

March 2016

APPENDIX F WILDLIFE AND WILDLIFE HABITAT DATA AND MAPBOOK



March 2016

March 2016

APPENDIX F1 WILDLIFE DATA TABLES



March 2016

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Table F.1 Birds Recorded During Field Surveys and Identified by the AC CDC and MBBA as Occurring Within the Vicinity of Bear Paw, Including Information on their Population and Breeding Statuses

Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
Alder Flycatcher	<i>Empidonax alnorum</i>	S5B	Secure				Confirmed	
American Bittern	<i>Botaurus lentiginosus</i>	S3S4B	Sensitive				Possible	
American Black Duck	<i>Anas rubripes</i>	S5	Secure				Confirmed	
American Crow	<i>Corvus brachyrhynchos</i>	S5	Secure				Confirmed	
American Goldfinch	<i>Carduelis tristis</i>	S5	Secure				Confirmed	No indication
American Kestrel	<i>Falco sparverius</i>	S5B	Secure				Confirmed	
American Redstart	<i>Setophaga ruticilla</i>	S5B	Secure				Confirmed	Possible
American Robin	<i>Turdus migratorius</i>	S5B	Secure				Confirmed	
American Woodcock	<i>Scolopax minor</i>	S4S5B	Secure				Confirmed	
Bald Eagle	<i>Haliaeetus leucocephalus</i>	S4	Secure			Not at risk	Confirmed	Confirmed
Baltimore Oriole	<i>Icterus galbula</i>	S2S3B	May Be At Risk				Probable	
Bank Swallow	<i>Riparia riparia</i>	S3B	May Be At Risk			Threatened	Confirmed	
Barn Swallow	<i>Hirundo rustica</i>	S3B	At Risk	Endangered		Threatened	Confirmed	
Barred Owl	<i>Strix varia</i>	S5	Secure				Probable	
Bay-breasted Warbler	<i>Dendroica castanea</i>	S3S4B	Sensitive				Confirmed	No indication

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Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
Belted Kingfisher	<i>Megaceryle alcyon</i>	S5B	Secure				Confirmed	No indication
Black Guillemot	<i>Cephus grylle</i>	S3S4	Secure					
Black-and-White Warbler	<i>Mniotilta varia</i>	S4S5B	Secure				Confirmed	
Black-backed Woodpecker	<i>Picoides arcticus</i>	S3S4	Sensitive				Confirmed	Possible
Blackburnian Warbler	<i>Dendroica fusca</i>	S4B	Secure				Confirmed	
Black-capped Chickadee	<i>Poecile atricapilla</i>	S5	Secure				Confirmed	Possible
Black-headed Gull	<i>Larus ridibundus</i>	S4N	Secure					
Blackpoll Warbler	<i>Dendroica striata</i>	S3S4B	Sensitive				Confirmed	No indication
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	S5B	Secure				Confirmed	
Black-throated Green Warbler	<i>Dendroica virens</i>	S4S5B	Secure				Confirmed	No indication
Blue Jay	<i>Cyanocitta cristata</i>	S5	Secure				Confirmed	
Blue-headed Vireo	<i>Vireo solitarius</i>	S5B	Secure				Confirmed	No indication
Blue-winged Teal	<i>Anas discors</i>	S3B	May Be At Risk				Probable	
Bobolink	<i>Dolichonyx oryzivorus</i>	S3S4B	Sensitive	Vulnerable		Threatened	Confirmed	

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Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
Boreal Chickadee	<i>Poecile hudsonica</i>	S3	Sensitive				Confirmed	Confirmed
Broad-winged Hawk	<i>Buteo platypterus</i>	S4S5B	Secure				Probable	
Brown Creeper	<i>Certhia americana</i>	S5	Secure				Confirmed	No indication
Brown-headed Cowbird	<i>Molothrus ater</i>	S2S3B	Secure				Probable	
Canada Goose	<i>Branta canadensis</i>	SNAB,S4N	Secure					
Canada Warbler	<i>Wilsonia canadensis</i>	S3B	At Risk	Endangered	Threatened	Threatened	Confirmed	
Cape May Warbler	<i>Dendroica tigrina</i>	S3?B	Sensitive				Confirmed	
Cedar Waxwing	<i>Bombycilla cedrorum</i>	S5B	Secure				Confirmed	Possible
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	S5B	Secure				Confirmed	
Chimney Swift	<i>Chaetura pelagica</i>	S2S3B	At Risk	Endangered	Threatened	Threatened	Confirmed	
Chipping Sparrow	<i>Spizella passerina</i>	S4S5B	Secure				Confirmed	
Common Eider	<i>Somateria mollissima</i>	S4	Secure				Confirmed	
Common Goldeneye	<i>Bucephala clangula</i>	S2B,S5N	Secure				Possible	
Common Grackle	<i>Quiscalus quiscula</i>	S5B	Secure				Confirmed	

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Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
Common Loon	<i>Gavia immer</i>	S3B,S4N	May Be At Risk			Not at risk	Confirmed	No indication
Common Merganser	<i>Mergus merganser</i>	S5	Secure				Confirmed	
Common Nighthawk	<i>Chordeiles minor</i>	S3B	At Risk	Threatened	Threatened	Threatened	Confirmed	
Common Raven	<i>Corvus corax</i>	S5	Secure				Confirmed	No indication
Common Tern	<i>Sterna hirundo</i>	S3B	Sensitive			Not at risk	Confirmed	
Common Yellowthroat	<i>Geothlypis trichas</i>	S5B	Secure				Confirmed	Possible
Dark-eyed Junco	<i>Junco hyemalis</i>	S4S5	Secure				Confirmed	
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	S5B	Secure			Not at risk	Confirmed	
Downy Woodpecker	<i>Picoides pubescens</i>	S5	Secure				Confirmed	No indication
Eastern Kingbird	<i>Tyrannus tyrannus</i>	S3S4B	Sensitive				Confirmed	
Eastern Phoebe	<i>Sayornis phoebe</i>	S3S4B	Sensitive				Confirmed	
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	SNA	Accidental				Possible	
Eastern Wood-Pewee	<i>Contopus virens</i>	S3S4B	Sensitive	Vulnerable		Special Concern	Probable	
European Starling	<i>Sturnus vulgaris</i>	SNA	Exotic				Confirmed	

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Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	S4B,S5N	Secure				Confirmed	
Fox Sparrow	<i>Passerella iliaca</i>	S3S4B	Secure				Possible	
Golden-crowned Kinglet	<i>Regulus satrapa</i>	S4	Sensitive				Confirmed	Possible
Gray Catbird	<i>Dumetella carolinensis</i>	S3B	May Be At Risk				Confirmed	
Gray Jay	<i>Perisoreus canadensis</i>	S3S4	Sensitive				Confirmed	Possible
Great Black-backed Gull	<i>Larus marinus</i>	S4	Secure				Possible	
Great Blue Heron	<i>Ardea herodias</i>	S4B	Secure				Confirmed	
Great Horned Owl	<i>Bubo virginianus</i>	S5	Secure				Probable	
Greater Yellowlegs	<i>Tringa melanoleuca</i>	S3B,S5M	Sensitive				Possible	No indication
Green-winged Teal	<i>Anas crecca</i>	S4S5B	Secure				Confirmed	
Hairy Woodpecker	<i>Picoides villosus</i>	S5	Secure				Confirmed	No indication
Hermit Thrush	<i>Catharus guttatus</i>	S5B	Secure				Confirmed	Possible
Herring Gull	<i>Larus argentatus</i>	S4S5	Secure				Possible	No indication
Hooded Merganser	<i>Lophodytes cucullatus</i>	S4S5B	Secure				Possible	

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Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
House Sparrow	<i>Passer domesticus</i>	SNA	Exotic				Confirmed	
Killdeer	<i>Charadrius vociferus</i>	S3S4B	Sensitive				Confirmed	
Least Flycatcher	<i>Empidonax minimus</i>	S4B	Secure				Confirmed	
Lincoln's Sparrow	<i>Melospiza lincolnii</i>	S4B	Secure				Confirmed	
Long-eared Owl	<i>Asio otus</i>	S2	May Be At Risk				Possible	
Long-tailed Duck	<i>Clangula hyemalis</i>	S4N	Secure					
Magnolia Warbler	<i>Dendroica magnolia</i>	S5B	Secure				Confirmed	No indication
Mallard	<i>Anas platyrhynchos</i>	S5	Secure				Confirmed	
Merlin	<i>Falco columbarius</i>	S5B	Secure			Not at risk	Probable	
Mourning Dove	<i>Zenaidura macroura</i>	S5	Secure				Confirmed	
Mourning Warbler	<i>Oporornis philadelphia</i>	S4B	Secure				Confirmed	
Nashville Warbler	<i>Vermivora ruficapilla</i>	S5B	Secure				Confirmed	
Northern Flicker	<i>Colaptes auratus</i>	S5B	Secure				Confirmed	
Northern Gannet	<i>Morus bassanus</i>	SHB,S5M	Secure					No indication
Northern Goshawk	<i>Accipiter gentilis</i>	S3S4	Secure			Not at risk	Possible	No indication
Northern Harrier	<i>Circus cyaneus</i>	S5B	Secure			Not at risk	Probable	

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Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
Northern Mockingbird	<i>Mimus polyglottos</i>	S3B	Secure				Probable	
Northern Parula	<i>Parula americana</i>	S5B	Secure				Confirmed	
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	S4	Secure					No indication
Northern Waterthrush	<i>Seiurus noveboracensis</i>	S4B	Secure				Confirmed	
Olive-sided Flycatcher	<i>Contopus cooperi</i>	S3B	At Risk	Threatened	Threatened	Threatened	Probable	
Osprey	<i>Pandion haliaetus</i>	S5B	Secure				Confirmed	Possible
Ovenbird	<i>Seiurus aurocapilla</i>	S5B	Secure				Confirmed	Possible
Palm Warbler	<i>Dendroica palmarum</i>	S5B	Secure				Confirmed	Possible
Peregrine Falcon	<i>Falco peregrinus</i>	S1B	Sensitive	Vulnerable		Special Concern	Possible	
Pileated Woodpecker	<i>Dryocopus pileatus</i>	S5	Secure				Probable	No indication
Pine Grosbeak	<i>Pinicola enucleator</i>	S3?B,S5N	May Be At Risk				Probable	
Pine Siskin	<i>Carduelis pinus</i>	S3S4B,S5N	Sensitive				Confirmed	
Purple Finch	<i>Carpodacus purpureus</i>	S4S5	Secure				Confirmed	
Purple Sandpiper	<i>Calidris maritima</i>	S3N	Sensitive					
Red crossbill	<i>Loxia curvirostra</i>	S4	Secure					

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Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
Red-breasted Merganser	<i>Mergus serrator</i>	S3B,S5N	Secure				Probable	
Red-breasted Nuthatch	<i>Sitta canadensis</i>	S4S5	Secure				Confirmed	No indication
Red-eyed Vireo	<i>Vireo olivaceus</i>	S5B	Secure				Confirmed	Possible
Red-necked Grebe	<i>Podiceps grisegena</i>	S4N	Secure			Not at risk		
Red-tailed Hawk	<i>Buteo jamaicensis</i>	S5	Secure			Not at risk	Possible	No indication
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	S4S5B	Secure				Confirmed	
Ring-necked Duck	<i>Aythya collaris</i>	S5B	Secure				Confirmed	
Ring-necked Pheasant	<i>Phasianus colchicus</i>	SNA	Exotic				Probable	
Rock Pigeon	<i>Columba livia</i>	SNA	Exotic				Confirmed	
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	S3S4B	Sensitive				Confirmed	
Rough-legged Hawk	<i>Buteo lagopus</i>	S4N	Secure			Not at risk		
Ruby-crowned Kinglet	<i>Regulus calendula</i>	S4B	Sensitive				Confirmed	No indication
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	S5B	Secure				Confirmed	
Ruffed Grouse	<i>Bonasa umbellus</i>	S4S5	Secure				Confirmed	Possible

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Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
Rusty Blackbird	<i>Euphagus carolinus</i>	S2S3B	May Be At Risk	Endangered	Special Concern	Special Concern	Probable	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	S4B	Secure				Confirmed	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	S4S5B	Secure			Not at risk	Confirmed	Possible
Short-eared Owl	<i>Asio flammeus</i>	S1S2	May Be At Risk		Special Concern	Special Concern	Possible	
Song Sparrow	<i>Melospiza melodia</i>	S5B	Secure				Confirmed	
Sora	<i>Porzana carolina</i>	S4S5B	Secure				Possible	
Spotted Sandpiper	<i>Actitis macularius</i>	S3S4B	Sensitive				Confirmed	Possible
Spruce Grouse	<i>Falcapennis canadensis</i>	S5	Secure				Confirmed	No indication
Swainson's Thrush	<i>Catharus ustulatus</i>	S4S5B	Secure				Confirmed	
Swamp Sparrow	<i>Melospiza georgiana</i>	S5B	Secure				Confirmed	
Tennessee Warbler	<i>Vermivora peregrina</i>	S3S4B	Sensitive				Confirmed	
Thick-billed Murre	<i>Uria lomvia</i>	S4N	Secure					
Tree Swallow	<i>Tachycineta bicolor</i>	S4B	Sensitive				Confirmed	
Veery	<i>Catharus fuscescens</i>	S4B	Secure				Probable	
Virginia Rail	<i>Rallus limicola</i>	S2B	Undetermined				Possible	

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Table F.1 Birds Recorded During Field Surveys and Identified by the AC CDC and MBBA as Occurring Within the Vicinity of Bear Paw, Including Information on their Population and Breeding Statuses

Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	MBBA Breeding Status	Field Survey Breeding Status
White-throated Sparrow	<i>Zonotrichia albicollis</i>	S5B	Secure				Confirmed	Possible
White-winged Crossbill	<i>Loxia leucoptera</i>	S4S5	Secure				Probable	
Willet	<i>Tringa semipalmata</i>	S2S3B	May Be At Risk				Possible	
Wilson's Snipe	<i>Gallinago delicata</i>	S3S4B	Sensitive					No indication
Wilson's Warbler	<i>Wilsonia pusilla</i>	S3S4B	Sensitive				Confirmed	
Winter Wren	<i>Troglodytes troglodytes</i>	S5B	Secure				Confirmed	
Wood Duck	<i>Aix sponsa</i>	S4S5B	Secure				Confirmed	
Yellow Warbler	<i>Dendroica petechia</i>	S5B	Secure				Confirmed	
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	S3S4B	Sensitive				Confirmed	
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	S4S5B	Secure				Probable	Possible
Yellow-rumped Warbler	<i>Dendroica coronata</i>	S5B	Secure				Confirmed	No indication

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Table F.2 Herpetiles Recorded During Field Surveys and Identified by the AC CDC Data Search as Occurring Within the Vicinity of Bear Paw, Including Information on their Population Statuses

Common Name	Scientific Name	AC CDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	Observed during field surveys?
Common Garter Snake	<i>Thamnophis sirtalis</i>	S5	Secure				Yes
Eastern American Toad	<i>Bufo americanus americanus</i>	S5	Secure				Yes
Four-toed Salamander	<i>Hemidactylium scutatum</i>	S3	Secure				
Green Frog	<i>Rana clamitans</i>	S5	Secure				Yes
Northern Leopard Frog	<i>Rana pipiens</i>	S5	Secure				Yes
Pickerel Frog	<i>Rana palustris</i>	S5	Secure				Yes
Redback Salamander	<i>Plethodon cinereus</i>	S5	Secure				Yes
Spring Peeper	<i>Hyla crucifer</i>	S5	Secure				Yes
Wood Frog	<i>Rana sylvatica</i>	S5	Secure				Yes
Wood Turtle	<i>Glyptemys insculpta</i>	S2	Sensitive	Vulnerable	Threatened	Threatened	

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Table F.3 Mammals Recorded During Field Surveys and Identified by the AC CDC Data Search as Occurring Within the Vicinity of Bear Paw, Including Information on their Population Statuses

Common Name	Scientific Name	ACCDC S-Rank	General Status Rank	NS ESA	SARA	COSEWIC	Observed during field surveys?
American Beaver	<i>Castor canadensis</i>	S5	Secure				Yes
American Mink	<i>Neovison vison</i>	S5	Secure				Yes
Black Bear	<i>Ursus americanus</i>	S5	Secure		Not At Risk		Yes
Bobcat	<i>Lynx rufus</i>	S5	Secure				Yes
Cougar - Eastern pop.	<i>Puma concolor pop. 1</i>	SH	Undetermined				
Eastern Chipmunk	<i>Tamias striatus</i>	S5	Secure				Yes
Eastern Coyote	<i>Canis latrans</i>	S5	Secure				Yes
Masked Shrew	<i>Sorex cinereus</i>	S5	Secure				Yes
Meadow Vole	<i>Microtus pennsylvanicus</i>	S5	Secure				Yes
Moose	<i>Alces americanus</i>	S1	At Risk	Endangered			Yes
Muskrat	<i>Ondatra zibethicus</i>	S5	Secure				Yes
North American Porcupine	<i>Erethizon dorsatum</i>	S5	Secure				Yes
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	S5	Secure				Yes
Short-tailed Weasel	<i>Mustela erminea</i>	S5	Secure				Yes
Snowshoe Hare	<i>Lepus americanus</i>	S5	Secure				Yes
Star-nosed Mole	<i>Condylura cristata</i>	S5	Secure				Yes
White-tailed Deer	<i>Odocoileus virginianus</i>	S5	Secure				Yes

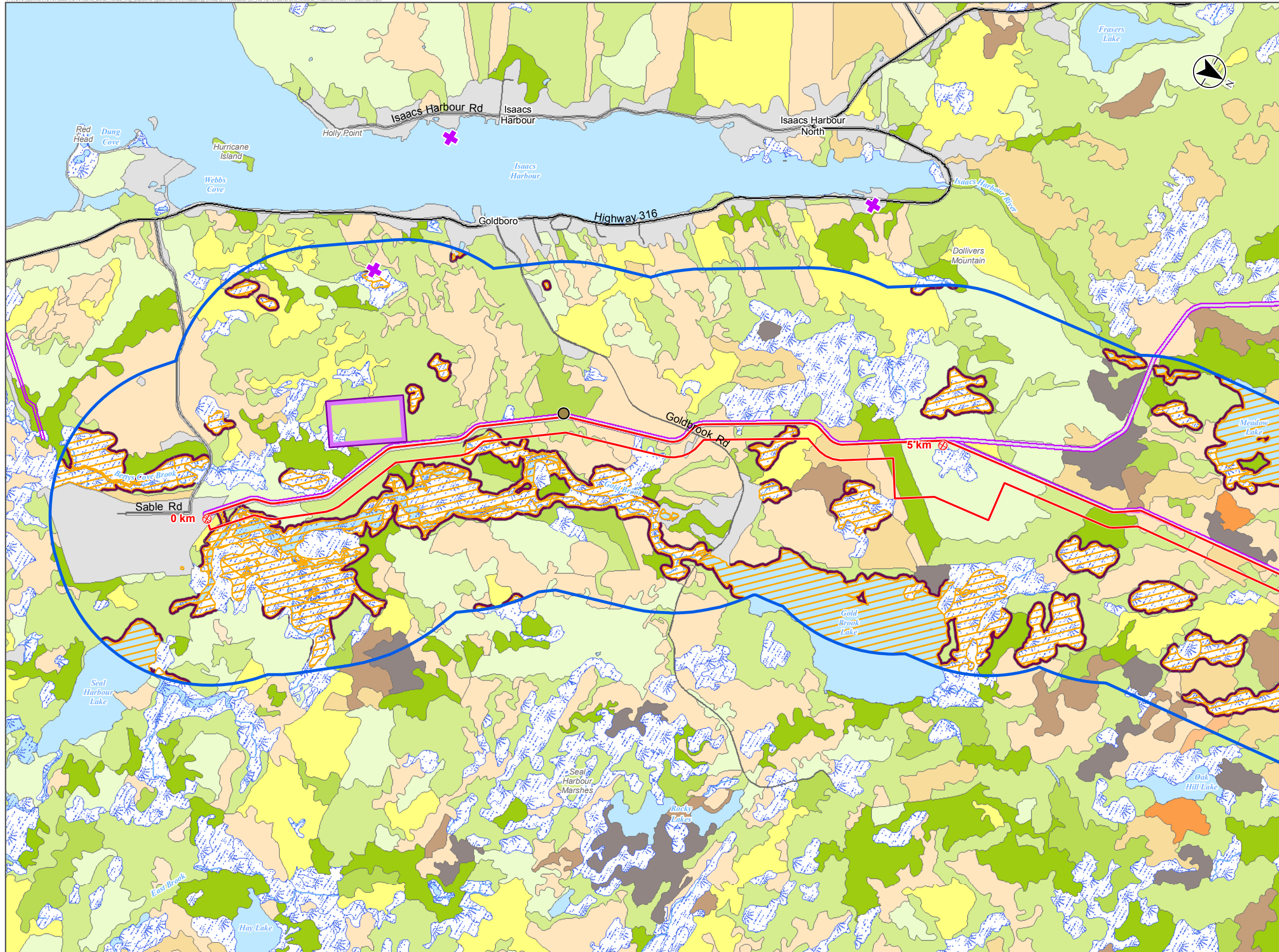
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APPENDIX F2 LAND CLASS DATA, MOOSE OBSERVATIONS AND MOOSE HABITAT MAPBOOK



March 2016

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Land Class Data, Moose Observations, and Moose Habitat

Study Features

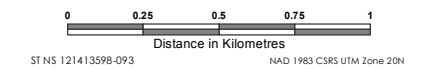
- + Moose Observation (Nova Scotia Department of Natural Resources)
- Moose Activity

Habitat Feature

- Potential Summer Foraging for Moose /Thermoregulation Habitat
- Moose Forested Buffer (<20m)
- Regeneration-Young Hardwood
- Immature-Pole Hardwood
- Mature-Overmature Hardwood
- Uneven Hardwood
- Regeneration-Young Mixedwood
- Immature-Pole Mixedwood
- Mature-Overmature Mixedwood
- Uneven Mixedwood
- Regeneration-Young Softwood
- Immature-Pole Softwood
- Mature-Overmature Softwood
- Uneven Softwood
- Forestry Other
- Non-Forest
- Wetland

Project Components

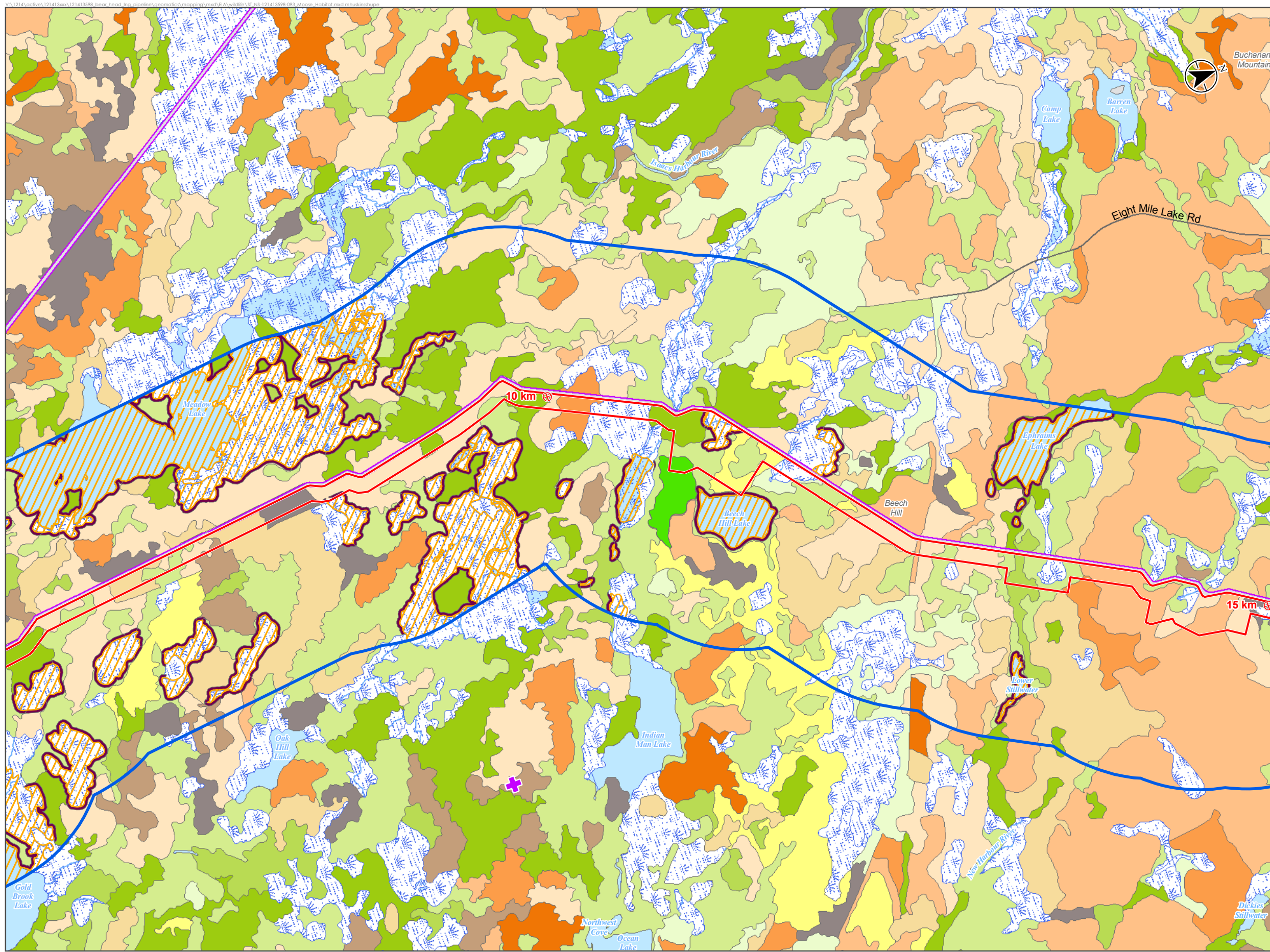
- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Compressor Station/ Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT



Sources: Data provided by the Government of Canada and Nova Scotia.

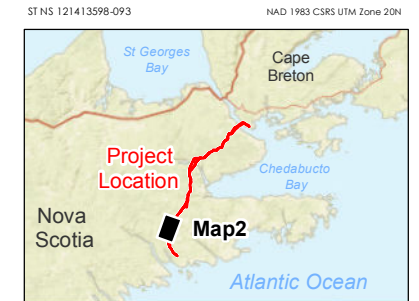
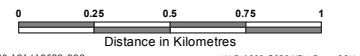


Land Class Data, Moose Observations, and Moose Habitat

Study Features
 + Moose Observation (Nova Scotia Department of Natural Resources)

- Habitat Feature**
- Moose Shelter Habitat**
- Upland Conifer Moose Shelter Habitat
 - Potential Summer Foraging for Moose /Thermoregulation Habitat
 - Moose Forested Buffer (<20m)
 - Regeneration-Young Hardwood
 - Immature-Pole Hardwood
 - Mature-Overmature Hardwood
 - Uneven Hardwood
 - Regeneration-Young Mixedwood
 - Immature-Pole Mixedwood
 - Mature-Overmature Mixedwood
 - Uneven Mixedwood
 - Regeneration-Young Softwood
 - Immature-Pole Softwood
 - Mature-Overmature Softwood
 - Uneven Softwood
 - Forestry Other
 - Non-Forest
 - Wetland

- Project Components**
- Kilometre Post (Approximate Distance from Origin)
 - Assessment Corridor/Project Development Area
 - Local Assessment Area
 - Existing Pipeline Right of Way



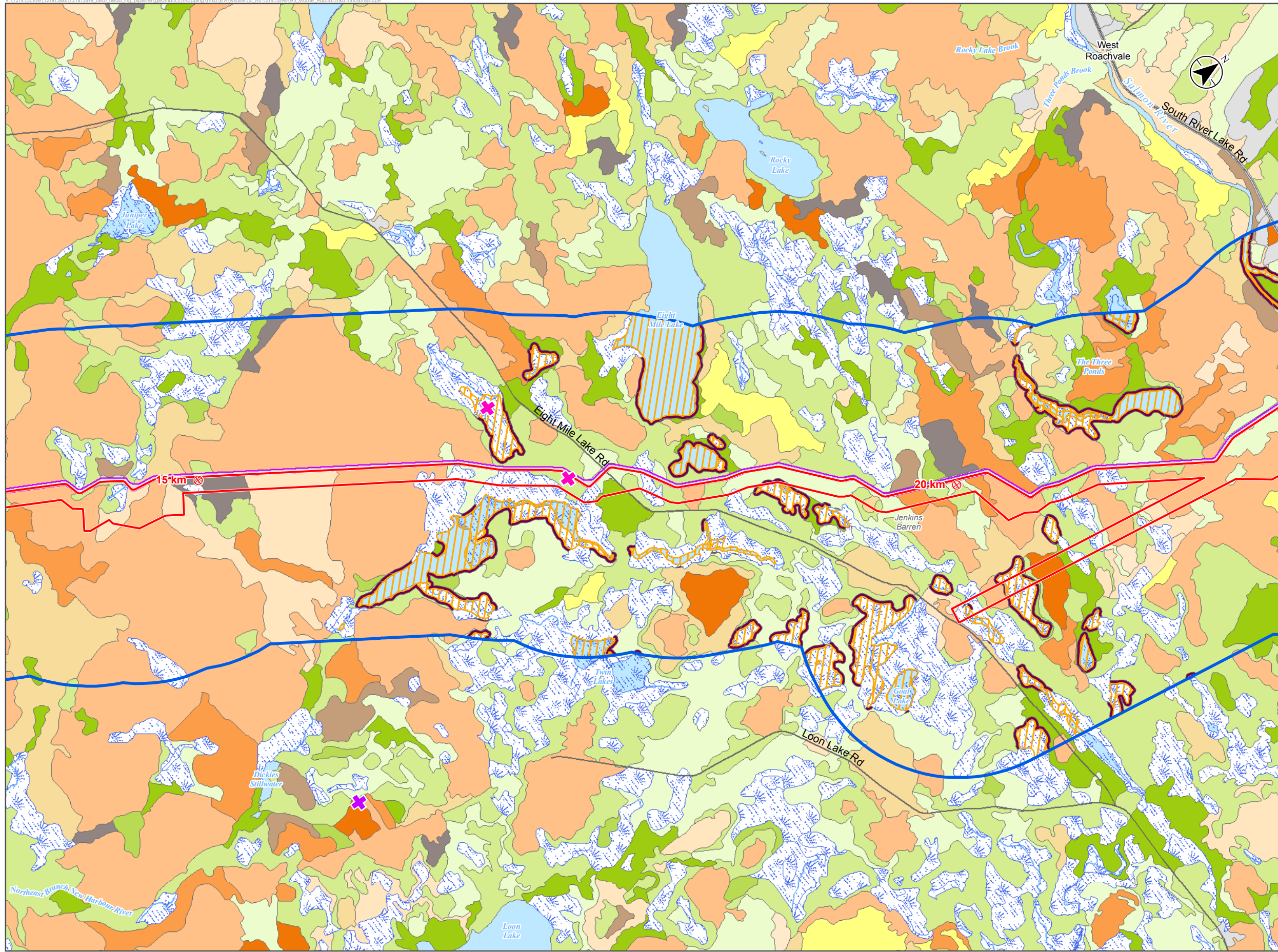
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 BEAR PAW PIPELINE PROJECT



Sources: Data provided by the Government of Canada and Nova Scotia.

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Land Class Data, Moose Observations, and Moose Habitat



Study Features

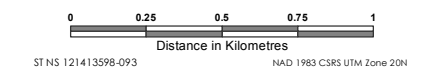
- + Moose Observation (Nova Scotia Department of Natural Resources)
- + Moose Observation (Jaques Whitford Observations, 1998)

Habitat Feature

- Potential Summer Foraging for Moose /Thermoregulation Habitat
- Moose Forested Buffer (<20m)
- Regeneration-Young Hardwood
- Immature-Pole Hardwood
- Mature-Overmature Hardwood
- Uneven Hardwood
- Regeneration-Young Mixedwood
- Immature-Pole Mixedwood
- Mature-Overmature Mixedwood
- Uneven Mixedwood
- Regeneration-Young Softwood
- Immature-Pole Softwood
- Mature-Overmature Softwood
- Uneven Softwood
- Forestry Other
- Non-Forest
- Wetland

Project Components

- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way

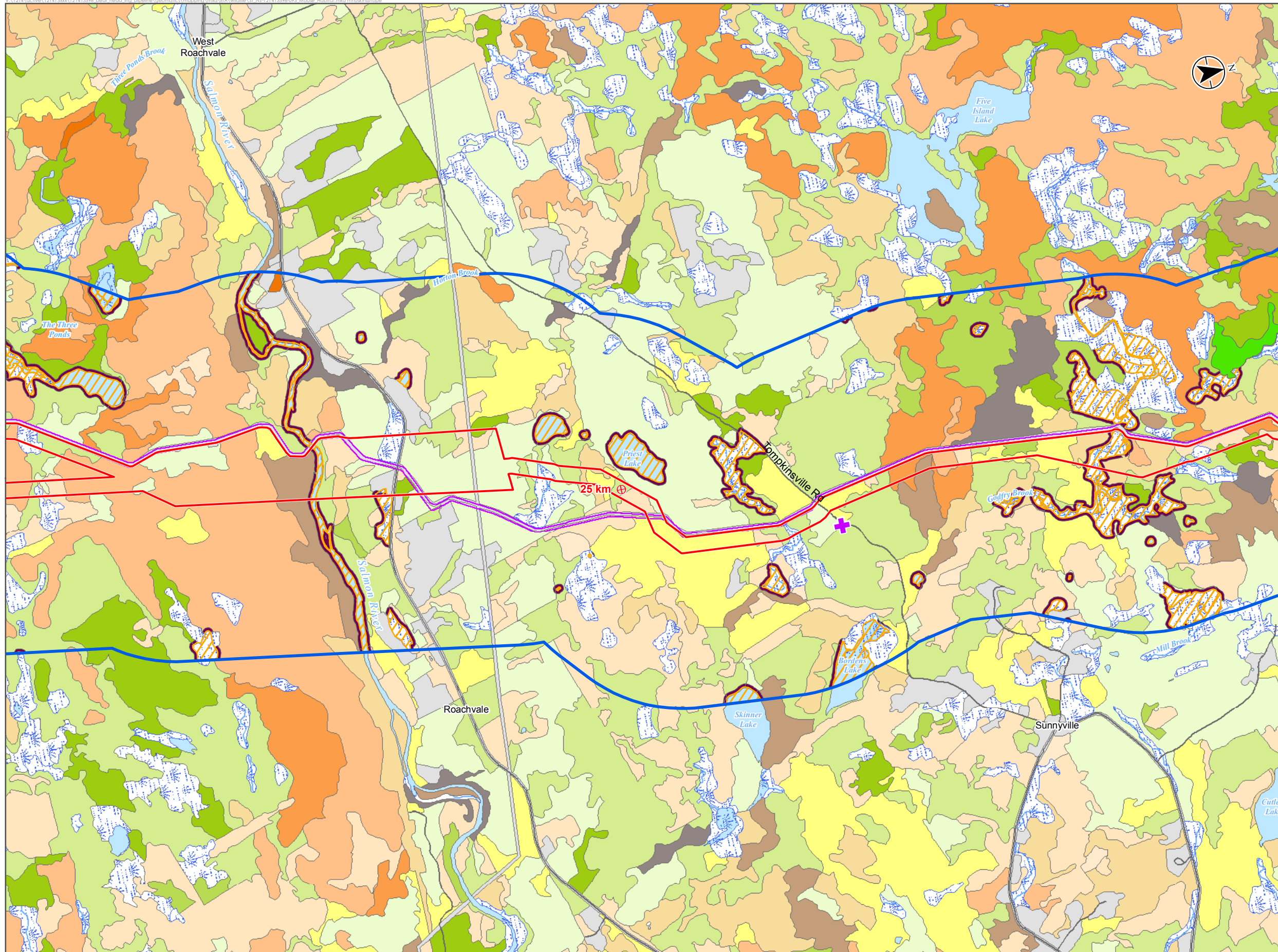


Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT



Sources: Data provided by the Government of Canada and Nova Scotia.

V:\1214\active\12143598\bear_head_img_pipeline\geom\m\mapping\mxd\EA\wildlife\ST_NS_121413598-093_Moose_Habitat.mxd mhuiknshupe



Land Class Data, Moose Observations, and Moose Habitat

Study Features

- ✚ Moose Observation (Nova Scotia Department of Natural Resources)

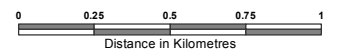
Habitat Feature

Moose Shelter Habitat

- Upland Conifer Moose Shelter Habitat
- Potential Summer Foraging for Moose /Thermoregulation Habitat
- Moose Forested Buffer (<20m)
- Regeneration-Young Hardwood
- Immature-Pole Hardwood
- Mature-Overmature Hardwood
- Uneven Hardwood
- Regeneration-Young Mixedwood
- Immature-Pole Mixedwood
- Mature-Overmature Mixedwood
- Uneven Mixedwood
- Regeneration-Young Softwood
- Immature-Pole Softwood
- Mature-Overmature Softwood
- Uneven Softwood
- Forestry Other
- Non-Forest
- Wetland

Project Components

- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way



ST NS 121413598-093 NAD 1983 CSRS UTM Zone 20N



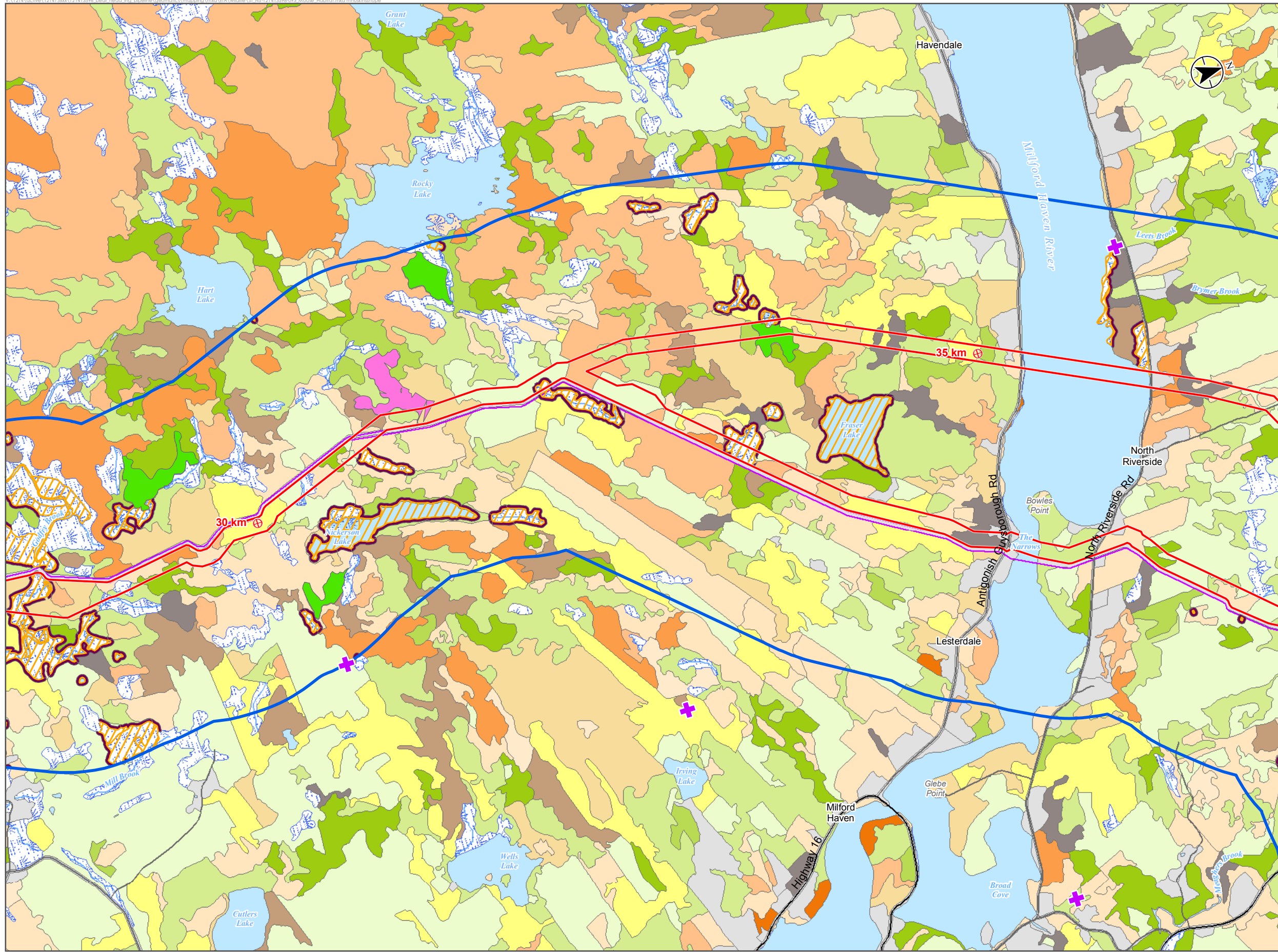
Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT



Sources: Data provided by the Government of Canada and Nova Scotia.

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Land Class Data, Moose Observations, and Moose Habitat

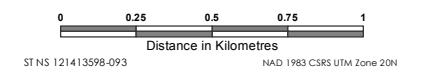


Study Features
 + Moose Observation (Nova Scotia Department of Natural Resources)

- Habitat Feature**
- Moose Shelter Habitat**
- Upland Conifer Moose Shelter Habitat
 - Upland Mixedwood Moose Shelter Habitat
 - Potential Summer Foraging for Moose /Thermoregulation Habitat
 - Moose Forested Buffer (<20m)
 - Regeneration-Young Hardwood
 - Immature-Pole Hardwood
 - Mature-Overmature Hardwood
 - Uneven Hardwood
 - Regeneration-Young Mixedwood
 - Immature-Pole Mixedwood
 - Mature-Overmature Mixedwood
 - Uneven Mixedwood
 - Regeneration-Young Softwood
 - Immature-Pole Softwood
 - Mature-Overmature Softwood
 - Uneven Softwood
 - Forestry Other
 - Non-Forest
 - Wetland

Project Components

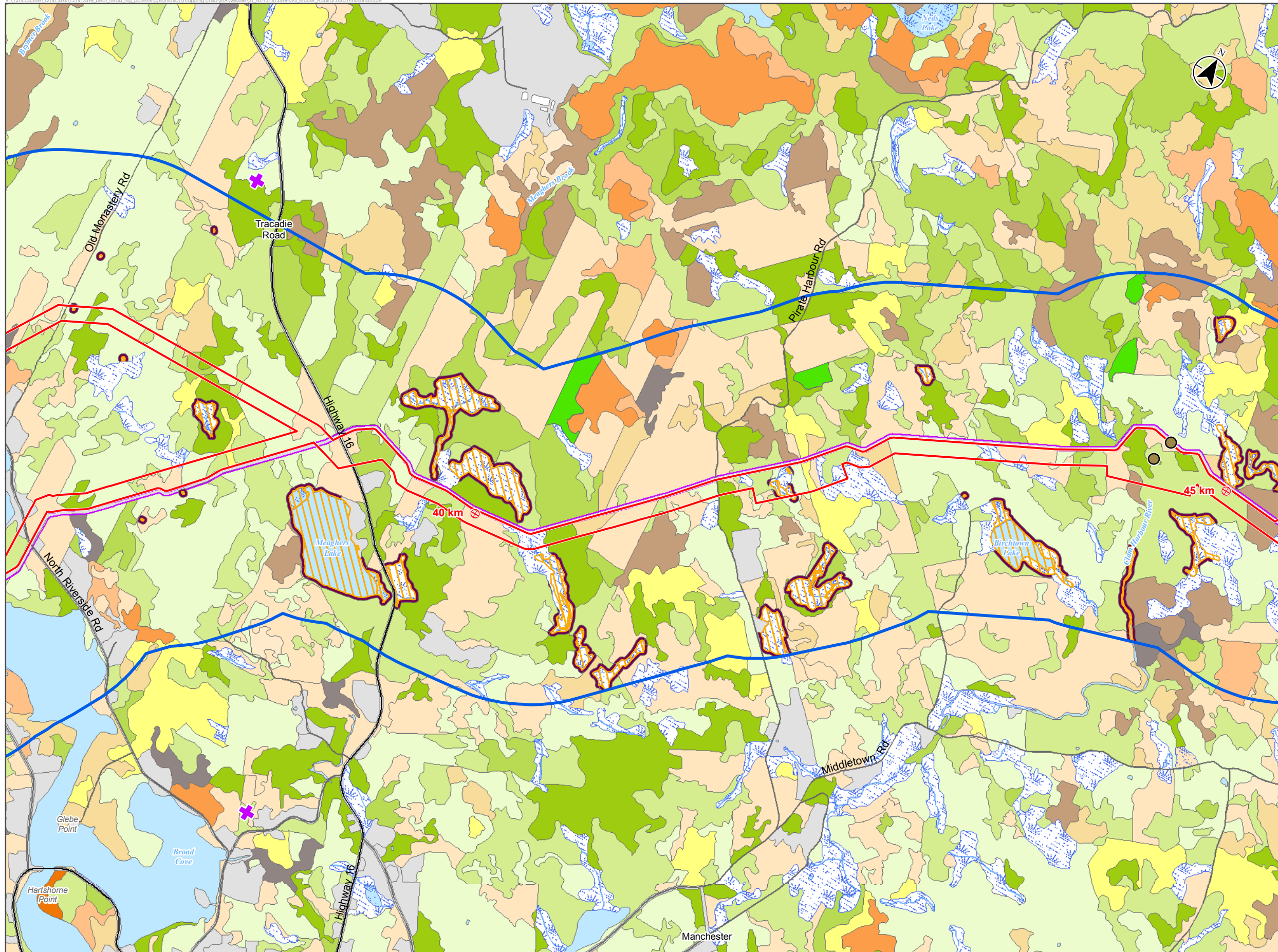
- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
 BEAR PAW PIPELINE PROJECT

Sources: Data provided by the Government of Canada and Nova Scotia.

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Land Class Data, Moose Observations, and Moose Habitat

Study Features

- + Moose Observation (Nova Scotia Department of Natural Resources)
- Moose Activity

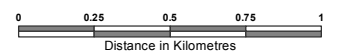
Habitat Feature

Moose Shelter Habitat

- Upland Conifer Moose Shelter Habitat
- Potential Summer Foraging for Moose /Thermoregulation Habitat
- Moose Forested Buffer (<20m)
- Regeneration-Young Hardwood
- Immature-Pole Hardwood
- Mature-Overmature Hardwood
- Uneven Hardwood
- Regeneration-Young Mixedwood
- Immature-Pole Mixedwood
- Mature-Overmature Mixedwood
- Uneven Mixedwood
- Regeneration-Young Softwood
- Immature-Pole Softwood
- Mature-Overmature Softwood
- Uneven Softwood
- Forestry Other
- Non-Forest
- Wetland

Project Components

- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way



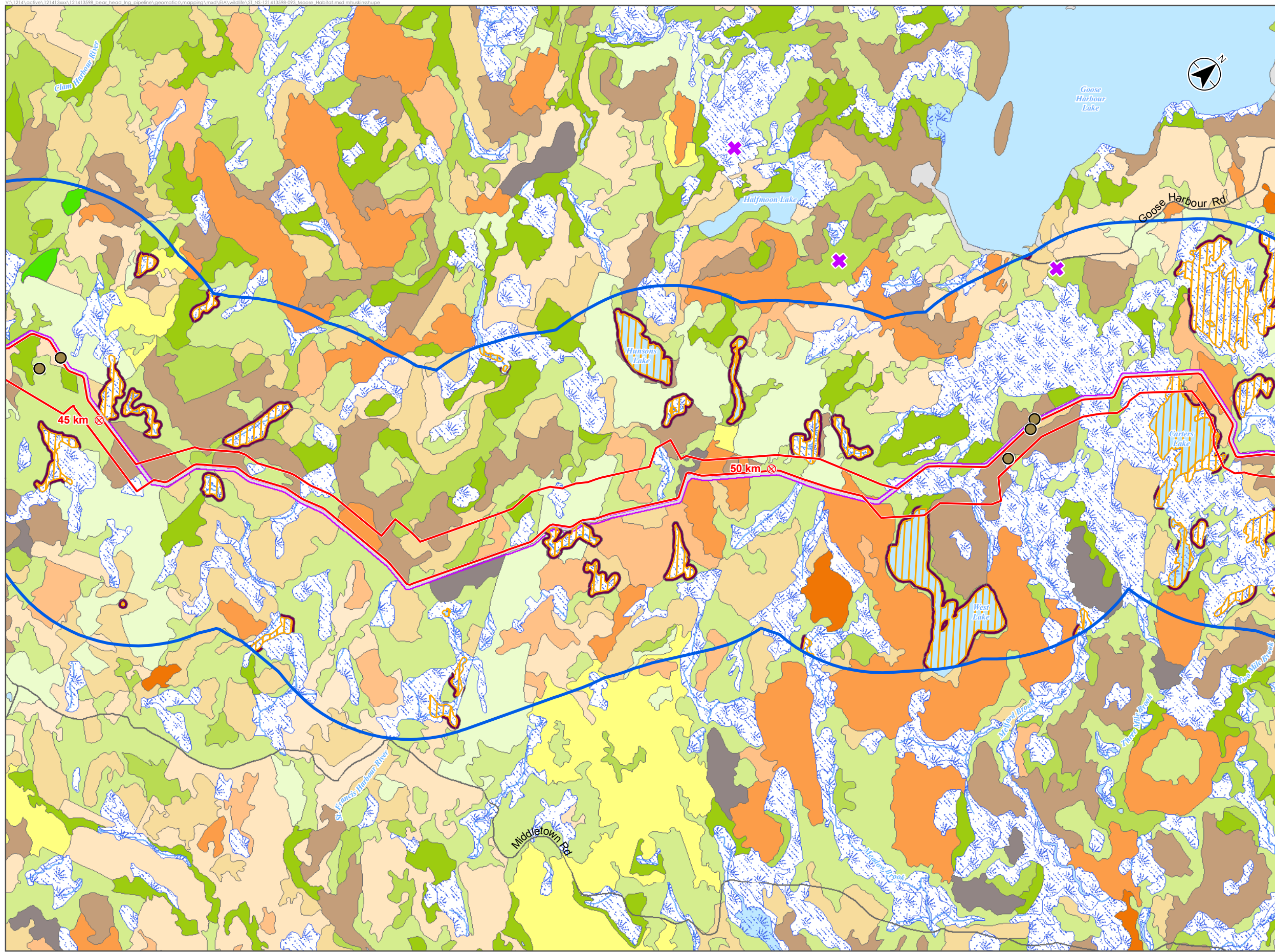
ST NS 121413598-093 NAD 1983 CSRS UTM Zone 20N



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT

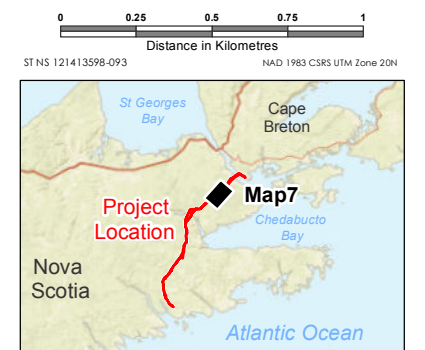


Sources: Data provided by the Government of Canada and Nova Scotia.



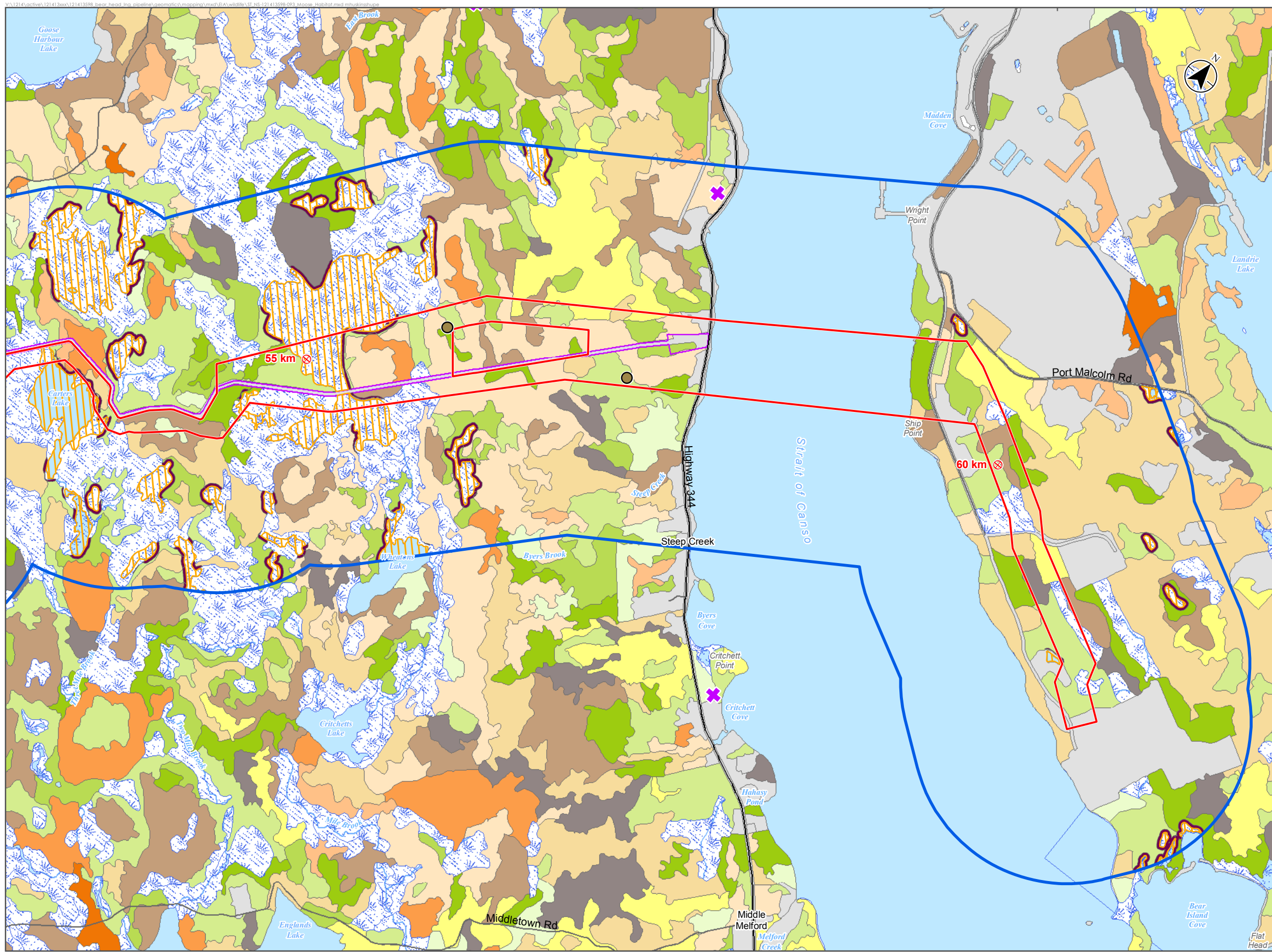
Land Class Data, Moose Observations, and Moose Habitat

- Study Features**
- ✕ Moose Observation (Nova Scotia Department of Natural Resources)
 - Moose Activity
- Habitat Feature**
- Moose Shelter Habitat**
- Upland Conifer Moose Shelter Habitat
 - Potential Summer Foraging for Moose /Thermoregulation Habitat
 - Moose Forested Buffer (<20m)
 - Regeneration-Young Hardwood
 - Immature-Pole Hardwood
 - Mature-Overmature Hardwood
 - Uneven Hardwood
 - Regeneration-Young Mixedwood
 - Immature-Pole Mixedwood
 - Mature-Overmature Mixedwood
 - Uneven Mixedwood
 - Regeneration-Young Softwood
 - Immature-Pole Softwood
 - Mature-Overmature Softwood
 - Uneven Softwood
 - Forestry Other
 - Non-Forest
 - Wetland
- Project Components**
- ⊕ Kilometre Post (Approximate Distance from Origin)
 - Assessment Corridor/Project Development Area
 - Local Assessment Area
 - Existing Pipeline Right of Way



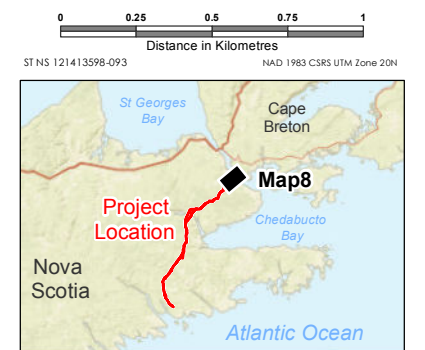
Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT

Sources: Data provided by the Government of Canada and Nova Scotia.



Land Class Data, Moose Observations, and Moose Habitat

- Study Features**
- ✚ Moose Observation (Nova Scotia Department of Natural Resources)
 - Moose Activity
- Habitat Feature**
- ▨ Potential Summer Foraging for Moose /Thermoregulation Habitat
 - Moose Forested Buffer (<20m)
 - Regeneration-Young Hardwood
 - Immature-Pole Hardwood
 - Mature-Overmature Hardwood
 - Uneven Hardwood
 - Regeneration-Young Mixedwood
 - Immature-Pole Mixedwood
 - Mature-Overmature Mixedwood
 - Uneven Mixedwood
 - Regeneration-Young Softwood
 - Immature-Pole Softwood
 - Mature-Overmature Softwood
 - Uneven Softwood
 - Forestry Other
 - Non-Forest
 - Wetland
- Project Components**
- ⊕ Kilometre Post (Approximate Distance from Origin)
 - ▭ Assessment Corridor/Project Development Area
 - ▭ Local Assessment Area
 - ▭ Existing Pipeline Right of Way



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT

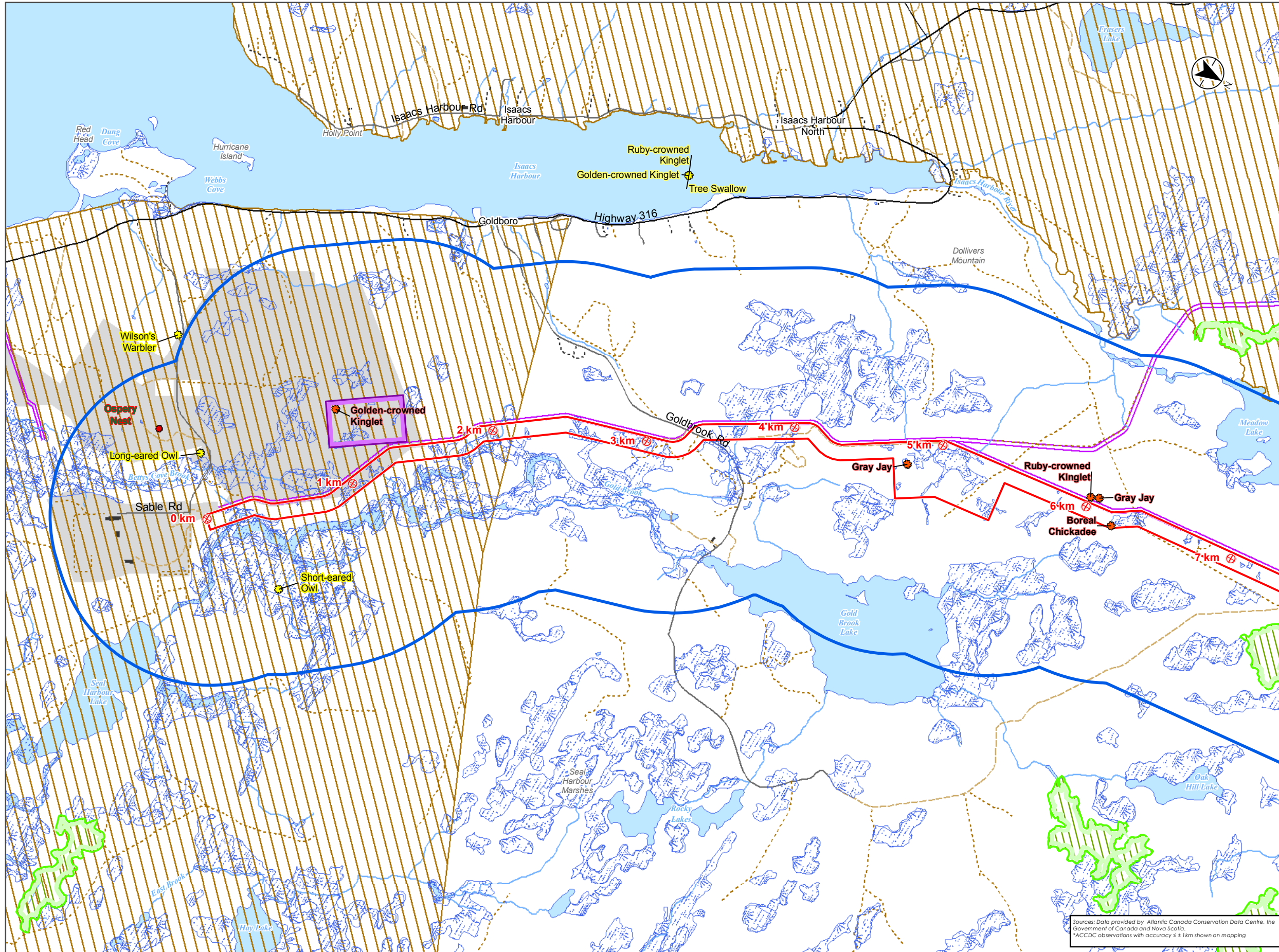
Sources: Data provided by the Government of Canada and Nova Scotia.

March 2016

**APPENDIX F3
WETLANDS, SPECIES OF CONSERVATION
CONCERN, AND POTENTIALLY IMPORTANT
WILDLIFE HABITAT MAPBOOK**



March 2016



Wetlands, Species of Conservation Concern, and Potentially Important Wildlife Habitat

Study Features

Species Observation - Desktop

- Fauna - Atlantic Canada Conservation Data Centre*

Species Observation - Field

- Fauna

Habitat Feature

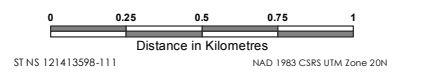
- Interior Forest
- Wetland
- Deer Wintering Areas

Project Components

- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Compressor Station/ Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way

Map Features

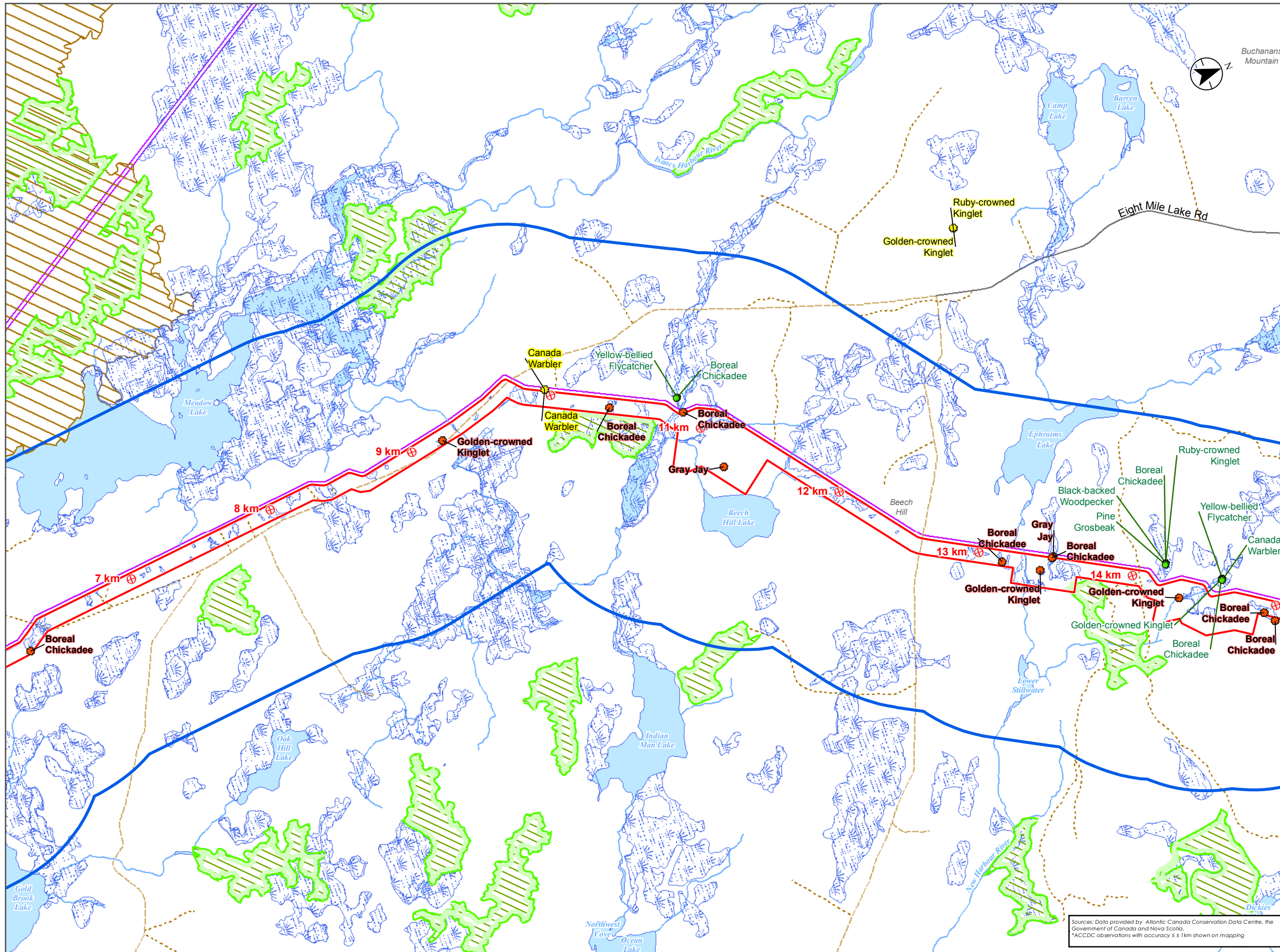
- Collector/Arterial Road
- Local Road
- Private/Restricted Road
- Seasonal Road
- Track/Trail
- Watercourse
- Waterbody
- Industrial



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT



Sources: Data provided by Atlantic Canada Conservation Data Centre, the Government of Canada and Nova Scotia.
*ACCDC observations with accuracy ≤ 1 km shown on mapping



Wetlands, Species of Conservation Concern, and Potentially Important Wildlife Habitat

Study Features

Species Observation - Desktop

- Fauna - Atlantic Canada Conservation Data Centre*
- Jaques Whitford Environmental Ltd Observations 1998

Species Observation - Field

- Fauna

Habitat Feature

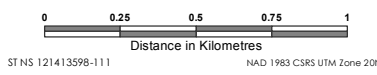
- Interior Forest
- Wetland
- Deer Wintering Areas

Project Components

- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way

Map Features

- Local Road
- Seasonal Road
- - - Track/Trail
- Watercourse
- Waterbody



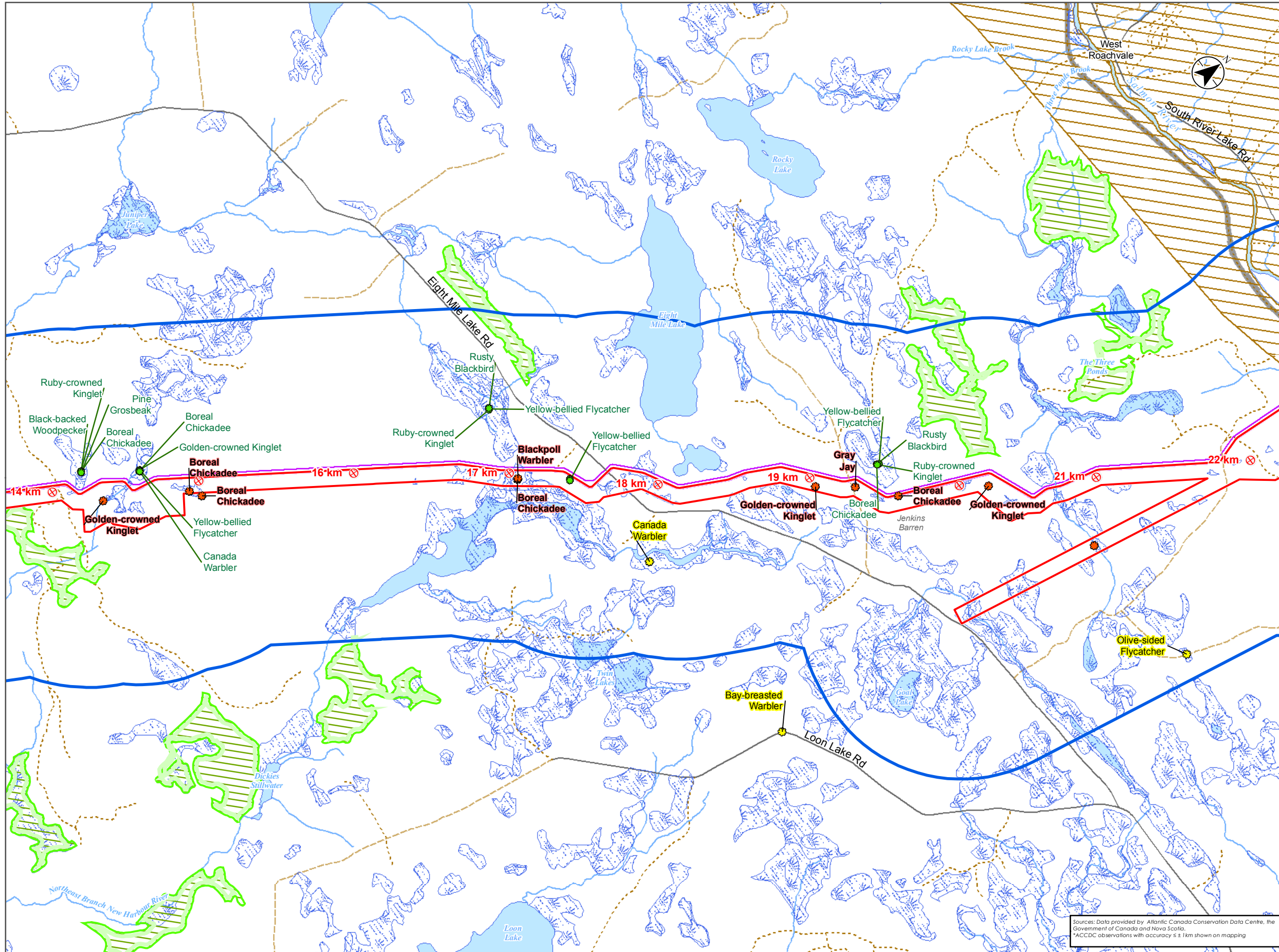
ST NS 121413598-111 NAD 1983 CSRS UTM Zone 20N



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT



Sources: Data provided by Atlantic Canada Conservation Data Centre, the Government of Canada and Nova Scotia.
*ACCDC observations with accuracy $\leq \pm 1$ km shown on mapping



Wetlands, Species of Conservation Concern, and Potentially Important Wildlife Habitat

Study Features

Species Observation - Desktop

- Fauna - Atlantic Canada Conservation Data Centre*
- Jaques Whitford Environmental Ltd Observations 1998

Species Observation - Field

- Fauna

Habitat Feature

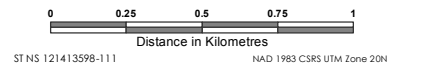
- Interior Forest
- Wetland
- Deer Wintering Areas

Project Components

- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way
- Non-Designated Rail Corridors

Map Features

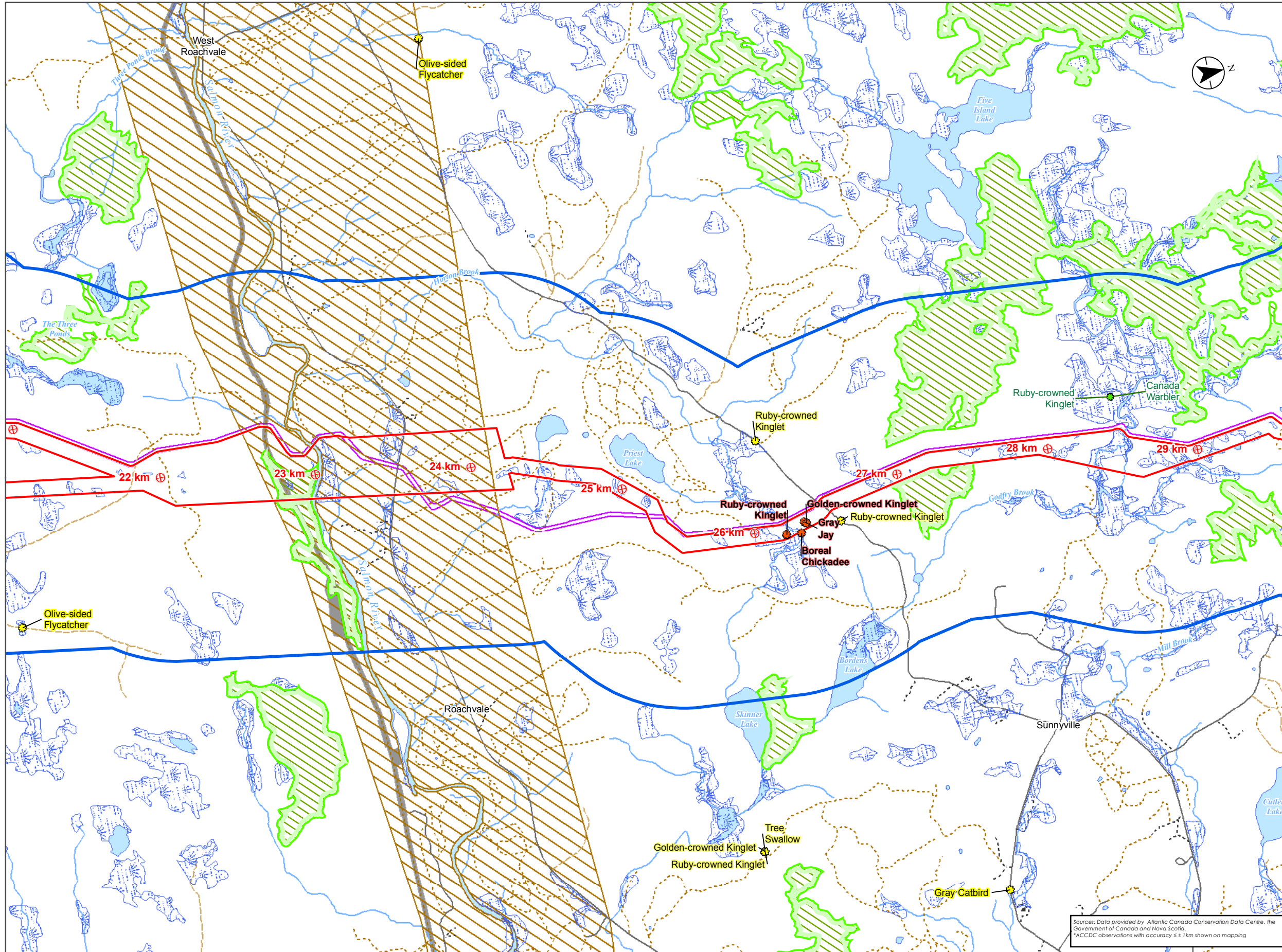
- Local Road
- Private/Restricted Road
- Seasonal Road
- Track/Trail
- Watercourse
- Waterbody



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT



Sources: Data provided by Atlantic Canada Conservation Data Centre, the Government of Canada and Nova Scotia.
*ACCDC observations with accuracy ≤ 1 km shown on mapping



Wetlands, Species of Conservation Concern, and Potentially Important Wildlife Habitat

Study Features

Species Observation - Desktop

- Fauna - Atlantic Canada Conservation Data Centre*
- Jaques Whitford Environmental Ltd Observations 1998

Species Observation - Field

- Fauna

Habitat Feature

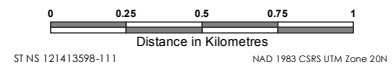
- Interior Forest
- Wetland
- Deer Wintering Areas

Project Components

- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way
- Non-Designated Rail Corridors

Map Features

- Local Road
- - - Private/Restricted Road
- · - · - Seasonal Road
- · - · - Track/Trail
- Watercourse
- Waterbody



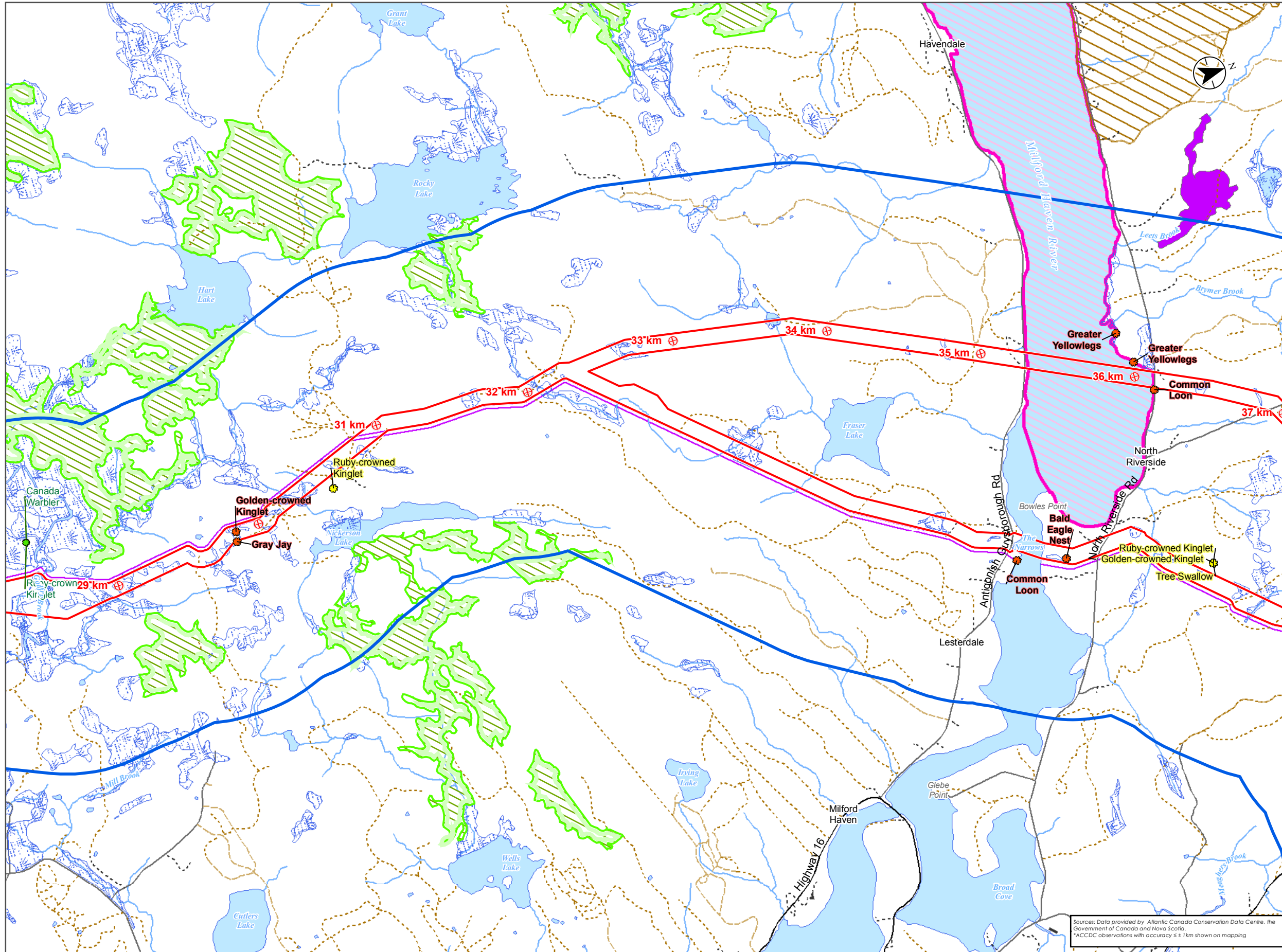
ST NS 121413598-111 NAD 1983 CSRS UTM Zone 20N



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT



Sources: Data provided by Atlantic Canada Conservation Data Centre, the Government of Canada and Nova Scotia.
*ACCDC observations with accuracy ± 1 km shown on mapping



Wetlands, Species of Conservation Concern, and Potentially Important Wildlife Habitat

Study Features

Species Observation - Desktop

● Fauna - Atlantic Canada Conservation Data Centre*

● Jaques Whitford Environmental Ltd Observations 1998

Species Observation - Field

● Fauna

Habitat Feature

■ Interior Forest

■ Wetland

■ Deer Wintering Areas

■ Migratory Bird Habitat

■ Other Significant Wildlife Habitat

Project Components

⊕ Kilometre Post (Approximate Distance from Origin)

▭ Assessment Corridor/Project Development Area

▭ Local Assessment Area

▭ Existing Pipeline Right of Way

Map Features

— Collector/Arterial Road

— Local Road

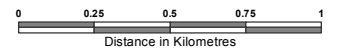
--- Private/Restricted Road

--- Seasonal Road

--- Track/Trail

— Watercourse

■ Waterbody



ST NS 121413598-111 NAD 1983 CSRS UTM Zone 20N



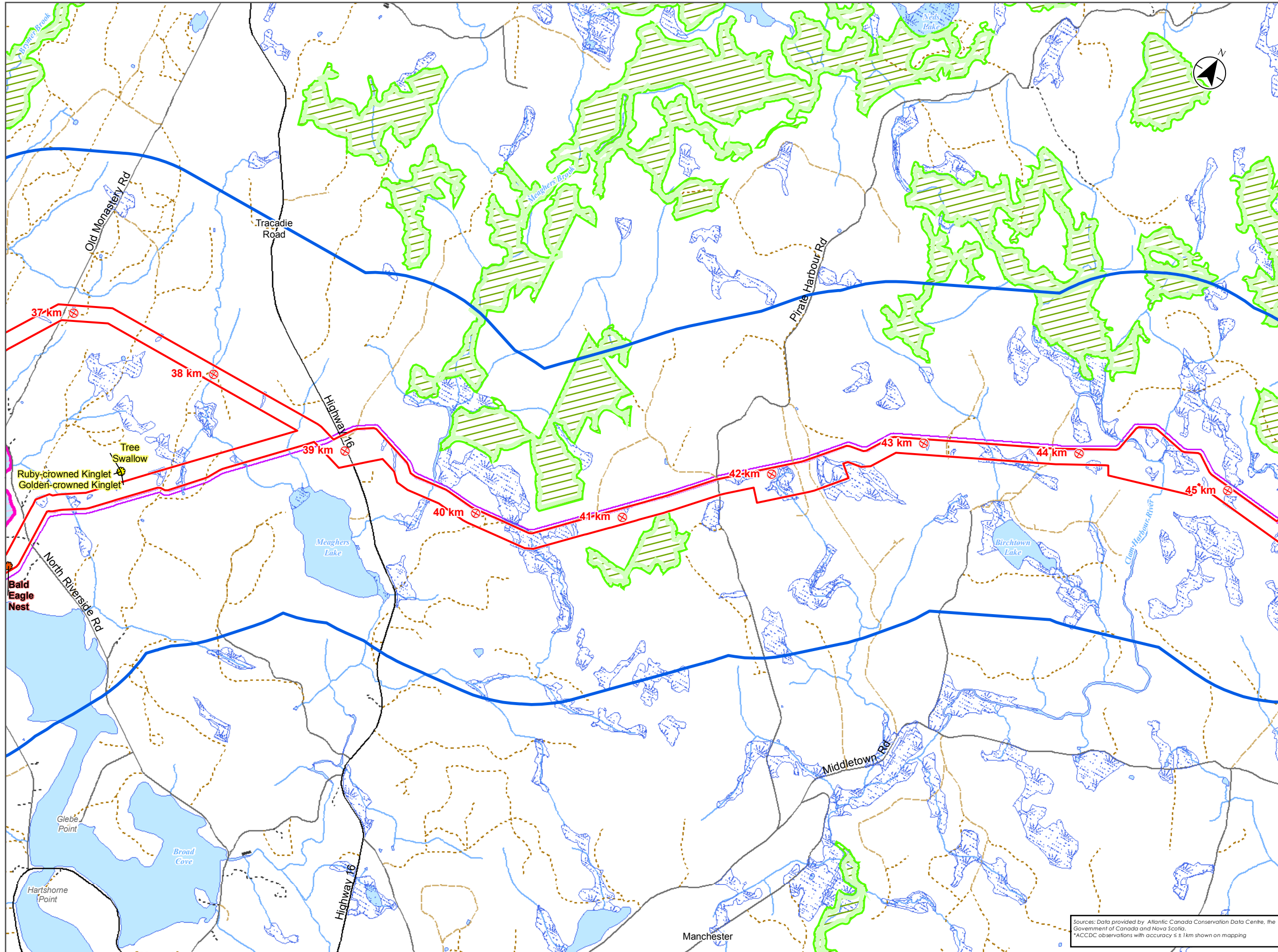
Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.

BEAR PAW PIPELINE PROJECT

Bear Paw PIPELINE

Stantec

Sources: Data provided by Atlantic Canada Conservation Data Centre, the Government of Canada and Nova Scotia.
*ACCDC observations with accuracy ± 1 km shown on mapping



Wetlands, Species of Conservation Concern, and Potentially Important Wildlife Habitat

Study Features

Species Observation - Desktop

- Fauna - Atlantic Canada Conservation Data Centre*

Species Observation - Field

- Fauna

Habitat Feature

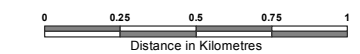
- Interior Forest
- Wetland
- Migratory Bird Habitat

Project Components

- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way

Map Features

- Collector/Arterial Road
- Local Road
- Private/Restricted Road
- - - Seasonal Road
- - - Track/Trail
- Watercourse
- Waterbody



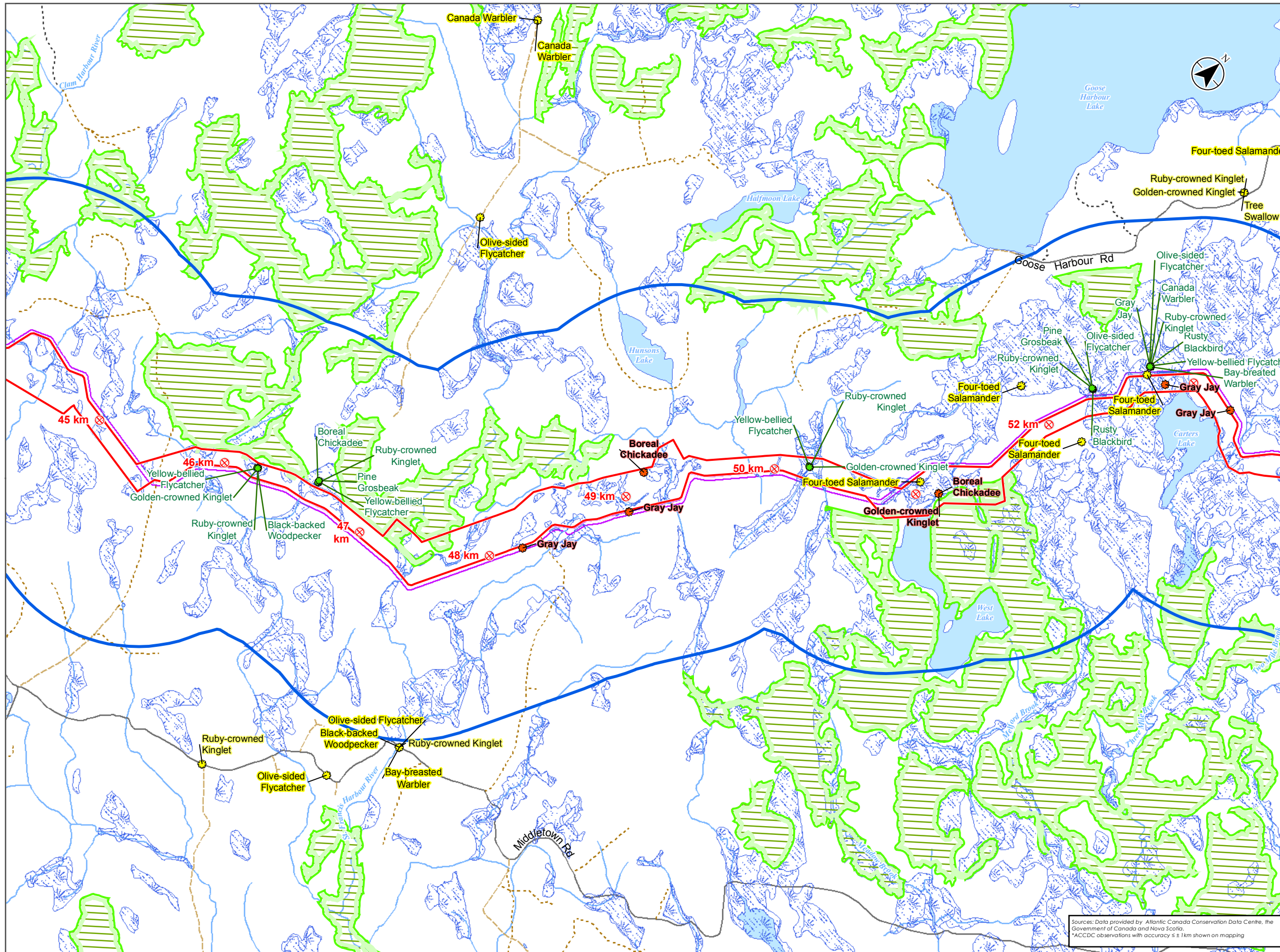
ST NS 121413598-111 NAD 1983 CSRS UTM Zone 20N



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT



Sources: Data provided by Atlantic Canada Conservation Data Centre, the Government of Canada and Nova Scotia.
*ACCDC observations with accuracy ± 1 km shown on mapping



Wetlands, Species of Conservation Concern, and Potentially Important Wildlife Habitat

Study Features

Species Observation - Desktop

- Fauna - Atlantic Canada Conservation Data Centre*
- Jaques Whitford Environmental Ltd Observations 1998

Species Observation - Field

- Fauna

Habitat Feature

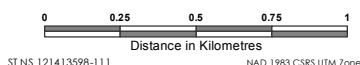
- Interior Forest
- Wetland

Project Components

- ⊕ Kilometre Post (Approximate Distance from Origin)
- Assessment Corridor/Project Development Area
- Local Assessment Area
- Existing Pipeline Right of Way

Map Features

- Local Road
- Private/Restricted Road
- Seasonal Road
- Track/Trail
- Watercourse
- Waterbody



ST NS 121413598-111 NAD 1983 CSRS UTM Zone 20N

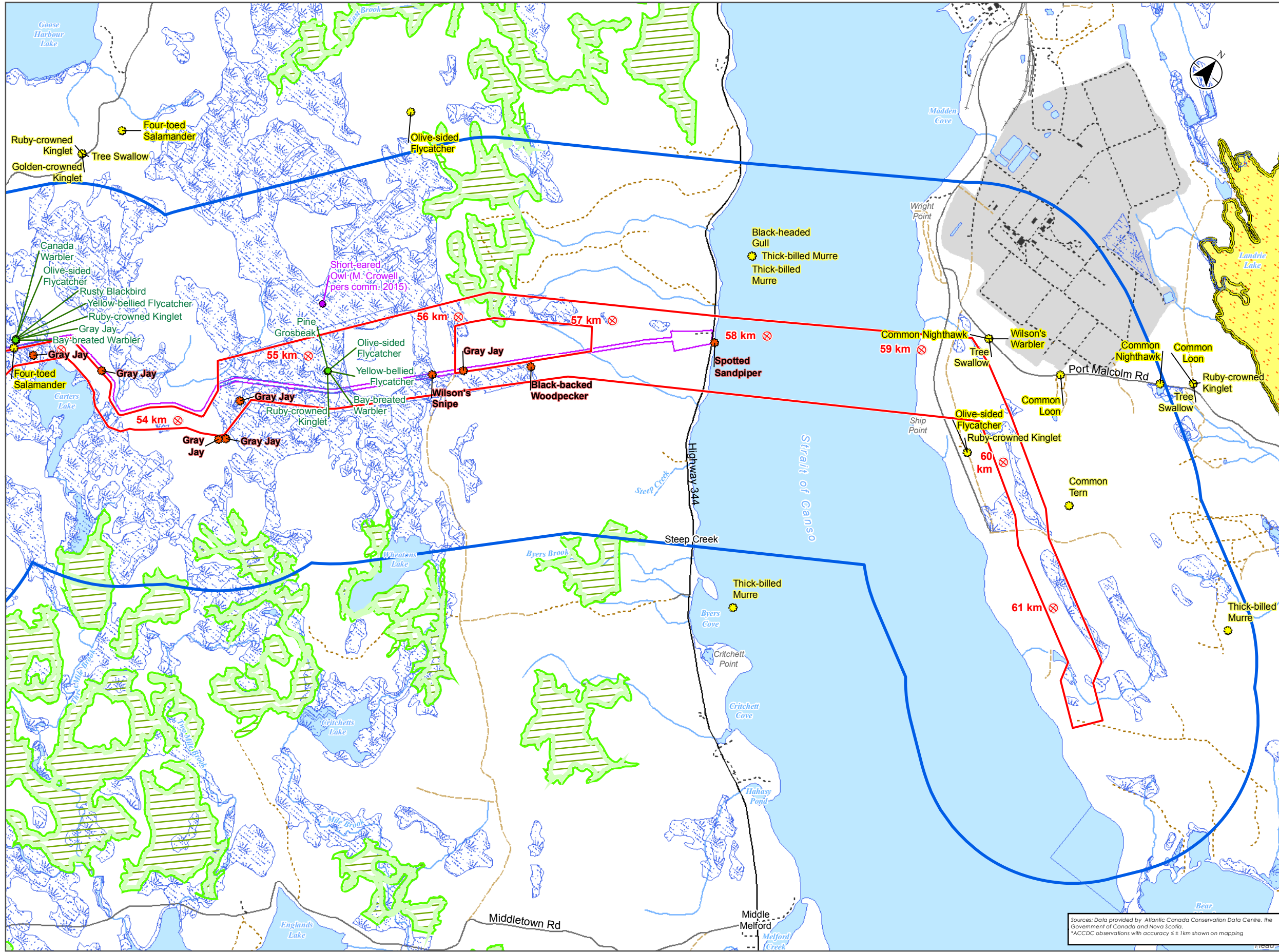


Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.

BEAR PAW PIPELINE PROJECT

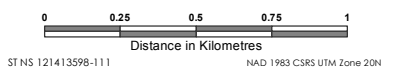


Sources: Data provided by Atlantic Canada Conservation Data Centre, the Government of Canada and Nova Scotia.
*ACCDC observations with accuracy ≤ 1 km shown on mapping



Wetlands, Species of Conservation Concern, and Potentially Important Wildlife Habitat

- Study Features**
- Species Observation - Desktop**
- Fauna - Atlantic Canada Conservation Data Centre*
 - Jaques Whitford Environmental Ltd Observations 1998
 - M.Crowell pers comm 2015
- Species Observation - Field**
- Fauna
- Habitat Feature**
- Interior Forest
 - Wetland
 - Species of Conservation Concern
- Project Components**
- ⊕ Kilometre Post (Approximate Distance from Origin)
 - ▭ Assessment Corridor/Project Development Area
 - ▭ Local Assessment Area
 - ▭ Existing Pipeline Right of Way
- Map Features**
- Collector/Arterial Road
 - Local Road
 - - - Private/Restricted Road
 - Railway
 - - - Seasonal Road
 - - - Track/Trail
 - Watercourse
 - Waterbody



Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.
BEAR PAW PIPELINE PROJECT



Sources: Data provided by Atlantic Canada Conservation Data Centre, the Government of Canada and Nova Scotia.
*ACCDC observations with accuracy ± 1 km shown on mapping

March 2016

APPENDIX F4 EARLY WINTER (2015) SURVEY RESULTS



March 2016

To: Ghislain Pitre
Bear Paw Pipeline Corporation Inc.

From: Sara Wallace
Stantec Consulting Ltd.

File: 121413598EN-MEM0005
Date: January 29, 2016

RE: Summary of 2015 Bear Paw Moose Surveys

Potential effects of the Bear Paw Pipeline Project (Bear Paw) on the population of mainland moose (*Alces alces americana*) have been identified as an important concern by provincial regulators and Bear Paw Pipeline Corporation Inc. The purpose of this memo is to outline the approach taken for the moose transect surveys undertaken in late fall 2015 and summarize the findings of those surveys.

APPROACH AND METHODS

Dedicated moose field surveys were performed November 30 to December 3, 2015 and involved walking transects (Figure 1, Attachment 1) on crown land (i.e., access to private lands was not available at the time of the surveys) within the assessment corridor to identify moose sign. The specific methods by which transect surveys were conducted are outlined below.

- Field surveys were performed along 16 transects (Table 1) within the assessment corridor, which represent approximately half of the linear distance of crown land along the proposed route.
- Transects were 1000 m in length but were split between multiple sections of crown land where there was not enough area to complete a full transect due to land access issues.
- While walking each transect, team members maintained a distance of 50 m from each other in order to maximize the area covered while maintaining safe working conditions.
- Each person surveyed a 2 m wide swath of land (i.e., one meter on each side of observer), within which all moose sign, including pellets, tracks and browse were recorded.
- Moose sign recorded farther than 1 m from the observer was also recorded, as were white-tailed deer (*Odocoileus virginianus*) pellets within the 2 m wide swath.
- Moose tracks and any unusual sightings were photographed.
- Incidental observations of other wildlife sign were recorded during the surveys with an emphasis on Species of Conservation Interest (SOCI).
- The locations of transects were identified with reference to:
 - Locations of moose sign observed incidentally during wetland, vegetation, and aquatics surveys conducted for Bear Paw in the fall of 2015. Areas where moose sign were encountered had transects preferentially placed in them.
 - Potentially important moose habitat. Wetlands and mature conifer stands that provide potential thermal cover and areas with young hardwood cover to provide winter browse were preferentially targeted, as were those adjacent to lakes and ponds.
 - Vegetation Diversity. Transects were located to cross as many vegetation types as possible.

RE: Summary of 2015 Bear Paw Moose Surveys

Table 1 Moose Survey Transect Effort and Coordinates

Transect ID	Level of Effort (hours)	Transect Start Coordinates		Transect End Coordinates	
		X_UTM	Y_UTM	X_UTM	Y_UTM
T-1	1.50	608182	5003855	607397	5004419
T-2a	1.00	606736	5005263	606412	5005885
T-2b	0.75	605591	5007753	605559	5007990
T-3	1.50	605341	5009108	605223	5010096
T-4	1.50	605051	5011734	605365	5012659
T-5	1.25	606592	5013921	607169	5014712
T-6	1.25	607522	5015364	608014	5016161
T-7	1.50	608881	5017488	609563	5018190
T-8a	2.00	610513	5019498	611101	5020221
T-8b	2.00	611575	5019613	611726	5020606
T-9	1.00	620843	5038479	621671	5038657
T-10	1.25	622834	5039296	623504	5039819
T-11	1.25	623812	5040691	624230	5041456
T-12	1.33	625037	5042130	625278	5043065
T-13	1.50	625698	5043939	626570	5044064
T-14	1.75	626954	5044918	627544	5045726
T-15	2.00	627779	5045403	628461	5046119

RESULTS AND DISCUSSION

Prior to commencement of moose field surveys, snow fall had accumulated to between 3 cm and 5 cm in depth. This made locating of recent tracks and scat much easier, while simultaneously reducing the likelihood of any older tracks and scat being observed. Temperatures increased as the survey progressed and the latter half was conducted in varying degrees of rainfall. The only definitive observations of moose sign encountered were in the form of tracks localized in the area adjacent to and along transect T-12 (Figure 1, Attachment 1). Three instances of moose sign were observed at T-12 and due to similar print/track measurements, directions of travel and proximity to one another, it is likely that they were created by the same animal. Evidence of browse found elsewhere during the survey were determined to likely be animals other than moose. The lack of moose sign observed does not necessarily indicate an absence of moose, and a combination of factors may have influenced the scarcity of observations. These factors could include, but are not limited to; post-rut behaviours (e.g., bull moose hold up in areas rich in browse and roam little), sign made prior to snowfall were buried (and therefore not observed), and an increased human presence (i.e., hunters) in the vicinity may have spooked them further into hiding. In addition to the

RE: Summary of 2015 Bear Paw Moose Surveys

aforementioned indications of moose presence, observations of white-tailed deer pellets were encountered along the following transects; T-1, T-2, T-3, T-6, T-7, and T-8a.

MOOSE SURVEY TRANSECT DETAILS

Provided in the following section are descriptions of each transect including details on site location, animal sign encountered and any notable observations. Transect locations are shown on Figure 1, Attachment 1.

T-1

Located approximately 600 m northwest of the existing LNG gas plant, T-1 also ran adjacent to the proposed compressor site. Indications of potential moose browse were determined to likely have been made by porcupine. White-tailed deer sign were encountered in the form of browse, tracks scat and rubs.

T-2

The area surveyed along T-2 was split between two sections of crown land as there was not enough area to complete a full transect due to land access issues. No definitive indications of moose were observed. A number of white-tailed deer sign were encountered in the form of tracks, browse, scat and rubs. Additionally, as further confirmation of the area being actively hunted, a bagged up deer hide left behind by a hunter was observed.

T-3

Approximately 450 m directly east of Meadow Lake, T-3 crossed through red maple/eastern larch, black spruce/eastern larch and red maple/white birch forest stands. Although moose sign were encountered, white-tailed deer browse, rubs, tracks and scat were encountered along this transect.

T-4

Intersecting Eight Mile Lake Road approximately 750 m northeast of Meadow Lake, no moose sign were encountered along T-4. However, tracks, browse and rubs made by white-tailed deer were observed.

T-5

Located approximately 450 m southwest of Ephraim's Lake, the area surveyed along this transect was absent of moose sign. An abundance of white-tailed deer tracks, beds, rubs, pellets (both new and old) and browse were observed within a mature softwood stand. Adjacent to this was a regenerating stand dominated by red maple stumps and sprouts, and young balsam fir. The abundance of deer sign within the proximity of good winter cover and a good browse source indicate the potential of this being a deer wintering area.

RE: Summary of 2015 Bear Paw Moose Surveys

T-6

The area along T-6 passed through forest stands of red maple/balsam fir and balsam fir/black spruce, as well as a stream crossing and a surrounding wetland. Browse, scat and tracks were identified to be those of white-tailed deer and no indications of moose presence were encountered.

T-7

Situated between Eight Mile Lake and Northwest Branch Lake, T-7 did not contain any moose sign. A presence of white-tailed deer was determined through observations of browse, tracks and scat.

T-8a

Approximately 1100 m northeast of Eight Mile Lake, the only ungulate sign encountered along this transect were tracks, browse and scat of white-tailed deer.

T-8b

Running perpendicular from Eight Mile Lake Road, and approximately 600 m – 700 m east of T-8a, this transect passed through thick stands of black spruce/balsam fir as well as a large wetland at its approximate midpoint. No moose sign were encountered, but tracks and browse of white-tailed deer were observed.

T-9

The area surveyed along T-9 abuts the Clam Harbour River approximately 1900 m northwest of Middletown Road. Relatively recent forestry operations have removed the majority of trees and reduced the areas value as habitat for moose. No moose sign were encountered here, but both browse and tracks of white-tailed deer were observed.

T-10

Crossing the St. Francis Harbour River approximately 15 kms from its delta into the Chedabucto Bay, this transect passed through both hardwood and softwood forest stands. No moose sign were observed and few deer sign (tracks and browse) were encountered.

T-11

Located approximately 550 m southeast of Hunson's Lake, the area surveyed along this transect passed through stands of both hardwood and softwood that bordered a small wetland along its route. Tracks and vegetation browse of white-tailed deer were the only ungulate sign encountered.

RE: Summary of 2015 Bear Paw Moose Surveys

T-12

Coming within approximately 100 m of the northwest perimeter of West Lake, T-12 crossed through stands of mixedwood and softwood. Likely from the same animal, three instances of moose tracks were encountered and recorded (Photo 1). Browse, tracks and a scrape made by white-tailed deer were also observed.



Photo 1 Moose track located along T-12 (Scale in inches)

T-13

Running along the north shore of Carter's Lake, T-13 was largely dominated by hardwood trees. No moose sign were encountered, with few instances of white-tailed deer browse and tracks being observed.

T-14

Approximately 1700 m southwest of the Strait of Canso, this transect largely passed through black spruce/balsam fir stands and ended in a large wetland. Moose sign were not encountered, but rubs and browse of white-tailed deer were present.

T-15

Located approximately 750 m to the southwest of the Strait of Canso, this transect approaches and descends the slope which forms the shoreline of the Strait of Canso. Moose sign were not observed, but browse and rubs of white-tailed deer were encountered in limited quantities.

INCIDENTAL WILDLIFE OBSERVATIONS

Throughout the moose survey, incidental wildlife observations (including tracks, vegetation browse, scat, audible calls, and sightings) were recorded for the following species: white-tailed deer, bobcat (*Lynx rufus*), North American porcupine (*Erethizon dorsatum*), snowshoe hare (*Lepus americanus*),

January 29, 2016

Ghislain Pitre

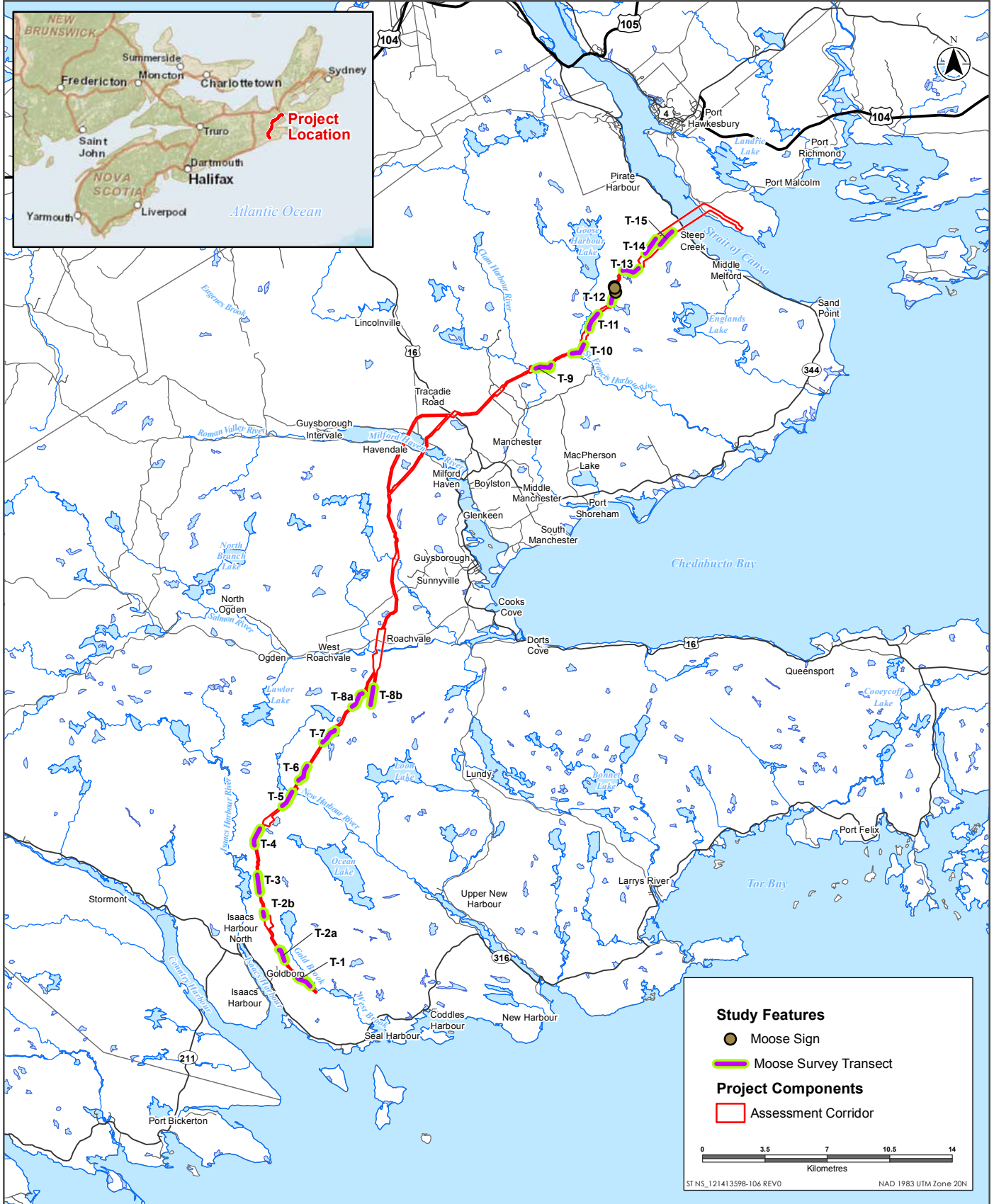
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RE: Summary of 2015 Bear Paw Moose Surveys

red squirrel (*Tamiasciurus hudsonicus*), eastern coyote (*Canis latrans*), black-capped chickadee (*Poecile atricapillus*), boreal chickadee (*Poecile hudsonica*), spruce grouse (*Falcapennis canadensis*), ruffed grouse (*Bonasa umbellus*), barred owl (*Strix varia*), golden-crowned kinglet (*Regulus satrapa*), and gray jay (*Perisoreus canadensis*). Other wildlife sign were observed but species were not determinable.

If you have any questions or information requirements related to this report, please do not hesitate to contact me.

Attachment 1: Figure 1 Moose Transects and Observed Sign



Sources: Data provided by the Government of Canada and Nova Scotia. Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.



BEAR PAW PIPELINE PROJECT

Moose Transects and Observations

Figure 1


March 2016

APPENDIX F5 CONCEPTUAL APPLICATION OF MOOSE MITIGATION

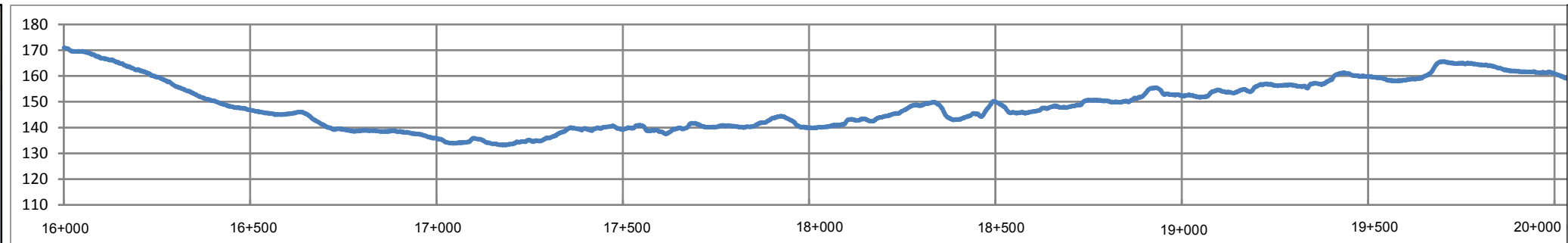
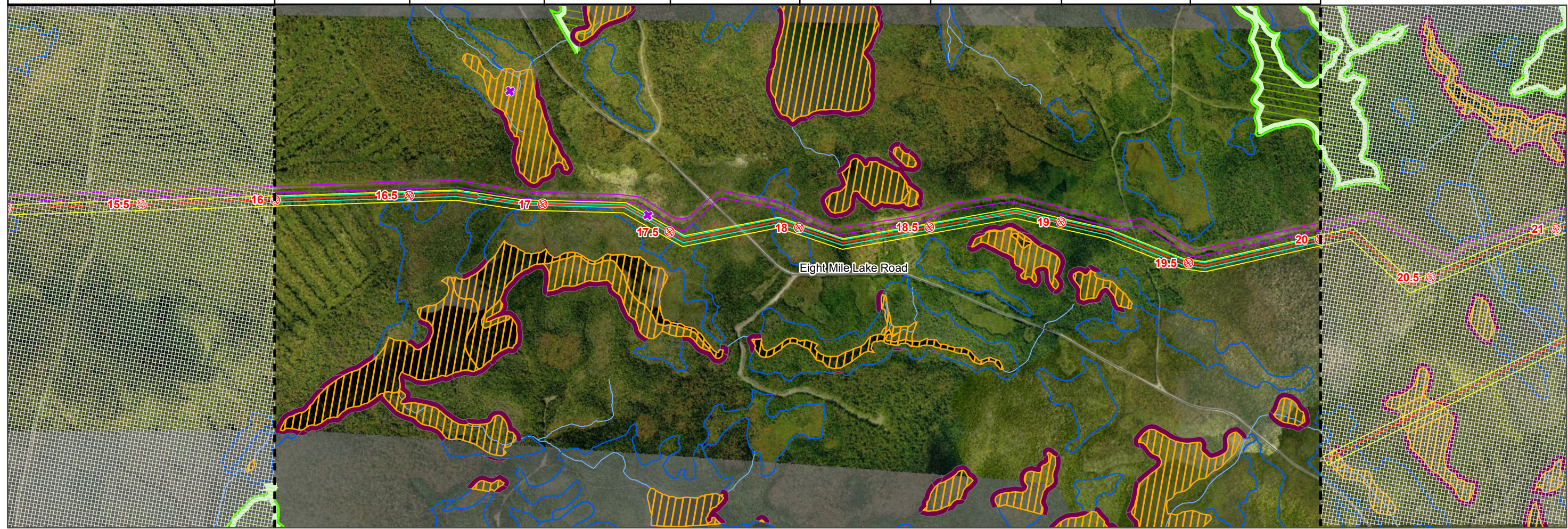


March 2016

Operational Right of Way width narrowing	20 m	10 m	20 m	10 m	20 m		
Access control at road crossing (vegetation rollback; berm)							
Detailed routing to avoid moose potential summer foraging/thermoregulation habitat							
Regenerating to a 10 m operational RoW with species composition similar to adjacent habitat: a. Immature pole hardwood and softwood, b. Regenerating young softwood, c. Treed wetland							
Regenerating to a 10 m operational RoW with species composition similar to adjacent habitat: a. Regenerating young softwood							
Kilometre Post	16+500	17+000	17+500	18+000	18+500	19+000	19+500



- + Moose Observation (Jacques Whitford Observations, 1998)
- Interior Forest
- Potential Summer Foraging for Moose/Thermoregulation Habitat
- Moose Forested Buffer (<20m)
- Wetland



- ⊕ Kilometre Post (Approximate Distance from Origin)
- Conceptual Centreline
- Conceptual Right of Way
- Construction Right of Way
- Existing Pipeline Right of Way

0 100 200 300 400 500
Meters

ST NS_121413598-112 NAD 1983 CSRS UTM Zone 20N

Note: This figure is provided for illustration purposes only. Detailed engineering and final routing has not been completed at this time. Final routing and site-specific mitigation will be developed in the Moose Management Plan.
Sources: Base data provided by the Government of Canada and Nova Scotia, World Street Map from ESRI. Wetlands shown are a combination of data provided by Nova Scotia Dept. of Natural Resources, and wetlands interpreted/delineated by Stantec.

Disclaimer: This map is for illustrative purposes to support this project; questions can be directed to the issuing agency.



Conceptual Application of Moose Mitigation

Figure 1

