 1993; Turner 1995) |
| <i>Thuja plicata</i> | Cupressaceae | red cedar | amḡan | Wet to moist floodplain, rich site river terraces and slopes, lowland to montane. | Common in coastal areas | spring-fall | | | X | | Wood used for lumber, canoes, totem poles, bentwood boxes, inner bark used for basketry ropes, diapers, outer bark used for roofs, boards used in food preparation (Compton 1993; Turner 2001) |
| <i>Xanthocyparis nootkatensis</i> | Cupressaceae | yellow cedar | wał | Wet to mesic slopes and bogs in the lowland, montane and subalpine zones | Common in and west of coastal mountains | spring-fall | | | X | | Inner bark used for making blankets and clothing, wood used for carving, paddles (Compton 1993; Turner 2001) |
| Deciduous Trees | | | | | | | | | | | |
| <i>Alnus rubra</i> | Betulaceae | red alder | luwi | Moist woodlands, forests, floodplains and clearcuts in the lowland and montane zones. | Common in coastal BC | spring-fall | | X | X | | Wood used for carving, wood used to smoke and flavour meat, source for red dye, infusion of bark used for general medicinal purposes (Compton 1993; Turner 2001; Downs 2006) |
| <i>Crataegus douglasii</i> | Rosaceae | black hawthorn | unavailable | Moist to mesic, open rocky slopes, bluffs, streambanks, lakeshores, gullies, thickets, edges of forests in the lowland to montane zones. frequent in S BC north to 56o | Frequent N to 56° | late summer-fall | X | | | | Fruits eaten (Turner 1995) |
| <i>Malus fusca</i> | Rosaceae | Pacific crabapples | moolks | Moist to wet, open forests, streambanks, shorelines, estuary fringes, swamps, bogs in the lowland. | Common on coastal islands and adjacent mainland | fall | X | | X | X | Fruit eaten, stored in grease or animal fat for winter, ceremonial uses (Compton 1993; Turner 1995) |
| <i>Populus balsamifera</i> | Salicaceae | black cottonwood | amp'aal | Moist uplands and floodplains in the montane zone, ssp. balsamifera - common in N and E BC, ssp. <i>Trichocarpa</i> | Common throughout BC but some subspecies rare on Haida Gwaii | spring-summer | X | X | X | | Inner bark may have been used for food in spring, sap used for medicines, wood used for canoes (Compton 1993) |
| <i>Prunus emarginata</i> | Rosaceae | bitter cherry | unavailable | Moist open forests, thickets, rocky slopes and streambanks in the lowland, steppe and montane zones. | Common in S BC, less frequent northward | summer | | X | X | | Leaves used medicinally, bark used for making baskets, wood used for carving (Compton 1993) |
| Shrubs & Dwarf Shrubs | | | | | | | | | | | |
| <i>Amelanchier alnifolia</i> | Rosaceae | Saskatoon berry | gyem | Dry to mesic, open rocky slopes, bluffs, gullies, thickets, forest margins and open forests in the lowland to subalpine zones. | Common throughout BC, | summer | X | | | | Fruits eaten; dried into cakes (Compton 1993; Turner 1995; McDonald 2003; Downs 2006) |
| <i>Cornus canadensis</i> <i>Cornus unalaschensis</i> | Cornaceae | Alaskan bunchberry | k'apk'oop | Moist to mesic forests and openings. | Common in BC, common in the study area | late summer-fall | X | | | | Fruits eaten (Compton 1993; Turner 1995) |
| <i>Empetrum nigrum</i> | Ericaceae | crowberry | unavailable | Wet to moist bogs, meadows, open forests, alpine fellfields and cliffs in the lowland to alpine zones. | Frequent throughout BC, circumpolar | summer-fall | X | | | | Fruits occasionally eaten fresh by Tsimshian peoples (Turner 1995; McDonald 2003) |
| <i>Elliottia pyroliflora</i> | Ericaceae | copperbush | walaas | Moist to wet forests, streambanks, and bog edges in the montane and subalpine zones. | Common in BC west of the Coast-Cascade Mtns. | summer-fall | | X | | | Decoction (possibly berries) used for medicinal purposes (Compton 1993) |
| <i>Gaultheria shallon</i> | Ericaceae | salal | dzawas | Dry to wet forests and bogs in the lowland and montane zones. | Common in W BC. | summer-fall | X | | | | Fruits eaten (Compton 1993; Turner 1995; Downs 2006). |
| <i>Juniperus communis</i> | Cupressaceae | common juniper | haláxsi n'axn'ox (Turner nd2) | Dry slopes and open forests to wet coastal muskeg in the lowland to alpine zones. | Common in BC, circumpolar | summer-fall | | X | | X | Believed to be a good luck charm, possible medicinal uses (Compton 1993; McDonald 2003) |
| <i>Oemleria cerasiformis</i> | Rosaceae | Indian plum | unavailable | Moist to dry open forests, forest edges, thickets, streambanks, clearings and roadsides in the lowland zone. | Distribution more in the southern part of the province | late summer-fall | X | | | | Fruits eaten, referred to by some Tsimshian as "sweet crabapple" possibly an item of trade, since it is not certain that this species grows this far north (Compton 1993) |

Table continues...



| Scientific Name | Family | Common Name | Tsimshian Name* | Habitat** | Frequency** | Season Harvested | Tsimshian Food | Medicine*** | Technology | Spiritual Ceremonial | Additional Information |
|-----------------------------------|-----------------|--------------------------|-------------------------|--|---|--------------------|----------------|-------------|------------|----------------------|--|
| <i>Oplopanax horridus</i> | Araliaceae | devil's club | wooms | Wet to moist streambanks and forests in the lowland to subalpine zones; common throughout all but NE BC. | Common throughout all but NE BC | early spring-fall | | | X | X | Highly regarded for spiritual purposes and to mask the smell of hunters, probably also used for medicine, as it was widely used by coastal peoples, but Tsimshian medicinal use not mentioned in the available literature (Compton 1993; Downs 2006) |
| <i>Rhododendron groenlandicum</i> | Ericaceae | Labrador tea | gwəłə'maxs | Bogs and moist to wet forests in the lowland and montane zones. | Common throughout most of BC' | spring & fall | X | | | | Leaves used to make a drink for food (Compton 1993) |
| <i>Ribes bracteosum</i> | Grossulariaceae | stink currant, greyberry | waakyil | Moist woodlands, forests, streambanks, shorelines, thickets and avalanche tracks in the lowland to the subalpine zones. | BC west of the Coast-Cascade Mtns., frequent on Haida Gwaii | summer-fall | X | | | | Fruit eaten, may have been a winter storage food (Compton 1993) |
| <i>Rubus chamaemorus</i> | Rosaceae | cloudberry | golk'a | Bogs and wet peaty soil in boggy forests in the lowland and montane zones. | Frequent in BC north of 55°N | late summer-fall | X | | | | Fruits eaten fresh (Turner 1995) |
| <i>Rubus idaeus</i> | Rosaceae | red raspberr | naasik | Mesic to moist thickets, rocky slopes, clearings, burns, old fields and open forests in the lowland and montane zones. | Common throughout BC, mostly E of Coast/Cascade Mtns. | late spring-summer | X | | | | Fruits eaten fresh or dried into cakes, either picked by Tsimshian, possibly traded by Tsimshian Kitasoo people if not widely available (Compton 1993, Turner 1995) |
| <i>Rubus leucodermis</i> | Rosaceae | blackcap raspberr | unavailable | Dry to moist thickets, rocky slopes, clearings and open forests of the lowland to montane zones. | Not found as frequently as red raspberr (<i>Rubus idaeus</i>) | late spring-summer | X | | | | Fruits eaten fresh, dried into cakes or bottled (Turner 1995) |
| <i>Rubus parviflorus</i> | Rosaceae | thimbleberry | k'oo2 | Moist to mesic open forests, thickets, streambanks, clearings and roadsides in the lowland to subalpine zones. | Common in BC, less frequent northward | summer | X | | | | Fruits eaten fresh (Compton 1993; Turner 1995; McDonald 2003; Downs 2006) |
| <i>Rubus pedatus</i> | Rosaceae | five-leaved bramble | golk'a, galk | Moist to mesic open forests, glades and streambanks in the lowland to subalpine zones. | Common throughout BC | late summer-fall | X | | | | Fruits eaten incidentally (Compton 1993; Turner 1995) |
| <i>Rubus spectabilis</i> | Rosaceae | salmonberry | maq'ooxs | Moist to wet forests, swamps and streambanks in the lowland and montane zones. | Common in coastal BC | spring-summer | X | | | | Fruits and young stems eaten (Compton 1993) |
| <i>Sambucus racemosa</i> | Adoxaceae | red elderberry | lo'ots | Moist to mesic meadows, ditches, streambanks, grasslands, shrub-lands, disturbed areas, forests in lowland, steppe, montane zones. | Found throughout BC, different varieties in different areas | summer | X | | | X | Fruits eaten; berries believed to have connection to the spirits (Boas 1916, Compton 1993; McDonald 2003; Downs 2006) |
| <i>Shepherdia canadensis</i> | Elaeagnaceae | soapberry | as2, 'as | Mesic to dry sites in the lowland and steppe to subalpine zones, common throughout BC. | Common throughout BC except Haida Gwaii, interior species | summer | X | | | | Fruit eaten fresh and stored for winter, whipped into soapberry icecream, Tsimshian traded for this species; still used today (Compton 1993; Turner 1995; McDonald 2003; Downs 2006) |
| <i>Vaccinium alaskaense</i> | Ericaceae | Alaska blueberry | smmaay | Mesic to moist forests and forest openings in the lowland, montane, and subalpine zones. | Common along the coast of BC | late summer-fall | X | | | | Fruits eaten fresh or dried into cakes (Compton 1993; Turner 1995) |
| <i>Vaccinium caespitosum</i> | Ericaceae | dwarf blueberry | mihəl | Dry to wet forests, bogs, meadows, rocky ridges and tundra in the lowland to alpine zones. | Common throughout BC | summer | X | | | | Fruits eaten fresh or dried into cakes (Compton 1993; Turner 1995) |
| <i>Vaccinium membranaceum</i> | Ericaceae | black huckleberry | smmaay(?) | Dry to moist forests and openings in the montane and subalpine zones; common throughout BC. | Common throughout BC, except on Haida Gwaii | late summer-fall | X | | | | Fruits eaten fresh or dried into cakes (Compton 1993; Turner 1995) |
| <i>Vaccinium ovalifolium</i> | Ericaceae | oval-leaved blueberry | smmaay | Mesic to wet forests and openings, and bogs in the lowland to subalpine zones. | Common throughout C and S BC | late summer-fall | X | | | | Fruits eaten fresh or dried into cakes (Compton 1993; Turner 1995) |
| <i>Vaccinium oxycoccus</i> | Ericaceae | bog cranberry | dahdee | Bogs in the lowland and montane zones. | Frequent throughout BC, circumboreal | late summer-fall | X | | | | Fruits eaten (Compton 1993;Turner 1995; McDonald 2003; Downs 2006) |
| <i>Vaccinium parvifolium</i> | Ericaceae | red huckleberry | mihəl | Dry to moist forests and on decaying wood in the lowland and montane zones. | Common in W BC, mainly west of the Coast-Cascade Mtns. | mid to late summer | X | | | | Fruits eaten (Compton 1993; Turner 1995; Downs 2006) |
| <i>Viburnum edule</i> | Adoxaceae | highbush cranberry | laaya | Wet to moist streambanks, swamps and forests in the lowland, steppe and montane zones. | Frequent throughout BC | fall | X | | | | Fruits eaten, winter storage food, stored in oolichan grease (Compton 1993; McDonald 2003; Downs 2006) |
| Herbaceous Layer | | | | | | | | | | | |
| <i>Allium cernuum</i> | Amaryllidaceae | nodding onion | unknown | Dry to mesic rocky bluffs, grassy slopes, meadows and open forests in the lowland and steppe to subalpine zones. | Common S of 56° N. | late spring-summer | X | | | | Bulbs eaten, leaves used for flavouring (Turner 1995) |
| <i>Aquilegia formosa</i> | Ranunculaceae | Sitka columbine | ileemts'ax (Turner nd2) | Mesic to moist meadows, rocky slopes, thickets, clearings, roadsides and open forests in all zones, except the alpine. | Common throughout BC | summer | X | | | | Nectar sipped by children (Compton 1993) |
| <i>Aruncus dioicus</i> | Rosaceae | goatsbeard | unavailable | Moist to wet ravines, rocky ledges, avalanche tracks, streambanks, forest edges and openings in the low land and montane zones. | Common S of 55° N., less frequent northward | summer-fall | | | | | Roots used for unspecified medicinal purposes (Compton 1993) |
| <i>Conioselinum gmelinii</i> | Apiaceae | Pacific hemlock parsley | unavailable | Moist to mesic coastal bluffs, sandy beaches, tidal marshes and bog woodlands in the lowland zone. | Common along the coast in BC | spring | X | | | | Early spring roots possibly eaten (Boas 1916; Compton 1993; Downs 2006) |

Table continues...

| Scientific Name | Family | Common Name | Tsimshian Name* | Habitat** | Frequency** | Season Harvested | Tsimshian Food | Medicine*** | Technology | Spiritual Ceremonial | Additional Information |
|--|-----------------|-------------------------------|------------------------------|---|---|------------------------|----------------|-------------|------------|----------------------|--|
| <i>Epilobium angustifolium</i> | Onagraceae | fireweed | haas3 | Open areas open forests, meadows, along rivers. | Abundant throughout BC, more common on the coast than the interior | spring-fall | X | | X | | Shoots harvested for food in spring, fibrous stem tissue used to make twine or cordage (Port Simpson Curriculum Committee 1983; Compton 1993, Davis & Wilson 1995; Turner and Thompson 2006). |
| <i>Fragaria chiloensis</i> | Rosaceae | coastal strawberry | maguul | Dry to mesic sand dunes and rocky coastal bluffs, just above high tide, in the lowland zone. | Frequent in coastal BC | early summer | X | | | | Fruits eaten (Compton 1993; Downs 2006) |
| <i>Fragaria virginiana</i> | Rosaceae | wild strawberry | maguul | Moist to dry fields, roadsides, meadows, grassy slopes, thickets, forest edges and open forests in the lowland to subalpine zones. | Common throughout BC | early summer | X | | | | fruits eaten (Compton 1993; Downs 2006) |
| <i>Fritillaria camschatcensis</i> | Lilaceae | riceroot | miyuubmgyet | Moist tideflats, meadows, open forests, rocky beaches and streambanks in the lowland to subalpine zones. | Common along coast, infrequent inland | spring | X | | X | X | Important source of carbohydrates in the spring, first to blossom in spring, signalled the arrival of spring. Signalled start of "Indian New Year", flower used in dance costume (Compton 1993; Davis & Wilson 1995; Downs 2006) |
| <i>Heracleum maximum</i> | Apiaceae | cow parsnip | layoon, p'iins | Habitat wet to moist areas from the lowland to the Alpine zone. | Common throughout BC, amphiberingian | spring | X | X | X | | Stems and petioles eaten in early spring, roots used for medicine, stems used for whistles (Compton 1993; Turner 1995; Downs 2006) |
| <i>Lupinus</i> sp. (<i>L. nootkatensis</i> ?) | Fabaceae | lupine | q'óon (Turner nd2) | Various ecosystems from moist to dry sites, depending on species. | Infrequent to frequent, depending on species | spring-summer | X | | | | Roots of Lupinus species eaten by many coastal nations, so likely eaten by the Tsimshian groups (Compton 1993) |
| <i>Lysichiton americanus</i> | Araceae | skunk cabbage | w'nax | Swamps, wet ditches and moist forests in the lowland and montane zones. | Common in S BC, less frequent in other areas | spring-summer | | | X | | Leaves used to wrap and store food and collecting berries, spadices used for recreational purposes (Compton 1993, Davis and Wilson 1995) |
| <i>Maianthemum dilatatum</i> | Asparagaceae | false lily-of-the-valley | m'ai?yə ʔol (Turner nd2) | Mesic to wet forests and streambanks in the lowland and montane zones. | Common in coastal BC | summer | X | | | | Fruits occasionally eaten, unfolding leaves eaten as vegetable (Compton 1993; Downs 2006) |
| <i>Maianthemum racemosum</i> | Asparagaceae | false Solomon's seal | unavailable | Moist to mesic forests, streambanks, meadows and clearings in the lowland and steppe to subalpine zones. | Common throughout BC south of 56°N | summer | | X | | | Unspecified medicinal use (Compton 1993; Downs 2006) |
| <i>Nuphar lutea</i> | Nymphaeaceae | yellow pond lily | oonx̓l (Turner nd2) | Ponds and slow-moving streams in the lowland, steppe and montane zones. | Infrequent to common, more common S of 55oN | summer-fall | | X | | | Used by various coastal peoples but no specific uses by Tsimshian recorded for medicinal purposes, but has been described as a component of a medicinal decoction (Cove 1987: Compton 1993; Turner & Thompson 2006) |
| <i>Potentilla anserina</i> | Rosaceae | Pacific silverweed | siyáeen (Turner nd2) | Margins of streams, lakes and ponds, mudflats, and moist alkaline meadows and grasslands in the montane zone. | Common in S BC east of the Coast-Cascade Mtns., infrequent northward. | early spring-late fall | X | X | | | Roots were dried and stored for winter food, unspecified medicinal use (Compton 1993) |
| <i>Rumex aquaticus</i> | Polygonaceae | western dock, wild rhubarb | ł'áwq'at's (Turner nd2) | Moist to wet meadows, tidal marshes or shorelines in the lowland, steppe and montane zones. | Frequent throughout BC | spring | X | | | | Stems and leaves consumed as spring vegetable (Compton 1993) |
| <i>Trifolium wormskioldii</i> | Fabaceae | springbank clover | unavailable | Wet to moist meadows, tidal marshes, streambanks, beaches and dunes in the lowland and steppe zones. | Common along the BC coast | spring | X | | | | Rhizomes eaten (Compton 1993) |
| <i>Typha latifolia</i> | Typhaceae | common cat-tail | unavailable | Wet ditches, ponds, lakeshores and marshes in the lowland, steppe and montane zones. | Common in S BC, less so northward, circumpolar | summer | | | | | Used by many nations for basketry (Compton 1993) |
| <i>Urtica dioica</i> ssp. <i>gracilis</i> | Urticaceae | stinging nettle | steti | Moist to mesic streamsides, deciduous woodlands,avalanche tracks, thickets, alluvial floodplains in the lowland, steppe to lower subalpine. | Common throughout BC' | spring | | | X | | Stem used for fibres for fishing nets and other nets; interior Tsimshian used leaves as medicine (Compton 1993; Turner 1995) |
| <i>Veratrum viride</i> | Liliaceae | Indian hellebore | huutens | Moist to wet meadows, streambanks, swamps, thickets and open forests from the lowland to alpine zones. | Common throughout all but NE BC | fall | | X | | X | Roots used externally for medicine, highly toxic can paralyze you so used with care, ritual and spiritual use (Smith 1929; Compton 1993; Turner & Thompson 2006) |
| Ferns and Fern Allies | | | | | | | | | | | |
| <i>Dryopteris carthusiana</i> | Dryopteridaceae | toothed wood fern | aa (Turner nd2) | Wet forests, swamps, avalanche tracks in lowland, steppe montane zones. | Infrequent in BC, circumpolar | spring | X | | | | Rhizomes harvested in early spring, first vegetable eaten in the spring (Compton 1993) |
| <i>Dryopteris expansa</i> | Dryopteridaceae | spiny wood fern | aa (Turner nd2) | Mesic to wet forests, forest margins, scree slopes from the lowland and steppe to subalpine zones. | Common in BC, circumpolar | spring | X | | | | Rhizomes harvested in early spring, first vegetable eaten in the spring (Compton 1993) |
| <i>Lycopodium clavatum</i> | Lycopodiaceae | running club-moss | biláanm̓ x'w̓én (Turner nd2) | Dry to moist open places, forest clearings, roadcuts, forests, heath and bogs in lowland and steppe to subalpine, rarely alpine zones. | Frequent throughout BC | summer-fall | | | X | X | Plant used as belt, had spiritual and mythical value (Compton 1993; Turner 2001) |
| <i>Polypodium glycyrrhiza</i> | Polypodiaceae | licorice fern | ts'ügg'aam | Dry & seasonally wet rocks, trees and soil humus in the lowland and montane zones. | Common in coastal BC | summer-fall | X | X | | | Rhizomes used for medicinal purposes, can be found growing on alder trees, western hemlock trees and under the moss on Sitka spruce trees and under rocky ledges; some Tsimshian people chewed the roots as a treat and to stave off hunger (Compton 1993; Turner & Thompson 2006) |
| Seaweed | | | | | | | | | | | |
| <i>Porphyra abbottae</i> | Bangiaceae | black seaweed, edible seaweed | ła'ask | Found in low tidal flats from northern Washington, along BC Coast to Alaska. | Common along coastal waters | spring-summer | X | | | | Entire plant eaten, seaweed traded for soapberries (Compton 1993; Turner 1995) |

Table continues...



| Scientific Name | Family | Common Name | Tsimshian Name* | Habitat** | Frequency** | Season Harvested | Tsimshian Food | Medicine*** | Technology | Spiritual Ceremonial | Additional Information |
|---|----------------|--------------------|------------------|--|---|------------------|----------------|-------------|------------|----------------------|---|
| Fungi | | | | | | | | | | | |
| <i>Bovista pila</i> | Lycoperdaceae | puffball | gaaydm ts'u'u'ts | Single or in groups, in grassy areas, stables, corrals, or open woods. | Common | summer-fall | | X | | X | Used as herbal talismans (Compton 1993) |
| <i>Exobasidium</i> sp. affin. <i>vaccinii</i> | Exobasidiaceae | ghost's ear fungus | adagan | Fungus grows on various species found on Haisla territories. | Common | summer-fall | X | | | | Fungus growing on <i>Menziesii ferruginea</i> , occasionally eaten (Compton 1993; Turner and Thompson 2006) |
| Lichens | | | | | | | | | | | |
| <i>Bryoria</i> spp. | Alectoriaceae | black tree lichen | unavailable | Common over trees, especially conifers in open to exposed intermontane forests at all elevations (Gov BC nd) | Common | summer-fall | X | | X | | <i>B. fremontii</i> steamed and eaten by some interior people; some <i>Bryoria</i> species used as bedding material (Compton 1993; Turner 1997) |
| Bryophytes | | | | | | | | | | | |
| <i>Sphagnum</i> species | Sphagnaceae | sphagnum | bilax | Habitat differs dependent on species, usually in wet bogs, fens. | Infrequent to common – dependent on species | spring-fall | | | | | Various species used for diapers, bedding, bandages etc. (Compton 1993; Turner 2001). |
| <i>various hanging mosses</i> | various | various | bilax | Habitat differs dependent on species. | Rare to common – dependent on species | spring-fall | | | X | | Some species burned as insect repellent (Compton 1993) |

Notes: *Unless otherwise noted, Tsimshian words from Sm'algyax Living Legacy Talking Dictionary: available online at: <http://web.unbc.ca/~smalgyax/TitleAndHelps/help.htm>
 **Unless otherwise noted, habitat and frequency data from Douglas et al. accessed on E Flora: available online at: <http://ibis.geog.ubc.ca/biodiversity/eflora/>
 ***Exact collection, preparation and application procedures for traditional medicines are considered proprietary so no details given

Table 3: Short List of 77 First Nations Botanical Resources Carried Forward into Analysis

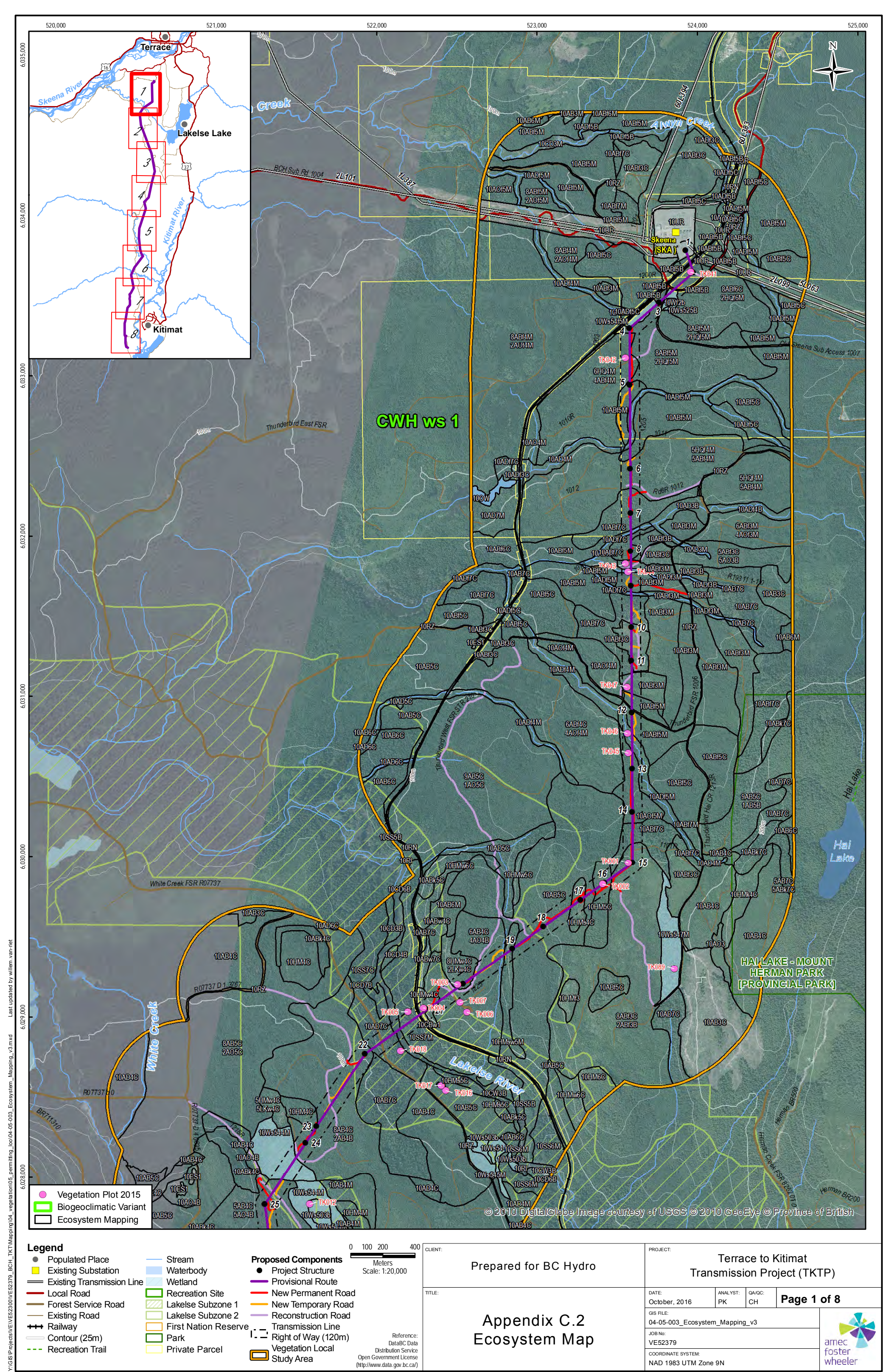
| Category | Family | Common Name | Scientific Name |
|-----------------|--------------|-----------------------|-----------------------------------|
| Conifer Trees | Cupressaceae | red cedar | <i>Thuja plicata</i> |
| Conifer Trees | Cupressaceae | yellow cedar | <i>Xanthocyparis nootkatensis</i> |
| Conifer Trees | Pinaceae | subalpine fir | <i>Abies lasiocarpa</i> |
| Conifer Trees | Pinaceae | Sitka spruce | <i>Picea sitchensis</i> |
| Conifer Trees | Pinaceae | Hybrid spruce | <i>Picea sitchensis x glauca</i> |
| Conifer Trees | Pinaceae | lodgepole pine | <i>Pinus contorta</i> |
| Conifer Trees | Pinaceae | Douglas fir | <i>Pseudotsuga menziesii</i> |
| Conifer Trees | Pinaceae | western hemlock | <i>Tsuga heretophylla</i> |
| Conifer Trees | Pinaceae | mountain hemlock | <i>Tsuga mertensiana</i> |
| Conifer Trees | Taxaceae | yew | <i>Taxus brevifolia</i> |
| Deciduous Trees | Aceraceae | Douglas maple | <i>Acer glabrum</i> |
| Deciduous Trees | Betulaceae | red alder | <i>Alnus rubra</i> |
| Deciduous Trees | Betulaceae | green alder | <i>Alnus viridis</i> |
| Deciduous Trees | Betulaceae | paper birch | <i>Betula papyrifera</i> |
| Deciduous Trees | Rosaceae | black hawthorn | <i>Crataegus douglasii</i> |
| Deciduous Trees | Rosaceae | Pacific crabapples | <i>Malus fusca</i> |
| Deciduous Trees | Rosaceae | bitter cherry | <i>Prunus emarginata</i> |
| Deciduous Trees | Salicaceae | black cottonwood | <i>Populus balsamifera</i> |
| Deciduous Trees | Salicaceae | trembling aspen | <i>Populus tremuloides</i> |
| Shrubs | Adoxaceae | highbush cranberry | <i>Viburnum edule</i> |
| Shrubs | Adoxaceae | red elderberry | <i>Sambucus racemosa</i> |
| Shrubs | Araliaceae | devil's club | <i>Oplopanax horridus</i> |
| Shrubs | Cornaceae | red-osier dogwood | <i>Cornus stolonifera</i> |
| Shrubs | Cornaceae | Alaskan bunchberry | <i>Cornus unalaschkensis</i> |
| Shrubs | Cupressaceae | common juniper | <i>Juniperus communis</i> |
| Shrubs | Elaeagnaceae | soapberry | <i>Shepherdia canadensis</i> |
| Shrubs | Ericaceae | kinnikinnick | <i>Arctostaphylos uva-ursi</i> |
| Shrubs | Ericaceae | copperbush | <i>Elliottia pyroliflora</i> |
| Shrubs | Ericaceae | crowberry | <i>Empetrum nigrum</i> |
| Shrubs | Ericaceae | salal | <i>Gaultheria shallon</i> |
| Shrubs | Ericaceae | bog laurel | <i>Kalmia microphylla</i> |
| Shrubs | Ericaceae | false azalea | <i>Menziesia ferruginea</i> |
| Shrubs | Ericaceae | Labrador tea | <i>Rhododendron groenlandicum</i> |
| Shrubs | Ericaceae | Alaska blueberry | <i>Vaccinium alaskaense</i> |
| Shrubs | Ericaceae | dwarf blueberry | <i>Vaccinium caespitosum</i> |
| Shrubs | Ericaceae | black huckleberry | <i>Vaccinium membranaceum</i> |
| Shrubs | Ericaceae | oval-leaved blueberry | <i>Vaccinium ovalifolium</i> |
| Shrubs | Ericaceae | bog cranberry | <i>Vaccinium oxycoccus</i> |
| Shrubs | Ericaceae | red huckleberry | <i>Vaccinium parvifolium</i> |

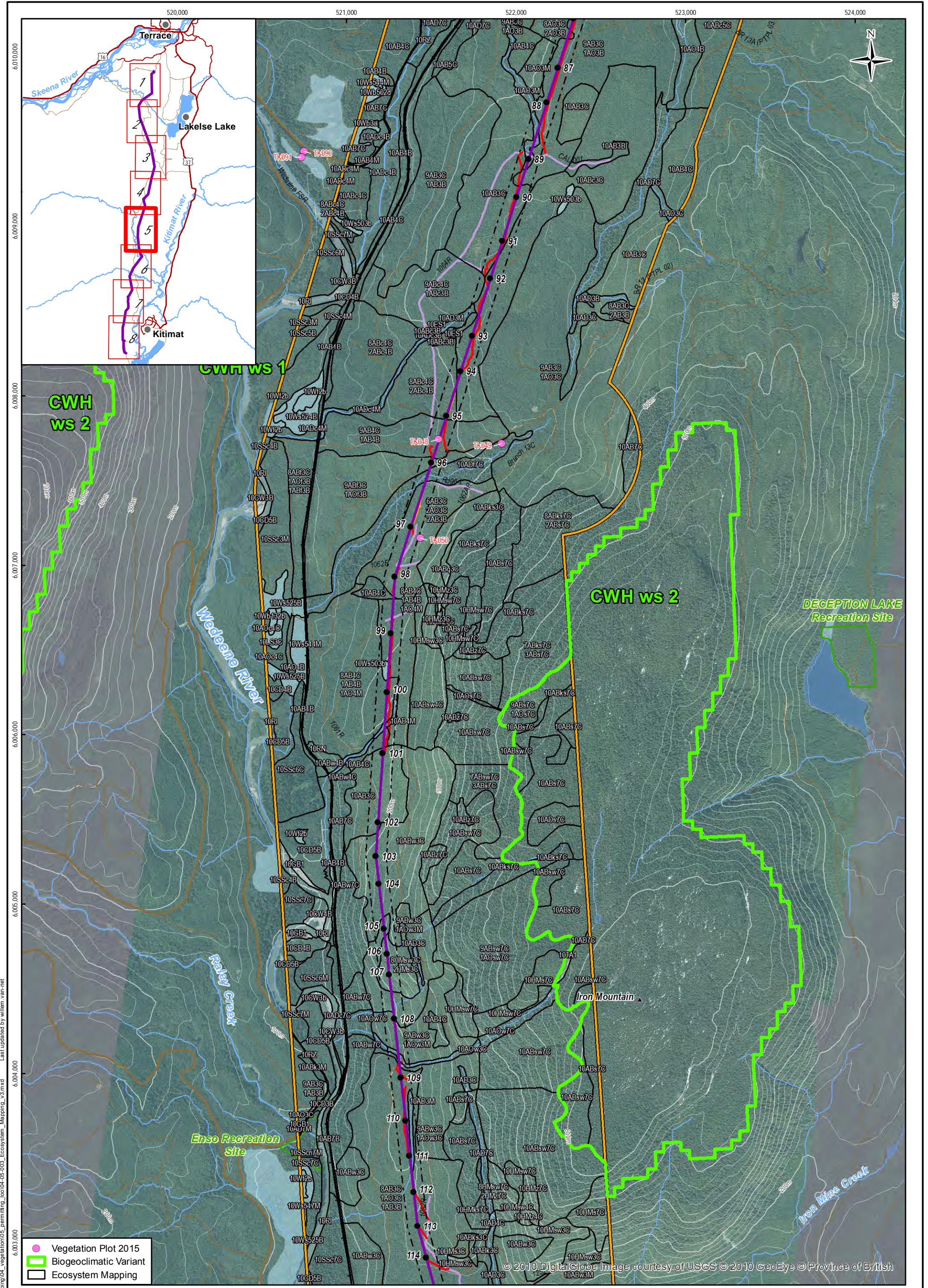
Table continues...

| Category | Family | Common Name | Scientific Name |
|-----------------------|-----------------|---------------------------|-----------------------------------|
| Shrubs | Ericaceae | bog blueberry | <i>Vaccinium uliginosum</i> |
| Shrubs | Grossulariaceae | stink currant (grey) | <i>Ribes bracteosum</i> |
| Shrubs | Grossulariaceae | gooseberries and currants | <i>Ribes spp.</i> |
| Shrubs | Rosaceae | Saskatoon berry | <i>Amelanchier alnifolia</i> |
| Shrubs | Rosaceae | Indian plum | <i>Oemleria cerasiformis</i> |
| Shrubs | Rosaceae | Nootka rose | <i>Rosa nutkana</i> |
| Shrubs | Rosaceae | red raspberry | <i>Rubus idaeus</i> |
| Shrubs | Rosaceae | blackcap raspberry | <i>Rubus leucodermis</i> |
| Shrubs | Rosaceae | thimbleberry | <i>Rubus parviflorus</i> |
| Shrubs | Rosaceae | five-leaved bramble | <i>Rubus pedatus</i> |
| Shrubs | Rosaceae | salmonberry | <i>Rubus spectabilis</i> |
| Shrubs | Rosaceae | trailing blackberry | <i>Rubus ursinus</i> |
| Shrubs | Salicaceae | Sitka willow | <i>Salix sitchensis</i> |
| Shrubs | Salicaceae | willow | <i>Salix spp.</i> |
| Rushes | Cyperaceae | small-flowered bulrush | <i>Scirpus microcarpus</i> |
| Herbs | Apiaceae | kneeling angelica | <i>Angelica genuflexa</i> |
| Herbs | Apiaceae | Pacific hemlock parsley | <i>Conioselinum gmelinii</i> |
| Herbs | Apiaceae | cow parsnip | <i>Heracleum maximum</i> |
| Herbs | Araceae | skunk cabbage | <i>Lysichiton americanus</i> |
| Herbs | Asparagaceae | false lily-of-the-valley | <i>Maianthemum dilatatum</i> |
| Herbs | Asparagaceae | false Solomon's seal | <i>Maianthemum racemosum</i> |
| Herbs | Asteraceae | common yarrow | <i>Achillea millefolium</i> |
| Herbs | Ericaceae | one-flowered wintergreen | <i>Moneses uniflora</i> |
| Herbs | Gentianaceae | swamp gentian | <i>Gentiana douglasiana</i> |
| Herbs | Lamiaceae | field mint | <i>Mentha arvensis</i> |
| Herbs | Lilaceae | riceroot | <i>Fritillaria camschatcensis</i> |
| Herbs | Liliaceae | nodding onion | <i>Allium cernuum</i> |
| Herbs | Liliaceae | Indian hellebore | <i>Veratrum viride</i> |
| Herbs | Onagraceae | fireweed | <i>Epilobium angustifolium</i> |
| Herbs | Ranunculaceae | Sitka columbine | <i>Aquilegia formosa</i> |
| Herbs | Urticaceae | stinging nettle | <i>Aruncus dioicus</i> |
| Herbs | Urticaceae | stinging nettle | <i>Urtica dioica</i> |
| Ferns and fern allies | Dryopteridaceae | toothed wood fern | <i>Dryopteris carthusiana</i> |
| Ferns and fern allies | Dryopteridaceae | spiny wood fern | <i>Dryopteris expansa</i> |
| Ferns and fern allies | Lycopodiaceae | running club-moss | <i>Lycopodium clavatum</i> |
| Ferns and fern allies | Polypodiaceae | licorice fern | <i>Polypodium glycyrrhiza</i> |
| Bryophytes | Conocephalaceae | snake liverwort | <i>Conocephalum conicum</i> |
| Bryophytes | Sphagnaceae | sphagnum | <i>Sphagnum species</i> |

Appendix C.2

Ecosystem Maps and Map Legend





Y:\GIS\Projects\VE52379_04_vegetation\05_permitting\004-05-003_Ecosystem_Mapping_v3.mxd Last updated by willem.van-niet

Legend

- Populated Place
- Existing Substation
- Existing Transmission Line
- Local Road
- Forest Service Road
- Existing Road
- Railway
- Contour (25m)
- Recreation Trail

- Stream
- Waterbody
- Wetland
- Recreation Site
- Lakelse Subzone 1
- Lakelse Subzone 2
- First Nation Reserve
- Park
- Private Parcel

Proposed Components

- Project Structure
- Provisional Route
- New Permanent Road
- New Temporary Road
- Reconstruction Road
- Transmission Line
- Right of Way (120m)
- Vegetation Local Study Area

0 100 200 400
Meters
Scale: 1:20,000

Reference:
DataABC Data
Distribution Service
Open Government License
(http://www.data.gov.bc.ca/)

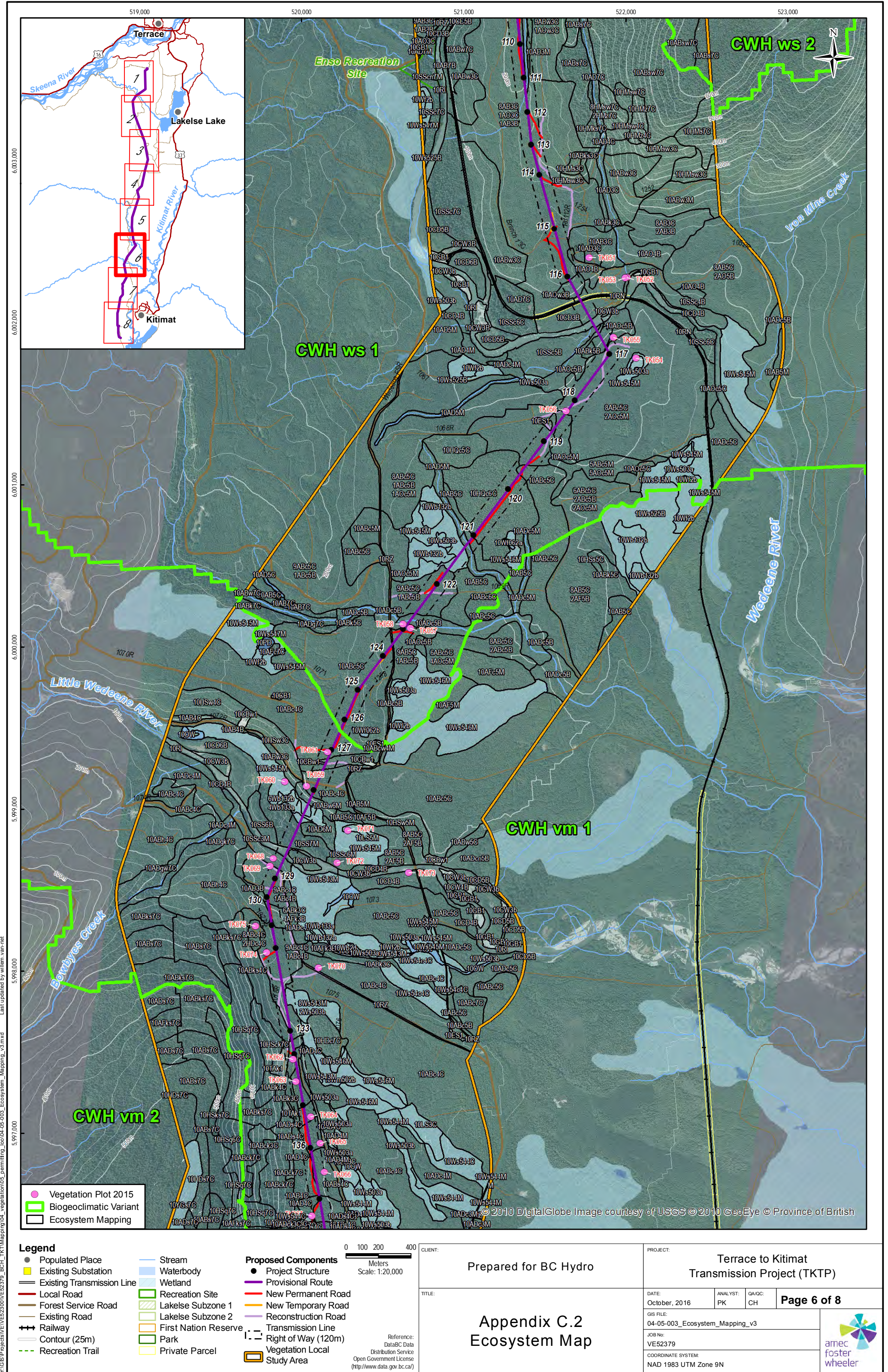
CLIENT: Prepared for BC Hydro

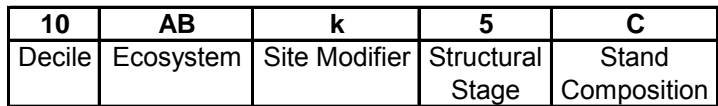
TITLE: Appendix C.2
Ecosystem Map

PROJECT: Terrace to Kitimat
Transmission Project (TKTP)

| | | | |
|---|----------------|--------------|-------------|
| DATE: October, 2016 | ANALYST: PK | QA/QC: CH | Page 5 of 8 |
| GIS FILE: 04-05-003_Ecosystem_Mapping_v3 | | | |
| JOB No: VE52379 | | | |

COORDINATE SYSTEM:
NAD 1983 UTM Zone 9N





| Decile Code | Deciles (percentage of polygon) |
|-------------|---------------------------------|
| 1 | 10% |
| 2 | 20% |
| 3 | 30% |
| 4 | 40% |
| 5 | 50% |
| 6 | 60% |
| 7 | 70% |
| 8 | 80% |
| 9 | 90% |
| 10 | 100% |


| Structural Stage | |
|------------------|-----------------------------|
| Code | Structural Stage |
| 1 | Sparse/Bryoid |
| 2a | Herb |
| 2b | Graminoid |
| 2c | Aquatic |
| 2d | Dwarf Shrub |
| 3 | Shrub/Herb |
| 3a | Low Shrub |
| 3b | Tall Shrub |
| 4 | Pole/Sapling |
| 5 | Young Forest |
| 6 | Mature Forest (81-250 yrs) |
| 7 | Old Forest (> 250 yrs) |

| Stand Composition | |
|-------------------|-------------|
| Code | Description |
| C | coniferous |
| B | broadleaf |
| M | mixed |

| BGC Unit | Site Series | Map Code | Site Series Name |
|----------|-------------|-------------|--|
| CWHws1 | 01 | AB | Western hemlock - Amabilis fir - Bramble |
| CWHws1 | 02 | LK* | Lodgepole pine - Kinnikinnick |
| CWHws1 | 03 | HM** | Western hemlock - Lodgepole pine - Feathermoss |
| CWHws1 | 04 | AO** | Amabilis fir - Western redcedar - Oak fern |
| CWHws1 | 05 | HQ | Western hemlock - Amabilis fir - Queen's cup |
| CWHws1 | 06 | AD** | Amabilis fir - Western redcedar - Devil's club |
| CWHws1 | 07 | SS* | Sitka Spruce - Salmonberry |
| CWHws1 | 08 | CD**(Fm50) | Black cottonwood - Red-osier dogwood |
| CWHws1 | 09 | CW (FI50) | Black cottonwood - Willow |
| CWHws1 | 10 | LS | Lodgepole pine - Sphagnum |
| CWHws1 | 00 | Wb | Wetland Bog |
| CWHws1 | 00 | Wb13** | Shore sedge - Buckbean - Peat-moss |
| CWHws1 | 00 | Wb50 | Labrador tea - Bog Laurel - Peat-moss |
| CWHws1 | 00 | Wf | Wetland Fen |
| CWHws1 | 00 | Wf06** | Slender sedge - Buckbean |
| CWHws1 | 00 | Wm | Wetland Marsh |
| CWHws1 | 00 | Wm02 | Swamp horsetail - Beaked sedge |
| CWHws1 | 00 | Ws | Wetland Swamp |
| CWHws1 | 00 | Ws50 | Pink Spirea - Sitka sedge |
| CWHws1 | 00 | Ws52 | Red alder - Skunk cabbage |
| CWHws1 | 11 | Ws54** | Western redcedar - Sitka spruce - Skunk cabbage |
| CWHws2 | 01 | AB | Western hemlock - Amabilis fir - Bramble |
| CWHws2 | 04 | AO** | Amabilis fir - Western redcedar - Oak fern |
| CWHws2 | 06 | AD | Amabilis fir - Western redcedar - Devil's club |
| CWHvm1 | 01 | AB | Western hemlock - Amablis fir - Blueberry |
| CWHvm1 | 02 | LC | Western hemlock - Lodgepole pine - Cladina |
| CWHvm1 | 03 | HS** | Western hemlock - Western redcedar - Salal |
| CWHvm1 | 05 | AF | Amabilis fir - Western redcedar - Foamflower |
| CWHvm1 | 06 | HD** | Western hemlock - Amabilis fir - Deer fern |
| CWHvm1 | 08 | AD** | Amablis fir - Sitka spruce - Devil's club |
| CWHvm1 | 00 | SA | Slide / Avalanche Track |
| CWHvm1 | 09 | SS* | Sitka Spruce - Salmonberry |
| CWHvm1 | 10 | CD** (Fm50) | Black cottonwood - Red-osier dogwood |
| CWHvm1 | 11 | CW (FI50) | Black cottonwood - Willow |
| CWHvm1 | 13 | LS | Lodgepole pine - Sphagnum |
| CWHvm1 | 00 | Wb | Wetland Bog |
| CWHvm1 | 00 | Wb13** | Shore sedge - Buckbean - Peat-moss |
| CWHvm1 | 00 | Wf | Wetland Fen |
| CWHvm1 | 00 | Wm50 | Sitka sedge - Hemlock-parsley |
| CWHvm1 | 00 | Ws50 | Pink Spirea - Sitka sedge |
| CWHvm1 | 00 | Ws52 | Red alder - Skunk cabbage |
| CWHvm1 | 14 | Ws54** | Western redcedar - Sitka spruce - Skunk cabbage |
| CWHvm2 | 01 | AB | Western hemlock Amabilis fir - Blueberry |
| CWHvm2 | 03 | HS** | Western hemlock - Western redcedar - Salal |
| CWHvm2 | 05 | AF | Amabilis fir - Western redcedar - Foamflower |
| CWHvm2 | 06 | HD** | Western hemlock - Amabilis fir - Deer fern |
| CWHvm2 | 08 | AD** | Amabilis fir - Sitka spruce - Devil's club |
| CWHvm2 | 00 | SA | Slide / Avalanche Track |
| CWHvm2 | 12 | YG | Western redcedar - Yellow cedar - Goldthread |
| MHmm1 | 01 | MB | Mountain hemlock - Amabilis fir - Blueberry |
| MHmm1 | 02 | MM | Mountain hemlock - Amabilis fir - Mountain-heather |
| All | 00 | CB | Cutbank |
| All | 00 | ES | Exposed Soil |
| All | 00 | GB | Gravel Bar |
| All | 00 | GP | Gravel Pit |
| All | 00 | LA | Lake |
| All | 00 | OW | Open Water |
| All | 00 | PD | Pond |
| All | 00 | RI | River |
| All | 00 | RN | Railway |
| All | 00 | RZ | Road |
| All | 00 | TA | Talus |
| All | 00 | UR | Urban (includes existing transmission line and substation) |

* red-listed ecosystems

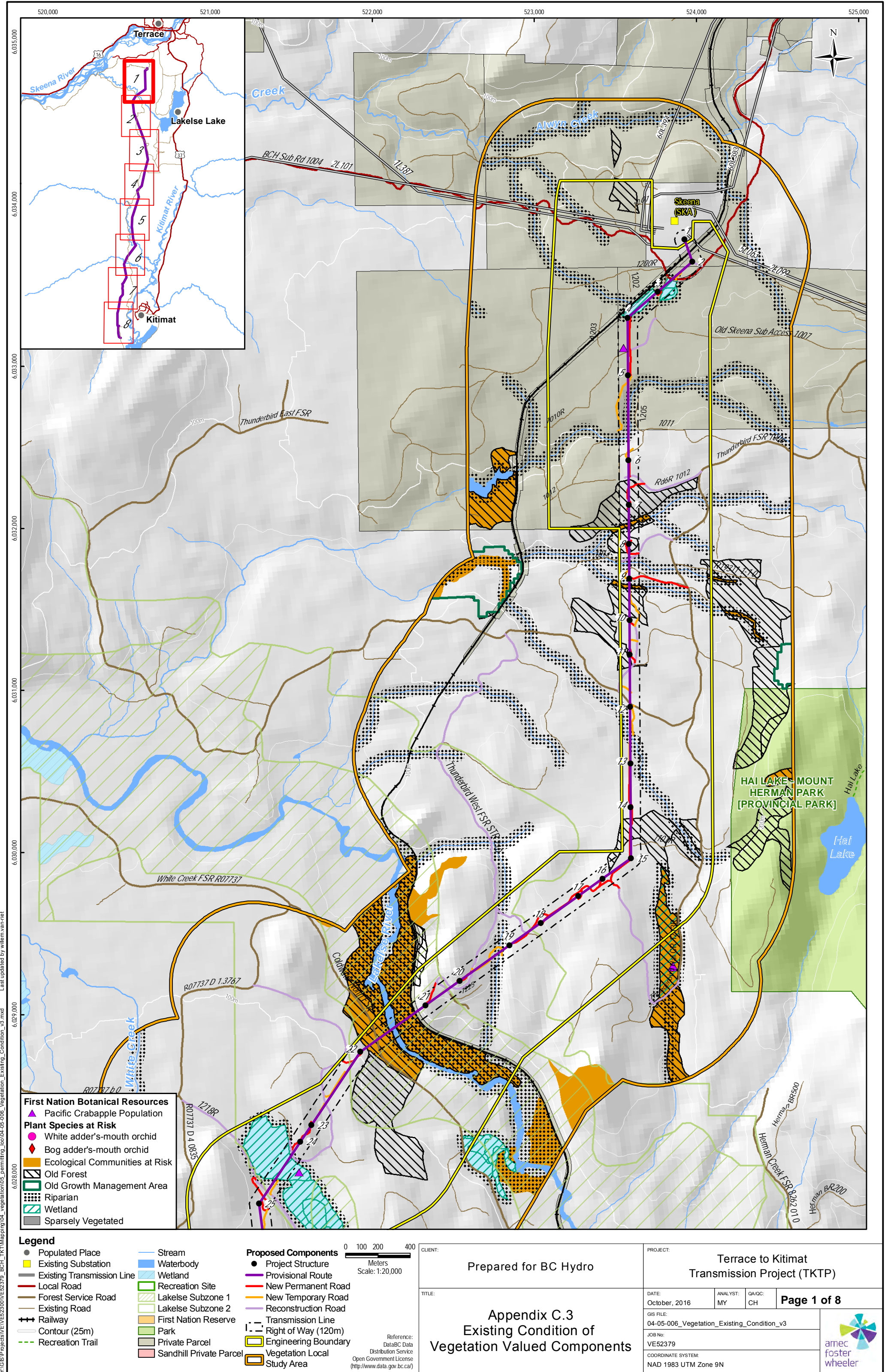
** blue-listed ecosystems

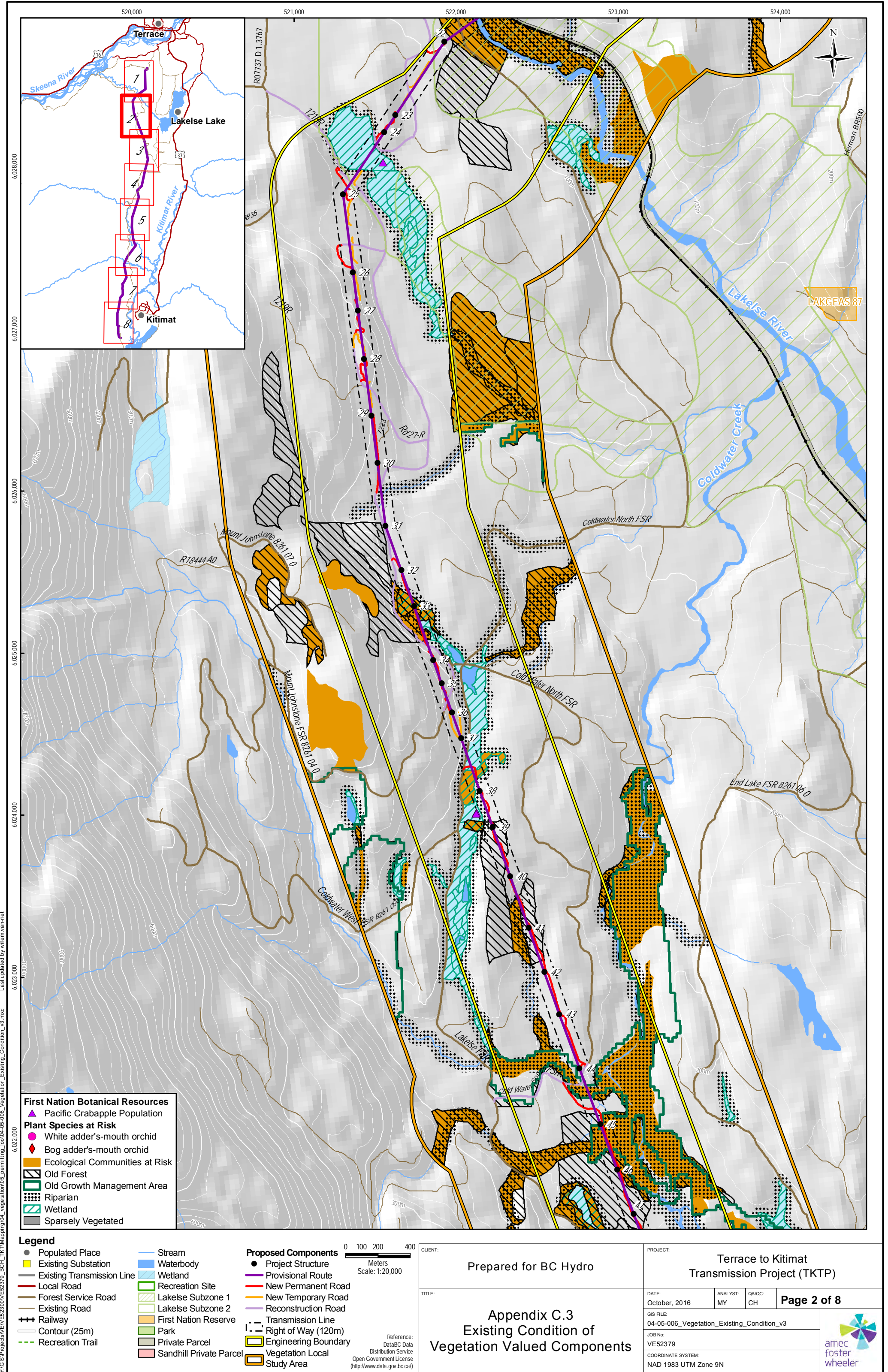
| | | | | | |
|--|---|---|--------------|--------|---|
| CLIENT: | Prepared for BC Hydro | PROJECT: Terrace to Kitimat Transmission Project (TKTP) | | | |
| TITLE: Appendix C.2 Ecosystem Map Legend | DATE: December, 2015 | ANALYST: MY | QA/QC: CH | Figure | |
| | GIS FILE: 04-05-007_Ecosystem_Mapping_Legend | | | |  |
| | JOB No: VE52379 | | | | |
| | COORDINATE SYSTEM: NAD 1983 UTM Zone 9N | | | | |

Appendix C.3



Existing Condition of Vegetation Resources





Y:\GIS\Projects\VE52379\VE52379_BCH_TKTP\Mapping\04_Vegetation\05_Vegetation_Existing_Condition_v3.mxd
Last updated by willem.van-riet

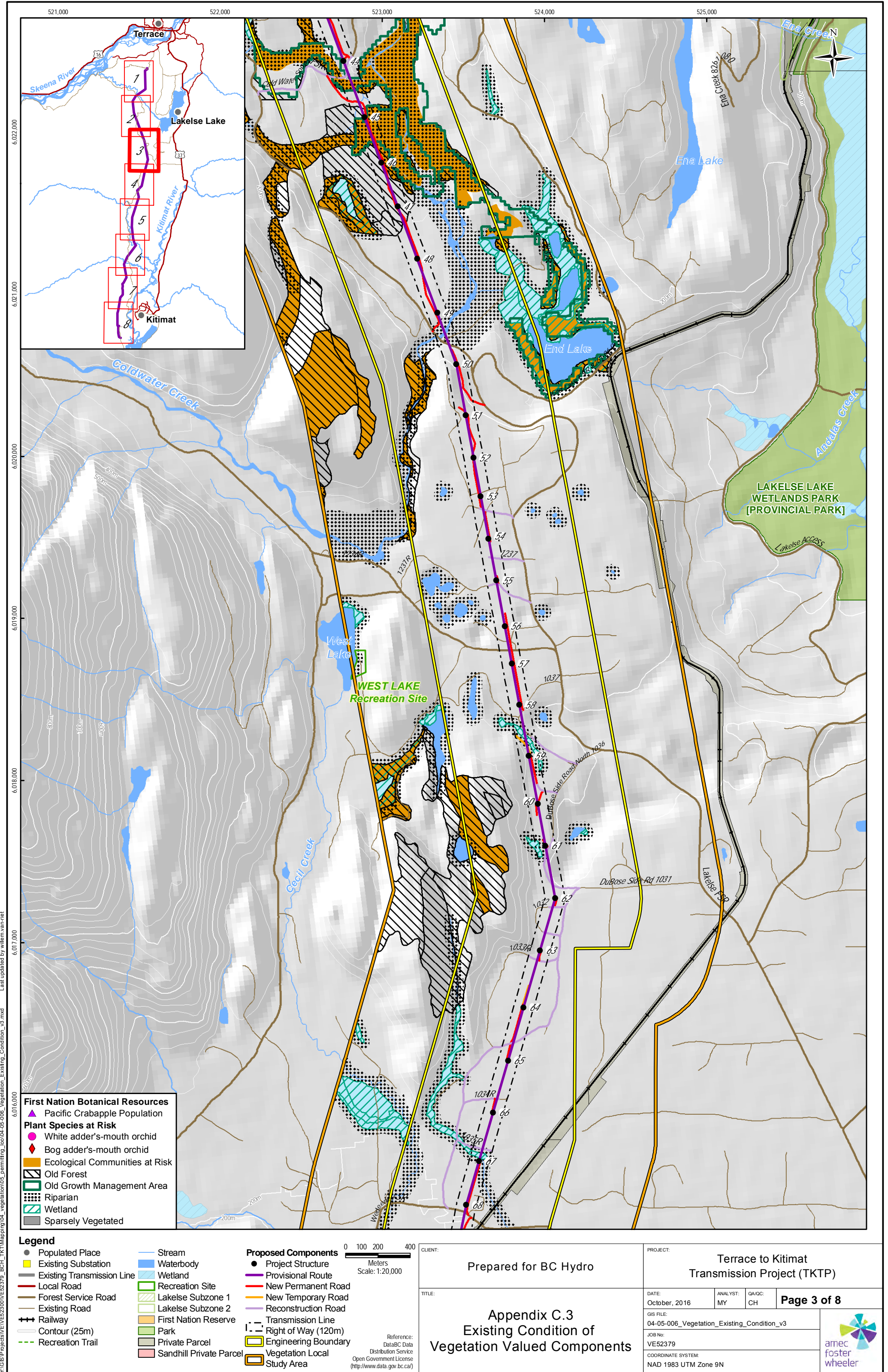
- First Nation Botanical Resources**
- Pacific Crabapple Population
- Plant Species at Risk**
- White adder's-mouth orchid
 - Bog adder's-mouth orchid
- Ecological Communities at Risk**
- Old Forest
 - Old Growth Management Area
 - Riparian
 - Wetland
 - Sparsely Vegetated

- Legend**
- Populated Place
 - Existing Substation
 - Existing Transmission Line
 - Local Road
 - Forest Service Road
 - Existing Road
 - Railway
 - Contour (25m)
 - Recreation Trail
 - Stream
 - Waterbody
 - Wetland
 - Recreation Site
 - Lakelse Subzone 1
 - Lakelse Subzone 2
 - First Nation Reserve
 - Park
 - Private Parcel
 - Sandhill Private Parcel

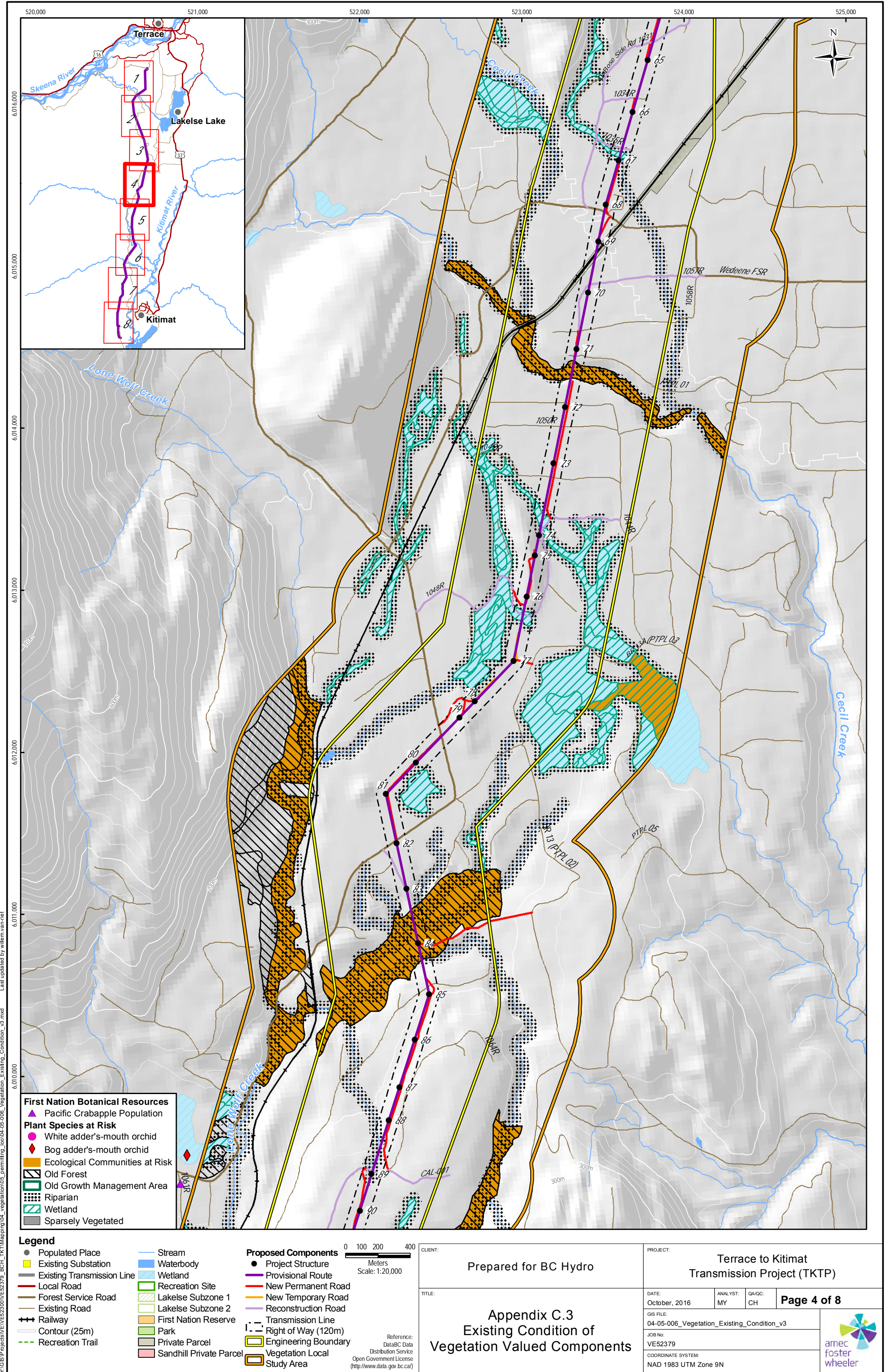
- Proposed Components**
- Project Structure
 - Provisional Route
 - New Permanent Road
 - New Temporary Road
 - Reconstruction Road
 - Transmission Line
 - Right of Way (120m)
 - Engineering Boundary
 - Vegetation Local
 - Study Area
- Scale: 1:20,000
- Reference: DataBC Data Distribution Service Open Government License (<http://www.data.gov.bc.ca/>)

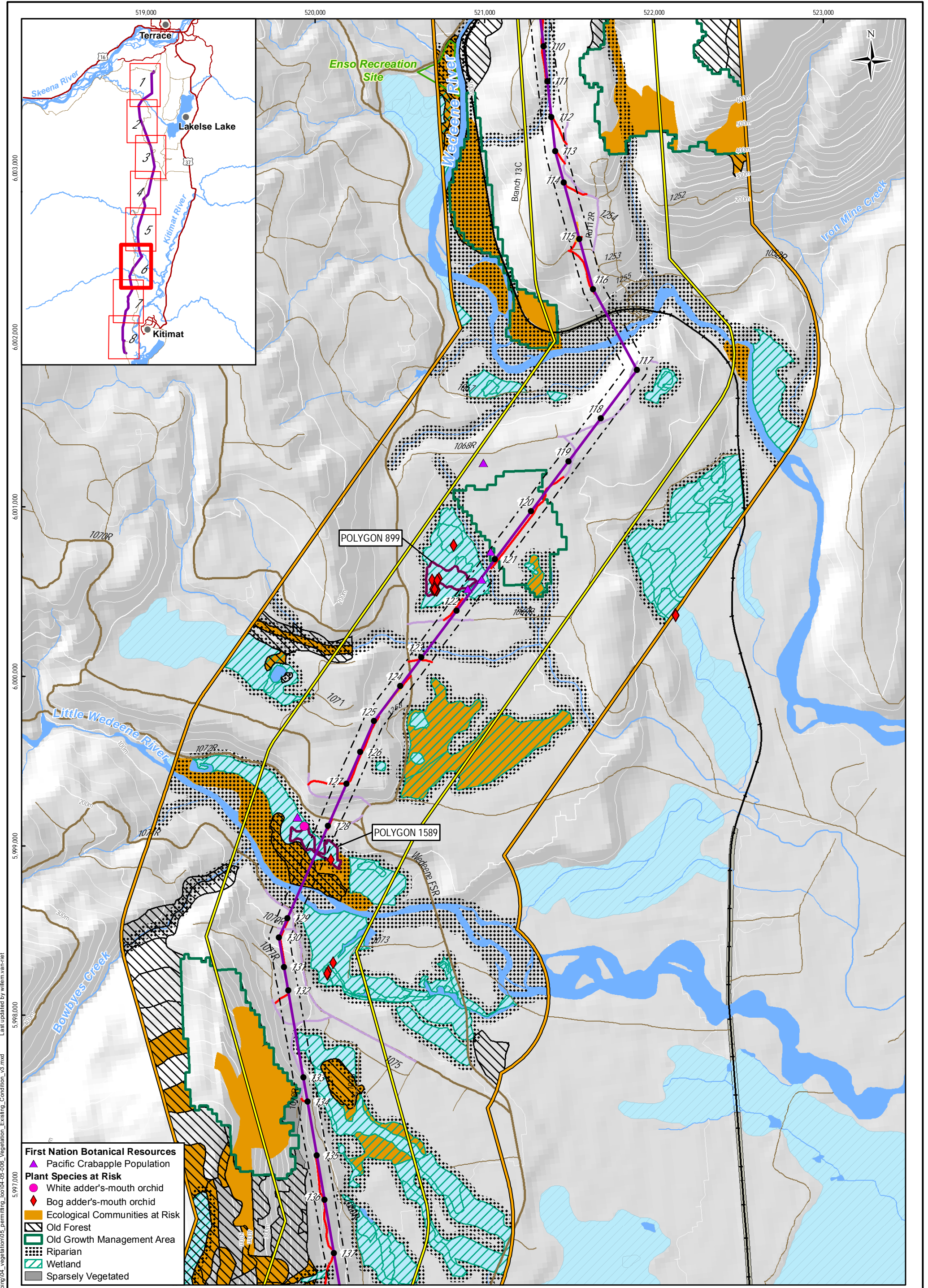
CLIENT: Prepared for BC Hydro

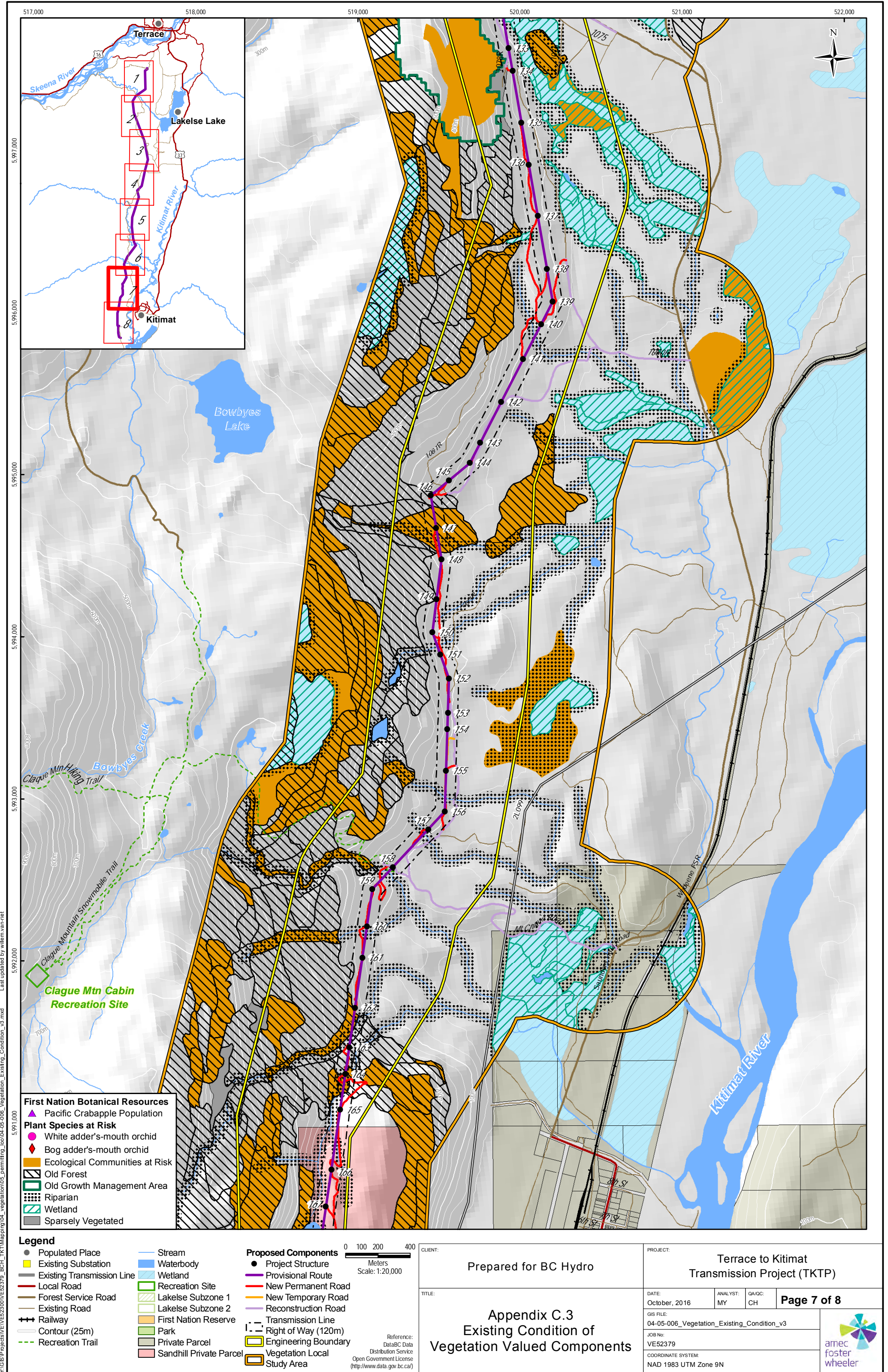
TITLE: Appendix C.3
Existing Condition of
Vegetation Valued Components



Y:\GIS\IP\Projects\VE\VE52300\VE52379_BCH_TKTP\Mapping\04_Vegetation\05_Vegetation_Existing_Condition_v3.mxd
Last updated by willem.van-riet







Y:\GIS\Projects\VE\VE52300\VE52379_BCH_TKTP\Mapping\04_Vegetation\05_Vegetation_Existing_Condition_v3.mxd Last updated by willem.van-riet

- First Nation Botanical Resources**
- ▲ Pacific Crabapple Population
- Plant Species at Risk**
- White adder's-mouth orchid
 - ◆ Bog adder's-mouth orchid
- Ecological Communities at Risk**
- Old Forest
 - Old Growth Management Area
 - Riparian
 - Wetland
 - Sparsely Vegetated

- Legend**
- Populated Place
 - Existing Substation
 - Existing Transmission Line
 - Local Road
 - Forest Service Road
 - Existing Road
 - Railway
 - Contour (25m)
 - Recreation Trail
 - Stream
 - Waterbody
 - Wetland
 - Recreation Site
 - Lakelse Subzone 1
 - Lakelse Subzone 2
 - First Nation Reserve
 - Park
 - Private Parcel
 - Sandhill Private Parcel

- Proposed Components**
- Project Structure
 - Provisional Route
 - New Permanent Road
 - New Temporary Road
 - Reconstruction Road
 - Transmission Line
 - Right of Way (120m)
 - Engineering Boundary
 - Vegetation Local
 - Study Area
- 0 100 200 400
Meters
Scale: 1:20,000
- Reference:
DataBC Data
Distribution Service
Open Government License
(http://www.data.gov.bc.ca/)

CLIENT:
Prepared for BC Hydro

TITLE:
Appendix C.3
Existing Condition of
Vegetation Valued Components

Appendix C.4



Ecological Communities at Risk

Potentially Occurring and Confirmed Ecological Communities at Risk in the TKTP LSA

| | Ecosystem Group | English Name | Scientific Name | BC List | CWHws1 | Mapped | Confirmed by Plot Data | CWHws2 | Mapped | Confirmed by Plot Data | CWHvm1 | Mapped | Confirmed by Plot Data | CWHvm2 | Mapped | Confirmed by Plot Data | MHmm1 | Mapped | Confirmed by Plot Data |
|----|--|---|---|---------|---------|--------|---------------------------|--------|--------|---------------------------|---------|--------|---------------------------|--------|--------|---------------------------|-------|--------|---------------------------|
| 1 | Terrestrial - Forest: Coniferous - dry | lodgepole pine / kinnikinnick | Pinus contorta / Arctostaphylos uva-ursi | Red | 02/LK | ✓ | ✓ | 02/LK | | | | | | | | | | | |
| 2 | Terrestrial - Forest: Coniferous - dry | western hemlock - western redcedar / red-stemmed feather moss | Tsuga heterophylla - Pinus contorta / Pleurozium schreberi | Blue | 03/HM | ✓ | ✓ | 03/HM | | | | | | | | | | | |
| 3 | Terrestrial - Forest: Coniferous - dry | western hemlock - western redcedar / salal | Tsuga heterophylla - Thuja plicata / Gaultheria shallon | Blue | | | | | | | 03/HS | ✓ | ✓ | 03/HS | ✓ | * | | | |
| 4 | Terrestrial - Forest: Coniferous - dry | western redcedar - western hemlock / sword fern | Thuja plicata - Tsuga heterophylla / Polystichum munitum | Blue | | | | | | | 04/RS | * | * | 04/RS | * | * | | | |
| 5 | Terrestrial - Forest: Coniferous - mesic | amabilis fir - western redcedar / oak fern | Abies amabilis - Thuja plicata / Gymnocarpium dryopteris | Blue | 04/AO | ✓ | ✓ | 04/AO | ✓ | * | | | | | | | | | |
| 6 | Terrestrial - Forest: Coniferous - moist/wet | western hemlock - amabilis fir / deer fern | Tsuga heterophylla - Abies amabilis / Blechnum spicant | Blue | | | | | | | 06/HD | ✓ | * | 06/HD | ✓ | | | | |
| 7 | Terrestrial - Forest: Coniferous - moist/wet | amabilis fir - Sitka spruce / devil's club | Abies amabilis - Picea sitchensis / Oplopanax horridus | Blue | | | | | | | 08/AD | ✓ | ✓ | 08/AD | ✓ | | | | |
| 8 | Terrestrial - Forest: Coniferous - moist/wet | amabilis fir - western redcedar / devil's club | Abies amabilis - Thuja plicata / Oplopanax horridus | Blue | 06/AD | ✓ | ✓ | | | | | | | | | | | | |
| 9 | Terrestrial - Flood: Flood (Highbench); | Sitka spruce / salmonberry | Picea sitchensis / Rubus spectabilis | Red | | | | | | | 09/SS | ✓ | ✓ | | | | | | |
| 9 | Terrestrial - Flood: Flood (Highbench); | Sitka spruce / salmonberry | Picea sitchensis / Rubus spectabilis | Blue | | | | 07/SS | * | * | | | | | | | | | |
| 9 | Terrestrial - Flood: Flood (Highbench); | Sitka spruce / salmonberry | Picea sitchensis / Rubus spectabilis | Red | 07/SS | ✓ | ✓ | | | | | | | | | | | | |
| 10 | Terrestrial - Flood: Flood Midbench (Fm); | black cottonwood - red alder / salmonberry | Populus trichocarpa - Alnus rubra / Rubus spectabilis | Blue | 08/CD | ✓ | ✓ | 08/CD | * | * | 10/CD | ✓ | ✓ | | | | | | |
| 11 | Wetland - Peatland: Wetland Bog (Wb) | shore sedge - buckbean / peat-mosses | Carex limosa - Menyanthes trifoliata / Sphagnum spp. | Blue | Wb13 | ✓ | ✓ | Wb13 | * | * | | | | | | | | | |
| 12 | Wetland - Peatland: Wetland Bog (Wb) | Labrador tea / western bog-laurel / peat-mosses | Rhododendron groenlandicum / Kalmia microphylla / Sphagnum spp. | Blue | | | | | | | Wb50 | * | | | | | | | |
| 13 | Wetland - Peatland: Wetland Fen (Wf) | buckbean - slender sedge | Menyanthes trifoliata - Carex lasiocarpa | Blue | Wf06 | ✓ | ✓ | | | | | | | | | | | | |
| 14 | Wetland - Peatland: Wetland Fen (Wf) | Sitka sedge / peat-mosses | Carex sitchensis / Sphagnum spp. | Red | | | | Wf51 | * | * | Wf51 | * | * | Wf51 | * | * | Wf51 | * | * |
| 15 | Wetland - Mineral: Wetland Swamp (Ws) | western redcedar - Sitka spruce / skunk cabbage | Thuja plicata - Picea sitchensis / Lysichiton americanus | Blue | 11/Ws54 | ✓ | ✓ | | | | 14/Ws54 | ✓ | ✓ | | | | | | |
| 16 | Wetland - Mineral: Wetland Swamp (Ws) | Sitka willow / Sitka sedge | Salix sitchensis / Carex sitchensis | Blue | | | | | | | Ws06 | * | * | Ws06 | * | * | | | |

Note: the Sitka spruce / salmonberry community is the same community but in different biogeoclimatic variants



Appendix C.5

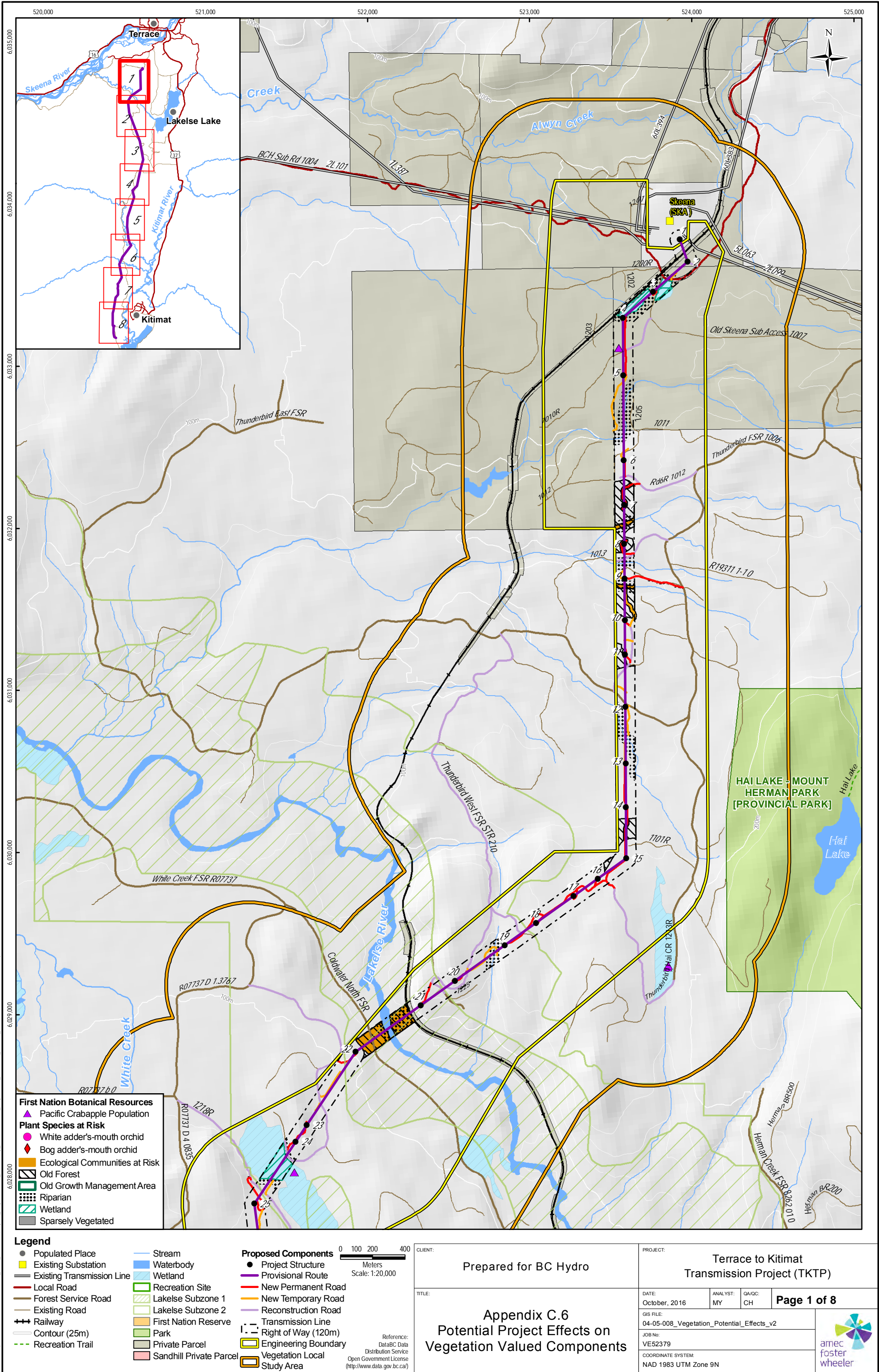
List of High Value Crossings

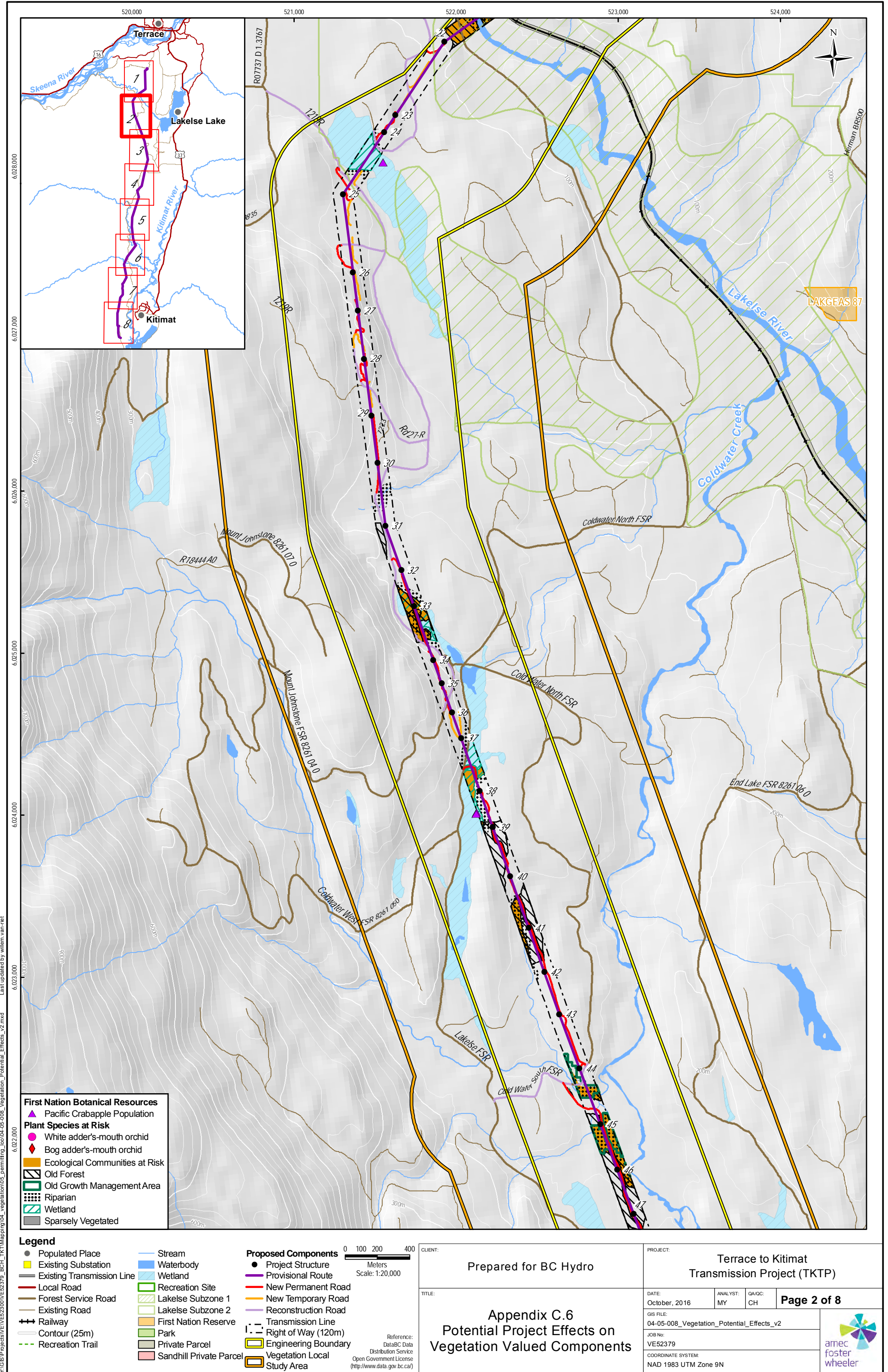
Table 1: Seven Identified Riparian/Wetland areas for which site-specific prescriptions may be implemented for the proposed Terrace-Kitimat Transmission Project

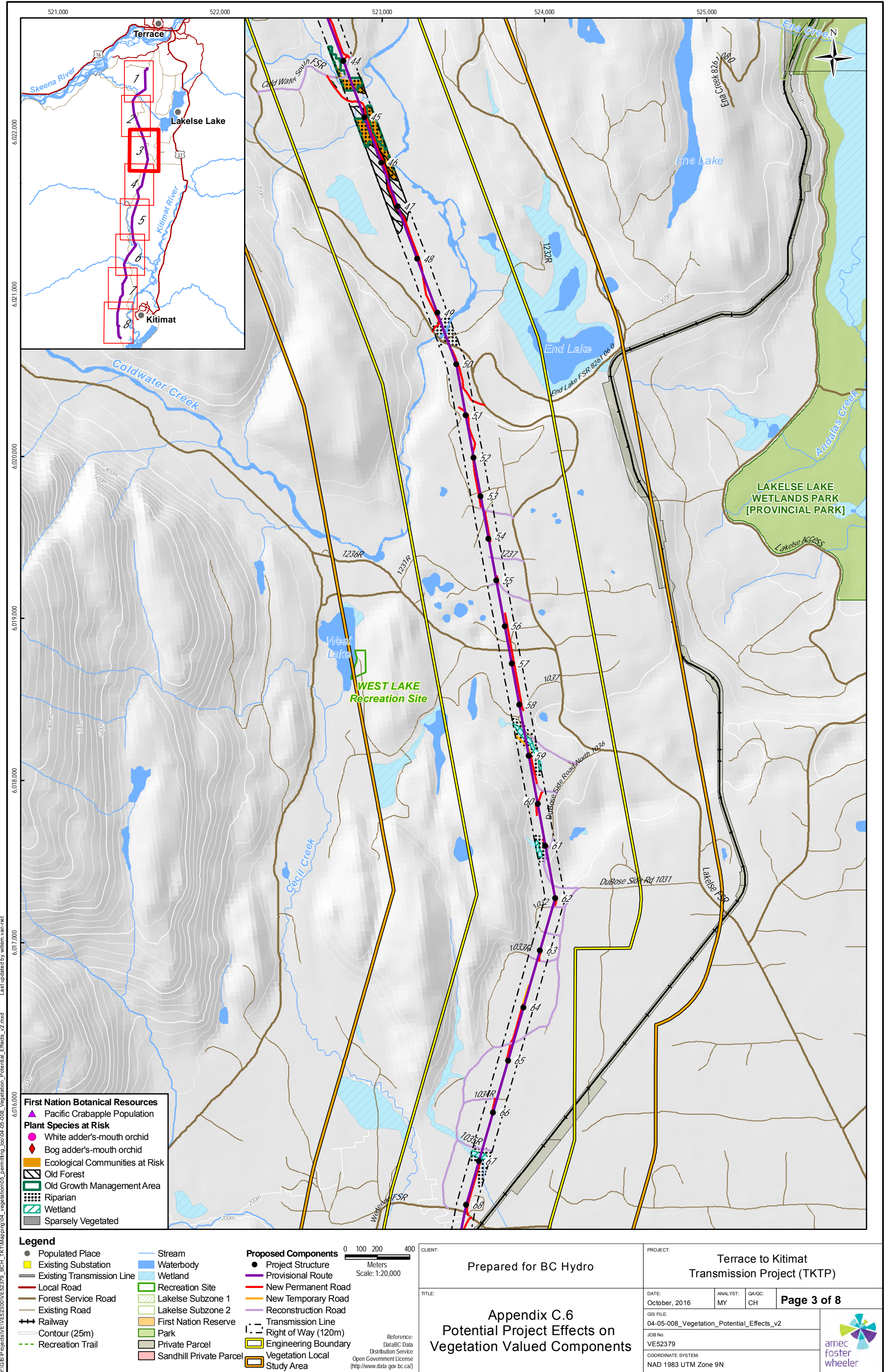
| Location Name | Structure Locations | Fisheries Valued Components | Vegetation Valued Components | Wildlife Valued Components |
|--------------------------|---------------------|---|--|---|
| Lakesle River | Between 21 and 22 | Fish Habitat, Coastal Cutthroat trout, and Coho Salmon | Riparian Ecosystems, Old Forests, Red-listed Ecological Community at Risk (CWHws1-07/SS), and within LRMP Special Resource Management zone (subzone 1 = 200 m either side of river). | Landbirds, Waterbirds, Raptors, Bears, Ungulates, Furbearers, Bats, and Amphibians. |
| Coldwater Creek | Between 49 and 50 | Fish Habitat, Coastal Cutthroat trout, and Coho Salmon | Riparian Ecosystems, and Blue-listed Ecological Community at Risk (CWHws1-08/CD). | Landbirds, Bears, Ungulates, Bats, and Amphibians. |
| Cecil Creek | Between 71 and 72 | Fish Habitat, Coastal Cutthroat trout, and Coho Salmon. | Riparian Ecosystems, Old Forests, and Blue-listed Ecological Community at Risk (CWHws1-06/AD). | Landbirds, Waterbirds, Raptors, Bears, Ungulates, Furbearers, Bats, and Amphibians. |
| Lone Wolf Creek Crossing | At structure 84 | Fish Habitat, Coastal Cutthroat trout, and Coho Salmon. | Riparian Ecosystems, Old Forests, and Blue-listed Ecological Community at Risk (CWHws1-06/AD). | Landbirds, Waterbirds, Raptors, Bears, Ungulates, Furbearers, Bats, and Amphibians. |
| Wedeeene River | Between 116 and 117 | Fish Habitat, Coastal Cutthroat trout, and Coho Salmon. | Riparian Ecosystems, Red-listed (CWHvm1-09/SS) and Blue-listed Ecological Communities at Risk (CWHws1 - 08/CD). | Bears, Ungulates, Bats, and Amphibians. |
| Wb13 Wetland | Between 121 and 122 | None | Wetlands and Plant species at Risk (Malaxis). | Landbirds, Bears, Ungulates, Bats, and Amphibians. |
| Little Wedeeene River | Between 128 and 129 | Fish Habitat, Coastal Cutthroat trout, and Coho Salmon. | Riparian Ecosystems, Old Forests, Wetlands, Plant species at Risk (Malaxis), Red-listed Ecological Communities at Risk: (CWHvm1 - 09/SS). | Landbirds, Waterbirds, Raptors, Bears, Ungulates, Furbearers, Bats, and Amphibians. |

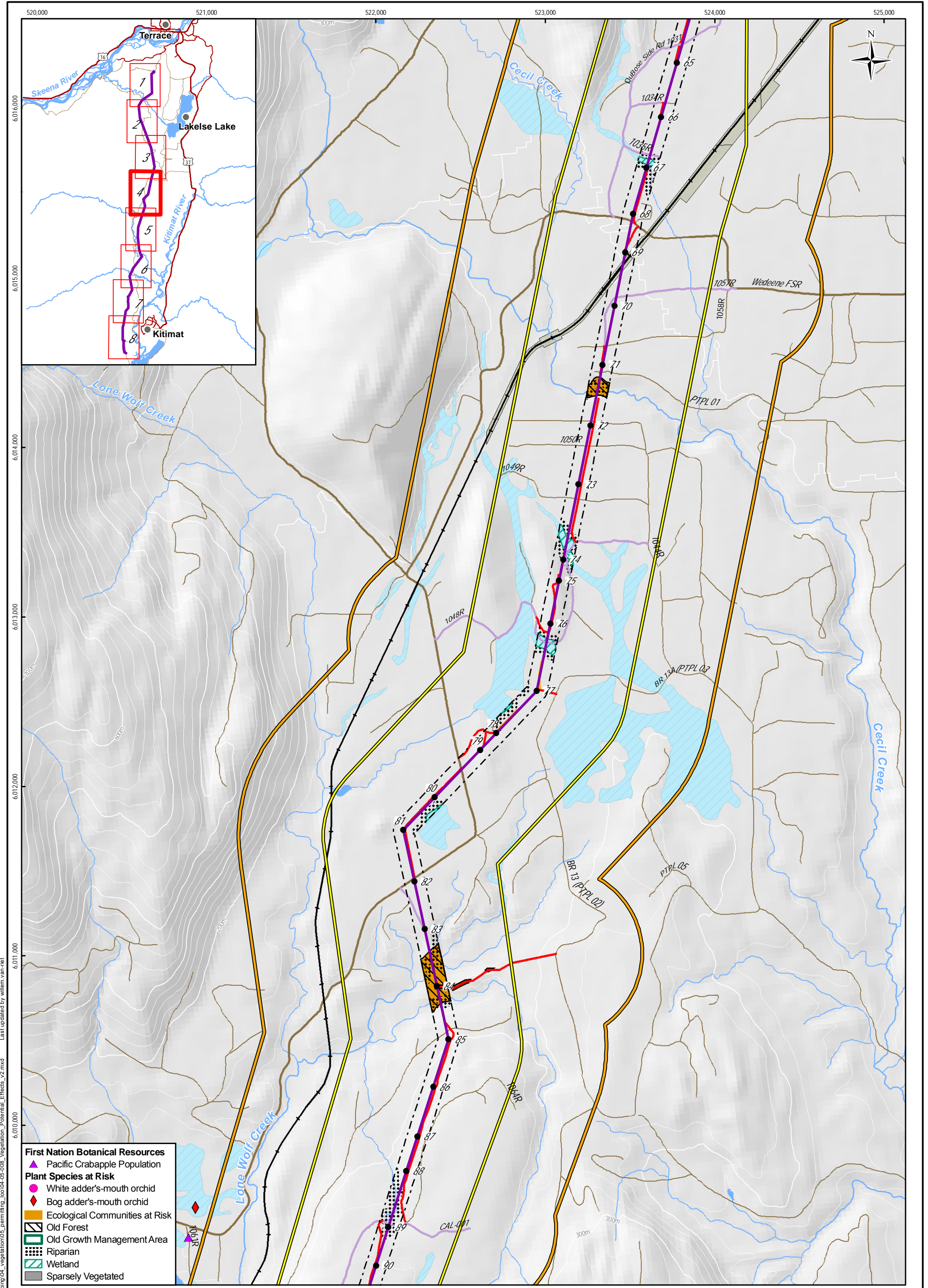
Appendix C.6

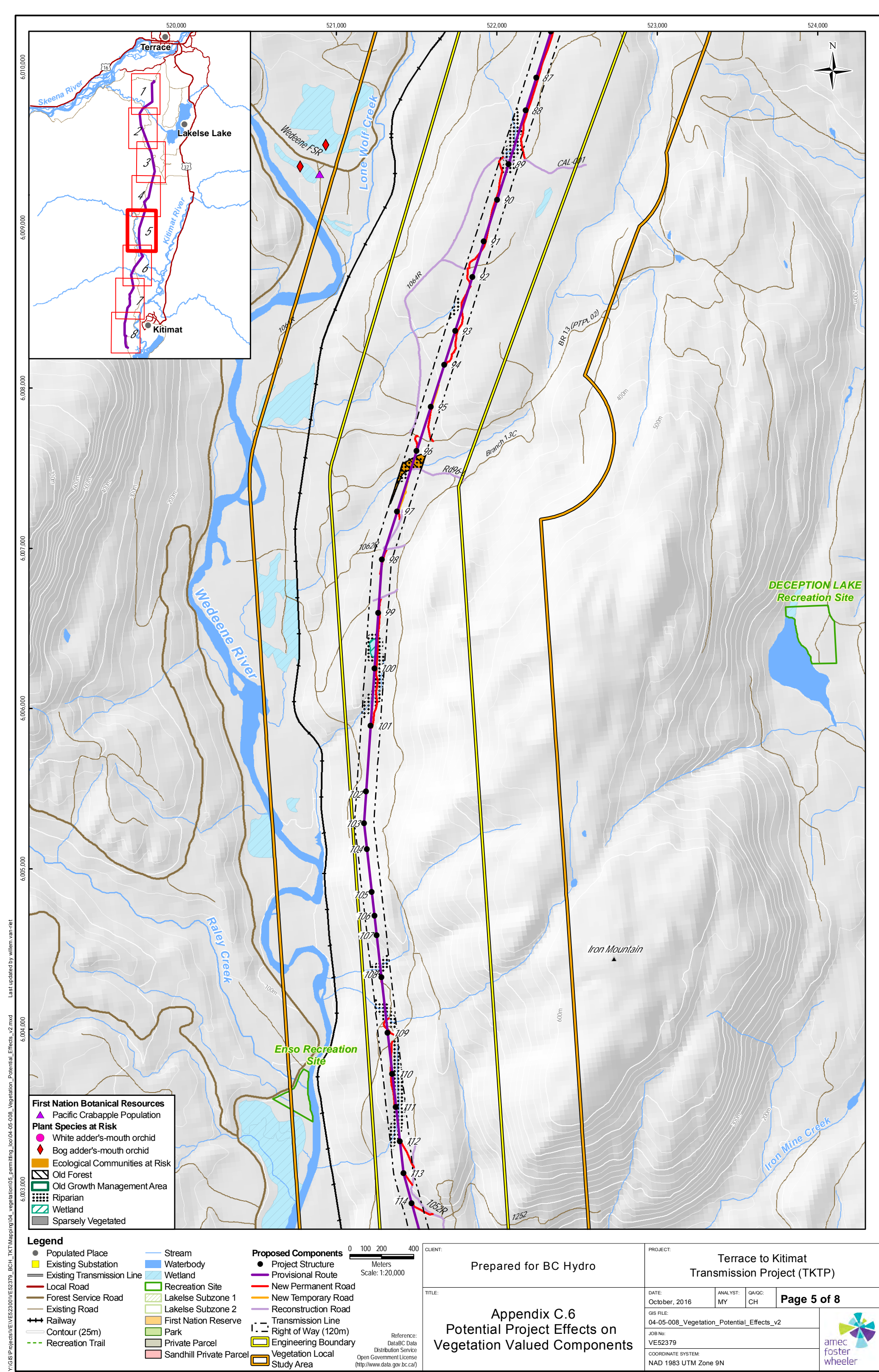
Potential Project Effects on Vegetation Resources

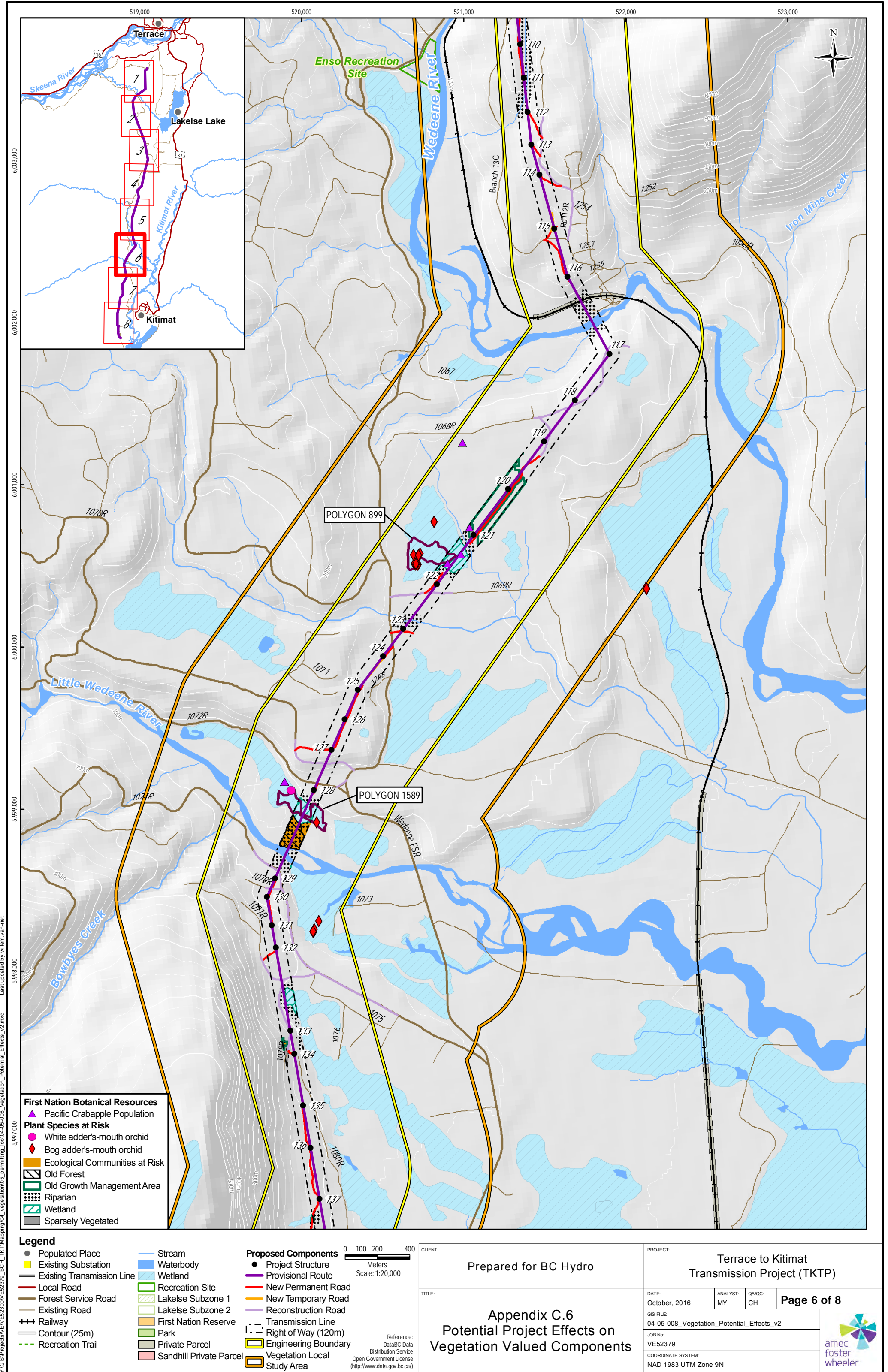




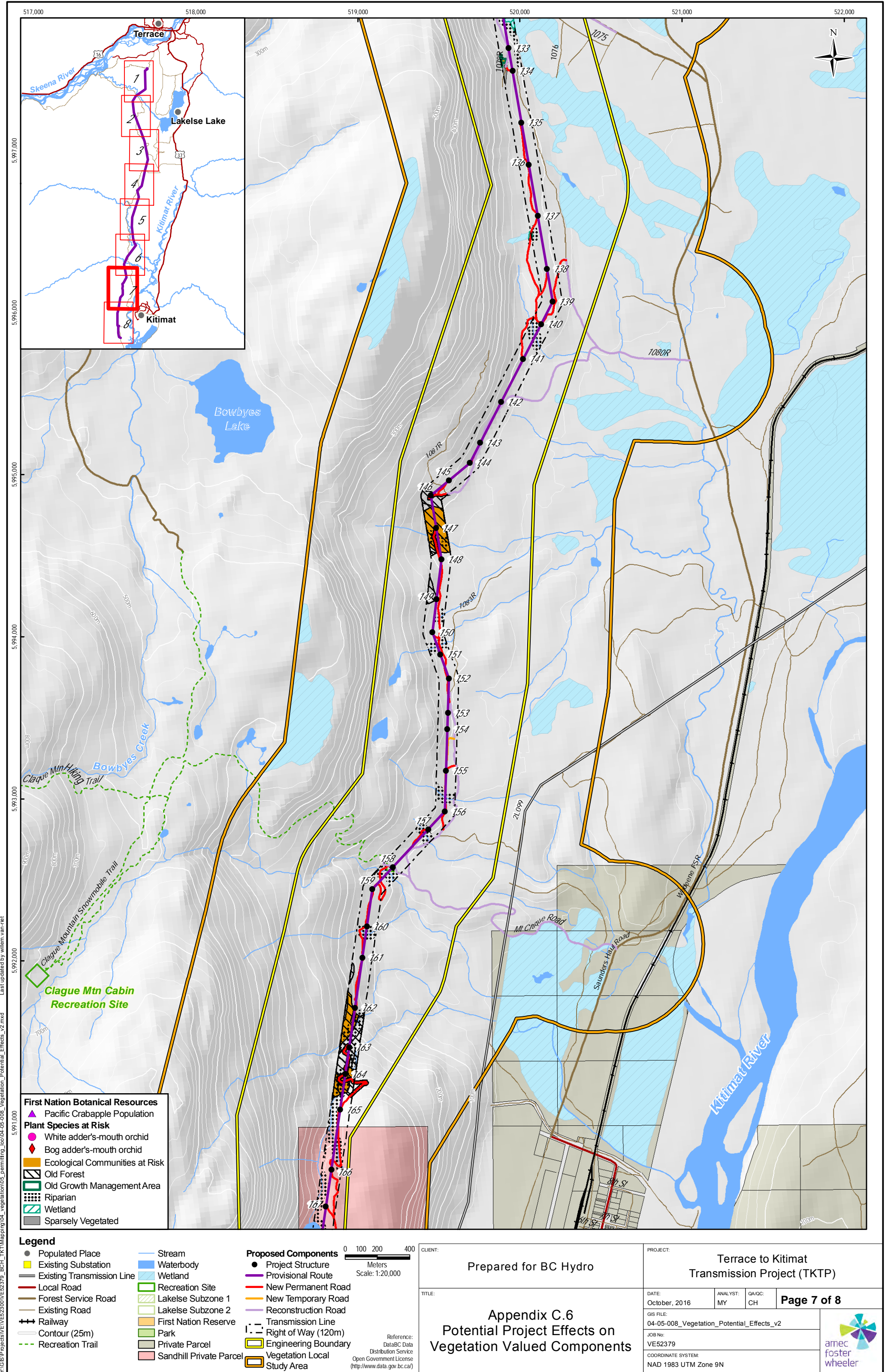








Y:\GIS\Projects\VE\VE52379_04_Vegetation_Potential_Effects_v2.mxd Last updated by willem van riet



Y:\GIS\Projects\VE\VE52379_04_Vegetation_Potential_Effects_v2.mxd Last updated by willem van der ...

- First Nation Botanical Resources**
- Pacific Crabapple Population
 - Plant Species at Risk**
 - White adder's-mouth orchid
 - Bog adder's-mouth orchid
 - Ecological Communities at Risk
 - Old Forest
 - Old Growth Management Area
 - Riparian
 - Wetland
 - Sparsely Vegetated

- Legend**
- Populated Place
 - Existing Substation
 - Existing Transmission Line
 - Local Road
 - Forest Service Road
 - Existing Road
 - Railway
 - Contour (25m)
 - Recreation Trail
 - Stream
 - Waterbody
 - Wetland
 - Recreation Site
 - Lakelse Subzone 1
 - Lakelse Subzone 2
 - First Nation Reserve
 - Park
 - Private Parcel
 - Sandhill Private Parcel
 - Proposed Components**
 - Project Structure
 - Provisional Route
 - New Permanent Road
 - New Temporary Road
 - Reconstruction Road
 - Transmission Line
 - Right of Way (120m)
 - Engineering Boundary
 - Vegetation Local
 - Study Area
- 0 100 200 400 Meters Scale: 1:20,000
- Reference: DataBC Data Distribution Service Open Government License (<http://www.data.gov.bc.ca/>)

| | | | |
|--|--|--|----------------|
| CLIENT: Prepared for BC Hydro | | PROJECT: Terrace to Kitimat Transmission Project (TKTP) | |
| TITLE: Appendix C.6 Potential Project Effects on Vegetation Valued Components | | DATE: October, 2016 | ANALYST: MY |
| | | QA/QC: CH | Page 7 of 8 |
| | | GIS FILE: 04-05-008_Vegetation_Potential_Effects_v2 | |
| | | JOB No: VE52379 | |
| | | COORDINATE SYSTEM: NAD 1983 UTM Zone 9N | |

