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MEMORANDUM

March 20, 2013

TO: Chair and Members of Halifax Watershed Advisory Board

SUBMITTED BY: Darrell Joudrey, Planner –Eastern Region, Development Approvals

DATE: March 13, 2013

SUBJECT: **Case 17463: Open Space Design Development Agreement – Seven Lakes, Porters Lake**

BACKGROUND

Genivar has submitted an application for a classic open space design development on lands in Porters Lake. The lands are located approximately 2 kilometres north of Exit 20 off Highway 107, east of Porters Lake, between Alps Road and Conrod Settlement Road. The lands are currently undeveloped and tree covered. The applicant wishes to develop a 634 unit residential community containing a mix of dwelling types (Attachment A). To enable the proposed open space design development Harbour East-Marine Drive Community Council must approve a proposed development agreement.

Open Space Design Development

With the adoption of the Regional Plan and Regional Subdivision By-law in 2006, the as-of-right subdivision of land in most unserviced areas throughout HRM is now limited to 8 lots unless subdivision was approved prior to 2006. New residential subdivisions beyond 8 lots may only be considered through the open space design approach that conserves open space by locating homes on portions of the lands which are best suited for development while retaining the remainder of the property as common open space.

Policy S-16 allows for the classic, or cluster, form of open space design development that protects culturally and environmentally sensitive areas by clustering dwellings on 40% of the lands and conserving the remaining 60% as common open space. The permitted density is limited to one dwelling unit per 4000 square metres, and services such as septic systems, wells and driveways are often communal.

Proposal

The applicant is proposing to develop a classic open space design through the development agreement process. Features of the development include:

- 634 dwelling units to be developed in seven phases;

- a mix of unit types: single unit dwellings, two unit dwellings, townhouse buildings up to 6 units and up to 10 multiple unit buildings containing a maximum of 20 units per building;
- public street connecting Alps Road to Conrod Settlement Road with clusters of residential dwellings off the public street;
- common shared private driveways by which residential dwellings access the public street;
- ownership of the development is proposed to be through condominium corporations;
- wells and septic systems will be shared between dwellings;
- retaining 6o % of the land for common open space to be used for conservation and passive recreation uses;
- public recreational facilities such as, community park (sports field), two lake access points, and two neighbourhood parks; and
- private parks, lake houses and trails.

MPS Policy

Under the Regional MPS, the subject lands are designated Rural Commuter that envisions a mix of low to medium density residential, commercial, institutional and recreational uses. Policy S-16 of the Regional Plan sets out the criteria by which Council must consider classic open space design development proposals. The policies focus on the importance of retaining important ecological and cultural features, while demonstrating there is sufficient groundwater and minimal overall disturbance to the site.

Community Visioning

Porters Lake is currently identified as a Rural Commuter centre under the Regional MPS and as such is to participate in a Community Visioning exercise. However, this process is now under the Regional MPS review. The comprehensive process was intended to determine boundaries, population targets, specific land uses, densities and implementation methods.

To assist the community in the Visioning exercise the Regional MPS provides for the preparation of a watershed management and servicing study of Porter's Lake to determine the assimilative capacity of Porter's Lake and the potential of providing municipal wastewater, stormwater and water distribution systems. The draft study has been presented to the community and a final version is being prepared.

Hydrogeological Assessment / Phasing

An important component of the policy evaluation involved a hydrogeological study to assess the adequacy of groundwater required to service the proposed development. Due to the total size and inaccessibility of the lands, it can be difficult to complete an assessment of the entire lands and may impact area that may be retained as common open space. Therefore the proposed development requires a supplementary hydrogeological assessment for each subsequent phase (Attachment B) to determine that the quality and quantity of ground water is adequate before development approvals can be issued for the future phases. Should future analysis determine that there is not adequate groundwater, the proposed development agreement requires the number of units in the subdivision to be reduced to a level that can be supported by the local aquifer

On-Site Water Distribution System

The Lands are proposed to be serviced through privately owned and operated on-site water distribution systems. The developer agrees to have a qualified professional prepare and submit

to Nova Scotia Environment, and any other relevant agency, the design of the on-site water distribution system. The following conditions regarding on-site water systems have been applied to the lands through the proposed Agreement:

- No well shall be located within 40 metres, or more where possible, of another well and shall not be located where a driller's yield of less than 2 gallons per minute is demonstrated.
- Dwellings shall be serviced by an alternative water storage system to accommodate 80% of the required daily water supply for the dwelling. Each dwelling shall be pre-plumbed to permit an internal water storage device sized to accommodate 80% of the required daily water supply for the dwelling.
- Each well system shall be equipped with a water metre and well pumps shall be restricted to withdrawal rates not to surpass the long term yield of 0.5 gallons per minute.
- The developer shall equip each dwelling unit, where necessary, with the water treatment facilities to the specifications of Nova Scotia Environment.
- The developer is responsible for implementing the maintenance plans for all water systems until such time as a condominium corporation or other responsible management entity is established and accepts responsible for all maintenance and repairs, in perpetuity.
- The developer shall be responsible for providing educational materials regarding the use and maintenance of the water systems to the residents of the development until such time as a condominium corporation or other responsible management entity is established and accepts legal responsibility for educating residents regarding the water systems, in perpetuity.

Porters Lake Watershed Study

The draft version of the Porters Lake watershed study has been presented to the community for input and is currently being finalized by the consultant, CBCL Limited. The study indicated that a larger portion of the lands, east of the watershed divide (Attachment C) under consideration through this application are tributary to the Chezzetcook Inlet via Chezzetcook Lake with the smaller remaining portion of the lands draining into the Porters Lake watershed. The draft study revealed the assimilative capacity of Chezzetcook Inlet has been reduced by high concentrations of E. coli to the point where Fisheries and Oceans closed areas of the inlet to shellfish harvesting a number of years ago. Clam enhancement and resource stabilization is allowing the industry to currently re-establish itself and areas of the Inlet are reopening to clam fishing once more. The initial sampling of Porters Lake, indicated in general, that the Lake had capacity to accommodate future development if measures are taken to reduce typical pollutant loads, such as phosphorous. In order to rectify an error encountered with the analysis of the water quality samples undertaken in 2011, the Porter's Lake had to be re-sampled in 2012. The results of that analysis will be brought forward to the Board for review in a Final Report later this Spring.

It is vital that within these watersheds, where water quality issues are extremely important, that an approach such as the classic or "cluster" form of open space design is proposed. This alternative to typical subdivision design is predicated on low impact development designed around the central organizing principle of conservation. Policies S-15 and S-16 in the RMPS reflects this by requiring a groundwater assessment, soil conditions to support sewage disposal, delineation of a non-disturbance area, and avoidance of riparian buffers, wetlands, steep slopes, and 1-in-100 year floodplains.

To further minimize the risk of generating additional sources of pollutants and to improve existing water quality where feasible, the proposed development agreement requires a stormwater management plan be prepared, erosion and sedimentation controls to be put in place during development of the lands, and the requirement for tertiary treatment and disinfection of wastewater effluent. The developer is required to prepare a Nutrient Management Plan for the lands to ensure that potential nitrogen and phosphorous loading, and also fecal coliform, is reduced from typical levels in stormwater runoff. The Plan will also address education and outreach to the residents. The proposed development agreement requires the landscaping plan and parkland development to correlate with and reinforce the Nutrient Management Plan. Lastly, the proposed development agreement requires water quality testing of Bell Lake and Fiddle Lake during the entire period of development of the lands with the understanding that if water quality issues arise whose source cannot be identified or addressed development must stop. Staff believe that the multi-faceted approach of the proposed development agreement to significantly minimize polluted runoff from the proposed development will reduce pollution impact upon receiving bodies of water in the watersheds in which the proposed development is located.

On-Site Sewage Treatment

The applicant is proposing three types of on-site septic systems described below and they will be located throughout the development in areas that minimize land use conflict. Staff believe that the indicated good quality soil conditions and the flexibility of choosing from three system types will adequately address criteria concern for appropriate sewage disposal.

- An organic peat filter where each dwelling has a septic tank for primary treatment and then several filters may be connected in parallel to form a semi-collective system and the effluent flows to the peat filter tank before delivery to a disposal field;
- A decentralized wastewater treatment system with each dwelling having their own tank for collection and primary waste treatment that is delivered to a recirculating tank and a textile filter for secondary treatment and flowed to a dispersal tank before discharge to sub-surface soil disposal; and
- A conventional sloping sand filter where each dwelling discharges wastes to an individual septic tank and the primary treated effluent is directed to a perforated pipe that disperses its load within a sloping sand bed under the soil.

These systems have a secondary level of treatment before the effluent is dispersed for further treatment and may be easily configured for tertiary treatment and disinfection by means of additional system components. If a system cannot achieve a tertiary level of treatment and disinfection before dispersal in accordance with Nova Scotia Environment's regulations as required by the proposed development agreement then its use is precluded in the proposed development.

Nova Scotia Environment is the regulatory agency for on-site systems. Approval requirements for wastewater treatment systems address management of such systems that provide a higher level of performance and, ultimately, improved environmental safety for on-site septic systems. Application for on-site septic systems approval includes a pre-design evaluation, pre-design report and, if the application is deemed acceptable to proceed, detailed design documentation to NSE is required. To address proper management of the treatment facility it must meet operating, monitoring, compliance and reporting requirements that are developed in the detailed study and a certified operator must be in place before approval to operate is given by the province. The

condominium corporations will assume management and operation of the proposed de-centralized on-site wastewater treatment facilities.

ENVIRONMENTAL PROTECTION MEASURES

Site Disturbance Plan

The developer is required to submit to the Development Officer a detailed Site Disturbance Plan, prepared by a professional Engineer indicating the sequence and phasing of construction and the areas to be disturbed or undisturbed.

Erosion and Sedimentation Control Plan

The developer is required to submit to the Development Officer a detailed Erosion and Sedimentation Control Plan prepared by a professional Engineer in accordance with the Erosion and Sedimentation Control Handbook for Construction Sites as prepared and revised from time to time by Nova Scotia Environment. No work is permitted on the Lands until the requirements of this condition have been met and implemented. The Erosion and Sedimentation Control Plan will indicate the sequence of construction, all proposed detailed erosion and sedimentation control measures and interim stormwater management measures to be put in place prior to and during construction.

Stormwater Management Plan

The developer is required to submit to the Development Officer a detailed Stormwater Management Plan prepared by a professional Engineer, including an appropriate stormwater collection and conveyance system. The Stormwater Management Plan shall identify structural and vegetative stormwater management measures, which may include infiltration, retention, and detention controls, wetlands, vegetative swales, filter strips, and buffers that will minimize adverse impacts on receiving watercourses during and after construction.

The land of the proposed Seven Lakes development contains seven (7) major watersheds ranging in size from 11.4 hectares to 246.0 hectares. The watersheds are comprised mainly of woodlands and open grassy fields containing wetlands and natural watercourses. Presently, runoff flows overland via sheet and shallow concentrated flow to one of the many watercourses or lakes located on the site. Post development, it is proposed that stormwater within the development will be discharged to open ditches and directed to watercourses located on or adjacent to the site. Attachments D and E provide a preliminary stormwater management plan indicating where stormwater will be directed and anticipated flows. The flows have been calculated based on the 10 year and 100 year Halifax rainfall events. Drainage patterns have been chosen to match pre-existing drainage boundaries to minimize impact on existing watersheds. It is anticipated that this type of open space development will provide a more sustainable stormwater solution, with less impact to the natural environment when compared to the conventional sub-urban subdivision development.

Nutrient Management Plan

The developer agrees to engage a qualified professional to prepare a Nutrient Management Plan that identifies the objectives and best management practices to control excess nutrients from non-point sources on the Lands as well as other non-point source pollutants such as sediments, bacteria and pesticides. The Plan shall be submitted for review by the Municipality and no work is permitted on the Lands until the requirements of this requirement have been satisfied.

Water Quality Monitoring Program

The developer agrees to submit a water quality monitoring program prepared by a qualified professional for Bell Lake and Fiddle Lake to track changes in the measurable quality of the lakes, most notably the eutrophication process. The program is to be designed in accordance with national guidelines established by the Canadian Council for Ministers of the Environment (CCME). The Municipality will select a consultant to be mutually agreed upon by the Municipality and developer to be engaged to carry out the monitoring and financed in whole by the developer. Specifics of the monitoring program are to be negotiated in consultation with HRM Energy and Environment and shall contain the following features:

- specify the duration of monitoring for the pre-construction, construction and post-construction phases of development. Pre-construction phase means a period of time before construction activity starts. Post-construction phase means two years beyond the period of time that commences at full build out of the area permitted by a development agreement. Construction phase means the full time period between the pre-construction and post-construction phase);

- specify the physical and chemical water quality parameters to be measured, the location and frequency of testing and the timing and format of submissions to the Municipality in each phase ;

- establish physical and chemical water quality threshold levels to measure against a change in trophic level which would be used as a basis for reevaluating watershed management controls and future development potential within the area. The threshold indicators are to be established prior to any development approvals being granted; and

- conform with all water quality policies, specifications, protocols and review and approval procedures approved by Regional Council.

The Municipality shall designate an Environmental Performance Officer (EPO) from HRM Energy and Environment to receive the test results of the monitoring program. The EPO shall submit the test results to the Developer and the Community Council within one (1) month of being received from the consultant.

In the event that water quality threshold levels for Bell Lake or Fiddle Lake are reached, the findings will be reported immediately to the developer and the Community Council at the next scheduled meeting. The developer agrees to pay all required costs for a qualified professional

selected by the Municipality and mutually agreed upon by the Municipality and the Developer who shall undertake an assessment and determine an appropriate course of action respecting watershed management and future land use development in the area. An assessment shall consider the CCME guidelines. The Municipality shall make all reports, including water quality thresholds and any assessment reports, provided to Community Council available to the public.

If the above assessment identifies continuing levels above the threshold levels the construction of permitted dwellings shall be stopped by the Development Officer who, in consultation with the EPO, shall issue no further permits until levels are restored to acceptable levels.

Issues Concerning the Halifax Watershed Advisory Board

In summary the application proposes:

- 634 new dwelling units;
- A new 7.1 kilometre public street;
- 60% of the subject property be held in common open space;
- 40% of the subject property be developable area where dwellings, common shared private driveways, driveways, accessory buildings, on-site septic treatment systems and shared wells will be located;
- Supplementary groundwater assessments as phases are developed;
- Tertiary treatment and disinfection of sewage effluent before NSE approved dispersal; and
- A number of environmental protection measures in the proposed development agreement.

Pursuant to the Board's terms of reference your input with respect to the potential impact on the area's watercourses is requested. Please find attached relevant Regional MPS (Attachment F) policies that the application will be evaluated under.

Darrell Joudrey

Attachments

Attachment A	Schedule B: Overall Concept Plan
Attachment B	Schedule C: Overall Phasing Plan
Attachment C	Map 2: Location and Zoning
Attachment D	Schedule P: Conceptual Stormwater Management Plan (Western)
Attachment E	Schedule Q: Conceptual Stormwater Management Plan (Eastern)
Attachment F	Relevant Policies from the Regional MPS

Attachment F: Relevant Policies from the Regional MPS

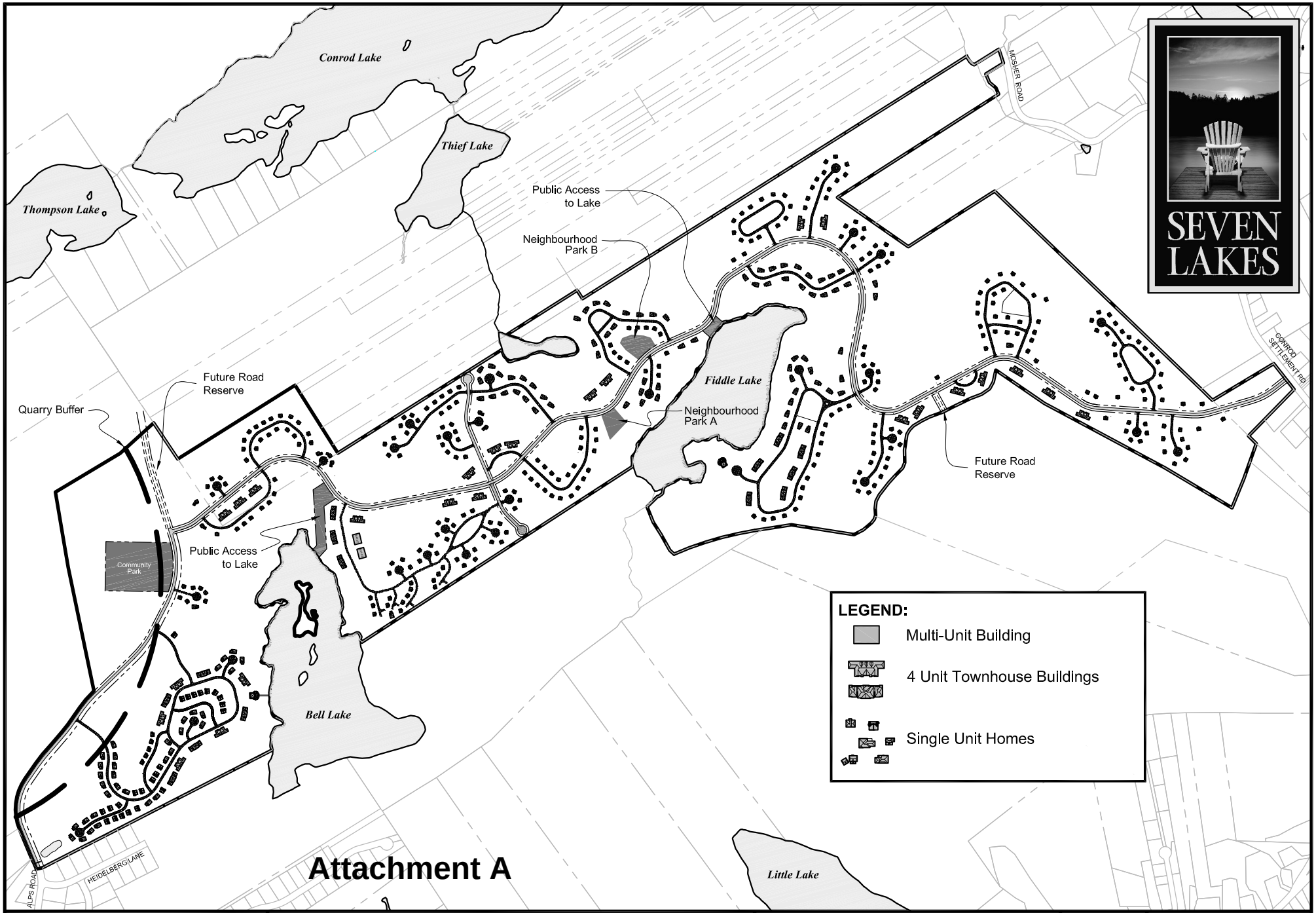
S-15 HRM shall permit the development of Open Space Design residential communities, as outlined in this Plan, within the Rural Commuter and Rural Resource designations and within the Harbour designation outside of the Urban Service Area, but not within the portions of the Beaver Bank and Hammonds Plains communities as identified in the Subdivision By-law under Policy S-25 and within the Rural Area Designation under the Eastern Passage/Cow Bay Plan Area. HRM will consider permitting the maximum density of such developments to one unit per hectare of gross site area. In considering approval of such development agreements, HRM shall consider the following:

(a)where the development is to be serviced by groundwater and as determined through a hydrogeological assessment conducted by a qualified professional, that there is an adequate supply of ground water to service the development and that the proposed development will not adversely affect groundwater supply in adjacent developments;
(b)that there is sufficient traffic capacity to service the development;
(c)the types of land uses to be included in the development which may include a mix of residential, associated public or privately-owned community facilities, home-based offices, day cares, small-scale bed and breakfasts, forestry and agricultural uses;
(d)whether soil conditions and other relevant criteria to support on-site sewage disposal systems can be met;
(e)the lot frontages and yards required to minimize the extent of road development, to cluster building sites on the parcel and provide for appropriate fire safety separations;
(f)that the building sites for the residential units, including all structures, driveways and private lawns, do not exceed approximately 20% of the lot area;
(g)approximately 80% of the lot is retained as a non-disturbance area (no alteration of grades, except for the placement of a well or on-site sewage disposal system in the non-disturbance area shall be permitted and provision shall be made for the selective cutting of vegetation to maintain the health of the forest);
(h)that the development is designed to retain the non-disturbance areas and to maintain connectivity with any open space on adjacent parcels;
(i)connectivity of open space is given priority over road connections if the development can be sited on the parcel without jeopardizing safety standards;
(j)trails and natural networks, as generally shown on Map 3 or a future Open Space Functional Plan, are delineated on site and preserved;
(k)parks and natural corridors, as generally shown on Map 4 or a future Open Space Functional Plan, are delineated on site and preserved;
(l)that the proposed roads and building sites do not significantly impact upon any primary conservation area, including riparian buffers, wetlands, 1 in 100 year floodplains, rock outcroppings, slopes in excess of 30%, agricultural soils and archaeological sites;

(m)the proposed road and building sites do not encroach upon or are designed to retain features such as any significant habitat, scenic vistas, historic buildings, pastoral landscapes, military installations, mature forest, stone walls, and other design features that capture elements of rural character;
(n)that the roads are designed to appropriate standards as per Policy T-2;
(o)views of the open space elements are maximized throughout the development;
(p)opportunities to orient development to maximize the capture of solar energy;
(q)the proposed residential dwellings are a minimum of 800 metres away from any permanent extractive facility;
(r)the proposed development will not significantly impact any natural resource use and that there is sufficient buffering between any existing resource use and the proposed development to mitigate future community concerns; and
(s) consideration be given to any other matter relating to the impact of the development upon surrounding uses or upon the general community, as contained in Policy IM-15.

S-16 Further to Policy S-15, within the Rural Commuter, Rural Resource and Agricultural Designations, HRM shall permit an increase in density for Open Space Design Developments up to 1 unit per 4000 square metres, or greater in centres as may be provided for in secondary planning strategies, where approximately 60% or more of the site is retained in single ownership of an individual, land trust, condominium corporation or the Municipality. Notwithstanding Policy E-5, the parkland dedication shall be relaxed to a minimum of 5% for this type of development. In considering approval of such development agreements, HRM shall consider the following:

(a) the criteria specified in Policy S-15, with the exception of items (f) and (g); and
(b)that the common open space cannot be used for any other purpose than for passive recreation, forestry, agriculture or conservation-related use except for a portion of which may be used as a village common for active recreation or the location of community facilities designed to service the development.



Attachment A

GENIVAR

SCHEDULE B: OVERALL CONCEPT PLAN

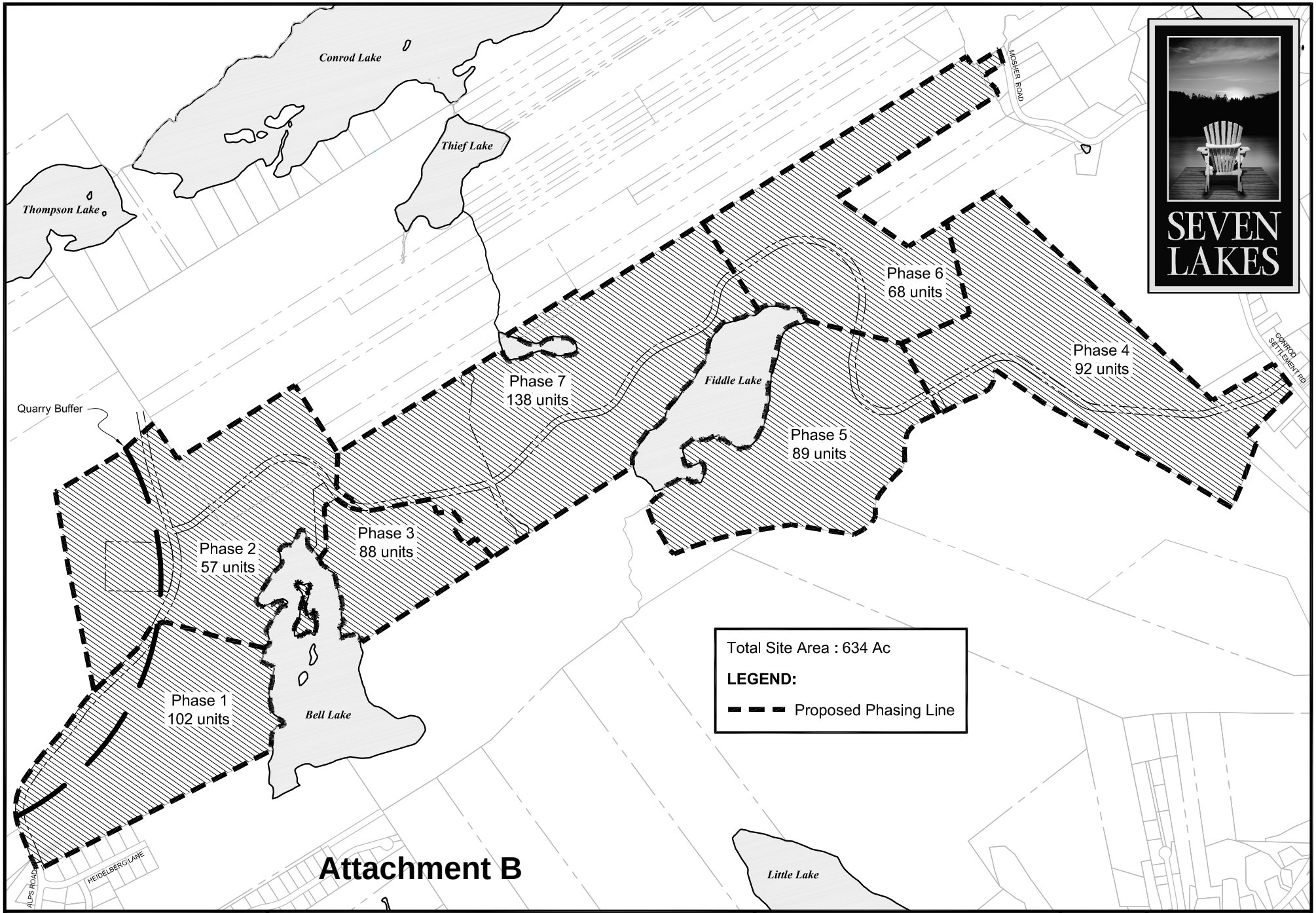
Porters Lake, Nova Scotia

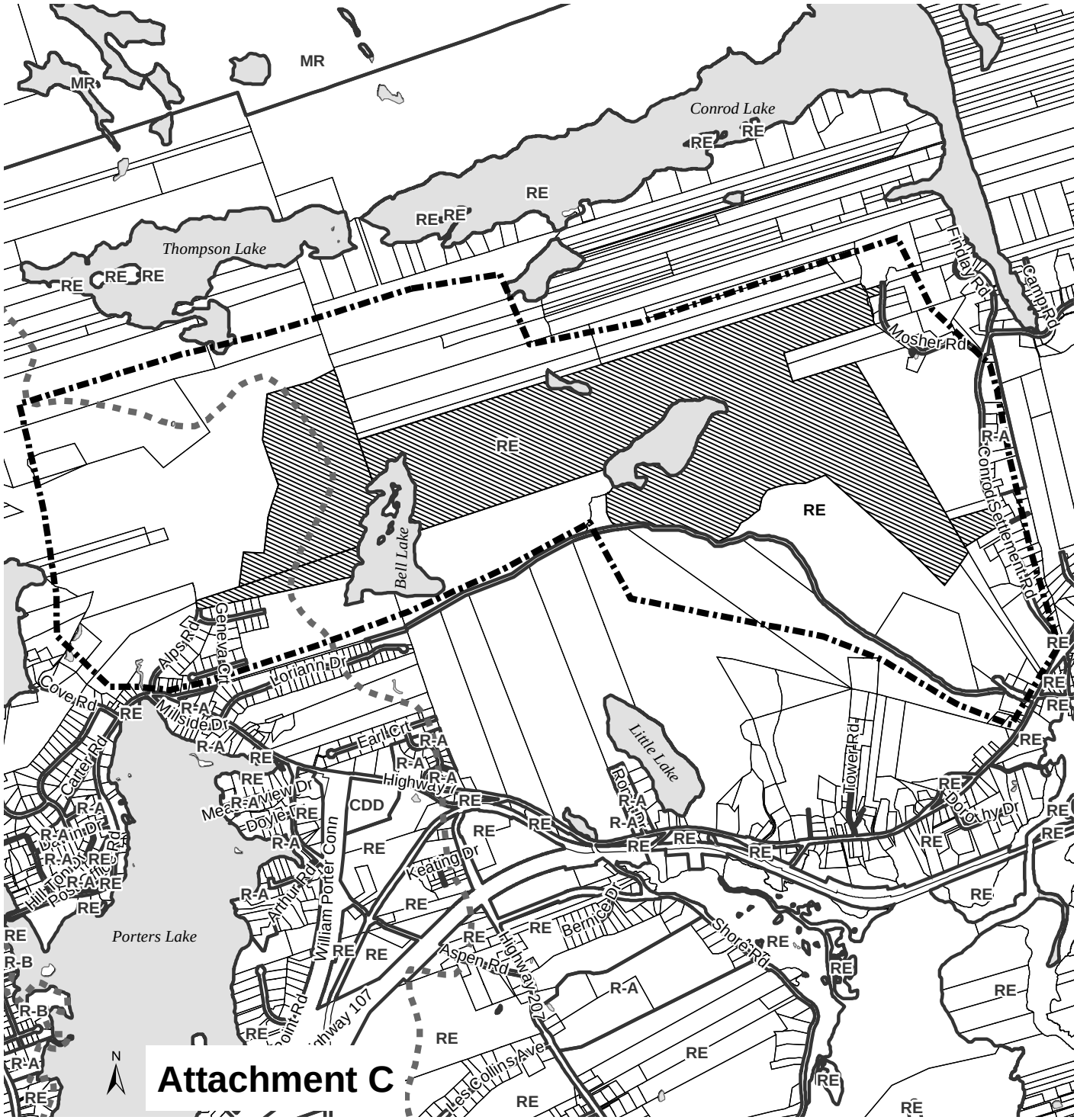
150 0 300 600m

SCALE: 1:15,000 METRIC

DATE: 07-MAR-2013

FILE: K:\DARTMOUTH\2009\D09278\DWG\CONCEPT\D09278100_V51_SCHEDULES.DWG Sheet:B Concept


Conrod Lake
Thief Lake
Thompson Lake
MOSHER ROAD
SEVEN LAKES
Phase 6
68 units
Phase 4
92 units
CONROD SETTLEMENT RD
Phase 7
138 units
Fiddle Lake
Quarry Buffer
Phase 5
89 units
Phase 2
57 units
Phase 3
88 units
Phase 1
102 units
Bell Lake
Total Site Area : 634 Ac
LEGEND:
Proposed Phasing Line
Attachment B
HEIDELBERG LANE
ALPS ROAD
Little Lake
GENIVAR
SCHEDULE C: OVERALL PHASING PLAN
Porters Lake, Nova Scotia
150 0 300 600m
N
SCALE:
1:15,000 METRIC
DATE:
07-MAR-2013
FILE: K:\DARTMOUTH\2009\D09278\DWG\CONCEPT\D09278100_V51_SCHEDULES.DWG Sheet:C Phasing



Map 2 - Location and Zoning

Subject Properties

Notification Area

Watershed Divide
Supplied by NSE

Planning Districts 8 & 9

Zone

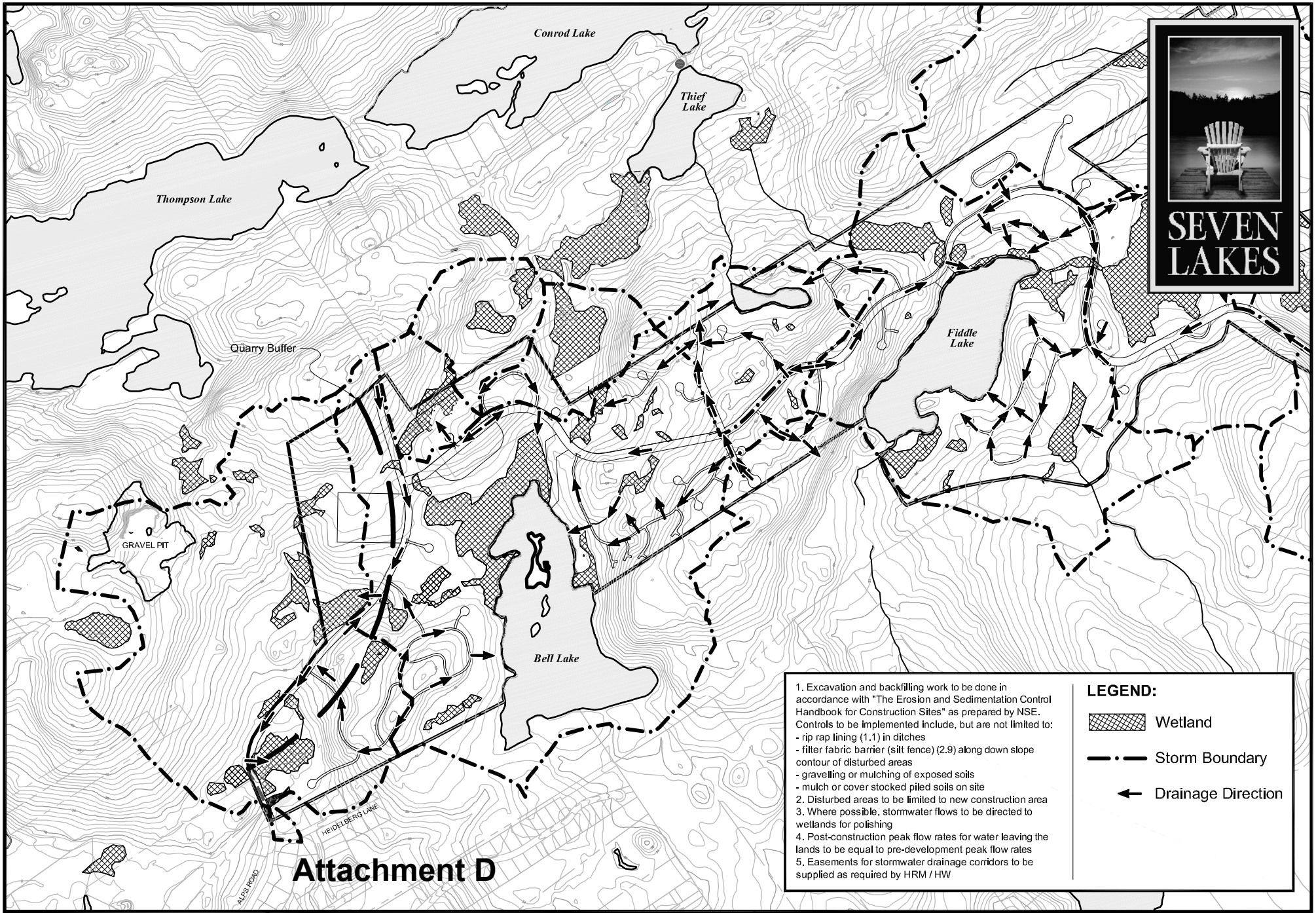
R-A	Residential A
RE	Rural Enterprise
CDD	Comprehensive Development District

HALIFAX
REGIONAL MUNICIPALITY
COMMUNITY & RECREATION SERVICES
DEVELOPMENT APPROVALS

0 650 1,300 2,600 3,900
Feet

This map is an unofficial reproduction of a portion of the Zoning Map for the Planning District 8 & 9 Plan Area.

HRM does not guarantee the accuracy of any representation on this plan.



GENIVAR

SCHEDULE P : CONCEPTUAL STORMWATER MANAGEMENT PLAN (WESTERN)

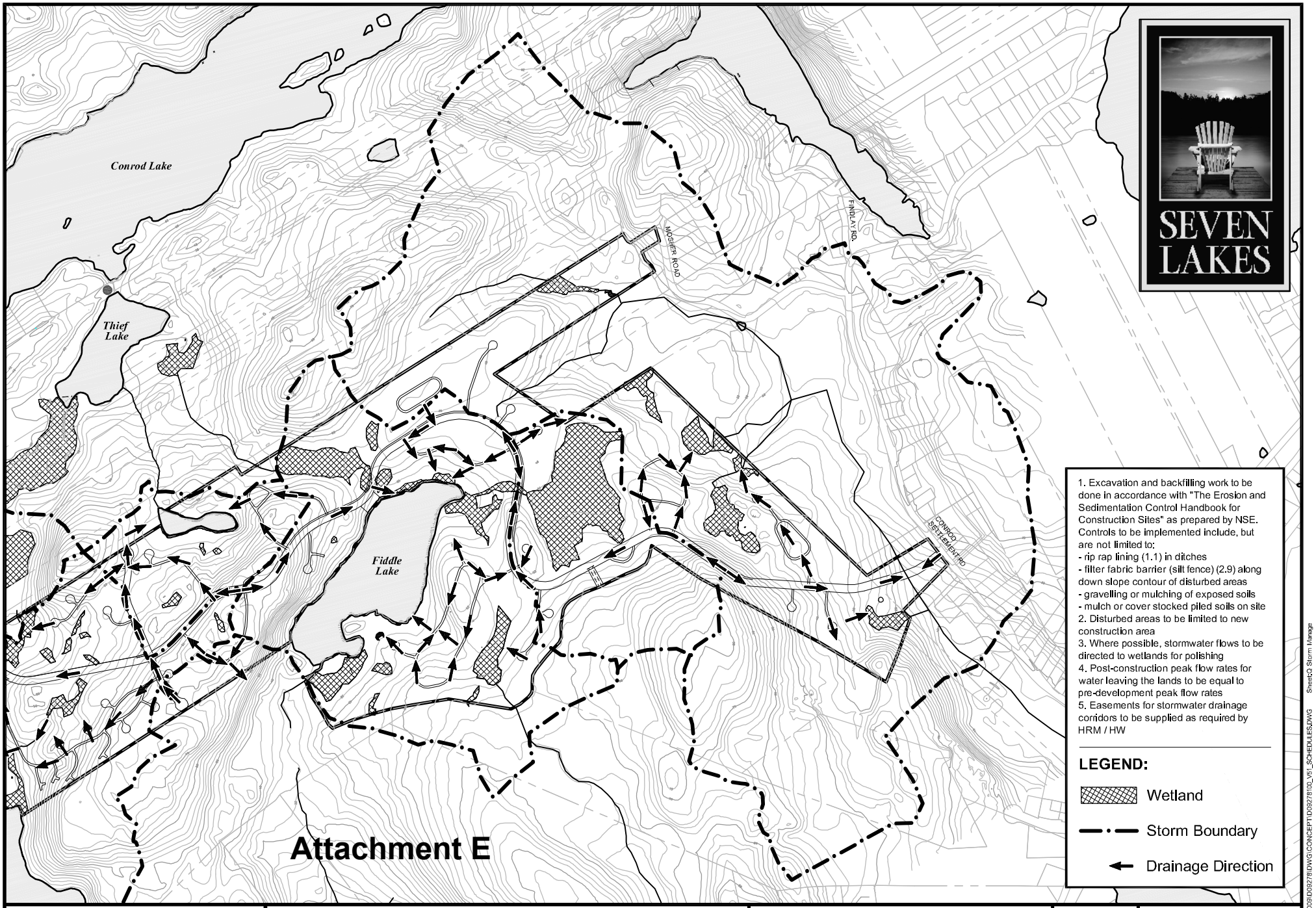
Porters Lake, Nova Scotia

150 0 300 600m

SCALE: 1:15,000 METRIC

DATE: 07-MAR-2013

FILE: K:\DARTMOUTH\2009\D09278\DWG\CONCEPT\D09278100_V51_SCHEDULE5.DWG Sheet:P Storm Manage



GENIVAR

SCHEDULE Q : CONCEPTUAL STORMWATER MANAGEMENT PLAN (EASTERN)

Porters Lake, Nova Scotia

150 0 300 600m

SCALE: 1:15,000 METRIC

DATE: 07-MAR-2013

FILE: K:\DARTMOUTH\2009\D09278\DWG\CONCEPT\D09278100_V51_SCHEDULES.DWG Sheet:Q Storm Manage