MUNICIPALITY OF BARRINGTON

SUBDIVISION BY-LAW

Approved by the Minister of Housing and Municipal Affairs on August 19, 1996

Office Consolidation – April 20 2010

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PART 1 - TITLE

1.01 This By-law may be cited as the Subdivision By-law for the Municipality of the District of Barrington which shall apply to all lands within the Municipality.

PART 2 - INTERPRETATION

2.01 In this By-law the word "shall" is mandatory and not permissive. Words used in the present tense shall include the future. Words used in the singular shall include the plural except where otherwise indicated and words used in the plural number shall include the singular. All other words shall carry their customary meaning except those defined hereinafter.

PART 3 - DEFINITIONS

3.01 **Act** means the **Municipal Government Act**, Chapter 18 of the Statutes of Nova Scotia and amendments thereto.

3.02 **Agreement** means a written contract entered into between the subdivider and the Municipality relating to the design and construction of municipal public roads as outlined in this By-Law.

3.03 **Area of Land** means any existing lot or parcel as described by its boundaries.

3.04 **Clerk** means the Clerk of the Municipality of the District of Barrington.

3.05 **Council** means the Council of the Municipality of the District of Barrington.

3.06 **Department of the Environment** means the Nova Scotia Department of the Environment and Labour.

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3.07 **Department of Transportation** means the Nova Scotia Department of Transportation and Public Works.

3.08 **Development Officer** means that person, appointed by the Council pursuant to the **Act,** and having the power and duty to administer this By-law.

3.09 **Engineer** means the engineer of the Municipality of Barrington and includes a person acting under the supervision and direction of the engineer.

3.10 **Frontage** shall be measured the same as required in the Land Use By-law.

3.11 **"K" Road** means a public road owned but not maintained by the Province and identified in Appendix "A" of this By-law.

3.12 **Land Use By-law** means the Land Use By-law for the Municipality of the District of Barrington.

3.13 **Lot** means any parcel to be created by the filing of a plan or instrument of subdivision.

3.14 **Lot Lines** means lot lines as defined in the Land Use By-law.

3.15 **Minister** means the Minister of Housing and Municipal Affairs.

3.16 **Mobile Home Park Sanitary Sewer** means a sewer and any appurtenances thereof which are privately owned and maintained by the park owner and which may be connected to municipal sewer.

3.17 **Municipality** means the Municipality of the District of Barrington.

3.18 **Municipal Planning Strategy** means the Municipal Planning Strategy for the Municipality of the District of Barrington.

3.19 **Municipal Sewer** means a sewer controlled by the Municipality.

3.20 **Private Road** means any road which is not public shown on a plan of subdivision which:

a) extends to and has access to a public road and where not totally located within the area of land being subdivided, the private road shall have an easement for right-of-way and access which has been clearly granted by deed, registered in the Registry of Deeds for the County of Shelburne; and

b) includes any private road approved by the Department of Transportation and shown on an approved plan of subdivision prior to the first day of August, 1987 and filed in the registry of deeds;

3.21 **Professional Engineer** means a registered member, in good standing, of the Association of Professional Engineers of Nova Scotia.

3.21 A **Proposed lot** means any lot being proposed to be created by a plan or instrument of subdivision, including a remainder lot;

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3.22 **Province** means Her Majesty the Queen in right of the Province of Nova Scotia.

3.23 **Public Road** includes any road owned and maintained by the Municipality or the Province; and

a) Municipal Public Road means any road owned and maintained by the Municipality;

b) Provincial Public Road means any road owned and maintained by the Department of Transportation excluding designated controlled access highways pursuant to Section 20 of the **Public Highways Act.**

3.24 **Registry of Deeds** means the office of the Registrar of Deeds for the County of Shelburne.

3.25 **Right-of-Way** means an easement for a right-of-way and access extending to and having access to a public road or water frontage.

3.26 **Sanitary Sewer** means a sewer receiving and carrying liquid and water carried

wastes and to which storm, surface or groundwaters are not intentionally admitted.

3.27 **Sewer** means a pipe or conduit for carrying sewage, groundwater, stormwater or surface runoff, and includes all sewer drains, storm sewers, clearwater sewers, storm drains and combined sewers vested in, or under the control of the municipality but does not include a mobile home park sewer.

3.28 **Subdivider** means the owner of the area of land proposed to be subdivided and includes anyone acting with the owner's written consent.

3.29 **Subdivision** means the division of any area of land into two or more parcels, and includes a resubdivision or a consolidation of two or more parcels.

3.30 **Surveyor** means a registered member, in good standing, of the Association of Nova Scotia Land Surveyors.

3.31 **Water Frontage** shall be measured the same as required in the Land Use By-law.

PART 4 - PROCEDURE FOR APPROVAL OF PLANS OR INSTRUMENTS OF SUBDIVISION

General

4.01 Application for approval of a plan or instrument of subdivision shall be made to the Development Officer in the form specified in Schedule "A" of this By-law.

4.02 The Development Officer shall comply with the notification and approval provisions of the **Act**.

4.03 A copy of a plan or instrument of subdivision shall be forwarded to:

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a) in areas not served by municipal sewer, the Department of the Environment to determine compliance with the **On-site Sewage Disposal Systems Regulations** except where the proposed lot:

i) is greater than 9000 square metres (96,878.4 square feet),

ii) has a width of 76 metres (249.3 feet*)* or more, and

iii) the applicant has certified on the application that the proposed lot is not intended for a purpose requiring an on-site sewage disposal system; or

iv) contains an on-site sewage disposal system and is being increased in size, provided all other proposed lots shown on the plan meet the requirements listed in subclause (i);

b) in areas served by a municipal sewer, the authority having jurisdiction for municipal sewer.

c) the authority having jurisdiction for public roads; and

d) any other agency of the Province or the Municipality which the Development Officer deems necessary.

4.03A **Amended July 27, 2004** A plan or instrument of subdivision that shows a proposed lot referred to in Sections 6.06, 7.06C, 8.05B and 8A.06B shall be forwarded to the Department of Environment for confirmation that the Department is in agreement that the proposed lot does not require an on-site sewage disposal system.

4.04 Any agency which has been forwarded a copy of the plan or instrument of subdivision pursuant to Section 4.03 shall forward a written report of their assessments or recommendations to the Development Officer.

4.05 Approval of a plan or instrument of subdivision may not be refused or withheld as a result of the assessment or recommendations made by the Department of the Environment, the Department of Transportation or any other agency of the Province or the Municipality unless the plan of subdivision is clearly contrary to a law of the Province or regulation made pursuant to a law of the Province, including any

applicable requirements for lot area and lot frontage contained in the Land Use By-law.

Approval of Tentative and Final Plans or Instruments of Subdivision

4.06 The Development Officer shall:

Amended July 27, 2004

a) forward a copy of the approved tentative plan of subdivision to the applicant and the surveyor.

b) forward an endorsed copy of the final plan or instrument to the applicant and surveyor.

Refusal of Tentative and Final Plans or Instruments of Subdivision

4.07 Where the Development Officer refuses to approve a tentative or final plan or instrument of subdivision, the Development Officer shall:

Amended July 27, 2004

a) notify the applicant pursuant to Section 277(3) of the **Act**, give reasons for refusal and advise the applicant of the appeal provisions of Section 284 of the **Act**; and

b) give notice of the refusal to all agencies which were forwarded a plan or instrument of subdivision pursuant to Section 4.03.

Execution of Other Conveyances Before Approval of Final Plans of Subdivision

4.08 A final plan of subdivision showing lots to be approved pursuant to Section 287(3) of the **Act** by special note on the plan shall:

a) identify such lots;

b) state the names of the grantor and the grantee of such lots; and

c) state the date, book and page number of the conveyance of such lots as recorded in the Registry of Deeds.

Fees

4.09 At the time of final application, the subdivider shall submit to the Development Officer the fees contained in the **Costs and Fees Act** and regulations made thereunder and, in the case of Subsection (c), pursuant to the **Act**, for

a) filing the endorsed final plan of subdivision or an amendment to a plan of subdivision, and registering a notice of approval of the plan,

b) registering an instrument of subdivision or an amendment to an instrument of subdivision; or

c) registering a repeal of a plan of subdivision; and

d) processing fees of $150.00 plus GST per final application for subdivision

approval and $50.00 plus GST per application to amend or repeal a plan or instrument of subdivision made payable by cheque or money order to the Municipality or in a form acceptable to the Municipality.

4.10 Where the Development Officer refuses to approve a final plan or instrument of subdivision or an amendment or repeal of a plan or instrument of subdivision, the Development Officer shall return the fees referred to in Section 4.09 (a), (b) and (c) to the subdivider.

Amended July 27, 2004

PART 5 - GENERAL PROVISIONS

Lots Access Requirements

5.01 In accordance with the zones established in the Land Use By-law lots to be subdivided shall abut and front upon a public road, Amended private road, "K" road; or

Title Amended Sept 23, 1997

a) are served by an existing right-of-way and where a new right-of-way is created, it shall have a minimum width of 20 feet where:

i) a maximum of one lot is created within an area of land which abuts a public road, private road, "K" road; or

ii) a maximum of two lots are created, both approved or one approved and one a remainder, within an area of land which does not abut a public road, private road, "K" road; or

b) have water frontage of a minimum width of 20 feet or are served by a right-of-way of a minimum width of 20 feet to water frontage where:

i) a maximum of two lots are created, both approved or one approved and one a remainder, within an area of land which is landlocked and the lots are not to be accessed other than by water; or

ii) the lots are created on an island that does not contain public roads, private roads or rights-of-way.

5.02 For the purposes of Clauses 5.01(a) and (b), "area of land" means any lot or parcel described by its boundaries as they existed on August 19, 1996, whether or not there has been any alteration to said boundaries subsequent to the aforementioned date.

Minimum Lot Requirements

5.03 All lots shall meet the applicable dimensions for minimum lot area and lot frontage contained in the Land Use By-law.

Lots Deemed to Meet Minimum Lot Area Requirements

5.04 Notwithstanding the minimum lot area requirements of Section 5.03, the Development Officer may approve a final plan of subdivision, where an authorized person of the Department of the Environment has assessed the proposed lots shown on a final plan of subdivision and approved such lots for the installation of on- site sewage disposal systems, such lots shall be deemed to meet the lot area requirements contained in the Land Use By-law.

5.05 Deleted Sept. 23/97

Relaxation of Minimum Lot Area and Frontage Requirements

5.06 Notwithstanding Section 5.03, the Development Officer may approve a maximum of two lots, shown on a final plan of subdivision, in accordance with Section 279 of the **Act**, having:

a) areas or frontages or both not less than 90 percent of the minimum required by the Land Use By-law provided the lots are served by a municipal sewer system; or

b) frontages not less than 90 percent of the minimum lot frontage required by the Land Use By-law provided the lots are served by on-site sewage disposal systems; and

c) provided, in all cases, that all other requirements of this By-law are met.

Lots for Special Uses

5.07 The Development Officer may approve a final plan of subdivision for a lot which is a maximum of 5,005 square feet in area for a special use permitted by the Land Use By-law, provided the lot does not contain an existing on-site sewage disposal system or is not to be connected to municipal sewer or a mobile home park sewer.

Lot Boundary Alterations

5.08 Notwithstanding Sections 5.01, 5.02 and 5.03 the Development Officer may approve a subdivision altering the boundaries of two or more areas of land where:

a) no additional lots are created; and

b) each lot meets the minimum dimensions for lot frontage as required by the Land Use By-law or has not had its frontage, if any, reduced; and

c) each lot meets the minimum dimension for lot area as required by the Land Use By-law or has not had its area reduced.

5.09 Where the proposed lot is not surveyed, the final plan of subdivision prepared pursuant to Section 5.08 shall:

a) be certified and stamped by a Nova Scotia Land Surveyor that the boundaries of the parcel proposed to be added to the existing area of land have been surveyed and shown as a heavy solid line, except the common boundary between the existing areas of land, which is surveyed and certified as being the common boundary and shown as a heavy broken line;

b) notwithstanding Section 8.03(b), other than the new boundaries which have been surveyed pursuant to Clause (a), show the remaining boundaries of the resulting lot for which approval is requested described graphically as a

lighter solid line; and

c) have the following notation, complete and signed by the surveyor, affixed to the plan adjacent to the certification required by the Nova Scotia Land Surveyors Act and regulations made under the **Act**.

NOTE: The only boundaries shown on this plan which have been surveyed are the boundaries of_____. The common boundary between the existing areas of land identified by _____and _____, which is shown by a heavy broken line, is hereby certified as having been the common boundary.

The remaining boundaries of resulting Lot _____ shown on this plan are a graphic representation only and do not represent the accurate shape or position of the lot boundaries which are subject to a field survey.

Encroachment Conditions

5.10 Notwithstanding Section 5.03, where a development component a of a permanent nature such as a building, structure, well, on-site sewage disposal system or drive-way is encroaching in or upon an immediately adjacent area of land, the Development Officer may approve a plan of subdivision to the extent necessary and practical to remove the encroachment.

Amended Sept 23, 1997

5.11 Where the lots created pursuant to Section 5.10 are not surveyed, the provisions of Section 5.09 shall apply.

Two (2) or More Main Buildings

5.12 Notwithstanding Section 5.03, where an area of land contains more than one more main building built or placed on the land prior to December 16, 1985, the Development Officer may approve a final plan of subdivision creating the same number of lots or fewer as there are main buildings provided:

a) each lot containing a main building shall have the approval of the Department of Environment pursuant to Section 5.04; or

b) each lot containing a main building shall be evaluated by the Department of Environment pursuant to Section 5.05; or

c) where required, each lot containing a main building shall be served by a municipal sewer; and

d) each lot containing a main building shall, as close as is practicable, comply with the minimum lot frontage requirements of the Land Use By-law; and

e) the common lot line or lines between lots containing a main building shall, as close as is practicable, comply with the minimum yard requirements of the Land Use By-law.

Minimum Lot Width and Depth

5.13 Lots shall not be subdivided to create a width or depth of less than 20 feet.

Public Roads

5.14 All proposed municipal public roads shall be shown on a final plan of subdivision and shall be approved by the Municipal engineer.

5.15 All proposed municipal public roads shown on a final plan of subdivision approved in accordance with Section 5.14 shall be designed and constructed in accordance with Part 13 of this By-law and the deed accepted by the Municipality prior to the endorsement of approval on a final plan of subdivision by the Development Officer.

5.16 The minimum width of the right-of-way of a proposed municipal public road shown on a plan of subdivision shall be 66 feet unless a lesser width is accepted pursuant to Section 12.02.

5.17 Where a proposed municipal public road intersects a provincial public road, that intersection shall be approved by the Department of Transportation.

5.18 All proposed lots which abut a public road shall have an access point to the public road which meets the stopping sight requirements of the Department of Transportation. Where lots abut:

a) a provincial public road or "K" road, access shall be approved by the Department of Transportation.

b) a municipal public road, the developer shall provide the municipal engineer with written certification that access meets the requirements of the Department of Transportation.

5.19 Where a plan or instrument of subdivision shows a proposed lot abutting an existing public road, the authority having jurisdiction shall verify that the road is a public road.

Private Roads

5.20 a) A private road may be approved as a separate lot and is deemed to meet minimum lot area and lot frontage requirements of Section 5.03.

b) Where the boundary of a private road shown on a plan of subdivision is not intended to be a lot boundary, it shall be shown as a lighter solid line or a dashed line.

c) No part of a private road shall be included in the calculation of lot area for the purposes of meeting the lot area requirements.

5.21 The intersection of a private road with a public road shall approved by the authority having jurisdiction over the public road.

5.22 All proposed private roads or extensions to existing private roads shall be shown on a final plan of subdivision and shall be designed and constructed in accordance with Part 14 of this By-law prior to the endorsement of approval of a final plan of subdivision by the Development Officer.

5.23 All proposed lots which abut a private road shall have an access point to the private road which meets the stopping site requirements of the Department of Transportation. The subdivider shall provide the municipal engineer with written certification that access meets the requirements of the Department of Transportation.

Intersections

5.24 There shall not be more than four public road or private road approaches or any combination thereof in an intersection.

Adjoining Subdivision

5.25 Where a public road in an adjoining subdivision abuts the boundaries of a plan of subdivision submitted for approval, a public road in the latter shall, if reasonably feasible, be laid out in prolongation of such public road unless it would be in violation of this By-law.

5.26 Where a private road in an adjoining subdivision abuts the boundaries of a plan of subdivision which is to be served by a private road submitted for approval, the private road in the latter shall, if reasonably feasible, be laid out in prolongation of such private road unless it would be in violation of this By-law.

Side Lot Lines at Right Angles

5.27 Wherever possible, side lot lines shall be substantially at right angles to a public road, private road or "K" road, or radial to a curved public road, private road or "K" road.

Continuous Rear Lot Lines

5.28 Wherever possible, the rear lot lines of a series of adjoining lots shall be continuous, not stepped or jogged.

PART 6 - PRELIMINARY PLANS OF SUBDIVISION (OPTIONAL)

Procedure

6.01 The procedure for processing an application for approval of a preliminary plan of subdivision is contained in Part 4 of this By-law.

Plan Requirements

6.02 The person proposing to subdivide an area of land may submit to the Development Officer four copies of the preliminary plan of subdivision drawn to scale showing the following:

a) the name of the owner of the area of land being subdivided;

b) the names of all owners of all properties abutting the area of land being subdivided;

ba) the unique Parcel Identifier (PID) of all areas of land being subdivided*;*

c) the civic number of main buildings on the area of land being subdivided;

d) a location plan showing the approximate distance between the area of land being subdivided and the nearest prominent landmark;

e) the shape, dimensions and area of the proposed lots;

f) each proposed lot identified by a number except in cases where a parcel is being added to or subtracted from an existing area of land, in which case the parcel shall be identified by a letter and the new lot identified by the existing area of land identifier, where available and the letter.

g) no duplication of lot identifiers;

h) the approximate location of railway easements;

i) the location of existing and proposed public roads and private roads;

j) the name of existing "K" roads, existing and proposed public roads (and the public road number) and private roads as approved by the Municipality;

k) the graphic representation of proposed lots shown by solid lines, and the vanishing boundaries of existing areas of land being resubdivided, consolidate or both, shown as broken lines;

l) the location of existing buildings and structures within 15 metres (49.2 feet) of a property line;

Amended Sep 23, 1997 m) the general location of watercourses and wetlands;

n) the north point;

o) the scale;

p) any other information necessary to determine whether this subdivision conforms to this By-law.

6.03 Where a preliminary plan of subdivision is to be forwarded to the Department of Environment pursuant to Section 4.03(a), the information listed in Section 6.04 is required for the following proposed lots:

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(a) a proposed lot which is being created for a purpose that will require the construction of an on-site sewage disposal system; or

(b) a proposed lot being divided from an existing area of land, contains an on-site sewage disposal system; and

(i) is 9000 square metres (96,878.4 square feet) or less in area; or

(ii) has a width of less than 76 metres (249.3 feet).

6.04 Unless the information already has been submitted to the Department of Environment, the following additional information is required for proposed lots referred to in Section 6.03:

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(a) the lot layout including any proposed building, on-site sewage disposal system, driveway and water well;

(b) the location of any watercourse, wetland, marine water body and other features that may influence the design of the on-site sewage disposal system, including any ditch, road, driveway or easement;

(c) the surface slopes and directions;

(d) the location of any test pit;

(e) the proposed on-site sewage disposal system, selected or designed;

(f) an explanation of the extent, volume and type of usage to which the on-site sewage disposal system will be subjected;

(g) an assessment report of the lot respecting its suitability to support an on-site sewage disposal system including the results of a soil evaluation test; and

(h) any other information necessary to determine whether the subdivision meets the **On-site Sewage Disposal Systems Regulations**.

6.05 For a proposed lot that is being divided from an existing area of land, contains an existing on-site sewage disposal system and is more than 9000 square metres (96,878.4 square feet) in area with a width of 76 metres (249.3 feet) or more, the lot layout including buildings, driveway, on-site sewage disposal system and well shall be provided.

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6.06 For a proposed lot 9000 square metres (96,878.4 square feet) or less in area or with a width of less than 76 metres (249.3 feet)that is being created for a purpose that will not require the construction of an on-site sewage disposal system, the certification section of the application in the form specified in Schedule "A" must be completed.

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PART 7 - TENTATIVE PLANS OF SUBDIVISION

Procedure

7.01 The procedure for processing an application for approval of a tentative plan of subdivision is contained in Part 4 of this By-law.

Plan Requirements

7.02 The person proposing to subdivide an area of land shall submit to the Development Officer 8 copies of the tentative plan of the proposed subdivision meeting the requirements of Sections 7.04 through 7.06C inclusive of this By-law.

Amended July 27, 2004

7.03 Notwithstanding Section 7.02, the Development Officer may waive the requirement that tentative application and plan of subdivision be submitted, where:

a) lots abut an existing public road, "K" roads or private road, except where lots are created without frontage pursuant to Sections 5.01, 5.02, 5.08 and 5.09;

b) a municipal sewer is not being installed; and

c) all lots to be served by on-site sewage disposal systems

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i) are 9,000 square metres (96,878.4 square feet) or more in area; or

ii) have been evaluated by an authorized person of the Department of the Environment and the Development Officer has been informed in writing by the authorized person that the information already provided by the subdivider is satisfactory.

Deleted Sep 23, 1997

iii)

7.04 A tentative plan of subdivision submitted to the Development Officer shall be:

a) drawn to a scale or scales sufficient for clarity all particulars on the tentative plan of subdivision;

b) based on a description of the area of land to be divided, preferably but not necessarily as surveyed; and

c) folded to approximately 20 x 30 cm (8 x 12 in.) with the face of the folded print being the title block which is located in the lower right-hand corner of the tentative plan of subdivision.

7.05 A tentative plan of subdivision shall show the following:

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a) the words "PLAN OF SUBDIVISION" located in the title block;

b) the words "TENTATIVE PLAN" located above in the title block;

c) a clear space for stamping being a minimum of 225 centimetres square (36 sq. in.) with a minimum width of 8 centimetres (3 in.);

d) the name of the subdivision, if any, and the name of the owner of the area of land;

e) if applicable, the book and page number of the deed to the area of land as recorded in the name of the owner in the Registry of Deeds;

f) the unique Parcel Identifier (PID) of all areas of land being subdivided;

g) the civic number of main buildings on the area of land being subdivided;

h) the names of all owners or the identifiers of all properties abutting the proposed subdivision;

i) a location map, drawn to a scale not smaller than 1:50,000 (such scale to be shown on the map), preferably with the same orientation as the area of land and, if possible, showing the location of the closest community to the area of land proposed to be subdivided,

j) the shape, dimensions, and area of the proposed lots;

k) each proposed lot identified by a number, except in cases where a parcel is being added to or subtracted from an existing area of land, in which case the parcel shall be identified by a letter and the new lot identified by the existing area of land identifier, where applicable, and the letter;

l) no duplication of lot identifiers;

m) the boundaries of proposed lots shown by solid lines, and the vanishing boundaries of existing area of land being resubdivided, consolidated or both, shown as broken lines;

n) the location of existing buildings and structures within 15 metres (49.2 ft.) of a property boundary;

o) the location of existing and proposed public roads and private roads and existing "K" roads;

p) the name of existing "K" roads, existing and proposed public roads (and the public road number) and private roads as approved by the Municipality;

q) the width and location of railway easements;

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r) the general location of any watercourse, wetland, or prominent rock formation;

s) the width, location, and nature of any easements on or affecting the area of land proposed to be subdivided;

t) where applicable, a notation stating the lots are serviced by municipal sewer;

u) the north point;

v) the date on which the plan of subdivision was drawn and the date of any revisions;

w) the scale to which the plan of subdivision is drawn, and

x) any other information necessary to determine whether or not the tentative plan of subdivision conforms to this By-law.

7.06 Where a tentative plan of subdivision is to be forwarded to the Department of Environment pursuant to Section 4.03 (a), the information listed in Section 7.06A is required for the following proposed lots:

Amended July 27, 2004

(a) a proposed lot which is being created for a purpose that will require the construction of an on-site sewage disposal system; or

(b) a proposed lot being divided from an existing area of land, contains an on-site sewage disposal system; and

(i) is 9000 square metres (96,878.4 square feet) or less in area; or
(ii) has a width of less than 76 metres (249.3 feet).

7.06A Unless the information already has been submitted to the Department of Environment, the following additional information is required for proposed lots referred to in Section 7.06:

Amended July 27, 2004

(a) the lot layout including any proposed building, on-site sewage disposal system, driveway and water well;

(b) the location of any watercourse, wetland, marine water body and other features that may influence the design of the on-site sewage disposal system, including any ditch, road, driveway or easement;

(c) the surface slopes and directions;

(d) the location of any test pit;

(e) the proposed on-site sewage disposal system, selected or designed;

(f) an explanation of the extent, volume and type of usage to which the on-site sewage disposal system will be subjected;

(g) an assessment report of the lot respecting its suitability to support an on-site sewage disposal system including the results of a soil evaluation test; and

(h) any other information necessary to determine whether the subdivision meets the **On-site Sewage Disposal Systems Regulations**.

7.06B **Amended July 27, 2004** For a proposed lot that is being divided from an existing area of land, contains an existing on-site sewage disposal system and is more than 9000 square metres (96,878.4 square feet) in area with a width of 76 metres (249.3 feet) or more, the lot layout including buildings, driveway, on-site sewage disposal system and well shall be provided.

7.06C **Amended July 27, 2004** For a proposed lot 9000 square metres (96,878.4 square feet) or less in area or with a width of less than 76 metres (249.3 feet)that is being created for a purpose that will not require the construction of an on-site sewage disposal system, the certification section of the application in the form specified in Schedule "A" must be completed

7.07 **Amended July 27, 2004** In addition to meeting the requirements of Sections 7.04 through 7.06C inclusive, where the proposed lots front on a proposed public road or proposed private road, a tentative plan of subdivision shall:

a) show a boundary survey of the area of land proposed to be subdivided, excluding the remainder lot, certified and stamped by a Nova Scotia Land Surveyor in the manner required by the **Nova Scotia Land Surveyors Act** and the Regulations made thereunder,

b) i) contours at 2 meters or 5 foot intervals and drainage patterns only in the case of proposed public roads, and

ii) the width and location of proposed public roads or private roads and their intersection with existing public roads or private roads, and

iii) the location of existing and proposed municipal central sewer systems and proposed connections thereto, and

iv) be accompanied by two (2) copies of centreline profiles of proposed public roads or private roads together with the necessary cross sections.

v) where plans or drawings or centreline profiles are prepared by or under the supervision of a professional engineer, they shall be signed and sealed by the professional engineer in accordance with the **Engineering Profession Act.**

7.07A For a proposed lot that will have access to a public road, the tentative plan of subdivision may be accompanied by or show stopping sight distances information in the form specified in Schedule “E1" completed by a Nova Scotia Land Surveyor.

Amended July 27, 2004

7.08 The following information shall be stamped or written and completed by the Development Officer on any tentative plan of subdivision which is approved together with any other information necessary for the tentative plan to proceed to the final plan stage.

a) "This tentative plan of subdivision is approved for Lots_____. Such approval lapses if the lots are not shown on a final plan of subdivision approved within two years of the date of the approval of the tentative plan.";

b) the date of the approval of the tentative plan; and

(c) "This tentative plan of subdivision shall not be filed in the Registry of Deeds as no subdivision takes effect until a final plan of subdivision is endorsed by the Development Officer and filed in the Registry of Deeds."

PART 8 - FINAL PLANS OF SUBDIVISION

Procedure

8.01 The procedure for processing an application for approval of a final plan of subdivision is contained in Part 4 of this By-law.

Plan Requirements

8.02 The subdivider proposing to subdivide an area of land shall submit to the Development Officer twelve (12) copies of the final plan of subdivision meeting the requirements of Section 8.03 of this By-By-law.

8.03 A final plan of subdivision submitted to the Development Officer shall be:

a) drawn to a scale or scales sufficient for clarity of all particulars of the final plan of subdivision;

b) certified and stamped by a Nova Scotia Surveyor that the lots for which approval is requested and any proposed street and road have been surveyed in the manner required by the **Land Surveyors Act** and its regulations, except for a final plan of subdivision prepared pursuant to Sections 5.08 and 5.09 of this By-law.

8.04 Before approving a final plan of subdivision that adds or consolidates parcels or areas of land in different ownership the Development Office shall have received:

b) the executed deeds suitable for registering to effect the addition or consolidation;

c) the fees for registering the deeds;

d) the Affidavit of value including particulars of any exemption pursuant to Part V of the **Act**.

8.05 A final plan of subdivision shall meet the requirements of Section 7.05 through 7.06A inclusive except that:

Amended July 27, 2004

a) clause 7.05(b) does not apply,

b) proposed public roads or private roads shall be surveyed, and

c) the geographical and mathematical location of all permanent buildings and structures within 15 metres (49.2 feet) of a proposed boundary shall be shown.

8.05A For a proposed lot that is being divided from an existing area of land, contains an existing on-site sewage disposal system and is more than 9000 square metres (96,878.4 square feet) in area with a width of 76 metres (249.3 feet) or more, the lot layout including buildings, driveway, on-site sewage disposal system and well shall be provided.

Amended July 27, 2004

8.05B For a proposed lot 9000 square metres (96,878.4 square feet) or less in area or with a width of less than 76 metres (249.3 feet)that is being created for a purpose that will not require the construction of an on-site sewage disposal system, the certification section of the application in the form specified in Schedule "A" must be completed.

Amended July 27, 2004

8.05C For a proposed lot that will have access to a public road, the final plan of subdivision may be accompanied by or show stopping sight distances information in the form specified in Schedule E1 completed by a Nova Scotia Land Surveyor.

Amended July 27, 2004

8.06 Where plans or drawings or centreline profiles are prepared by or under the supervision of a professional engineer, they shall be signed and sealed by the professional engineer in accordance with the **Engineering Profession Act**.

8.07 A final plan of subdivision shall be accompanied by a copy of the agreement, entered into between the Municipality and the subdivider pursuant to Section 10.02 outlining the terms for the installation of the services.

8.08 The following information shall be stamped or written and completed by the Development Officer on any final plan of subdivision which is endorsed:

a) "This final plan of subdivision is approved for Lots _____";

Amended Sep 23, 1997

b) where applicable,

i) "_____ (is, are) suitable for the construction or
(Lot(s) approved and/or remainder)
installation of an on-site sewage disposal system for_____," and
Purpose Used
any conditions which apply are contained in a report dated _____ and available from the Department of the Environment" or

ii) "IMPORTANT NOTICE
_____(has, have) been created for a purpose which
(Lot(s) approved and/or remainder)
does not require an on-site sewage disposal system and will not be eligible for a permit to install a system unless the requirements of the Department of the Environment are met".

iii) _____(is, are) served by an existing on-site sewage
(Lot(s) approved and/or remainder)
disposal system and should a replacement system become necessary in future, approval of the replacement system from the Department of the Environment is required."

c) where applicable:

i) a notation stating that access to the public road as shown has been approved for the lots created by this final plan and any conditions which apply are listed on the plan or are contained in a report dated _____available from the authority having jurisdiction for public roads;

ii) where a lot which abuts a public road does not have an approved access point

along the road, a notation stating that direct access to the road is not permitted; and

iii) a notation stating which lots abut a “K” road or private road and that no provincial or municipal services shall be provided to these lots.

d) Where there are public roads which are to be owned and maintained by the Province, the words "The following roads and highways are owned and maintained by the Department of Transportation of the Province of Nova Scotia:

e) where there are municipal public roads which are to be owned and maintained by the Municipality, the words "The following roads are owned and maintained by the Municipality of Barrington:

f) private roads, the words "The following roads are private roads and are not entitled to any municipal services including grading, ditching, snow plowing, gravelling, garbage collection or street lighting unless otherwise provided:

g) where there are "K" roads, the words "The following roads are "K" roads and are not entitled to any municipal services including grading, ditching, snowplowing, gravelling, garbage collection or street lighting unless otherwise provided:

8.09 Within seven (7) days of approving the final plan of subdivision, the Development Officer shall forward to the Registry of Deeds:

Amended July 27, 2004

a) one (1) approved copy of the final plan of subdivision and a notice of approval in the form specified in Schedule “B” of this By-law; and

b) if applicable, the items required by Section 8.04 of this Bylaw.

PART 8A - INSTRUMENT OF SUBDIVISION

Procedure

8A.01 The procedure for processing an instrument of subdivision is contained in Part 4 of this By-law.

Instrument Requirements

8A.02 **Amended Jan 28, 2008** A subdvider may subdivide an area of land by an instrument of subdivision so as to create not more than three new lots from any larger lot or parcel where that lot or parcel existed on or prior to the effective date of this section of the by-law, where:

Amended July 27, 2004

a) each lot has a minimum of 100,000 sq. ft.(9,290 sq. metres) and dimensions that would permit it to contain a circle of a diameter of 76 metres (249.3 ft.) within its boundaries; or

b) an existing lot is being increased in size; and

c) the lot being decreased in size, if any, meets the requirements of this By-law other than those contained in clause (a).

8A.03 All lots created by instrument of subdivision are required to be approved.

8A.04 Before approving an instrument of subdivision that adds or consolidates parcels or areas of land in different ownership the development officer shall have received :

a) the executed deeds suitable for registering to effect the addition or consolidation;

b) the fees for registering the deeds;

c) the affidavit of value including particulars of any exemption pursuant to Part V of the **Act.**

8A.05 In addition to the application form required be Section 4.01, the subdivider proposing to subdivide an area of land by instrument of subdivision shall submit to the Development Officer a completed instrument of subdivision in the form specified in Schedule “C” of this By-law.

8A.06 **Amended July 27, 2004** The graphic representation included as part of Schedule “C” shall meet the requirements of Section 7.05(d) to (u) inclusive and Section 7.06 and 7.06A of this By-law.

8A.06A **Amended July 27, 2004** For a proposed lot that is being divided from an existing area of land and contains an existing on-site sewage disposal system, the lot layout including buildings, driveway, on-site sewage disposal system and well shall be provided.

8A.06B For a proposed lot 9000 square metres (96,878.4 square feet) or less in area or with a width of less than 76 metres (249.3 feet)that is being created for a purpose that will not require the construction of an on-site sewage disposal system, the certification section of the application in the form specified in Schedule "A" must be completed.

Amended July 27, 2004

8A.07 The following information shall be stamped or written and completed by Development Officer on any instrument of subdivision which is approved:

Amended July 27, 2004

a) where applicable:

i) .. _____(is, are) suitable for the construction or installation
(Lot(s) approved and/or remainder)
of an on-site sewage disposal system for _____and any conditions
(proposed use)
which apply are contained in a report dated _____and available from Department of the Environment"; or

ii) **"IMPORTANT NOTICE"**
_____ (has, have) been created for a purpose which does
(Lot(s) approved and/or remainder)
not require an on-site sewage disposal system and will not be eligible for a permit to install a system unless the requirements of the Department of the Environment are met"; or

iii)_____(is, are) served by an existing on-site sewage
(Lot(s) approved and/or remainder)
disposal system and should a replacement system become necessary in future, approval of the replacement system from the Department of the Environment is required ."

b) where applicable:

i) notation stating that access to the public road as shown has been approved for the lots created by this instrument of subdivision and any conditions which apply are listed on the instrument or are contained in a report dated_____, available from the authority having jurisdiction for public roads;

ii) where a lot which abuts a public or private road does not have a safe access point along the road, a notation stating that direct access to the road is not permitted; and

iii) a notation stating which lots abut a "K" road on private road and that no provincial or municipal services shall be provided to these lots.

8A.08 Within seven (7) days of approving the instrument of subdivision, the Development Officer shall forward to the Registry of Deeds:

Amended July 27, 2004

a) one(1) approved copy of the instrument of subdivision; and

b) if applicable, the items required by 8A.04 of this By-law

PART 9 -REPEAL OF A PLAN OR INSTRUMENT OF SUBDIVISION

9.01 Where a plan or instrument of subdivision has been approved, the approval may be repealed for any or all of the lots created by the plan or instrument of subdivision.

9.02 Any person requesting a repeal shall submit to the Development Officer an application in the form specified in Schedule "D".

9.03 The notification and approval provisions of the Act which apply to the approval of a plan or instrument of subdivision shall also apply to a repeal.

9.04 When the Development Officer is satisfied that an application for repeal is complete, the Development Officer may forward a copy to any agency which provided an assessment or recommendations on the original plan or instrument of subdivision.

9.05 Where buildings have been erected on the subject lands after the date of the subdivision approval sought to be repealed, no repeal shall be granted which would cause these buildings to be in violation of any building code regulations, Land-Use By-law, or sewage disposal regulations unless the violation can be rectified by the approval of a new plan or instrument of subdivision filed at the Registry of Deeds on the same day as the repeal is filed.

9.06 Parts 5 to 8A inclusive of this By-law do not apply to the repeal of a plan or instrument of subdivision.

9.07 The Development Officer shall forward to the Registry of Deeds the repeal in the form specified in Schedule "E".

9.08 The Development Officer shall forward a copy of the repeal referred to in Section 9.07 to

b) the subdivider, and

c) any agency which provided an assessment or recommendations on the original plan or
instrument of subdivision.

9.09 At the time of application for the repeal of a subdivision the subdivider shall submit to the Development Officer the fees contained in Section 4.09.

9.10 Where the Development Officer refuses to repeal a subdivision, the Development Officer shall return the fees referred to in clause 9.09 to the subdivider.

9.11 Where the Development Officer refuses to repeal a subdivision, the Development Officer shall give notice of the refusal to all agencies which were forwarded the application for repeal pursuant to Section 9.08.

PART 10 - REQUIREMENTS OF SUBDIVIDER

10.01 The subdivider shall, before endorsement of a final plan of subdivision is given by the Development Officer:

a) construct any proposed municipal public road in accordance with Part 13 of this By-law; or

b) construct any proposed private road in accordance with Part 14 of this By-law.

c) construct and connect to the municipal sewer, any proposed sanitary sewer including collectors and laterals to the boundaries of the proposed lots in accordance with Part 15 of this By-law.

10.02 Notwithstanding Section 10.01 (a) and (c), the Development Officer may endorse approval of a final plan of subdivision prior to the construction of a municipal public road and/or a sanitary sewer only where the subdivider enters into an agreement with the Council which states that the subdivider:

a) shall construct the municipal public road and/or a sanitary sewer in accordance with Part 13 and 15 of this By-law within a period of time set out in the agreement; and

b) shall convey title of such road and/or a sanitary sewer in fee simple free of all encumbrances to the Municipality within a period of time set out in the agreement; and

c) shall post a performance bond or certified cheque pursuant to Part 11 to assure that the road and/or a sanitary sewer will be constructed in accordance with Part 13 and 15 of this By-law.

10.03 No municipal public road and/or a sanitary sewer constructed pursuant to Section 10.01 and no agreement pursuant to Section 10.02 shall be entered into with the Council prior to the issuance of all required approvals by any authority having jurisdiction.

10.04 The subdivider shall provide to the Municipality, prior to acceptance of any municipal public road and/or sanitary sewer:

a) the "as built" reproductible engineering drawings for the muncipal public road and/or sanitary sewer signed by a professional engineer; and

b) the results of all required test reports; and

c) all operating and procedural manuals for sanitary sewer; and

d) the warranty deeds for municipal public roads, rights-of-way and easements associated with sanitary sewer.

PART 11 - PERFORMANCE BOND

11.01 Where Section 10.02 applies, the subdivider shall post a performance bond or certified cheque in the amount of one hundred and twenty-five (125) percent of the total estimated cost of constructing a municipal public road and/or installing a sanitary sewer.

11.02 The performance bond or certified cheque shall be posted prior to the endorsement of approval of the final plan of subdivision.

11.03 a) The subdivider shall submit to the Council for approval an estimate of the cost of constructing a municipal public road and/or installing a sanitary sewer.

b) The Council, on the advice of the municipal engineer, may revise the estimate if the estimate is, in the opinion of the municipal engineer, inadequate and shall advise the subdivider of the effect upon the amount of the performance bond or certified cheque.

c) The subdivider may require Council to submit the revised estimate to arbitration in accordance with the provisions of the Arbitration Act.

11.04 The performance bond or certified cheque shall be in favour of the Municipality, duly executed by the subdivider and by an approved guarantor company, conditioned on the execution and completion of the agreement in accordance with the terms of the agreement, and with the provisions of this By-law and shall not be subject to cancellation, termination or expiration during the period of time required for the completion of the work.

11.05 Construction of a municipal public road and/or the installation of a sanitary sewer shall commence within twelve (12) months of the date of the endorsement of approval of the final plan of subdivision by the Development Officer, and shall be complete in accordance with the agreement of Section of 10.02 or the performance bond or certified cheque shall be forfeited.

PART 12 - MAINTENANCE BOND

12.01 After completion of a municipal public road and/or sanitary sewer prior to acceptance by the Municipality the subdivider shall post a maintenance bond in the amount of ten (10) percent of the actual cost of constructing a municipal public road and/or installing a sanitary sewer to safeguard such road and sewer for a period of two (2) years.

PART 13 - MUNICIPAL PUBLIC ROAD SPECIFICATIONS

Design

13.01 Municipal public roads shall be designed in accordance with **Specifications for Subdivision Roads in Urban and Rural Areas** prepared by the Department of Transportation.

13.02 Notwithstanding Section 13.01, where Council accepts road construction to a reduced standard under Section 13.04, Council may, upon the recommendation of the municipal engineer, accept a right-of-way width of less than 66 feet provided:

a) that the right-of-way width is not less than 50 feet; and

b) that the right-of-way width is sufficient to contain street slopes, ditches and back slopes.

Construction

13.03 Municipal public roads shall be constructed in accordance with **Specifications for Subdivision Roads in Urban and Rural Areas** published by the Department of Transportation.

13.04 Notwithstanding Section 13.03, the minimum construction standard for a Municipal public road may be waived provided the road meets the standards set out in Chapter H.3, "Low Volume Roads" in the Roads and Transportation Association of Canada's publication **Manual of Geometric Standards for Canadian Roads** appended to this By-law as Schedule "E" using the following criteria:

a) a design speed of 40 km/hr.;

b) a two-lane, two-way travelway not less than 20 feet in width;

c) street drainage is constructed in accordance with the road design under Section 13.02 (b);

d) clearing, grubbing, construction procedure, inspection procedures and construction materials shall be in accordance with **Specifications for Subdivision Roads in Urban and Rural Areas** published by the Department of Transportation.

PART 14 - PRIVATE ROAD SPECIFICATIONS

Design

14.01 The right-of-way width for the private road shall not be less than 50 feet.

14.02 The design of the private road shall meet the design requirements set out in Chapter H.3, "Low Volume Roads" in the Roads and Transportation Association of Canada's publication **Manual of Geometric Standards for Canadian Roads** appended to this By-law as Schedule "E" using the following criteria:

a) a design speed of 40 km/hr.,

b) a two-lane, two-way travelway not less than 20 feet in width.

Construction

14.03 The centre line of the private road shall be concentric with the centre line of the right-of-way.

14.04 The roadbed shall be cleared and grubbed.

14.05 Cuttings, roots, stumps, moss and all other vegetation resulting from the clearing and grubbing operations shall be removed from the right-of-way and shall not be used in roadway fills.

PART 15 - SANITARY SEWER SPECIFICATIONS

Design

15.01 Sanitary sewer shall be designed in accordance with the **Nova Scotia Standards and Guidelines Manual for Collection, Treatment and Disposal of Sanitary Sewage** by the Nova Scotia Department of the Environment, 1992 edition, as may be amended.

Specifications

15.02 Sanitary sewer shall be installed in accordance with the latest edition of the **Standard Specifications For Municipal Services** as developed and published by the NSRBA and NSCEA Joint Committee on Contract Documents.

15.03 Sanitary sewer shall connect directly into the municipal sewer.

SCHEDULE "A" APPLICATION FOR SUBDIVISION APPROVAL

FOR OFFICE USE ONLY **File No**:_____	Municipality Development Office P.O. Box 100 Barrington N.S. B0N 1E0 Phone: (902) 637-2421, Fax: (902) 637-2075

OWNER RELATED INFORMATION

NAME OF LAND OWNER(S)_____

ADDRESS OF LAND OWNER(S)_____

POSTAL CODE_____ PHONE_____

SUBDIVISION NAME (IF DIFFERENT FROM OWNER)_____

DOCUMENTS TO BE RETURNED TO_____

CORRESPONDENCE TO BE DIRECTED TO_____

LAND TO BE SUBDIVIDED

LOCATION_____ MUNICIPALITY_____

PARCEL IDENTIFIER_____

TYPE OF APPLICATION □ Preliminary (Optional) □ Tentative (Optional) □ Final □ Instrument

FEES ATTACHED □ Yes □ No

APPROVAL REQUESTED FOR LOT(S)#_____

IS THERE A REMAINDER LOT? □ Yes □ No

TYPE OF DEVELOPMENT PROPOSED □ Single unit dwelling □ Other (specify)_____

(This applies to all proposed lots including remainder lots)

CERTIFICATION-ON-SITE SYSTEM NOT REQUIRED (unserviced areas)

I certify that _____ is, are) being created for a purpose that will not require the installation of an on-site sewage disposal system.
(Lot(s) being aproved and/or remainder lot) (Specify purpose)

SIGNATURE _____

WATER SERVICES	Existing	Proposed
MUNICIPAL SYSTEM	□	□
DRILLED WELL	□	□
DUG WELL	□	□
OTHER (SPECIFY)_____		

SEWER SERVICES	Existing	Proposed
MUNICIPAL SYSTEM	□	□
ON-SITE	□	□

ACCESS	Existing	Proposed
MUNICIPAL PUBLIC STREET	□	□
PROVINCIAL PUBLIC STREET	□	□
PRIVATE ROAD		
OTHER (SPECIFY)_____		

I certify that I am the owner or am acting with the owner's written consent (pertains only to final and instrument applications).

SIGNATURE OF APPLICANT_____ DATE_____

SCHEDULE "B" NOTICE OF APPROVAL OF A PLAN OF SUBDIVISION

SCHEDULE "C" INSTRUMENT OF SUBDIVISION

ACT

Name of Owner(s)_____

Name of Subdivision_____

Location_____

AN INSTRUMENT RESPECTING THE SUBDIVISION OF LAND IN ACCORDANCE WITH SECTION 269 OF THE *MUNICIPAL GOVERNMENT ACT* FOR THE MUNICIPALITY OF THE_____

Date of Approval_____ For Lot(s)_____

Surveyor_____ Date of Plan_____

LOCATION MAP

Dated this_____ day of

_____, 20_____

_____
Development Officer

Plan of Subdivision filed in the registry of deeds as Plan#_____

Dated this_____ day of

_____, 20_____

This plan of subdivision may also contain information regarding the lots approved on this plan with respect to one or more of the following:

1. **The lots' eligibility for on-site sewage disposal systems.**
2. **The availability of public sewer and water systems.**
3. **Information indicating whether or not the lots abut a public street or private road.**

SCHEDULE"C" CONTINUED

_____

_____
Owner(s') Signature(s)

SCHEDULE "D" APPLICATION FOR REPEAL OF SUBDIVISION

Plan of Subdivision ☐ **or** **Instrument of Subdivision** ☐ File Number _____

APPLICANT RELATED INFORMATION

Name of Land Owner(s) _____ Phone _____

Address of Land Owner(s) _____ Postal Code _____

Documents To Be Returned To _____

Correspondence To Be Directed To _____

INFORMATION RELATED TO THE SUBDIVISION SOUGHT TO BE REPEALED

Name of applicant for subdivision approval _____

Location _____ Municipality _____

The subdivision was approved on the _____ day of _____ , _____ (YEAR).

and is filed in the Registry of Deeds at _____ in the Municipality of _____

the County of _____ as #_____

Lot(s) # _____ was/were approved and repeal is sought for approval of Lot(s) # _____.

☐ Registration fee submitted.

CERTIFICATION OF FACTS
(Reasons For Repeal)
(If more space required, attach additional sheet)

OWNER'S CERTIFICATE

I certify that the information in this application is true and complete, that I am applying for repeal of this subdivision with the full knowledge and consent of all persons with legal interest, including mortgagees, in the lands affected by the repeal and that these persons have co-signed this application.

_____ _____
Signature of owner/agent Date

_____ _____
Co-Signer Date

SCHEDULE "E" REPEAL OF SUBDIVISION

Plan of Subdivision ☐ or Instrument of Subdivision ☐

Name of Owner(s) _____

_____

Name of Subdivision _____

_____

Location _____

_____

Date of Approval of the Subdivision _____

Being Registration # _____ at the registry of deeds.

THIS SUBDIVISION IS REPEALED

Entire Plan or Instrument ☐ or Only Lots # _____

Dated at _____ in the _____,

Province of Nova Scotia, this _____ day of _____, _____.
(DATE) (YEAR)

_____
Development Officer

Please note: Any lot or parcel created by this repeal may not be eligible for development.

SCHEDULE "E1 STOPPING SIGHT DISTANCES

Amended
July 27/04

STOPPING SIGHT DISTANCES								
LOT NO.	SPEED ZONE	DISTANCE FROM LOT CORNER LEFT/RIGHT	LEFT		RIGHT		PASS OR FAIL*	COMMENT
			GRADE	DISTANCE	GRADE	DISTANCE		

***According to the Government of Nova Scotia Management Manual 23, Department of Transportation and Public Works Management, Chapter 8, Construction and Maintenance.**

Signed: _____

Nova Scotia Land Surveyor

H.3 ALIGNMENT ELEMENTS

H.3.1 Introduction

The alignment elements for low-volume roads are primarily determined for the design speed, using the same physical relationships developed in Chapter 8 for other road classifications. Sight distances, gradients, horizontal curvature, and vertical curvature have been developed for design speeds for 30 km/h to 100 km/h.

Some modifications have been made to vertical curvature, gradients, and superelevation, and these are discussed in the following sections.

8.1 provides a general discussion on design controls and considerations for the alignment features of a road. A summary of alignment controls for low-volume roads is shown in Table H.3.1.

H.3.2 Sight distance*

H.3.2.1 General

Minimum stopping sight distances and minimum passing sight distances have been developed for low-volume roads based on the criteria given in 8.2. Minimum passing sight distances have been developed for two-lane roads only, as passing sight distance is not a design feature for one-lane two-way roads or one-lane one-way roads.

Definitions for stopping sight distance and passing sight distance are given in 8.2.2. "Passing opportunity sight distance" and "Decision sight distance" are not included for low-volume roads as they are considered more applicable to roads of higher classification.

H.3.2.2 Minimum stopping sight distance*

Minimum stopping sight distance for low-volume roads is based on wet pavement surface conditions and a fixed brake reaction time. Friction values for gravel roads and earth roads are taken to be the same as that for pavements in poor condition with a wet surface. Friction values developed through research have not been translated into usable standards for gravel roads and earth roads. Under adverse conditions drivers tend to travel at lower speeds and, where dust conditions exist, to follow further behind other vehicles. This provides a factor of safety for stopping when using friction values based on wet pavements in poor conditions.

Section 8.2.3 provides a general discussion on stopping sight distance. The minimum stopping sight distance for a range of design speeds from 30 km/h to 100 km/h for two-lane roads and one-lane one-way roads are given in Table H.3.2.2a. Calculated values are rounded for design and design values are shown in the right hand column.

On one-lane two-way roads, enough sight distance must be available for one vehicle to reach a turnout (discussed in H.4) or for both approaching vehicles to stop before colliding. The stopping sight distance required for two vehicles approaching each other is taken as twice the stopping sight distance required for

Table H.3.1
Summary of alignment controls for low-volume roads

classification code number	maximum gradient %	minimum* stopping sight distance m	minimum passing sight distance m	maximum superelevation m/m	minimum radius of curve m
LVR 30	11-16	30	250	0.08	30
40	11-15	45	290	0.08	50
50	10-14	65	340	0.08	80
60	10-13	85	420	0.08	120
70	9-12	110	480	0.08	170
80	8-10	140	560	0.08	230
90	7-9	170	620	0.08	310
100	6-8	200	680	0.08	390

* Applicable to two-lane and one-lane one-way roads. Refer to Table H.3.2.2a for minimum stopping sight distances for one-lane two-way roads.

Table H.3.2.2a
Minimum stopping sight distance for two-lane and one-lane one-way low-volume roads

design speed km/h	assumed running speed km/h	brake reaction time s	brake reaction distance m	co-efficient of friction	braking distance m	minimum stopping sight distance m calculated	minimum stopping sight distance m rounded
30	30	2.5	20.8	0.40	8.9	29.7	30
40	40	2.5	27.8	0.38	16.5	44.3	45
50	50	2.5	34.7	0.36	27.2	61.9	65
60	60	2.5	41.7	0.34	41.5	83.2	85
70	70	2.5	48.6	0.32	60.0	108.6	110
80	80	2.5	55.6	0.31	81.0	136.6	140
90	90	2.5	62.5	0.30	105.9	168.4	170
100	98.5	2.5	68.1	0.30	124.3	192.0	200

a vehicle approaching a fixed object, as is the case on two-lane roads. This is based on the assumption that both vehicles are travelling at the design speed and both drivers use the same brake-reaction time.

Minimum stopping sight distance for one-lane two-way roads for a range of design speeds of 30 km/h to 50 km/h is given in Table H.3.2.2b.

To allow for the effect of grade on minimum stopping sight distance, Table H.3.2.2c may be applied.

Table H.3.2.2b
Minimum stopping sight distance for one-lane two-way low-volume roads

design speed km/h	minimum stopping sight distance m
30	60
40	90
50	130

H.3.2.3 Passing sight distance

Passing sight distance is not considered to be a significant design element for low-volume roads. However, for reasons of safety, it is important to provide as many passing opportunities as possible in each section of road where economically feasible.

Section 8.2.4 provides a general discussion on passing sight distance. Minimum passing sight distance values for a range of design speeds from 30 km/h to 100 km/h for two-lane roads are given in Table H.3.2.3. Passing sight distances are not applicable to one-lane roads.

H.3.3 Horizontal alignment*

H.3.3.1 Circular curves*

The design of circular curves for low-volume roads is the same as for roads of higher classification, and is discussed in 8.3.1.

Side friction factors for earth roads and gravel roads are taken to be the same as the side friction factors for wet pavement conditions.

Table H.3.3.1a gives values for maximum safe side friction for use in curve design for a range of design speeds from 30 km/h to 100 km/h.

Table H.3.2.2c
Effect of grade on stopping distance in wet conditions for low-volume roads

design speed	decrease for upgrade					increase for downgrade				
km/h	3	6	9	12	15	3	6	9	12	15
30	–	–	–	–	–	–	–	5	5	5
40	–	–	5	5	5	–	5	5	10	10
50	5	5	10	10	10	–	5	10	15	20
60	5	5	10	10	–	5	10	15	25	–
70	5	10	15	15	–	5	10	20	35	–
80	10	15	20	–	–	10	15	30	–	–
90	10	20	25	–	–	10	20	40	–	–
100	10	20	25	–	–	15	30	55	–	–

Table H.3.2.3
Minimum passing sight distance for two-lane low-volume roads

design speed km/h	30	40	50	60	70	80	90	100
minimum passing sight distance m	250	290	340	420	480	560	620	680

Table H.3.3.1a
Maximum safe side friction factors for low-volume roads

design speed km/h	30	40	50	60	70	80	90	100
side friction factor	0.17	0.17	0.16	0.15	0.15	0.14	0.13	0.12

Minimum radii for a range of design speeds from 30 km/h to 100 km/h are shown in Tables H.3.3.1b to H.3.3.1e, for maximum superelevation values of 0.08 m/m and 0.06 m/m. These maximum superelevation values are normally used in Canada because of the degree of surface icing that is likely to occur.

The distribution of superelevation rates for each design speed is not only a function of the maximum superelevation rate and the curve radius but also of the normal roadway cross slope on tangent sections. For the same design speed, superelevation is required at a larger radius when the normal cross slope is 0.04 m/m than when it is 0.02 m/m to satisfy the speed-radius relationship. Tables H.3.3.1b and H.3.3.1c give the distribution of superelevation rates for each design speed and various radii for maximum superelevation rates of 0.08 m/m and 0.06 m/m respectively for roadways with normal cross slopes of 0.02 m/m. Tables H.3.3.1d and H.3.3.1c give the distribution of superelevation rates for each design speed and various radii for maximum superelevation rates of 0.08 m/m and 0.06 m/m respectively for roadways with normal cross slopes of 0.04 m/m.

In superelevating two-lane roads, the roadway is normally rotated about its centreline. Figure H.3.3.1 illustrates the desirable method of developing superelevation on circular curves without spirals, where 80% of the superelevation is in place at the beginning of the curve. The length of tangent runout is based on a maximum relative slope between the edge of the roadway and the centreline of 1:200. A relative slope of 1:200 provides sufficient driver comfort and minimizes the length of roadway that has less than desirable cross slope for storm water runoff. The transition length can be calculated from the radius and spiral parameter for the design speed, maximum superelevation rate and normal cross slope, as shown in Tables H.3.3.1b to H.3.3.1e.

For the development of superelevation with spiral transition curves, reference should be made to H.3.3.2.

Figure H.3.3.1
Development of superelevation without transition curve

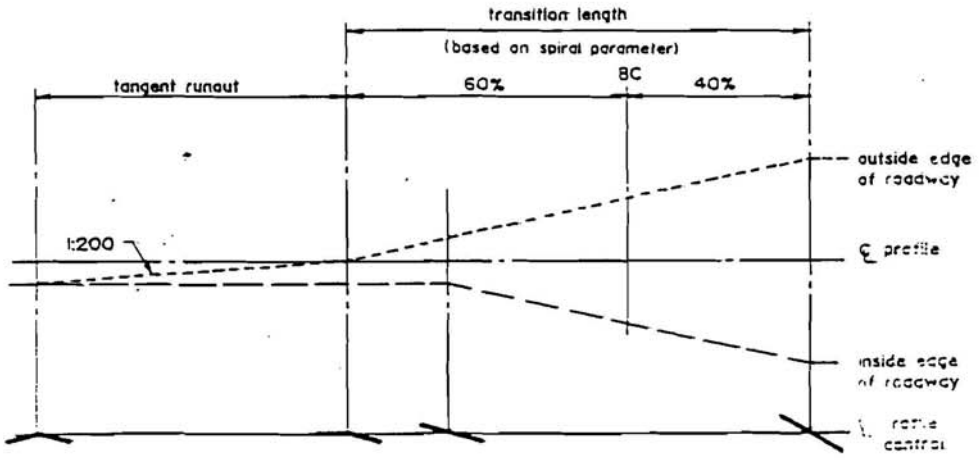


Table H.3.3.1b
Superelevation and minimum spiral parameter for low-volume roads, $e_{max} = 0.08$, normal cross slope = 0.02

design speed, km/h	30		40		50		60		70		80		90		100	
radius, m	e	A	e	A	e	A	e	A	e	A	e	A	e	A	e	A
7000	NC		NC		NC		NC		NC		NC		NC		NC	
5000	NC		NC		NC		NC		NC		NC		NC		NC	
4000	NC		NC		NC		NC		NC		NC		NC		0.020	480
3000	NC		NC		NC		NC		NC		NC		0.020	390	0.022	400
2000	NC		NC		NC		NC		0.020	275	0.021	300	0.028	300	0.030	340
1500	NC		NC		NC		0.020	225	0.021	255	0.027	250	0.032	270	0.037	300
1200	NC		NC		NC		0.020	200	0.026	220	0.032	225	0.038	240	0.044	250
1000	NC		NC		0.020	170	0.023	175	0.029	200	0.036	220	0.043	225	0.049	240
900	NC		NC		0.020	150	0.025	175	0.032	180	0.039	200	0.046	200	0.052	225
800	NC		NC		0.020	150	0.027	160	0.035	175	0.042	175	0.049	200	0.056	200
700	NC		NC		0.023	140	0.030	150	0.038	165	0.046	175	0.053	185	0.060	200
600	NC		0.020	120	0.026	125	0.034	140	0.042	150	0.050	165	0.058	175	0.065	200
500	NC		0.021	100	0.030	120	0.039	125	0.048	140	0.056	150	0.064	160	0.071	200
400	0.020	80	0.025	90	0.035	100	0.045	115	0.054	125	0.063	135	0.071	160	0.078	200
350	0.021	75	0.028	90	0.038	100	0.049	110	0.058	120	0.067	125	0.075	160	0.080	200
300	0.025	70	0.031	80	0.042	90	0.053	100	0.063	120	0.072	125	0.080	160	minimum R=380	
250	0.029	60	0.035	75	0.047	85	0.059	100	0.069	110	0.078	125	0.080	160		
220	0.032	60	0.039	70	0.051	80	0.062	95	0.073	110	0.080	125	minimum R=300			
200	0.034	60	0.041	70	0.054	80	0.065	90	0.075	110	minimum R=230					
180	0.037	60	0.044	65	0.057	75	0.068	90	0.078	110						
160	0.041	55	0.047	65	0.060	75	0.072	85	0.080	110						
140	0.044	55	0.051	65	0.064	70	0.076	85	minimum R=170							
120	0.048	55	0.055	60	0.069	70	0.080	85								
100	0.053	50	0.061	55	0.074	65	0.080	85								
90	0.056	50	0.064	55	0.077	65	minimum R=120									
80	0.060	50	0.067	55	0.080	65										
70	0.064	50	0.071	50	0.080	65										
60	0.068	45	0.075	50	minimum R=80											
50	0.070	45	0.080	50												
35	0.080	40	minimum R=50													
30	0.080	35														
	minimum R=30															

$e_{max} = 0.08$

normal cross slope = 0.02

Notes

e is superelevation
A is spiral parameter in metres
NC is normal cross section
Spiral length, $L = A^2 \div$ Radius
Spiral parameters are minimum and higher values should be used where possible
Spirals are desirable but not essential above the dashed line.

Table H.3.3.1c
Superelevation and minimum spiral parameter for low-volume roads, e_{max} = 0.06, normal cross slope = 0.02

design speed, km/h	30		40		50		60		70		80		90		100	
radius, m	e	A	e	A	e	A	e	A	e	A	e	A	e	A	e	A
7000	NC		NC		NC		NC		NC		NC		NC		NC	
5000	NC		NC		NC		NC		NC		NC		NC		NC	
4000	NC		NC		NC		NC		NC		NC		NC		0 020	480
3000	NC		NC		NC		NC		NC		NC		0 020	390	0 025	400
2000	NC		NC		NC		NC		0 020	275	0 020	300	0 023	300	0 027	340
1500	NC		NC		NC		0 020	225	0 020	250	0 024	250	0 029	270	0 033	300
1200	NC		NC		NC		0 020	200	0 023	225	0 028	225	0 033	240	0 038	250
1000	NC		NC		0 020	170	0 021	175	0 027	200	0 032	200	0 037	225	0 042	240
900	NC		NC		0 020	150	0 023	175	0 029	180	0 034	200	0 039	200	0 044	225
800	NC		NC		0 020	150	0 025	160	0 031	175	0 036	175	0 042	200	0 047	200
700	NC		NC		0 021	140	0 027	150	0 034	175	0 039	175	0 045	185	0 049	200
600	NC		NC	120	0 024	125	0 030	140	0 037	150	0 042	175	0 048	175	0 053	200
500	NC		0 020	100	0 027	120	0 034	125	0 041	140	0 046	150	0 052	160	0 057	200
400	0 020	80	0 023	90	0 031	100	0 038	115	0 045	125	0 051	135	0 057	160	0 060	200
350	0 020	75	0 025	90	0 034	100	0 041	110	0 048	120	0 054	125	0 059	160	minimum A=420	
300	0 023	70	0 028	80	0 037	90	0 044	100	0 051	120	0 057	125	0 060	160		
250	0 026	60	0 031	75	0 040	85	0 048	90	0 055	110	0 060	125	minimum A=340			
220	0 028	60	0 034	70	0 043	80	0 050	90	0 057	110	0 060	125				
200	0 030	60	0 036	70	0 045	75	0 052	85	0 059	110	minimum A=250					
180	0 032	55	0 038	60	0 047	70	0 054	85	0 060	110						
160	0 034	55	0 040	60	0 049	70	0 056	85	minimum A=190							
140	0 037	55	0 043	60	0 052	65	0 059	85								
120	0 040	50	0 046	60	0 055	65	0 060	85								
100	0 043	50	0 049	50	0 058	65	minimum A=130									
90	0 045	45	0 051	50	0 060	65										
80	0 048	45	0 054	50	0 060	65										
70	0 050	40	0 058	50	minimum A=90											
60	0 053	40	0 059	50												
50	0 057	40	0 059	50												
35	0 060	35	minimum A=55													
	minimum A=35															

e_{max} = 0.06

normal cross slope = 0.02

Notes

e is superelevation
A is spiral parameter in metres
NC is normal cross section
Spiral length, $L = A^2 \div$ Radius
Spiral parameters are minimum and higher values should be used where possible
Spirals are desirable but not essential above the dashed line.

Table H.3.3.1d
Superelevation and minimum spiral parameter for low-volume roads, e_{max} = 0.08, normal cross slope = 0.04

design speed, km/h	30		40		50		60		70		80		90		100	
radius, m	e	A	e	A	e	A	e	A	e	A	e	A	e	A	e	A
7000	NC		NC		NC		NC		NC		NC		NC		NC	
5000	NC		NC		NC		NC		NC		NC		NC		NC	
4000	NC		NC		NC		NC		NC		NC		NC		0.040	480
3000	NC		NC		NC		NC		NC		0.040	350	0.040	390	0.040	400
2000	NC		NC		NC		0.040	260	0.040	275	0.040	300	0.040	300	0.040	340
1500	NC		NC		NC		0.040	225	0.040	255	0.040	250	0.040	270	0.040	300
1200	NC		NC		0.040	190	0.040	200	0.040	220	0.040	225	0.040	240	0.044	250
1000	NC		NC		0.040	170	0.040	175	0.040	200	0.040	220	0.043	225	0.049	240
900	NC		0.040	145	0.040	150	0.040	175	0.040	180	0.040	200	0.046	200	0.052	225
800	NC		0.040	135	0.040	150	0.040	160	0.040	175	0.042	175	0.049	200	0.056	200
700	0.040	110	0.040	125	0.040	140	0.040	150	0.040	165	0.046	175	0.053	185	0.060	200
600	0.040	100	0.048	120	0.040	125	0.040	140	0.042	150	0.050	165	0.058	175	0.065	200
500	0.040	90	0.040	100	0.040	120	0.040	125	0.048	140	0.056	150	0.064	160	0.071	200
400	0.040	80	0.040	90	0.040	100	0.045	115	0.054	125	0.063	135	0.071	160	0.078	200
350	0.040	75	0.040	90	0.040	100	0.049	110	0.058	120	0.067	125	0.075	160	0.080	200
300	0.040	70	0.040	80	0.042	90	0.053	100	0.063	120	0.072	125	0.080	160	minimum R=390	
250	0.040	60	0.040	75	0.047	85	0.059	100	0.069	110	0.078	125	0.080	160		
220	0.040	60	0.040	70	0.051	80	0.062	95	0.073	110	0.080	125	minimum R=300			
200	0.040	60	0.041	70	0.054	80	0.065	90	0.075	110	minimum R=230					
180	0.040	60	0.044	65	0.057	75	0.068	90	0.078	110						
160	0.041	55	0.047	65	0.060	75	0.072	85	0.080	110						
140	0.044	55	0.051	65	0.064	70	0.076	85	minimum R=170							
120	0.048	55	0.055	60	0.069	70	0.080	85								
100	0.053	50	0.061	55	0.074	65	0.080	85								
90	0.056	50	0.064	55	0.077	65	minimum R=120									
80	0.060	50	0.067	55	0.080	65										
70	0.064	50	0.071	50	0.080	65										
60	0.068	45	0.075	50	minimum R=80											
50	0.070	45	0.080	50												
35	0.080	40	minimum R=50													
30	0.080	35														
	minimum R=30															

e_{max} = 0.08

normal cross slope = 0.04

Notes

e is superelevation
A is spiral parameter in metres
NC is normal cross section
Spiral length, $L = A^2 \div$ Radius
Spiral parameters are minimum and higher values should be used where possible
Spirals are desirable but not essential above the dashed line.

Table H.3.3.1e
Superelevation and minimum spiral parameter for low-volume roads, e_{max} = 0.06, normal cross slope = 0.04

design speed, km/h	30		40		50		60		70		80		90		100	
radius, m	e	A	e	A	e	A	e	A	e	A	e	A	e	A	e	A
7000	NC		NC		NC		NC		NC		NC		NC		NC	
5000	NC		NC		NC		NC		NC		NC		NC		NC	
4000	NC		NC		NC		NC		NC		NC		NC		0 040	480
3000	NC		NC		NC		NC		NC		0 040	350	0 040	390	0 040	400
2000	NC		NC		NC		0 040	260	0 040	275	0 040	300	0 040	300	0 040	340
1500	NC		NC		NC		0 040	225	0 040	250	0 040	250	0 040	270	0 040	300
1200	NC		NC		0 040	190	0 040	200	0 040	225	0 040	225	0 040	240	0 040	250
1000	NC		NC		0 040	170	0 040	175	0 040	200	0 040	200	0 040	225	0 042	240
900	NC		0 040	145	0 040	150	0 040	175	0 040	180	0 040	200	0 040	200	0 044	225
800	NC		0 040	135	0 040	150	0 040	160	0 040	175	0 040	175	0 042	200	0 047	200
700	0 040	110	0 040	125	0 040	140	0 040	150	0 040	175	0 040	175	0 045	185	0 049	200
600	0 040	100	0 040	120	0 040	125	0 040	140	0 040	150	0 042	175	0 048	175	0 053	200
500	0 040	90	0 040	100	0 040	120	0 040	125	0 041	140	0 046	150	0 052	160	0 057	200
400	0 040	80	0 040	90	0 040	100	0 040	115	0 045	125	0 051	135	0 057	160	0 060	200
350	0 040	75	0 040	90	0 040	100	0 041	110	0 048	120	0 054	125	0 059	160	minimum R=420	
300	0 040	70	0 040	80	0 040	90	0 044	100	0 051	120	0 057	125	0 060	160		
250	0 040	60	0 040	75	0 040	85	0 048	90	0 055	110	0 060	125	minimum R=340			
220	0 040	60	0 040	70	0 043	80	0 050	90	0 057	110	0 060	125				
200	0 040	60	0 040	70	0 045	75	0 052	85	0 059	110	minimum R=250					
180	0 040	55	0 040	60	0 047	70	0 054	85	0 060	110						
160	0 040	55	0 040	60	0 049	70	0 056	85	minimum R=190							
140	0 040	55	0 043	60	0 052	65	0 059	85								
120	0 040	50	0 046	60	0 055	65	0 060	85								
100	0 043	50	0 049	50	0 058	65	minimum R=130									
90	0 045	45	0 051	50	0 060	65										
80	0 048	45	0 054	50	0 060	65										
70	0 050	40	0 056	50	minimum R=90											
60	0 053	40	0 059	50												
50	0 057	40	0 059	50												
35	0 060	35	minimum R=55													
	minimum R=35															

e_{max} = 0.06

normal cross slope = 0.04

Notes

e is superelevation
A is spiral parameter in metres
NC is normal cross section
Spiral length, $L = A^2 \div$ Radius
Spiral parameters are minimum values. Higher values should be used where possible
Spirals are desirable but not essential above the dashed line.

H.3.3.2 Transition curves

On any type of roadway, the wheel path of a vehicle naturally adopts a transition path when entering and leaving a horizontal circular curve. The provision of a transition curve between the tangent and the horizontal circular curve to accommodate the wheel path confines the vehicle to the designated travelled portion of the roadway. Without transition curves, the transition path adopted may result in the vehicle encroaching on the travelled portion of the roadway designated for opposing traffic. The transition curve also provides a length over which superelevation can be developed in a manner closely fitting the speed-radius relation for the vehicle. Construction costs associated with implementing transition curves are negligible, and as their use tends to promote uniformity in speed, they may reduce vehicle operating costs.

The form and properties of transition curves are discussed in B.3.2.2. Design values for spiral parameters are given in Tables H.3.3.1b to H.3.3.1e.

Figure H.3.3.2 illustrates the desirable method of developing superelevation when spiral transition curves are used. The adverse crown is completely removed at the beginning of the spiral by using a relative slope between the edge of the roadway and the centreline of the roadway of 1:200. From the beginning of the spiral to the beginning of the curve, the slope of the roadway is governed by spiral parameter requirements.

H.3.3.3 Design controls

In addition to the standards and guidelines discussed for circular and transition curves, there are a number of other controls and considerations that are observed in horizontal alignment design such as sharp curves, abrupt reversals in alignment, and access controls. These are discussed in B.3.3 and B.5.1.

H.3.4 Vertical alignment*

H.3.4.1 Grades*

Maximum grades cannot generally be established without an economic analysis to determine the most economical grade for the specific conditions encountered. Steep grades may reduce construction costs, however, they increase operating costs and could be significant where truck traffic is predominant. In addition, they may create hazardous conditions in areas where snow and ice conditions prevail for part of the year.

Another factor to be considered in selecting grades is the resistance to erosion of the road surface material and the soil in the adjacent drainage ditches.

Suggested maximum gradients are given in Table H.3.4.1 for a range of design speeds from 30 km/h to 100 km/h for rolling and mountainous terrain.

Higher maximum gradients are suggested for low-volume roads than for roads of higher classification. The benefits gained from reducing vehicle operating and time costs may not offset the additional construction costs of implementing minimal gradients. However, gradients less than maximum should be used where possible to increase the level of service and standard of operation, unless an economic analysis justifies using maximum gradients.

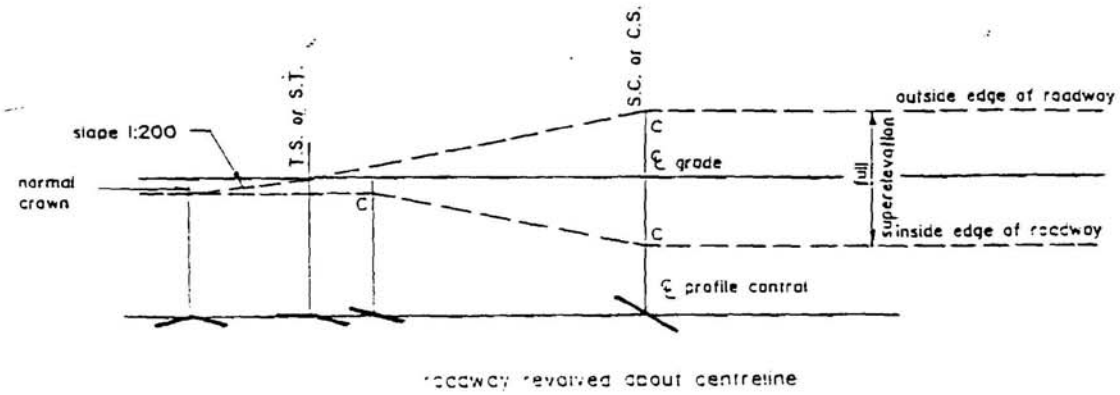
H.3.4.2 Vertical curves*

Crest vertical curvature and sag vertical curvature for low-volume roads are based on the minimum stopping sight distances developed in H.3.2.

In developing crest vertical curvature for stopping sight distance, a height of driver's eye of 1.05 m is used, with a fixed object height of 150 mm, rather than a tail light height of 380 mm, as used in B.4.2.2. Although this increases the length of vertical curve over that required for a road of higher classification, it is considered appropriate for low-volume roads. On such roads, where traffic volumes are low and where there may be an absence of continuous maintenance, there is more likelihood of a vehicle having to stop for a fixed object such as logs, washouts, etc., rather than another vehicle.

The equations for calculating crest vertical curvature values for stopping sight distance are given in B.4.2.2. Table H.3.4.2a gives crest vertical curvature values for stopping sight distance for two-lane roads and one-lane one-way roads for a range of design speeds from 30 km/h to 100 km/h.

Figure H.3.3.2
Development of superelevation with transition curve



roadway revolved about centreline

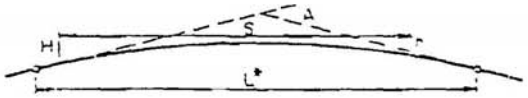
Table H.3.4.1
Maximum gradient for low-volume roads

design speed, km/h	30		40		50		60		70		80		90		100	
topography	R	M	R	M	R	M	R	M	R	M	R	M	R	M	R	M
maximum gradient, %	11	16	11	15	10	14	10	13	9	12	8	10	7	9	6	8

Notes

R refers to rolling topography
M refers to mountainous topography

Table H.3.4.2a
Crest vertical curvature for stopping sight distance for two-lane and one-lane one-way low-volume roads



L – length of vertical curve in metres
A – algebraic difference in grades percent
S – minimum stopping distance in metres
H – height of driver's eye 1.05 m
h – height of object 150 mm
$K = \frac{L}{A}$

design speed km/h	minimum stopping sight distance (a) m	crest, K (b) m
30	30	3
40	45	5
50	65	12
60	85	18
70	110	30
80	140	50
90	170	70
100	200	100

* L in metres should be not less than design speed in kilometres per hour.
(a) based on fixed brake reaction time of 2.5 s
(b) based on fixed brake reaction time of 2.5 s and object height of 150 mm

The parameters to be considered for developing crest vertical curvature for stopping sight distance for one-lane two-way roads are the height of the driver's eye taken to be 1.05 m, and the height of the opposing vehicle, taken to be 1.30 m. Table H.3.4.2b gives crest vertical curvature values for minimum stopping sight distance for one-lane two-way roads for a range of design speeds from 30 km/h to 50 km/h.

Sag vertical curvature for stopping sight distance is based on the headlight control criteria. Low-volume roads are normally not illuminated. The equations for calculating this are given in B.4 2.3.

Table H.3.4.2c gives sag vertical curvature values for two-lane roads and one-lane one-way roads for a range of design speeds from 30 km/h to 100 km/h.

Table H.3.4.2d gives sag vertical curvature values for one-lane two-way roads for a range of design speeds from 30 km/h to 50 km/h.

Table H.3.4.2e gives crest vertical curvature values for passing sight distance for two-lane roads for a range of design speeds from 30 km/h to 100 km/h. The equations for calculating crest vertical curvature for passing sight distance are given in B.4.2.4.

H.3.4.3 Design controls

In addition to the standards and guidelines discussed for grades and vertical curves, there are a number of other controls and considerations that should be observed in vertical alignment design such as drainage, vertical clearance, and use of minimum curvature. These are discussed in B.4.3.

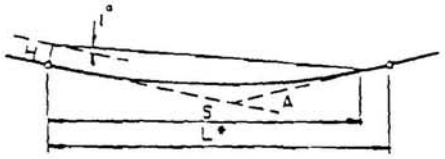
Table H.3.4.2b
Crest vertical curvature for stopping sight distance for one-lane two-way low-volume roads

design speed km/h	minimum stopping sight distance m	crest, K m
30	60	4
40	90	9
50	130	18

Table H.3.4.2d
Sag vertical curvature for stopping sight distance for one-lane two-way low-volume roads

design speed km/h	minimum stopping sight distance m	sag, K m
30	60	4
40	90	7
50	130	12

Table H.3.4.2c
Sag vertical curvature for stopping sight distance for two-lane and one-lane one-way low-volume roads



L – length of vertical curve in metres
A – algebraic difference in grades percent
S – minimum stopping sight distance in metres
H – height of head lamps 0.6 m
1° – angle of light beam upward from plane of vehicle
$K = \frac{L}{A}$

design speed km/h	minimum stopping sight distance m	sag, K (a) m
30	30	4
40	45	7
50	65	12
60	85	18
70	110	25
80	140	30
90	170	40
100	200	50

* L in metres should be not less than design speed in kilometres per hour.
(a) K values based on headlight control.

Table H.3.4.2e
Crest vertical curvature for passing sight distance for two-lane low-volume roads

design speed, km/h	30	40	50	60	70	80	90	100
minimum passing sight distance, m	250	290	340	420	480	560	620	680
crest *K*, m (rounded)	70	90	125	190	245	335	410	495

APPENDIX "A" LIST OF "K" ROADS

This list of "K" roads in the Municipality of Barrington was compiled from the Nova Scotia Department of Transportation and Communications Shelburne County Road List of December 5, 1995.

Road Number	Name (Rd. Alias)	Area	Length(km)	Description
501	Lyons Beach	Forbes Point	0.8	Forbes Point Road to end of listed road.
502	Pope's	Upper Woods' Harbour	1.6	Old railway crossing to Shelburne/ Yarmouth County line
503	Cemetery	Wood's Harbour	1.4	Woods' Harbour Cemetery to Shag Harbour Brook.
512	Atwood's Brook Station(Station)	Atwood's Brook	0.2	Route 3 northerly to site of C.N.R. Depot past cemetery.
514	McGray's	Centreville	0.2	Route 330 west to McGrays' Wharf.
517	Kenney Road (South Side Beach)	Stoney Island	1.9	End of G Section to Centreville South Side Road.
523	Cripple Creek	Clam Point	0.5	As per 1945 to road list.
525	Public Wharf	Barrington	0.3	Route 3 to public wharf, east of Barrington shed.
526	Sherose Island (Warren Doane)	Crowell's	0.1	Route 3 to shore.

Road Number	Name (Rd. Alias)	Area	Length(km)	Description
527	Wireless Station	Barrington	4.5	End of Section 1 to end of listed road.
533	Scotts' Mill	River Head	0.3	End of Section 1 to Hay Road.
534	Old Hay (Barrington Lake)	River Head	4.8	Scotts Mill Road to Meadows.
535	Crowells's Point	Barrington	0.7	End of I Section to end of listed road.
538	Villagedale (Old Loop)	Coffinscroft	0.5	.13 km. past Old Town Road to pavement.
539	Old Town	Coffinscroft	0.5	End of I Section to southerly along shore to end.
540	Baker's Run	Villagedale	1.1	Villagedale Road to sand beach and shore section to park.
548	Pond (Cemetery)	Port LaTour	0.7	Cemetery west to shore.
551	Cove (Pond's)	Port LaTour	1.0	Villagedale Road to shore.
558	Slaterville (Slatertown)	Blanche	1.8	Blanche Road Westerly to end of listed road.
560	Lyle's	Blanche	0.8	Blanche Road westerly to end of listed road (near C. Perry's)

Road Number	Name (Rd. Alias)	Area	Length(km)	Description
561	Swaine's	Cape Negro	5.5	George Ross house to Highway 3 at Clements' Pond.
562	Cape Negro Island	Cape Negro Island	3.2	All roads on Cape Negro Island.
566	Colquest	Upper Clyde	4.5	Upper Clyde Road to Colquest Bridge.
567	West River	Clyde River	0.8	End of passable section to Brown's Pit Road.
568	Lyle's	West Port Clyde	4.5	Port LaTour Road at Port Clyde to R/R Station to Swaine's Road.
579	Clam Point	Clam Point	0.7	End of I Section to beach.
584	Arey	Upper Port La Tour	0.5	Port LaTour Road at E. Arey's Store .47 km. Seal Point Road.
621	Brown' Pit (West River)	Clyde River	0.8	West River Road to south end of pit.
626	Old Schooldhouse (Baccaro)	Baccaro	0.7	End of I Section to Minard O'Connell old store.