

APPENDIX E

BIOLOGICAL FIELD REPORT

Rec'd CRA
AUG 30 2012

076692
corr.
J. Parks



August 28, 2012

CONESTOGA-ROVERS &
ASSOCIATES LTD. (CRA)
45 Akerley Boulevard
Dartmouth, Nova Scotia
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ATTENTION: Mr. Jeff Parks

Cooks Brook Proposed Aggregate Pit Expansion – 2012 Plant and Breeding Bird Surveys

The following provides a summary of 2012 plant and breeding bird surveys conducted for CRA related to the proposed Cooks Brook aggregate expansion project.

Methodology

Initial field work was conducted within and surrounding the proposed expansion area as provided by CRA. Based on the initial review of Atlantic Conservation Data Centre (ACCDC) data provided by CRA, Dillon identified potential priority species and their habitats (**Attachment 1**). Field surveys focused on potential habitat for priority plant species and breeding birds. Targeted areas of the proposed project footprint were walked by a botanist during the late spring/early summer and late summer flowering seasons. The timing of field visits was based on flowering times or visible periods for short listed potential priority plant species. Breeding bird surveys were undertaken as 10 minute point counts following Canadian Wildlife Service protocols for environmental assessment. Point count locations were based on typical and representative habitat at the study area and adjacent background areas. An additional pre-dawn, nocturnal bird survey was completed, focusing on owl species. Owl surveys followed the approach identified in the Bird Studies Canada 2001 document: *Guidelines for Nocturnal Owl Monitoring In North America*.

The early plant survey was completed May 29, 2012 and the summer survey was conducted July 31, 2012. The early breeding bird survey and nocturnal survey was conducted on April 19, 2012. A peak breeding bird survey was conducted on June 14, 2012.

Field Survey Results

Most of the study area has been disturbed, either through existing gravel extraction or forest clearing. **Attachment 2** provides typical pictures of the study area.

Attachment 3 provides the plant survey results. One priority species was identified, a sedge (*Carex houghtoniana*, Nova Scotia Department of Natural Resources-DNR Status Yellow/Sensitive; ACCDC provincial rank S2?). Approximately 75 plants were observed in a small (couple of meter wide) patch located within the central clear cut area (GPS

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point 20T 0475856 4985294, Photos 1 and 2). A search of the surrounding habitat area did not identify additional patches.



Photo 1 Sedge Patch



Photo 2 Achene

The Flora of Nova Scotia (Zinck 1998) identifies the habitat for this species as sandy soils and roadside banks, with a range from Nova Scotia to Alberta and south to New York, Michigan and Minnesota. In most areas, it appears to be a plant of disturbed habitats. DNR's Species at Risk Biologist was contacted with respect to potential mitigative options. As the plant is located within the center of the proposed expansion area, avoidance of the patch is not a viable option for the proponent. Other potential options related to salvage of the patch and potential to re-seed. On discussion with the Acadia Herbarium staff, the potential for seeds to be maintained at the herbarium and to be added to a future seed bank, as well as re-seeding was identified. Dillon provided the Herbarium with two sets of seeds (approximately 100) from the plants. One set is to be included within the Herbarium's seed bank on establishment and one set is available to test re-seeding if a suitable location is found. T. Neily discussed potential for salvage of this patch with Anton Rezicek (a sedge specialist with the University of Michigan). The approach to salvage identified was to remove the upper surface of the soil and stock pile it for use in site restoration. This sedge species is reported to have seeds that remain viable until they are disturbed again in the future.

Attachment 4 provides the bird survey location summaries and species lists. Daytime survey species identified in April were generally either year-round residents or early migrants (not nesting at this time). Nocturnal species (owls) were potentially nesting in the general area, but not within the project footprint. One DNR sensitive/yellow listed species (Common Loon) was observed flying over the area, but nesting habitat was not present within the footprint.

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Bird species identified in June were expected to be nesting in the general area. Over 30 species were potentially nesting within the project footprint area. The only Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed species observed was the Barn Swallow. This bird was nesting outside of the project footprint area. This species is also considered sensitive by NSDNR.

Summary

A priority plant species (sedge, *Carex houghtoniana*) was identified within the proposed extraction area footprint. This plant is not formally protected under federal or provincial Species At Risk Acts, but is considered a priority listed species. Potential options for salvage were identified above.

Bird nesting occurs throughout the study area. Site clearance activities will be undertaken outside of the breeding bird season.

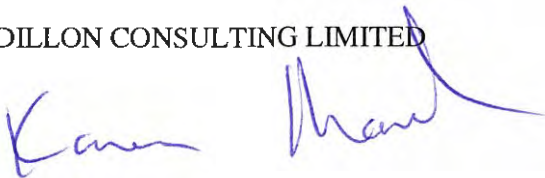
No other priority bird or plant species or likely habitat was identified within the project footprint area.

Closure

Should you have any questions or comments, please contact the undersigned at your convenience.

Yours truly,

DILLON CONSULTING LIMITED



Karen March, M.Sc.
Associate

Attachments - Priority Species Short List
2012 Site Photographs
2012 Plant Survey Lists
2012 Breeding Bird Survey Lists

KLM:srb
Our File: 11-5116-1000

Attachment 1
Priority Species Short List

Draft - Potential Priority Plant / Lichen Species for Cooks Brook Study Area based on 2012 ACCDC (100 km) data and 2012 SARA/NSESA/COSEWIC Listings and Potential Habitat Present (dominated by cutover mixed wood, cleared areas)

Species	Name	SARA (or COSEWIC*) Status and Sched. and NSESA Status or General DNR Status ¹	Habitat ² (nearby reference locations)	Flowers ²
<i>Amelanchier nantucketensis</i>	Nantucket Serviceberry	NSDNR Red	Dry, sandy, sunny habitat, pond margins, fields, edges, and thickets, old field / roadside	May
<i>Arabis hirsula</i>	Hairy rock-cress	NSDNR Red	Dry cliff, tallus, gravel	May-June
<i>Botrychium lunaria</i>	Common Moonwort	NSDNR Red	Open turf/gravel slope/shore/meadow on basic soil	spr.Jun-Aug.
<i>Cardamine parviflora</i>	Small-flowered Bittercress	NSDNR Yellow	Dry wood, shaded ledge, sandy soil	Apr.-Aug.
<i>Carex adusta</i>	Lesser brown sedge	NSDNR Yellow	Dry open woods, gravel, rock, clearing, acidic	Jun.-Sept.
<i>Carex haydenii</i>	Hayden's sedge	NSDNR Red	Seasonally saturated soils in open habitats	Jun-Aug.
<i>Carex houghtoniana</i>	Houghton's sedge	NSDNR Yellow	Dry to moist sandy or gravelly soils in open, disturbed sites	summer
<i>Carex pellita</i>	Wooly sedge	NSDNR Red	Roadside ditches and other early successional or disturbed habitats	May – Aug.
<i>Carex tenera</i>	Tender sedge	NSDNR Yellow	Meadow, woodland, opening	late May-Aug.
<i>Chenopodium rubrum</i>	Red Pigweed	NSDNR Red	Waste and cultivated land, often near the sea	July-September
<i>Cinna arundinacea</i>	Sweet Wood Reed Grass	NSDNR Red	Wet woods, less often open areas, fallow fields	Late summer
<i>Clethra alnifolia</i>	Coast pepper-bush	NSDNR Red; SARA SC sched I; NSESA vulnerable	Headwater lakeshore, swamp, thicket, sandy woods	Late Sept.
<i>Cynoglossum virginianum (boreale)</i>	Wild Comfrey	NSDNR Red	Dry soil, gypsum. fields, open beech wood, edge thicket	May-July
<i>Dichanthelium linearifolium</i>	Narrow-leaved Panic Grass	NSDNR Yellow	dry, sandy, and gravelly grasslands and open woodlands	Jul.-Sept.
<i>Festuca subverticillata</i>	Nodding fescue	NSDNR Red	Fields, Meadows, roadside, rich soils	summer
<i>Helianthemum canadense</i>	Rockrose	NSDNR Red NSESA Endangered	Sandy plains, barrens, dry clearing, dry mixed woods	May-July
<i>Hedeoma pulegoides</i>	American False Pennyroyal	NSDNR Yellow	Stony soil, upland pasture	August
<i>Hudsonia ericoides</i>	Golden Heather	NSDNR Yellow	Dry rocky sandy barrens, disturbed sandy soil	Late May-early Jul.
<i>Hypericum majus</i>	Large St John's-wort	NSDNR Red	wet or dry open soil	July-Sept.
<i>Juncus greenei</i>	Greene's Rush	NSDNR Red	Sandy soil, dunes	summer
<i>Lactuca hirsuta</i>	Hairy Lettuce	NSDNR Yellow	Dry open woods and cut-over	July-Sept.
<i>Ophioglossum pusillum</i>	Northern Adder's-tongue	NSDNR Yellow	Acid soil, ditch, old field	late May-Aug.
<i>Piptatherum canadense</i>	Canada Rice Grass	NSDNR Yellow	sandy dry open ground	summer
<i>Polygala sanguinea</i>	Blood Milkwort	NSDNR Yellow	Poor acidic field, damp slope, open woods/bush	late Jun-Oct.
<i>Selaginella rupestris</i>	Rock Spikemoss	Not listed	Dry rocky places	Visible year-round
<i>Spiranthes casei</i>	Case's Ladies-tresses	NSDNR	Dry to moderately moist sandy soils,	Mid August to

Species	Name	SARA (or COSEWIC*) Status and Sched. and NSESA Status or General DNR Status ¹	Habitat ² (nearby reference locations)	Flowers ²
		Yellow	roadsides and pastures, colonizer of disturbed sites	mid September
<i>Spiranthes lucida</i>	Shining Ladies-tresses	NSDNR Red	Alluvial soils, rocky, sandy	Early July
<i>Spiranthes ochroleuca</i>	Yellow Nodding Ladies'-Tresses	NSDNR Yellow	Acid sandy soils in dry, open habitat	Sept.-Oct.
<i>Symphotrichum ciliolatum</i>	Fringed Blue Aster	NSDNR Yellow	Open woods and meadows in poor soils	summer
<i>Symphotrichum undulatum</i>	Wavy-leaf American-Aster	NSDNR Yellow	Old field, thicket edge	Aug-Sept.
<i>Thuja occidentalis</i>	White Cedar	NSDNR Red NSESA Vulnerable	Swamp, old pasture, near lake	Visible year-round

1. NSDNR Status of Nova Scotia Wildlife - Red at risk, Yellow sensitive, Green stable

2. Zinck 1998

Draft - Potential Priority Plant / Lichen Species for Cooks Brook Study Area based on 2012 ACCDC (100 km) data and 2012 SARA/NSESA/COSEWIC Listings and Potential Habitat Present (dominated by cutover mixed wood, cleared areas; and adjacent watercourse/wetland)

Common Name	SARA (or COSEWIC*) Status and Sched. and NSESA Status	NSDNR Status	Habitat Preference	Timing for Investigation
INVERTEBRATES				
Brook Floater (<i>Alasmidonta varicose</i>)	Special Concern Sched. 1 (pending)	Yellow	Riffles, rocky, gravel, sand bottom	Summer
Eastern Lampshell (<i>Lampsilis radiata</i>)	na	Yellow	Streams; sand to mud	Summer
Monarch (<i>Danaus plexippus</i>)	Special Concern Sched. 1	Yellow	Associated with milkweeds, wildflowers	Late May-mid June
Rusty Snaketail (<i>Ophiogomphus rupinsulensis</i>)	na	Red	Rapid large streams and rivers	Spring - Fall
Skillet Clubtail (<i>Gomphus ventricosus</i>)	na	Red	Turbid rivers, mud bottom, good water quality, clean lake sand or marl bottom	Spring - Fall
Triangle Floater (<i>Alasmidonta undulata</i>)	na	Yellow	rivers and lakes, sand and gravel, outlet streams just below lake	Summer
Zebra Clubtail (<i>Stylurus scudderii</i>)	na	Red	Forest streams	Summer
BIRDS				
Bobolink (<i>Dolichonyx oryzivorus</i>)	Threatened	Yellow	Nest in openings, lush grass	Nest Jun.- Jul.
Barn Swallow (<i>Hirundo rustica</i>)	Threatened	Yellow	Nest on structures	Nest May-July
Boreal Chickadee (<i>Parus hudsonicus</i>)	na	Yellow	Nest cavities in rotted tree stumps	Nest Mid May – mid Aug.
Canada Warbler (<i>Wilsonia canadensis</i>)	Threatened Sched. 1	Yellow	Dense understory mature to mid age forest	Nest June
Common Loon (<i>Gavia immer</i>)	na	Yellow	Large lakes/islands but may feed inland along lake shores	Nest summer
Common Nighthawk (<i>Chordeiles minor</i>)	Threatened Sched. 1	Yellow	Nest sparsely vegetated or bare ground (cutover/burns, building roof)	Nest June-July
Common Tern (<i>Sterna hirundo</i>)	na	Yellow	Nest offshore but may feed inland along lake shores	Nest Summer
Eastern Bluebird (<i>Sialia sialis</i>)	na	Yellow	woodpecker holes forage low veg with scattered trees clear-cut near forest favor broad-leaf	Nest May-July
Gray Jay (<i>Perisoreus canadensis</i>)	na	Yellow	Forest	Nest Late Mar.-early July
Least Sandpiper (<i>Calidris minutilla</i>)	na	Green	Sedge meadow and bog	Nest May-Jun.
Northern Goshawk (<i>Accipiter gentilis</i>)	na	Yellow	Woodland species	Nest Apr.-May
Olive-sided Flycatcher (<i>Contopus cooperi</i>)	Threatened Sched. 1	Yellow	Forest edge	Nest Mid June-mid Aug.
Rusty Blackbird (<i>Euphagus carolinus</i>)	Special Concern Sched. 1	Yellow	Nests in swamps and bogs along sluggish streams.	Nest May-July
Whip-poor-will (<i>Caprimulgus vociferus</i>)	Threatened Sched. 1	Green	Nest in mixed forest near clearings	Nest May – Jun.
FISH				
Atlantic salmon – Inner Bay of Fundy (<i>Salmo salar</i>)	Endangered Sched. 1	Red	Gravel bottomed streams, rivers	Late summer/fall
American eel (<i>Anguilla rostrata</i>)	Special Concern	Green	Fresh water streams for adults. Migrate to sea to spawn	Non-winter

Common Name	SARA (or COSEWIC*) Status and Sched. and NSESA Status	NSDNR Status	Habitat Preference	Timing for Investigation
Brook trout (<i>Salvelinus fontinalis</i>)	na	Yellow	Streams, brooks	Late summer/fall
Gaspereau (<i>Alosa pseudoharengus</i>)	na	Yellow	Spawn above head of tide in rivers, stillwater, lake	Spring-summer
Striped bass (<i>Morone saxatilis</i>)	Threatened	Red	Spawn at head of tide	Spring-summer
Herptiles				
Snapping turtle (<i>Chelydra serpentina</i>)	Special Concern Sched. 1	Green	Vegetated lakes and streams, nest on sand / gravel	Non-winter
Wood turtle (<i>Glyptemys insculpta</i>)	Threatened Sched. 1, Vulnerable	Yellow	Nest on gravel bank near river, overwinter in pools, clear streams	Late spring
MAMMALS				
Eastern Pipistrelle (<i>Pipistrellus (Perimyotis) subflavus</i>)	Endangered	Yellow	Hibernate in caves, may feed in area	Summer - fall
Little Brown Bat (<i>Myotis lucifugus</i>)	Endangered	Yellow	Hibernate in caves, may feed in area	Summer - fall
Northern Myotis (<i>Myotis septentrionalis</i>)	Endangered	Yellow	Hibernate dense forest and caves, may feed in area	Summer - fall

Attachment 2
2012 Study Area Photographs



20T 0475854 4985267 clear cut May 29, 2012



20T 0475959 4985403 older pit May 29, 2012



Edge of Old Gravel Pit and Recently Harvested Area 20T 0475744 4985246 July 31, 2012

Attachment 3
2012 Plant Survey Lists

Cooks Brook Early Survey May 29, 2012

Surveyor: Tom Neily

Species	Common Name	NSDNR Rank*	S Rank**
Forested Edge of Existing Gravel Pit			
<i>Picea rubens</i>	Red Spruce	Green	S5
<i>Pinus strobus</i>	Eastern White Pine	Green	S5
<i>Amelanchier laevis</i>	Allegheny Service-Berry	Green	S5
<i>Fagus grandifolia</i>	American Beech	Green	S5
<i>Acer rubrum</i>	Red Maple	Green	S5
<i>Corylus cornuta</i>	Beaked Hazelnut	Green	S5
<i>Prunus serotina</i>	Wild Black Cherry	Green	S5
<i>Tsuga canadensis</i>	Eastern Hemlock	Green	S4
<i>Pteridium aquilinum</i>	Bracken Fern	Green	S5
<i>Carex communis</i>	Fibrous-Root Sedge	Green	S5
<i>Maianthemum canadense</i>	Wild Lily-of-The-Valley	Green	S5
<i>Potentilla simplex</i>	Old-Field Cinquefoil	Green	S5
<i>Luzula acuminata</i>	Hairy Woodrush	Green	S5
<i>Populus grandidentata</i>	Large-Tooth Aspen	Green	S5
<i>Diervilla lonicera</i>	Northern Bush-Honeysuckle	Green	S5
<i>Spiraea alba</i>	Narrow-Leaved Meadow-Sweet	Green	S5
<i>Viburnum nudum</i>	Possum-Haw Viburnum	Green	S5
<i>Carex pallescens</i>	Pale Sedge	Green	S5
Wetland in vicinity of 20T 0475763 4985143 (outside study area)			
<i>Alnus incana</i>	Speckled Alder	Green	S5
<i>Senecio schweinitzianus</i>	Senecio schweinitzianus	n/a	S5
<i>Carex intumescens</i>	Bladder Sedge	Green	S5
<i>Carex communis</i>	Fibrous-Root Sedge	Green	S5
<i>Carex gracillimo</i>	Graceful Sedge	Green	S4S5
<i>Lysimachia ciliata</i>	Fringed Loosestrife	Green	S4
<i>Thalictrum pubescens</i>	Tall Meadow-Rue	Green	S5
<i>Spiraea alba</i>	Narrow-Leaved Meadow-Sweet	Green	S5
<i>Onoclea sensibilis</i>	Sensitive Fern	Green	S5
<i>Crataegus sp</i>	Crataegus sp	not at risk sp.	n/a
<i>Clematis virginiana</i>	Virginia Virgin-Bower	Green	S5
<i>Rosa sp</i>	Rosa sp	not at risk sp.	n/a
<i>Abies balsamea</i>	Balsam Fir	Green	S5
<i>Fraxinus americana</i>	White Ash	Green	S5
<i>Thelypteris palustris</i>	Marsh Fern	Green	S5
<i>Eupatorium maculosa</i>	Eupatorium maculosa	Green	S5
<i>Sambucus racemosa</i>	Red Elderberry	Green	S5
<i>Galium palustre</i>	Marsh Bedstraw	Green	S5
Upland Woods/Clearcut			
<i>Trientalis borealis</i>	Northern Starflower	Green	S5
<i>Epigaea repens</i>	Trailing Arbutus	Green	S5
<i>Vaccinium angustifolium</i>	Late Lowbush Blueberry	Green	S5
<i>Vaccinium myrtilloides</i>	Velvetleaf Blueberry	Green	S5
<i>Kalmia angustifolia</i>	Sheep-Laurel	Green	S5
<i>Comptonia peregrina</i>	Sweet Fern	Green	S5
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	Green	S5
<i>Abies balsamea</i>	Balsam Fir	Green	S5
<i>Betula populifolia</i>	Gray Birch	Green	S5
<i>Populus grandidentata</i>	Large-Tooth Aspen	Green	S5
<i>Carex houghtoniana</i>	A Sedge	Yellow	S2?

Cooks Brook Early Survey May 29, 2012

Surveyor: Tom Neily

Species	Common Name	NSDNR Rank*	S Rank**
<i>Luzula multiflora</i>	Common Woodrush	Green	S5
<i>Maianthemum canadense</i>	Wild Lily-of-The-Valley	Green	S5
<i>Rubus idaeus</i>	Red Raspberry	Green	S5
<i>Linnaea borealis</i>	Twinflower	Green	S5
<i>Mitchella repens</i>	Partridge-Berry	Green	S5
<i>Cornus canadensis</i>	Dwarf Dogwood	Green	S5
<i>Aralia nudicaulis</i>	Wild Sarsaparilla	Green	S5
<i>Carex scoparia</i>	Pointed Broom Sedge	Green	S5

Old Gravel Pit in vicinity of 20T 0475959 4985403

<i>Equisetum arvense</i>	Field Horsetail	Green	S5
<i>Hieracium pilosella</i>	Mouseear	Exotic	SE
<i>Fragaria virginiana</i>	Virginia Strawberry	Green	S5

Pond Edge in vicinity of 20T 0476054 4985382 (outside study area)

<i>Camarum palustre</i>	Marsh Cinquefoil	Green	S5
<i>Typha latifolia</i>	Broad-Leaf Cattail	Green	S5
<i>Lysimachia ciliata</i>	Fringed Loosestrife	Green	S4
<i>Equisetum fluviatile</i>	Water Horsetail	Green	S5
<i>Proserpinaca palustris</i>	Marsh Mermaid-Weed	Green	S3
<i>Ludwigia palustris</i>	Marsh Seedbox	Green	S5
<i>Thelypteris palustris</i>	Marsh Fern	Green	S5
<i>Carex pseudocyperus</i>	Cyperus-Like Sedge	Green	S4S5
<i>Osmunda regalis</i>	Royal Fern	Green	S5
<i>Viburnum opulus</i>	Guelder-Rose Viburnum	Green	S5
<i>Crataegus monogyna</i>	A Hawthorn	Exotic	SE
<i>Juniperus communis</i>	Ground Juniper	Green	S5
<i>Rubus hispidus</i>	Bristly Dewberry	Green	S5
<i>Potamogeton perfoliatus</i>	Clasping-Leaf Pondweed	Green	S4SS

* Green stable population; Yellow population sensitive to human activities or natural events

** Subnational (Provincial) Rarity Rank of taxon - S2 Rare in province; S3 Uncommon in province; S4 Widespread, common and apparently secure in province; S5 Widespread, abundant and demonstrably secure in province; SE Exotic in province

Cooks Brook Late Survey July 31, 2012

Surveyor: Tom Neily

Species	Common Name	NSDNR Rank*	S Rank**
Undisturbed Gravel Pit in vicinity of 20T 0475744 4985246			
<i>Comptonia peregrina</i>	Sweet Fern	Green	S5
<i>Potentilla simplex</i>	Old-Field Cinquefoil	Green	S5
<i>Euthamia graminifolia</i>	Flat-Top Fragrant-Golden-Rod	Green	S5
<i>Hypericum perforatum</i>	A St. John's-Wort	Exotic	SE
<i>Anaphalis margaritacea</i>	Pearly Everlasting	Green	S5
<i>Symphotrichum lateriflorum</i>	Farewell-Summer	Green	S5
<i>Centaurea nigra</i>	Black Starthistle	Exotic	n/a
<i>Corex scoparia</i>	Pointed Broom Sedge	Green	S5
<i>Solidago canadensis</i>	Canada Goldenrod	Green	S5
<i>Erigeron strigosus</i>	Daisy Fleabane	Exotic	SE
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Exotic	SE
<i>Oenothera biennis</i>	Common Evening-Primrose	Green	S5
<i>Veronica officinalis</i>	Gypsy-Weed	Green	S5
<i>Donthonia spicata</i>	Poverty Oat-Grass	Green	S5
<i>Luzula multiflora</i>	Common Woodrush	Green	S5
<i>Rubus idaeus</i>	Red Raspberry	Green	S5
Harvested Area (Most of Site)			
<i>Populus tremuloides</i>	Quaking Aspen	Green	S5
<i>Acer rubrum</i>	Red Maple	Green	S5
<i>Rubus idaeus</i>	Red Raspberry	Green	S5
<i>Pteridium aquilinum</i>	Bracken Fern	Green	S5
<i>Galeopsis tetrahit</i>	Brittle-Stem Hempnettle	Exotic	SE
<i>Cornus canadensis</i>	Dwarf Dogwood	Green	S5
<i>Vaccinium angustifolium</i>	Late Lowbush Blueberry	Green	S5
<i>Vaccinium myrtilloides</i>	Velvetleaf Blueberry	Green	S5
<i>Picea glouca</i>	White Spruce	Green	S5
<i>Tsuga canadensis</i>	Eastern Hemlock	Green	S4
<i>Carex arctata</i>	Black Sedge	Green	S5
<i>Betula populifolia</i>	Gray Birch	Green	S5
<i>Linnaea borealis</i>	Twinflower	Green	S5
<i>Trientalis borealis</i>	Northern Starflower	Green	S5
<i>Quercus rubra</i>	Northern Red Oak	Green	S5
<i>Kalmia angustifolia</i>	Sheep-Laurel	Green	S5
<i>Melompyrum lineore</i>	American Cow-Wheat	Green	S5
<i>Aralia hispida</i>	Bristly Sarsaparilla	Green	S5
<i>Agrostis capillaris</i>	Colonial Bentgrass	Exotic	SE
<i>Carex umbellata</i>	Hidden Sedge	Green	S5
<i>Epigaea repens</i>	Trailing Arbutus	Green	S5
<i>Corex communis</i>	Fibrous-Root Sedge	Green	S5
<i>Scirpus cyperinus</i>	Cottongrass Bulrush	Green	S5
<i>Conyza canadensis</i>	Canada Horseweed	Green	S5
<i>Epilobium angustifolium</i>	Fireweed	Green	S5
<i>Corex intumescens</i>	Bladder Sedge	Green	S5
<i>Solidago puberula</i>	Downy Goldenrod	Green	S5
<i>Melilotus altissimus</i>	Tall Yellow Sweetclover	Exotic	SE
<i>Fragaria virginiana</i>	Virginia Strawberry	Green	S5
<i>Lorix loricata</i>	American Larch	Green	S5
<i>Trifolium pratense</i>	Red Clover	Exotic	SE
<i>Trifolium campestre</i>	Low Hop Clover	Exotic	SE
<i>Trifolium oureum</i>	Yellow Clover	Exotic	SE
<i>Achillea millefolium</i>	Common Yarrow	Exotic	SE
<i>Populus grandidentata</i>	Large-Tooth Aspen	Green	S5
<i>Pinus strobus</i>	Eastern White Pine	Green	S5
<i>Juncus tenuis</i>	Slender Rush	Green	S5

* Green stable population

** Subnational (Provincial) Rarity Rank of taxon - S4 Widespread, common and apparently secure in province; S5 Widespread, abundant and demonstrably secure in province; SE Exotic in province

Bird Surveys 2012 Cooks Brook Study Area, Nova Scotia

Early Survey - April 19, 2012

PC#:	1	5
UTM:	0475903, 4985579	0475851, 4985360
Date:	19-Apr-12	19-Apr-12
Sunrise:	6:18	6:18
Start Time:	7:55	6:23
Sky:	Clear	Clear
Precip/ Noise	No	No
W Speed:	<10 km/h	<10 km/h
Temp:	2°C	-1°C
Habitat:	At road, softwood dominant, some residential	Edge of recent conifer dominant - cut over area
PC#:	2	6
UTM:	0475372, 4985453	0475841, 4985221
Date:	19-Apr-12	19-Apr-12
Sunrise:	6:18	6:18
Start Time:	8:15	6:44
Sky:	Clear	Clear
Precip/ Noise	No	No
W Speed:	<10 km/h	<10 km/h
Temp:	2°C	-1°C
Habitat:	Open field, some residential/barns	At access road, mixed forest, along brook
PC#:	3	7
UTM:	0475575, 4985266	0475653, 4985107
Date:	19-Apr-12	19-Apr-12
Sunrise:	6:18	6:18
Start Time:	8:40	7:05
Sky:	Clear	Clear
Precip/ Noise	No	No
W Speed:	<10 km/h	<10 km/h
Temp:	3°C	-1°C
Habitat:	Centre of existing pit, gravel, open/cleared	Cleared, open gravel pit area, bordered by brook and mixed forest
PC#:	4	8
UTM:	0476001, 4985494	0476015, 4985375
Date:	19-Apr-12	19-Apr-12
Sunrise:	6:18	6:18
Start Time:	5:52	7:30
Sky:	Clear	Clear
Precip/ Noise	No	No
W Speed:	<10 km/h	<10 km/h
Temp:	-3°C	0°C
Habitat:	Open, exposed aggregate, mixed - hardwood dominant	Lake, open gravel, some mixed forest

Nocturnal Survey - April 19, 2012

PC#:	1
UTM:	0475903, 4985579
Date:	19-Apr-12
Sunrise:	6:18
Start Time:	4:50
Sky:	Clear
Precip/ Noise	No
W Speed:	<10 km/h
Temp:	-4°C
Habitat:	At road, softwood dominant, some residential
PC#:	2
UTM:	0475372, 4985453
Date:	19-Apr-12
Sunrise:	6:18
Start Time:	5:05
Sky:	Clear
Precip/ Noise	No
W Speed:	<10 km/h
Temp:	-4°C
Habitat:	Open field, some residential/barns
PC#:	3
UTM:	0475575, 4985266
Date:	19-Apr-12
Sunrise:	6:18
Start Time:	5:20
Sky:	Clear
Precip/ Noise	No
W Speed:	<10 km/h
Temp:	-3°C
Habitat:	Centre of existing pit, gravel, open/cleared

Bird Surveys 2012 Cooks Brook Study Area, Nova Scotia

Peak Breeding Survey - June 14, 2012

PC#:	3	7
UTM:	0475575, 4985266	0475653, 4985107
Date:	14-Jun-12	14-Jun-12
Sunrise:	5:28	5:28
Start Time:	5:09	5:34
Sky:	Overcast, light fog	Overcast, light fog
Precip/ Noise	No	No
W Speed:	<5 km/h	<5 km/h
Temp:	8°C	8°C
Habitat:	Centre of existing pit, gravel, open/cleared	Cleared, open gravel pit area, bordered by brook and mixed forest
PC#:	4	8
UTM:	0476001, 4985494	0476015, 4985375
Date:	14-Jun-12	14-Jun-12
Sunrise:	5:28	5:28
Start Time:	6:28	6:10
Sky:	Overcast, light fog	Overcast, light fog
Precip/ Noise	No	No
W Speed:	<5 km/h	<5 km/h
Temp:	8°C	8°C
Habitat:	Open, exposed aggregate, mixed - hardwood dominant	Lake, open gravel, some mixed forest
PC#:	5	9
UTM:	0475851, 4985360	0475754, 4985341
Date:	14-Jun-12	14-Jun-12
Sunrise:	5:28	5:28
Start Time:	6:48	7:05
Sky:	Overcast, light fog	Overcast, light fog
Precip/ Noise	No	No
W Speed:	<5 km/h	<5 km/h
Temp:	8°C	8°C
Habitat:	Edge of recent conifer dominant - cut over area	Mixed forest, hardwood dominant at edge of recent clearcut
PC#:	6	
UTM:	0475841, 4985221	
Date:	14-Jun-12	
Sunrise:	5:28	
Start Time:	5:51	
Sky:	Overcast, light fog	
Precip/ Noise	No	
W Speed:	<5 km/h	
Temp:	8°C	
Habitat:	At access road, mixed forest, along brook	

Attachment 4
2012 Bird Survey Lists

Early Bird Survey April 19, 2012 - Cooks Brook, Nova Scotia

MBCA	COSEWIC / NSESA At Risk Status	DNR Status (2012)	Species	Preferred Nesting Habitat*	Nesting Period **	Outside Footprint			Inside	Outside Footprint				Total No. of Individuals	
						PC1 Road-side	PC2 Road-side	PC3 Existing Pit	PC4 East pit	PC5 Cutover	PC6 River-side	PC7 Pit edge	PC8 Lake edge		
Y	N	Green	American Bittern	<i>Botaurus lentiginosus</i>	Salt water marshes.	May-mid July				1	1	1			3
Y	N	Green	Canada Goose	<i>Branta canadensis</i>	Islands (in lakes, marshes, or coastal bays)	Late April-late May				2					2
Y	N	Green	Wood Duck	<i>Aix sponsa</i>	Woodlands, cavities.	Late April-late June				4					4
Y	N	Green	American Black Duck	<i>Anas rubripes</i>	On ground, densely vegetated, near wetland.	Early April-early July				2	3	1			6
Y	N	Green	Common Merganser	<i>Mergus merganser</i>	Hollow trees, cavities, near water.	Early-late June						2			2
Intro	N	Green	Ring-necked Pheasant	<i>Phasianus colchicus</i>	Farming, suburban areas.	May-mid July		1		3	2				6
Y	N	Green	Ruffed Grouse	<i>Bonasa umbellus</i>	Woodlands, broad-leaved trees.	Late April-late June			1						1
Y	N	Green	Common/ Wilson's Snipe	<i>Gallinago gallinago</i>	Ground, sedge clumps.	Early May-mid July		1		1		1			3
Y	N	Green	Rock Pigeon	<i>Columba livia</i>	Buildings, concrete structures.	Mid January-mid September								1	1
Y	N	Green	Mourning Dove	<i>Zenaida macroura</i>	Open areas, nest in trees.	Early Apr. -mid Sept.			1				1		2
NSWA	N	Green	Great Horned Owl	<i>Bubo virginianus</i>	Platforms.	Late February-late April.				1		1			2
Y	N	Green	Belted Kingfisher	<i>Ceryle alcyon</i>	Near water.	May-June						2		1	3
Y	N	Green	Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Live poplar and birches and other trees decaying.	Late May-July						1			1
Y	N	Green	Northern Flicker	<i>Colaptes auratus</i>	Cavities.	Early May- early Aug.	2	2	1		4	1	2	2	14
Y	N	Green	Tree Swallow	<i>Tachycineta bicolor</i>	Cavities near lakes.	May-July	1	2							3
NSWA	N	Green	Blue Jay	<i>Cyanocitta cristata</i>	Trees.	Early May-mid July	4				2		1		7
NSWA	N	Green	American Crow	<i>Corvus brachyrhynchos</i>	Trees.	April-July	1	2	1	2	4	3	2	1	16
NSWA	N	Green	Common Raven	<i>Corvus corax</i>	Trees, cliffs, built structures.	Early March-late May							3	1	4
Y	N	Green	Black-capped Chickadee	<i>Parus atricapillus</i>	Nest cavities in rotted tree stumps.	Early May - mid Aug.	6	6		1	5	2	1		21
Y	N	Green	Red-breasted Nuthatch	<i>Sitta canadensis</i>	Cavities, dead trees, stubs.	Late May-early July								2	2
Y	N	Green	White-breasted Nuthatch	<i>Sitta carolinensis</i>	Tree cavities.	Mid May-Late July								1	1
Y	N	Green	Brown Creeper	<i>Certhia americana</i>	Mature forest, old dead trunks.	Mid May - early July						2			2
Y	N	Green	Winter Wren	<i>Troglodytes troglodytes</i>	Brush edges, fallen trees, roots.	Mid-May-Early June						1			1

Early Bird Survey April 19, 2012 - Cooks Brook, Nova Scotia

MBCA	COSEWIC / NSESA At Risk Status	DNR Status (2012)	Species	Preferred Nesting Habitat*	Nesting Period **	Outside Footprint			Inside		Outside Footprint			Total No. of Individuals	
						PC1 Road-side	PC2 Road-side	PC3 Existing Pit	PC4 East pit	PC5 Cutover	PC6 River-side	PC7 Pit edge	PC8 Lake edge		
Y	N	Green	Golden-crowned Kinglet	<i>Regulus satrapa</i>	Coniferous forest.	Early May-mid July					6				6
Y	N	Green	Hermit Thrush	<i>Catharus guttatus</i>	Ground.	Mid May-late Aug.	1	1		5	4	8	3	4	26
Y	N	Green	American Robin	<i>Turdus migratorius</i>	Everywhere.	Late Apr.-mid Sept.	4	12	4	20	10	5	5	3	63
Intro	N	Exotic	European Starling	<i>Sturnus vulgaris</i>	Cavities in trees, structures.	Late Apr.-July	12	5	8						25
Y	N	Green	Yellow-rumped Warbler (Myrtle)	<i>Dendroica coronata</i>	Forest with conifers.	Early May-early June	4		1		5	4	1	6	21
Y	N	Green	Palm Warbler os	<i>Dendroica palmarum</i>	Bogs, muskegs, low conifers.	Mid Mid-late July			1						1
Y	N	Green	Song Sparrow	<i>Melospiza melodia</i>	Shrubbery.	May-Aug.	4	4	2	8	6		4	4	32
Y	N	Green	Swamp Sparrow	<i>Melospiza georgiana</i>	Wetlands.	Late May-mid July			1	1		10	4	2	18
Y	N	Green	White-throated Sparrow	<i>Zonotrichia albicollis</i>	Ground at forest edge.	Mid May-mid Aug.						2	1		3
Y	N	Green	Dark-eyed Junco	<i>Junco hyemalis</i>	Forest edge.	Early May-late Aug.	1				6	1		1	9
NSWA	N	Green	Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Marshes with cattails.	May-July		2		3	4	4	2	1	16
NSWA	N	Green	Common Grackle	<i>Quiscalus quisula</i>	Trees, bushes, buildings in open areas.	Late April-July	4	1	3		5	3			16
Y	N	Green	Purple Finch	<i>Carpodacus purpureus</i>	Conifers.	Early June-mid Aug.	1			2		1			4
Y	N	Green	Pine Siskin	<i>Carduelis pinus</i>	Conifers.	Late April-early August	1		1						2
Y	N	Green	American Goldfinch	<i>Carduelis tristis</i>	Open.	Late June-mid Sept.		2	2		2				6
TOTAL							46	41	27	56	69	56	30	30	355
No. of Species		38	*Erskine 1992		**Tower 1980	heard at location but bird off-site or flyover									

Nocturnal Bird Survey April 19, 2012 - Cooks Brook, Nova Scotia

MBCA	COSEWIC/ NSESA At Risk Status	DNR Status (2012)	Species	Preferred Nesting Habitat*	Nesting Period **	Outside Footprint			Total No. of Individuals	
						PC1 Road-side	PC2 Road-side	PC3 Existing Pit		
Y	N	Yellow	Common Loon	<i>Gavia immer</i>	Open areas, near fresh water.	Early May-mid July	1			1
Y	N	Green	American Bittern	<i>Botaurus lentiginosus</i>	Salt water marshes.	May-mid July			2	2
Intro	N	Green	Ring-necked Pheasant	<i>Phasianus colchicus</i>	Farming, suburban areas.	May-mid July		1	3	4
Y	N	Green	Common / Wilson's Snipe	<i>Gallinago delicata</i>	Marshes, bogs, tundra, wet meadows.	Early May-mid July		2	4	6
Y	N	Green	American Woodcock	<i>Scolopax minor</i>	Broad-leafed forests, swamp edges.	Early April-late May	4	6	6	16
NSWA	N	Green	Great Horned Owl	<i>Bubo virginianus</i>	Platforms.	Late February- late April.	4		4	8
NSWA	N	Green	Long-eared Owl	<i>Asio otus</i>	Conifers, broad-leafed.	Early April-mid June	1	1		2
TOTAL							10	10	19	39
No. of Species		7		*Erskine 1992	**Tower 1986		heard at location but bird off-site or fly-over			

Peak Breeding Summary June 14, 2012 - Cooks Brook, NS

MBCA	COSEWIC / NSESA At Risk Status	DNR Status (2012)	Name	Species	Preferred Nesting Habitat*	Nesting Period **	Outside Footprint	Inside		Outside Footprint			Inside	Total No. of Individuals
							PC3 Existing Pit	PC4 East pit	PC5 Cut-over	PC6 River-side	PC7 Pit edge	PC8 Lake edge	PC9 Edge of cut over	
Y	N	Yellow	Common Loon	<i>Gavia immer</i>	Ground, near lakes	Early May-mid July	1					1		2
Intro	N	Green	Ring-necked Pheasant	<i>Phasianus colchicus</i>	Farming, suburban areas.	May-mid July	1							1
Y	N	Green	Mourning Dove	<i>Zenaidura macroura</i>	Open areas, nest in trees.	Early Apr. -mid Sept.	2		1				1	4
Y	N	Green	Belted Kingfisher	<i>Ceryle alcyon</i>	Near water.	May-June	1	2			1			4
Y	N	Green	Northern Flicker	<i>Colaptes auratus</i>	Cavities.	Early May- early Aug.		1				1		2
Y	N	Green	Eastern Wood-Pewee	<i>Contopus virens</i>	Open forest.	Early June-early Sept.		1						1
Y	N	Green	Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	Ground in conifer moss.	Mid June-early Aug.	4					1		5
Y	Threatened COSEWIC	Yellow	Barn Swallow	<i>Hirundo rustica</i>	Structures, cliffs.	Late May-July						1		1
Y	N	Green	Alder Flycatcher	<i>Empidonax alnorum</i>	Low in shrubbery.	Mid June-mid Aug.	6				10	5	20	41
Y	N	Green	Least Flycatcher	<i>Empidonax minimus</i>	Broad-leafed woods.	Early June-mid Aug.					1			1
Y	N	Green	Tree Swallow	<i>Tachycineta bicolor</i>	Cavities near lakes.	May-July		1	1					2
Intro	N	Green	Blue Jay	<i>Cyanocitta cristata</i>	Trees.	Early May-mid July			4		1			5
Intro	N	Green	American Crow	<i>Corvus brachyrhynchos</i>	Trees.	April-July	2		1		1		1	6
Intro	N	Green	Common Raven	<i>Corvus corax</i>	Trees, cliffs, built structures.	Early March-late May		2			1			3
Y	N	Green	Black-capped Chickadee	<i>Parus atricapillus</i>	Nest cavities in rotted tree stumps.	Early May - mid Aug.	1	4	6	2	3	2	5	23
Y	N	Green	Red-breasted Nuthatch	<i>Sitta canadensis</i>	Cavities, dead trees, stubs.	Late May-early July		1	2				1	4
Y	N	Green	Golden-crowned Kinglet	<i>Regulus satrapa</i>	Coniferous forest.	Early May-mid July			2		1		3	6
Y	N	Green	Ruby-crowned Kinglet	<i>Regulus calendula</i>	Conifers.	Mid May-early July		2					2	4
Y	N	Green	Veery	<i>Catharus fuscescens</i>	Ground.	Mid May-mid July		1						1
Y	N	Green	Swainson's Thrush	<i>Catharus ustulatus</i>	Tree.	Late May-late July					1			1
Y	N	Green	Hermit Thrush	<i>Catharus guttatus</i>	Ground.	Mid May-late Aug.		2	1	3	1	1	2	10
Y	N	Green	American Robin	<i>Turdus migratorius</i>	Everywhere.	Late Apr.-mid Sept.	10	4	5	3		2	3	27
Y	N	Green	Cedar Waxwing	<i>Bombycilla cedrorum</i>	Open woods.	Mid June-early Sept.			11					11
Intro	N	Exotic	European Starling	<i>Sturnus vulgaris</i>	Cavities in trees, structures.	Late Apr.-July	3							3

Peak Breeding Summary June 14, 2012 - Cooks Brook, NS

MBCA	COSEWIC / NSESA At Risk Status	DNR Status (2012)	Name	Species	Preferred Nesting Habitat*	Nesting Period **	Outside Footprint	Inside		Outside Footprint			Inside	Total No. of Individuals
							PC3 Existing Pit	PC4 East pit	PC5 Cut-over	PC6 River-side	PC7 Pit edge	PC8 Lake edge	PC9 Edge of cut over	
Y	N	Green	Solitary Vireo (Blue-headed)	<i>Vireo solitarius</i>	Forest.	Late May-late July	5		1			1	1	8
Y	N	Green	Red-eyed Vireo	<i>Vireo olivaceus</i>	Forest.	Early June-early Aug.	6	3	2	2		2	2	17
Y	N	Green	Nashville Warbler	<i>Vermivora ruficapilla</i>	Open woods/shrubs	Late May-late July				1				1
Y	N	Green	Northern Parula Warbler	<i>Parula americana</i>	Bearded lichen in conifer.	Late May-early Aug.	3	1	1	3		3	1	12
Y	N	Green	Yellow Warbler	<i>Dendroica petechia</i>	Edges and disturbed areas.	Late May-July	2			2		3		7
Y	N	Green	Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	Low shrubs, raspberry canes.	June-July	2					1		3
Y	N	Green	Magnolia Warbler	<i>Dendroica magnolia</i>	Conifers.	Early June-late July	7		2			1	2	12
Y	N	Green	Yellow-rumped Warbler (Myrtle)	<i>Dendroica coronata</i>	Forest with conifers.	Early May-early June		3	3	1		1	2	10
Y	N	Green	Black-throated Green Warbler	<i>Dendroica virens</i>	Mixed or coniferous forest.	Early June-mid July							3	3
Y	N	Green	Blackburnian Warbler	<i>Dendroica fusca</i>	Conifers.	Mid June-late July	1	1	2	4		2	1	11
Y	N	Green	Black-and-white Warbler	<i>Mniotilta varia</i>	Ground among tree roots.	Early June-mid July	1			2		1	2	6
Y	N	Green	American Redstart	<i>Setophaga ruticilla</i>	Small trees.	Late May-late July	2	3		5	8	5	1	24
Y	N	Green	Ovenbird	<i>Seiurus aurocapillus</i>	Ground.	Late May-late July	2	1				1	1	5
Y	N	Green	Northern Waterthrush	<i>Paruline des ruisseaux</i>	Stumps, roots near water	Late May-late June	1							1
Y	N	Green	Common Yellowthroat	<i>Geothlypis trichas</i>	Brushy areas.	Late May-late July	5		1	4			1	11
Y	N	Green	Chipping Sparrow	<i>Spizella passerina</i>	low tree, shrub.	Mid May-mid Aug.		1						1
Y	N	Green	Song Sparrow	<i>Melospiza melodia</i>	Shrubbery.	May-Aug.	4	1	2	2		2	1	12
Y	N	Green	Swamp Sparrow	<i>Melospiza georgiana</i>	Wetlands.	Late May-mid July	3			2	2	7		14
Y	N	Green	White-throated Sparrow	<i>Zonotrichia albicollis</i>	Ground at forest edge.	Mid May-mid Aug.	3		5	2			2	12
Y	N	Green	Dark-eyed Junco	<i>Junco hyemalis</i>	Forest edge.	Early May-late Aug.		1	2				2	5
NSWA	N	Green	Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Marshes with cattails.	May-July	7			3		1		11
NSWA	N	Green	Common Grackle	<i>Quiscalus quisula</i>	Trees, bushes, buildings in open areas.	Late April-July	2	2	1		1	5		11
Y	N	Green	Purple Finch	<i>Carpodacus purpureus</i>	Conifers.	Early June-mid Aug.	2		1					3

Peak Breeding Summary June 14, 2012 - Cooks Brook, NS

MBCA	COSEWIC / NSESA At Risk Status	DNR Status (2012)	Name	Species	Preferred Nesting Habitat*	Nesting Period **	Outside Footprint	Inside		Outside Footprint			Inside	Total No. of Individuals
							PC3 Existing Pit	PC4 East pit	PC5 Cut-over	PC6 River-side	PC7 Pit edge	PC8 Lake edge	PC9 Edge of cut over	
Y	N	Green	Pine Siskin	<i>Carduelis pinus</i>	Conifers.	Late April-early August			1			2		3
Y	N	Green	American Goldfinch	<i>Carduelis tristis</i>	Open.	Late June-mid Sept.	2	1	3					6
TOTAL							91	39	61	57	21	73	35	377
No. of Species		49			*Erskine 1992	**Tower 1980	heard at location but bird off-site or fly-over							

APPENDIX F

ARCHAEOLOGICAL SCREENING & RECONNAISSANCE

GALLANT AGGREGATES LTD.

**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL
SCREENING & RECONNAISSANCE**

**ARCHAEOLOGICAL
SCREENING AND RECONNAISSANCE REPORT**

Submitted to:
Gallant Aggregates Ltd.
and the
Heritage Division

Prepared by:
Cultural Resource Management Group Limited
6040 Almon Street
Halifax, Nova Scotia
B3K 1T8

Consulting Archaeologist: Steve Garcin
Report Preparation: Steve Garcin

Heritage Research Permit Numbers: A2012NS031

CRM Group Project Number: 2012-0003-01

JUNE 2012



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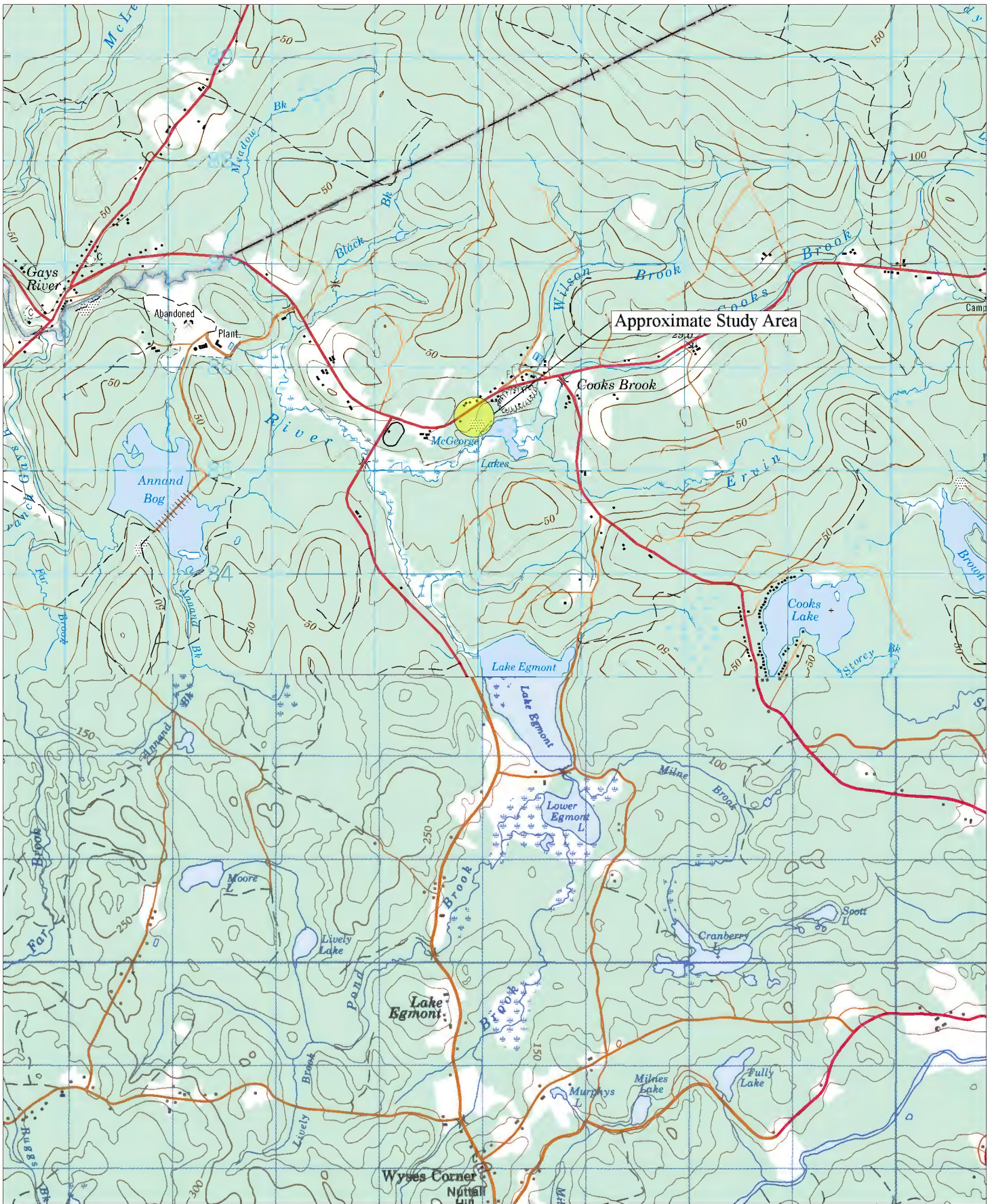
**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL SCREENING & RECONNAISSANCE
HALIFAX REGIONAL MUNICIPALITY**

1.0 INTRODUCTION

Gallant Aggregates Ltd. is proposing an expansion of its pit at Cooks Brook. In order to investigate the potential for encountering archaeological resources during development of the facility, Cultural Resource Management (CRM) Group has been retained by Conestoga-Rovers and Associates Ltd. (CRA), on behalf of Gallant Aggregates Ltd., to undertake archaeological screening and reconnaissance of the proposed pit expansion.

Background research and archaeological reconnaissance was directed by CRM Group Staff Archaeologist Steve Garcin with technical support provided by CRM Group President and Senior Consultant W. Bruce Stewart. Reconnaissance was carried out on April 17, 2012.

The archaeological investigation was conducted according to the terms of Heritage Research Permit A2012NS031 (Category 'C'), issued to Garcin by the Heritage Division of the Department of Communities, Culture and Heritage. This report describes the archaeological screening and reconnaissance of the Cooks Brook Pit Expansion development area, presents the results of these efforts and offers cultural resource management recommendations.



Approximate Study Area

Figure 1



**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL SCREENING AND RECONNAISSANCE**

June 2012

Scale 1:50,000

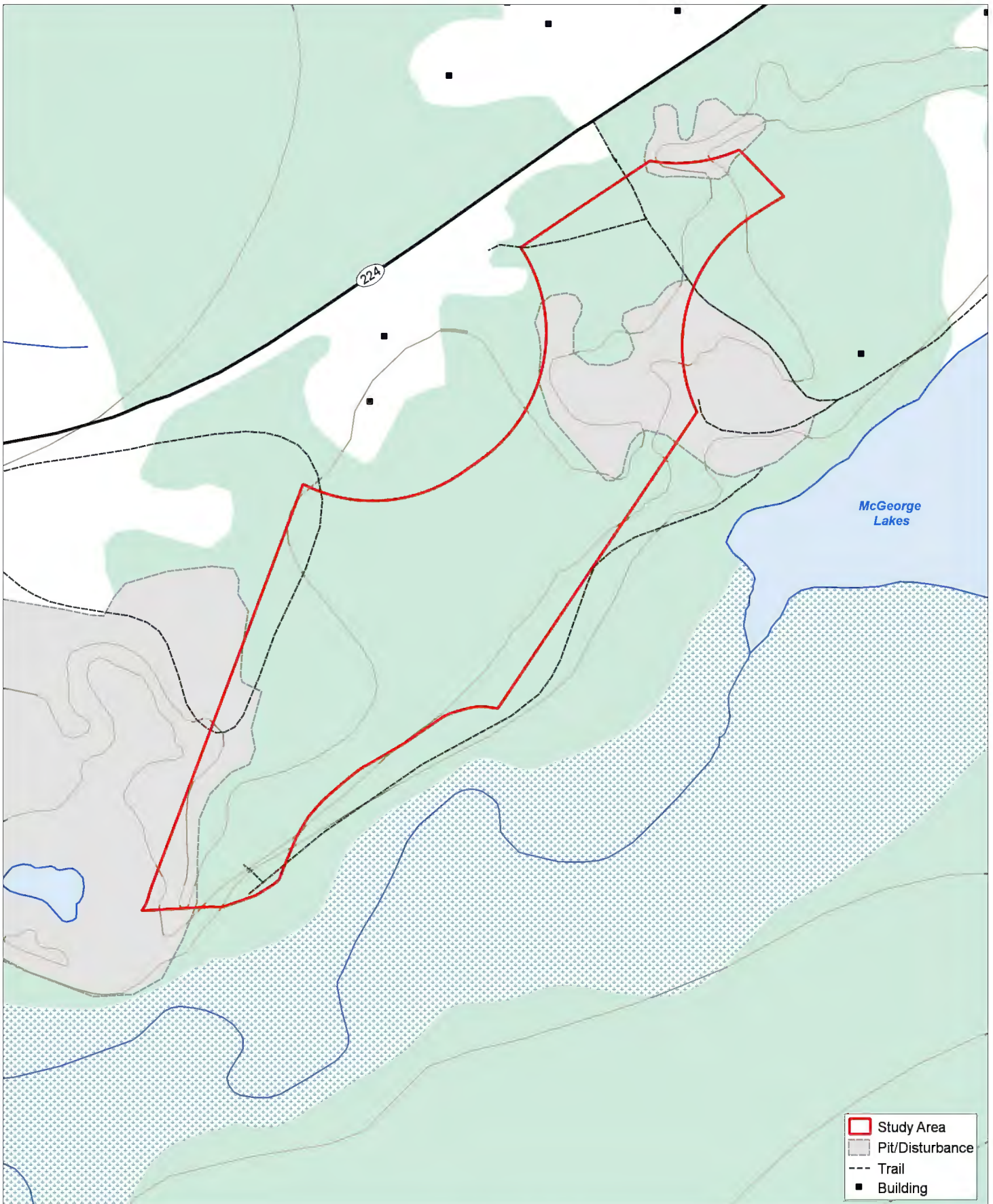
2.0 STUDY AREA

The Gallant Aggregates Pit is generally located within the community of Cooks Brook, situated within the Halifax Regional Municipality. The property is located on the north side of Cooks Brook, which is a tributary to Gays River, at McGeorge Lakes (**Figures 1 & 2; Plate 1**). Access to the property can be gained along Highway 224.

The 2012 archaeological study area consists of a single parcel of land situated along the watercourse (**Figure 2**). The area measures approximately 550 metres long and 150 metres wide, with a total impact area of 5.1 hectares.



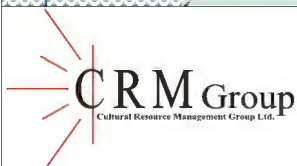
Plate 1. View of McGeorge Lakes from study area. Facing southeast. April 17, 2012.



- Study Area
- Pit/Disturbance
- Trail
- Building

Detailed Study Area

Figure 2



**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL SCREENING AND RECONNAISSANCE**

June 2012

Scale 1:3,000

3.0 METHODOLOGY

CRA, on behalf of Gallant Aggregates Ltd., retained CRM Group to undertake archaeological screening and reconnaissance of the proposed expansion area to the existing pit. The objective of the archaeological assessment was to evaluate archaeological potential within the property that may be disturbed by subsequent activities associated with the development of the pit. To address this objective, CRM Group developed a work plan consisting of the following components: a review of relevant site documentation to develop an archaeological potential model (screening); archaeological reconnaissance of the areas that may be impacted by development activities; and, a report summarizing the results of the background research and field survey, as well as providing cultural resource management recommendations.

3.1 Background Study

The archival research component of the archaeological screening and reconnaissance was designed to explore the land use history of the study area and provide information necessary to evaluate the area's archaeological potential. To achieve this goal, CRM Group utilized the resources of various institutions including documentation available through the Nova Scotia Archives, Nova Scotia Land Information Centre, the Department of Natural Resources and the Heritage Division.

The background study included a review of relevant historic documentation incorporating land grant records, legal survey and historic maps, as well as local and regional histories. Topographic maps and aerial photographs, both current and historic, were also used to evaluate the study area. This data facilitated the identification of environmental and topographic features that would have influenced human settlement and resource exploitation patterns. The historical and cultural information was integrated with the environmental and topographic data to identify potential areas of archaeological sensitivity.

3.2 Field Reconnaissance

The goals of the archaeological field reconnaissance were to conduct a visual inspection of the study area, document any areas of archaeological sensitivity or archaeological sites identified during the course of visual inspection, and design a strategy for testing areas of archaeological potential, as well as any archaeological resources identified within the study area. Although the ground search did not involve sub-surface testing, the researcher was watchful for topographic or vegetative anomalies that might indicate the presence of buried archaeological resources. The process and results of the field reconnaissance were documented in field notes and photographs.

A hand-held Global Positioning System (GPS) unit was used to record UTM coordinates for all survey areas, as well as any identified diagnostic artifacts, formal tools, isolated finds and site locations.

4.0 RESULTS OF SCREENING AND RECONNAISSANCE

4.1 Background Study

The following discussion details the environmental and cultural setting of the study area, as well as previous archaeological research conducted in the general area. This background study provides a framework for the evaluation of archaeological potential and the initial interpretation of any resources encountered during the field component of the assessment.

4.1.1 Environmental Setting

A number of environmental factors such as water sources, physiographic features, soil types and vegetation have influenced settlement patterns and contribute to the archaeological potential of the area.

Water Sources

Proximity to water, for both drinking and transportation, is a key factor in identifying Precontact and historic Native, as well as early Euro-Canadian, archaeological potential. The archaeological study areas are located on a tributary to Gays River, a slow-moving tributary of the Shubenacadie River, which would have been an important transportation corridor facilitating travel between the Minas Basin and the Atlantic Coast at Musquodoboit.

Topography

The Gallant Aggregates Pit Expansion study areas are located within the greater terrestrial region known as the Windsor Lowlands Unit – Shubenacadie River (Davis & Browne 1996: 100). As such, it is underlain by Early Carboniferous (Windsor Group) strata, predominately composed of gypsum, limestone, sandstone and siltstone. Indeed, a portion of the western study area displays obvious features of karst topography. The greater landscape can be described as an area of lowland plains with limited relief. However, the general topography of the Cooks Brook region varies from rolling to hilly, and elevation within the study areas ranges from approximately 15 metres to approximately 40 metres above sea level.

The study area is covered by *Hebert* series soils, which are found mainly along large rivers and streams. The parent material is gravel and interbedded sand and finer sediments of mixed origin. The topography varies from gently undulating to kame-type hills and river terraces. Many of these areas are easily cleared of surface stone and are farmed in numerous locations along the Musquodoboit and Gays rivers (MacDougall et al. 1963: 35-36)

Vegetation

Forest growth within this ecological region is characterized largely by coniferous species including red spruce, black spruce, balsam fir and eastern hemlock (Davis & Browne 1996: 102). The forest growth in the area is relatively open and has been subjected to some tree harvesting activity.

4.1.2 Native Land Use

The land within the study area was once part of the greater Mi'kmaq territory known as *Sipekne'katik*, meaning 'Wild Potato Area'. The area of Gays River was apparently known as *Wisunawon*, meaning 'Beaver Castor' (PANS 1967: 229). The rivers in the area would have been important transportation routes and a resource base for the Mi'kmaq and their ancestors for millennia prior to the arrival of European settlers. Gays River, as a tributary to the Shubenacadie, would have been part of a primary transportation route facilitating travel between the Minas Basin and the Atlantic coast at Musquodoboit Harbour (Sanders 1998: 5).

A review of the Maritime Archaeological Resource Inventory (MARI), a provincial archaeological site database maintained by the Heritage Division, determined that there are two Precontact archaeological sites within four kilometres of the study area. The Swimming Hole Site (BgCu-5), located approximately 3.7 kilometres to the northwest, is an isolated find consisting of a single quartz flake recovered from a shovel test. The site is situated on the southern side of Gays River. The Sinkhole Site (BgCu-6), located approximately 3.6 kilometres to the northwest, is a small Precontact habitation site occupying a narrow ridge between the north bank of Gays River and a relict river channel.

2007 Archaeological Mitigation of the Sinkhole Site (BgCu-6)

In 2007, plans for northward expansion of an existing surface mine called for diversion of a 300 metre segment of Gays River (Sanders et al. 2008). It was anticipated that the proposed diversion would involve ground disturbance in the area of the Sinkhole Site (BgCu-6). Consequently, CRM Group was retained in the summer of 2007 by CRA, on behalf of Acadian Mining Corporation, to undertake the excavation of the Sinkhole Site (BgCu-6). Mitigation of the site involved the manual excavation of 62 square metres, beginning at known resource areas and expanding outward to the limit of artifact concentrations.

CRM Group's mitigative archaeological excavation of the Sinkhole Site (BgCu-6) in 2007 determined that it was a relatively small habitation site occupied intermittently over a short period of time during the late Early Ceramic Period (*ca.* 2350 BP). Based on the fact that the site was excavated to the outer limit of its artifact concentrations, CRM Group recommended that the Sinkhole Site (BgCu-6) site be considered fully mitigated and cleared of any requirement for further archaeological investigation (Sanders et al. 2008). This recommendation was accepted by Heritage Division on March 5, 2009.

4.1.3 Historic Land Use

Attracted to the rich fertile soils typical of this region, Euro-Canadian settlement in the Cooks Brook area began in the late eighteenth century. Early settlement developed along the original road to Truro (Old Cobequid Road), which followed approximately the same route as the present Route 277 (Dawson 2009: 51-52). Its importance as an overland route steadily increased and by 1816 a regular stagecoach line was in operation facilitating travel between Halifax and Truro. With this service, Cobequid Road became one of the two "great roads" in the province (the other being the Windsor Road). In 1828, the Eastern Stage Coach Company was formed to carry mail and passengers from Halifax to Truro, and ultimately Pictou, three times a week. This

arrangement, with various modifications, continued under a variety of owners until the construction of the railroad in the mid-nineteenth century (Patterson 1877: 392).

The community of Cooks Brook received its name from William Cook, one of six settlers who received a total grant of 1700 acres on January 2, 1786 (PANS 1967: 144). An examination of historic mapping suggests that the study area is located primarily on land that was granted to John McGeorge and may partially occupy lands granted to William Cook (Crown Land Grant Sheet 74). The A.F. Church map, dating to 1865 (**Figure 3**), shows a structure with the associated name of “H. Bladey” located near the western boundary of the study area. However, this same structure does not appear on Faribault’s 1907 map of the area (**Figure 4**). No other historic structures appear to be located within, or immediately adjacent to the study area.

4.2 2012 Field Reconnaissance

Archaeological field reconnaissance of the Gallant Aggregates pit expansion area was conducted on April 17, 2012 under clear, warm conditions. Prior to inspection, the majority of the study area, except for a small portion in the northeast corner (east of the access road in the northeast corner of the study area), had been cleared of vegetation (**Plate 2**), which aided the visual inspection of the landscape. A number of areas within, and immediately adjacent to the study area, have previously been impacted by extraction activities (**Plates 3-5**). Numerous pits and mounds were also noted within the reforested portion of the study area, indicating some level of previous impact.



Plate 2. View of cleared study area. Facing southwest. April 17, 2012.



Faribault 1907

Figure 4

COOKS BROOK PIT EXPANSION
 ARCHAEOLOGICAL SCREENING AND RECONNAISSANCE

June 2012





Plate 3. View of disturbance at northeast corner of study area. Facing east. April 17, 2012.



Plate 4. View of disturbance within eastern portion of study area. Facing north. April 17, 2012.



Plate 5. View of disturbance at western edge of study area. Facing northwest. April 17, 2012.



Plate 6. View along existing trail just outside study area. Facing northeast. April 17, 2012.

The western portion of the study area consisted of undulating and sloping terrain that was mainly unsuitable for Precontact habitation. However, given the proximity to the watercourse, careful attention was paid to any level areas along the edge of the river terrace. An existing trail, located on the lower river terrace, closely followed the southern extent of the study area (*Plate 5*). Several areas of high archaeological potential were noted along this trail, but were located outside of the proposed study area.

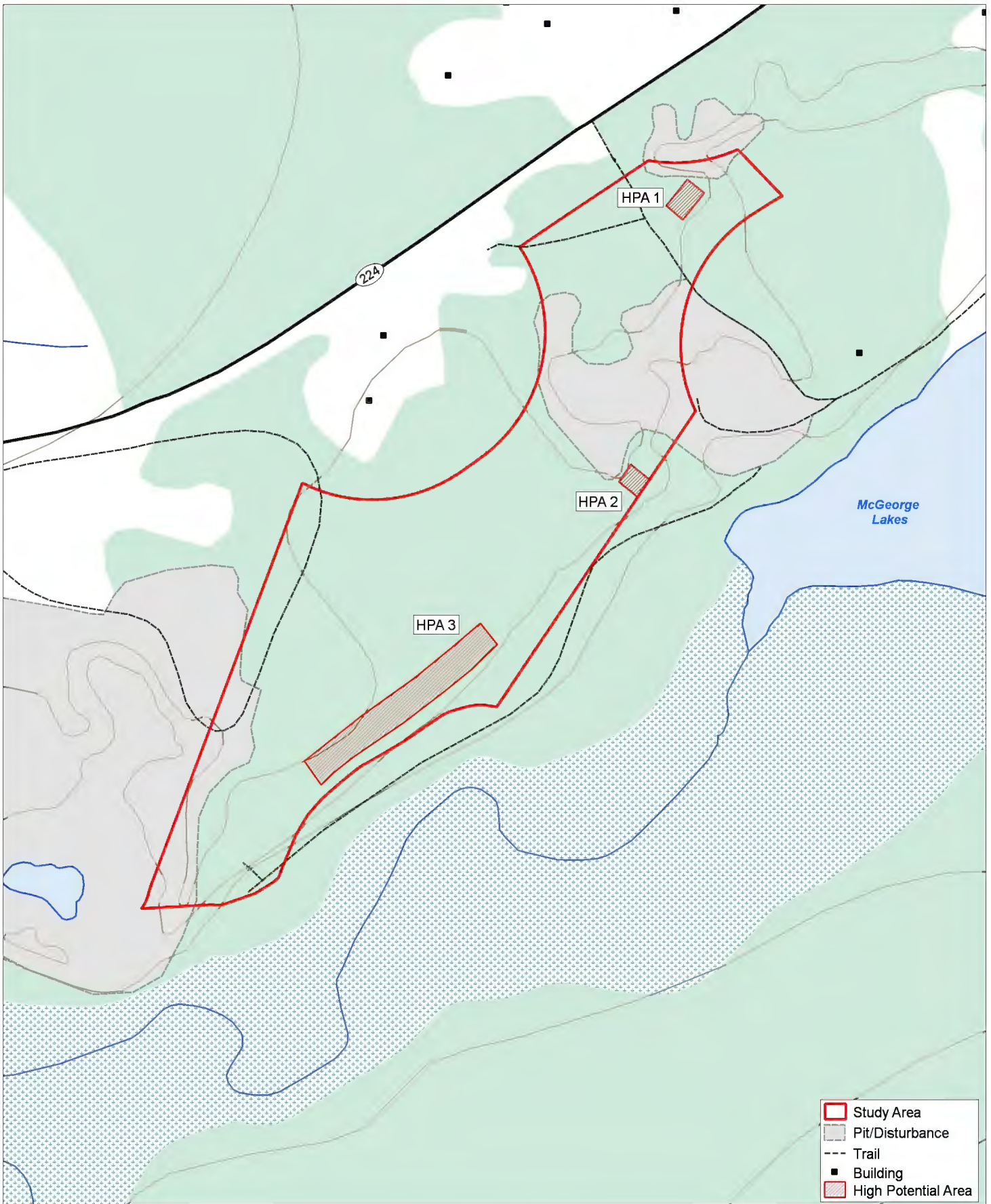
All areas of exposure from previous impacts, incidental impacts from vegetation clearing, tree throws and blowouts were examined and found to be devoid of artifacts. In total, three areas within the study area were deemed to exhibit high potential for Precontact and/or early historic native and historic Euro-Canadian archaeological resources (*Figure 5*). Each high potential area is described separately below.

High Potential Area 1:

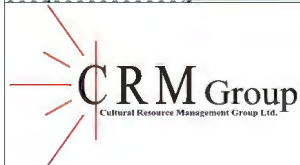
This area, located in the northeast corner of the study area (*Figure 5*), consists of level terrain that would have been suitable for historic Euro-Canadian utilization. The area, measuring approximately 20 metres by 10 metres, is centered on UTM coordinates 20T 476000E 4985555N. Visual inspection of the area revealed the presence of a possible historic feature (*Plate 7*). A squared-off mound of dirt resembling foundation remains are located at UTM coordinates 20T 475999 4985545. Given the dry and level nature of the locale and the presence of a potential historic feature, this area is considered to exhibit high potential for encountering historic archaeological resources.



Plate 7. Possible historic feature at High Potential Area 1. Facing south. April 17, 2012.



- Study Area
- Pit/Disturbance
- Trail
- Building
- High Potential Area



Survey Results

**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL SCREENING AND RECONNAISSANCE**

Figure 5

June 2012

Scale 1:3,000

High Potential Area 2:

This area, located along the southeastern limits of the study area, consists of a level point of land along the upper river terrace overlooking McGeorge Lakes where it flows into the river (**Figure 5; Plate 8**). The area would have been suitable for both Precontact and early historic Native or historic Euro-Canadian utilization. The area measure approximately 15 metres by 10 metres and is centered on UTM coordinates 20T 475971E 4985391N. Given the high, dry and level nature of the locale and its proximity to the watercourse, this area is considered to exhibit high potential for encountering both Precontact and historic archaeological resources.



Plate 8. View of High Potential Area 2. Facing southeast. April 17, 2012.

High Potential Area 3:

This area, located along the southern limits of the study area, consists of a long stretch of level ground at the edge of the upper river terrace overlooking the watercourse. As such, it would have been suitable for both Precontact and early historic Native or historic Euro-Canadian utilization (**Figure 5; Plate 9**). Extending from UTM Coordinates 20T 475887E 4985302N at the northeast extent to 20T 475784E 4985222N at the southwest, the area measures approximately 150 metres by 15 metres. Given the high, dry and level nature of the locale and its proximity to the watercourse, this area is considered to exhibit high potential for encountering both Precontact and historic archaeological resources.



Plate 9. View of High Potential Area 3. Facing northeast. April 17, 2012.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The 2012 archaeological screening and reconnaissance of the Cooks Brook Pit Expansion study area consisted of a review of relevant documentation related to the project area as well as a visual inspection of the study area. It did not involve sub-surface testing. Field reconnaissance conducted by CRM Group archaeologists identified three areas that exhibited high potential for encountering Precontact and/or early historic Native and historic Euro-Canadian archaeological resources.

Based on these results, CRM Group offers the following management recommendations for the study area:

1. It is recommended that if any of the areas of potential archaeological significance located within the study area, as identified in this report (High Potential Areas 1 - 3), are to be impacted in any future development of the Cooks Brook Pit Expansion, they be subjected to a program of shovel testing to determine whether or not buried archaeological resources are present and/or to determine the age, function and significance of identified features.
2. It is recommended that the remainder of the study area be cleared of any requirement for further archaeological investigation.
3. It is recommended that in the event that archaeological deposits or human remains are encountered during development activities associated with the Cooks Brook Pit Expansion, all work in the associated area(s) should be halted and immediate contact made with the Heritage Division (Laura Bennett: 424-6475).

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Communities, Culture
& Heritage

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B3H 3A6

August 29, 2012

Mr. Stephen Garcin
Cultural Resource Management Group Ltd.
6040 Almon Street
Halifax, NS B3K 1T8

Dear Mr. Garcin:

**RE: Heritage Research Permit Report
A2012NS031- Cooks Brook Quarry Expansion**

We have received and reviewed your report on work conducted under the terms of Heritage Research Permit A2012NS031 for an archaeological resource impact assessment of the proposed Cooks Brook Quarry expansion in Cooks Brook, Halifax Regional Municipality.

The report details the archaeological screening and reconnaissance of the proposed Cooks Brook Quarry expansion area by CRM Group Ltd., in April 2012. The screening and reconnaissance included background and historical research of the study area, including a review of environmental and topographic data, as well as visual inspection in the field. No sub-surface testing was undertaken. Three areas of high archaeological potential, which include possible historic and pre-contact components, were recorded.

Based on the above, the reporter recommends that if any of the areas of archaeological potential as identified in the report are to be impacted in future development, they should be subject to a program of shovel testing to determine whether or not buried archaeological resources are present and to determine age, function and significance. It is recommended that the remainder of the study area be cleared of any requirement for further archaeological investigation. In the event that archaeological deposits or human remains are encountered during development activities, all activity should stop and the Coordinator of Special Places contacted.

Staff concur with the recommendations and find the report acceptable as submitted. Please do not hesitate to contact me should you have any questions or concerns.

Sincerely,

Laura Bennett
Coordinator, Special Places

GALLANT AGGREGATES LTD.

**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL SHOVEL TESTING
HALIFAX REGIONAL MUNICIPALITY**

**ARCHAEOLOGICAL
SHOVEL TESTING REPORT**

Submitted to:

**Gallant Aggregates Ltd./Conestoga-Rovers & Associates
and the
Heritage Division**

Prepared by:

Cultural Resource Management Group Limited
6040 Almon Street
Halifax, Nova Scotia
B3K 1T8

Consulting Archaeologist: Sara Beanlands
Report Preparation: Sara Beanlands

Heritage Research Permit Numbers: A2012NS102

CRM Group Project Number: 2012-0003-02

SEPTEMBER 2012



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**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL SHOVEL TESTING
HALIFAX REGIONAL MUNICIPALITY
NOVA SCOTIA**

1.0 INTRODUCTION

Gallant Aggregates Ltd. is proposing to expand its aggregate pit at Cooks Brook, located within Halifax Regional Municipality. In order to address the potential for encountering archaeological resources during development of the facility, Conestoga-Rovers & Associates (CRA) retained Cultural Resource Management (CRM) Group Limited to undertake archaeological assessment of the proposed pit expansion area.

The initial archaeological assessment was conducted in April of 2012. Background research and field work, involving archaeological screening and reconnaissance, was conducted according to the terms of Heritage Research Permit A2012NS031, issued to CRM Group Staff Archaeologist Stephen Garcin by the Heritage Division of the Nova Scotia Department of Communities, Culture and Heritage. The 2012 screening and reconnaissance identified three areas that exhibited high potential for encountering significant archaeological resources. As a result, CRM Group recommended that any ground disturbance within the high potential areas be preceded by a program of shovel testing to determine whether or not buried archaeological resources were present.

In July of 2012, CRM Group was retained by CRA to undertake archaeological shovel testing of the high potential areas. The goal of the testing was to search for and evaluate existing archaeological resources in those areas, so that appropriate resource management strategies could be devised in light of the proposed development. The archaeological investigation was directed by CRM Group Staff Archaeologist Sara Beanlands and conducted according to the terms of Heritage Research Permit A2012NS102, issued to Beanlands by the Heritage Division. Field support was provided by Darryl Kelman. Archaeological investigations were carried out on July 25 and 26, 2012.

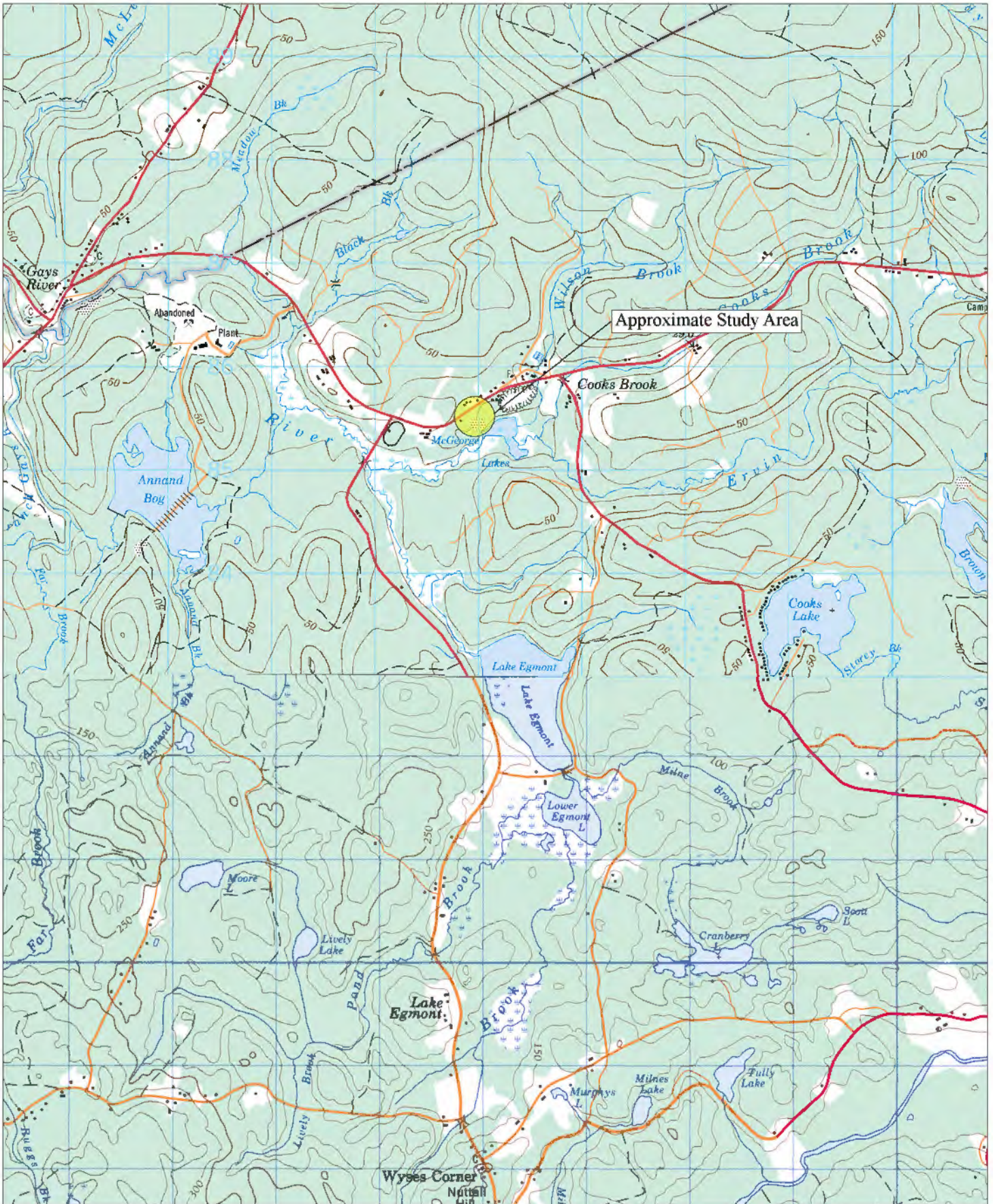
This report describes the archaeological shovel testing of the Cooks Brook Pit Expansion development area, presents the results of this effort and offers cultural resource management recommendations.

2.0 STUDY AREA

The existing Gallant Aggregates' pit is located within Halifax Regional Municipality, near the community of Cooks Brook. The greater study area, consisting of a single parcel of land approximately 550 metres long and 150 metres wide, is located on the northern side of Cooks Brook, a tributary of Gays River, at McGeorge Lakes (**Figure 1; Plate 1**). The shovel testing study areas constitute three small areas within the larger expansion footprint (**Figure 2**). Access to the property can be gained along Highway 224.



PLATE 1: View of McGeorge Lakes from High Potential Area 2; facing southeast. July 25, 2012.



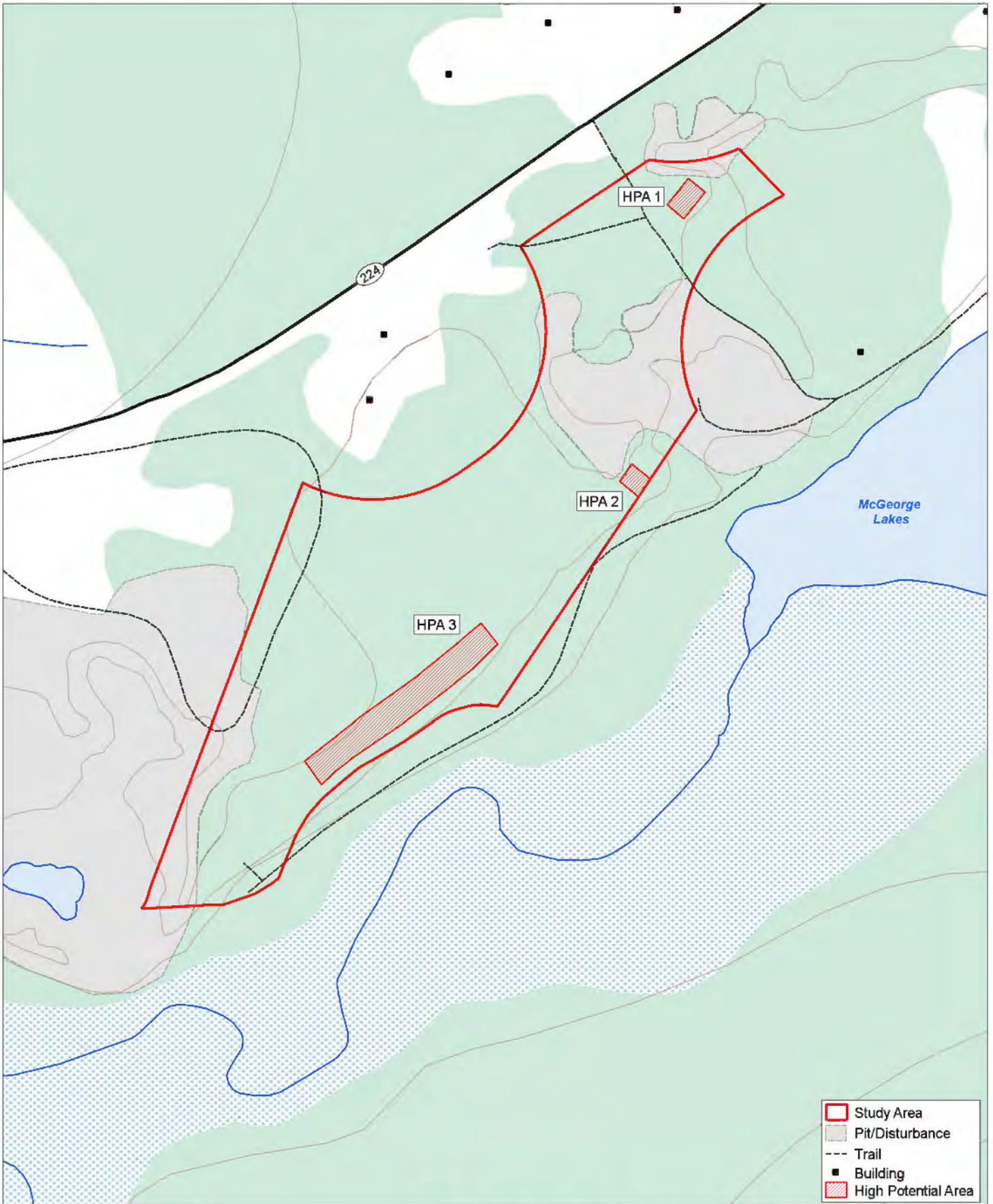
Study Area

**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL SHOVEL TESTING
HALIFAX REGIONAL MUNICIPALITY**

Figure 1

September 2012

Scale 1:50,000



High Potential Areas

**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL SHOVEL TESTING
HALIFAX REGIONAL MUNICIPALITY**

Figure 2

September 2012

Scale 1:3,000



3.0 METHODOLOGY

The objective of the archaeological assessment was to determine whether or not buried archaeological resources were present within the areas of high archaeological potential identified during the archaeological screening and reconnaissance by means of systematic sub-surface testing. A baseline was established across each selected testing area to standardize and document the location of shovel tests and to facilitate detailed recording of findspots. The high potential areas were either systematically or subjectively shovel tested. Due to the irregular nature of the terrain, it was not necessary or possible to test all areas on a formal 5 metre grid.

Shovel test pits, averaging 40 centimetres in diameter, were excavated through the topsoil into subsoil (*Plate 2*). All soil removed from the shovel tests was screened through 6 millimetre mesh hardware cloth in order to standardize artifact recovery (*Plate 3*). Once the backdirt was screened, it was returned to the hole, tamped and capped (where possible) by the original sod plug. Details of the testing program were documented in field notes, site plans, stratigraphic drawings and photographs. A hand-held Global Positioning System (GPS) unit was used to record UTM coordinates within the study area. All coordinates use NAD 83 as datum.



PLATE 2: Shovel test excavation. July 25, 2012.

PLATE 3: Screening soil. July 25, 2012.

4.0 BACKGROUND STUDY

The following discussion is based on background research previously compiled by CRM Group for Heritage Research Permit A2012NS031 and details the environmental and cultural setting of the study area. This background study provides a framework for the evaluation of archaeological potential and the initial interpretation of any resources encountered during the shovel testing program.

4.1 Environmental Setting

A number of environmental factors such as water sources, physiographic features, soil types and vegetation have influenced settlement patterns and contribute to the archaeological potential of the area.

Water Sources

Proximity to water, for drinking, resource exploitation and transportation, is a key factor in identifying Precontact and historic Native, as well as early Euro-Canadian, archaeological potential. The study area is located along Cooks Brook, a tributary of Gays River, which is itself a slow-moving tributary of the Shubenacadie River, an important transportation corridor facilitating travel between the Minas Basin and the Atlantic Coast at Musquodoboit.

Topography

The archaeological study area is located within the greater terrestrial region known as the Windsor Lowlands Unit – Shubenacadie River (Davis & Browne 1996: 100). Although the greater landscape constitutes an area of lowland plains with limited relief, the general topography of the study area can be described as gently undulating with river terraces, underlain by Early Carboniferous (Windsor Group) strata, predominately composed of gypsum, limestone, sandstone and siltstone.

Soils

The study area is covered by *Hebert* series soils, which are found primarily along large rivers and streams. The parent material is comprised of gravel, sand and finer sediments of mixed origin (MacDougall et al. 1963: 35-36). Hebert soils are used for a wide range of crops, and although the study area contains slightly stony soil, it is not enough to interfere with cultivation.

Vegetation

Forest growth within this ecological region is characterized by coniferous species including red spruce, black spruce, balsam fir and eastern hemlock (Davis & Browne 1996: 102). The forest growth within the study area is relatively open and has been subjected to extensive tree harvesting activity.

4.2 Native Land Use

The land within the study area was once part of the greater Mi'kmaq territory known as *Sipekne'katik*, meaning 'Wild Potato Area'. The region of Gays River was apparently known as *Wisunawon*, meaning 'Beaver Castor' (PANS 1967: 229). The rivers in the surrounding area would have been important transportation routes and a resource base for the Mi'kmaq, their ancestors and predecessors for millennia prior to the arrival of European settlers. Gays River, as a tributary to the Shubenacadie, would have been part of a primary transportation route facilitating travel between the Minas Basin and the Atlantic coast at Musquodoboit Harbour (Sanders 1998: 5).

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4.3 Historic Land Use

Attracted to the rich fertile soils typical of this region, Euro-Canadian settlement in the Cooks Brook area began in the late eighteenth century. Early settlement developed along the original road to Truro (Old Cobequid Road), which followed the same general alignment as the existing Route 277 (Dawson 2009: 51-52). Its importance as an overland route steadily increased and by 1816 a regular stagecoach line was in operation facilitating travel between Halifax and Truro. With this service, Cobequid Road became one of the two "great roads" in the province (the other

being the Windsor Road). In 1828, the Eastern Stage Coach Company was formed to carry mail and passengers from Halifax to Truro, and ultimately Pictou, three times a week. This arrangement, with various modifications, continued under a variety of owners until the construction of the railroad in the mid-nineteenth century (Patterson 1877: 392).

The community of Cooks Brook received its name from William Cook, one of six settlers who received a combined grant of 1700 acres in 1786 (PANS 1967: 144). An examination of historic mapping suggests that the study area is located primarily within land that was granted to John McGeorge, but may partially occupy lands granted to William Cook as well (Crown Land Grant Sheet 74). The 1865 A.F. Church map of Halifax County indicates the presence of a structure, identified with the associated name of “H. Bladey”, located near the western boundary of the study area (*Figure 3*). However, this same structure does not appear on Faribault’s 1907 geological map of the area (*Figure 4*). No other historic structures appear to be located within, or immediately adjacent to, the study area.

4.4 2012 Field Reconnaissance

The 2012 field reconnaissance identified three areas that exhibited high potential for encountering significant archaeological resources. As a result, CRM Group recommended that any ground disturbance within the high potential areas be preceded by a program of shovel testing to determine whether or not buried archaeological resources were present (Garcin 2012:17). This recommendation was accepted by Heritage Division on August 29, 2012.



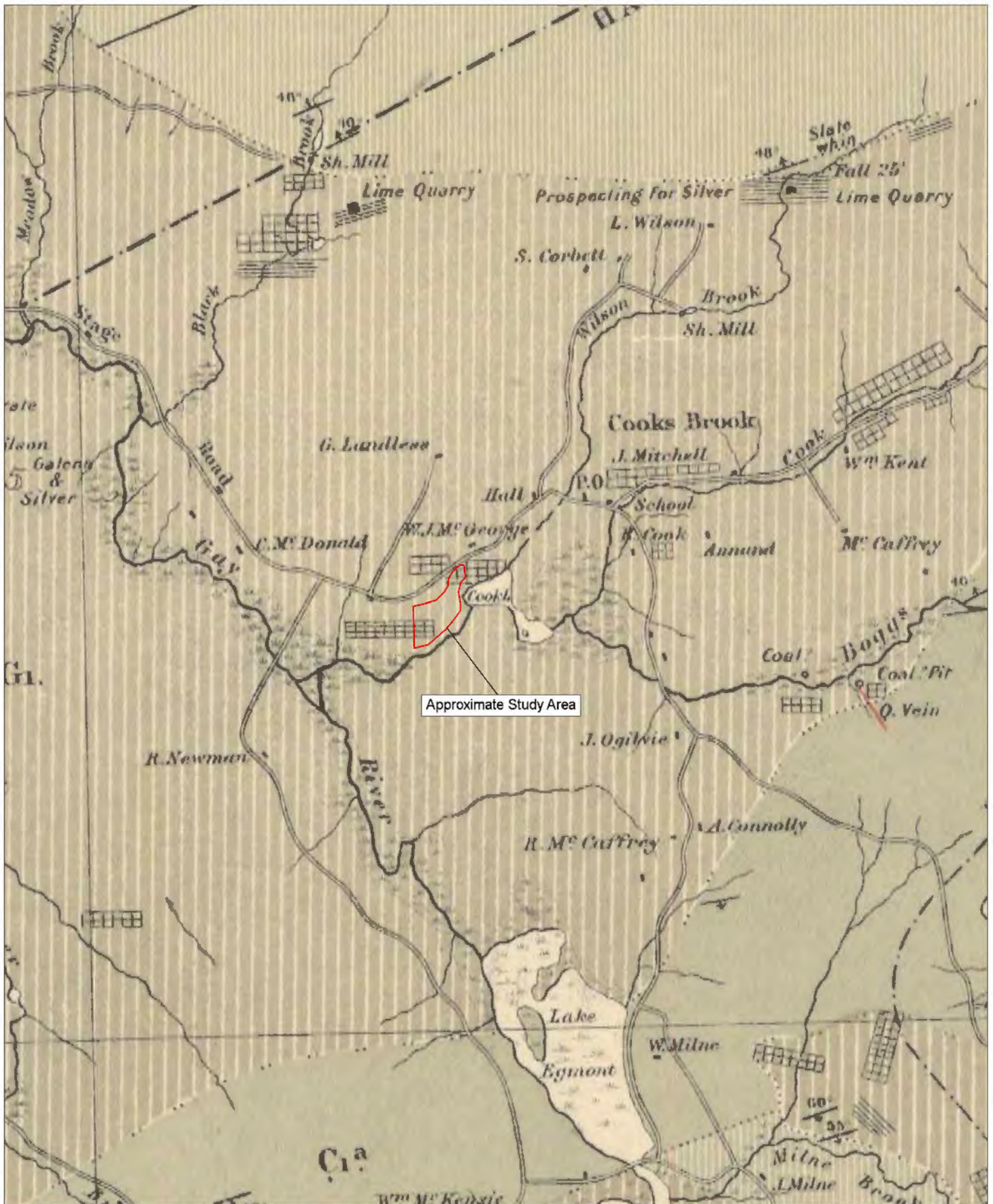
A.F. Church Map - Halifax County - 1865

Figure 3

COOKS BROOK PIT EXPANSION
 ARCHAEOLOGICAL SHOVEL TESTING
 HALIFAX REGIONAL MUNICIPALITY

September 2012





Approximate Study Area

Faribault 1907

Figure 4



COOKS BROOK PIT EXPANSION
 ARCHAEOLOGICAL SHOVEL TESTING
 HALIFAX REGIONAL MUNICIPALITY

September 2012

5.0 RESULTS

Archaeological investigations were carried out on July 25 and 26, 2012 under clear, warm conditions. Each of the three areas ascribed high potential for encountering archaeological resources was subjected to systematic and/or subjective shovel testing. Although the majority of the high potential areas were shovel tested on a formal 5 metre grid, the irregular nature of the terrain, including areas of dense forest slash and debris, made it impossible to test every 5 metre interval. The shovel testing results of each high potential area are discussed separately below.

High Potential Area 1:

High Potential Area 1 constitutes relatively level terrain that would have been suitable for historic Euro-Canadian utilization (**Figure 2**). The area, measuring approximately 20 metres by 10 metres, is centered on UTM coordinates 20T 476000E 4985555N. Initial visual inspection revealed the presence of a possible historic feature located at UTM coordinates 20T 475999 4985545 (**Plate 4**). Given the dry and level nature of the terrain, and the presence of an unidentified feature, this area was considered to exhibit high potential for encountering historic archaeological resources.



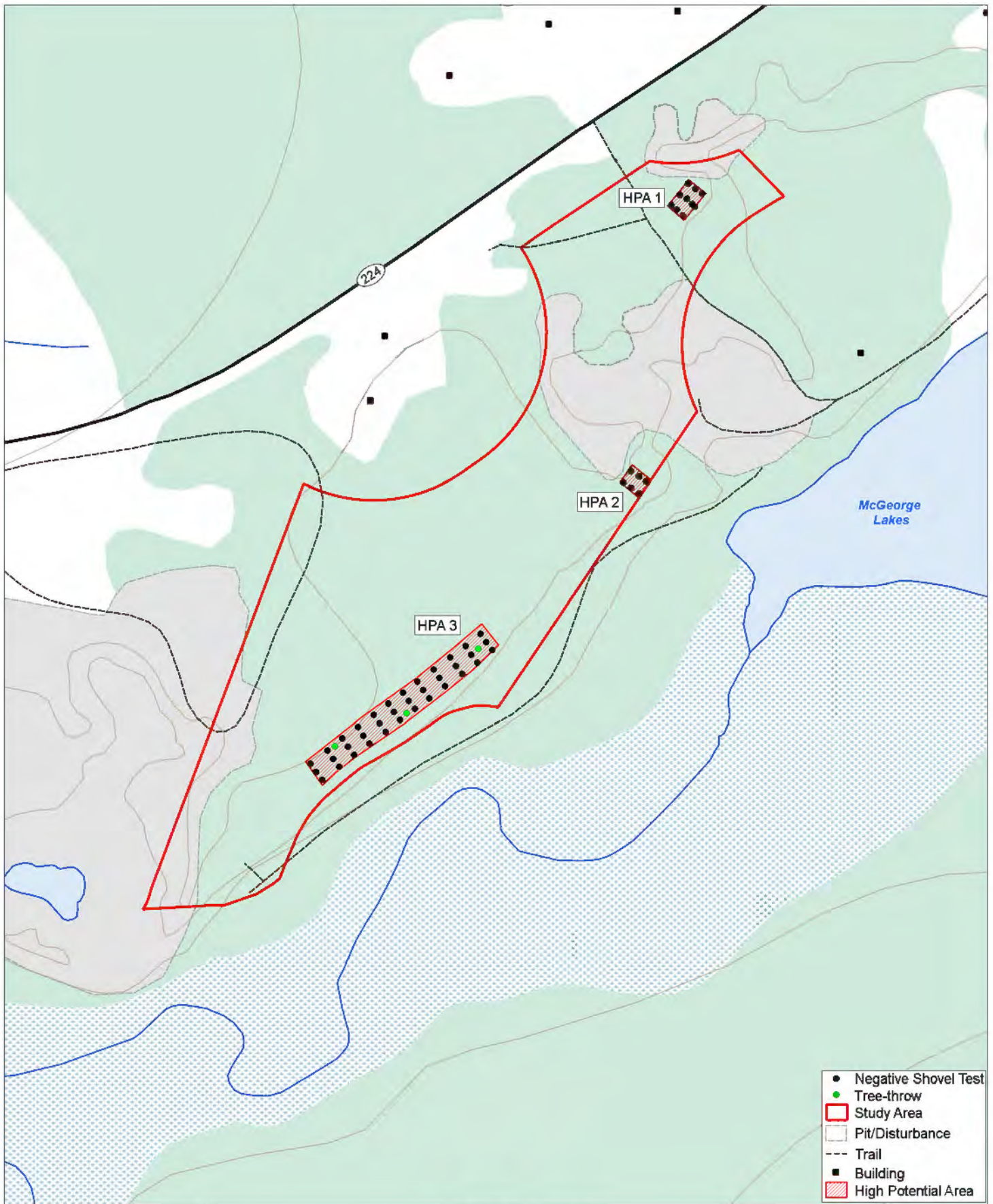
PLATE 4: Unidentified feature within High Potential Area 1; facing south. April 17, 2012.

Shovel testing of High Potential Area 1 was undertaken on July 25, 2012 (**Plate 5**). The southern end of a baseline, established along a north/south compass bearing, was assigned 0N, 0E and positioned roughly in the middle of the feature (**Figure 5**). Test pits were manually excavated, where possible, at 5 metre intervals across the high potential area. In general, the test pits revealed a thin forest mat overlying approximately 25 centimetres of gravelly sand. Dark orange sandy subsoil was generally encountered approximately 30 centimetres below surface. A total of ten shovel test pits were excavated with none yielding archaeological material. Given the presence of an obvious borrow pit located approximately 10 metres to the north, it was concluded that the feature is likely the result of mechanical disturbance and is not considered to be culturally significant.

Based on the results of the shovel testing program, High Potential Area 1 is considered clear of any significant archaeological resources or requirement for future archaeological investigation.



PLATE 5: Shovel testing High Potential Area 1; facing southwest. July 25, 2012.



- Negative Shovel Test
- Tree-throw
- ▭ Study Area
- ▭ Pit/Disturbance
- Trail
- Building
- ▨ High Potential Area



Shovel Testing

**COOKS BROOK PIT EXPANSION
ARCHAEOLOGICAL SHOVEL TESTING
HALIFAX REGIONAL MUNICIPALITY**

Figure 5

September 2012

Scale 1:3,000

High Potential Area 2:

High Potential Area 2 is a level point of land along the upper river terrace overlooking McGeorge Lakes where it flows into the river (**Figure 2; Plate 6**). The area, measuring approximately 15 metres by 10 metres, is centered on UTM coordinates 20T 475971E 4985391N. Given the high, dry and level nature of the terrain, and its proximity to the watercourse, this area was considered to exhibit high potential for encountering both Precontact and historic archaeological resources.

Shovel testing of High Potential Area 2 was undertaken on July 25, 2012 (**Plate 7**). Test pits were manually excavated, where possible, at 5 metre intervals across the high potential area, however, areas of dense forest slash and debris made it impossible to test every 5 metre interval (**Figure 5**). In general, the test pits revealed a thin forest mat overlying approximately 45 centimetres of gravelly sand. Dark orange subsoil was generally encountered approximately 50 centimetres below surface. A total of six shovel test pits were excavated with none yielding archaeological material.



PLATE 6: High Potential Area 2; facing southeast. July 25, 2012.



PLATE 7: Shovel testing High Potential Area 2; facing northeast. July 25, 2012.

Based on the results of the shovel testing program, High Potential Area 2 is considered clear of any significant archaeological resources or requirement for future archaeological investigation.

High Potential Area 3:

High Potential Area 3 consists of a long stretch of level ground at the edge of the upper river terrace overlooking the watercourse (**Figure 2; Plate 8**). As such, it would have been an appealing and suitable location for human occupation. Extending from UTM Coordinates 20T 475887E 4985302N at the northeast extent to 20T 475784E 4985222N at the southwest, the area measures approximately 150 metres by 15 metres. Given the high, dry and level nature of the terrain, and its proximity to the watercourse, this area was considered to exhibit high potential for encountering both Precontact and historic archaeological resources.

Shovel testing of High Potential Area 3 was undertaken on July 25 and 26, 2012 (**Plate 9**). Test pits were manually excavated, where possible, at 5 metre intervals across the high potential area, however, areas of dense forest slash and debris made it impossible to test every 5 metre interval (**Figure 5**). In general, the test pits revealed a thin forest mat overlying approximately 50 centimetres of gravelly sand. Dark orange subsoil was generally encountered approximately 55 centimetres below surface. A total of thirty-six shovel test pits were excavated with none yielding archaeological material. All areas of exposure from previous impacts, incidental impacts from vegetation clearing, tree throws and blowouts were examined and found to be devoid of artifacts.



PLATE 8: High Potential Area 3; facing northeast. July 26, 2012.



PLATE 9: Shovel testing High Potential Area 3; facing southwest. July 26, 2012.

Based on the results of the shovel testing program, High Potential Area 3 is considered clear of any significant archaeological resources or requirement for future archaeological investigation.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The 2012 archaeological assessment of the Cooks Brook Pit Expansion study area consisted of a program of shovel testing within three areas previously identified as exhibiting high archaeological potential to determine whether or not buried archaeological resources were present. A total of fifty-two shovel tests were manually excavated, where possible, at 5 metre intervals across the high potential areas with no test pits registering as positive for artifact recovery.

Based on these results, CRM Group offers the following management recommendations for the study area:

1. It is recommended that the study area be cleared of any requirement for further archaeological investigation.
2. It is recommended that in the event that archaeological deposits or human remains are encountered during development activities associated with the Cooks Brook Pit Expansion, all work in the associated area(s) should be halted and immediate contact made with the Heritage Division (Laura Bennett: 424-6475).

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