



Planning Advisory Committee

Tuesday, June 10, 2025 following a Public Participation Meeting
Council Chambers
181 Coldbrook Village Park Drive

A G E N D A

1. Meeting to Order
2. Roll Call
3. Amendments to Agenda
4. Approval of the Agenda
5. Disclosure of Conflict-of-Interest Issues
6. Approval of Minutes
 - a. May 22, 2025 3
7. Business Arising from the Minutes
8. Business:
 - a. Draft By-law #113 - Subdivision By-law and Municipal Specifications (Paul Dec, Upland Planning + Design Studio) 7
 - b. Application for a Land Use By-law Text Amendment to permit up to two secondary suites in the Residential One Unit (R1) Zone (File 25-09, Laura Mosher) 143
 - c. Application to enter into a development agreement at 808 Main Street (PID 55122170), Kingston (File 25-03, Alice Jacob) 151
9. Other Business
10. Comments from the Public

11. Next Meeting - July 8, 2025 at 1:00 pm

12. Adjournment

Accommodations are available for this meeting: please submit your request at
www.countyofkings.ca/accommodationsrequest

PLANNING ADVISORY COMMITTEE

May 22, 2025

Draft Minutes

Meeting, Date and Time	A meeting of the Planning Advisory Committee (PAC) was held on Thursday, May 22, 2025, in Council Chambers at 181 Coldbrook Village Park Drive.
Attending	In Attendance:
PAC Members	Councillor Emily Lutz – Chair Councillor Doug Gates Councillor Everett MacPherson Erik Deal – Citizen Member Kate Friars – Citizen Member
Municipal Staff	Alice Jacob – Planner Peri Bowman – Planner Trish Javorek – Director, Planning and Inspections Laura Mosher – Manager, Planning Mandy Burgess – Manager, Development Gordon Halliday – Development Officer (until 1:40 pm) Kimberly Crewe – Development Officer (until 1:40 pm) Brad Carrigan – Director, Engineering & Public Works, Lands & Parks (until 1:40pm) Laurie-Ann Clarke – Recording Secretary
Guests	Paul Dec, Planner, Upland Planning + Design Studio
Public	2
Regrets	Deputy Mayor Riley Peckford – Vice Chair Logan Morse – Citizen Member
1. Meeting to Order	Councillor Lutz, Chair, called the meeting to order at 1:00 pm.
2. Roll Call	Roll call was taken.
3. Amendments to the Agenda	The Chair noted that item 8c. had been removed from the agenda package and will be presented to PAC at a later date. Councillor MacPherson requested that staff prepare a presentation regarding the Nova Scotia Regulatory and Appeal Board's decisions on recent appeal files.
4. Approval of the Agenda	On motion of Ms. Friars and Councillor Gates, that the agenda for the May 22, 2025, meeting of Planning Advisory Committee be approved as circulated. The question was called on the motion. Motion carried.

5. **Disclosure of Conflict-of-Interest** None.
6. **Approval of Minutes**
- a. **April 8, 2025** **On motion of Councillor Gates and Councillor MacPherson, that the minutes of the Planning Advisory Committee meeting held on April 8, 2025, be approved as circulated.**
- The question was called on the motion. **Motion carried.**
7. **Business Arising from the Minutes** None
8. **Business**
- a. **Draft By-Law 113 - Subdivision By-law and Municipal Specifications** Paul Dec, Planner, UPLAND Planning + Design Studio, provided an overview of the draft of By-law 113 – Subdivision By-law and Municipal Service Systems Specification Manual included in the meeting’s [agenda package](#).
- Questions of Clarification:
- Councillor MacPherson asked how the draft subdivision by-law compares to the subdivision by-laws that have been adopted by other municipalities. It was clarified that subdivision by-laws are fairly standard across the province because of the Provincial Subdivision regulations while the Municipal Planning Strategy and Municipal Service Systems Specification Manual are where differences may be seen.
- There was a discussion on when sidewalks would be required under By-law 113.
- On the motion of Ms. Friars and Councillor Gates, that the Planning Advisory Committee hold a Public Participation Meeting regarding By-Law 113: Subdivision By-law and the Municipal Service Systems Specification Manual on June 10, 2025 at 1:00 pm, prior to the regular Planning Advisory Committee meeting.**
- Debate: None
- The question was called on the motion. **Motion carried.**
- b. **Application to rezone the property at 836 Main Street, Kingston (PID 55122279) (File 25-05, Peri Bowman)** Peri Bowman, Planner, presented an application by Alexander and Sarah Naesmyth to rezone the property at 836 Main Street (PID 55122279), Kingston from the General Commercial (C1) Zone to the Mixed Commercial Residential (C1) Zone to the mixed Commercial Residential (C3) Zone to permit the development of two, four-unit dwellings.

Questions of Clarification:

Councillor Gates asked about the difference between the C1 and C3 Zones. Staff clarified that the Mixed Commercial Residential zone is designed to allow residential and commercial uses to exist together and in general, the commercial activities permitted in this zone are of lower impact than those permitted in the General Commercial Zone.

The Chair asked how many units would be permitted on the property if the rezoning were approved and staff advised that there are many considerations that go into that calculation. The current zoning allows for eight units.

There was a discussion about land use designations and the options for rezoning within and across designations.

On the motion of Councillor MacPherson and Councillor Gates, that the Planning Advisory Committee recommends that Municipal Council give First Reading to and hold a Public Hearing regarding the application to rezone 836 Main Street (PID 55122279), Kingston from the General Commercial (C1) Zone to the Mixed Commercial Residential (C3) Zone, as described in Appendix C of the report dated May 22, 2025.

Debate: None

The question was called on the motion. **Motion carried.**

- c. Application to enter into a development agreement to permit a Tourist Commercial Use on Greenfield Road (PID 55224067), Gaspereau (File 24-11, Peri Bowman)**

Item 8c. was removed from the agenda and will be brought to PAC at a later date.

- d. Application to rezone a property on Highway 221 (PID 55045678), Centreville (File 24-18, Alice Jacob)**

Alice Jacob, Planner, presented an application submitted by Brad Carty on behalf of Twin Mountain Construction Limited to rezone a vacant parcel on Highway 221 (PID 55045678), Centreville from the Residential One and Two Unit (R2) Zone to the Residential Mixed Density (R3) Zone to enable the development of a multi-unit dwelling containing four residential on the subject property.

Questions of Clarification:

Councillor MacPherson asked for clarification on the development process and when the Department of Environment and Climate Change (NSECC) may put environmental restrictions. Staff clarified that there would be no involvement until the building permit stage and in that case, no permit would be issued until concerns raised by NSECC had been addressed.

Councillor Gates asked if the subject property could be subdivided. Staff advised that there are a number of factors that would need to be considered but in theory yes.

A citizen member asked if there was a required separation distance from a drainage ditch and was told that there is not.

On the motion of Mr. Deal and Councillors Gates, that the Planning Advisory Committee recommends that Municipal Council give First Reading to and hold a Public Hearing regarding the application to rezone a vacant parcel located on Highway 221 (PID 55045678), Centreville from the Residential One and Two Unit (R2) Zone to the Residential Mixed Density (R3) Zone, as described in Appendix D of the report dated May 22, 2025.

Debate:

Councillor MacPherson stated that he did not believe rezoning the property was “reasonable and appropriate” and would not be voting in favour of it.

A citizen member asked how many units were allowed as-of-right under the current zoning. Staff advised that based on lot area alone, there could be up to 54 units. If grouped dwellings were built, 27 units. Other LUB requirements such as setbacks, amenity space, separation distances, minimum parking spaces and traffic aisles and storm water infrastructure could see a reduction in actual number of units permitted on the site.

- | | |
|-------------------------------------|---|
| 9. Other Business | None |
| 10. Comments from the Public | None |
| 11. Date of Next Meeting | The next meeting of the Planning Advisory Committee will be held on Tuesday, June 10, 2025 immediately following the Public Participation Meeting for proposed By-law #113 and the Municipal Specs. |
| 12. Adjournment | There being no further business, on motion of Councillor Gates and Councillor MacPherson, that the meeting adjourn. |

Approved:
Planning Advisory Committee

Month/Day/Year



**Municipality of the
County of Kings**

BY-LAW 113

SUBDIVISION BY-LAW

Adopted by Municipal Council:

July XX, 2025

**Amended and Approved by the Minister of
Municipal Affairs:**

August XX, 2025

TABLE OF CONTENTS

PART 1	GENERAL	4
SECTION 1	ADMINISTRATION	5
1.1	Authority and Title	5
1.2	Administration	5
1.3	Effective Date	5
1.4	Severability	5
1.5	Compliance with Other Legislation	5
SECTION 2	INTERPRETATION	6
2.1	Measurement	6
2.2	General Interpretation	6
2.3	Rules of Interpretation	6
PART 2	SUBDIVISION REQUIREMENTS	7
SECTION 3	LOT REQUIREMENTS.....	8
3.1	Land Use By-law	8
3.2	Lots to Abut Roads	8
3.3	Provincial On-site Sewage Disposal Systems Regulations	8
3.4	Remainder Lots	8
3.5	Confirmation of Responsibility on Existing Roads	8
3.6	Lot Area and Frontage Variance	8
3.7	Lot Boundary Alteration	8
3.8	Islands	9
3.9	Rectification of Encroachments.....	9
3.10	Lot shapes and geometry	9
3.11	Subdivision limitations by calendar year	9
SECTION 4	ROAD DEVELOPMENT.....	10
4.1	Limitations on Creation of New Roads	10
4.2	Approval of Roads	10
4.3	Public Roads	10
4.4	Public Road Approval	10
4.5	Private Roads.....	12
4.6	System Design and Connectivity	12
SECTION 5	PUBLIC OPEN SPACE.....	13
5.1	Dedication Required.....	13
5.2	Waiver	13
5.3	Open Space Standards	13
PART 3	PROCEDURE	15
SECTION 6	GENERAL REQUIREMENTS FOR APPLICATIONS.....	16
6.1	Application Form	16

6.2	Agencies to Forward Recommendations.....	16
6.3	Additional Information	16
6.4	Plan Contrary to Provincial Law or Regulation	16
6.5	Notification of Land Registration Office	16
6.6	Notification of Subdivider	17
6.7	Fees	17
SECTION 7	CONCEPT PLANS.....	17
7.1	Concept Plan (Optional)	17
7.2	Concept Plan Requirements	17
7.3	Concept Plan Procedure	18
SECTION 8	TENTATIVE PLANS OF SUBDIVISION.....	19
8.1	Tentative Plan	19
8.2	Tentative Plan Requirements.....	19
8.3	Tentative Plan Procedure.....	20
8.4	Stamps to Appear on Tentative Plan	21
SECTION 9	FINAL PLANS OF SUBDIVISION	22
9.1	Final Plan Requirements.....	22
9.2	Final Plan Procedure.....	24
9.3	Public Open Space Contribution Required	24
9.4	Sewer and Water Approvals Required.....	24
9.5	Public Road Construction or Agreement Required.....	25
9.6	Approval of Consolidation or Addition	25
9.7	Approval after Conveyance	25
9.8	Stamps to Appear on Final Plan	25
SECTION 10	REPEAL OF SUBDIVISION	26
10.1	Approval May be Repealed	26
10.2	Application to Repeal	26
10.3	Provisions Applicable.....	26
10.4	Agency Assessments	26
10.5	Compliance with By-laws.....	27
10.6	Approval Notification	27
PART 4	DEFINITIONS.....	28
DEFINITIONS	29	



MUNICIPALITY *of the*
COUNTY *of* KINGS

PART 1 GENERAL

Section 1 ADMINISTRATION

Section 2 INTERPRETATION

SECTION 1 ADMINISTRATION

1.1 Authority and Title

- 1.1.1 This By-law is enacted by Council of the Municipality under the provisions of sections 271-274 *Municipal Government Act* (S.N.S. 1998, ch. 18) hereinafter the "*Act*".
- 1.1.2 This By-law may be cited as the "Subdivision By-law" of the Municipality of the County of Kings.
- 1.1.3 This By-law may also be cited as "By-law" when used in a self-referential manner within the text.
- 1.1.4 All former Subdivision By-laws of the Municipality are repealed upon the effective date of this By-law.

1.2 Administration

- 1.2.1 This By-law shall be administered by the Development Officer of the Municipality appointed under the authority of the *Act*.
- 1.2.2 Technical specifications related to creation of new infrastructure within a subdivision shall be administered through the Municipal Service Systems Specifications Manual, based on the manual's version in effect at the time of the subdivision application.
- 1.2.3 The Municipal Service Systems Specifications Manual, referred to throughout this By-law, is administered by the Municipal Engineer appointed by Council. These Municipal Specifications may be reviewed and amended by the Municipal Engineer in accordance with section 211(1)(a) of the *Act* and accepted current engineering practices.

1.3 Effective Date

- 1.3.1 This By-law is effective at the date of publication of provincial approval by the Municipal Clerk in accordance with the *Act*.

1.4 Severability

- 1.4.1 The invalidity or unenforceability of any provision of this By-law, as determined by a court of competent jurisdiction, shall not affect the validity or enforceability of any other provision, and any invalid provision will be severable.

1.5 Compliance with Other Legislation

- 1.5.1 Nothing in this By-law shall exempt any applicant or property owner from compliance with any other applicable municipal, provincial or federal legislation or from any license, permission, permit authority or approval required by this or any other By-law of the Municipality, or other lawful authority. Where the provisions of this By-Law conflict with those of any other Government regulation, By-law or Code, the most stringent requirements shall prevail.

SECTION 2 INTERPRETATION

2.1 Measurement

- 2.1.1 The metric system of measurement is used throughout this By-law. Imperial Measurement conversions are identified in brackets and rounded up to the nearest whole number, for convenience only, and in all cases of conflict between Imperial Measure and Metric Measure, the Metric Measure shall prevail.

2.2 General Interpretation

- 2.2.1 Unless otherwise provided, any enactments referenced herein are to the *Act* and the Provincial Subdivision Regulations as amended, revised, consolidated or replaced from time to time. Any By-law referenced herein is to an enactment of the Municipality of the County of Kings Council, as amended, revised, consolidated or replaced from time to time.

2.3 Rules of Interpretation

- 2.3.1 Compliance with the regulations in this By-law shall be interpreted and applied as follows:
- a) "shall" is mandatory;
 - b) "may" is discretionary.
- 2.3.2 Where a regulation involves two or more conditions, provisions or events connected by a conjunction, the following shall apply:
- a) "and" means all the connected items shall apply in combination;
 - b) "or" indicates that the connected items may apply singly or in combination.
- 2.3.3 Words shall have the same meaning as:
- a) Per definition in this By-law;
 - b) In the absence of the above, as per definition in the Provincial Subdivision Regulations;
 - c) In the absence of the above two cases, as per definition in the Land Use By-law;
 - d) In the absence of the above three cases, as per definition in the *Act*; or,
 - e) In the absence of the above four cases, as per its customary meaning.



MUNICIPALITY *of the*
COUNTY *of* KINGS

PART 2 SUBDIVISION REQUIREMENTS

Section 3	LOT REQUIREMENTS
Section 4	ROAD DEVELOPMENT

SECTION 3 LOT REQUIREMENTS

3.1 Land Use By-law

- 3.1.1 All lots shall meet the applicable lot area and lot frontage requirements contained in the Land Use By-law, unless otherwise provided for in this By-Law.

3.2 Lots to Abut Roads

- 3.2.1 All lots to be approved on a plan of subdivision shall, along their lot frontage, abut on:
- a) A public road; or,
 - b) A private road.
- 3.2.2 A proposed lot planned to have access from a public road shall have that road access approved by the authority having jurisdiction, unless it is an existing lot with an existing access to a public road.

3.3 Provincial On-site Sewage Disposal Systems Regulations

- 3.3.1 Notwithstanding any other provision of this By-law, any lot that is not serviced by an approved central wastewater collection and treatment system needs to comply with minimum lot requirements as per *On-site Sewage Disposal Systems Regulations* under the *Environment Act* as amended.

3.4 Remainder Lots

- 3.4.1 For the purposes of this By-law, remainder lots are considered approved lots. Remainder lots need not be surveyed but the plan of subdivision shall demonstrate that remainder lot(s) meet all requirements applicable to lots seeking formal approval.

3.5 Confirmation of Responsibility on Existing Roads

- 3.5.1 Where a proposed lot abuts an existing public road, the authority having jurisdiction shall verify the ownership of the road and its maintenance commitment to the road prior to the Development Officer approving the plan.

3.6 Lot Area and Frontage Variance

- 3.6.1 Notwithstanding the provisions of Subsection 3.1.1, and subject to Section 279 of the *Act*, the Development Officer may approve a Plan of Subdivision showing no more than two lots that do not meet the lot frontage and lot area requirements, provided that the lot frontage and area are not less than ninety (90%) per cent of the required minimums.

3.7 Lot Boundary Alteration

- 3.7.1 Notwithstanding any other provision of this By-law, the Development Officer may approve a Plan of Subdivision altering the boundaries of two or more parcels which do not abut a public road or do not meet the requirements of the Land Use By-law where:
- a) no additional lots are created;
 - b) each resulting lot:
 - (i) meets the minimum frontage requirement, or

(ii) has not had its frontage reduced;

and,

- c) each resulting lot:
 - (i) meets the minimum lot area requirement, or
 - (ii) has not had its lot area reduced.

3.8 Islands

3.8.1 Notwithstanding the lot frontage requirement of Subsection 3.1.1, the Development Officer may approve a Plan of Subdivision showing lots on an island which does not contain public streets or public highways, provided each lot has water frontage equal or greater than the lot frontage requirement of the applicable zone.

3.9 Rectification of Encroachments

3.9.1 Notwithstanding the lot area and frontage requirements of Subsection 3.1.1 where a development component of a permanent nature such as an existing structure, driveway, well, or on-site sewage disposal system 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.

3.9.2 Where a lot created in accordance with Subsection 3.9.1 is not surveyed pursuant to Subsection 9.1.9, the provisions of Section 3.7 shall additionally apply.

3.10 Lot shapes and geometry

3.10.1 Lots shall not be subdivided to create a width or depth of less than 6 metres (20 feet).

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

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

3.11 Subdivision limitations by calendar year

3.11.1 Within the Agricultural (A1) Zone as shown in the Land Use By-law, the subdivision of land in any calendar year shall be limited to one additional lot, for which approval is requested, for any parcel of land existing on January 1st of that year.

3.11.2 Within the Lakeshore Limited Development (S2) Zone as shown in the Land Use By-law, the subdivision of land in any calendar year shall be limited to one additional lot, for which approval is requested, for any parcel of land existing on January 1st of that year.

SECTION 4 ROAD DEVELOPMENT

4.1 Limitations on Creation of New Roads

- 4.1.1 The Development Officer shall not approve a plan of subdivision showing a proposed road to be created by the same plan of subdivision, except for:
- a) Public roads in areas designated as 'Growth Centres' on Schedule A (Municipal Structure Map) of the Municipal Planning Strategy;
 - b) Public roads in areas zoned as Country Residential (A4) Zone on Map 13 (Rural Zoning) of the Land Use By-law; or,
 - c) Private roads in areas zoned as Lakeshore Residential (S1), Lakeshore Limited Development (S2), Tidal Shoreland (T1) or Tidal Commercial (T2) Zones on Map 13 (Rural Zoning) of the Land Use By-law.

4.2 Approval of Roads

- 4.2.1 All proposed roads shall meet the standards of the Municipal Service Systems Specifications Manual as confirmed by the Municipal Engineer.
- 4.2.2 The Municipal Service Systems Specifications Manual regulates the installation of infrastructure within the right-of-way of proposed roads. Installations may include water, sewer and/or stormwater management infrastructure and sidewalks, as required by the Municipality depending on the location. The Municipal Engineer shall consult with and seek approval from authorities having jurisdiction.

4.3 Public Roads

- 4.3.1 Where they are permitted, public roads shall:
- a) be shown on tentative and final plans of subdivision;
 - b) be designed in accordance with the Municipal Service Systems Specifications Manual and the requirements of this section; and,
 - c) be constructed in accordance with the Municipal Service Systems Specifications Manual prior to acceptance by the Municipal Engineer and granting of final approval by the Development Officer.
- 4.3.2 The minimum width of the right-of-way of a proposed public road shown on a plan of subdivision shall be:
- a) 16 metres (53 feet) in Growth Centres, as shown on Schedule A of the Municipal Planning Strategy;
 - b) 20 metres (66 feet) outside of Growth Centres.
- 4.3.3 Where a proposed municipal public road intersects a provincial public highway, that intersection shall be approved by the Provincial authority having jurisdiction.

4.4 Public Road Approval

- 4.4.1 Following completion of any municipal public road and prior to acceptance by the Municipality of any road, the subdivider shall:

- a) post a maintenance bond in the amount of ten (10) per cent of the cost of construction of the street for a period of twelve (12) months. This bond amount shall be determined by the Municipal Engineer and be based upon all construction related costs for the road and underground infrastructure including, but not limited to, professional engineering contract management and site supervision and inspection of all construction and work and;
 - b) provide "as-built", reproducible engineering design drawings for the street including plan and profile of streets drawn to the required scale and certified by a professional engineer;
 - c) provide a digital copy of the final plan of subdivision showing the location and extent of the municipal public road surface within the right-of-way and easements;
 - d) provide legal conveyance of ownership of the right-of-way for the municipal public road, road reserve(s) and easement(s) to the Municipality. This conveyance shall be in the form of a warranty deed and the subdivider shall, through their legal counsel, certify that all property to be conveyed is free from all encumbrances; and
 - e) be responsible for all registration and other costs associated with the requirements of this section.
- 4.4.2 As an alternative to the complete construction and acceptance requirements for of Subsection 4.3.1, the subdivider may enter into a written agreement with the Municipality pursuant to the requirements of Subsections 4.2.1, 4.4.3, 4.4.1 and 4.4.4.
- 4.4.3 Agreements entered into between a subdivider and the Municipality shall contain provisions with respect to any or all of the following:
- a) the time within which any municipal public road construction shall be completed;
 - b) the phasing of any street construction;
 - c) the acceptance of any street by the Municipality;
 - d) the provision and acceptance of easements and rights-of-way; and,
 - e) any other matter related to the requirements for road construction.
- 4.4.4 Where a subdivider proposes to complete construction of any municipal public road after receiving approval of any final plan of subdivision the following shall be required:
- a) the subdivider shall post a performance bond in the amount of one hundred and fifty (150) per cent of the estimated cost to complete the infrastructure for a period of twenty four (24) months;
 - b) the subdivider shall submit to the Development Officer for approval an estimate of costs to complete the construction of the road and if in the opinion of the Municipal Engineer, the estimate value is inadequate, the Municipal Engineer may seek clarification from the design engineer. Such estimates shall be submitted by the design Engineer and shall include all construction related costs including, but not limited to, professional engineering contract management and site supervision and inspection of all construction and work; and,
 - c) the performance bond shall be posted before endorsement of approval of any final plan of subdivision being given.
- 4.4.5 The performance bond and the maintenance bond shall be in the favour of the "Municipality of the County of Kings" and may be in the form of cash, certified cheque or letter of credit or bond issued by a surety or guarantee company licensed by the Province of Nova Scotia and conditional on the execution and completion of the

agreement in accordance with the terms of the agreement and the requirements of this Bylaw and shall not be subject to cancellation, termination or expiration during the period of time for completion of the work.

4.5 Private Roads

4.5.1 Where permitted, private roads:

- a) shall be identified on tentative and final plan of subdivision;
- b) shall be designed in accordance with the Municipal Service Systems Specifications Manual and the requirements of this section.

4.5.2 Private roads may be approved as a separate lot on a plan of subdivision. The lot to be used as a private road right-of-way is exempt from all minimum lot area, frontage or dimension requirements, except for those requirements specifically applying to private roads and listed in this Subsection.

4.5.3 The minimum width of the right-of-way of a private road shall be 20 metres (66 feet).

4.5.4 All private roads shall be built to provide a clear travelled surface having a minimum width of 6.1 metres,(20ft) with that travelled surface being fully contained within the road right-of-way.

4.5.5 Where a proposed private road intersects a public road, that intersection shall be approved by the authority having jurisdiction over the public road.

4.5.6 The subdivider shall demonstrate clear access rights from the new Private Road to a public road and confirm the access rights are transferable to infant parcels. Where all private roads involved in this access route to a public road have been created on or after April 01, 1999 (i.e. the effective date of the *Act*), this requirement shall be deemed satisfied pursuant to s.280(2) of the *Act*.

4.5.7 The Municipal Engineer shall be satisfied that the requirements of this section have been met prior to the approval of the final plan of subdivision by the Development Officer.

4.6 System Design and Connectivity

4.6.1 All proposed roads and subdivision designs shall connect to existing roads.

4.6.2 The maximum number of approaches to any proposed intersection shall be four (4).

4.6.3 A right-of-way road reserve in compliance with the requirements of Subsection 4.3.2 is required to provide access to at least one adjacent property and where required, must be conveyed to the Municipality. Where practical, these accesses shall be no greater than 400 metres (1,313 feet) apart except where this requirement would prejudice the proper subdivision of the land proposed to be subdivided or the adjacent land.

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

4.6.5 The minimum length of road which is eligible for road acceptance by the Municipality is 150 metres, unless otherwise deemed acceptable by the Municipal Engineer.

4.6.6 Cul-de sac street endings are not permitted on streets measuring more than 230 metres (755 feet) in length from the closest intersection unless deemed acceptable by the Municipal Engineer due to topography.

4.6.7 Where a cul-de-sac length of more than 230 metres (755 feet) is deemed acceptable by the Municipal Engineer, it requires a second access as approved by the Municipal Engineer to address emergency response and active transportation, connecting to an existing nearby public road from that cul-de-sac's right-of-way.

SECTION 5 PUBLIC OPEN SPACE

5.1 Dedication Required

- 5.1.1 Before endorsement of approval on the final plan of subdivision by the Development Officer, and in accordance with the *Act*, the subdivider shall reserve and convey to the Municipality, free of encumbrances, for recreation, active transportation, protection of natural resources or similar public purposes, an area of land equaling at a minimum 5% of the cumulative area of the new lots being created as shown on the final plan of subdivision.
- 5.1.2 Where there is no useable land free of all encumbrances, or where the subdivider so desires, the Municipality shall accept, in accordance with the *Act*, for park, playground or similar public purposes, a sum of money equal to 5% of the cumulative assessed value of the new lots being created as shown on the final plan of subdivision.
- 5.1.3 Newly created lots referred to in Subsections 5.1.1 and 5.1.2 shall include new remainder lots that have a lot area of less than 200% of the minimum lot area requirement from Subsection 3.1.1.
- 5.1.4 For the purposes of dedication calculations, lots intended for road rights-of-way and remainder land containing 200% or more of the minimum lot area requirement from Subsection 3.1.1 shall be excluded.
- 5.1.5 As an alternative to the requirements of Subsections 5.1.1 and 5.1.2, before endorsement of approval on the final plan of subdivision, a subdivider may offer to the Municipality, and at the Municipal Engineer's option the Municipality may accept, an amount of useable land of equivalent value or area to that required in Subsections 5.1.1 and 5.1.2, outside the area of land to be subdivided but within the boundaries of the Municipality.
- 5.1.6 At the option of the Municipality, a combination of land and money may be accepted by the Municipality provided that it is equivalent in value to that required in 5.1.1 and 5.1.2.

5.2 Waiver

- 5.2.1 The requirements of Subsection 5.1 shall be waived where:
 - a) lot boundaries are changed but no new vacant lots are created;
 - b) The proposed lot on the final plan of subdivision contains a dwelling which was in existence before the effective date of this By-law;
 - c) the subdivision is the result of a devise of land by will executed on or before January 1, 2000; or
 - d) the subdivider is a Federal Government Department or Agency, Provincial Government Department or Agency, or the Municipality.

5.3 Open Space Standards

- 5.3.1 Public Open Space dedicated in accordance with Subsection 5.1.1 shall comply with the following requirements:
 - a) consist of a parcel(s) having an area of 2,000 m² (21,528 ft²) or more;
 - b) shall fully consist of land that is usable by the general public for recreation or active transportation purposes, or contains historically or culturally important areas;
 - c) notwithstanding Clause b), may include up to 50% of dedication to natural heritage features such as natural landmarks, floodplains, wetlands or rare species habitats; and,
 - d) excepting natural heritage features, shall abut a public road.

5.3.2 In Growth Centres, as shown on Schedule A of the Municipal Planning Strategy, the following lands shall be prioritized for public dedication:

- a) lands that provide public access to scenic and culturally significant points of interest, including but not limited to views and historic sites;
- b) lands that link residential areas to destinations and contribute to an active transportation network, in particular related to access to trails;
- c) lands that provide recreational value and also protect the natural landscape, including but not limited to storm drainage ways, ravines, watercourses, and wellfields;
- d) lands on the outer edges of Growth Centres that provide recreational value as well as a physical separation to reduce land use conflict between residential uses and agricultural, resource, or forestry uses; or,
- e) where applicable, priority areas identified in a Secondary Plan of the Municipal Planning Strategy.

5.3.3 Outside of Growth Centres, as shown on Schedule A of the Municipal Planning Strategy, the following lands shall be prioritized for public dedication:

- a) lands that provide public access to scenic and culturally significant points of interest, including but not limited to views and historic sites;
- b) lands that provide public access to a lake;
- c) lands that build on existing assets and partnerships with the Provincial government, Federal government, villages or community groups;
- d) lands connecting areas of interest and contributing to an active transportation network;
- e) lands that prioritize the acquisition, development, and support of parks and trails that provide public access to the water and scenic features along the Fundy Shore, Minas Basin and other watercourses; or,
- f) land creating multiple points of public access on Aylesford, Gaspereau, and Black River lakes.



MUNICIPALITY *of the*
COUNTY *of* **KINGS**

PART 3

PROCEDURE

Section 6	GENERAL REQUIREMENTS FOR APPLICATIONS
Section 7	CONCEPT PLANS
Section 8	TENTATIVE PLANS OF SUBDIVISION
Section 9	Final Plans of Subdivision
Section 10	REPEAL OF SUBDIVISION

SECTION 6 GENERAL REQUIREMENTS FOR APPLICATIONS

6.1 Application Form

- 6.1.1 Any application for approval of a concept, tentative or final plan of subdivision shall be made to the Development Officer in the form specified in Schedule A of this Subdivision By-law.
- 6.1.2 The Development Officer shall comply with all notification and approval provisions of the Act.

6.2 Agencies to Forward Recommendations

- 6.2.1 Any agency that has been forwarded a copy of a concept, tentative or final plan shall forward a written report of its assessments or recommendations to the Development Officer. A copy of any repeal shall be sent to the relevant agency.

6.3 Additional Information

- 6.3.1 Where the concept, tentative, or final plan of subdivision is to be forwarded to the Department of Environment and Climate Change, the following additional information, if required by the Department of Environment and Climate Change, shall be part of, or included with, the plan:
 - a) the lot layout including buildings, proposed on-site sewage disposal system, proposed driveway, and water wells;
 - 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 and 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 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 Provincial On-site Sewage Disposal Systems Regulations.

6.4 Plan Contrary to Provincial Law or Regulation

- 6.4.1 Approval of a concept, tentative, or final plan may not be refused or withheld as a result of the assessment or recommendations made by the Department of Environment and Climate Change, the Department of Public Works or of any other agency of the Province or the Municipality unless the plan is clearly contrary to a law of the Province or regulation made pursuant to a law of the Province.

6.5 Notification of Land Registration Office

- 6.5.1 For final plans of subdivision, the Development Officer shall forward to the Land Registration Office:
 - a) within seven (7) days of approving the plan, one (1) approved copy of the final plan of subdivision, the form necessary to record and, if applicable, a notice of approval in the form specified in Schedule 'B' of this By-law; and

- b) if applicable, the items required by Subsection 9.6 (Approval of Consolidation or Addition) of this By-law.

6.5.2 For Repeals of Subdivision, the Development Officer shall forward to the Land Registration Office a Notice of Repeal as outlined in the Provincial Subdivision Regulations.

6.6 Notification of Subdivider

6.6.1 The Development Officer shall forward an approved copy of the concept, tentative, or final plan or Notice of Repeal to the subdivider.

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

- a) give notice of the refusal to all agencies which were forwarded a plan; and
- b) inform the subdivider of the reasons for the refusal in writing and advise the subdivider of the appeal provisions of section 284 of the *Act*.

6.7 Fees

6.7.1 At the time of application for approval of a plan of subdivision, the subdivider shall submit to the Development Officer:

- a) the fees contained in the Costs and Fees Act and its regulations for filing the approved final plan of subdivision and registering a notice of approval of the plan at the Land Registration Office; and
- b) the fee set by Council.

SECTION 7 CONCEPT PLANS

7.1 Concept Plan (Optional)

7.1.1 Concept Plans shall be optional, but are recommended:

- a) where a new road (public or private) is being proposed;
- b) where municipal wastewater, stormwater, and/or water systems are being extended and/or;
- c) where a new phase is being added to an existing subdivision.

7.2 Concept Plan Requirements

7.2.1 A subdivider proposing to subdivide an area of land may submit to the Development Officer four (4) printed copies and one (1) digital copy of a concept plan drawn to scale and showing:

- 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;
- c) the civic number of main buildings on the area of land being subdivided and the unique Parcel Identifier (PID) of all the areas of land being subdivided;
- d) the approximate location of railways and railway rights-of-way;
- e) existing and proposed public and private roads;
- f) the shape, dimensions, and area of the lots being created;

- g) 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. There shall be no duplication of lot identifiers;
- h) the graphic representation of lots being created shown by solid lines, and the vanishing boundaries of existing areas of land being resubdivided, consolidated or both, shown as broken lines;
- i) the location of existing buildings within 10 metres (32.8 feet) of a property line;
- j) the general location of watercourses and wetlands;
- k) contours at 5-metre intervals
- l) a location plan showing the approximate distance between the area of land being subdivided;
- m) the north point;
- n) the scale to which the plan of subdivision is drawn;
- o) the location of any proposed public open space; and,
- p) any other information necessary to determine whether this plan of subdivision may conform to this Subdivision By-law.

7.2.2 Where the concept plan is to be forwarded to the Department of Environment and Climate Change, the additional information required by the Department of Environment and Climate Change shall be part of, or included with, the application.

7.3 Concept Plan Procedure

7.3.1 In areas not served by central sewer, the Development Officer shall forward a copy of the concept plan to:

- a) the Department of Environment and Climate Change to determine compliance with the On-site Sewage Disposal Systems Regulations or—if the following conditions are met—for confirmation that an on-site sewage disposal system is not needed due to the following:
 - (i) the proposed lot is more than 9,000 square metres (96,876 square feet) in area;
 - (ii) the proposed lot has a width of 76 metres (250 feet) or more; and
 - (iii) the subdivider has certified on the application that the proposed lot is not intended for a purpose requiring an on-site sewage disposal system;
- b) the authority having jurisdiction for public roads shown on the plan;
- c) the Municipal Engineer where private roads are proposed; and,
- d) any other agency the Development Officer deems necessary.

7.3.2 In areas serviced by central sewer, the Development Officer shall forward a copy of the concept plan to:

- a) the authority having jurisdiction for public roads shown on the plan;
- b) the authority having jurisdiction over central services; and
- c) any other agency the Development Officer deems necessary.

7.3.3 The Development Officer shall inform the subdivider in writing of the results of the evaluation of the concept plan.

SECTION 8 TENTATIVE PLANS OF SUBDIVISION

8.1 Tentative Plan

8.1.1 Tentative Plans shall be mandatory with any installation of infrastructure such as water, wastewater or roads but are optional where:

- a) the lots being created abut an existing public road or an existing private road; and,
- b) no central (public) wastewater and/or water systems are to be installed.

8.2 Tentative Plan Requirements

8.2.1 A subdivider proposing to subdivide an area of land shall submit to the Development Officer five (5) printed copies and one (1) digital copy of the tentative plan of the proposed subdivision meeting the requirements of this section.

8.2.2 Tentative plans of subdivision submitted to the Development Officer shall be:

- a) drawn to a scale or scales sufficient for clarity of all particulars on the tentative plan of subdivision;
- b) based on a description of the area of land to be subdivided, preferably but not necessarily as surveyed;
- c) folded to approximately 20x30 centimetres (8x12 inches) 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.

8.2.3 Tentative plans of subdivision shall show the following:

- a) the words "Plan of Subdivision" located in the title block;
- b) the words "Tentative Plan" located above the title block;
- c) a clear space for stamping being a minimum of 225 square centimetres (35 square inches) with a minimum width of 8 centimetres (4 inches);
- d) the name of the subdivision, if any, and the name of the owner of the area of land being subdivided;
- 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 Land Registration Office;
- f) the unique Parcel Identifier (PID) of all areas of land being subdivided;
- g) the civic number and location of main buildings on the area of land being subdivided;
- h) the names of all owners or the identifiers of all properties abutting the area of land being subdivided;
- i) existing and proposed public roads and private roads, if applicable including proposed names as approved pursuant to the civic addressing system;
- j) elevation profiles of intersections with existing public roads;
- k) the width and location of railroads and railway rights-of-way;
- l) the shape, dimensions, and area of the proposed lots;
- m) 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. There shall be no duplication of lot identifiers;
- n) the boundaries of lots being created shown by solid lines, and the vanishing boundaries of existing areas of land being resubdivided, consolidated or both, shown as broken lines;
- o) the location of existing buildings within 10 metres (33 feet) of a property boundary;

- p) where applicable, a notation stating the lots are serviced by a central sewer and/or water system;
- q) the general location of watercourses, wetlands, or prominent rock formations;
- r) if applicable, sight-stopping distance information provided by a Nova Scotia Land Surveyor;
- s) the width, location, and nature of any easements on or affecting the area of land proposed to be subdivided;
- t) the location of any existing access from a proposed lot to a public road;
- u) the date on which the plan of subdivision was drawn and the date of any revisions;
- v) 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;
- w) the north point;
- x) the scale to which the plan of subdivision is drawn; and
- y) any other information necessary to determine whether the plan of subdivision conforms to this Subdivision By-law.

8.2.4 Where applicable, a copy of the permit to construct from Department of Environment and Climate Change for services under their jurisdiction shall be included in the application and is required prior to tentative approval.

8.2.5 Where the tentative plan of subdivision is to be forwarded to the Department of Environment and Climate Change additional information listed in Subsection 6.3 (Additional Information), if required by the Department of Environment and Climate Change, shall be part of, or included with, the tentative plan.

8.2.6 Where the proposed lots front on a proposed public road, a tentative subdivision application shall include:

- a) 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 Land Surveyors Act and its regulations;
- b) four (4) copies of a plan showing:
 - (i) contours at 2-metre (6.6 feet) intervals;
 - (ii) drainage patterns pre and post-design;
 - (iii) the width and location of proposed public roads and their intersection with existing public roads;
 - (iv) if applicable, the location of existing and proposed central sewer and water systems and proposed connections thereto; and
 - (v) two (2) copies of centerline profiles of proposed public roads.

8.3 Tentative Plan Procedure

8.3.1 In areas not served by central sewer, the Development Officer shall forward a copy of the tentative plan of subdivision to:

- a) the Department of Environment and Climate Change to determine compliance with the On-site Sewage Disposal Systems Regulations or—if the following conditions are met—for confirmation that an on-site sewage disposal system is not needed due to the following:
 - (i) the proposed lot is more than 9,000 square metres (96,876 square feet) in area;
 - (ii) the proposed lot has a width of 76 metres (250 feet) or more; and
 - (iii) the subdivider has certified on the application that the proposed lot is not intended for a purpose requiring an on-site sewage disposal system;
 - (iv) the Municipal Engineer where private roads are proposed;

- (v) the authority having jurisdiction for public roads shown on the plan; and
- (vi) any other agency the Development Officer deems necessary.
- b) In areas serviced by central sewer, the Development Officer shall forward a copy of the tentative plan of subdivision to:
 - (i) the Municipal Engineer or the Utility having jurisdiction for approval of the design of the system;
 - (ii) the authority having jurisdiction for public roads shown on the plan;
 - (iii) if a private road, the Municipal Engineer for confirmation design the requirements of this By-law and the Municipal Service Systems Specifications Manual; and
 - (iv) any other agency the Development Officer deems necessary.

8.3.2 Where new municipal public or private roads, central water systems, or central sewer systems are required, the Development Officer shall not approve a tentative plan of subdivision until the subdivider has submitted plans, drawings and specifications that satisfy the requirements of Subsections 4.2 and the Municipal Service Systems Specifications Manual as determined by the Municipal Engineer.

8.4 Stamps to Appear on Tentative Plan

- 8.4.1 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, including conditions, 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;
 - c) "This tentative plan of subdivision shall not be filed in the Land Registration Office as no subdivision takes effect until a final plan of subdivision is approved by the Development Officer and filed in the Land Registration Office."
- 8.4.2 The Development Officer shall forward a copy of the approved tentative plan of subdivision to the subdivider and the surveyor and notify in writing, where applicable, Nova Scotia Public Works, Nova Scotia Environment and Climate Change, and any other agency that the Development Officer requested review the plan, of the decision to approve the tentative plan.
- 8.4.3 Where the Development Officer refuses a tentative plan of subdivision, they shall notify the subdivider and the surveyor of the reasons for the refusal in writing pursuant to the *Act*, advising the subdivider of the appeal provisions of the *Act*.

SECTION 9 FINAL PLANS OF SUBDIVISION

9.1 Final Plan Requirements

- 9.1.1 A subdivider proposing to subdivide an area of land shall submit four (4) printed copies and one (1) digital copy of the final plan of subdivision meeting the requirements of this section to the Development Officer for approval.
- 9.1.2 Final plans 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 Land Surveyor that the lots for which approval is requested and any proposed public and/or private road have been surveyed in the manner required by the *Land Surveyors Act* and its regulations; and
 - c) folded to approximately 20x30 centimetres (8x12 inches) with the face of the folded print being the title block which is located in the lower right-hand corner of the final plan of subdivision.
- 9.1.3 Final plans of subdivision shall show the following:
- a) the words "Plan of Subdivision" located in the title block;
 - b) a clear space for stamping being a minimum of 225 square centimetres (35 square inches) with a minimum width of 8 centimetres (4 inches);
 - c) the name of the subdivision, if any, and the name of the owner of the area of land being subdivided;
 - d) 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 Land Registration Office;
 - e) the unique Parcel Identifier (PID) of all areas of land being subdivided;
 - f) the civic number and the location of main buildings on all the areas of land being subdivided;
 - g) the names of all owners or the identifiers of all properties abutting the area of land being subdivided;
 - h) the name of existing and proposed public roads and private roads as pursuant to the civic addressing system;
 - i) the width and location of railroads and railway rights-of-way;
 - j) the location of any existing access from a proposed lot to a public road;
 - k) the shape, dimensions, and area of the proposed lots and;
 - l) if applicable, a notation of area and frontage of the remainder;
 - m) 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. There shall be no duplication of lot identifiers;
 - n) the boundaries of proposed lots shown by solid lines, and the vanishing boundaries of existing areas of land being resubdivided, consolidated or both, shown as broken lines;
 - o) the location of existing buildings within 10 metres (33 feet) of a property boundary;
 - p) the geographical and mathematical location of all buildings within 3 metres (10 feet) of a proposed boundary;
 - q) where applicable, a notation stating the lots are serviced by a central sewer and/or water system; and
 - r) the width, location, and nature of any easements on or affecting the area of land proposed to be subdivided; and

- s) the location of watercourses, wetlands, and prominent rock formations;
 - t) if applicable, sight-stopping distance information provided by a Nova Scotia Land Surveyor;
 - u) the date on which the plan of subdivision was drawn and the date of any revisions;
 - v) 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;
 - w) the north point;
 - x) the scale to which the plan of subdivision is drawn; and
 - y) any other information necessary to determine whether this plan of subdivision conforms to this By-law.
- 9.1.4 Where applicable, a copy of the permit to construct from Department of Environment and Climate Change for services under their jurisdiction shall be included in the application and is required prior to approval.
- 9.1.5 Where the final plan of subdivision is to be forwarded to the Department of Environment and Climate Change the additional information listed in Section 6.3 (Additional Information), if required by the Department of Environment and Climate Change, shall be part of, or included with, the final plan.
- 9.1.6 Where the proposed lots front on a proposed public road, a final subdivision application shall include:
- a) four (4) copies of a plan showing:
 - (i) road contours at 2-metre (6.6 feet) intervals;
 - (ii) drainage patterns pre and post-design;
 - (iii) the width and location of proposed public roads and their intersection with existing public roads;
 - (iv) if applicable, the location of existing and proposed central sewer and water systems and proposed connections thereto; and
 - (v) two (2) copies of centerline profiles of proposed public roads.
- 9.1.7 The Development Officer shall not approve a Final Plan of Subdivision until all engineering drawings for any services, including roads, are conveyed to the Municipality in accordance with the requirements of the Municipal Service Specifications.
- 9.1.8 Where a new municipal public road, central water system or a central sewer system is required, the Development Officer shall not approve a final plan of subdivision until the requirements of Section 4.4 (Public Road) have been met.
- 9.1.9 Where a Final Plan of Subdivision is submitted for the purpose of boundary adjustment and not fully surveyed, the plan 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, shown as a heavy solid line, except the common boundary between the existing areas of land is surveyed and certified as being the common boundary shown as a heavy broken line;
 - b) show the remaining boundaries of the resulting lot for which approval is requested are described graphically shown as a lighter solid line; and,

- c) have the following notation affixed to the plan adjacent to the certification required by the *Nova Scotia Land Surveyors' Act* and regulations made thereunder, and such notation is signed by the surveyor:

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.

9.2 Final Plan Procedure

9.2.1 The Development Officer shall forward a copy of the final plan of subdivision to:

- a) the Department of Environment and Climate Change, if not serviced by central sewer, to determine compliance with the On-site Sewage Disposal Systems Regulations or—if the following conditions are met—for confirmation that an on-site sewage disposal system is not needed due to the following:
 - (i) the proposed lot is more than 9,000 square metres (96,875 square feet) in area;
 - (ii) the proposed lot has a width of 76 metres (250 feet) or more; and
 - (iii) the subdivider has certified on the application that the proposed lot is not intended for a purpose requiring an on-site sewage disposal system;
- b) a Building Official, if applicable;
- c) the Municipal Engineer where private roads are proposed;
- d) the authority having jurisdiction for public roads shown on the plan; and
- e) any other agency the Development Officer deems necessary.

9.2.2 In areas serviced by central sewer, the Development Officer shall forward a copy of the final plan of subdivision to:

- a) the authority having jurisdiction;
- b) the Building Official, if applicable;
- c) the authority having jurisdiction for public roads shown on the plan; and
- d) any other agency the Development Officer deems necessary.

9.3 Public Open Space Contribution Required

9.3.1 No approval of a final plan of subdivision shall be given unless the subdivider has conveyed to the Municipality land, or a combination of land or money or value in kind, that satisfies the requirements of Section 5 (Public Open Space).

9.4 Sewer and Water Approvals Required

9.4.1 No approval of a final plan of subdivision shall be given until the subdivider has obtained the required approvals of any central water system or a central sewer system.

9.5 Public Road Construction or Agreement Required

- 9.5.1 No approval of a final plan of subdivision shall be given unless the subdivider has either constructed public roads and any other services required or enter into a written agreement with the Municipality in accordance with the provisions of Section 4.4 (Public Road Acceptance).

9.6 Approval of Consolidation or Addition

- 9.6.1 No approval of a final plan of subdivision that adds or consolidates parcels or areas of land in different ownerships shall be given before the Development Officer has 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*;
- d) the municipal deed transfer tax applicable to the transaction, if any;
- e) the provincial deed transfer tax applicable to the transaction, if any; and,
- f) forms sufficient to meet the requirement of the *Land Registry Act*.

9.7 Approval after Conveyance

- 9.7.1 A final plan of subdivision showing lots to be approved under circumstances described in subsection 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 Land Registration Office.

9.8 Stamps to Appear on Final Plan

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

- a) "This final plan of subdivision is approved for Lots _____";
- b) "This document, although endorsed as final approval, applies only to those laws, bylaws, and regulations administered directly by the Municipality and does not grant or imply other permissions or licenses that may be required, such as permission for access to a public highway from the Department of Transportation and Communication or the Municipality."
- c) where applicable,

"[lot(s) approved and/or remainder] (is, are) suitable for the construction or installation of an on-site sewage disposal system for [proposed use] and any conditions which apply are contained in a report dated [date] and available from the Department of Environment and Climate Change."

" IMPORTANT NOTICE [lot(s) approved and/or remainder] (has, have) been created for a purpose which 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 Environment and Climate Change are met."

"[lot(s) approved and/or remainder] (is, are) served by an existing on-site system and should a replacement system become necessary in future, approval of the replacement system from the Department of Environment and Climate Change is required"; or

"lot(s) are serviced with central sanitary sewer; and

d) where applicable,

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; or

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.

9.8.2 Where there are private roads. The following stamp shall appear:

a) Private Road Status: Lot(s) _____ abut a private road and no provincial or municipal services shall be provided to these lots.

SECTION 10 REPEAL OF SUBDIVISION

10.1 Approval May be Repealed

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

10.2 Application to Repeal

10.2.1 Any person requesting a repeal shall submit an application in the form specified in Schedule C to the Development Officer.

10.2.2 At the time of application for the repeal of a subdivision the subdivider shall submit to the Development Officer:

- a) the fees contained in the *Costs and Fees Act*, and its regulations, for registering a repeal of a plan of subdivision; and
- b) the processing fee set by the Council.

10.3 Provisions Applicable

10.3.1 The Development Officer shall follow the provisions of the *Provincial Subdivision Regulations* for a repeal of subdivision.

10.4 Agency Assessments

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

10.5 Compliance with By-laws

- 10.5.1 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 municipal or provincial By-law, or regulations unless the violation will be rectified by the approval of a new plan of subdivision filed at the Land Registration Office on the same day as the repeal is filed.

10.6 Approval Notification

- 10.6.1 The Development Officer shall forward the repeal in the form specified in the *Provincial Subdivision Regulations* to:
- a) the Land Registration Office;



MUNICIPALITY *of the*
COUNTY *of* KINGS

PART 4 DEFINITIONS

DEFINITIONS

Act means the *Municipal Government Act*, Chapter 18 of the Acts of 1998.

Agreement means a contract between the subdivider and the Municipality which describes the responsibilities of each party with respect to the subdivision and servicing of land.

Area of land means any existing lot or parcel as described by its boundaries.

Authority having jurisdiction means the government body being in charge of the relevant piece of infrastructure.

Council means the Council of the Municipality of the County of Kings.

Cul-de-sac means a road having only one vehicular entrance and exit.

Department of Environment means the Department of Environment and Climate Change for the Province of Nova Scotia, including any future successor entities or bodies that fulfil the department's mandate.

Department of Public Works means the Department of Public Works for the Province of Nova Scotia, including any future successor entities or bodies that fulfil the department's mandate.

Development Officer means a municipal employee appointed by Council pursuant to the *Municipal Government Act* of Nova Scotia, and having the power and duty to administer this Bylaw.

Existing means legally in existence on the first date this By-law came into effect.

Growth Centres are areas so designated in the Municipal Planning Strategy.

Land Use By-law means the Land Use Bylaw in effect for the Municipality of the County of Kings.

Municipal Planning Strategy means the Municipal Planning Strategy for the Municipality of the County of Kings.

Municipality means the Municipality of the County of Kings.

Private road means a private road as defined in the *Provincial Subdivision Regulations*.

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

Public road means any road or highway owned and maintained by a municipality or the Province of Nova Scotia excluding designated controlled access highways pursuant to section 21 of the *Public Highways Act*.

Subdivider means the owner or owners of the area of land proposed to be subdivided and includes anyone acting with their written consent.

Subdivision means the division of any area of land into two (2) or more parcels and includes a re-subdivision or a consolidation of two (2) or more parcels into a lesser number of parcels.

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

Water frontage means the distance measured as a straight line between the two points where the side lot lines meet a shoreline.

Table of Contents

Introduction / General Requirements	1
Section 1 Definitions	4
1.1. Definitions.....	4
Section 2 Submission Requirements	7
2.1. Submission Requirements	7
2.2. Concept Plan Approval	7
2.3. Tentative Plan Approval	7
2.3.1. Survey Plan and Application	7
2.3.2. General Service Plan	7
2.3.3. N.S. Department of Environment and Climate Change Permit to Construct	7
2.3.4. Other Permits.....	8
2.3.5. Sanitary Sewer Systems	8
2.3.6. Water Systems	8
2.3.7. Storm Drainage Systems	9
Figure 1: Sample Subdivision Lot Grading/Drainage Plan.....	10
2.3.8. Municipal Streets.....	10
2.4. Final Plan Approval Submission Requirements	11
2.4.1. Close Out Report	11
Section 3 Municipal Street Design	14
3.1. Scope	14
3.2. Geometric Design Specifications	14
3.2.1. General.....	14
3.2.2. Road Layout	15
3.2.3. Intersections	16
3.2.4. Vertical Alignment.....	17
3.2.5. Horizontal Alignment	17
3.3. Walkways and Sidewalks	17
3.3.1. Sidewalks	17
3.3.2. Walkways	18
3.3.3. Multi-use AT Pathways	18
3.4. Road Construction.....	19
3.4.1. Construction Season.....	19
3.4.2. Municipal Inspections	19
3.4.3. Construction Requirements for Public Roads	19

3.5.	Installation of a Driveway Entrance on a Municipal Public Road	20
Section 4	Storm Water Drainage Design	21
4.1.	Scope	21
4.2.	Design Approach	21
4.2.1.	Storm Drainage Systems	21
4.2.2.	Downstream Drainage Systems.....	22
4.2.3.	Design Storm Frequencies	22
4.2.4.	Foundation Drains	22
4.2.5.	Roof Drains.....	22
4.2.6.	Multi-Unit, Institutional, Commercial, and Industrial Connections	22
4.2.7.	Connections to Public Property.....	23
4.2.8.	Stormwater Balance	23
4.3.	Meteorological Data	23
4.4.	Design Method.....	23
4.4.1.	Rational Method	23
4.4.2.	US Soil Conservation Service (SCS) Method.....	23
4.4.3.	Storage Indication (SI) Method	23
4.5.	Design Requirements	24
4.5.1.	Location	24
4.5.2.	Discharge to Adjacent Properties.....	24
4.5.3.	Buried Storm Drainage Systems	24
4.5.4.	Ditches / Open Channel Drainage System	26
4.5.5.	Headwalls & Grates	27
4.5.6.	Detention Structures	27
4.6.	Lot Plans for Breaking of Soils Permit (BSP)	29
4.7.	Erosion and Sedimentation Control	29
Section 5	Sanitary Sewage System Design	30
5.1.	Scope	30
5.2.	Design Requirements	30
5.2.1.	Gravity Systems.....	30
5.2.2.	Pumped Systems	33
Section 6	Water Distribution System Design	40
6.1.	Scope	40
6.2.	Design Requirements	40
6.2.1.	System Requirements.....	40
6.2.2.	Minimum / Maximum Pressure	41

6.2.3.	Pipe	41
6.2.4.	Limiting Velocities	42
6.2.5.	Looping	42
6.2.6.	Minimum Sizes	42
6.2.7.	Oversizing	42
6.2.8.	Minimum / Maximum Cover	42
6.2.9.	Location	43
6.2.10.	Valves	43
6.2.11.	Trench Drainage Relief Systems	44
6.2.12.	Changes in Direction	44
6.2.13.	Fire Hydrants	44
6.2.14.	Air Relief and Vacuum Valves	45
6.2.15.	Service Lateral	45
6.2.16.	Water Meter Chamber	45
6.2.17.	Backflow Prevention Devices	45
Section 7	Standard Details	46

Appendices

Appendix A – Sample Statutory Declaration

Appendix B – Sample Street Services Agreement

Appendix C – Sample Letter of Credit

Appendix D – Sample Close-Out Report Checklist

Appendix E – Standard Details

Appendix F – Rainfall Data

Introduction / General Requirements

This document has been prepared for use with and shall be read in conjunction with the Municipality of the County of Kings Subdivision By-law, the "Standard Specification for Municipal Services" as published by the Nova Scotia Road Builders Association (NSRBA), the Nova Scotia Consulting Engineers Association (CENS), and the Joint Committee on Contract Documents (JCCD). In case of discrepancy, the more stringent requirement shall apply.

These design standards have been prepared for setting minimum design and construction standards for Municipal Services Systems within the Municipality of the County of Kings (Municipality); to list and suggest limiting values for infrastructure to be conveyed to the Municipality; and to establish uniformity of practice in the Municipality. A complete documentation of all parameters relating to the design and construction of municipal services is beyond the scope of this document; however, an attempt has been made to touch upon the parameters of greatest importance and to present the policies and accepted procedures of the Municipality.

This Municipal Specifications Manual shall apply to all proposed developments and infrastructure renewal projects utilizing municipal sanitary sewer, water, storm drainage, municipal streets, and sidewalks. The standards contained in this Manual may be incorporated into Policies, Bylaws, development agreements or other contracts even where the municipal infrastructure is not directly involved.

The purpose of this document is to provide guidance for Design Engineers in the provision of Municipal services which meet these criteria, and are also consistent with cost effective installation, operation, and maintenance. The design of these services, when submitted to the Municipality, must be under the seal of a Professional Engineer in accordance with the *Engineering Profession Act*. R.S., c. 148, s. 1.

This document is not intended to eliminate the necessity for detailed design, rather it is intended to provide minimum standards for the materials, design criteria, and method of construction to be utilized in the installation of Municipal services. Further, it is not the intention of the Municipality to stifle innovation. Where, in the judgment of the Design Engineer, variations from this document are justified or required and where the Design Engineer can show that alternate approaches can produce the desired results, such approaches will be considered for approval. In considering requests for variations from these design criteria, the Municipal Engineer, or designate, shall take into consideration such factors as safety, nuisance, system maintenance, capital costs, operational costs, life cycle costs, environmental issues, natural topography, and the Municipality's Planning Documents.

Notwithstanding the consideration for approval from the Municipal Engineer, all Municipal services designed shall comply with the latest editions of the Atlantic Canada Guidelines for the Supply, Treatment, Storage, Distribution, and Operation of Drinking Water Supply Systems, the Atlantic Canada Guidelines Manual for the Collection, Treatment, and Disposal of Sanitary Sewage and they shall have all approvals to construct necessary from the Nova Scotia Department of the Environment and Climate Change (NSECC). All road connections to provincial roads or highways shall comply with the Nova Scotia Department of Public Works (NSDPW), previously Nova Scotia Department of Transportation & Infrastructure Renewal, "Specifications for Subdivision Roads in Urban and Rural Areas". The most stringent requirements shall prevail.

Each submission shall be accompanied by a statement from a Professional Engineer that the submission is in accordance with these Specifications except, if there are any deviations or variations proposed, the Design Engineer shall indicate clearly, in all appropriate documents and plans included with the submission, the specific variances from the design standards identified in these Specifications. Also, where the Design Engineer uses standards other than those outlined in this document, all appropriate documents and plans shall clearly indicate those areas of difference.

Acceptance by the Municipality of the design of proposed Municipal services does not relieve the Design Engineer of the responsibility for proper design, nor does it imply that the Municipality has checked the design exhaustively for compliance with this document. The Design Engineer retains full responsibility and liability for their work as a Professional Engineer. Where the Municipality has accepted a design which does not comply with these standards and where the Design Engineer has not brought variations from this document to the attention of the Municipal

Engineer, the provisions of this document still stand.

All Municipal services shall conform to this document as well as any more stringent requirements established by other authorities having jurisdiction within the Municipality. In addition to these design criteria, and in any case where this document requires expansion or clarification, the latest revisions of all applicable and relevant codes and standards shall be used for reference by the Design Engineer. These documents include, but are not limited to, the latest editions of:

- American Water Works Association Standards.
- "Atlantic Canada Guidelines for the Supply, Treatment, Storage, Distribution and Operation of Drinking Water Supply Systems", prepared by the Nova Scotia Department of the Environment and Climate Change.
- "Atlantic Canada Standards and Guidelines Manual for the Collection, Treatment and Disposal of Sanitary Sewage", prepared by the Nova Scotia Department of the Environment and Climate Change.
- Canadian Standards Association (CSA) National Building Code (NBC) of Canada.
- Land Use By-law and Subdivision By-laws for the Municipality of the County of Kings and successor documents.
- National Electrical Manufacturing Association (NEMA).
- National Fire Protection Association (NFPA) Hydraulic Institute Standards.
- National Plumbing Code (NPC) of Canada National Fire Code (NFC) of Canada Canadian Electrical Code (CEC) Underwriters Laboratories of Canada (ULC).
- Nova Scotia Department of Public Works (previously Nova Scotia Department of Transportation & Infrastructure Renewal) Specifications for Subdivision Roads in Urban and Rural Areas.
- "Standard Specifications", prepared by the Nova Scotia Department of Public Works.
- "Standard Specification for Municipal Services", prepared by the Nova Scotia Road Builders Association and the Nova Scotia Consulting Engineers Association.
- Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads, Latest Edition.
- Wastewater By-law.
- "Water Supply for Public Fire Protection", prepared by the Fire Underwriters Survey- Insurers Advisory Organization (IAO).

All contract documents prepared for Municipal services within the Municipality shall contain a clause requiring the Applicant and the Applicant's contractors and sub-contractors to carry out all work in compliance with all applicable Municipal, Provincial, and Federal Regulations, including, but not limited to, the *Nova Scotia Occupational Health and Safety Act*, 1996, c. 7, s. 1.

Any available recorded engineering drawings of Municipal services will be provided to the Design Engineer for information only. Design Engineers are responsible for verifying the information in the field prior to any detailed design.

No municipal services or streets shall be constructed until the design has been submitted to the Development Officer and approved by the Municipal Engineer as part of the municipal approval process. The Municipal Engineer's decision shall be final and binding in matters of design and construction. No alternatives to the construction of the design are permitted unless approved in writing by both the Design Engineer and the Municipal Engineer.

All permits and approvals from the Nova Scotia Environment and Climate Change, Nova Scotia Department of Public Works, or their successor bodies (where necessary), and other applicable regulatory authorities shall be obtained by the Applicant or their agent. Copies of the approved permits and approvals shall be submitted for consideration by the Municipal Engineer prior to Tentative Approval as part of the approval process. Further information on submission requirements is included in Section 2 of this document.

Prior to granting Tentative approval, it is recommended that a meeting be held between the Municipality and the Applicant, which may include their designated Engineer. Final design documents must be submitted to the

Development Officer in accordance with Section 2 below and must include all pertinent requirements stipulated in the Municipality's approval documents or required by other agencies.

The Municipality will periodically revise the design criteria, guidelines, and specifications contained in this document to conform with advances and improvements in engineering practices. The changes will be noted in a revision record and will be available to users of this document. It is the responsibility of the Design Engineer to remain current with revisions to this document.

Section 1 Definitions

1.1. Definitions

Definitions within this document shall have their ordinary meaning, unless otherwise defined within the Land Use By-law or the Subdivision By-law, or the Wastewater By-law unless defined below:

“Agreement” means a contract between the Applicant and the Municipality which describes the responsibilities of each party with respect to the subdivision and servicing of land.

“Approval” means an approval of the Municipal Engineer. The decision of the Municipal Engineer will be final and binding in all matters of design and construction. However, the Municipal Engineer does not certify any installations, procedures, equipment, or materials nor do they approve or evaluate testing laboratories. Approvals will be based on compliance with these Specifications and/or other appropriate standards as indicated throughout this document. Tentative Approval and Final Approval requirements are as set out in the Municipality of the County of Kings Subdivision By-Law.

“Applicant” means a person or company (developer, subdivider, owner, or consultant) who submits documentation to the municipality for approval.

“Arterial road” means a road intended to move a relatively large volume of traffic at medium to high speeds, used where traffic movement is the primary consideration and land access secondary.

“Base course” means the crushed rock or aggregate which is placed immediately upon the sub-base course.

“Combined sewer” means a sewer that was designed to receive both wastewater and storm water.

“Design Engineer” means the Professional Engineer representing the Applicant, who has affixed their professional seal to the Engineering drawings, plans, and specifications for the proposed development and/or is the Professional Engineer who is responsible for ensuring the services are constructed to meet and satisfy the approved design. This person must be registered and/or licensed to practice engineering and must be in good standing in the Province of Nova Scotia.

“Diameter” means the nominal internal diameter of the pipe unless noted otherwise.

“Drainage plan” means a detailed management plan, including, but not limited to drawings and calculations of storm water runoff and the courses and channels of it, including floodplains, for one or more parts of an area of drainage for all lands tributary to, or carrying drainage from, land that is proposed to be subdivided. May include the requirement for a written comprehensive Drainage Report, depending on the extent and complexity of the proposal.

“Growth Centre” refers to areas designated as ‘Growth Centres’ on Schedule A (Municipal Structure Map) of the Municipal Planning Strategy.

“Inspection” means a field inspection performed by a relevant and responsible Professional Engineer or qualified designate at various stages of construction.

“Municipal Engineer” means the person appointed pursuant to the Municipal Government Act who has the power and duty to administer provisions of the Act.

“Municipal services” include sanitary sewer collection and treatment systems, water treatment and distribution systems, storm sewers, stormwater management areas, sidewalks, walkways, and roads which are, or are to be, owned, operated, and maintained by the Municipality.

“Professional Engineer” means a Professional Engineer who is a member in good standing of Engineers Nova Scotia.

“Municipal sewer system” means any sewer system which is owned by the Municipality.

“Municipal water system” means any water system which is owned by the Municipality.

“Roadbed” means the portion of the roadway extending from shoulder line to shoulder line.

“Roadway” means the portion of road included between the outside lines of gutters, or side ditches including all the appertaining structures, and all slopes, ditches channels, waterways, etc. necessary for proper drainage and protection.

“Sanitary sewer” means a sewer system receiving and carrying liquid and water-carried wastes and to which storm, surface or ground waters are not intentionally admitted.

“Sanitary sewage” means wastewater from buildings but excluding storm water or surface run-off and groundwater. It does not include contaminated liquid waste or sewage at concentrations greater than those commonly found in domestic sewage.

“Sanitary sewage collection system” means the system consisting of all pipes, mains, equipment, buildings, and structures for collecting and pumping of sanitary sewage (including trunk sewers and pumping stations) operated by the Municipality of County of Kings. It is designed to collect and convey sanitary sewage from its point of origin to a disposal or treatment location.

“Service easement” means an allotment of land required to maintain and repair municipal services. In the event that sewer and/or water services are installed outside of public rights-of-way (ROW), the Applicant shall provide a service easement in favour of the Authority Having Jurisdiction. The service easement shall be constructed to provide access for maintenance.

“Sewer lateral or service lateral” means the Building Service Connection as defined by the Municipality. Sanitary sewer lateral means the pipe which conveys sanitary sewage from the property line to the main sanitary sewer. Storm sewer lateral means the pipe which conveys stormwater from the property line to the main storm sewer.

“Sewer” means system to convey sanitary sewage, groundwater, storm water or surface run-off and includes all sewer drains, storm sewer, storm drains, and combined sewers.

“Storm water” means water from precipitation of all kinds and includes water from the melting of snow and ice, groundwater, and surface water.

“Storm water system” means a method or means of carrying storm water, including ditches, swales, sewers, drains, canals, ravines, gullies, stormwater management ponds, streams, watercourses, floodplains, springs, creeks, streets or private roads, roadways, or driveways.

“Storm sewer or storm sewer system” means the system consisting of all pipes, mains, ditches, equipment, and structures for collecting and conveying storm water and surface runoff water, excluding sewage, operated by the Municipality. It is designed to collect and convey storm runoff from its point of origin to its point of discharge into a natural drainage system. The system includes the collection of storm water from foundation drainage systems.

“Street” means the entire width between the boundary lines of a street, road, or highway.

“Street line” means the limit of the road right of way (ROW).

"Sub-base course" means the crushed rock aggregate which is placed immediately upon the Subgrade.

"Subgrade" means the undisturbed portion of the roadbed upon which the sub-base course is to be placed.

"Water system or distribution system" means the system consisting of water mains, water service laterals from the water mains to street property lines and appurtenances carrying and distributing potable water for domestic and/or fire protection purposes and includes any pumping stations, pressure control facilities and reservoirs, treatment facilities.

"Water service lateral" means the pipe that conveys water from a water main to the building requiring service.

Section 2 Submission Requirements

2.1. Submission Requirements

This section is intended to assist the Design Engineer, acting on behalf of the Applicant for subdivision approval, prepare a submission for the approval of municipal services. This section must be read in conjunction with the Municipality's Subdivision By-law.

There are three stages of approval. The Subdivision By-law outlines when each type of approval is required.

1. Concept Plan Approval.
2. Tentative Plan Approval.
3. Final Plan Approval.

2.2. Concept Plan Approval

Where land is to be subdivided into phases or new public streets or private roads are proposed, the Applicant must submit one (1) electronic copy of a concept plan to the Development Officer for approval. The purpose of the concept plan is to provide a preliminary layout, for a full review of the proposed development before any advanced design work is done. To save time and expense, it is suggested the applicant contact the Development Officer to discuss the proposal prior to submitting a concept plan.

A concept plan does not have to be surveyed; however, it must be drawn to scale. It must show contours at 5 metre intervals and be consistent with the requirements of the Subdivision By-law for Concept Plans.

2.3. Tentative Plan Approval

The Applicant shall apply for a tentative plan approval before proceeding with construction of infrastructure. The following material shall be submitted to the Municipal Engineer for review:

2.3.1. Survey Plan and Application

Application for plan approval, one electronic (1) copy of a Tentative Plan of Subdivision.

2.3.2. General Service Plan

One (1) electronic copy of a plan showing the width and location of proposed streets and/or roads and their intersection with existing streets, tributary service areas, and proposed services, including power services, sidewalks and trail infrastructure, pipe sizes, valves, hydrants, manholes, lift stations, catch basins and storm drainage infrastructure, directions of flow, and points of connection to existing systems.

2.3.3. N.S. Department of Environment and Climate Change Permit to Construct

A copy of the permit to construct from NSECC for services under their jurisdiction is required prior to tentative approval being granted.

2.3.4. Other Permits

Other permits, such as Work within Right-of-Way from the Nova Scotia Department of Public Works and Watercourse Approvals from Nova Scotia Department of Environment and Climate Change may be required and it is the responsibility of the Applicant to obtain these permits.

The Applicant requires formal signed confirmation of Tentative Approval. Tentative plan approval is mandatory prior to the installation, or construction of municipal services.

An application for Tentative Approval of Municipal Services shall provide a complete submission of the specified requirements within the Subdivision By-law. The complete submission shall include the following as the minimum requirements of conformity to the specified requirements.

2.3.5. Sanitary Sewer Systems

2.3.5.1. General

Plan indicating tributary service areas, existing sanitary sewer system, and proposed sanitary sewer system. The proposed sewer system shall include manhole locations, size of mains, flow direction, and connection point(s) to the existing system. The plan shall also include calculations showing tributary area to each pipe, peak flow to each pipe, and capacity of each pipe. Calculations, to be as per Section 5 Technical Specifications, are required to be provided to the Municipal Engineer.

2.3.5.2. Gravity Systems

- Plan and profile drawings. Scale to be at least 1:500 Horizontal, 1:50 Vertical.
- Cross sections and detail drawings.
- Design summary in tabular form with the following design information:
 - Population density.
 - Peak flow.
 - Design flow.
 - Pipe size.
 - Slope.
 - Minimum and maximum flow velocity.
 - Depth of flow.

2.3.5.3. Pump Station and Force Main

Detail drawing for each lift station giving pump data, invert elevations for gravity inlet, overflow, and force main, float elevations, base elevation, top elevation, wet well size, bypass piping arrangement, and other relevant details, such as system and pump curves.

Design information in tabular form with the following design information:

- Minimum, average, and peak flow rates.
- Pipe size and velocity in force main.
- Pump cycle time.

2.3.6. Water Systems

Plan indicating existing and proposed water system, including pipe diameter and material, valve location, hydrant location, location of bends, tees, wyes, and connections to the existing system.

Calculations, to be as per Section 6 Technical Specifications, are required to be provided to the Municipal Engineer. Plan and profile drawings scale to be at least 1:500 Horizontal, 1:50 Vertical.

Design information in tabular form with the following design information:

- Population density.
- Domestic demand.
- Fire flow requirements.
- Maximum and minimum static pressures under normal operating conditions.
- Residual pressures under fire flow conditions.
- Easements or right of way necessary to carry out the proposed work.

2.3.7. Storm Drainage Systems

Plan indicating the contributing area, the area tributary to each inlet, and the existing and proposed storm drainage system. A report showing the calculation of flows and required storage for retention and detention ponds.

Design information in tabular form with the following design information:

- Runoff rates tributary to each inlet from minor and major rainfall event.
- Design flow from minor and major rainfall events.
- Pipe, culvert, or channel size.
- Minimum and maximum flow velocity from minor and major rainfall events.
- Depth of flow in channels from minor and major rainfall events.
- Easement or rights-of-way necessary to carry out the proposed work.

A stormwater system report is to be prepared and included as part of the submission for any proposed stormwater system extension. At a minimum, the stormwater system report must contain the design criteria for the 1:5, 1:10, 1:25, 1:50 and 1:100 year events.

The stormwater design is also to address watercourse protection, erosion and sediment control, impact on adjacent property, maintenance requirements, public safety, access, liability, and nuisance.

This submission is to include a stormwater drainage plan which will include pre-development runoff calculations and post-development runoff calculations.

The plan will also show all stormwater management alternatives and output information demonstrating the main steps of the calculations and the peak discharge at key points in the system. Peak flow must be shown at the points of discharge from the proposed development.

Assessments of impact on services from upstream development and downstream storm water capacity.

Calculations, to be as per Section 4 Technical Specifications, are required to be provided to the Municipal Engineer. Plan and profile drawings to be at 1:500 Horizontal, 1:50 Vertical. Cross sections and detail drawings as well as a subdivision grading plan for the full development are required. Details of erosion and sedimentation control measures, and other relevant details.

Subdivision drainage plans to include:

- the location of the proposed development within the topographic drainage area.
- the drainage area tributary to the proposed and existing storm drainage system(s).

- the boundaries of all drainage sub-areas.
- contours at intervals not exceeding 2.0 metres.
- site layout including proposed streets and lots.
- locations of proposed storm drainage system(s) and stormwater management facilities.
- location of outfalls or connections into existing services, hydrologic and hydraulic data tables and any other information required by the Engineer.
- Arrows on each lot showing surface runoff flow direction.
- The flow route of the major drainage path shall be indicated.
- 1:100-year flood elevation on any watercourses near, on, or adjacent to any proposed lot.

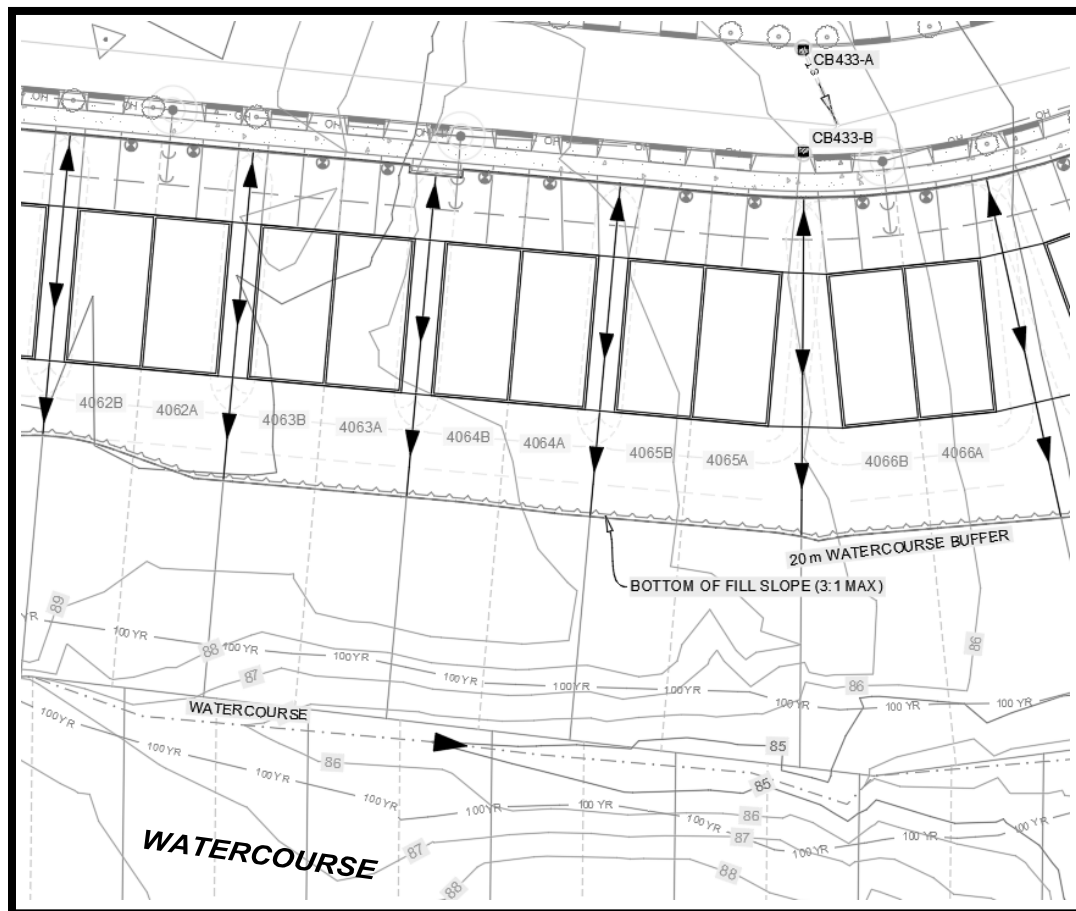


Figure 1: Sample Subdivision Lot Grading/Drainage Plan

2.3.8. Municipal Streets

Plan and profile drawings indicating the following:

- Existing and proposed profiles of road centerline.
- Proposed grades (%).
- Horizontal and vertical curve data sufficient to ensure compliance with these specifications.
- Detail showing proposed road cross section elements complete with all elements of the roads including right-of-way width to accommodate cut and fill operations.

- Spot elevations of any watercourse, prominent rock formation, areas subject to flooding and other natural features within or immediately adjacent to the proposed street right-of-way.
- Sizes of roadway and driveway culverts (see Section 4.5.4.3).

2.4. Final Plan Approval Submission Requirements

This section specifies the submission to be made for review at the final approval stage. All services are to be approved by the Municipal Engineer or accepted by the Authority Having Jurisdiction.

For final plan approval, all requirements for tentative plan approval must be met, along with the additional requirements listed below.

2.4.1. Close Out Report

2.4.1.1. General

All requirements for final plan approval shall be presented in a single bound copy and an electronic copy of the "Close Out Report" (.pdf). Any copies of plans required for tentative and final approval shall have one (1) additional copy in the Close Out Report. The hard copy Close Out Report is to be provided in a divided binder.

The Close Out Report shall be complete in all respects prior to the Municipality granting final approval and shall follow the specific sequence set out in the requirements listed in Sections 2.4.1.1.1 to 2.4.1.1.7 below.

The Developer shall complete all revisions of the Close Out Report to meet the requirements of the Municipality.

A Sample Close Out Report Checklist is provided in Appendix D.

2.4.1.1.1. Survey Plan and Application (Section A of the Close Out Report)

- Application for plan approval, and a copy of the Final Plan of subdivision.
- Required processing fees.

2.4.1.1.2. Certification of Compliance (Section B of the Close Out Report)

A certificate of compliance is required from a Professional Engineer stating that the streets and services have been constructed in accordance with the approved drawings and requirements of the Subdivision By-law and the Municipal Services Specification Manual, including a Professional Engineer's certification of inspection and certification of compliance as per the NSECC permit to construct.

2.4.1.1.3. Maintenance Bond (Section C of the Close Out Report)

- Statement of construction costs.
- Statutory declaration indicating that all labour and materials used in the construction of the infrastructure have been paid in full (see Appendix A – Sample Statutory Declaration).
- Maintenance deposit in the amount of 10% of the cost of municipal infrastructure, to be held for a period of two (2) years from the date of final approval and shall only be released with the approval of the Municipal Engineer at the written request of the Developer. The Municipal Engineer may, at their discretion, extend the term beyond one year.

2.4.1.1.4. Plan of Streets, ROWs, and Easements (Section D of the Close Out Report)

- Final Plan of Subdivision showing the municipal public streets, road reserves, easements and all drainage rights-of-way clearly identified.

2.4.1.1.5. Deeds and Easement Documentation (Section E of the Close Out Report)

- Warranty deeds for all property to be transferred to the Municipality.
- Legal easement documentation.
- Title certificate by Developer's solicitor for land and easements being transferred.
- Document registration fees.

2.4.1.1.6. Operation and Maintenance Manuals (Section F of the Close Out Report)

Operation and maintenance manuals are required for pumps and other similar equipment. The contractor is to provide this information for both private development projects and municipal projects unless agreed to otherwise with the Municipality. See Section 6.2.2 for details.

2.4.1.1.7. Inspection and Testing Reports (Section G of the Close Out Report)

The following inspection and testing results, as applicable, must be provided. Municipal Staff are to be on site for all tests and inspections with the option of choosing test locations. The contractor is to provide this information for both private development projects and municipal projects unless agreed to otherwise with the Municipality. Submitted documentation shall be certified by a Professional Engineer or their designate.

Water, Sanitary, and Storm Systems

- Video inspection and report for sanitary sewers in a format approved.
- Vacuum test report for all manholes.
- Pump station start-up report. Startup to be carried out in the presence of the Municipal Engineer or their designate. Draw down test confirming pump system capacity to be included.
- Air test results for all sanitary sewers.
- Hydrostatic leakage test results for water system.
- Bacterial test results (presence / absence) for water lines provided by an accredited lab.
- Chlorination / dechlorination test results.
- Compaction test results on pipe bedding and trench backfill.
- Approved shop drawings.

Road Systems

Before the constructed roads are approved and accepted, the Municipality must receive confirmation that all requirements have been met. In addition, approval from NSDPW must also be received for provincial intersecting streets. In addition, a certification shall be required from a Professional Engineer confirming the roads and drainage systems within the subdivision have been constructed in accordance with the approved specifications and plans. Submissions must include:

- Particle size analyses, fractured faces, absorption, LA abrasion, plasticity index, and micro-deval for base and sub-base gravels.
- Compaction test results on subgrade, sub-base, and base courses at a minimum of every 150 metres for each lift of material placed.
- Test results for asphaltic concrete paving, mix design, and compaction results.

- Test results for curb and gutter construction including tests on subgrade, subbase, and base course.
- Concrete test results for concrete curb and concrete sidewalks.

2.4.1.2. Record Drawings (Section H of the Close Out Report)

Electronic record drawings in an AutoCAD (*.dwg) file format and a GIS Shape File format (*.shp or *.gdb) and coordinate data (for all constructed infrastructure) in spreadsheet form (*.xls or *.csv) and reproducible record drawings stamped by a Professional Engineer with one (1) paper copy and an electronic copy (.pdf).

When the preceding specifications have been satisfactorily adhered to, as determined by the Municipal Engineer, the Municipal Engineer then will recommend to the Development Officer that the proposed municipal street(s) be approved.

2.4.1.3. Alternative to Complete Construction and Acceptance Prior to Final Approval

Where a Developer wishes to obtain approval prior to completing construction of the street and services, the following is required:

2.4.1.4. Street Services Agreement (SSA)

A street services agreement satisfactory to the Municipality shall be signed, sealed, and delivered for final approval. See Appendix B – Sample Street Services Agreement for a template of this agreement.

Section 3 Municipal Street Design

3.1. Scope

This section specifies the requirements for the design of all Municipal public streets within the Municipality. All public streets shall meet all the specifications within this section.

A Municipal public street design consists of the roadway structure and all slopes, ditches, channels, waterways, and appertaining structures necessary for proper drainage and protection as well as water, wastewater, and stormwater infrastructure.

3.2. Geometric Design Specifications

Design: The function of locating roads and building lots relative to topographical features constitutes the practice of engineering as defined by the Engineering Profession Act of Nova Scotia. Therefore, the design of roads and their services when submitted to the Municipality must be under the Seal of a Professional Engineer.

3.2.1. General

3.2.1.1. Design Standards

These specifications cover the more common aspects of design encountered in subdivision development. In cases where these specifications need to be expanded or additional specifications are required, the "Geometric Design Standards for Canadian Roads and Streets" as published by Transportation Association of Canada (TAC) shall be used as a guide. In general, a design speed of 60 kilometres per hour will be used for all subdivision roads unless a higher design speed is required by the Municipality. A design speed of 30 kilometres per hour is acceptable for cul-de-sacs, P-loops, or crescents with a length of 400 metres or less.

Street designs should recognize and/or incorporate natural features such as watercourses, wet areas, habitats, and rock outcrops.

See Appendix E – Standard Details for Typical Road Cross Sections (local urban, rural, and private).

All street names, street signs, and posts shall be approved by the Municipality. Street signs and posts shall be installed by the developer in accordance with the Civic Addressing By-Law, and using the material, size, and color stipulated by the Municipality. Locations to be approved by the Municipality.

3.2.1.2. Right-of-Way

The street classification hierarchy recognizes different street types and their role in accommodating the modes of transportation and varying land uses. Local and collector streets are intended for short trips and lead to arterial streets, which facilitate longer-distance travel.

The Municipality's street classifications align with TAC phrasing and are typically classified based on vehicle volume.

Street Classifications are as follows:

- Urban Local.
- Urban Collector.
- Rural Local.

- Rural Collector.

3.2.1.3. Minimum Widths

The minimum right-of-way width will normally be 20 metres. In most cases this right of way will be sufficient. However, in certain instances, the Municipality may require a greater right-of-way width to facilitate traffic, construction, and/or maintenance requirements.

A 16 metre right-of-way may be accepted by the Municipality where the municipal street is fully serviced with curb, gutter, asphalt, water, sanitary sewer, and stormwater systems.

3.2.1.4. Cut and Fill Slopes

Any property susceptible to damage because of construction must be within the right-of-way. All slopes (either in cuts or fills), required for road and infrastructure construction, must be included within the right-of-way.

All back slopes steeper than 3:1 sloping to the bottom of the ditch shall be included in the right of way. A minimum 3 metre bench shall be provided on cut slopes that would not otherwise end at the edge of the right-of-way.

Side slopes in cuts shall be no steeper than 2:1 (horizontal to vertical) and 1:4 in rock cuts (where confirmed by a geotechnical engineer) or as otherwise required. All embankment slopes will be 2:1 or flatter at the discretion of a geotechnical engineer.

Retaining walls are not permitted within the road right of way unless approved by the Municipal Engineer.

3.2.1.5. Acceptable Access for Adjacent Properties / Road Reserves

Acceptable road reserves to adjacent properties must be identified and deeded to the Municipality. These reserves must be not more than 400 metres apart. Road reserves and their spacing along with their Municipal service stubs are subject to acceptance by the Municipal Engineer. The road reserves shall be located along the subdivision boundary in such a manner as to not prejudice development of the adjacent land.

The Developer shall be responsible for connecting to and upgrading existing road reserves to the final design regardless of the level of construction.

3.2.2. Road Layout

3.2.2.1. General

Where practical, proposed roads shall be laid out as extensions to existing roads, either in the same subdivision or in adjacent subdivisions. Where a temporary cul-de-sac or turning areas exist in previous developments, the Developer shall be responsible for removing the temporary works and reinstating the road to its final design.

In cases where the proposed road ends within a property and there are plans to extend the road at a future date, the Municipal Engineer may accept a temporary turning area in lieu of a temporary cul-de-sac. A temporary cul-de-sac or turning area shall be constructed to the same standard as the road. In un-serviced areas, the turning area shall be surfaced with gravel. In serviced areas, the normal curb along the front of the turning area shall be deleted and the turning area shall be surfaced with asphalt.

The minimum length of road eligible for takeover is 150 m (not including permanent cul-de-sac); shorter road lengths may be considered for takeover at the discretion of the Municipal Engineer.

3.2.2.2. Cul-de-Sacs

All cul-de-sacs must end in a permanent or temporary turnaround area as approved by the Municipal Engineer. Cul-de-sacs are not permitted where the land can be effectively serviced by other road layouts.

The grade of the bulb of a permanent cul-de-sac shall not exceed 4%. The maximum length of a cul-de-sac shall be as established in the Subdivision By-Law but shall not exceed 400 metres unless otherwise approved by the Municipal Engineer.

In areas lacking any existing or planned streets with which to connect, the cul-de-sac shall include prolongations (see Appendix E – Standard Details), extending to adjoining parcels in locations where future street connections appear to be feasible. Where no future vehicular traffic connection is feasible, wherever possible, the end of cul-de-sacs shall include a 6 metre access to abutting properties to provide potential access for emergency vehicles, municipal sewer, and water services, as well as pedestrian traffic.

3.2.2.3. Sidewalk Boulevards

Sidewalk boulevards are to be provided between the sidewalk and curb, unless otherwise approved by the Municipal Engineer. See Appendix E – Standard Details.

3.2.2.4. Guard Rail

Guard rails are required on fills of 3 metres or greater (unless a slope of 6:1 can be provided) and in other hazardous areas.

3.2.2.5. Emergency Access Egress

Where there is an approved phasing plan and subdivision agreement in place confirming that a second street access will be provided within a specified time approved by the Municipal Engineer, up to a maximum of 300 dwelling units may be approved prior to the second access being provided.

Where, in the opinion of the Municipal Engineer, it is impractical to provide a second access, up to a maximum of 100 dwelling units may be approved with a single access.

3.2.3. Intersections**3.2.3.1. Intersections with Provincial Highways**

Where any new roads meet existing Provincial highways, the minimum distance between these intersections shall be in accordance with Provincial requirements. The Province shall review and approve connections with Provincial roads or highways.

3.2.3.2. Intersections with Local Roads

The minimum distance between intersections of local roads will be 75 metres measured center line to center line.

All intersecting roads must intersect at an angle of 70 to 90 degrees for a minimum distance of 30 metres from the intersection measured from the respective centre lines.

3.2.3.3. Offset Intersections

Offset intersections are not permitted, unless otherwise approved by the Municipal Engineer.

3.2.4. Vertical Alignment

3.2.4.1. Grades

Straight or gently rolling grades with proper vertical curves are required to provide adequate stopping sight distance. In all cases a profile will be required, showing existing and proposed grades. In general, a grade of 8% will be considered the maximum allowable; however, grades more than 8% may be approved in exceptional circumstances and with prior approval by the Municipality. The minimum grade shall be 0.5%. Grades at intersections shall not exceed 4% for at least 15 metres measured from the shoulder or face of curb of the intersecting road.

Ditch grades less than 1% require approval of the Municipal Engineer. Ditch grades more than 4% require erosion protection acceptable to the Municipal Engineer. Minimum curb grade shall be 0.5%.

3.2.4.2. Vertical Curves

The vertical curve length for both sag and crest curves shall not be less than the minimum values specified below:

Table 1: Minimum K Factors to Provide Stopping Sight Distances on Vertical Curves

Road Classification	Crest Vertical Curves	Sag Vertical Curves	
	Rate of Vertical Curvature (K)	Rate of Vertical Curvature (K)	
		Headlight Control	Comfort Control
Cul-de-sac, Crescent, or P Loop less than 400 metres	4	7	4
Local Road	13	18	9

Streets without streetlights shall be designed using headlight control. For other road classifications (such as collector roads), refer to TAC.

3.2.5. Horizontal Alignment

Horizontal curves shall have a minimum horizontal curve radius of 90 metres. The horizontal alignment centerline shall be a straight line for a minimum of 10 metres measured from and along the intersection of the centerline of the approach street and the edge of the shoulder/ curb of the street to which it is connecting.

For local cul-de-sacs and P-loops or crescents with a length less than 400 metres a minimum radius of 30 metres may be used.

3.3. Walkways and Sidewalks

3.3.1. Sidewalks

Concrete sidewalks are required on any new road within Growth Centres.

The minimum width of the sidewalk shall be 1.8 metres (6 feet). All sidewalks and driveway ramps adjacent to sidewalks shall be designed and constructed using concrete.

Pedestrian ramps shall be installed at all intersections where a sidewalk exists, and at walkway and trail locations. All pedestrian ramps shall meet accessibility standards and include Tactile Walking

Surface Indicators (TWSI) as recommended by the Design Engineer and accepted by the Municipal Engineer.

Outside edges and expansion joints shall have tooled edges.

The minimum grade across a sidewalk shall be 2%, but not more than 3%, unless otherwise approved by the Municipal Engineer.

Construction joints of mastic fibrous material extending through the entire thickness of the concrete slab shall be placed as follows:

- Where concrete is to be placed against existing concrete.
- Where the sidewalk abuts the curb.
- Around all structures abutting the sidewalks including utility poles, catch basins, etc.
- At maximum 18 metres (59 feet) intervals of sidewalk continuous placement.

In locations with sidewalks, curbs, and pedestrian ramps, Tactile Walking Surface Indicators (TWSI) shall be installed on both sides of each road at all roadway intersections with sidewalk or a walkway.

3.3.2. Walkways

Selection of locations for walkways shall consider the requirements for pedestrian circulation within the neighborhood. Where possible, walkways shall be designed to suit the natural topography.

Walkways shall have a minimum right-of-way width of 6 metres (20 feet). At the discretion of the Municipal Engineer, additional easement or right-of-way width may be required to facilitate construction and maintenance of municipal infrastructure (i.e., to accommodate wastewater and storm water mains).

The walkway travelled portion shall be centered within the right-of-way unless approved by the Municipal Engineer and shall have a minimum width of 1.8 metres (6 feet). See standard detail.

Walkways shall be located and designed whenever possible so that the grade of the walkway shall not exceed 8%. Steeper grades may be permitted only where the topography makes it impractical for grades to be less than 8%, or to avoid the installation of stairs.

Pedestrian ramps shall be constructed at the ends of walkways where curb and gutter are present. Pedestrian ramps shall be placed at all street crossing locations.

The right-of-way shall be graded to control surface water and major drainage within the right-of-way. Landscaped and sodded swales, catch basins, pipe, and drains shall be provided to control erosion and maintain a safe surface. Swales, where required, shall not be located closer than 600 millimetres from the edge of the travelled portion.

Walkways shall be oriented to benefit from street lighting where possible. Lighting for walkways shall be shielded and directed downward to ensure there is no light spilling, glare, or light cast over neighboring properties. The maximum distance between lights on a walkway shall be 75 metres.

3.3.3. Multi-use AT Pathways

Multi-use pathways including designated active transportation trails shall be in accordance with the detail in Appendix E – Standard Details, and in consultation with the Municipal Engineer.

Multi-use AT Pathways shall have a minimum right-of-way width of 9 metres (30 feet). Trailheads to multi-use pathways with wider access ramps resembling driveways may benefit from the installation

of a barrier (e.g., bollard, gate, etc.) to discourage vehicle access. Bollards shall reflect light to enhance their visibility.

Multi-Use Pathways are spaces that are shared by bicyclists and pedestrians. They must be separated from traffic, typically by a boulevard, curb, or ditch. Bicyclists on Multi-Use Pathways should travel at lower speeds to safely share the space with pedestrians. Safe transitions to the street network must be considered.

Multi-use pathway corridors shall have a minimum width of 5.0 metres, with a recommended total travel surface width of 3.0 metres.

Cross slopes shall not exceed 2%; however, where this is not possible, for short distances the cross slope could be a maximum of 4%

3.4. Road Construction

3.4.1. Construction Season

The normal seasonal completion date for streets and related works constructed is November 30 of each year in order to allow for inspection and approval by the Municipal Engineer.

3.4.2. Municipal Inspections

The Municipal Engineer must be notified in advance before construction work begins on any public road. Municipal Inspections shall not relieve the Design Engineer of responsibility for inspection of the work. Witness inspections by the Municipal Engineer may be performed at the following stages before construction proceeds to the next stage:

- After clearing.
- After grubbing.
- After completion of subgrade (roll test).
- After completion of base course.
- After completion of surface course.
- Upon project completion.

3.4.3. Construction Requirements for Public Roads

The subgrade must be well drained and compaction tests shall be taken by a third-party testing firm, approved by the Municipal Engineer. Any unsuitable material including soft or yielding material shall be removed, replaced with suitable material, and compacted.

In addition to the specific requirements identified in this section, all public streets must be constructed in accordance with the following:

- Roots, stumps, limbs, moss, sod, and other organic or deleterious material shall not be placed in roadway fills or allowed to remain under the roadway.
- The road surface top width and travel surface width shall be in accordance with Typical Road Cross Sections.
- The travel surface shall have a sub-base and a base course of crushed, screened gravel.
- The sub-base course shall conform to Gravel Type 2 as defined by NSDPW Standard Specifications. The sub-base course must be applied to a compacted depth as noted in the Typical Road Cross Section.

- The Base Course shall conform to Gravel Type 1 as per NSDPW Standard Specifications. Base course shall be applied to a compacted depth as noted in the Typical Road Cross Sections.
- New public streets constructed must be coated with a minimum of two (2) lifts of an asphalt concrete (base and top) in accordance with NSDPW Standard Specifications Division 4. The top lift of asphalt cannot be placed until the substantial build-out of the development and the passing of one (1) year from the date on base lift placement.
- The developer shall be responsible for the following:
 - Arranging for complete inspection and testing of the installation of a street at various stages as approved by the Municipal Engineer.
 - Giving reasonable notice to the Municipal Engineer of the proposed test date, site, and time.
 - Allowing the Municipal Engineer to inspect the installation at any stage or to verify or confirm any required test.

3.5. Installation of a Driveway Entrance on a Municipal Public Road

The Applicant is responsible for all aspects of construction, including but not limited to, the supply of culvert pipe and backfill materials, headwalls, rip rap, labour, and traffic control. Work may be done by the Applicant, or a contractor engaged by the applicant; however, the responsibility for installation rests with the Applicant.

The Applicant must notify the Municipality's Department of Engineering and Public Works when work is to commence by requesting a Breaking Soils Permit (BSP). Once the driveway is completely installed, the applicant must notify the Department of Engineering and Public Works to arrange for an inspection. If the Municipal Engineer or designate is not satisfied with the installation, the applicant will be notified of the deficiencies and asked to correct them. Subsequent reinspection will be necessary.

Driveways shall drain away from buildings toward the road. The minimum driveway grade shall be 2% and the maximum grade shall be 8%. Reverse grades or steeper grades are not permitted without prior approval by the Municipal Engineer.

In addition, the applicant shall:

- Save and hold harmless the Municipality against all claims for personal injury and/or property damage of whatsoever nature, both during and after the execution of work covered by this section, where, in the opinion of the Municipality, any such claim arises from the execution of the work.
- Bear the cost of all damage occurring during the laying of the pipe or other work undertaken to the road shoulders, curbs, ditches, culverts, pavements, and other installations and all subsequent damage costs to the road/street that are, in the opinion of the Municipal Engineer, attributable to the work under this section.
- Provide that on completion of the work, the road shoulder shall be left in a neat condition and dressed with gravel containing no stones larger than 20 millimetres (3/4 inch) in dimension.
- Carry out the work in every respect satisfactory to the Municipal Engineer.

All driveway entrances outside the jurisdiction of the Municipality of the County of Kings shall be installed in accordance with the Authority Having Jurisdiction, usually the Nova Scotia Department of Public Works.

Section 4 Storm Water Drainage Design

4.1. Scope

This section specifies the requirements for a storm drainage system. A storm drainage system is a system which receives, carries, and regulates flows in response to precipitation which includes overland flow, sub-surface flow, groundwater flow, and snow melt.

The following design objectives are to be followed for the design of storm drainage systems in the Municipality:

- Prevent loss of life and protect structures and property from damage due to a major storm event.
- Provide for safe and convenient use of streets, lots, and other improvements during and following storm events.
- Preserve natural watercourses and minimize the long-term effect of development on receiving watercourses and groundwater.
- Convey storm water from upstream and on-site sources and mitigate the adverse effects of such flow on downstream properties.

In addition to the following specifications, all storm drainage systems shall meet the requirements of NSECC. No system that is required by the Municipality shall be constructed until the design has been approved by both the Municipal Engineer and NSECC.

4.2. Design Approach

4.2.1. Storm Drainage Systems

A Minor Drainage System consists of ditches, swales, driveway and roadway culverts, subsurface interceptor drains, curb & gutter, catch basins, pipes, ponds, manholes and laterals.

A Major Drainage System consists of ditches, curbs, roadways, roadway culverts, open channels, retention and detention ponds, floodplains, and natural water courses.

Developments shall preserve and/or integrate existing natural drainage corridors into stormwater management plans where practical. Stormwater management shall also include low impact development (LID) best management practices (BMPs) whenever practical. These may include:

- Exfiltration Systems.
- Bioretention Areas (Rain Gardens).
- Green Roof.
- Permeable Pavements.
- Enhanced Swales.

The developer must provide a lot grading design stamped by a Professional Engineer indicating overall drainage and identifying that a major storm condition will not affect building construction on the lot. Further, if the Municipal Engineer determines it required, a formal Storm Water Report shall be prepared by a Professional Engineer containing storm water design, calculations including overall assessment and recommendations.

4.2.2. Downstream Drainage Systems

All downstream drainage systems must have adequate capacity to receive and carry discharge from the proposed storm drainage system in addition to existing tributary discharge. An investigation of the downstream system shall be carried out by the design engineer from the outfall location of the proposed storm drainage system to a point sufficiently downstream that will demonstrate no adverse impacts on downstream lands, such as erosion or flooding.

The effect on downstream development will be assessed by the Design Engineer based on this investigation. Mitigative measures may be required to alleviate any adverse downstream impacts.

4.2.3. Design Storm Frequencies

4.2.3.1. Minor Systems

Driveway culverts, storm sewers, and other minor drainage systems shall be designed based on a design storm frequency of 1 in 5 years.

Areas designated for commercial and industrial development in the Municipal Planning Strategy shall be designed based on a design storm frequency of 1 in 10 years.

4.2.3.2. Major Systems

Roadways, road cross culverts, and other major drainage systems shall have a capacity to convey storm water from a design storm frequency of 1 in 100 years.

For design purposes, the capacity of any watercourse crossings shall be based on a design storm frequency of 1 in 100 years.

4.2.4. Foundation Drains

Foundation drains shall normally be connected by gravity to the piped storm water system. Relative elevations of the storm main and foundation drains shall be such that foundation drains are above the hydraulic grade line of the major storm. Where the storm water system discharges into a watercourse, ditch, or drainage corridor, foundation drains connected to the system shall be above the major storm flood elevation at the point of discharge. Discharging a foundation drain to a roadside ditch is not recommended.

New developments shall preserve and integrate existing natural drainage features into all drainage plans and/or include low-impact development drainage features where practical. Such solutions may include swales, french drains, rain gardens, or permeable surfaces, etc.

4.2.5. Roof Drains

Roof drains are not permitted to be connected to the stormwater system and must not discharge to a driveway or other impervious surface draining to the road.

New developments shall preserve and integrate existing natural drainage features into all drainage plans and/or include low-impact development drainage features where practical. Such solutions may include swales, french drains, rain gardens, or permeable surfaces, etc.

4.2.6. Multi-Unit, Institutional, Commercial, and Industrial Connections

Multi-unit, Institutional, Commercial, and Industrial developments shall employ flow control devices upstream of the storm water system connection which will limit the peak flow to less than 40% of the uncontrolled fully developed flow.

4.2.7. Connections to Public Property

The Municipal Engineer may require an extension of an appropriately sized pipe from the storm water system to an appropriate location on the boundary of existing or future public property.

4.2.8. Stormwater Balance

Stormwater runoff is to be balanced to ensure matching of the pre and post-development stormwater runoff conditions for the 1:5-year return design storm and the 1:100-year return design storm. This requirement may be achieved using detention, or the temporary storage of stormwater. Pre-development conditions can be considered the existing conditions before the project was initiated, or before the site was prepared for the project.

4.3. Meteorological Data

Intensity Duration Frequency Curves and Time; depth tables are included in Appendix F – Rainfall Data and are to be used for storm drainage design calculations.

4.4. Design Method

The designer shall indicate the design method used. Techniques generally accepted are listed below.

4.4.1. Rational Method

The Rational Method may be used for the calculation of peak runoff rates for drainage basins up to and including 40 hectares (100 acres) in area. It may be used for preliminary design of systems serving larger areas.

This method shall not be used for the design of storage facilities.

Where run-off from an area that includes a significant proportion of undeveloped land is to be determined, winter run-off conditions must be determined, and the worst case used in design. For winter conditions, rainfall data for winter conditions must be used.

4.4.2. US Soil Conservation Service (SCS) Method

Previously known as the US Soil Conservation Service (SCS), the USDA Natural Resources Conservation Service (NRCS) developed the runoff curve number to predict direct runoff and infiltration from rainfall. This method known as SCS Technical Report 55, 1975 (SCS TR 55) is widely used and is an efficient method for determining the approximate amount of direct runoff from a rainfall event in a particular area.

4.4.3. Storage Indication (SI) Method

Storm water storage facilities shall be designed using the Storage Indication (SI) method. The design storm and inflow hydrograph must be developed using accepted methods.

Storm water storage facilities to include an emergency spillway capable of discharging the 1 in 100-year flow.

The overflow spillway shall discharge into a watercourse or major storm drainage system capable of receiving and carrying the 1 in 100-year discharge from the structure, in addition to its rate of discharge upstream to the spillway.

Information must be supplied regarding maintenance and safety issues of a storm water storage facility complete with long term maintenance and replacement considerations.

4.5. Design Requirements

4.5.1. Location

All storm drainage shall be carried by either an unconfined natural watercourse, excavated ditch, or piped storm drainage system. No storm drainage is to be carried on, through, or over private property without appropriate easements.

Where storm drainage flows are directed onto abutting land, other than through a natural watercourse, a right-of-way or easement must be provided. The minimum width of an easement is 6 metres (20 feet).

Where a need is identified by the Design Engineer to accommodate future upstream development, and where no future road reserve is available, a drainage right-of-way or an easement in favour of the Municipality must be provided.

Natural watercourses shall not be carried in roadside ditches or piped roadside storm drainage systems.

4.5.2. Discharge to Adjacent Properties

All concentrated storm drainage shall be self-contained, except natural run-off from undeveloped areas or run-off not exceeding natural pre-development amounts.

All concentrated run-off from the developed limits of a development shall be directed to either a natural watercourse or storm drainage system owned by the Developer, NSDPW or the Municipality, depending on the situation.

Discharge of run-off to adjacent properties other than in a natural watercourse requires:

- Approval from NSECC.
- That the developer obtains written consent from the adjacent property owner(s). The written consent must be filed in the Land Registration Office as an easement.
- Drainage easements, with a minimum width of 6 metres, shall be provided in favour of the Municipality, as required.

4.5.3. Buried Storm Drainage Systems

4.5.3.1. General

Storm sewer pipes shall be designed to carry, without surcharging, the peak rate of storm flow. Design must be approved by NSECC and the Municipal Engineer and have a Permit to Construct issued by NSECC.

4.5.3.2. Velocities

The minimum design velocity for storm sewers shall be 0.6 metres per second. Consideration shall be given to initial minimum cleansing velocity for phased development. This requirement shall be waived for the end of pipe systems where the minimum pipe size is used.

The maximum design velocity for a storm sewer shall be 4.6 metres per second for pipes up to and including 750 millimetres in diameter. The maximum design velocity for storm sewer pipes greater than 750 millimetres in diameter shall be 6.1 metres per second.

4.5.3.3. Pipe Size

The minimum diameter for a storm sewer main shall be 300 millimetres.

Pipe sizes shall not decrease in the downstream direction unless approved by the Municipal Engineer. The exception is if the main to which the inlet is connected is 600 millimetre diameter or larger, and if pipe storage is permitted or if oversized, inlet piping is required to overcome the effects of inlet control.

4.5.3.4. Pipe Material

Stormwater mains shall be green PVC DR35 pipe, reinforced CSA A257.2 concrete pipe, or green PVC PS320 profile pipe; and

All storm water mains and catch basin leads shall be installed with gaskets.

4.5.3.5. Depths

The minimum permitted depth for a storm sewer main located within the road right-of-way is 1.5 metres (4.9 ft). The minimum permitted depth for storm laterals at the property line is 1.0 metres.

4.5.3.6. Manholes

Manholes shall be installed at any change in pipe size, material, grade, or horizontal alignment, and at all storm water main intersections and end points. The spacing of manholes shall not exceed 120 metres.

Manholes shall be pre-cast concrete with an iron frame and cover. Frames are to be adjustable. Covers are to have 2 vent holes and be labelled "STORM". Off street manholes are to have bolt down frame and cover.

Manholes shall be CSA A257 concrete, and all joints and connections shall have gaskets. Connections to existing manholes shall be made by core drilling and with approved connectors and installed in accordance with the manufacturer's instructions. Connections other than core drilling are subject to approval by the Municipal Engineer.

The minimum internal diameter of a manhole shall be 1050 millimetres.

4.5.3.7. Service Laterals

As part of a Major Subdivision (new infrastructure being installed by developer), all laterals from the main to 1.5 metres past the property line shall be provided by the developer or owner and shall have a minimum grade of 2%. Laterals must be green DR35, minimum 100 millimetres in diameter and installed between the potable water and sanitary sewer laterals.

Laterals for future development shall be brought to the property line, capped, and a marker stake 50 x 100 millimetres placed. Depth to lateral should be indicated and be marked "STORM".

Where a buried storm drainage system exists, foundation drains will normally be connected to the main by laterals. The invert of the lateral at the property line must be at least 610 millimetres above the top of the main at the point of connection.

Where a buried storm drainage system does not exist, Section 9.14 of the National Building Code of Canada, latest revision, shall apply.

Under no circumstance shall foundation drains direct storm water to the street surface, sidewalk, or adjacent property.

4.5.3.8. Catch Basins

Catch basins shall be installed at the curb of the street and shall be adequately spaced to prevent ponding on the street and to prevent water from entering on or flowing in the travel lanes during storm events corresponding to the design of the minor system. The spacing of catch basins shall not exceed 120 metres.

Catch basin leads shall be connected to a storm drainage manhole or a catch basin. No more than 2 catch basins shall be connected in series before connecting to a storm manhole.

- Catch basin leads shall be gasketed CSA A257. A concrete pipe or green PVC DR35 pipe and shall be a minimum of 200 millimetres in diameter.
- Catch basin leads not connected to a manhole may be connected to a storm water main with a fabricated fitting provided that the main is larger than the lead. Connections to existing mains shall be made with approved connectors, installed in accordance with the manufacturer's instructions.
- Catch basin leads shall have a minimum cover of 1.2 metres below finished grade.
- Catch basin leads shall have a minimum slope of 1%.
- Catch basin leads shall be included in the CCTV report.
- Catch basin leads shall be connected to a manhole such that the lead invert is no higher than the obvert of the outgoing main or 1 m above the invert of the outgoing main whichever is higher, unless approved otherwise by the Municipality.
- Catch basin leads shall not protrude into catch basins or manholes by more than 50 mm.
- Catch basin leads shall incorporate a flexible joint within 450 millimetres of the outside face of a manhole or main.

4.5.3.9. Inlets

Vertical grates shall be installed at inlets.

4.5.3.10. Outfalls

The design of outfalls shall take into consideration such factors as public safety, erosion control, and appearance.

4.5.4. Ditches / Open Channel Drainage System**4.5.4.1. Ditches**

Roadway ditches shall conform to the standard cross section for local roads and shall have adequate capacity for the 1 in 100-year storm.

4.5.4.2. Velocities

The maximum velocity during a 1 in 100-year storm event in ditches or open channels shall not exceed the values which will cause erosion for the specified surface treatment (such as rock lining or grass).

4.5.4.3. Culverts

All culvert sizes shall be indicated on design drawings. The minimum size for any culvert shall be 450 millimetres. The minimum depth of bury for any culvert shall be 500 millimetres.

Culverts on a watercourse shall be designed for the 1 in 100-year peak flow with a headwater depth not greater than the diameter of the pipe.

Driveway culverts (where applicable) shall be CSA A257.2 concrete, HDPE PS320 dual wall corrugated pipe, or PVC PS320 profile pipe or an approved equivalent. Driveway culverts shall be designed for the 1 in 5-year peak flow with a headwater depth not greater than the diameter of the pipe (except in areas designated for commercial and industrial development in the Municipal Planning Strategy, where the 1 in 10-year flow is to be used).

All road cross culverts shall be reinforced concrete pipe to CSA A257.2 unless alternate types are approved by the Municipal Engineer. Road cross culverts shall be designed for the 1 in 10-year peak flow with a headwater depth not greater than the diameter of the pipe.

Culvert installations require at least a minimum of 1 metre separation between the headwall and the property line, to ensure adequate space for inspection and maintenance. Therefore, creating a 2 metre minimum opening between adjoining properties.

4.5.5. Headwalls & Grates

All culverts and storm water systems require headwalls for inlets and outlets. Culverts longer than 30 metres and all storm water systems require inlet grates with vertical bars; outlet grates are not permitted. The following standards shall be met:

- Headwalls shall be precast concrete.
- Grates shall be hot-dip galvanized steel.
- Headwalls over 1050 millimetres high require hot-dip galvanized handrails.
- Type 304 stainless steel anchors shall be used to fasten grates and handrails to headwalls.
- Bedding material for inlet and outlet structures shall be a minimum of 150 millimetres Type 1 gravel or as recommended in the geotechnical report.
- All steel components shall be completely fabricated prior to hot dip galvanizing.
- Streambed protection shall be installed upstream of the inlet structure and downstream of the outlet structure as per NSECC requirements.
- Bell ends of inlet pipes shall be grouted flush with the headwall to provide a smooth transition to the pipe; outlet pipes shall be similarly grouted. Non-ferrous, non-shrink grout shall be used.

4.5.6. Detention Structures

4.5.6.1. Design Volume

Stormwater management ponds are to be sized to provide adequate storage volume necessary to limit post-development peak discharge rates to pre-development peak discharge rates for the 2-, 5-, 10-, and 100-year design storm events.

An additional volume allowance must be made so that a 300 millimetres freeboard is available for the 100-year design storm event.

4.5.6.2. Inlet & Outlet

Energy dissipation measures should be employed to reduce velocities through the pond and reduce the likelihood of re-suspending settled solids.

4.5.6.3. Flow Control Structures

Flow control structures typically include large diameter manholes with a concrete bulkhead separating the inlet and outlet sides of the structure. A series of orifices and weirs are arranged in the bulkhead to restrict peak discharge rates to pre-development levels.

An access manhole frame and cover shall be provided on both the inlet and the outlet sides of the flow control structure to facilitate inspection and maintenance.

4.5.6.4. Low Flow Channel

Stormwater management ponds shall provide a low flow channel from the inlet structure to the flow control structure, or the outlet structure. Low flow channels may consist of a concrete channel, half-pipe, rock lined channel, or perforated pipe within a granular drain.

4.5.6.5. Emergency Overflow

Stormwater management ponds shall have an emergency overflow to manage excess flows that may exceed the 1:100 design storm event or manage overflows if the outlet structure fails or becomes blocked.

The emergency overflow elevation should be set at 300 millimetres above the 1:100 flood elevation in order to meet minimum freeboard requirements and shall be integrated into the major drain system to limit property damage from an overflow event.

4.5.6.6. Maximum Side Slopes

Stormwater management ponds shall be constructed with maximum internal side slope of 4:1 (H: V). Side slopes of 5:1 (H: V) are preferred where conditions permit.

4.5.6.7. Minimum Bottom Slope

Stormwater management ponds shall be constructed with a minimum bottom slope of 1.0% to provide positive drainage to the low flow channel/outlet.

4.5.6.8. Fencing

In general, storm water management ponds do not require fencing. Construction using a specified maximum side slope should allow for safe egress from the storm water management pond. However, fencing may be required at inlet structures and outlet control structures in some instances.

Select planting and other landscaping features are a preferred access deterrent and a means of providing natural visual screening of the storm water management pond.

Contingent upon location and proximity to private properties or lands for public purposes, fencing may be required as a matter of public safety and as determined by the Municipality.

In instances where fencing is required, fencing shall be 2.44 metres high chain link wire mesh.

4.5.6.9. Access Road

Maintenance access roads shall be provided to access the storm water management pond including all inlet structures, outlet control structures, and emergency overflow structures.

The base gravels are to be a minimum of 150 millimetres of Type 2 gravel and 150 millimetres of Type 1 gravel to a minimum width of 4.0 metres. Where grades exceed 6%, the surface shall be paved with 75 millimetres Type D-HF asphalt.

If a full loop road is not proposed, a turning circle, or a turning-tee must be provided so that maintenance vehicles may exit the facility without requiring reverse maneuvers.

4.5.6.10. Stormwater Inline Storage

The Municipality may approve the use of oversized in-line pipe storage for storm water management. If this approach is taken a rider storm water system may be required to be installed for storm water service connections for adjacent lots. Street drainage would be directed to the oversized inline pipe storage. Hydraulic grade lines (100 year) are to be shown on the design profiles.

Considerations for design of a constructed wetland or wet ponds for storm water management may be allowed if it meets the pre / post development flows.

4.6. Lot Plans for Breaking of Soils Permit (BSP)

The property owner shall submit the following information with a BSP application that is consistent with the approved storm water management plan:

- Location of proposed driveway.
- Location of proposed buildings.
- Driveway culvert size (based on inlet control).
- Finished property grade of buildings, foundation drains and driveway.
- Directional arrows showing surface water flow pattern (must be away from building and adjacent buildings).

4.7. Erosion and Sedimentation Control

An Erosion and Sediment control plan shall be provided in compliance with Provincial regulations and a copy submitted to the Municipal Engineer. The plan shall address measures during construction of roads, services, and houses, as well as long term measures which will be in effect following the completion of development.

During construction, surface water flows across the construction site must be minimized.

The Erosion and Sediment Control Plan, as well as control measures taken, shall comply with the Erosion and Sedimentation Control Handbook for Construction Sites as prepared by NSECC.

Long term environmental protection measures to be addressed in the subdivision design may include but are not limited to:

- Protection of wetlands and waterways in accordance with NSECC Guidelines.
- Minimization of erosion and sediment transport.
- Protection of outfall areas.
- Utilization of wetland areas for filtration of storm water run-off.
- Minimization of disruption to natural watercourses.

Section 5 Sanitary Sewage System Design

5.1. Scope

The sanitary sewage collection system must meet the requirements of the Municipality before the system will be considered for takeover. The following are minimum requirements to consider in the system design and are intended to provide a directive to the Design Engineer responsible for the design and construction of Municipal Services Systems in the Municipality.

Industrial, institutional, and commercial wastewater must meet the requirements of the Municipality's Wastewater Sewer By-law 98. If the strength of the wastewater is greater than domestic wastewater, pre-treatment prior to discharge may be required at the discretion of the Municipal Engineer.

This section specifies the requirements for a central sanitary sewer collection system. A sanitary sewer consists of main lines, laterals, pressure sewers, and appurtenances (including manholes and lift stations) owned and maintained by the Municipality.

In addition to these design criteria, all sanitary sewage systems shall conform to the Atlantic Canada Standards and Guidelines for the Collection, Treatment and Disposal of Sanitary Sewage. No systems shall be constructed until the design has been approved by the Municipal Engineer and by NSECC.

5.2. Design Requirements

5.2.1. Gravity Systems

5.2.1.1. General

The sanitary sewage system shall be designed for flows generated from all lands within the Serviceable Area which are naturally tributary to the drainage area as determined from topographic plans. Any lands within the Serviceable Area which are tributary by pumping or regrading, which are at present or anticipated to flow through the design area are to be included in the calculated flows for the system being designed.

With respect to the depth of cover and grade of sewer mains, the design of the system shall take into consideration possible future extensions so that, wherever practical, those mains shall be installed at sufficient depth to service adjoining lands.

The sanitary sewage system shall be designed utilizing the standard criteria outlined below unless actual flow measurement has been conducted:

- Design shall be based on an appropriate population density according to intended land use.
- Average Dry Weather Flow shall be calculated on the basis of an allowance of 380 liters per person per day.
- Design Peak Flow shall be calculated on the basis of an allowance of 1,665 liters per person per day plus an inflow and infiltration allowance of 0.25 liters per second per hectare of area.
- Peak Flow allowance can be based on the Harmon Peaking Factor plus an allowance for inflow and infiltration.

5.2.1.2. Pipe

Polyvinyl Chloride (PVC), DR35 (colour green) shall be used for sanitary sewer main installations in the Municipality, unless otherwise approved by the Municipal Engineer.

5.2.1.3. Hydraulic Design

Sanitary sewer mains shall be designed to convey the calculated Design Peak Flows. The designer shall ensure that surcharging of the system does not occur during such peak flow conditions by taking into consideration such factors as energy loss at manholes. The capacity of the sanitary sewer mains is to be calculated using the "Manning Formula" or an appropriate nomograph. A Manning Roughness coefficient (n) equal to 0.010 shall be used for PVC pipe.

Under Design Peak Flow conditions from the tributary area when fully developed, sanitary sewage flow velocities shall be a minimum of 0.6 metres per second and a maximum of 4.5 metres per second. This requirement shall be waived for the end of pipe systems where the minimum pipe size is used.

Pipes to be sized such that pipe is not more than 80% full at peak design flow.

5.2.1.4. Minimum Pipe Size

No sanitary sewer main shall be less than 200 millimetres in diameter.

5.2.1.5. Minimum Slope

Sanitary sewer mains shall have a minimum slope of 1%. Under special conditions slopes less than 1% may be permitted. Slopes less than 1% will be considered only where the depth of flow will be at least 30% of the diameter of the pipe for Design Peak Flow. In no case shall the slope be reduced to less than 0.5%. Sewer laterals shall have minimum slopes of 2%.

5.2.1.6. High Velocity Protection

Where velocities greater than 4.5 metres per second are attained, special provision shall be made to protect against displacement by erosion and shock.

5.2.1.7. Depth

In general, the sanitary sewer shall be installed at a sufficient depth to provide service by gravity flow to all proposed lots within the proposed subdivision and provide service to adjoining lands.

The depth of sanitary sewer mains shall not normally exceed a maximum of 4.5 metres. However, under special conditions, if full and justifiable reasons are given (such as elimination of a pumping station), the maximum depth of sanitary sewer mains may be increased to 5.5 metres with approval of the Municipal Engineer. To minimize future maintenance costs, all services laterals shall be eliminated from the deep section of the sewer main either by installation of a rider sewer for lateral connections or by the installation of all laterals at manholes.

The minimum depth of sanitary sewer mains shall not be less than 1.5 metres without approval of the Municipal Engineer. The depth of the sanitary sewer laterals shall not be less than 1 metre. In general, sewer mains shall be sufficiently deep so to receive sewage from basements and to prevent freezing.

5.2.1.8. Location

Where possible, all sanitary sewer pipe and appurtenances shall be located within a street right-of-way owned by the Municipality or the NSDPW. If approved by the Municipal Engineer, sanitary sewer mains may be installed within an easement granted in favour of the Municipality. The actual width of the easement shall depend upon the depth of any pipelines contained within the easement. The minimum width of any such easement shall be 6 metres.

All sanitary sewer pipes shall be located as close as possible to the center line of the street or easement. Depending upon the length and location of the easement, the Municipal Engineer may require a travel way to be provided within the easement for access and maintenance purposes.

Where a need is identified by the Municipal Engineer to accommodate future upstream lands naturally tributary to the drainage area, an easement shall be provided from the edge of the street right of way to the upstream limit of the subdivision.

5.2.1.9. Alignment

All sanitary sewer mains shall be laid with a straight alignment between manholes.

5.2.1.10. Manholes

A manhole is to be provided on a sanitary sewer at any change in pipe size, slope, or alignment and at all pipe intersections. The interval between manholes is not to exceed 120 metres. All manholes shall pass air testing and be wrapped (sides and bottom) with "Blue skin" or equivalent, to seal against infiltration. Manholes to be precast concrete with an adjustable iron frame and cover, frame, and cover to be adjustable. Cover to have one (1) 25 millimetre vent hole. Off street manholes to have bolt down frame and covers.

The following criteria shall be used for pipe elevation and alignment in sanitary sewer manholes to account for hydraulic losses through the manhole:

- Minimum drop across manholes for pipes of similar diameters shall be:
 - Straight run – 30 millimetres.
 - Deflections up to 45 degrees – 30 millimetres.
 - Deflections 45 to 90 degrees – 60 millimetres.
- The crown of a downstream pipe shall not be higher than the crown of an upstream pipe.
- A drop manhole shall be constructed when the vertical drop between pipe inverts in the manhole exceeds 1m.
- Drop manholes shall have:
 - An exterior drop when the manhole is 1050 millimetres diameter or an interior drop for manholes larger than 1050 millimetres.
 - The minimum internal diameter of a manhole shall be 1050 millimetres.

All sanitary sewer manholes are to be positioned to minimize the infiltration of surface water or ground water. Manholes shall not be located at or near the following locations:

- Drainage ditch or swale invert, or
- Roadway gutters or low points.

In some situations where manholes cannot be easily relocated from the areas noted above, the use of berms and/or water-tight frames and covers may be permitted by the Municipal Engineer.

5.2.1.11. Service Laterals

Minimum size for lateral piping shall be 125 mm in diameter (white in color). For laterals greater than 125 mm, connection to the sewer main shall be made by installing a manhole on the sanitary sewer main (Doghouse Manholes are permitted). All 125 mm laterals shall be constructed with white PVC DR28 pipe conforming to CSA standards.

All service laterals shall be installed according to the following provisions:

- In any new subdivision a single sanitary sewer lateral shall be provided by the developer to each existing or potential lot at the time of installation of services. The lateral shall extend from the main to 1.5 metres past the property line or as directed by the Municipality.
- The lateral connections to the main shall be made using an inline tee, for connections to existing sewers, a saddle may be permitted.
- The lateral shall be laid at a minimum slope of 2%.
- Service laterals with total length greater than 30m shall be installed complete with a wye type clean-out in locations approved by the Municipal Engineer. Clean outs to be provided every 30 metres.
- The depth of sanitary sewer laterals shall not be less than 1m within the street right of way.
- Lot owners must obtain a sewer connection permit from the Municipality before connecting into the system.
- All sewer laterals shall be capped at the lot line and have a 50 x 100 millimetres wooden marker indicating depth of bury and painted "Green".
- All structures require a "Protection from Backflow" as required the National Plumbing Code (1995).
- A minimum clearance of 450 millimetres shall be provided between wastewater laterals and existing water mains with the wastewater lateral being below the water main.
- All wastewater laterals must be inspected and accepted by the Municipality before backfilling.
- The invert elevations of wastewater laterals at the property line shall be shown on Tentative Approval Drawings and confirmed on the Record Drawings.

5.2.2. Pumped Systems

5.2.2.1. General

Pumping stations shall be provided when, in the opinion of the Designer and/or Municipal Engineer, a gravity system is neither possible nor economically feasible.

Sewage pumping station structures and electrical and mechanical equipment shall be protected from physical damage from the 1 in 100-year flood. Sewage pumping stations should remain fully operational and accessible during the 1 in 25-year flood.

All enclosures to meet the requirements of NEMA 4. Electrical systems to be in accordance with the Canadian Electrical Code.

5.2.2.2. Private Pumps

Where private or on-site pumps are required, such installations must be designed by a Professional Engineer. The Design Engineer shall indicate on the drawings those locations requiring private pumping installations. Private pumps shall be owned and operated by the property owner. Each property must be independently serviced to the Municipal wastewater main.

5.2.2.3. Joints

Sewer joints shall be designed to minimize infiltration and to prevent the entrance of roots and shall be made in accordance with the manufacture's recommendations.

5.2.2.4. Groundwater Movement

The designer shall assess the possible change in groundwater movement caused by the use of pervious bedding material and shall be responsible for the design of corrective measures to prevent flooding as a result of this groundwater movement.

Clay plugs at services lateral trenches may be required for low lying lots. Trench relief drains shall be incorporated in the design at valleys.

Unless otherwise approved by the Municipal Engineer, all pumping stations, pumps, and force mains shall be designed for the ultimate sanitary sewer flows from the tributary drainage area. In the selection of pumps, both present and future conditions shall be considered, and pump overloading situations avoided.

Design parameters such as the roughness coefficient of pipe and flow volumes can vary over time, and such variances shall be considered in the selection of the pumps.

5.2.2.5. Pumping Stations**5.2.2.5.1. Wet Well Size**

Wet wells are to be designed in accordance with the pump manufacturer's recommendations. For any pumping station, the wet well shall be of sufficient size to allow for a minimum of a fifteen-minute cycle time for each pump. For a duplex station, the volume in cubic metres between pump start and pump stop shall be 0.225 times the pumping rate of one pump expressed in liters per second. The wet well size and control settings shall be appropriate to avoid heat build-up in the pump motor due to frequent starting and to avoid septic conditions due to excessive detention time. The Municipality may consider alternatives on a case-by-case basis.

5.2.2.5.2. Pump Manufacturers

The following pump manufacturers are approved for use in sewage pumping stations in the Municipality. Other pump manufacturers may be considered, by the Municipal Engineer, as approved equals.

- Submersible pumps shall be manufactured by "ITT Flygt".
- Self-priming pumps shall be manufactured by "Gorman Rupp".

Submersible Pumps shall be designed to minimize the deposition of solids in the wet well using flush valves manufactured by ITT Flygt or approved equal (one hydraulically operated flush valve per pumping station).

Pumps shall be designed specifically for pumping raw, unscreened, domestic sanitary sewage (non-clog, solids handling type). All pumps shall be solids handling type complete with electric motors.

5.2.2.5.3. Emergency Overflows

To prevent or minimize overflows, each pumping station shall be designed with a retention capacity calculated on the basis of peak design flow for a duration related to frequency and length of power outages for the area established by NS Power. In the absence of reliable data regarding the frequency and length of power outages, a minimum retention capacity of 4.5 hours at peak design flow shall be used. An auxiliary power supply may be used as a substitute for retention capacity at the pumping station.

Subject to NSECC approval, an emergency overflow pipe may be provided under the following conditions:

The invert of the emergency overflow of the pumping station must be lower than the lowest wastewater lateral at the property line and high enough to prevent backup into the pumping station from the high-water mark of the receiving watercourse. The emergency overflow pipe must be provided with a normally- open backwater valve conforming to National Plumbing Code of Canada and readily accessible for maintenance. Where public water supplies, shellfish production, or water used for culinary or food processing purposes exist, overflows are not permitted.

Provisions for chlorination and de-chlorination of overflows must be in accordance with NSECC requirements.

5.2.2.5.4. Safety Precautions

The pumping station and appurtenances shall be designed in such a manner to ensure the safety of operations, in accordance with all applicable Municipal, Provincial and Federal regulations including the Occupational Health and Safety Act. All moving equipment shall be covered with suitable guards to prevent accidental contact.

Equipment that starts automatically shall be suitably designed to ensure that the operators are aware of this condition. Lockout devices shall be supplied on all equipment to ensure that the equipment is completely out of service when maintenance or servicing is being carried out.

5.2.2.5.5. Phased Development

In situations of phased development, the effects of minimum flow conditions shall be investigated to ensure that the retention time in the wet well will not create an odor or septic problem, and that pumping equipment will not operate too infrequently based on the manufacture's recommendations.

5.2.2.5.6. Pump Selection

Pumping equipment is to be selected to perform at maximum efficiencies under normal operating conditions.

Pumping stations, wet wells, and dry wells are to be designed such that all pumps will operate under a continuous positive prime condition during the entire pump cycle. System head calculations and curves shall be provided for the extreme operating conditions of high and low water levels in the wet well, as well as the normal operating range in the wet well (medium water level). The curve representing the normal operating conditions shall be used to select the pump and motor; however, the pump and motor shall be proven to be capable of operating satisfactorily over the full range of operating conditions.

5.2.2.5.7. Surge

Pumping stations are to be designed such that the incoming sewers will not surge under the peak flow conditions.

5.2.2.5.8. Flow Velocities

Suction and discharge piping shall be sized to carry the anticipated peak flows. Flow velocities shall be:

- Minimum cleansing velocity of 0.8 metres per second.
- Maximum velocity of 2.0 metres per second.

Regardless of the above conditions, piping less than 100 mm in diameter is not acceptable, unless approved by the Municipal Engineer.

5.2.2.5.9. Piping

Pumping station internal piping shall be either PVC piping, Schedule 80, HDPE or stainless steel, Type 316 or 316L, 11 Gauge. Regular steel pipe spool pieces are not permitted.

Pressed or rolled Vanstone neck flanges shall be used for all stainless-steel pipe joints, fittings, and connections. All piping within the pumping station shall be properly supported and shall be designed with appropriate fittings to allow for expansion and contraction, thrust restraint, etc.

5.2.2.5.10. Inlet Arrangements

Only one inlet shall be permitted. If more than one inlet pipe flows into the wet well, a manhole shall be provided outside of the lift station to collect the flow from contributing mains.

5.2.2.5.11. Hydraulic Analyses

A hydraulic transit analysis shall be undertaken to ensure that transients (water hammer) resulting from pumps starting, stopping, full load rejection during power failure; etc. do not adversely affect the pipe or valves in the system.

5.2.2.5.12. Valves

Hand operated gate or plug valves must be provided on discharge and suction piping to allow for proper maintenance. A check valve shall be provided on the discharge lines between the isolation gate valve and the pump. Check valves shall be accessible for maintenance.

5.2.2.5.13. Wet Well Ventilation

A ventilation system capable of delivering a complete air change to the wet well in 10 minutes or delivering fresh air to the wet well at a minimum rate of 110 liters per second at 2.0 kPa static pressure, whichever is greater, shall be provided. A separate circuit with a ground fault interrupter shall be provided for the fan. The ventilation fan shall be controlled by a switch at the pumping station control panel set to operate when the control panel door is opened. The ventilation fan control shall also provide for automatic operation of the fan at least 4 times during a 24-hour period. The operation duration of each time shall be adjustable and shall be 10 minutes minimum. The ventilation fan shall be mounted on the pumping station control panel mounting structure adjacent to the control panel. Above ground ventilation piping must be stainless steel and must be goose-necked with a bird screen on the open end.

Continuous ventilation shall provide a complete change of air in not more than 5 minutes and intermittent ventilation shall provide a complete change in not more than 2 minutes as per NSECC requirements.

5.2.2.5.14. Access and Removal

Adequate access hatchways and doorways shall be provided with inherent safety protection devices installed. All pumping stations shall be provided with an acceptable device for the removal of pumps and motors for repair and maintenance. Submersible pumps shall be readily removable and replaceable without dewatering the wet well or disconnecting any piping in the wet well. "Retro-Grate" style grating (or equivalent) to be installed in lift stations to provide a minimum (200 mm) access to the LS without requirement of grate removal, for inspection and routine maintenance (float checks, float cleaning, etc.).

Lift hatches must be able to be "locked-in" in the upright position.

A non-corroding working platform shall be constructed in the wet well of each submersible station to provide access to check valves and gate valves. The platform shall be set on a concrete lintel cast integrally with the station walls. Alternatively, a separate valve chamber shall be provided.

All locks shall be keyed alike to the Municipality standard system.

5.2.2.5.15. Pumping Arrangements

All pumping stations shall have a minimum of two pumping assemblies. If only two pumps are provided, they each shall have the same capacity, with each pump capable of handling the expected Design Peak Flow. Where three or more units are provided, they shall be designed to fit actual flow conditions and must be of such capacity that, with any one unit out of service, the remaining units will have capacity to handle maximum sewage flows, taking into account head losses with parallel operation.

The pump control circuitry shall be designed to automatically alternate pumps for each pump cycle. Run time metres shall be provided to record run time for two pumps operating simultaneously.

5.2.2.5.16. Electrical

Electric motors less than 7.5 kilowatts (10 horsepower) shall be 208-volt, 3 phase; electric motors, 7.5 kilowatts (10 horsepower) and larger shall be 600 volt, 3 phase.

Single phase pumps will be permitted only if in the opinion of the Municipal Engineer three phase power is not feasible.

All pumping station control equipment is to be mounted in a CSA approved NEMA 4X stainless steel enclosure that is watertight, and heated. Alternatively, control equipment may be mounted in an aboveground, packaged valve enclosure as manufactured by Gorman Rupp. The Municipality currently operates a Supervisory Control and Data Acquisition (SCADA) system for its pumping stations; therefore, each installation shall be equipped with a pump controller complete with communications hardware, including but not limited to, telephone sim card, power supply, antenna, and interface cable. Communication software shall be provided and must be fully compatible with the current central monitoring system presently in use in the Municipality.

Electrical service between the control panel and the wet well shall be by way of buried conduit a minimum size of 50 millimetres, shall be sealed gas tight using EYS Conduit Sealing fittings (Explosion-proof) or approved equal and an approved junction box. Each pump cable shall be installed in a separate conduit and a spare conduit shall be provided for future use. All conduits entering or leaving must be adequately sealed to protect against corrosion from harmful gases.

Equip pump stations with a quick connect feature for a portable generator consistent with existing municipal portable generator connections.

The SCADA unit shall have two extra digital points and two extra analog points and shall be capable of transmitting the following signals and alarms to the monitoring system for that location:

- Hand-off-automatic selector switch status.
- Output control through SCADA system.
- Low level alarm.
- High level alarm.
- Panic alarm on panel support structure.
- Power failure alarm.

- Illegal entry alarm.
- Pump information (overload, motor current, pump status and phase monitoring).
- Any other information at the request of the Municipal Engineer.

Specifications shall be provided complete with SCADA requirements.

5.2.2.5.17. Site Considerations:

All pumping stations and control panels must be located off the street ROW in an appropriate area specifically designated for that purpose. The panel back shall face the road to minimize damage due to road salt. The property on which these facilities are located shall be sized to accommodate proper access, maintenance and all features associated with the station. The pumping station shall not be sited in a floodplain. The ownership of this property shall be deeded to the Municipality. All pumping station land shall be graded such that ponding of water does not occur. All exposed areas shall be sodded. The station shall blend into the anticipated surrounding development. An access driveway accepted by the Municipal Engineer shall be provided for access to the pumping station. The driveway shall be constructed of 100 millimetres of Type 1 gravel over 200 mm of Type 2 gravel (at a minimum) to a minimum width of 4.5 metres and a minimum length of 10.0 metres; an adequate turning area for service vehicles shall be provided.

5.2.2.5.18. Operations and Maintenance Manual

Pumping station operations and maintenance manual must be prepared in a form acceptable to the Municipal Engineer and provided to the Municipal Engineer prior to acceptance of the pumping station. This manual must contain at least the following:

- System description.
- Design parameters, system hydraulics and design calculations (including curves).
- As constructed civil, mechanical, and electrical drawings.
- Pump literature, pump curves and operating instructions.
- Manufacturer's operation and maintenance instructions of all equipment.
- Name, address, and telephone number of all equipment suppliers and installers.
- Information on guarantees/warranties for all equipment. All special tools and standard spare parts for all pumping station equipment are to be provided by the contractor prior to acceptance of the system by the Municipal Engineer.

5.2.2.6. Force Main

5.2.2.6.1. Pipe

PVC DR21 and High-Density Polyethylene (HDPE) DR11 are approved for use for sanitary sewer force mains in the Municipality. Pipe shall be designed and installed as per the recommendations of the manufacturer, including thrust blocks and mechanical restraints. The Design Engineer is to confirm pipe pressure ratings for specific applications.

Force main shall be clearly marked with trench tape as "Force main" or "Sewer" if installed near a water main of the same material.

5.2.2.6.2. Valves

To prevent air locks in the pipe, automatic air relief and vacuum valves shall be located in a chamber at all high points of the force main system or in such other locations as directed by the Municipal Engineer. The hydraulic losses in the force main shall be calculated using the Hazen-Williams Formula

or an appropriate nomograph assuming a roughness coefficient of $C = 120$ for any type of pipe material.

5.2.2.6.3. Limiting Velocities

The force main shall be designed such that a minimum cleansing velocity of 0.6 metres per second is maintained. The maximum velocity in any force main shall not exceed 2.4 metre per second. Regardless of the above conditions, piping less than 100 millimetres in diameter is not acceptable, unless approved by the Municipal Engineer.

5.2.2.6.4. Minimum/Maximum Depths

Force mains shall have a minimum cover of 1.5 metres and a maximum cover of 2.4 metres. The depth of cover shall be measured from the design grade at finished surface to the crown of the pipeline.

5.2.2.6.5. Slope

Force main slope does not significantly affect the hydraulic design or capacity of the pipeline itself. Under no circumstance; however, shall any force main be installed at zero slope. Zero slope installation makes line filling and pressure testing difficult and promotes accumulation of air and wastewater gases.

5.2.2.6.6. Location

Force mains shall not be located in a common trench with a water main. The soil between the mains shall be undisturbed. Force mains crossing water mains shall be laid to provide a minimum vertical distance of 450 millimetres between the outside of the force main and the outside of the water main. The water main shall be above the force main. At crossings, one full length of water pipe shall be located so both joints will be as far from the force main as possible. Special structural support for the water main and force main may be required.

5.2.2.6.7. Termination

Force mains should enter the gravity sewer system at a point not more than 0.6 metres above the flow line of the receiving manhole. A 45-degree bend may be considered to direct the flow downward.

5.2.2.6.8. Changes in Direction

Any change in direction which is in excess of the pipe joint deflection tolerance shall require a suitable fitting as approved by the Municipal Engineer. Thrust blocks shall be provided at any change of direction and shall be designed considering the operating pressure, surge pressure, peak flow velocity, and in-situ material which the thrust block bears against.

Thrust blocks shall be constructed of "ready mix" concrete and shall have a minimum 28-day compressive strength of 25MPa. In the case of vertical bends, the thrust block shall be located below the fitting and shall be connected to the force main using stainless-steel tie rods securely embedded in concrete. The use of restrained joints is not permitted unless used in conjunction with a thrust block and of a design acceptable to the Municipal Engineer.

Section 6 Water Distribution System Design

6.1. Scope

This section specifies the requirements for a central water distribution system. A water distribution system consists of water mains, laterals, and appurtenances, including pumping / booster stations, pressure control facilities, and reservoirs, which is designed to carry and distribute an adequate supply of potable water for domestic, institutional, commercial, industrial, and fire protection purposes.

Reference standards and organizations supported by these specifications include:

- Atlantic Canada Water Supply Guidelines prepared by ACWWA.
- "Water Supply for Public Fire Protection" prepared by the Fire Underwriters Survey.
- National Fire Protection Association (NFPA).
- American Water Works Association (AWWA).
- Canadian Standards Association (CSA).
- National Building Code (NBC).
- National Plumbing Code (CPC).
- Underwriters Laboratories of Canada (ULC).

In addition, all water distribution systems shall conform to any requirements established by NSECC. No system shall be constructed until the design has been approved by the Municipal Engineer and by NSECC.

Water quality is monitored and maintained by the Municipality, and the system must be designed such that the quality is maintained and distributed to the customers at an adequate pressure to supply their needs.

6.2. Design Requirements

6.2.1. System Requirements

Water distribution systems shall be designed to accommodate fire flow plus maximum daily demand unless otherwise approved by the Municipal Engineer. Hydraulic analysis of any system shall be carried out by the Design Engineer using the Hydraulic Grade Line for that particular Serviceable Area.

Fire flow demand shall be established in accordance with the latest requirements contained in "Water Supply for Public Fire Protection".

Residential water distribution systems shall be designed to accommodate the following water demands:

- Average daily demand: 410 liters per capita per day.
- Maximum daily demand: 680 liters per capita per day.
- Maximum hourly demand: 1025 liters per capita per day.

Water distribution systems shall be designed for a gross population density of 45 persons per hectare. In developments where the anticipated population exceeds or is anticipated to exceed the population density of 45 persons per hectare or in areas of commercial or industrial development, the domestic

demand shall be adjusted accordingly. The design population or assumed domestic demand must be clearly specified in the calculations submitted for review and approval.

6.2.2. Minimum / Maximum Pressure

Water distribution systems shall be designed and sized such that during a fire flow condition a residual positive pressure of 150 kPa (22psi) is maintained at all points in the water system.

For any water system extension, minimum residual water pressure of 275 kPa (40psi) at all points along the distribution mains in the water system during maximum hourly demand conditions shall be maintained unless approved otherwise by the Municipality. Maximum water pressure during minimum demand periods shall not exceed 620 kPa (90psi) unless approved otherwise by the Municipal Engineer. Where pressures exceed 620 kPa (90psi), private pressure reducing valves (PRVs) may be required.

Calculations to determine residual water pressure shall be based on the Hydraulic Grade Line of the water distribution system.

6.2.3. Pipe

The following types of pipes are approved for use as water mains when installed in accordance with the manufacturer's recommendations and these Municipal standards:

6.2.3.1. Polyvinyl Chloride (PVC) Pipe

- PVC pipe to AWWA C900, PC 235, DR18.
- PVC pipe is approved for installation in all available diameters.
- Valves, hydrants, and metallic fittings shall be installed with an attached zinc anode Z- 12-24 to ASTM B418 Type II.
- Fittings for PVC pipe to AWWA C104, C111 and C153.
- Tapping sleeves for branch lines over 50 mm diameter to AWWA C223, Type 304 and 304L stainless steel.
- PVC pipe installation shall include the installation of an approved trace wire system for location purposes.
- Water lateral taps up to 50 millimetre diameter must be completed using an approved saddle; direct tapping is not permitted. Wet tapping of PVC pipe is not permitted when the pipe or ambient trench temperature is below 4°C. Adjacent taps in the same pipe length must be staggered circumferentially and separated by a minimum of 450 millimetre longitudinally. No taps are permitted within 600 millimetres of the pipe bell or spigot insertion line.

6.2.3.2. Molecularly Oriented Polyvinyl Chloride (PVCO) Pipe

- PVCO pipe to AWWA C909, PC 235.
- PVCO pipe is approved for installation in all available diameters.
- Valves, hydrants, and metallic fittings shall be installed with an attached zinc anode Z- 12-24 to ASTM B418 Type II.
- Fittings for PVCO pipe to AWWA C104, C111 and C153.
- Tapping sleeves for branch lines over 50 mm diameter to AWWA C223, Type 304 and 304L stainless steel.
- PVCO pipe installation shall include the installation of an approved trace wire system for location purposes.

- Water lateral taps up to 50 millimetre diameter must be completed using an approved saddle; direct tapping is not permitted. Wet tapping of PVCO pipe is not permitted when the pipe or ambient trench temperature is below 4°C. Adjacent taps in the same pipe length must be staggered circumferentially and separated by a minimum of 450 millimetre longitudinally. No taps are permitted within 600 millimetres of the pipe bell or spigot insertion line.

6.2.3.3. Ductile Iron (DI) Pipe

- DI pipe to AWWA C151, Class 52, cement mortar lined.
- DI will be considered for installation over 300 mm diameter subject to acceptance by the Municipal Engineer.
- DI pipe and fittings must be installed with polyethylene encasement.
- Valves, hydrants, and fittings shall be installed with an attached zinc anode Z-12-24 to ASTM B418 Type II.
- DI pipe is not approved for installation below the salt water tidal zone.

The Hazen-Williams Formula or an appropriate nomograph using a pipe friction factor of $C = 120$ for PVC and $C = 100$ for ductile iron shall be used in the design calculations of the water distribution system.

6.2.4. Limiting Velocities

The water main shall be sized such that the maximum velocity in the pipe shall not exceed 1.5 metres per second during maximum hourly domestic flow conditions or 3 metres per second during fire flow conditions.

6.2.5. Looping

Water distribution systems shall be designed to provide looping of water mains and interconnection with adjacent developments as frequently as road and service easement layout permit. Additional looping may be required to increase the reliability of the system where a need is identified by the Municipal Engineer. Dead-end pipes shall be avoided where possible. Dead-end pipe sections longer than 100 meters shall be designed to include an automatic flushing station.

6.2.6. Minimum Sizes

The water distribution system shall be sized as outlined in the above clauses. However, in no instance shall the main be:

- Smaller than 150 millimetre in diameter for looped lines.
- Smaller than 200 millimetre in diameter for dead-end lines in excess of 90m in length.

6.2.7. Oversizing

Oversizing of water mains to accommodate the water supply requirements of future off-site development may be required as instructed by the Municipal Engineer.

6.2.8. Minimum / Maximum Cover

All water mains shall be designed with a minimum cover of 1.5 metre in common material or at suitable depth to prevent freezing of either the water main or the services. In no situation is the depth of cover over the water main to exceed 2.4 metre unless approved by the Municipal Engineer.

The depth of cover shall be measured from the design grade at the finished surface to the crown of the pipeline.

6.2.9. Location

- Water mains shall be installed at a uniform grade of not less than 0.4 % to avoid localized high points unless accepted otherwise by the Municipal Engineer. Water mains shall be installed in the same trench as gravity wastewater and storm water pipes and must maintain a minimum 300 mm horizontal and vertical clearance from wastewater and storm water mains with the water main at the higher elevation. If this clearance cannot be achieved, water mains must be installed in a separate trench with a minimum of 3.0 metres of undisturbed soil between the trenches.
- Water mains must maintain a minimum clearance of 300 millimetres from manholes. Manholes shall be insulated adjacent to the water main where the clearance is less than 1.2 metres.
- Whenever wastewater and storm water mains must cross underwater mains, a clearance of at least 450 millimetres must be maintained between the wastewater/storm water main and the water main. When the elevation of the wastewater/storm water main cannot be varied to meet this requirement, the water main shall be relocated to provide this clearance and reconstructed with restrained fittings for a distance of 3.0 metres on each side of the wastewater/storm water main. One full length of water main shall be centered over the wastewater/storm water main. Concrete thrust blocks shall be used at all bends.
- When it is not possible to obtain proper horizontal and vertical clearance as stipulated above, the wastewater and storm water mains shall be designed and constructed to water main standards. This requirement shall apply to catch basin leads as well.
- Water mains must be located within the public street right of way or within a service easement. Service easements must be a minimum width of 6.0 metres in favour of the Municipality. Depending on the length and location of the service easement, an appropriate access road may be required for maintenance and operation purposes. Where service easements contain multiple services, the easement must be a minimum width of 6.0 metres plus the distance between pipes.
- Water mains shall be installed in a straight line within the traveled way portion of the street right-of-way. On existing streets without curb and gutter, the water main may be installed within the gravel shoulder area at the discretion of the Municipal Engineer.
- Changes in alignment shall be accomplished by the use of manufactured bends. Minor curvature of pipe at joints may be permitted under certain site conditions at the discretion of the Municipal Engineer. Deflection must be within tolerances recommended by the pipe manufacturer.
- Where there is a need to facilitate future development on adjacent lands, water mains shall be extended to the limit of the property boundary.

6.2.10. Valves

All connections to an existing water system shall be valved so that the system can be isolated by the valve at the start of the extension. The connection to the existing water system must be coordinated through the Municipality.

All water system valves shall be mechanical joint, double disc, or resilient seal gate valves and shall conform to AWWA standards. All valves must be accessible through valve boxes or chambers.

Valves shall be provided on the water mains at the following locations:

- Where required to adequately isolate sections of the water system as determined by the Municipal Engineer.
- Four valves per cross, one on each leg.
- Three valves per tee intersection, one on each leg.
- One valve per 400 metres of water main where there are no intersections.

6.2.11. Trench Drainage Relief Systems

The designer shall assess the possible change in groundwater movement caused by the use of pervious bedding material and shall be responsible for the design of corrective measures to prevent flooding as a result of this groundwater movement. Water mains installed in a single trench or in areas where sanitary sewer and/or storm sewer mains are not installed shall require a "Trench Drainage Relief System" to lower the hydraulic grade line of the groundwater in the trench below the invert of the water main.

6.2.12. Changes in Direction

Any change in direction which is in excess of the pipe joint deflection tolerance shall require a suitable fitting as approved by the Municipal Engineer. Thrust blocks shall be provided at any change in direction and shall be designed considering the operating pressure, surge pressure, peak flow velocity and in-situ material which the thrust block bears against. Thrust blocks shall be constructed of "ready mix" concrete and shall have a minimum 28-day compressive strength of 25 MPa.

In the case of vertical bends, the thrust block or anchor shall be located below the fitting. Anchors shall be connected to the water main using stainless-steel tie rods securely embedded in the concrete. The use of restrained joints is not permitted unless used in conjunction with a thrust block and of a design acceptable to the Municipal Engineer.

Gradient restraint anchor blocks shall be provided for pipes installed at grades steeper than 16%. Approved thrust restraint shall be provided for valves on PVC pipe over 100 millimetres diameter.

Thrust blocks shall be provided for service lateral connections over 100 mm diameter.

6.2.13. Fire Hydrants

Fire hydrants shall be provided at spacing in accordance with the requirements contained in the latest revision of the publication "Water Supply for Public Fire Protection". In no case shall the maximum spacing exceed 150 m. The following are desirable hydrant locations:

- At high points of the water main profile unless an automatic air release valve is required at that location.
- At low points of the water main profile.
- At intersections of roads.
- Near middle of long blocks.
- At the end of dead-end streets or cul-de-sacs greater than 90 metres in length.

All fire hydrants shall be Clow/McAvery M67 or approved equal.

Fire hydrant laterals shall have a minimum diameter of 150 millimetres, shall be provided with a gate valve and the hydrant drain is to be plugged. Hydrants to be painted safety red.

Where a hydrant is to be installed on a street with ditches, a 4 metres wide driveway with a culvert must be installed to provide access to the hydrant.

Private hydrants shall be installed after the water meter unless approved otherwise by the Municipality.

6.2.14. Air Relief and Vacuum Valves

Air relief valves and vacuum valves shall be installed in a chamber at all significant high points in the distribution system and at such other locations as required by good engineering design practice and as approved by the Municipal Engineer.

6.2.15. Service Lateral

All services shall be installed with a minimum cover of 1.5 metres in common material or a suitable depth to prevent freezing of the service. Where that depth is not achievable, a method of insulating approved by the Municipal Engineer may be used to achieve the equivalent depth of burial. In no case will the depth of burial be less than 1m.

All water distribution system laterals from the main line to the property line shall be provided by the developer or the property owner. A single service lateral is to be supplied to each existing lot or potential future lot which could be created under the zoning in effect at the time of installation of services. Whenever possible, service laterals shall not be installed in private driveways or other traveled areas.

To avoid high friction losses in service piping, the maximum length of any 19 millimetre diameter service lateral shall be limited to 50 metres from the curb stop to the house. Services longer than 50 metres shall require at least 25 millimetre diameter piping.

For services which are longer than 20 metres, the number of compression couplings used is to be kept to a minimum. Compression couplings shall not be used within 1.5 metres of the foundation of any serviced building.

All water service connections between the corporation stop and curb stop shall be a minimum of 19 millimetres in diameter, blue PEX or PEXa, or approved equal. The outside diameter of the pipe shall be copper tube size (CTS) and must have a standard dimension ratio (SDR) of 9.

Services for future development are to be brought to the property line as directed by the Municipality, capped, and marked with a 50 millimetre x 100 millimetre member painted "Blue". Where the lateral is being installed adjacent to a sidewalk the service is to be installed 2 metres beyond the street line.

6.2.16. Water Meter Chamber

A Water Service Connection that is set back 50 metres or greater from the public right of way or public easement boundary requires the water metre and backflow prevention device be installed in a private meter chamber, on private property, adjacent to the right of way or easement boundary. Meter chamber to be designed by a licensed Professional Engineer. See Appendix E – Standard Details for standard water meter chamber details (residential and commercial applications).

6.2.17. Backflow Prevention Devices

Backflow prevention devices are required on all new services as per the National Plumbing code (2015). Backflow devices shall also be installed in accordance with the applicable standard specifications on the following types of services:

- Industrial and commercial buildings.
- Apartment buildings larger than four units.
- Sprinkler services lines.

Section 7 Standard Details

Please refer to Appendix E for the following Standard Details:

- Urban Local Road Cross Section.
- Urban Collector Road Cross Section.
- Rural Local Road Cross Section.
- Rural Collector Road Cross Section.
- Private Road Cross Section.
- Curb.
- Cul de Sac.
- Turning Tee.
- Sidewalk.
- Driveway Ramp.
- Pedestrian Ramp.
- Walkway.
- AT Trail.
- Guardrail.
- Pipe Trench.
- Precast Manhole.
- Cast in Place Manhole Base.
- Precast Headwall.
- Urban Fire Hydrant.
- Air Release/Vacuum Release Valve.
- 19 mm to 50 mm Service - Water Meter Chambers.
- 75 mm and Greater Service - Water Meter Chambers.
- Single Family Service Laterals.
- Semi-Detached Unit Service Laterals.
- Townhouse Unit Service Laterals.
- Typical Water Service Connection.
- Typical Storm and Sanitary Service Connection.
- Clay Plug.
- Underdrain.
- Catch Basin.
- Trench Drain.

Appendix A – Sample Statutory Declaration

**CANADA
PROVINCE OF NOVA SCOTIA
COUNTY OF KINGS S.S.**

To: Municipality of the County of Kings

IN THE MATTER OF: the *Canada Evidence Act*

-and-

IN THE MATTER OF: Construction Contract entered into by _____
(Incorporated or Limited), "the Contractor", for the
Construction of:

- ☐ Highway
- ☐ Water Line
- ☐ Sanitary Sewer
- ☐ Storm Sewer
- ☐ Other: _____

in the _____ subdivision
at _____, Kings County.

I, (Name of Declarant) of (Address) _____, Province of Nova Scotia, do solemnly declare:

1. **THAT** I am ☐ President and/or the ☐ Secretary or ☐ Treasurer of ☐
_____(Incorporated or Limited) named in the contract above mentioned, and as such
have personal knowledge of the facts herein deposed to except where otherwise stated.
2. **THAT** all accounts payable by the Contractor on or before the date hereof with respect to
subcontractors, labour and materials with respect to the above Contract have been paid in full.
3. **THAT** all wages have been paid in full.
4. **THAT** all amounts owing by the Contractor for Workers' Compensation, employee's income tax
deducted at source, employment insurance and Canada Pension Plan deducted from wages and
salaries, and including the employer's portion, vacation pay allowances and all other charges of
whatsoever nature due or payable by reason of the performance of that work covered by the said
Contract have been duly deducted and paid according to law.
5. **THAT** I am authorized by the Contractor to make this declaration on its behalf.

AND I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of the *Canada Evidence Act*.

DECLARED BEFORE ME at _____)
_____, in the _____)
County of _____,)
Province of Nova Scotia, this _____)
day of _____, A.D., 20____.)
_____) _____
A BARRISTER/COMMISSIONER OF) President and/or Secretary or Treasurer of
THE SUPREME COURT OF NOVA)
SCOTIA) _____
) (Incorporated or Limited)
)
)

A Barrister (Commissioner) of the
Supreme Court of Nova Scotia

President or responsible Official

Appendix B – Sample Street Services Agreement

This Agreement made this _____ day of _____, 20____.

Between :

_____, a body corporate with head office at _____, in
the County of _____ and Province of Nova Scotia.

“the Developer”

OR

_____ (and _____ both) of _____ in
the County of _____ and Province of Nova Scotia.

“the Developer”

and

The Municipality of the County of Kings, a body corporate pursuant to the Municipal
Act, having its chief place of business at 181 Coldbrook Village Park Drive,
Coldbrook, in the County of Kings and the Province of Nova Scotia.

“the Municipality”

Whereas the Developer has applied to the Development Officer of the Municipality for final subdivision
approval of lots within the Subdivision (“the Subdivision”) located at _____ in the
County of Kings.

And Whereas the Municipality has agreed to authorize the Development Officer to give final approval
to such lots within the Subdivision upon the terms herein provided upon the Developer entering into and
carrying out this Agreement.

And Whereas the Municipal Government Act S. 271(5) authorizes a sub-divider to enter into a bond or
other security satisfactory to Council to install and provide the streets and other services to the standards
set out in the Subdivision By-law.

Witnesses that in consideration of the premises and of the promises and undertakings herein contained
the parties agree to and with one another as follows:

Street

Dedication

1. The Developer will forthwith convey to the Municipality any roads,
streets or highway within the Subdivision required to be so conveyed
together with any required easements or right-of-ways and will
simultaneously cause its solicitor to provide a certificate of title to the

Municipality that the Developer has good title to such roads, street or highways, easements and right-of-ways free and clear of encumbrances, and this certificate shall be satisfactory to the Municipality, and that the Developer (has corporate capacity and) has taken all required actions to authorize the execution and delivery to the Municipality of the deed of the said roads, streets or highways, easements and right-of-ways.

Security	2.	The Developer will provide to the Municipality cash, certified cheque, bond or irrevocable letter of credit for street completion and for deficiencies in accordance with the requirements of the Subdivision By-law of the Municipality, which security shall be satisfactory to Counsel acting on behalf of the Municipality.
Amount of Security	3.	The amount of the security referred to in paragraph 3 shall be 110% of the cost of construction, as estimated by the Engineer, and in any event shall be not less than \$
Completion Date and Requirements	4.	The Developer will within 30 days of completion of construction of the roads, streets or highways referred to herein, which completion of construction will be completed by no later than_____20____“the Completion Date”, provide to the Development Officer a certificate of a licensed Professional Engineer (Civil) that the roads, streets or highways meet all standards of the Subdivision By-law and the Municipal Services Specification Manual of the Municipality.
Approval by Development Officer	5.	The Municipality will authorize the Development Officer, subject to compliance by the Developer with all relevant matters specified in the Subdivision By-law other than as dealt with herein, to grant final approval to the lots within the Subdivision qualifying for approval under this Agreement.
Acceptance of Dedication	6.	The Municipality will accept dedication of the roads, streets or highway together with required easements and right-of-ways.
Steps on Default	7.	If the Developer fails to complete the said work by the Completion Date, all security deposited by the Developer is forfeited. The Municipality may serve notice on the Developer by registered mail posted at Coldbrook, Nova Scotia and addressed to the Developer at Nova Scotia _____, requiring the Developer to proceed with said work immediately.

**Right
to Cure**

8. If the Developer fails to complete said work forthwith or within thirty days after the service of such notice, the Municipality may complete the work pursuant to the direction of the Engineer at the expense of the Developer. The cost of such work completed by the Municipality shall be certified by the Engineer and shall be due and payable by the Developer immediately upon the completion of work.

**Rights on Default
in Performance**

9. If said sum so due and payable is not paid by the Developer to the Municipality immediately, the same may be realized out of the security held by the Municipality hereunder and any balance may be sued for in any court of competent jurisdiction and the Developer shall be responsible for the payment of the same together with costs on a solicitor and client basis.

**Release of
Security**

10. Upon the completion of the said work by the Developer and the approval of the same by the Engineer appointed by the Municipality, and upon compliance with all other terms of this agreement by the Developer and payment of all sums of money owing to the Municipality under the terms of this agreement, any security delivered to the Municipality under Section 3 of this agreement or any agreement collateral hereto shall be released.

**Maintenance
Agreement**

11. The Developer agrees to maintain and keep in good repair the streets and services to a level prescribed by the Subdivision By-law (which streets were constructed by the Developer and conveyed to the Municipality) for a period of two year from the date all of the said streets and all work contemplated by this agreement is finally completed and the Subdivider agrees to abide by any direction reasonably made by the Engineer regarding such maintenance and repair. This maintenance and repair obligation does not include removal of snow and ice which is the responsibility of the Municipality. Any wear and tear of the street caused by use or maintenance activities (i.e., ice and snow removal) shall be repaired by the Developer prior laying of asphalt.

**Maintenance
Bond**

12. The Developer will also upon request by the Development Officer post a maintenance bond or bonds in favour of the Municipality as contemplated by s. 44 (a) of the Subdivision By-law. Such security shall be in the form of cash, certified cheques, bond or irrevocable letter of credit satisfactory to Council acting on behalf of the Municipality, and shall be provided to the Municipality as follows:

- (a) a maintenance bond in the amount of 10% of the actual cost of construction and installation of the water and sanitary sewer

services, to be held by the Municipality for a period of two year from the date of this Agreement; and

- (b) a maintenance bond in the amount of 10% of the actual cost of construction of the roads, streets or highways referred to herein, to be held by the Municipality for a period of two year from the Completion Date referred to in this Agreement.

Steps on Default of Maintenance Agreement

- 13. If the Developer fails to maintain the streets and services as provided in Section 11 of this Agreement, all security deposited by the Developer is forfeited. The Municipality may serve notice on the Developer by registered mail addressed to the Developer, requiring the Developer to proceed with the said work immediately. If the Developer fails to complete said work within thirty days after the service of such notice, the Municipality may complete the work under the direction of the Engineer at the expense of the Developer. The cost of such work completed by the Municipality shall be certified by the Engineer and shall be due and payable by the Developer immediately upon the completion of the work.

If said sum so due and payable is not paid by the Developer to the Municipality immediately, the same may be realized out of the security held by the Municipality hereunder and any balance may be sued for in any court of competent jurisdiction and the Developer shall be responsible for the payment of the same together with costs on a solicitor and client basis.

Settlement of Disagreement

- 14. Should the parties hereto disagree as to whether the said work or maintenance is being done or has been done in accordance with the said regulations or with due diligence, the matters in dispute shall be referred to the Engineer whose decision shall be final and binding upon the parties hereto.

A certificate signed by the Engineer disclosing the Developer's failure to complete the work or maintenance contemplated by this agreement shall be conclusive evidence that the Developer has breached this agreement and the Municipality therefore is entitled to realize on its security as provided herein.

Ownership

- 15. The Developer covenants with the Municipality that it is the owner in fee simple of the lands referred to herein, that they are free from all encumbrances, that the Developer has the right to convey the same and the Developer shall procure such further assurances as may be reasonably required.

Remedies

16. The Municipality may, in its sole discretion, grant extensions of time for completion of work by the Developer without in any way releasing the Developer from its obligations pursuant to the terms of this Agreement, and nothing but the actual completion of the work set forth in this Agreement shall release the Developer from its liability. All rights of the Municipality are cumulative and the taking of one action by the Municipality shall not act as a merger of the other rights of the Municipality pursuant to the terms of this Agreement.

Time

17. Time shall be the essence of this Agreement.

Benefit and Binding

18. This Agreement shall enure for the benefit of and be binding upon not only the parties hereto but also their respective heirs, representatives, successors and assigns.

IN WITNESS WHEREOF the Developer and the Municipality have executed this Agreement the day and year first above written.

SIGNED, SEALED AND DELIVERED

)	
)	_____ (Developer)
)	
)	
)	Per:
)	
)	Per:
_____ Witness)	
)	
)	MUNICIPALITY OF THE COUNTY OF KINGS
)	
)	Per:
)	
_____ Witness)	Per:

Appendix C – Sample Letter of Credit

LETTER OF CREDIT

NAME OF BANK: _____ Date Issued: _____

Branch: _____

Letter of Credit No. _____ Amount: _____

Issued subject to the Uniform Customs and Practices for Documentary Credits being ICC
Publication UCP 500.

TO: The Municipality of the County of Kings

ADDRESS: 181 Coldbrook Village Park Drive, Coldbrook, Nova Scotia B4R 1B9

WE HEREBY AUTHORIZE YOU TO DRAW ON THE

(Name of Bank), being a Schedule 1 or Schedule 2 chartered bank
for the account of _____

(Name of Customer)

UP TO AN AGGREGATE AMOUNT OF _____
Dollars (\$) _____) available on demand.

PURSUANT TO THE REQUEST OF our Customer: _____
we the _____

(Name of Bank)

hereby establish and give you an irrevocable Letter of Credit in your favour in the above amount which may be drawn on by you at any time and from time-to-time, upon written demand for payment made upon us by you which demand we shall honour without enquiring whether you have the right as between yourself and the said Customer to make such demand, and without recognizing any claim of our said Customer, or objection by it to payment by us.

DEMAND shall be by way of a Letter signed by the Clerk of the Municipality under the corporate seal attached to which shall be the original Letter of Credit. Presentation shall be made to the Bank at: _____

(Address)

THE LETTER OF CREDIT we understand relates to those Municipal services and financial obligations set out in an Agreement between the Customer and the Municipality and referred to as:

(Name of Project or Agreement)

THE AMOUNT of this Letter of Credit may be reduced from time-to-time as advised by notice in writing to the undersigned by the Clerk of the Municipality.

THIS LETTER OF CREDIT will continue in force for a period of one year, but shall be subject to the condition hereinafter set forth.

IT IS A CONDITION of this Letter of Credit that is shall be deemed to be automatically extended without amendment from year-to-year from the present or any future expiration date hereof, unless at least 30 days prior to the present or any future expiration date, we notify you in writing by registered mail that we elect not to consider this Letter of Credit to be renewable for any additional period.

DATED at _____, Nova Scotia this _____ day of _____, 20_____

COUNTERSIGNED BY:

(NAME OF BANK)

Per _____

Authorized Signing Officer

Appendix D – Sample Close-Out Report Checklist

The Municipality of the County of Kings

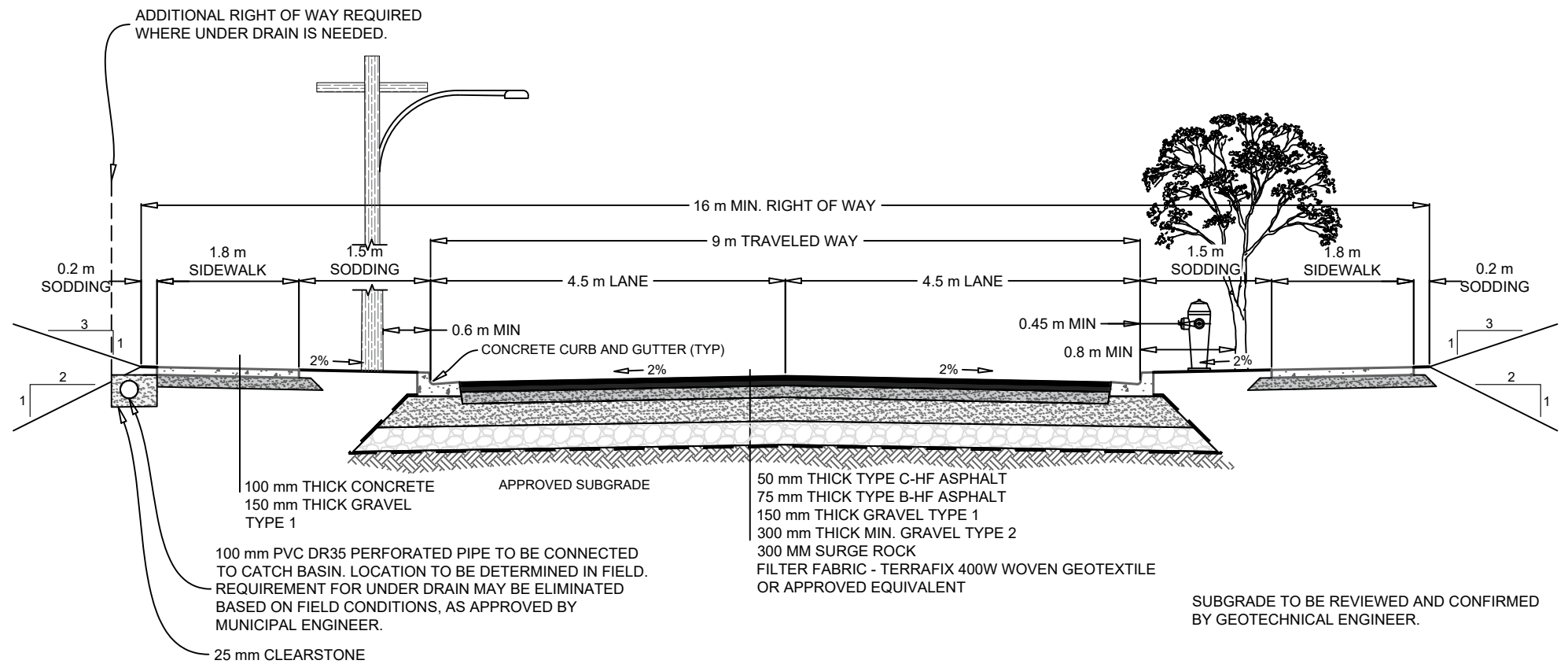
Subdivision Final Approval

Close-Out Report

SECTION	DESCRIPTION	MOK SPECIFICATION	PROVIDED BY	RECEIVED BY MOK
A	Application for Final Approval	2.3	Development Officer	
	Final Plan of Subdivision	2.3.2	Developer's Engineer	
B	Certificate of Compliance	2.3.3	Developer's Engineer	
C	Statement of Construction Costs	2.3.4	Developer's Engineer	
	Statutory Declaration	2.3.4	Developer	
	Maintenance Bond – 10% of Cost Estimate	2.3.4	Developer	
D	Plan of Streets, Drainage Right-of-Ways, Easements	2.3.5	Developer's Engineer	
E	Warranty Deeds	2.3.6	Developer	
	Easement Plans & Descriptions	2.3.6	Developer	
	Title Certificate	2.3.6	Developer	
F	Operation & Maintenance Manuals	2.3.7	Developer	
G	Inspection & Testing Reports	2.3.8	Developer's Engineer	
H	Record Drawings	2.3.9	Developer's Engineer	

Refer to Section 2.4 (Final Plan Approval Submission Requirements) of the Municipal Services Specifications Manual, provided by the Municipality of the County of Kings, for further information.

Appendix E – Standard Details

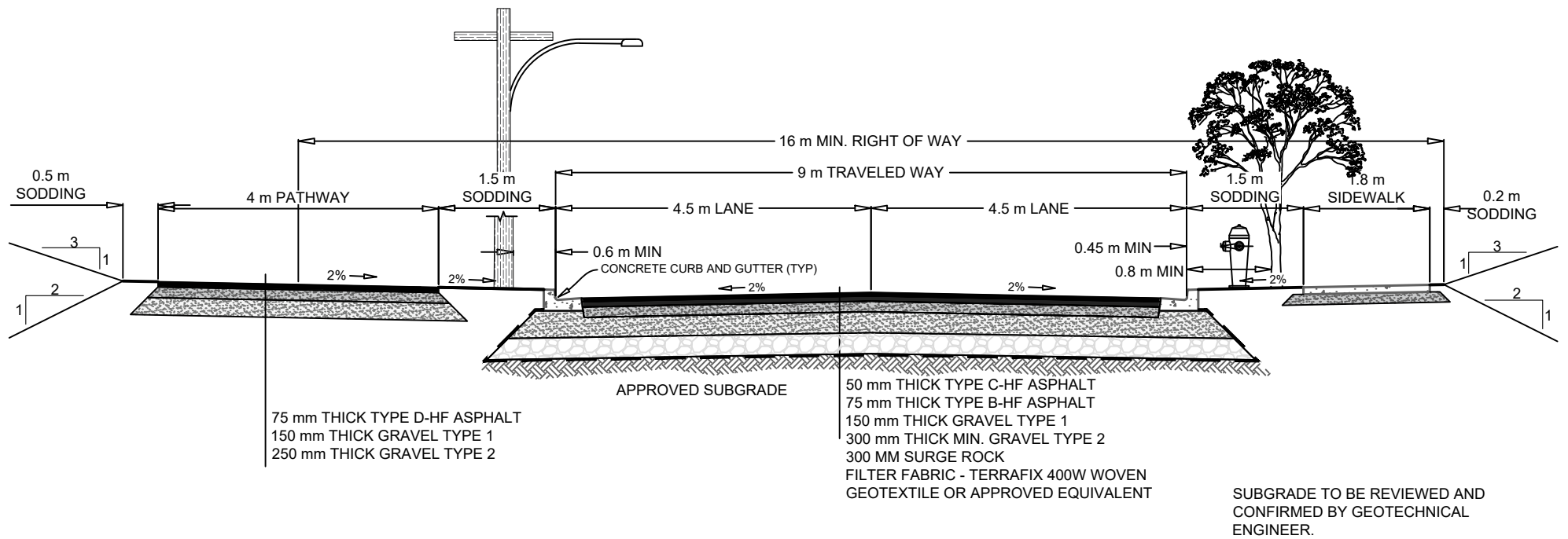


MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

URBAN COLLECTOR ROAD CROSS SECTION - FULLY SERVICED

DATE	September 23, 2024	PAC 2025-06-10	SCALE	N.T.S.
DRAWING NO.	MOK-02	Page 101	APPROVED	

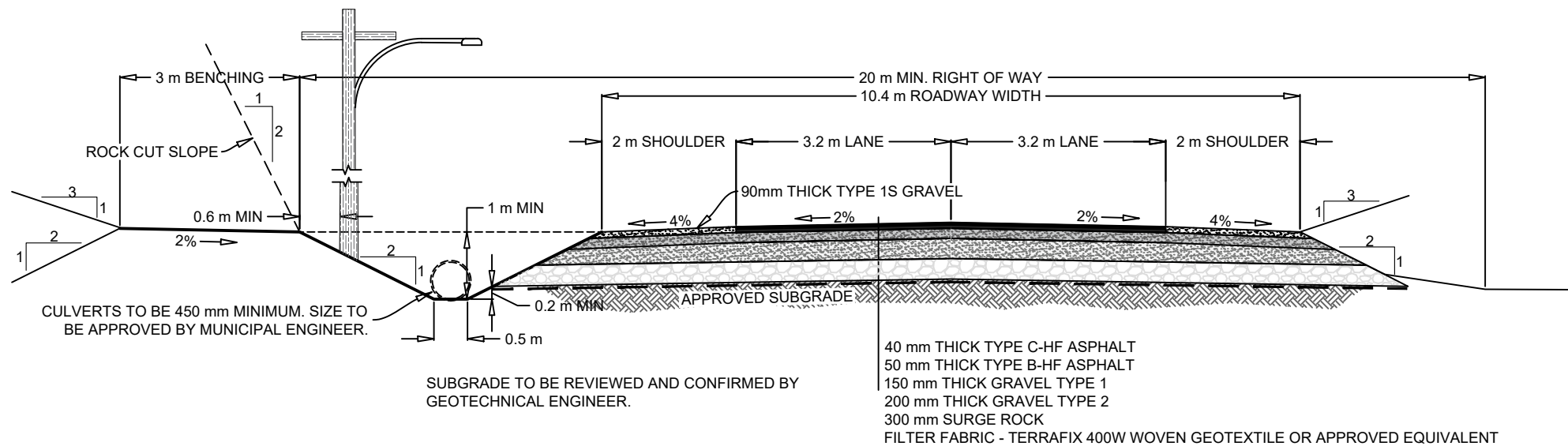


MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

URBAN COLLECTOR WITH AT TRAIL- ROAD CROSS SECTION - FULLY SERVICED

DATE	September 23, 2024	PAC 2025-06-10	SCALE	N.T.S.
DRAWING NO.	MOK-03	Page 102	APPROVED	



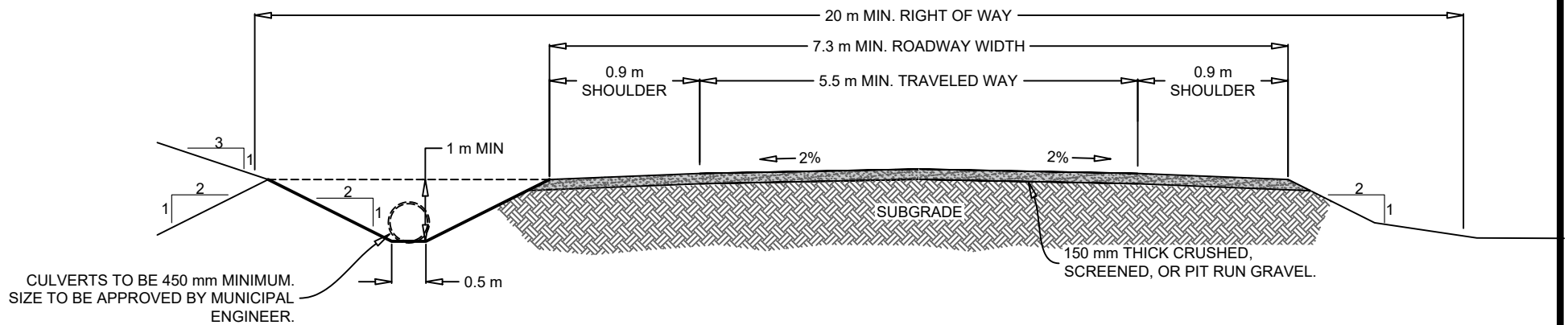
MUNICIPALITY of the
COUNTY of KINGS

MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

RURAL LOCAL ROAD CROSS SECTION - WITHOUT STORM SEWER

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-04	PAC 2025-06-10 Page 103	APPROVED



NOTES:

1. SUBGRADE TO BE CLEAR OF ORGANIC MATERIAL TO A DEPTH OF 1.5 m
2. RIGHT OF WAY MAY BE REDUCED TO 15 m WIDE IF ALL ROAD BED, SLOPES, AND DITCHES CAN BE CONSTRUCTED WITHIN THE RIGHT OF WAY.
3. CULVERTS TO BE CONCRETE OR HDPE AND PLACED 90° TO THE ROAD CENTERLINE AT 500 mm BELOW THE ROAD SURFACE.



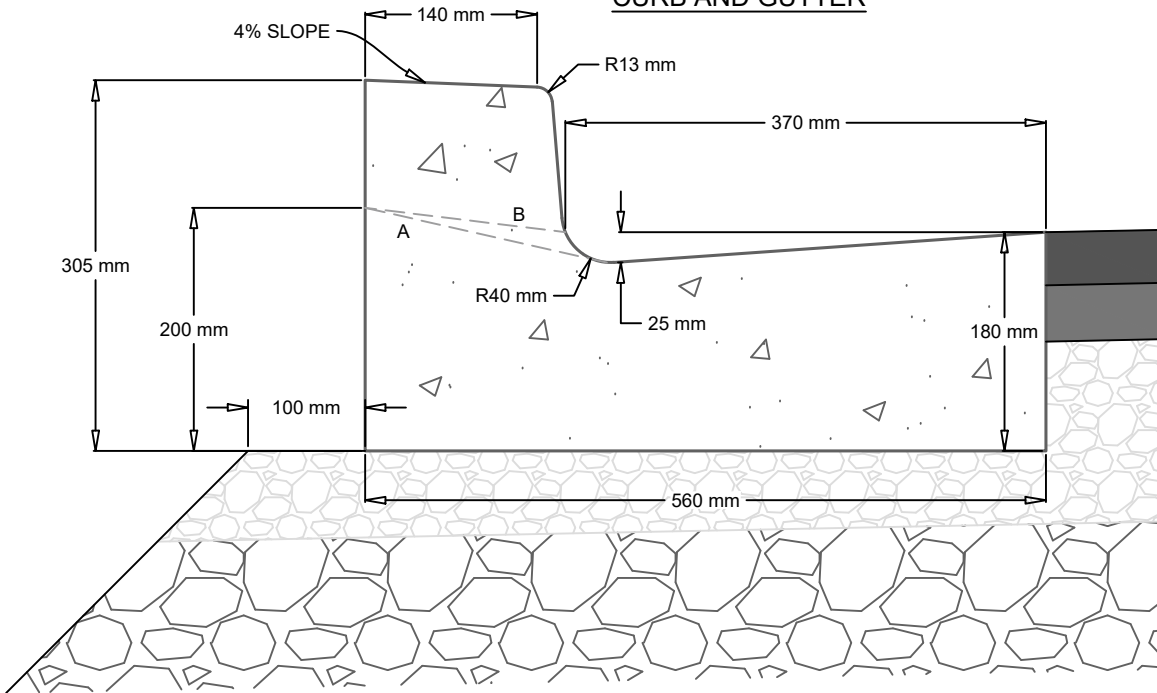
MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

PRIVATE ROAD CROSS SECTION

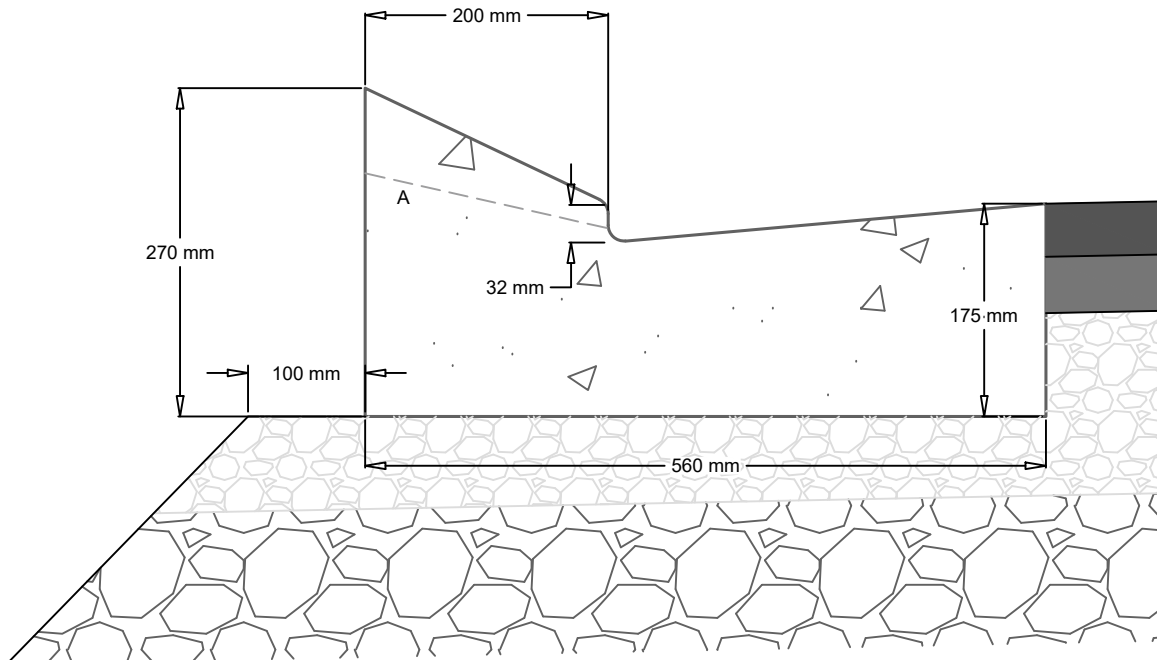
DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-06	PAC 2025-06-10 Page 105	APPROVED


CURB AND GUTTER

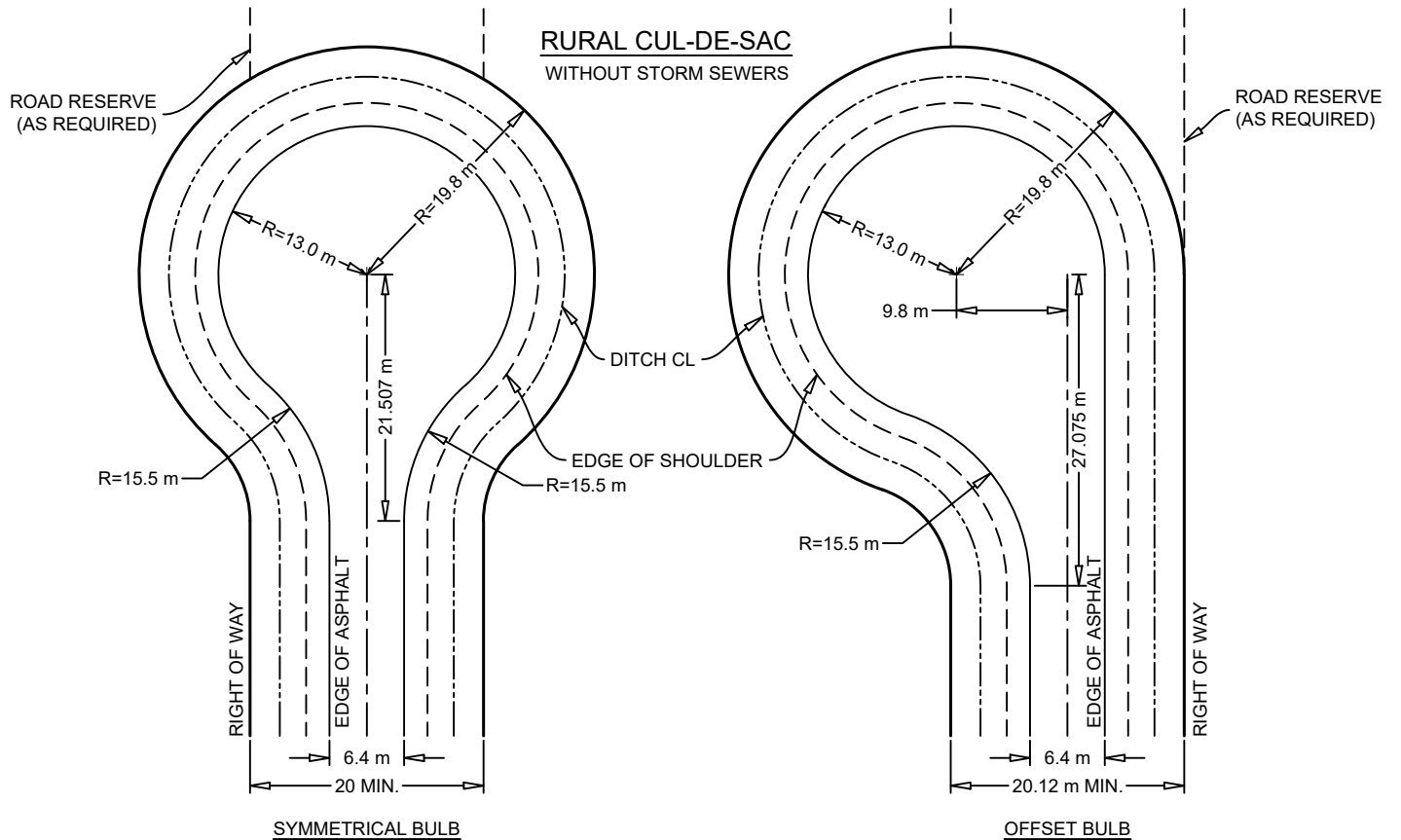
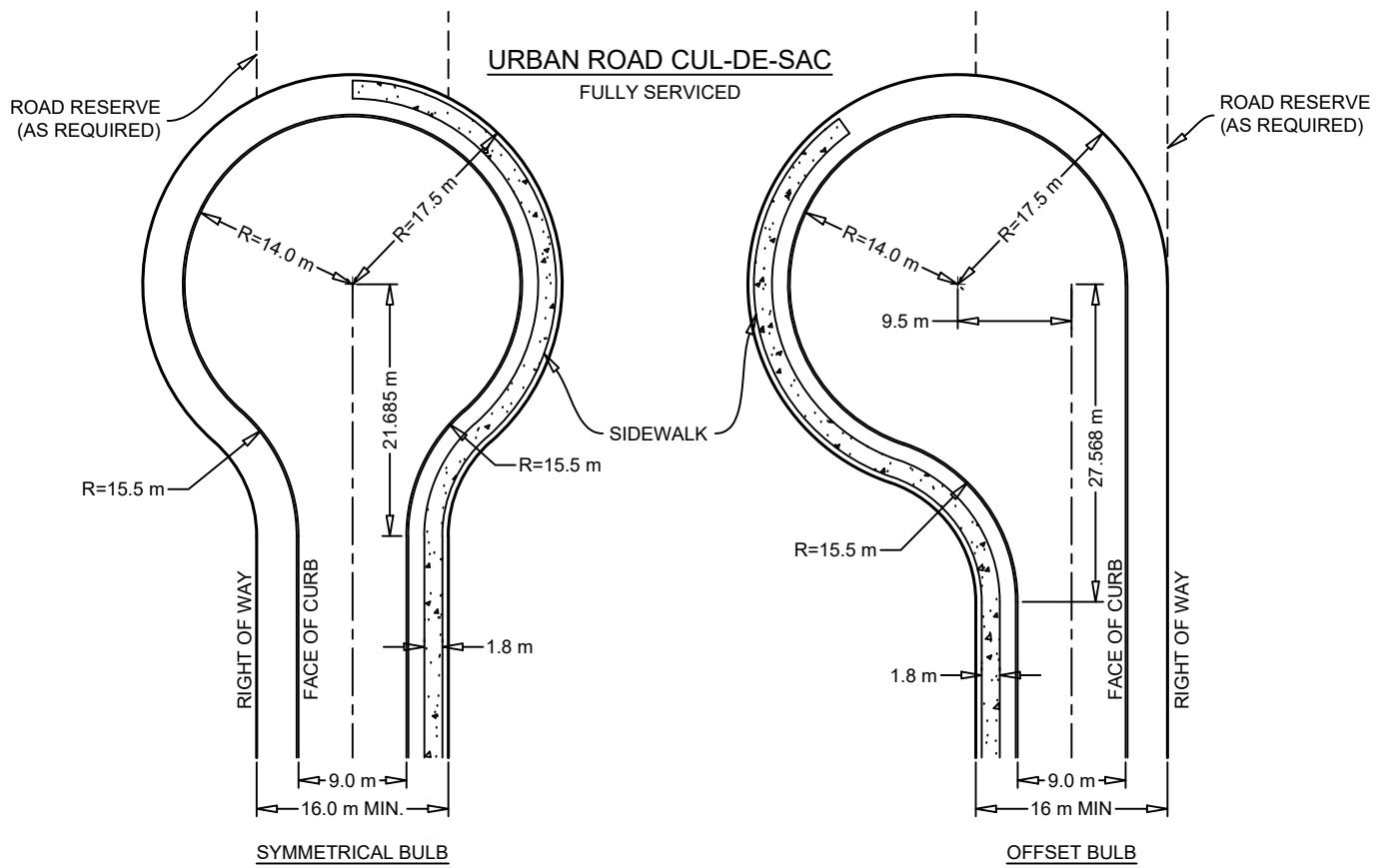



NOTES:
LINE A INDICATES CURB AT PEDESTRIAN RAMPS.
LINE B INDICATES CURB AT DRIVEWAYS

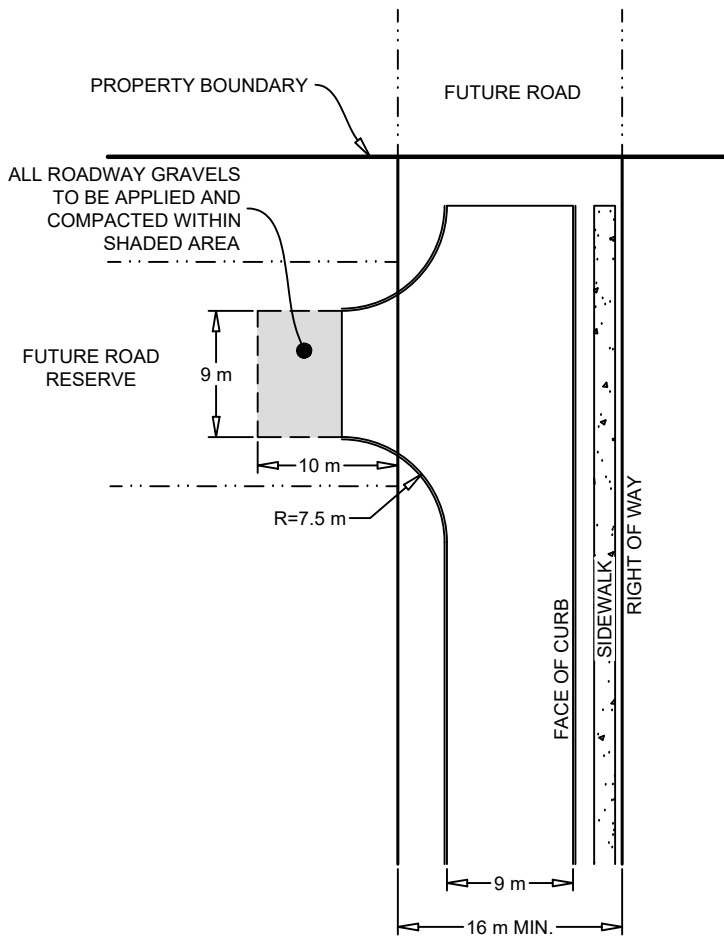
MOUNTABLE CURB AND GUTTER



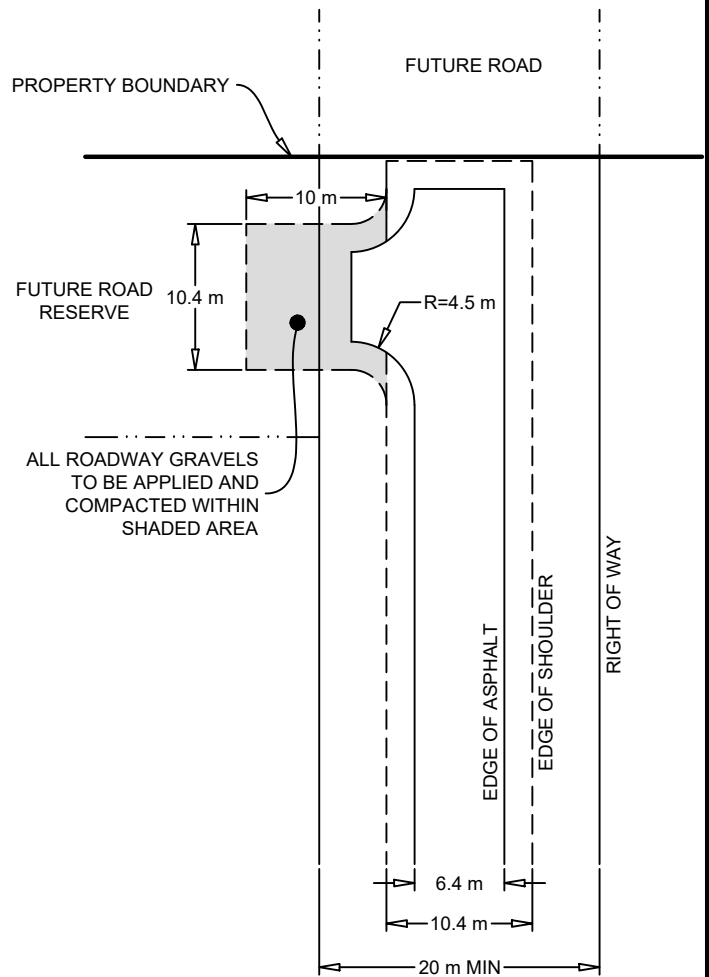
 <p>MUNICIPALITY of the COUNTY of KINGS</p>		MUNICIPALITY OF THE COUNTY OF KINGS			
		STANDARD DETAIL			
		CONCRETE CURB			
		DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-07	PAC 2025-06-10 Page 106		APPROVED	



 <p style="text-align: center;">MUNICIPALITY of the COUNTY of KINGS</p>		MUNICIPALITY OF THE COUNTY OF KINGS			
		STANDARD DETAIL			
		TYPICAL CUL-DE-SAC BULB			
DATE	September 23, 2024	PAC 2025-06-10 Page 107		SCALE	N.T.S.
DRAWING NO.	MOK-08	APPROVED			



URBAN ROAD
FULLY SERVICED



RURAL ROAD
WITHOUT STORM SEWER

NOTES:

1. ALL DIMENSIONS ARE METRIC
2. IF THE DEVELOPER DOES NOT OWN THE PROPERTY BEYOND THE PROPERTY BOUNDARY, A PERMANENT CUL-DE-SAC MUST BE BUILT.



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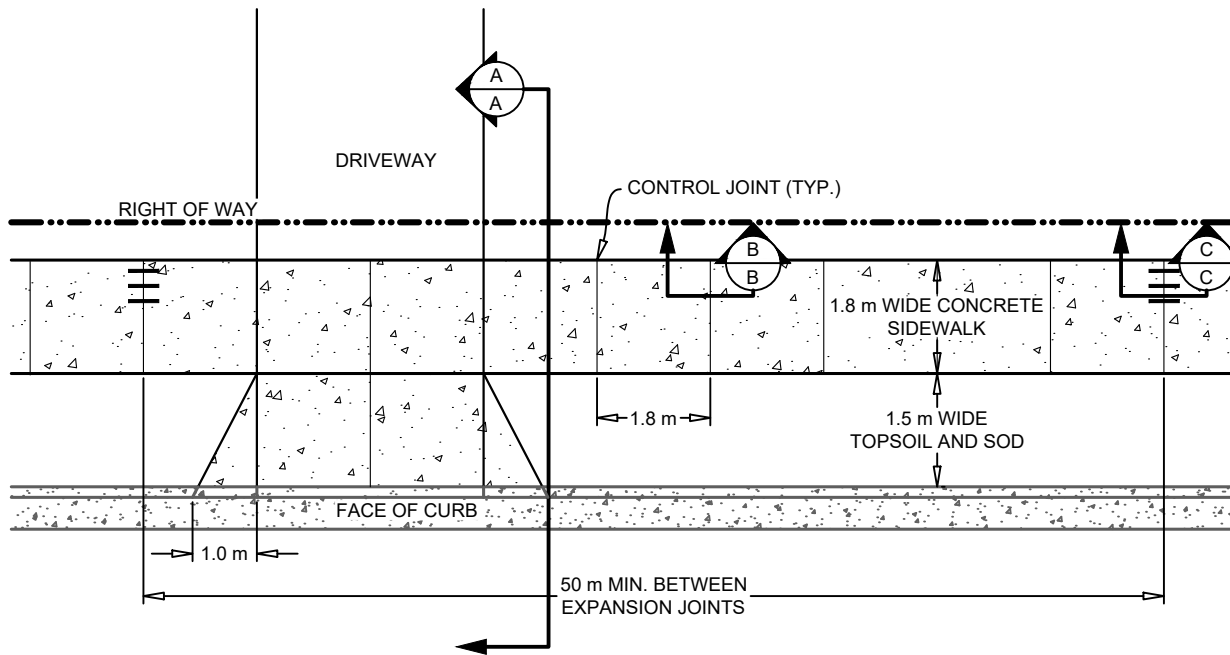
MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

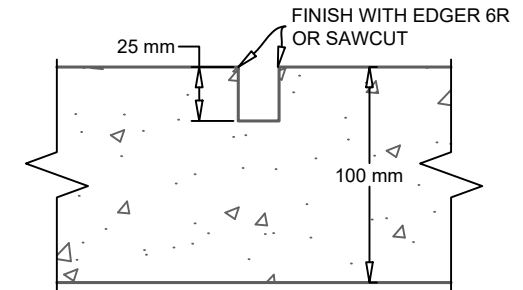
TEMPORARY TURNING AREA

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-09	APPROVED	

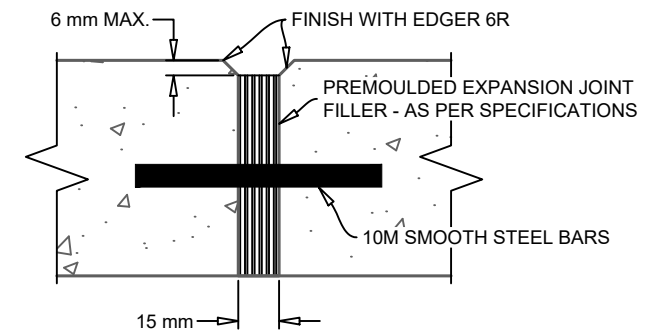
PAC 2025-06-10 Page 108



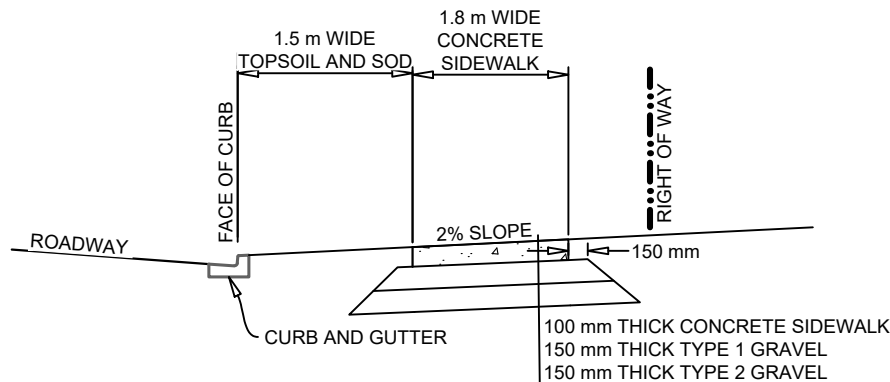
SECTION B-B CONTROL JOINT



SECTION C-C EXPANSION JOINT



SECTION A-A



NOTES:

1. CONCRETE SIDEWALK TO BE 100 mm THICK.
2. CONCRETE TO BE 32 MPa AT 28 DAYS
3. CONTROL JOINTS TO AT 1.8 m INTERVALS MAY BE SAW CUT OR HAND TOOLED.
4. EXPANSION JOINTS TO BE PLACED EVERY 50 m.
5. GREASE PORTION OF BARS ON ONE SIDE OF EXPANSION JOINT.
6. DRIVEWAY RAMPS TO BE 150 mm THICK CONCRETE c/w WWM. SEE STANDARD DETAIL MOK-07.
7. SIDEWALK BASE COURSE SHALL EXTEND 150 mm OUTSIDE OF EACH EDGE OF THE SIDEWALK.



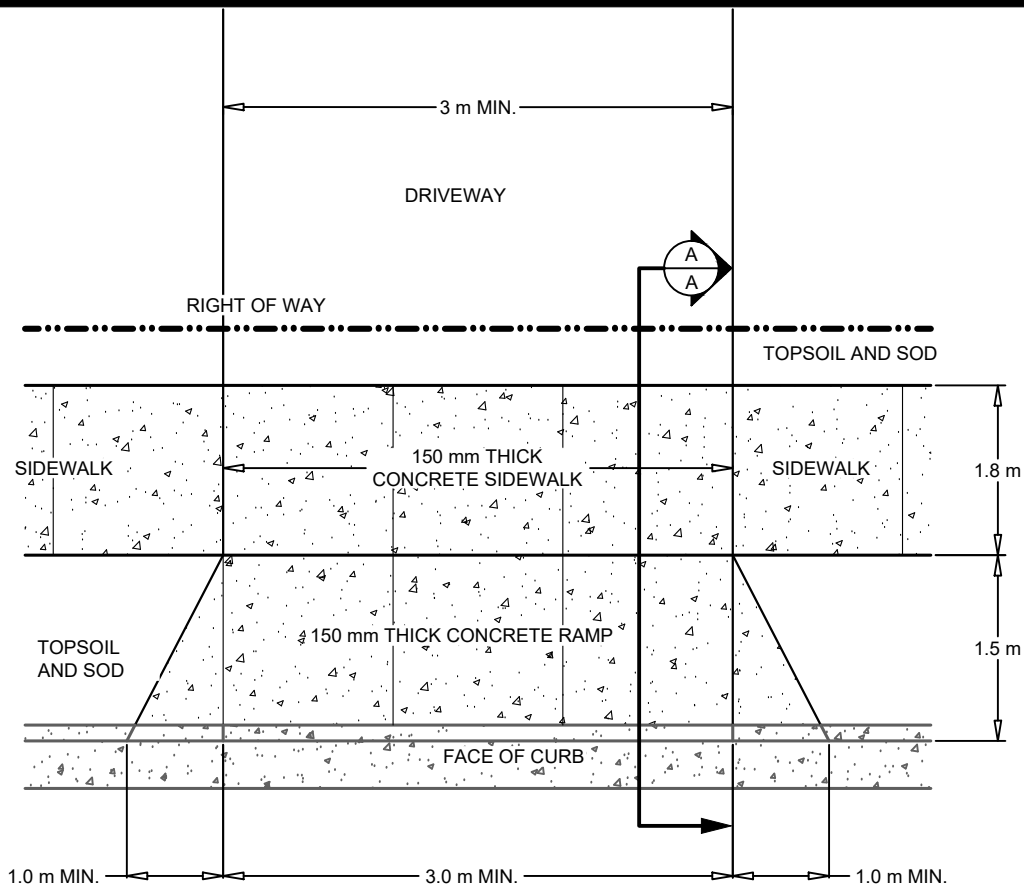
MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

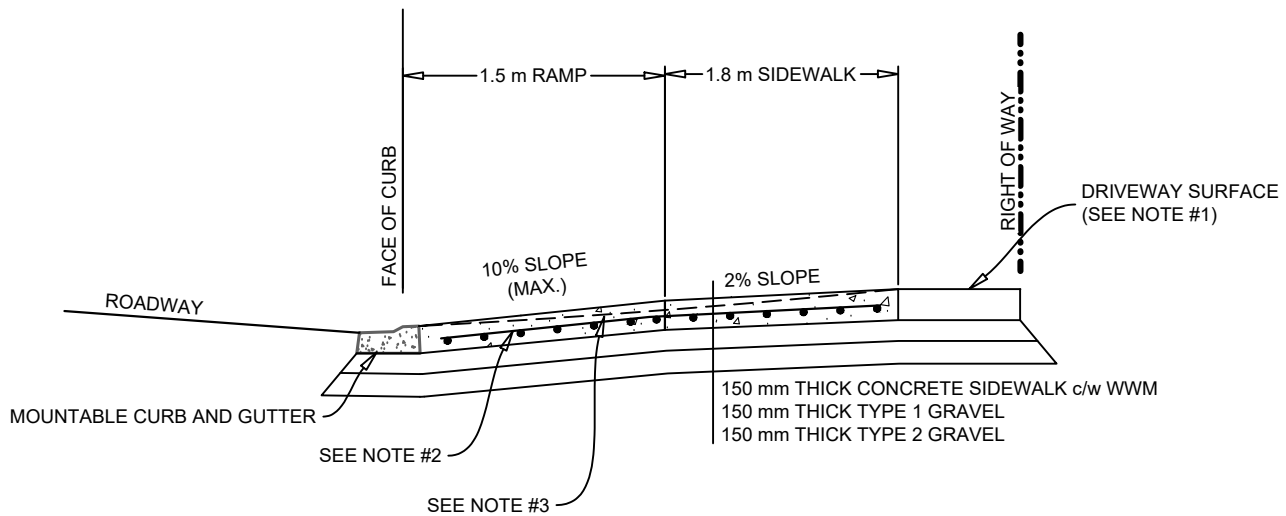
TYPICAL SIDEWALK

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-10	APPROVED	

PAC 2025-06-10 Page 100



SECTION A-A



NOTES:

1. FOR DRIVEWAYS PLACE 150x150 mm WELDED WIRE MESH 4 GAUGE PLACED 50 mm FROM BOTTOM OF CONCRETE RAMP AND SIDEWALK.
2. WHEN BOULEVARD IS LESS THAN 1.8 m OR WHEN THE SIDEWALK ABUTS THE CURB & GUTTER, SLOPE SIDEWALK IN A STRAIGHT LINE GRADE FROM BACK OF SIDEWALK TO LIP ON CURB OPENING.
3. MINIMUM DISTANCE BETWEEN CONTROL JOINTS IS 1200 mm. PROVIDE CONTROL JOINTS WITHIN 150 OF CHANGE IN CROSS SECTION CURB



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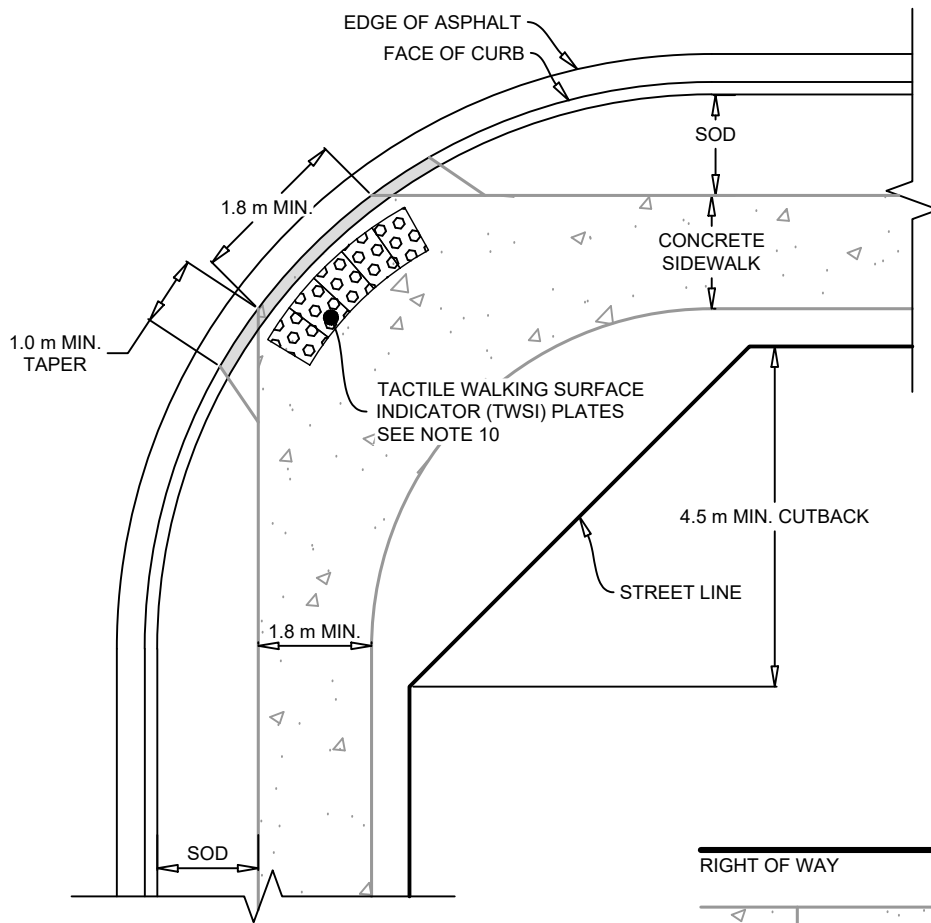
STANDARD DETAIL

DRIVEWAY RAMP DETAILS

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-11	APPROVED	

PAC 2025-06-10 Page 110

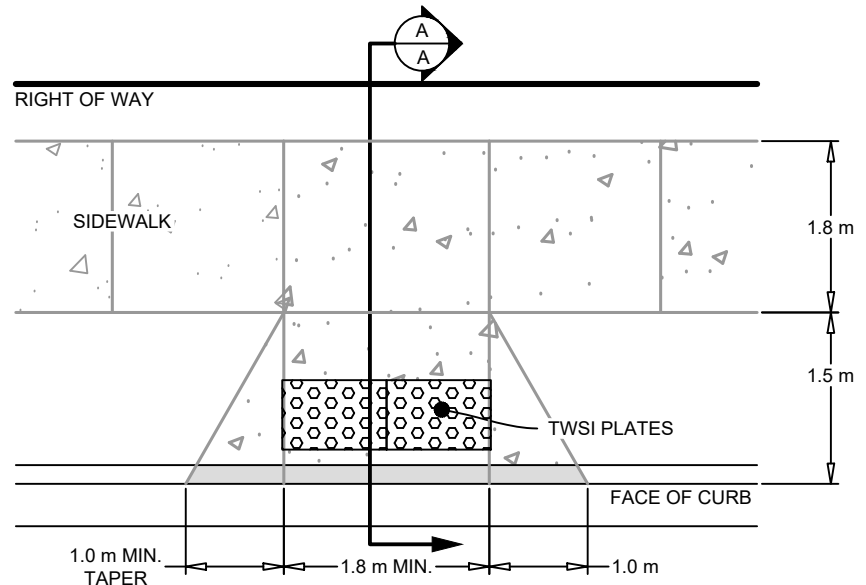
INTERSECTION RAMP



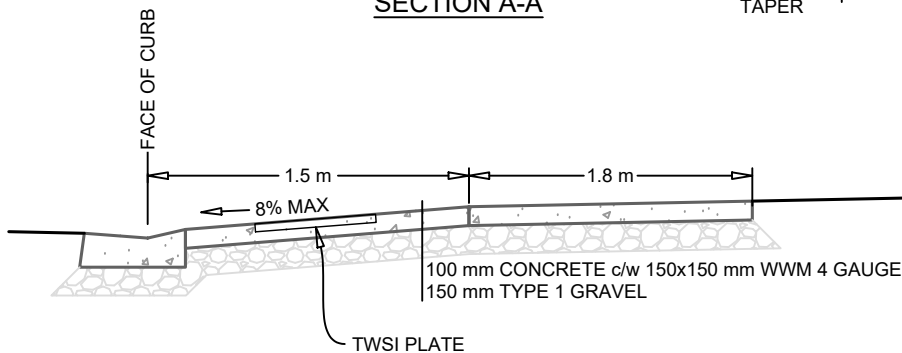
TACTILE WALKING SURFACE INDICATOR PLATE NOTES:

1. NATURAL CAST IRON ATTENTION TWSI (TACTILE WALKING SURFACE INDICATOR) PLATES TO CSA B651, AND AS INDICATED IN THE PROJECT DOCUMENTS.
2. DESIGN AND INSTALLATION MUST MEET ALL ACCESSIBILITY STANDARDS.
3. AT LEAST ONE CORNER OF EACH PLATE TO TOUCH ANOTHER. MAXIMUM GAP BETWEEN EACH PLATE TO BE 150 mm.
4. MAXIMUM GAP BETWEEN PLATES AND START OF TAPER TO BE 100 mm.
5. FOR STREETS OF LESS THAN 8%, TRANSITION CURB AND SIDEWALK TO MAXIMUM GRADE OF 8%, OR TIE IN AT 3 m FOR SIDEWALK, 1.3 m FOR CURB.
6. IF THE DISTANCE FROM BACK OF THE CURB TO BACK OF THE SIDEWALK IS LESS THAN 2.0 m, SLOPE AT 2% FROM BACK OF CURB TO BACK OF SIDEWALK.
7. PLATES SHALL BE PLACED WITH THE TOP OF THE BASE PLATE (BOTTOM OF DOMES) LEVEL WITH CONCRETE SURFACE.
8. ALL PLATES TO BE 610 mm DEEP
9. PEDESTRIAN RAMP OPENING TO BE 1.8 m MINIMUM
10. WHERE APPLICABLE, THE CONTRACTOR SHALL ALLOW TWSI PLATES TO OXIDIZE PRIOR TO INSTALLATION.(4-6 MONTHS)

MID-BLOCK RAMP



SECTION A-A



NOTES:

1. CONCRETE TO BE 32 MPa AT 28 DAYS.
2. MINIMUM RAMP WIDTH IS 1.8 m
3. WHERE SIDEWALK ABUTS THE CURB, A 1.0 m TRANSITION TAPER IS REQUIRED IN THE CURB AND SIDEWALK ALONG ITS LENGTH.



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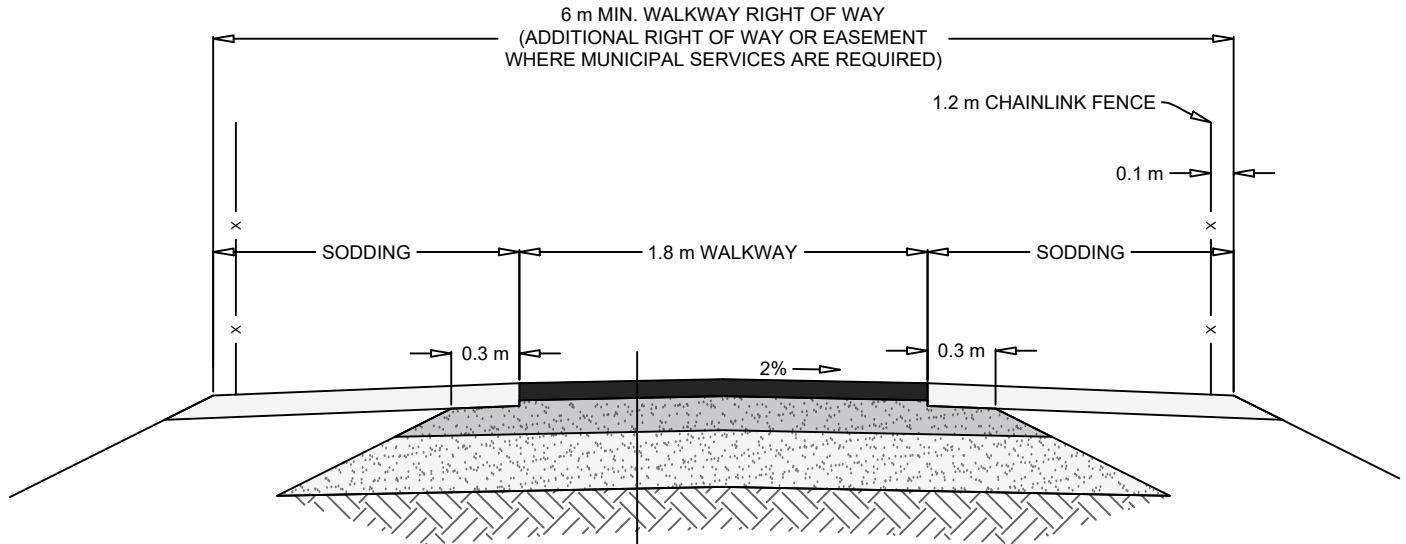
MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

PEDESTRIAN RAMP DETAILS

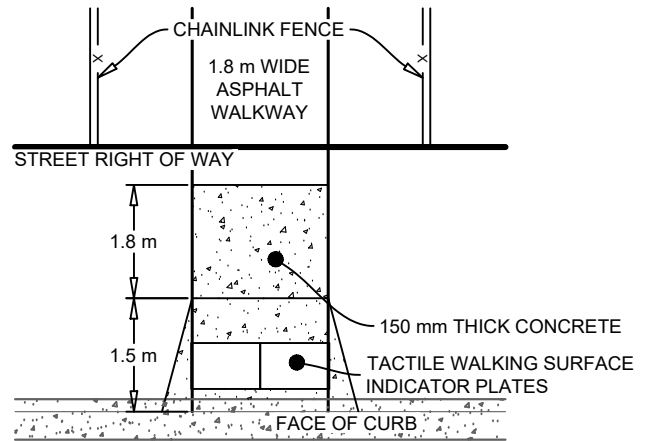
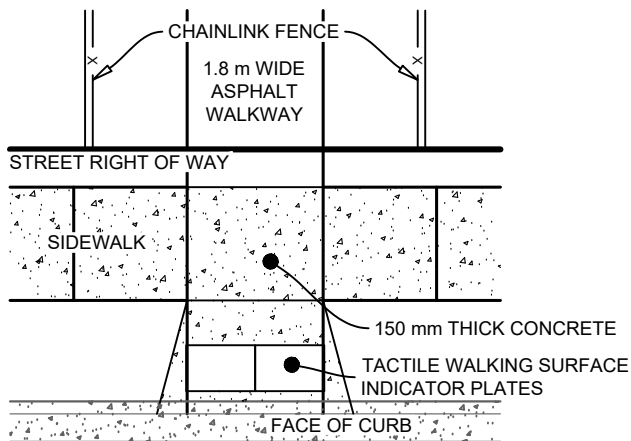
DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-12	APPROVED	

PAC 2025-06-10 Page 111



NOTES:

1. WALKWAY SHOULD HAVE MINIMUM LONGITUDINAL SLOPE OF 2% WHERE POSSIBLE.
2. ADDITIONAL R.O.W MAY BE REQUIRED TO ACCOMMODATE CUT/FILL SLOPES OR SWALES.
3. TOPSOIL AND SOD TO BE 150 mm THICK.
4. IN LOCATIONS WHERE MAINTENANCE OF SOD IS DIFFICULT, MULCH OR OTHER GROUND COVER MAY BE USED.



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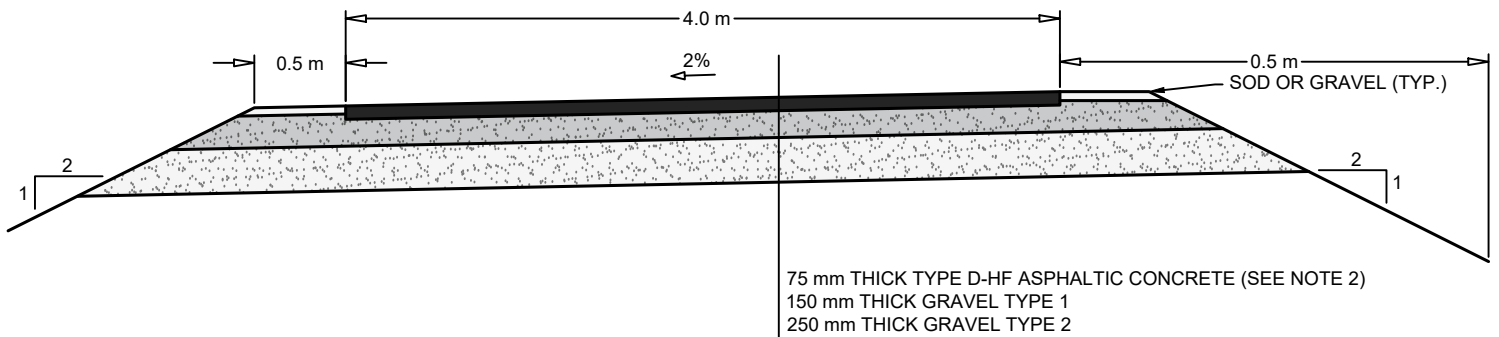
MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL


TYPICAL WALKWAY DETAIL

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-13	APPROVED	

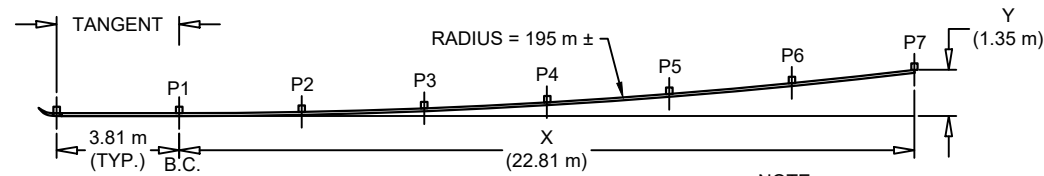
PAC 2025-06-10 Page 112



- NOTES:
1. ADDITIONAL SLOPE STABILIZATION AS PER GEOTECHNICAL REPORT
 2. SURFACE MATERIAL TO BE ASPHALTIC CONCRETE UNLESS DIRECTED BY THE ENGINEER
 3. RAILING REQUIRED IN FILL GREATER THAN 1.5 m, OR ADJACENT TO WATER

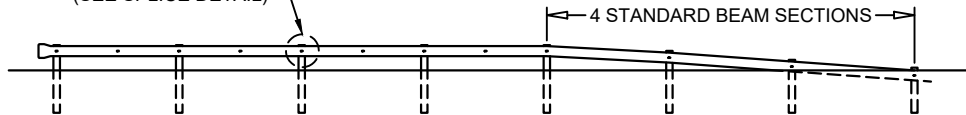
 <p>MUNICIPALITY of the COUNTY of KINGS</p>		MUNICIPALITY OF THE COUNTY OF KINGS			
		STANDARD DETAIL			
		AT TRAIL DETAIL			
		DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-14	PAC 2025-06-10 Page 113		APPROVED	

PLAN - FILL OR CUT



NOTE:
FOR 2-LANE /
2-WAY ROADWAYS,
BURY BOTH ENDS

LAP JOINT IN
DIRECTION OF TRAFFIC
(SEE SPLICE DETAIL)



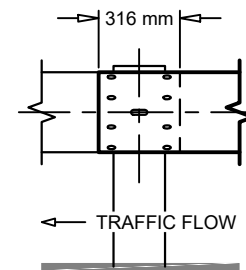
POST OFFSET TABLE

POST #	X (m)	Y (m)
P1-P2	3.81	0.04
P2-P3	7.62	0.15
P3-P4	11.42	0.34
P4-P5	15.22	0.60
P5-P6	19.02	0.94
P6-P7	22.81	1.35

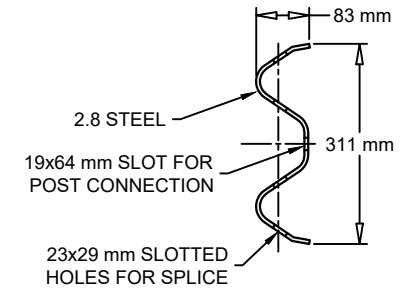
NOTES:

1. TWO 50x75 DELINEATORS ARE REQUIRED FOR EACH POST.
2. A WHITE DELINEATOR SHALL BE PLACED ON THE SIDE OF THE POST FACING TRAFFIC
3. A YELLOW DELINEATOR SHALL BE PLACED ON THE OPPOSITE SIDE
4. THE DELINEATOR SHALL BE LOCATED AT THE EDGE OF THE POST NEAREST THE ROAD, VERTICAL, WITH THE TOP 75 BELOW THE LOWEST POINT OF THE GUARDRAIL PANEL.
5. THE DELINEATOR SHALL BE ATTACHED WITH GALVANIZED NAILS.

SPLICE DETAIL

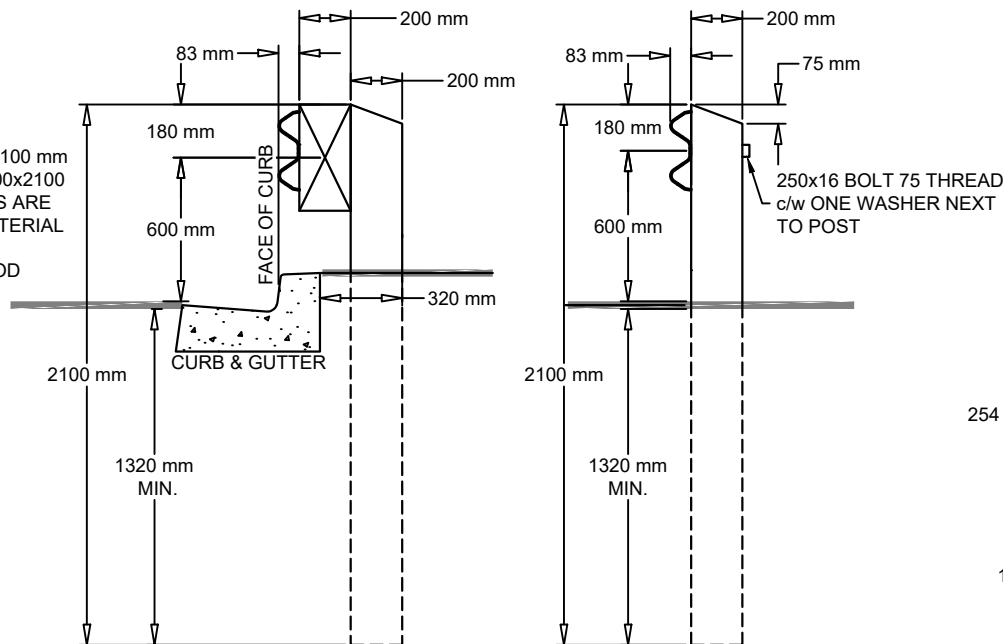


BEAM SECTION (TYP.)

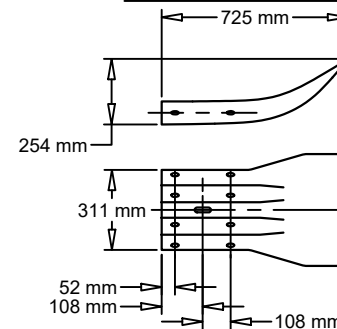


ELEVATION

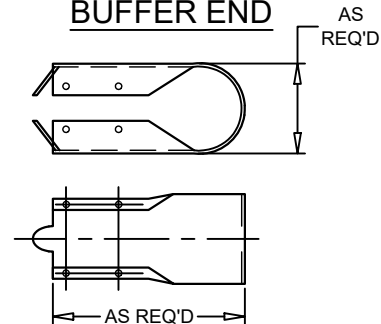
POSTS
200x200x2100 mm
- IF 150x200x2100
mm POSTS ARE
USED, MATERIAL
SHALL BE
HARDWOOD



TERMINAL END



BUFFER END

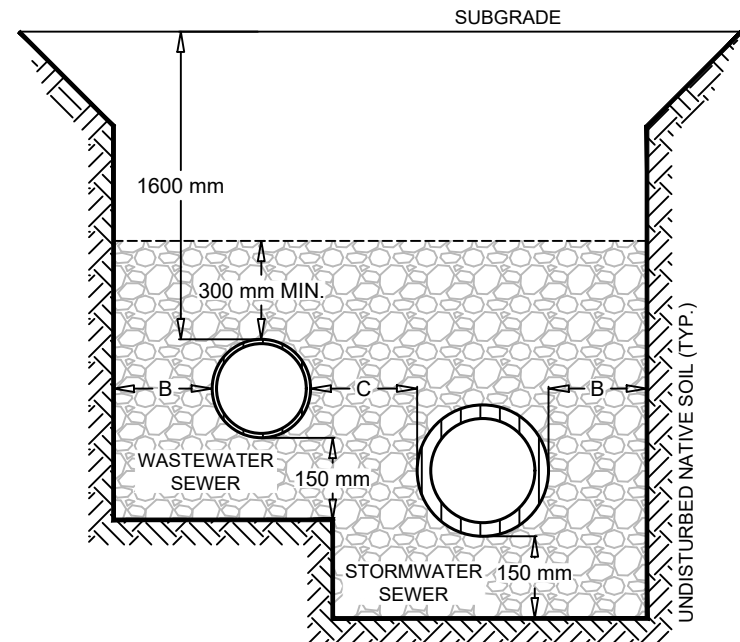
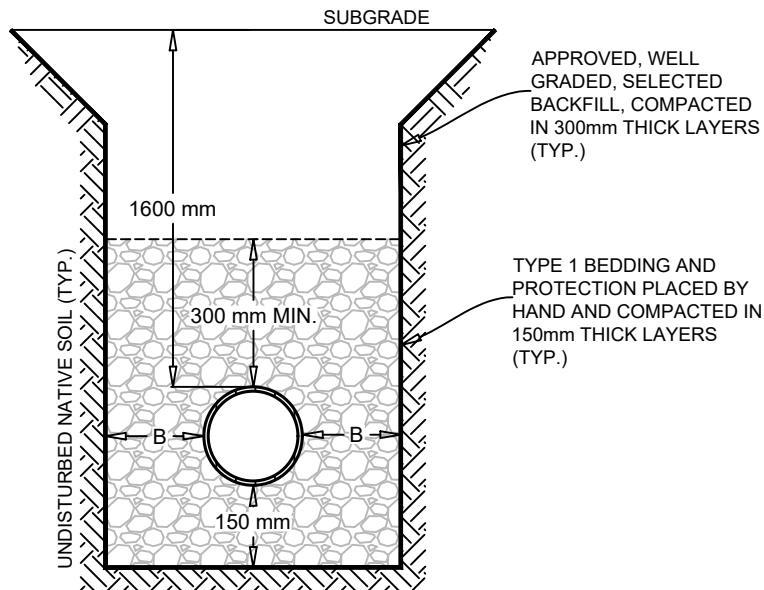


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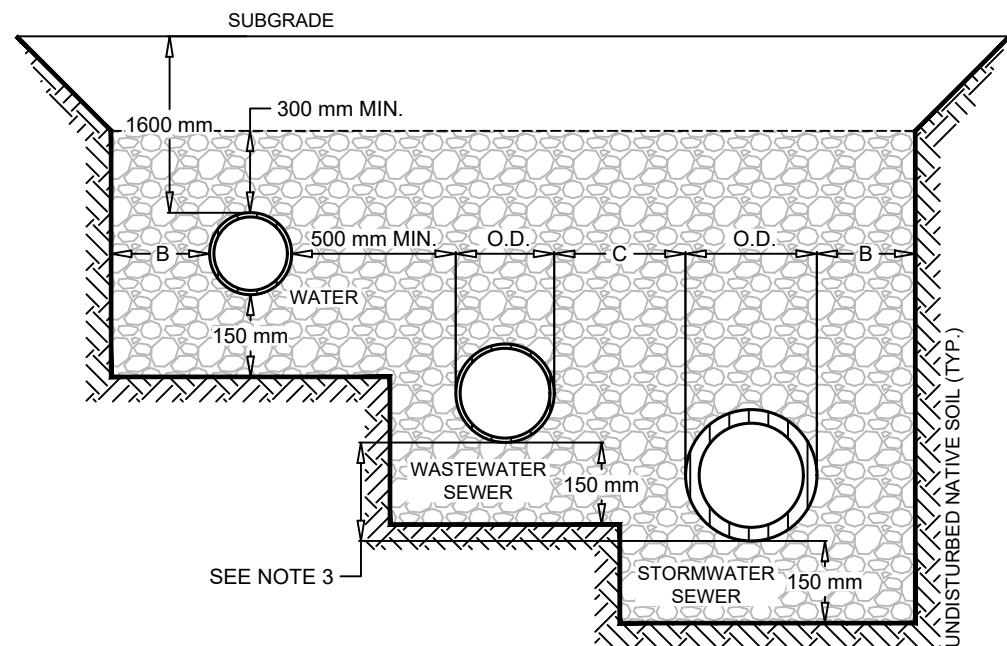
STANDARD DETAIL

GUARD RAIL INSTALLATION

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-15	PAC 2025-06-10 Page 114	APPROVED



PIPE SIZE NOM. DIA.	DIMENSIONS (mm)	
	B	C
UP TO 375 mm	300	250
376 TO 500 mm	300	300
501 TO 750 mm	400	300
751 TO 1200 mm	400	400



NOTES

1. DIMENSION "C" IS GOVERNED BY THE LARGER PIPE DIAMETER.
2. SIDES OF TRENCHES TO REQUIREMENTS OF NOVA SCOTIA OCCUPATIONAL HEALTH AND SAFETY ACT.
3. IF CROWNS OF STORMWATER AND WASTEWATER SEWER ARE NOT MATCHED, THE INVERT OF THE STORMWATER SEWER MUST BE AT LEAST 100 mm BELOW THE INVERT OF THE WASTEWATER SEWER.
4. MINIMUM GRAVEL COVER OVER WASTEWATER AND STORMWATER SEWERS IS TO BE 300 mm.

SEE NOTE 3

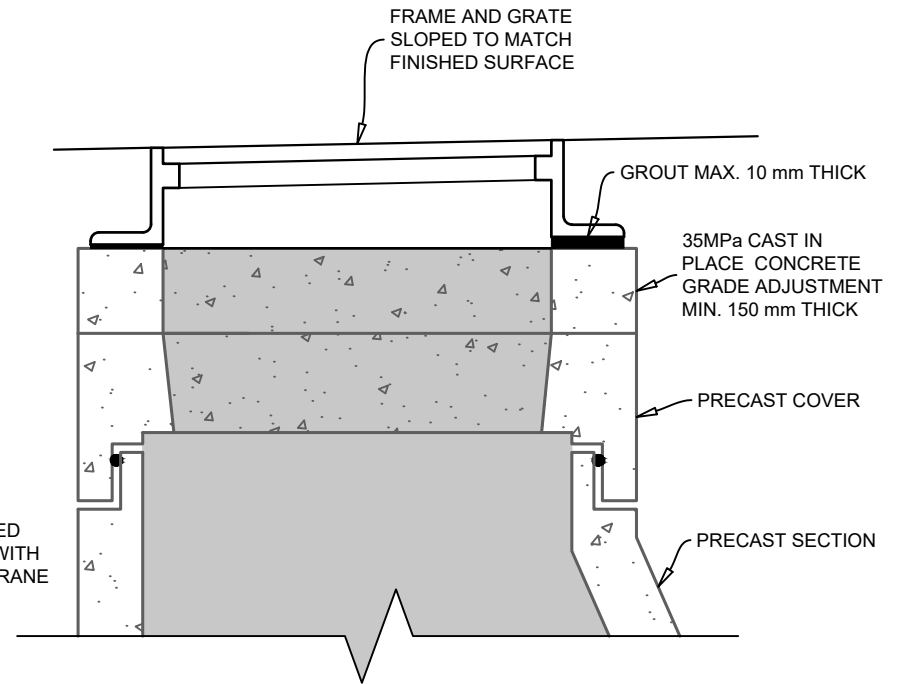
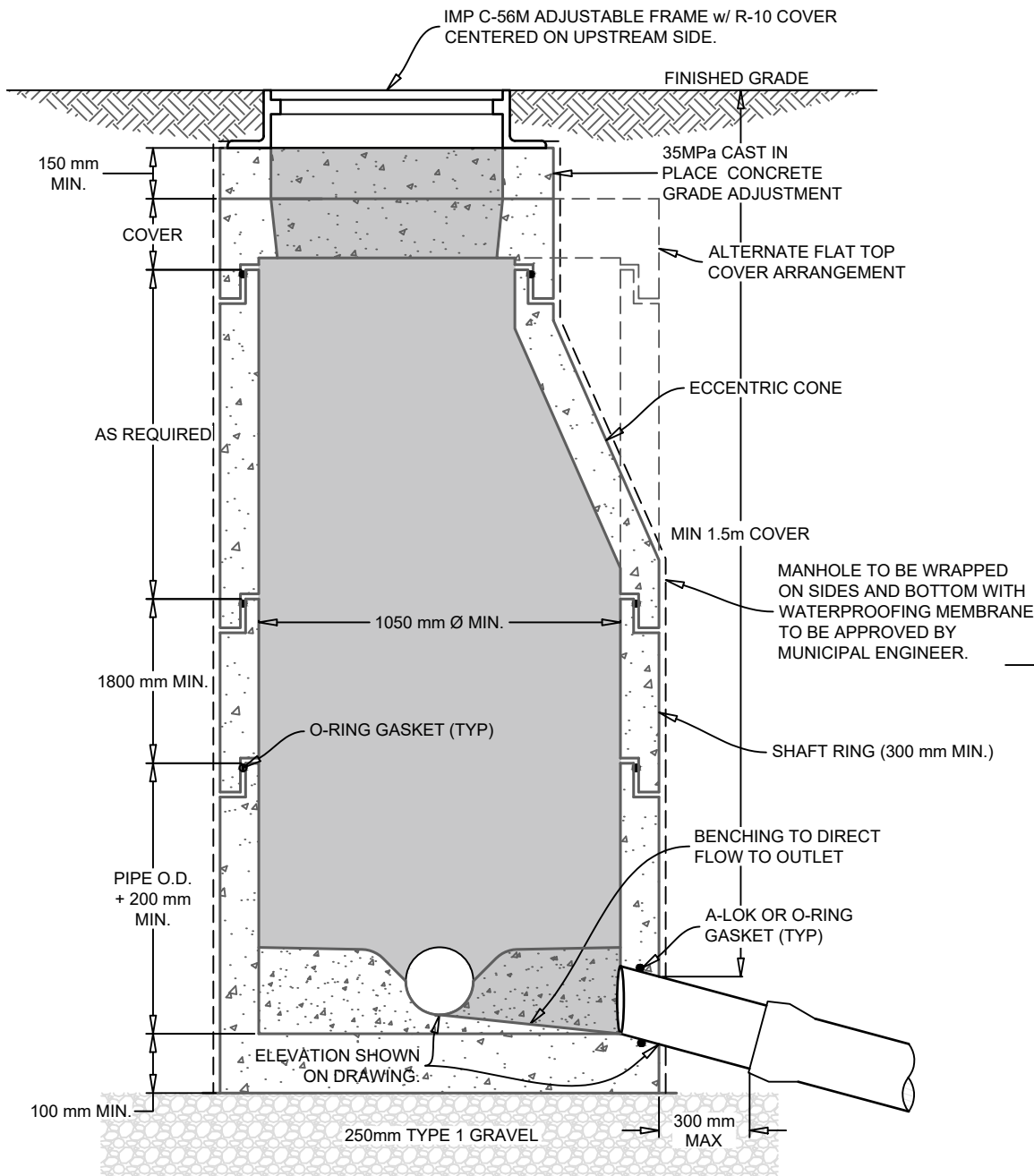


MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

TRENCH AND BACKFILL CROSS SECTIONS

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-16	PAC 2025-06-10 Page 115	APPROVED



NOTES:

1. SHOP DRAWINGS TO BE PROVIDED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. MANHOLE ANTI-FLOATATION TO BE CONSIDERED AS PART OF DESIGN.



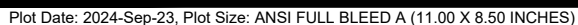
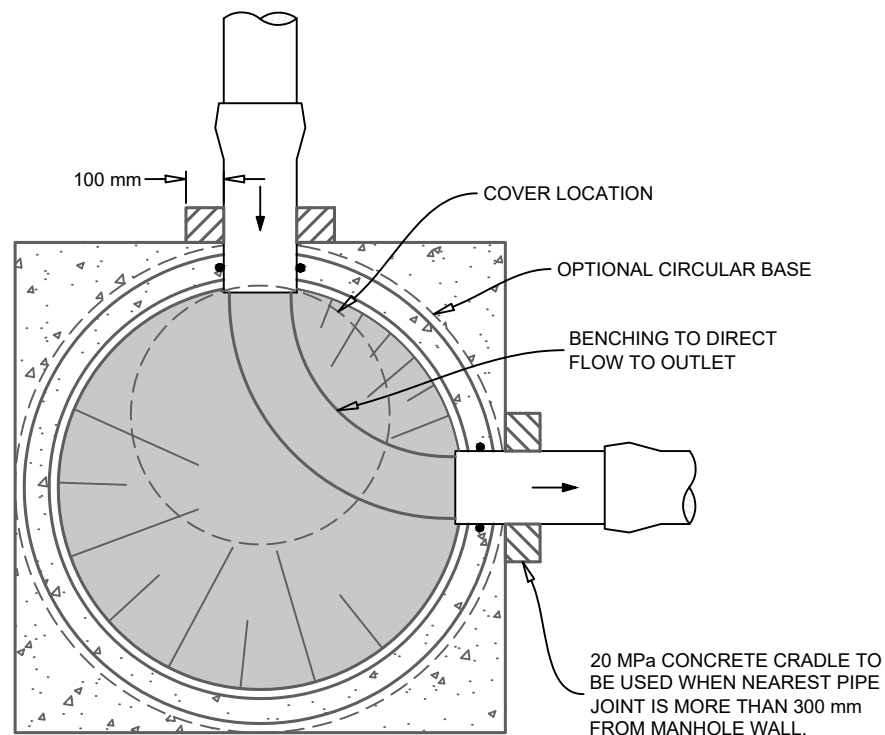
MUNICIPALITY OF THE COUNTY OF KINGS

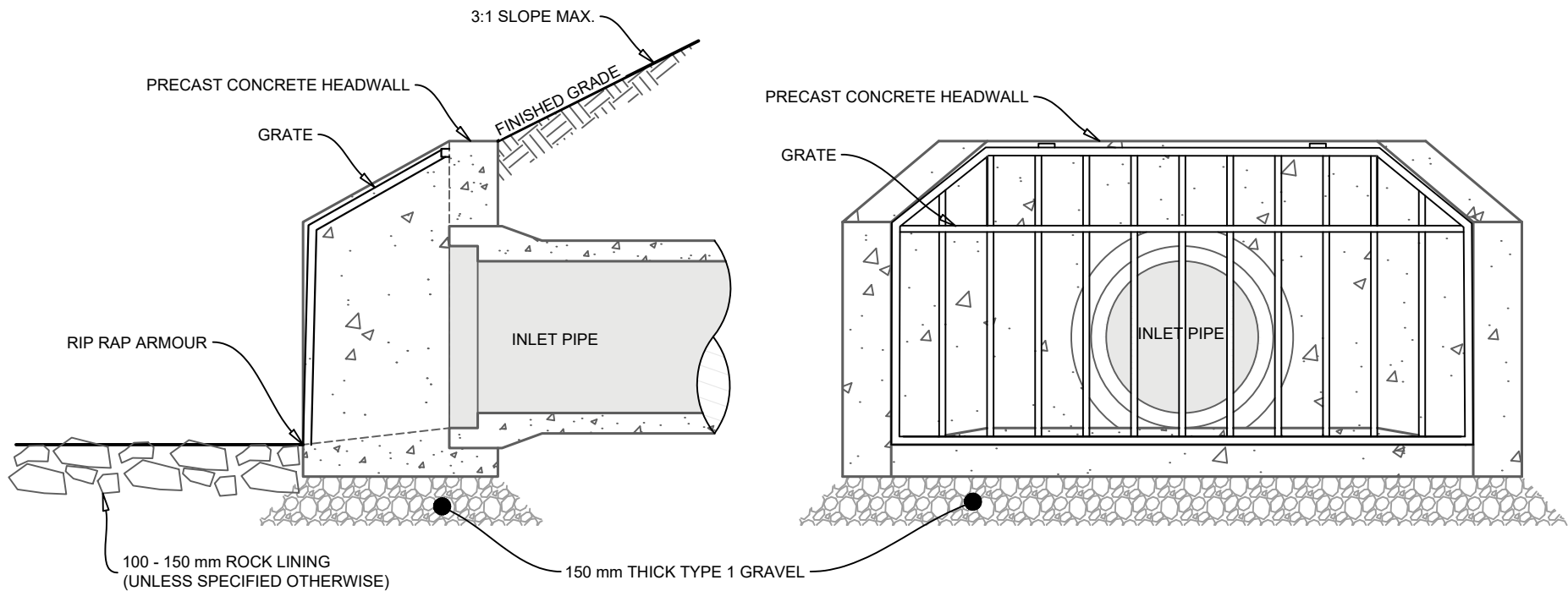
STANDARD DETAIL

PRECAST MANHOLE

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-17	APPROVED	

PAC 2025-06-10 Page 116





NOTES:

1. ANY PIPE SYSTEMS OR CULVERTS LONGER THAN 30 m TO HAVE HEADWALL GRATES ON INLETS.
2. BARS TO BE VERTICAL ON INLET GRATES. GRATES ARE NOT PERMITTED ON OUTLETS.
3. AREA OF HEADWALL GRATE (WHERE REQUIRED) TO BE MINIMUM 6 TIME LARGER THAN PIPE CROSS SECTIONAL AREA.
4. GRATES TO BE GALVANIZED STEEL.
5. HEADWALL TO BE SIZED BASED ON PIPE SIZE AS PER PRECAST MANUFACTURER'S RECOMMENDATION.
6. FENCING/HANDRAIL ON TOP OF HEADWALL AS DIRECTED BY MUNICIPALITY.



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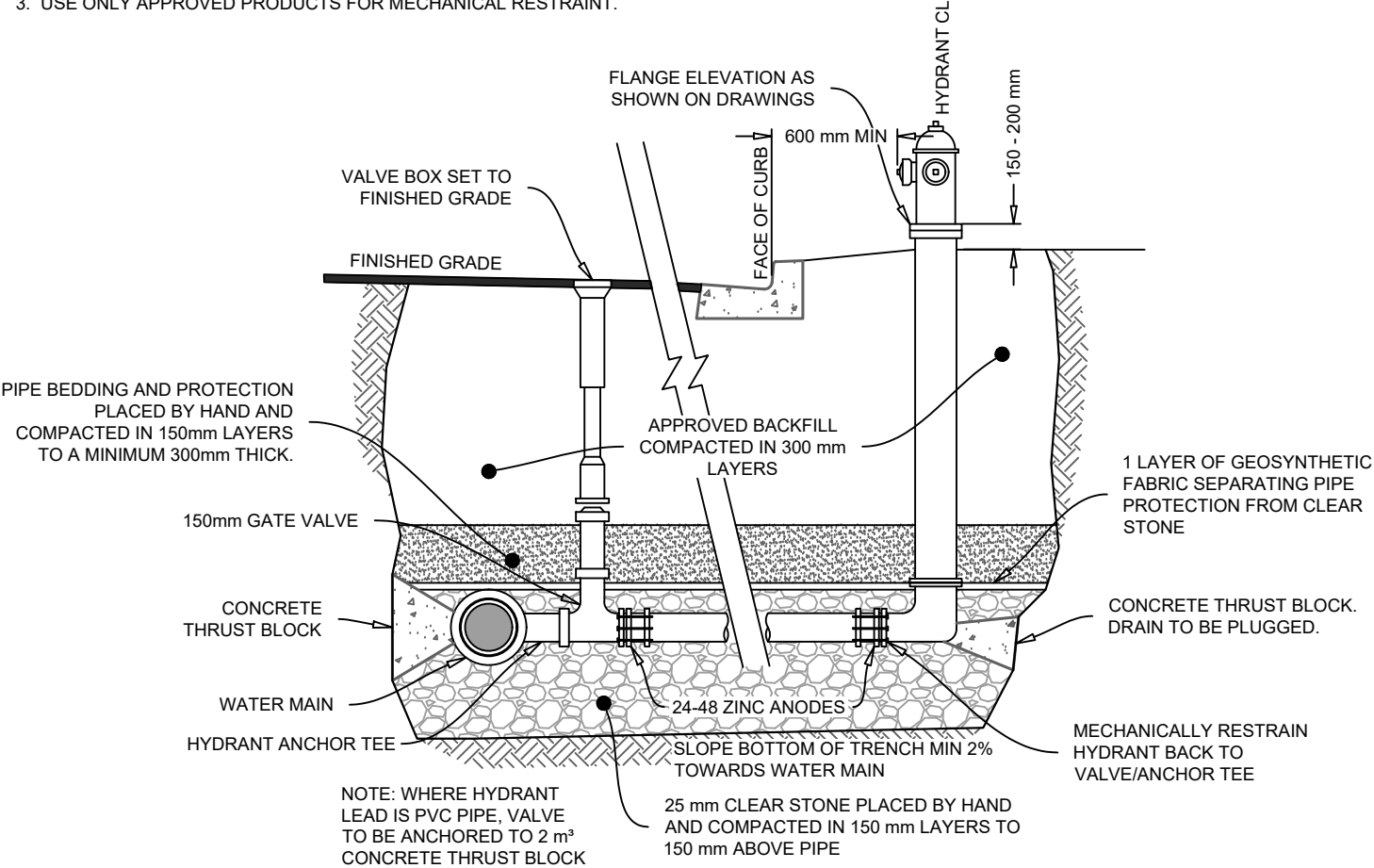
STANDARD DETAIL


PRECAST CONCRETE HEADWALL

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-19	APPROVED	

PAC 2025-06-10 Page 118

- NOTES:
- 1. ANODE TO BE ZINC 24-48 TYPE INSTALLED BY USE OF DOUBLE NUT.
 - 2. HYDRANT TO BE CLOW/McAVITY M67 BRIGADIER OR APPROVED EQUIVALENT.
 - HYDRANT INLET: 150 mm MECHANICAL JOINT OR APPROVED EQUIVALENT
 - HOSE NOZZLES: 2x65 mm THREADED OR APPROVED EQUIVALENT
 - PUMPER NOZZLE: 114 mm THREADED OR APPROVED EQUIVALENT
 - 3. USE ONLY APPROVED PRODUCTS FOR MECHANICAL RESTRAINT.

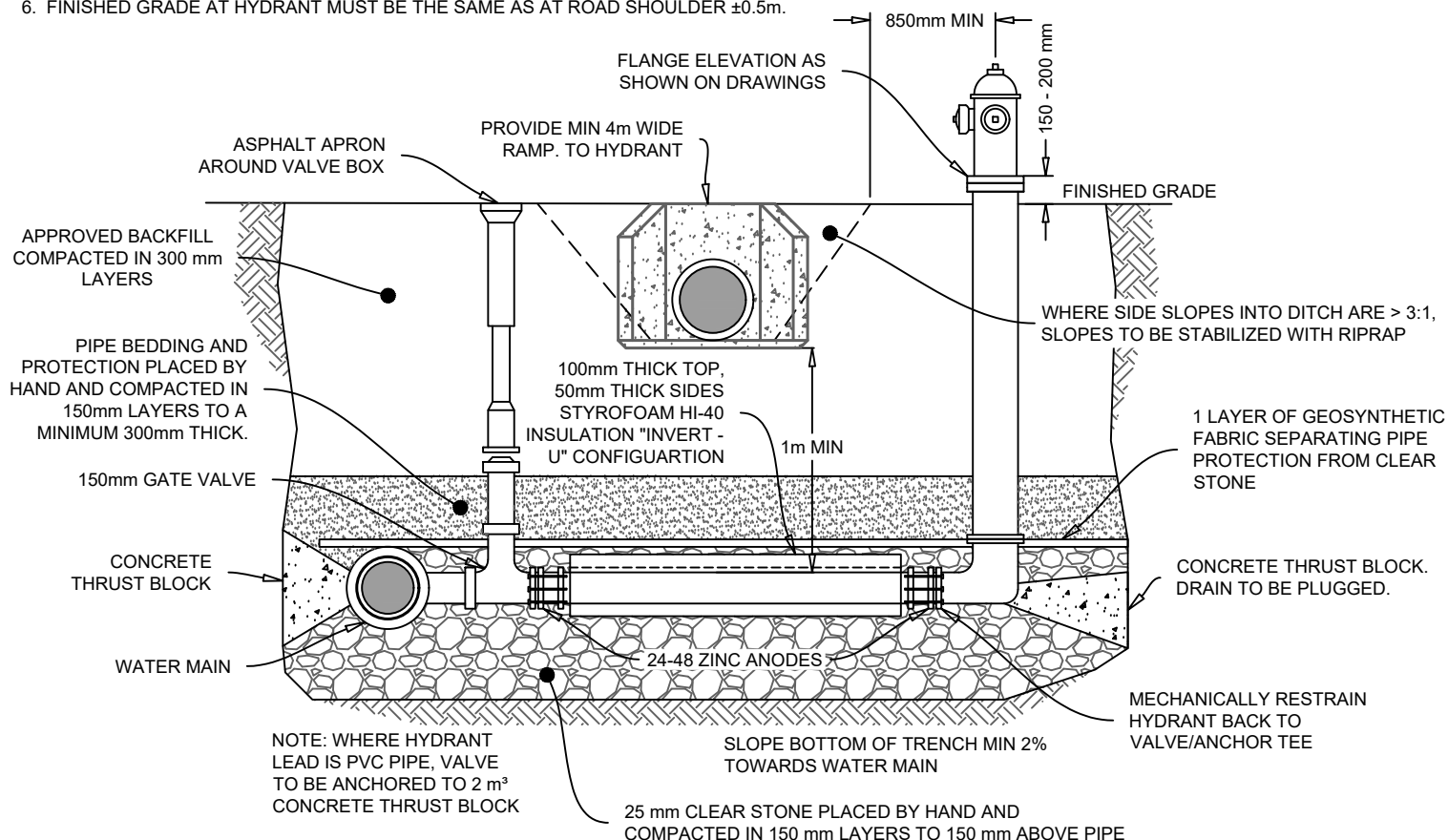




MUNICIPALITY of the
COUNTY of KINGS

MUNICIPALITY OF THE COUNTY OF KINGS			
STANDARD DETAIL			
URBAN FIRE HYDRANT INSTALLATION - FULLY SERVICED			
DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-20	PAC 2025-06-10 Page 119	APPROVED

1. ANODE TO BE ZINC 24-48 TYPE INSTALLED BY USE OF DOUBLE NUT.
2. HYDRANT TO BE CLOW/McAVITY M67 BRIGADIER OR APPROVED EQUIVALENT.
 - HYDRANT INLET: 150 MM MECHANICAL JOINT OR APPROVED EQUIVALENT
 - HOSE NOZZLES: 2X65 MM THREADED OR APPROVED EQUIVALENT
 - PUMPER NOZZLE: 114 MM THREADED OR APPROVED EQUIVALENT
3. USE ONLY APPROVED PRODUCTS FOR MECHANICAL RESTRAINT.
4. ALL SURFACES 2m FROM HYDRANT MUST BE STABILIZED.
5. BOTH ENDS OF CULVERT REQUIRE PRECAST HEADWALL.
6. FINISHED GRADE AT HYDRANT MUST BE THE SAME AS AT ROAD SHOULDER $\pm 0.5m$.



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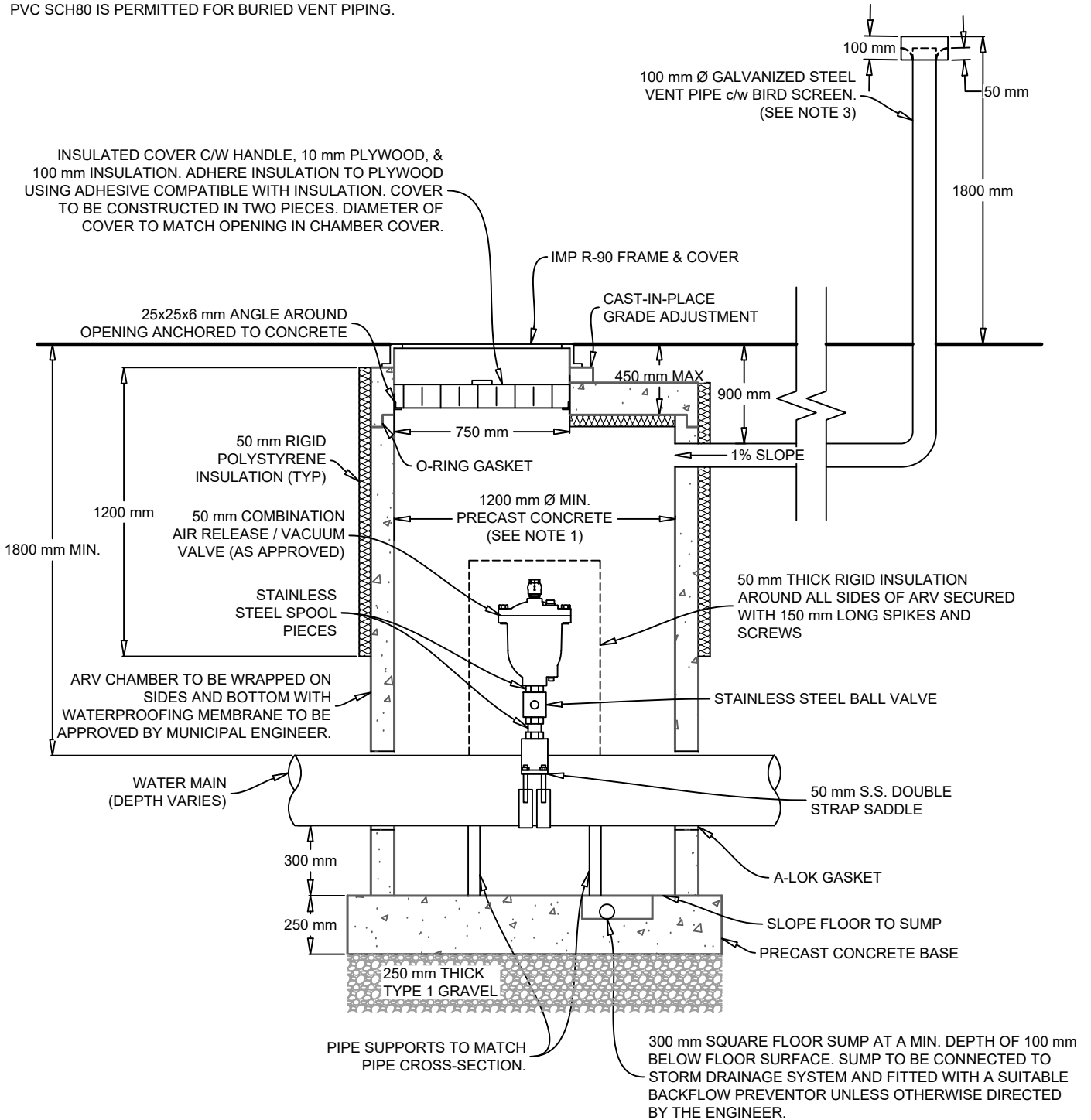
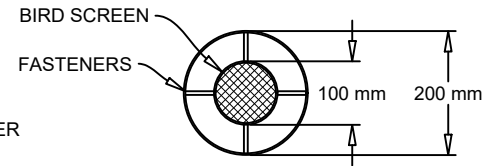
STANDARD DETAIL


RURAL FIRE HYDRANT INSTALLATION - WITHOUT STORM SEWER

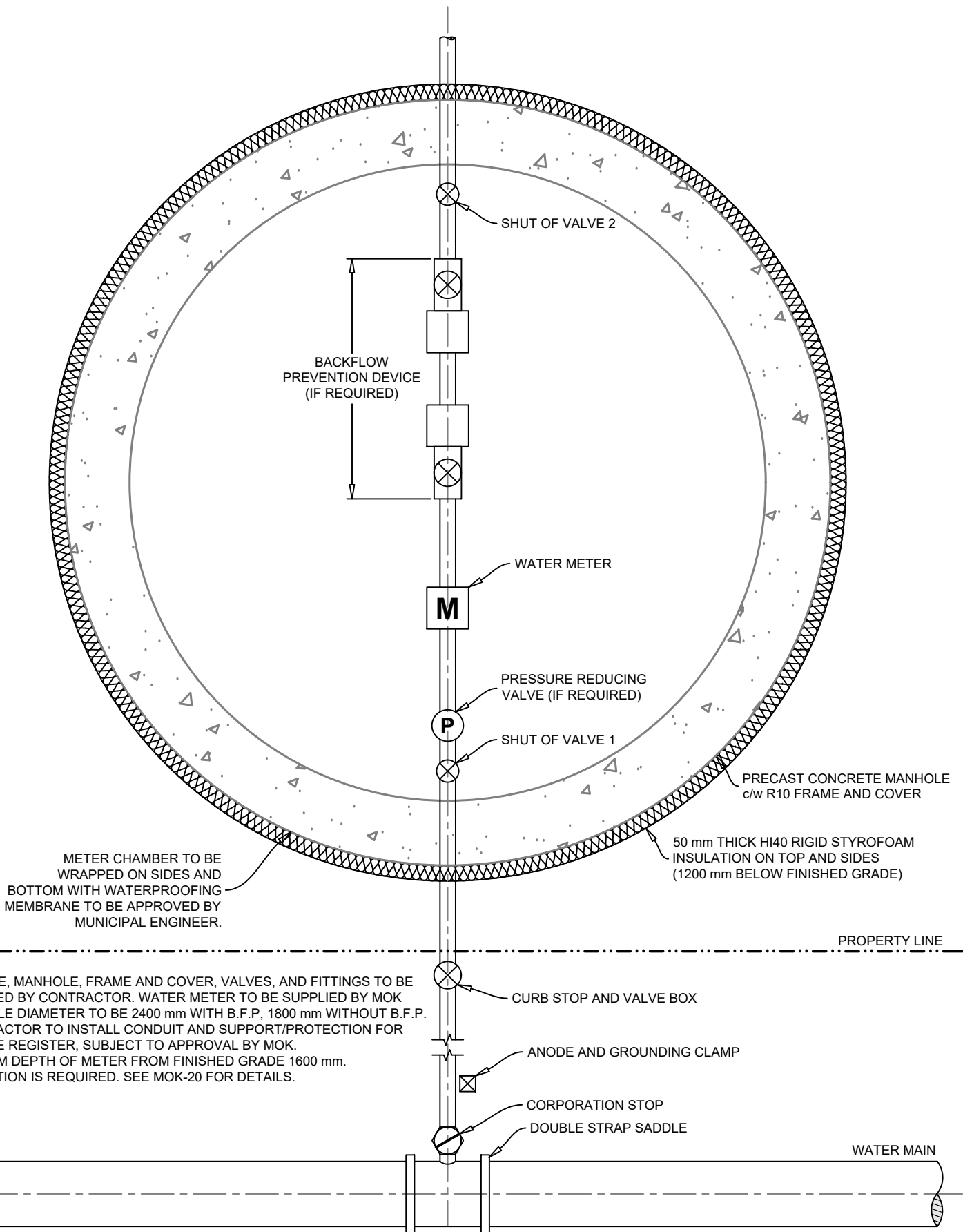
DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-21	APPROVED	

NOTES:

1. FOR WATER MAIN SIZES LARGER THAN 300 mm, CHAMBER DIAMETER SHALL BE 1500 mm. FOR WATER MAIN SIZES LARGER THAN 600 mm, THE CHAMBER WILL BE DESIGNED SPECIFICALLY FOR THE INSTALLATION.
2. WHERE DITCHING IS APPLICABLE, VENT PIPE IS TO BE LOCATED ON PRIVATE SIDE OF DITCH. INSTALL CULVERT IF NECESSARY.
3. PVC SCH80 IS PERMITTED FOR BURIED VENT PIPING.



 MUNICIPALITY of the COUNTY of KINGS	MUNICIPALITY OF THE COUNTY OF KINGS			
	STANDARD DETAIL			
	RESIDENTIAL AIR RELEASE/AIR VACUUM VALVE CHAMBER (50 mm)			
	DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-22	PAC 2025-06-10 Page 121	APPROVED	



NOTES:

1. ALL PIPE, MANHOLE, FRAME AND COVER, VALVES, AND FITTINGS TO BE SUPPLIED BY CONTRACTOR. WATER METER TO BE SUPPLIED BY MOK
2. MANHOLE DIAMETER TO BE 2400 mm WITH B.F.P, 1800 mm WITHOUT B.F.P.
3. CONTRACTOR TO INSTALL CONDUIT AND SUPPORT/PROTECTION FOR REMOTE REGISTER, SUBJECT TO APPROVAL BY MOK.
4. MINIMUM DEPTH OF METER FROM FINISHED GRADE 1600 mm.
5. INSULATION IS REQUIRED. SEE MOK-20 FOR DETAILS.



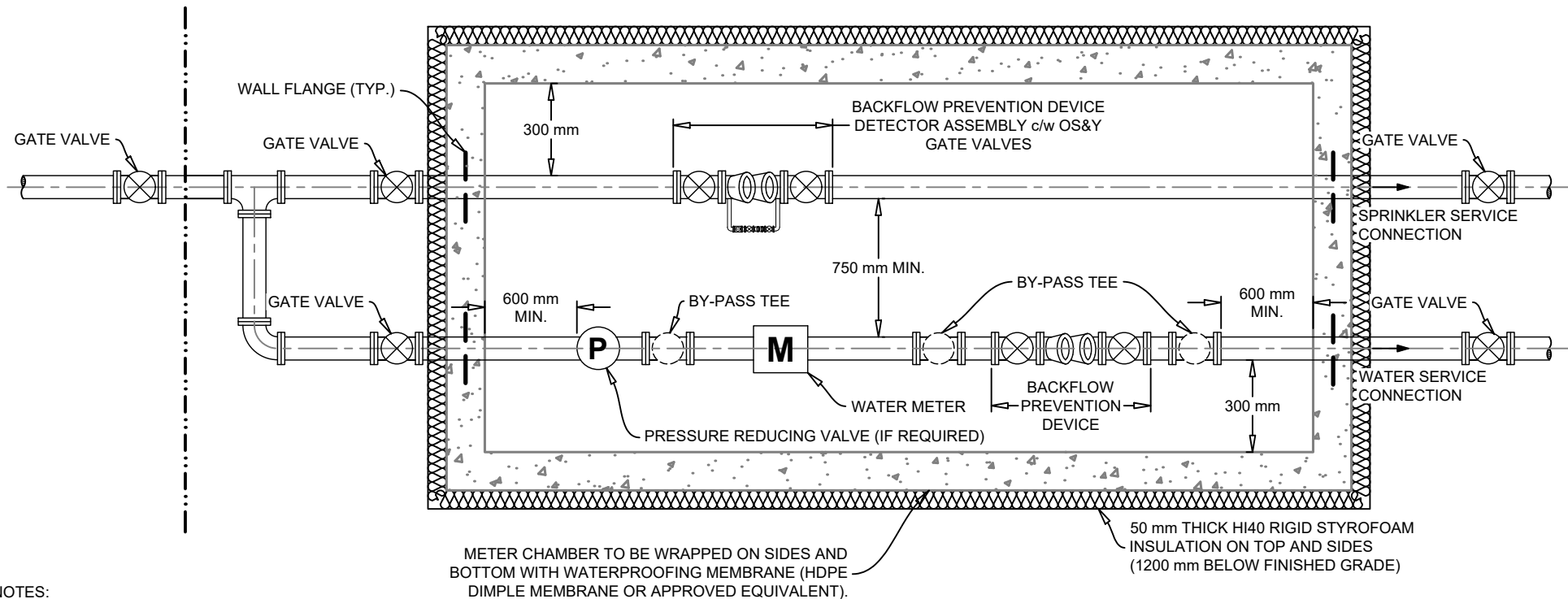
MUNICIPALITY of the
COUNTY of KINGS

MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

PLAN OF 19 mm TO 50 mm WATER METER CHAMBER

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-23	APPROVED	PAC 2025-06-10 Page 122



NOTES:

1. ALL NOTED DIMENSIONS/SPACING REQUIREMENTS WITH REGARDS TO CHAMBER WALLS.
2. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICES ARE NOT PERMITTED IN BELOW GRADE CHAMBERS.
3. ALL GATE VALVES TO BE ACCESSIBLE FROM SURFACE.



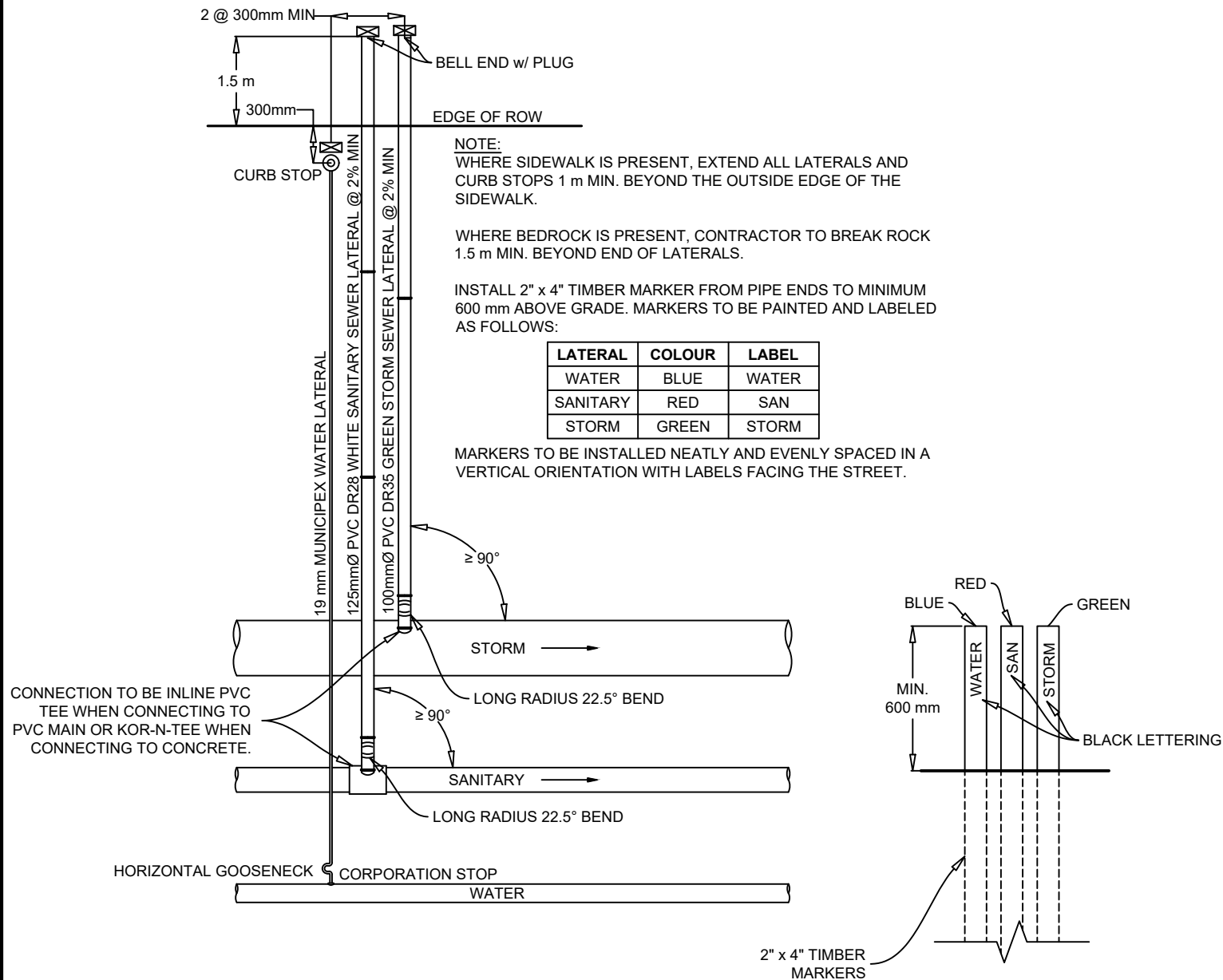
MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

75 mm & GREATER WATER METER AND BACKFLOW PREVENTION DEVICES

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-24	APPROVED	

PAC 2025-06-10 Page 123



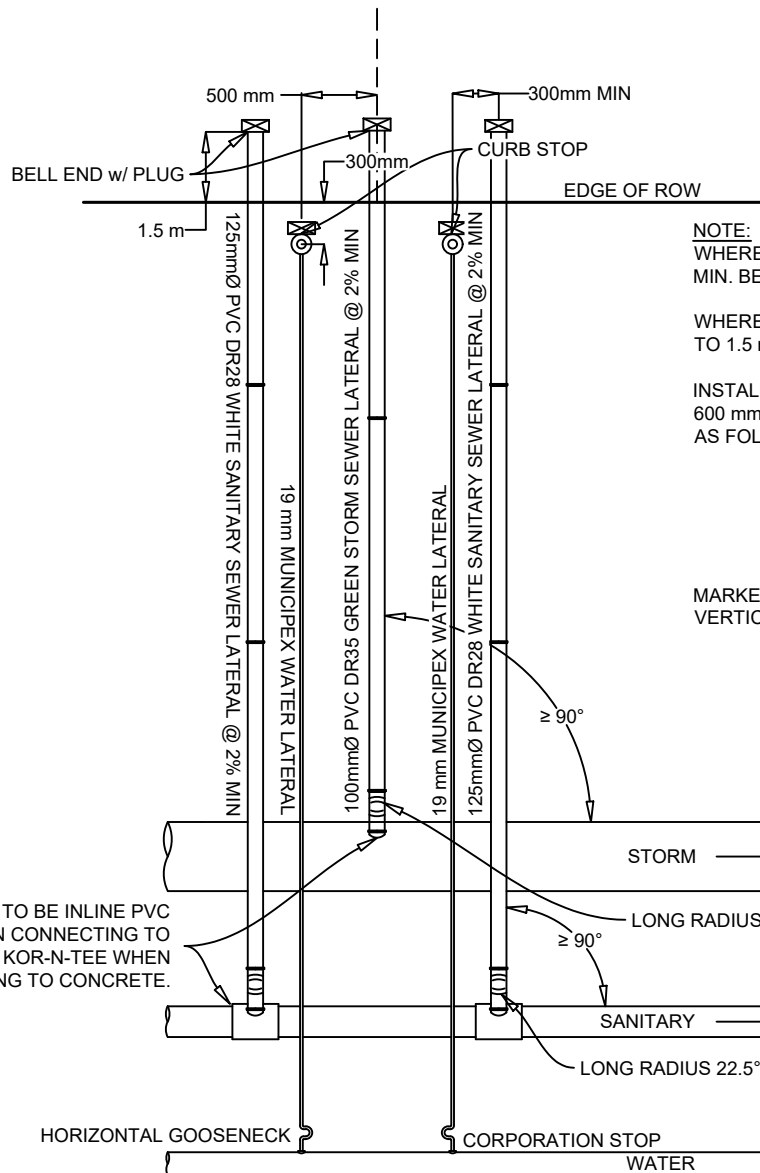
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COUNTY *of* KINGS

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STANDARD DETAIL

SINGLE FAMILY UNIT SERVICE LATERALS

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-25	PAC 2025-06-10 Page 124	APPROVED



NOTE:

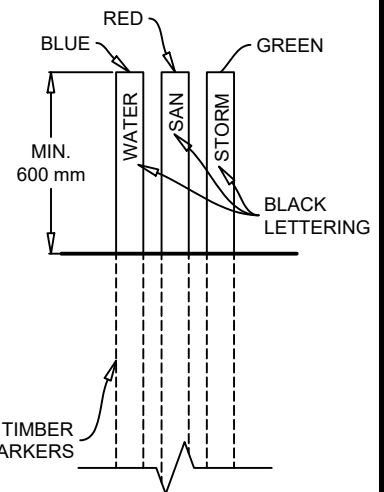
WHERE SIDEWALK IS PRESENT, CURB STOP TO BE LOCATED 1 m MIN. BEYOND THE OUTSIDE EDGE OF THE SIDEWALK.

WHERE BEDROCK IS PRESENT, CONTRACTOR TO BREAK ROCK TO 1.5 m MIN. BEYOND END OF LATERALS.

INSTALL 2" x 4" TIMBER MARKER FROM PIPE ENDS TO MINIMUM 600 mm ABOVE GRADE. MARKERS TO BE PAINTED AND LABELED AS FOLLOWS:

LATERAL	COLOUR	LABEL
WATER	BLUE	WATER
SANITARY	RED	SAN
STORM	GREEN	STORM

MARKERS TO BE INSTALLED NEATLY AND EVENLY SPACED IN A VERTICAL ORIENTATION WITH LABELS FACING THE STREET.



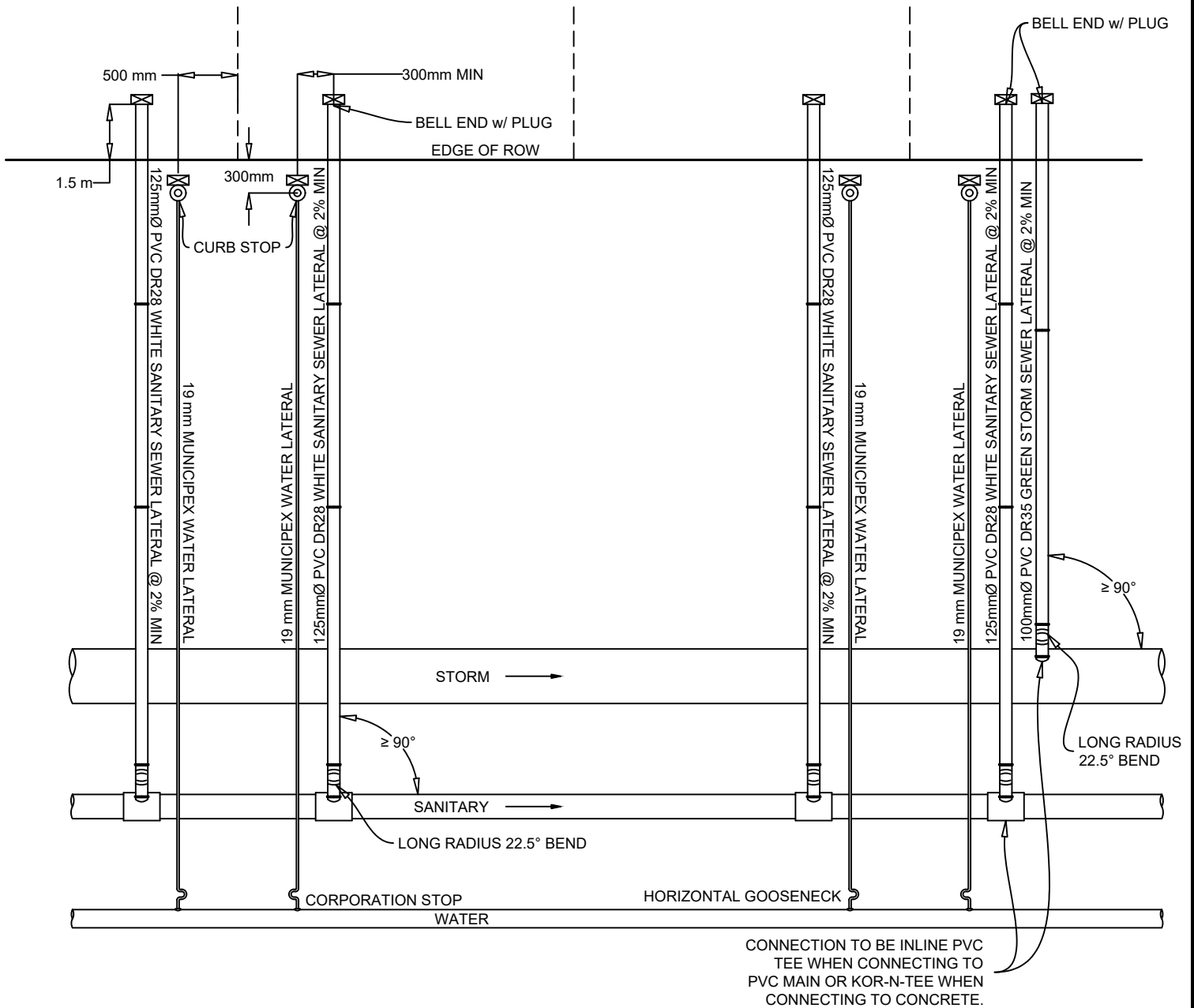
MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

SEMI-DETACHED UNIT SERVICE LATERALS

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-26	APPROVED	

PAC 2025-06-10 Page 125



NOTE:
WHERE SIDEWALK IS PRESENT, CURB STOP TO BE LOCATED 1 m MIN. BEYOND THE OUTSIDE EDGE OF THE SIDEWALK.

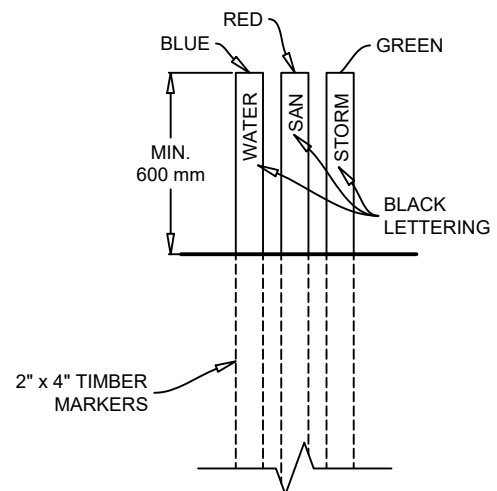
INSTALL ONE STORM LATERAL FOR EACH TOWNHOUSE BLOCK AT THE DOWNSTREAM END OF BLOCK.


WHERE BEDROCK IS PRESENT, CONTRACTOR TO BREAK ROCK 1.5 m MIN. BEYOND END OF LATERALS.

INSTALL 2" x 4" TIMBER MARKER FROM PIPE ENDS TO MINIMUM 600 mm ABOVE GRADE. MARKERS TO BE PAINTED AND LABELED AS FOLLOWS:

LATERAL	COLOUR	LABEL
WATER	BLUE	WATER
SANITARY	RED	SAN
STORM	GREEN	STORM

MARKERS TO BE INSTALLED NEATLY AND EVENLY SPACED IN A VERTICAL ORIENTATION WITH LABELS FACING THE STREET.





MUNICIPALITY *of the*
COUNTY *of* **KINGS**

MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

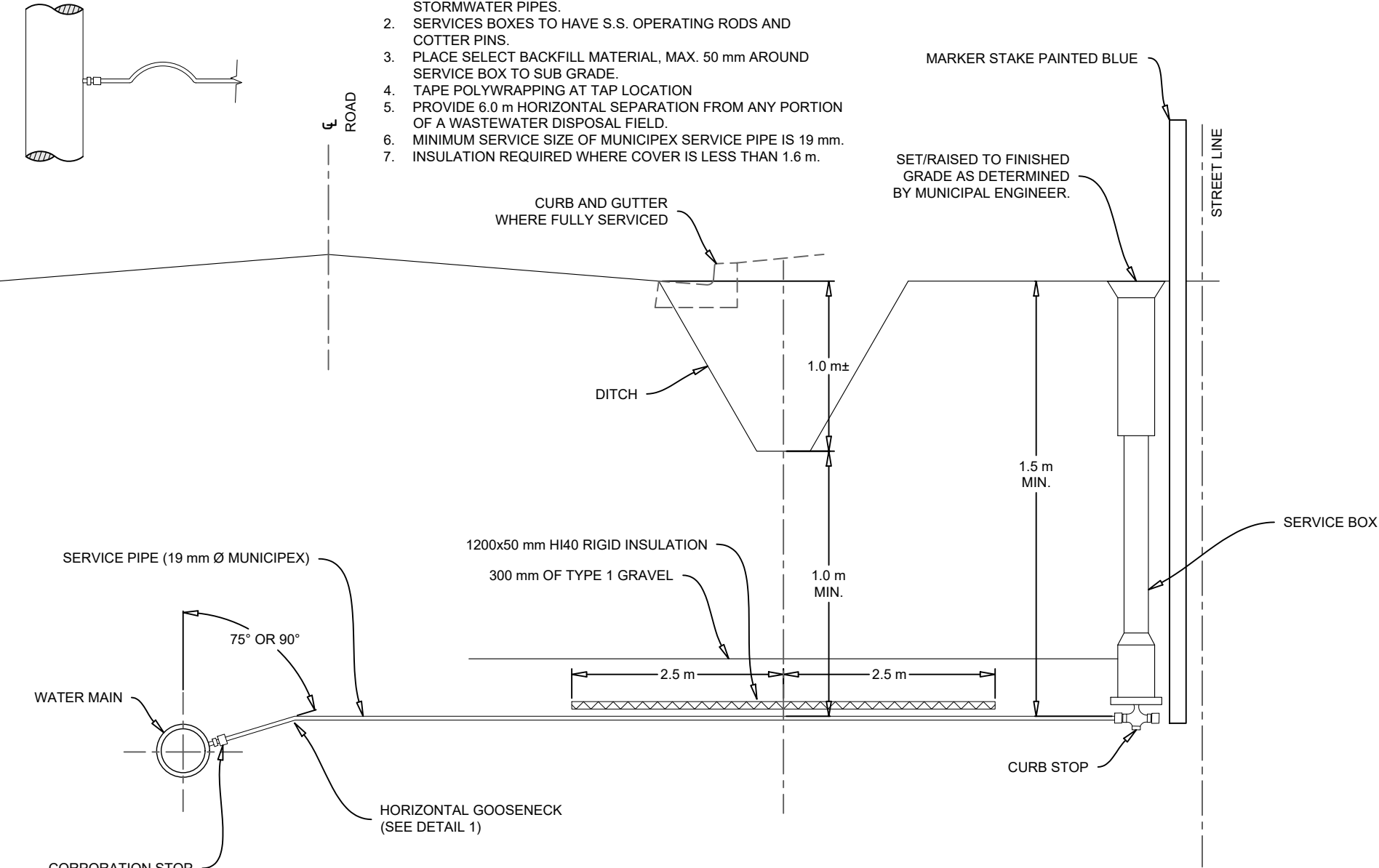
TOWNHOUSE UNIT SERVICE LATERALS

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-27	PAC 2025-06-10 Page 126	
		APPROVED	

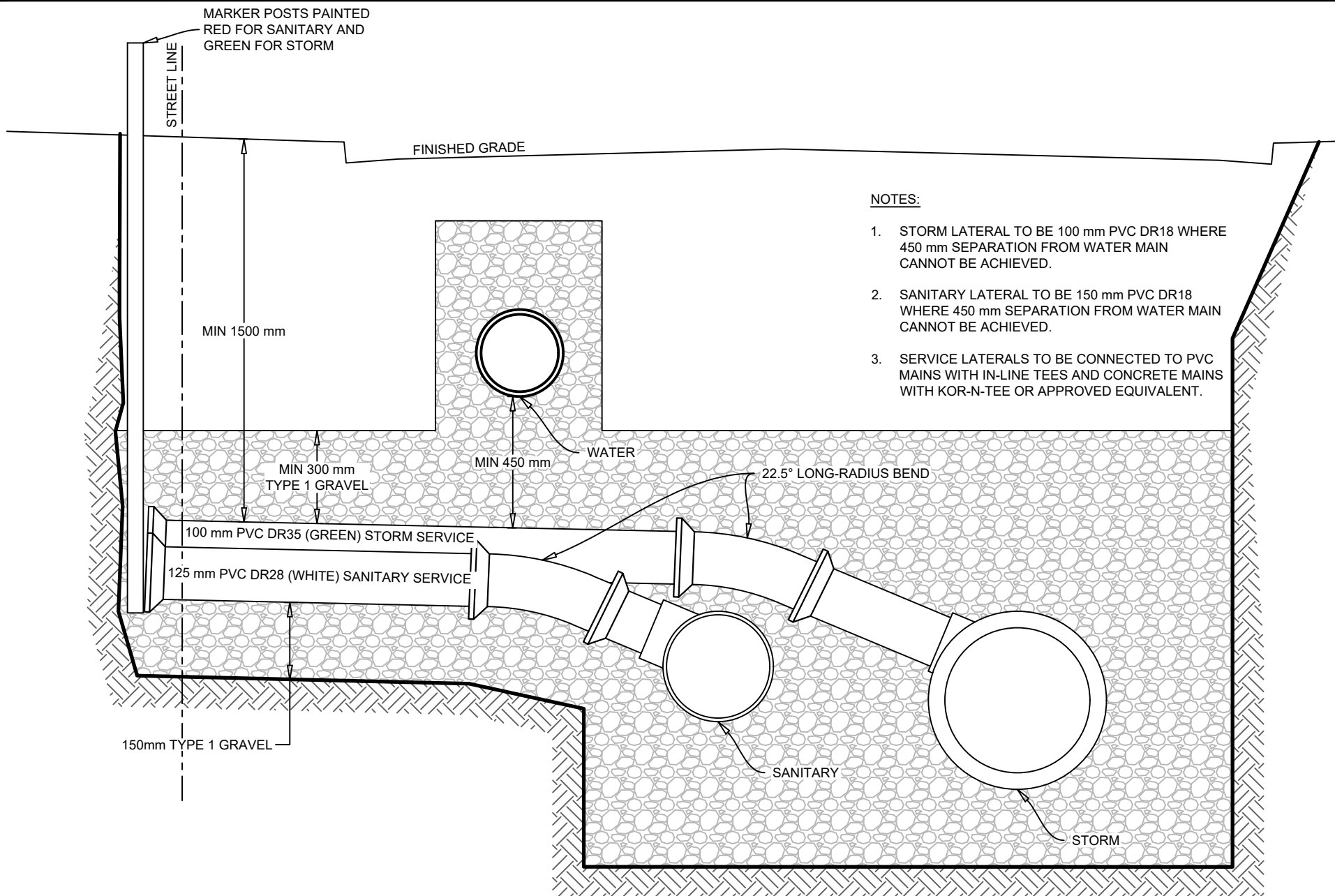
DETAIL 1
HORIZONTAL GOOSENECK

NOTES:

1. MINIMUM 300 mm VERTICAL AND HORIZONTAL SEPARATION TO BE MAINTAINED BETWEEN WATER AND WASTEWATER / STORMWATER PIPES.
2. SERVICES BOXES TO HAVE S.S. OPERATING RODS AND COTTER PINS.
3. PLACE SELECT BACKFILL MATERIAL, MAX. 50 mm AROUND SERVICE BOX TO SUB GRADE.
4. TAPE POLYWRAPPING AT TAP LOCATION
5. PROVIDE 6.0 m HORIZONTAL SEPARATION FROM ANY PORTION OF A WASTEWATER DISPOSAL FIELD.
6. MINIMUM SERVICE SIZE OF MUNICIPEX SERVICE PIPE IS 19 mm.
7. INSULATION REQUIRED WHERE COVER IS LESS THAN 1.6 m.




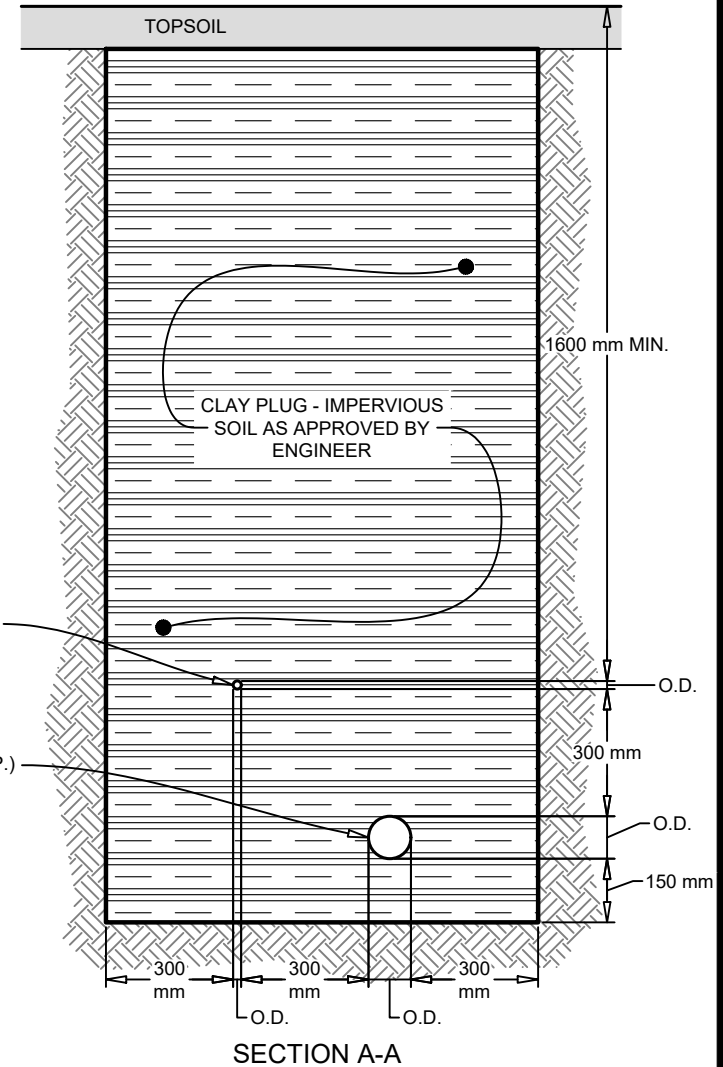
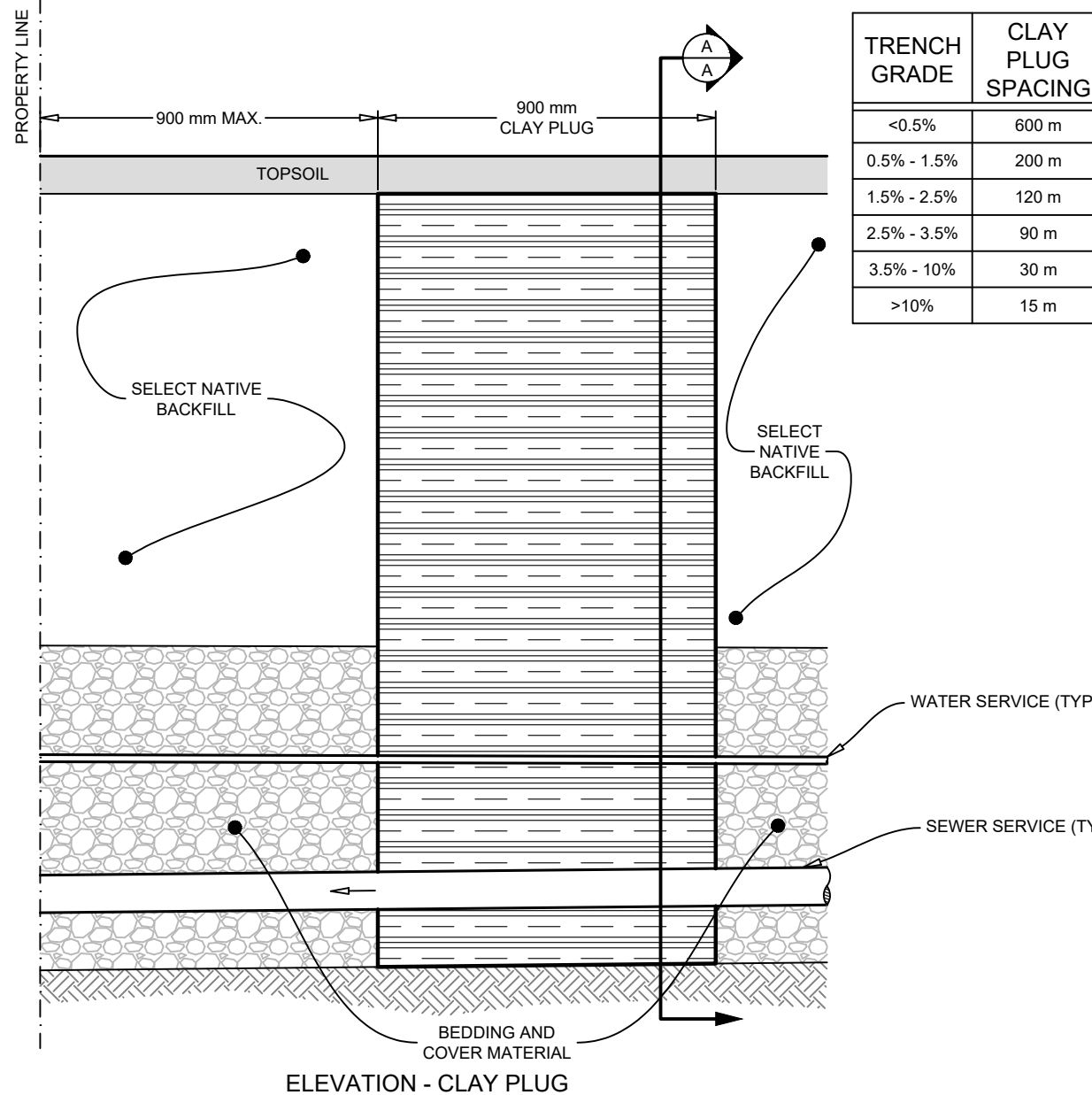
MUNICIPALITY OF THE COUNTY OF KINGS			
STANDARD DETAIL			
TYPICAL WATER SERVICE CONNECTION			
DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-28	APPROVED	PAC 2025-06-10 Page 127



NOTES:

1. STORM LATERAL TO BE 100 mm PVC DR18 WHERE 450 mm SEPARATION FROM WATER MAIN CANNOT BE ACHIEVED.
2. SANITARY LATERAL TO BE 150 mm PVC DR18 WHERE 450 mm SEPARATION FROM WATER MAIN CANNOT BE ACHIEVED.
3. SERVICE LATERALS TO BE CONNECTED TO PVC MAINS WITH IN-LINE TEES AND CONCRETE MAINS WITH KOR-N-TEE OR APPROVED EQUIVALENT.

 <p>MUNICIPALITY of the COUNTY of KINGS</p>		MUNICIPALITY OF THE COUNTY OF KINGS	
		STANDARD DETAIL	
		TYPICAL STORM AND SANITARY SERVICE LATERAL CROSS SECTION	
DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-29	PAC 2025-06-10 Page 128	APPROVED



NOTES:

- ALL DIMENSIONS ARE IN METRIC
- WHERE NO WATER SERVICE IS TO BE INSTALLED, INSTALL SEWER LATERAL A MINIMUM OF 1200 mm BELOW DRIVEWAY OR STREET AND NOT LESS THAN 900 mm BELOW BOTTOM OF DITCH.
- CLAY PLUGS TO BE INSTALLED IN TRENCHES AS REQUIRED BY THE MUNICIPALITY.

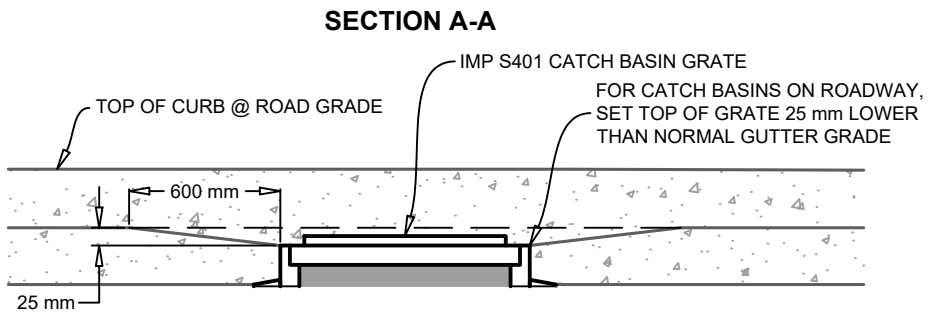
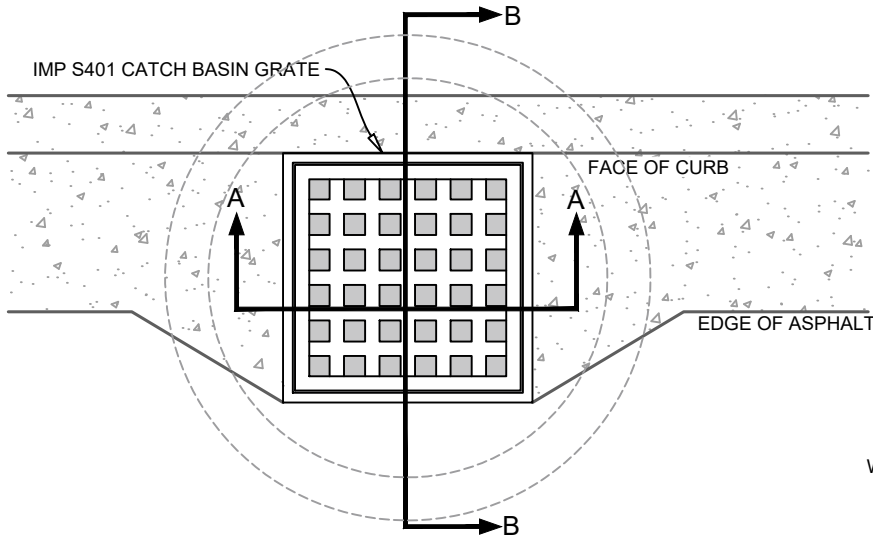


MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

CLAY PLUG

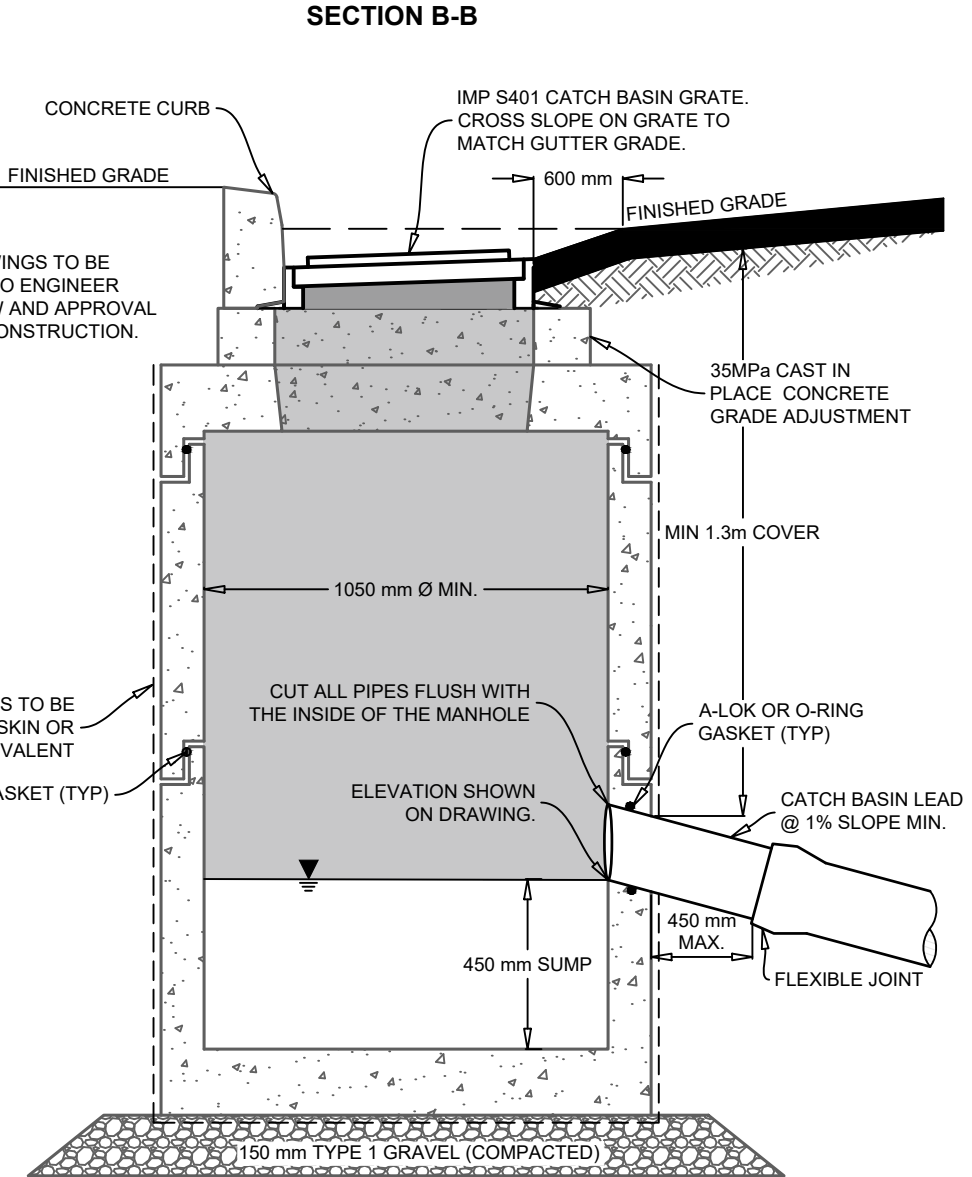
DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-30	PAC 2025-06-10 Page 129	APPROVED




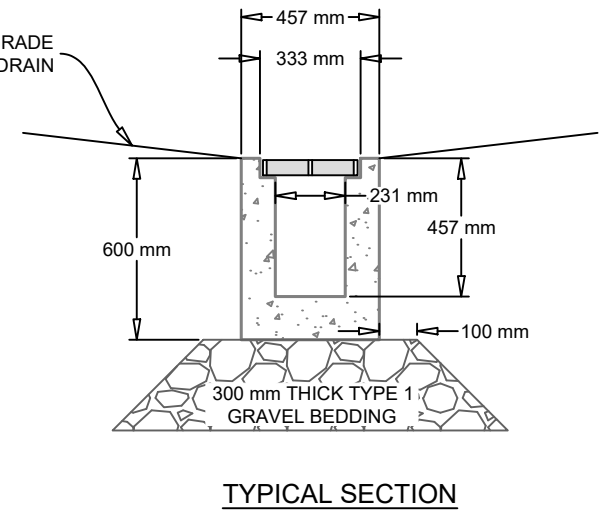
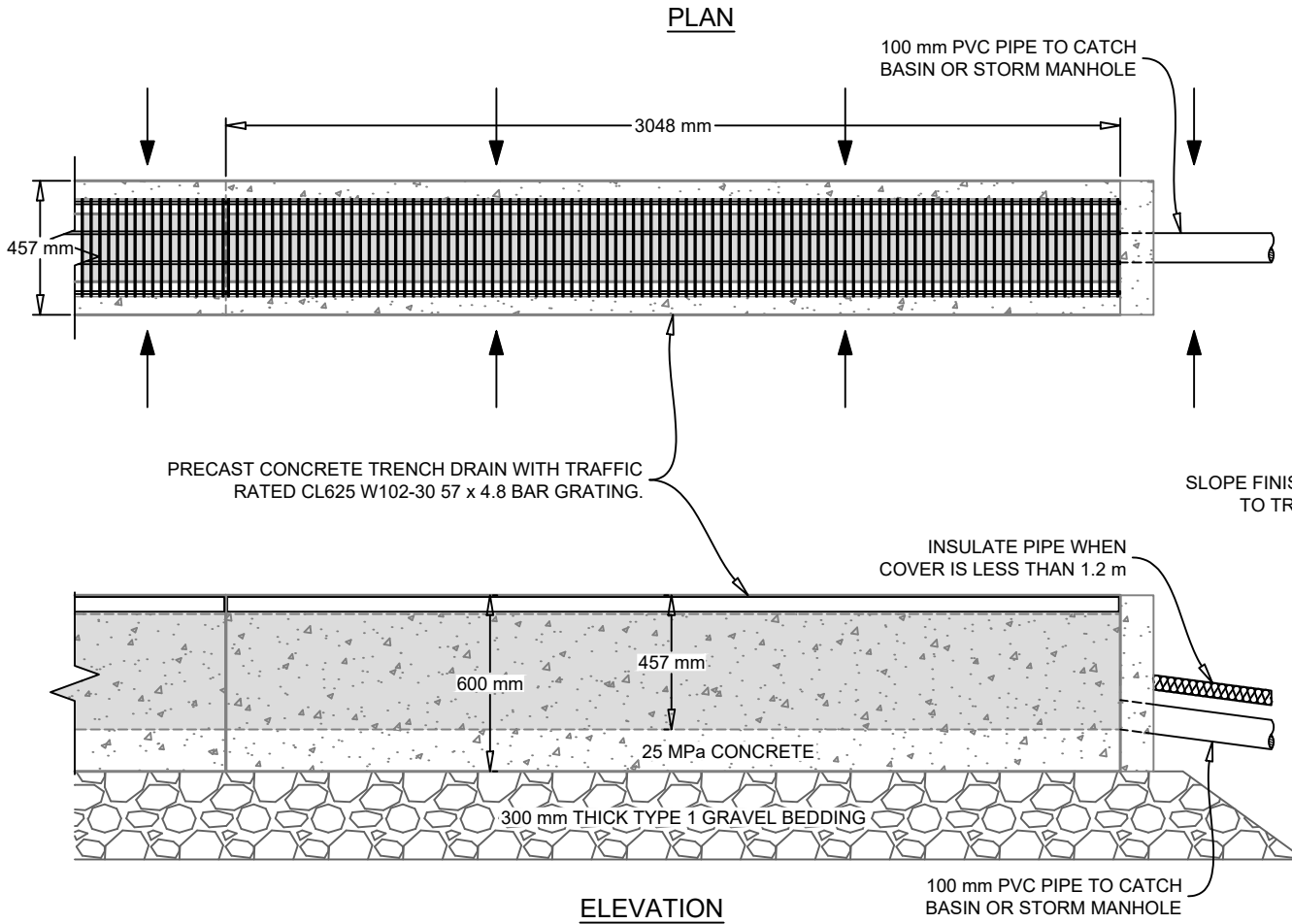
NOTE:
SHOP DRAWINGS TO BE PROVIDED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

CATCH BASINS TO BE WRAPPED IN BLUESKIN OR APPROVED EQUIVALENT

O-RING GASKET (TYP)



 <p>MUNICIPALITY of the COUNTY of KINGS</p>		MUNICIPALITY OF THE COUNTY OF KINGS			
		STANDARD DETAIL			
		TYPICAL CATCH BASIN DETAIL			
		DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-32	PAC 2025-06-10 Page 131		APPROVED	



NOTE:
TRENCH DRAIN SECTIONS TO BE CONNECTED WITH 10M REBAR DOWELS c/w EPOXY AND 300 mm EMBEDMENT. SHOP DRAWINGS TO BE SUBMITTED FOR PRECAST TRENCH DRAIN AND GRATE.



MUNICIPALITY OF THE COUNTY OF KINGS

STANDARD DETAIL

TRENCH DRAIN DETAIL

DATE	September 23, 2024	SCALE	N.T.S.
DRAWING NO.	MOK-33	APPROVED	

PAC 2025-06-10 Page 132

Appendix F – Rainfall Data

Intensity Duration Frequency Tables and Curves

$$R = A \cdot T^B$$

R interpolated rainfall rate (mm/hr)

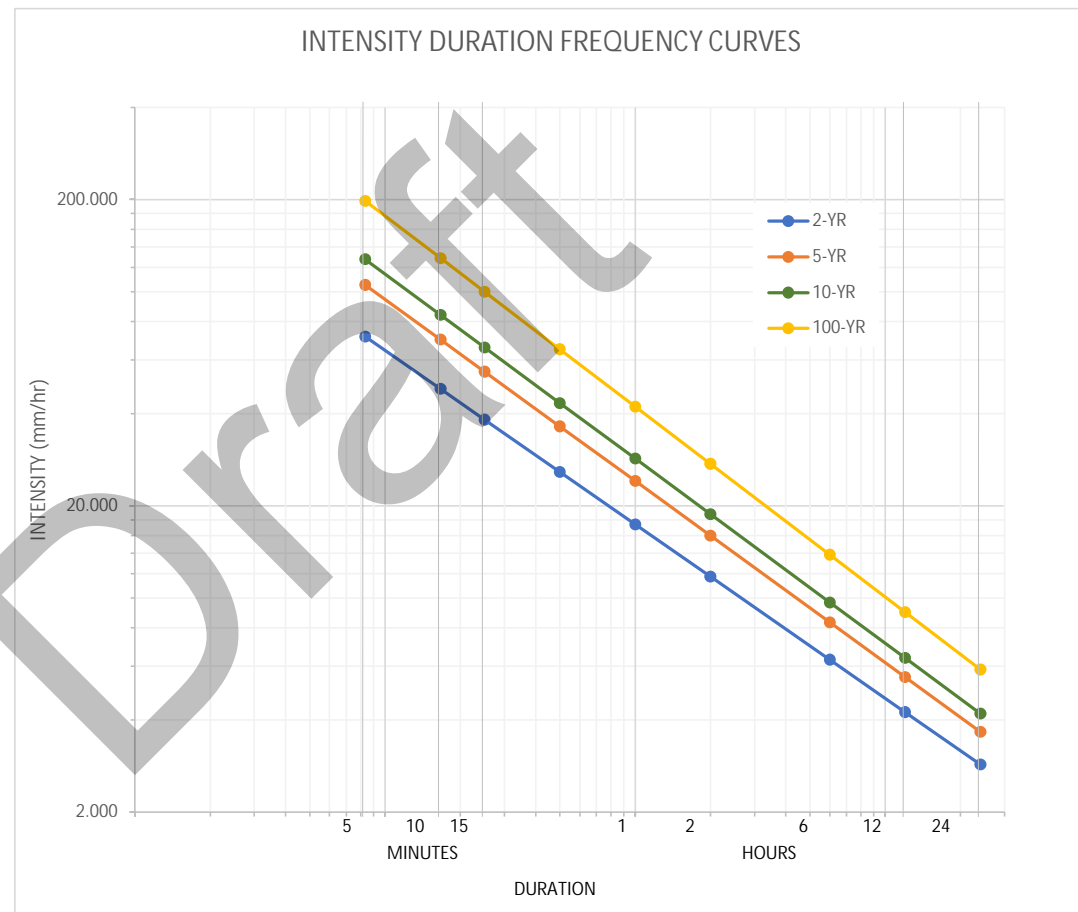
T rainfall duration (hr)

A coefficient

B exponential coefficient

STORM	A	B
2-YR	17.4	-0.568
5-YR	24.1	-0.593
10-YR	28.5	-0.603
100-YR	42.2	-0.622

INTENSITY (mm/hr)				
Duration (hr)	2-YR	5-YR	10-YR	100-YR
0.083	71.371	105.189	127.524	197.954
0.167	48.144	69.737	83.960	128.624
0.3	38.240	54.833	65.749	99.953
0.5	25.795	36.352	43.288	64.946
1.0	17.400	24.100	28.500	42.200
2.0	11.737	15.977	18.764	27.420
6.0	6.289	8.329	9.674	13.845
12.0	4.242	5.522	6.369	8.996
24.0	2.861	3.661	4.194	5.845



1:2-Year Design Storm: Cumulative Depth Table



1:2-YEAR DESIGN STORM							
Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)
0.1	0.13	6.1	9.56	12.1	40.96	18.1	62.85
0.2	0.26	6.2	9.76	12.2	42.39	18.2	63.04
0.3	0.39	6.3	9.96	12.3	43.49	18.3	63.23
0.4	0.53	6.4	10.16	12.4	44.42	18.4	63.42
0.5	0.66	6.5	10.36	12.5	45.23	18.5	63.60
0.6	0.79	6.6	10.56	12.6	45.95	18.6	63.79
0.7	0.93	6.7	10.77	12.7	46.62	18.7	63.97
0.8	1.06	6.8	10.98	12.8	47.23	18.8	64.15
0.9	1.20	6.9	11.19	12.9	47.81	18.9	64.33
1.0	1.34	7.0	11.40	13.0	48.34	19.0	64.50
1.1	1.47	7.1	11.62	13.1	48.85	19.1	64.68
1.2	1.61	7.2	11.83	13.2	49.34	19.2	64.85
1.3	1.75	7.3	12.05	13.3	49.80	19.3	65.03
1.4	1.89	7.4	12.28	13.4	50.25	19.4	65.20
1.5	2.03	7.5	12.50	13.5	50.67	19.5	65.37
1.6	2.17	7.6	12.73	13.6	51.08	19.6	65.54
1.7	2.31	7.7	12.97	13.7	51.48	19.7	65.70
1.8	2.45	7.8	13.20	13.8	51.87	19.8	65.87
1.9	2.60	7.9	13.44	13.9	52.24	19.9	66.04
2.0	2.74	8.0	13.68	14.0	52.60	20.0	66.20
2.1	2.89	8.1	13.93	14.1	52.95	20.1	66.36
2.2	3.03	8.2	14.17	14.2	53.29	20.2	66.52
2.3	3.18	8.3	14.43	14.3	53.63	20.3	66.68
2.4	3.33	8.4	14.68	14.4	53.95	20.4	66.84
2.5	3.48	8.5	14.94	14.5	54.27	20.5	67.00
2.6	3.62	8.6	15.21	14.6	54.58	20.6	67.16
2.7	3.78	8.7	15.48	14.7	54.89	20.7	67.32
2.8	3.93	8.8	15.75	14.8	55.18	20.8	67.47
2.9	4.08	8.9	16.03	14.9	55.48	20.9	67.63
3.0	4.23	9.0	16.31	15.0	55.76	21.0	67.78
3.1	4.39	9.1	16.60	15.1	56.04	21.1	67.93
3.2	4.54	9.2	16.90	15.2	56.32	21.2	68.08
3.3	4.70	9.3	17.20	15.3	56.59	21.3	68.23
3.4	4.85	9.4	17.51	15.4	56.86	21.4	68.38
3.5	5.01	9.5	17.82	15.5	57.12	21.5	68.53
3.6	5.17	9.6	18.14	15.6	57.38	21.6	68.68
3.7	5.33	9.7	18.47	15.7	57.63	21.7	68.83
3.8	5.49	9.8	18.81	15.8	57.89	21.8	68.97
3.9	5.65	9.9	19.16	15.9	58.13	21.9	69.12
4.0	5.82	10.0	19.52	16.0	58.38	22.0	69.26
4.1	5.98	10.1	19.88	16.1	58.62	22.1	69.41
4.2	6.15	10.2	20.26	16.2	58.85	22.2	69.55
4.3	6.31	10.3	20.65	16.3	59.09	22.3	69.69
4.4	6.48	10.4	21.05	16.4	59.32	22.4	69.83
4.5	6.65	10.5	21.47	16.5	59.54	22.5	69.98
4.6	6.82	10.6	21.91	16.6	59.77	22.6	70.12
4.7	7.00	10.7	22.36	16.7	59.99	22.7	70.25
4.8	7.17	10.8	22.83	16.8	60.21	22.8	70.39
4.9	7.34	10.9	23.33	16.9	60.43	22.9	70.53
5.0	7.52	11.0	23.86	17.0	60.64	23.0	70.67
5.1	7.70	11.1	24.41	17.1	60.85	23.1	70.80
5.2	7.88	11.2	25.00	17.2	61.06	23.2	70.94
5.3	8.06	11.3	25.64	17.3	61.27	23.3	71.07
5.4	8.24	11.4	26.34	17.4	61.47	23.4	71.21
5.5	8.42	11.5	27.10	17.5	61.68	23.5	71.34
5.6	8.61	11.6	27.96	17.6	61.88	23.6	71.47
5.7	8.80	11.7	28.97	17.7	62.08	23.7	71.61
5.8	8.99	11.8	30.21	17.8	62.27	23.8	71.74
5.9	9.18	11.9	31.94	17.9	62.47	23.9	71.87
6.0	9.37	12.0	38.61	18.0	62.66	24.0	72.00

Rainfall data from Environment Canada and Climate Change. Rainfall Frequency Atlas Of Canada for Kentville, N.S. amounts include a 15% increase for climate change.

1:5-Year Design Storm: Cumulative Depth Table



1:5-YEAR DESIGN STORM							
Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)
0.1	0.16	6.1	12.09	12.1	55.45	18.1	84.44
0.2	0.33	6.2	12.34	12.2	57.45	18.2	84.68
0.3	0.49	6.3	12.60	12.3	58.98	18.3	84.92
0.4	0.66	6.4	12.85	12.4	60.25	18.4	85.16
0.5	0.83	6.5	13.11	12.5	61.35	18.5	85.39
0.6	1.00	6.6	13.37	12.6	62.34	18.6	85.63
0.7	1.16	6.7	13.63	12.7	63.24	18.7	85.86
0.8	1.33	6.8	13.90	12.8	64.06	18.8	86.09
0.9	1.50	6.9	14.17	12.9	64.83	18.9	86.31
1.0	1.68	7.0	14.45	13.0	65.55	19.0	86.54
1.1	1.85	7.1	14.72	13.1	66.23	19.1	86.76
1.2	2.02	7.2	15.00	13.2	66.88	19.2	86.98
1.3	2.20	7.3	15.28	13.3	67.49	19.3	87.20
1.4	2.37	7.4	15.57	13.4	68.08	19.4	87.42
1.5	2.55	7.5	15.86	13.5	68.65	19.5	87.64
1.6	2.73	7.6	16.16	13.6	69.19	19.6	87.85
1.7	2.90	7.7	16.46	13.7	69.71	19.7	88.06
1.8	3.08	7.8	16.76	13.8	70.22	19.8	88.28
1.9	3.26	7.9	17.07	13.9	70.71	19.9	88.48
2.0	3.45	8.0	17.38	14.0	71.18	20.0	88.69
2.1	3.63	8.1	17.69	14.1	71.65	20.1	88.90
2.2	3.81	8.2	18.01	14.2	72.09	20.2	89.10
2.3	4.00	8.3	18.34	14.3	72.53	20.3	89.31
2.4	4.18	8.4	18.67	14.4	72.96	20.4	89.51
2.5	4.37	8.5	19.01	14.5	73.37	20.5	89.71
2.6	4.56	8.6	19.35	14.6	73.78	20.6	89.91
2.7	4.75	8.7	19.70	14.7	74.18	20.7	90.11
2.8	4.94	8.8	20.06	14.8	74.56	20.8	90.30
2.9	5.13	8.9	20.42	14.9	74.94	20.9	90.50
3.0	5.32	9.0	20.79	15.0	75.32	21.0	90.69
3.1	5.52	9.1	21.16	15.1	75.68	21.1	90.88
3.2	5.71	9.2	21.55	15.2	76.04	21.2	91.08
3.3	5.91	9.3	21.94	15.3	76.39	21.3	91.27
3.4	6.11	9.4	22.34	15.4	76.74	21.4	91.45
3.5	6.31	9.5	22.75	15.5	77.08	21.5	91.64
3.6	6.51	9.6	23.17	15.6	77.41	21.6	91.83
3.7	6.71	9.7	23.60	15.7	77.74	21.7	92.01
3.8	6.92	9.8	24.05	15.8	78.07	21.8	92.20
3.9	7.12	9.9	24.50	15.9	78.38	21.9	92.38
4.0	7.33	10.0	24.97	16.0	78.70	22.0	92.56
4.1	7.54	10.1	25.45	16.1	79.01	22.1	92.74
4.2	7.75	10.2	25.95	16.2	79.31	22.2	92.92
4.3	7.96	10.3	26.46	16.3	79.61	22.3	93.10
4.4	8.17	10.4	27.00	16.4	79.91	22.4	93.28
4.5	8.39	10.5	27.55	16.5	80.20	22.5	93.46
4.6	8.61	10.6	28.13	16.6	80.49	22.6	93.63
4.7	8.82	10.7	28.73	16.7	80.78	22.7	93.81
4.8	9.04	10.8	29.36	16.8	81.06	22.8	93.98
4.9	9.27	10.9	30.02	16.9	81.34	22.9	94.16
5.0	9.49	11.0	30.72	17.0	81.61	23.0	94.33
5.1	9.72	11.1	31.47	17.1	81.88	23.1	94.50
5.2	9.94	11.2	32.26	17.2	82.15	23.2	94.67
5.3	10.17	11.3	33.12	17.3	82.42	23.3	94.84
5.4	10.41	11.4	34.06	17.4	82.68	23.4	95.01
5.5	10.64	11.5	35.10	17.5	82.94	23.5	95.17
5.6	10.88	11.6	36.28	17.6	83.20	23.6	95.34
5.7	11.12	11.7	37.66	17.7	83.45	23.7	95.51
5.8	11.36	11.8	39.39	17.8	83.70	23.8	95.67
5.9	11.60	11.9	41.84	17.9	83.95	23.9	95.84
6.0	11.84	12.0	52.10	18.0	84.20	24.0	96.00

Rainfall data from Environment Canada and Climate Change. Rainfall Frequency Atlas Of Canada for Kentville, N.S. amounts include a 15% increase for climate change.

1:10-Year Design Storm: Cumulative Depth Table



1:10-YEAR DESIGN STORM							
Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)
0.1	0.19	6.1	13.78	12.1	65.14	18.1	98.83
0.2	0.37	6.2	14.07	12.2	67.52	18.2	99.11
0.3	0.56	6.3	14.36	12.3	69.33	18.3	99.38
0.4	0.75	6.4	14.65	12.4	70.83	18.4	99.65
0.5	0.94	6.5	14.94	12.5	72.13	18.5	99.92
0.6	1.13	6.6	15.24	12.6	73.28	18.6	100.19
0.7	1.32	6.7	15.54	12.7	74.33	18.7	100.45
0.8	1.52	6.8	15.85	12.8	75.30	18.8	100.71
0.9	1.71	6.9	16.16	12.9	76.20	18.9	100.97
1.0	1.90	7.0	16.47	13.0	77.04	19.0	101.23
1.1	2.10	7.1	16.79	13.1	77.84	19.1	101.48
1.2	2.30	7.2	17.11	13.2	78.59	19.2	101.74
1.3	2.50	7.3	17.44	13.3	79.30	19.3	101.99
1.4	2.69	7.4	17.77	13.4	79.99	19.4	102.24
1.5	2.90	7.5	18.10	13.5	80.64	19.5	102.48
1.6	3.10	7.6	18.44	13.6	81.27	19.6	102.73
1.7	3.30	7.7	18.78	13.7	81.88	19.7	102.97
1.8	3.50	7.8	19.13	13.8	82.47	19.8	103.21
1.9	3.71	7.9	19.48	13.9	83.04	19.9	103.45
2.0	3.92	8.0	19.84	14.0	83.59	20.0	103.69
2.1	4.12	8.1	20.20	14.1	84.12	20.1	103.92
2.2	4.33	8.2	20.57	14.2	84.64	20.2	104.16
2.3	4.54	8.3	20.95	14.3	85.14	20.3	104.39
2.4	4.75	8.4	21.33	14.4	85.64	20.4	104.62
2.5	4.97	8.5	21.72	14.5	86.12	20.5	104.85
2.6	5.18	8.6	22.11	14.6	86.58	20.6	105.07
2.7	5.40	8.7	22.51	14.7	87.04	20.7	105.30
2.8	5.61	8.8	22.92	14.8	87.49	20.8	105.52
2.9	5.83	8.9	23.34	14.9	87.93	20.9	105.74
3.0	6.05	9.0	23.76	15.0	88.36	21.0	105.96
3.1	6.27	9.1	24.20	15.1	88.78	21.1	106.18
3.2	6.50	9.2	24.64	15.2	89.19	21.2	106.40
3.3	6.72	9.3	25.09	15.3	89.60	21.3	106.62
3.4	6.95	9.4	25.56	15.4	90.00	21.4	106.83
3.5	7.18	9.5	26.03	15.5	90.39	21.5	107.05
3.6	7.40	9.6	26.52	15.6	90.77	21.6	107.26
3.7	7.64	9.7	27.01	15.7	91.15	21.7	107.47
3.8	7.87	9.8	27.53	15.8	91.52	21.8	107.68
3.9	8.10	9.9	28.05	15.9	91.89	21.9	107.89
4.0	8.34	10.0	28.59	16.0	92.25	22.0	108.10
4.1	8.58	10.1	29.15	16.1	92.60	22.1	108.30
4.2	8.82	10.2	29.73	16.2	92.95	22.2	108.51
4.3	9.06	10.3	30.33	16.3	93.30	22.3	108.71
4.4	9.30	10.4	30.95	16.4	93.64	22.4	108.91
4.5	9.55	10.5	31.59	16.5	93.98	22.5	109.11
4.6	9.79	10.6	32.26	16.6	94.31	22.6	109.31
4.7	10.04	10.7	32.96	16.7	94.63	22.7	109.51
4.8	10.30	10.8	33.69	16.8	94.96	22.8	109.71
4.9	10.55	10.9	34.46	16.9	95.28	22.9	109.91
5.0	10.81	11.0	35.28	17.0	95.59	23.0	110.10
5.1	11.06	11.1	36.15	17.1	95.90	23.1	110.30
5.2	11.32	11.2	37.08	17.2	96.21	23.2	110.49
5.3	11.59	11.3	38.09	17.3	96.51	23.3	110.68
5.4	11.85	11.4	39.19	17.4	96.81	23.4	110.87
5.5	12.12	11.5	40.41	17.5	97.11	23.5	111.06
5.6	12.39	11.6	41.80	17.6	97.41	23.6	111.25
5.7	12.66	11.7	43.43	17.7	97.70	23.7	111.44
5.8	12.94	11.8	45.48	17.8	97.99	23.8	111.63
5.9	13.21	11.9	48.40	17.9	98.27	23.9	111.81
6.0	13.50	12.0	61.11	18.0	98.55	24.0	112.00

Rainfall data from Environment Canada and Climate Change. Rainfall Frequency Atlas Of Canada for Kentville, N.S. amounts include a 15% increase for climate change.

1:100-Year Design Storm: Cumulative Depth Table



1:100-YEAR DESIGN STORM							
Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)
0.1	0.26	6.1	19.13	12.1	96.15	18.1	144.73
0.2	0.51	6.2	19.53	12.2	99.73	18.2	145.11
0.3	0.77	6.3	19.94	12.3	102.43	18.3	145.50
0.4	1.03	6.4	20.35	12.4	104.65	18.4	145.87
0.5	1.30	6.5	20.76	12.5	106.57	18.5	146.25
0.6	1.56	6.6	21.18	12.6	108.27	18.6	146.62
0.7	1.82	6.7	21.60	12.7	109.81	18.7	146.99
0.8	2.09	6.8	22.03	12.8	111.22	18.8	147.35
0.9	2.36	6.9	22.47	12.9	112.53	18.9	147.72
1.0	2.63	7.0	22.91	13.0	113.75	19.0	148.07
1.1	2.90	7.1	23.35	13.1	114.91	19.1	148.43
1.2	3.17	7.2	23.80	13.2	115.99	19.2	148.78
1.3	3.44	7.3	24.26	13.3	117.03	19.3	149.13
1.4	3.72	7.4	24.72	13.4	118.02	19.4	149.48
1.5	4.00	7.5	25.19	13.5	118.96	19.5	149.82
1.6	4.28	7.6	25.67	13.6	119.87	19.6	150.16
1.7	4.56	7.7	26.15	13.7	120.74	19.7	150.50
1.8	4.84	7.8	26.64	13.8	121.58	19.8	150.83
1.9	5.12	7.9	27.14	13.9	122.39	19.9	151.16
2.0	5.41	8.0	27.64	14.0	123.18	20.0	151.49
2.1	5.70	8.1	28.15	14.1	123.95	20.1	151.82
2.2	5.98	8.2	28.68	14.2	124.69	20.2	152.15
2.3	6.28	8.3	29.21	14.3	125.41	20.3	152.47
2.4	6.57	8.4	29.74	14.4	126.11	20.4	152.79
2.5	6.86	8.5	30.29	14.5	126.79	20.5	153.10
2.6	7.16	8.6	30.85	14.6	127.46	20.6	153.42
2.7	7.46	8.7	31.42	14.7	128.11	20.7	153.73
2.8	7.76	8.8	32.00	14.8	128.75	20.8	154.04
2.9	8.06	8.9	32.59	14.9	129.37	20.9	154.35
3.0	8.37	9.0	33.19	15.0	129.98	21.0	154.66
3.1	8.68	9.1	33.81	15.1	130.58	21.1	154.96
3.2	8.98	9.2	34.44	15.2	131.16	21.2	155.26
3.3	9.30	9.3	35.08	15.3	131.74	21.3	155.56
3.4	9.61	9.4	35.74	15.4	132.30	21.4	155.86
3.5	9.93	9.5	36.42	15.5	132.85	21.5	156.16
3.6	10.24	9.6	37.11	15.6	133.40	21.6	156.45
3.7	10.57	9.7	37.82	15.7	133.93	21.7	156.74
3.8	10.89	9.8	38.55	15.8	134.46	21.8	157.03
3.9	11.21	9.9	39.31	15.9	134.98	21.9	157.32
4.0	11.54	10.0	40.08	16.0	135.48	22.0	157.61
4.1	11.87	10.1	40.88	16.1	135.99	22.1	157.89
4.2	12.21	10.2	41.71	16.2	136.48	22.2	158.18
4.3	12.54	10.3	42.57	16.3	136.96	22.3	158.46
4.4	12.88	10.4	43.45	16.4	137.44	22.4	158.74
4.5	13.22	10.5	44.38	16.5	137.92	22.5	159.01
4.6	13.57	10.6	45.34	16.6	138.38	22.6	159.29
4.7	13.92	10.7	46.35	16.7	138.84	22.7	159.57
4.8	14.27	10.8	47.42	16.8	139.30	22.8	159.84
4.9	14.62	10.9	48.53	16.9	139.74	22.9	160.11
5.0	14.98	11.0	49.72	17.0	140.19	23.0	160.38
5.1	15.34	11.1	50.98	17.1	140.62	23.1	160.65
5.2	15.70	11.2	52.34	17.2	141.06	23.2	160.92
5.3	16.07	11.3	53.81	17.3	141.48	23.3	161.18
5.4	16.44	11.4	55.43	17.4	141.90	23.4	161.45
5.5	16.81	11.5	57.23	17.5	142.32	23.5	161.71
5.6	17.19	11.6	59.28	17.6	142.73	23.6	161.97
5.7	17.57	11.7	61.71	17.7	143.14	23.7	162.23
5.8	17.95	11.8	64.77	17.8	143.54	23.8	162.49
5.9	18.34	11.9	69.21	17.9	143.94	23.9	162.74
6.0	18.73	12.0	89.97	18.0	144.34	24.0	163.00

Rainfall data from Environment Canada and Climate Change. Rainfall Frequency Atlas Of Canada for Kentville, N.S. amounts include a 15% increase for climate change.

1:2-Year Winter Design Storm: Cumulative Depth Table



WINTER STORM							
1:2-YEAR WINTER DESIGN STORM							
Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)
0.1	0.18	6.1	12.88	12.1	55.18	18.1	84.68
0.2	0.35	6.2	13.15	12.2	57.10	18.2	84.93
0.3	0.53	6.3	13.41	12.3	58.59	18.3	85.19
0.4	0.71	6.4	13.68	12.4	59.84	18.4	85.44
0.5	0.89	6.5	13.95	12.5	60.93	18.5	85.69
0.6	1.07	6.6	14.23	12.6	61.91	18.6	85.93
0.7	1.25	6.7	14.51	12.7	62.81	18.7	86.18
0.8	1.43	6.8	14.79	12.8	63.63	18.8	86.42
0.9	1.62	6.9	15.07	12.9	64.40	18.9	86.66
1.0	1.80	7.0	15.36	13.0	65.13	19.0	86.90
1.1	1.98	7.1	15.65	13.1	65.82	19.1	87.14
1.2	2.17	7.2	15.94	13.2	66.47	19.2	87.37
1.3	2.36	7.3	16.24	13.3	67.10	19.3	87.60
1.4	2.55	7.4	16.54	13.4	67.69	19.4	87.83
1.5	2.73	7.5	16.85	13.5	68.27	19.5	88.06
1.6	2.92	7.6	17.15	13.6	68.82	19.6	88.29
1.7	3.12	7.7	17.47	13.7	69.36	19.7	88.52
1.8	3.31	7.8	17.78	13.8	69.87	19.8	88.74
1.9	3.50	7.9	18.11	13.9	70.38	19.9	88.96
2.0	3.69	8.0	18.43	14.0	70.86	20.0	89.19
2.1	3.89	8.1	18.76	14.1	71.34	20.1	89.40
2.2	4.09	8.2	19.10	14.2	71.80	20.2	89.62
2.3	4.28	8.3	19.44	14.3	72.25	20.3	89.84
2.4	4.48	8.4	19.78	14.4	72.69	20.4	90.05
2.5	4.68	8.5	20.13	14.5	73.11	20.5	90.27
2.6	4.88	8.6	20.49	14.6	73.53	20.6	90.48
2.7	5.09	8.7	20.85	14.7	73.94	20.7	90.69
2.8	5.29	8.8	21.22	14.8	74.35	20.8	90.90
2.9	5.49	8.9	21.60	14.9	74.74	20.9	91.11
3.0	5.70	9.0	21.98	15.0	75.13	21.0	91.32
3.1	5.91	9.1	22.37	15.1	75.50	21.1	91.52
3.2	6.12	9.2	22.77	15.2	75.88	21.2	91.72
3.3	6.33	9.3	23.17	15.3	76.24	21.3	91.93
3.4	6.54	9.4	23.59	15.4	76.60	21.4	92.13
3.5	6.75	9.5	24.01	15.5	76.96	21.5	92.33
3.6	6.97	9.6	24.44	15.6	77.30	21.6	92.53
3.7	7.18	9.7	24.89	15.7	77.65	21.7	92.73
3.8	7.40	9.8	25.34	15.8	77.98	21.8	92.92
3.9	7.62	9.9	25.81	15.9	78.32	21.9	93.12
4.0	7.84	10.0	26.29	16.0	78.65	22.0	93.31
4.1	8.06	10.1	26.79	16.1	78.97	22.1	93.51
4.2	8.28	10.2	27.29	16.2	79.29	22.2	93.70
4.3	8.51	10.3	27.82	16.3	79.60	22.3	93.89
4.4	8.73	10.4	28.36	16.4	79.91	22.4	94.08
4.5	8.96	10.5	28.93	16.5	80.22	22.5	94.27
4.6	9.19	10.6	29.51	16.6	80.52	22.6	94.46
4.7	9.42	10.7	30.12	16.7	80.82	22.7	94.65
4.8	9.66	10.8	30.76	16.8	81.12	22.8	94.83
4.9	9.89	10.9	31.43	16.9	81.41	22.9	95.02
5.0	10.13	11.0	32.14	17.0	81.70	23.0	95.20
5.1	10.37	11.1	32.89	17.1	81.98	23.1	95.39
5.2	10.61	11.2	33.69	17.2	82.26	23.2	95.57
5.3	10.86	11.3	34.54	17.3	82.54	23.3	95.75
5.4	11.10	11.4	35.48	17.4	82.82	23.4	95.93
5.5	11.35	11.5	36.51	17.5	83.09	23.5	96.11
5.6	11.60	11.6	37.67	17.6	83.36	23.6	96.29
5.7	11.85	11.7	39.03	17.7	83.63	23.7	96.47
5.8	12.11	11.8	40.70	17.8	83.90	23.8	96.65
5.9	12.36	11.9	43.03	17.9	84.16	23.9	96.82
6.0	12.62	12.0	52.02	18.0	84.42	24.0	97.00

Rainfall data from Environment Canada and Climate Change. Rainfall Frequency Atlas Of Canada for Kentville, N.S. amounts include an additional 1.5mm/hr of snow melt and a 15% increase for climate change.

1:5-Year Winter Design Storm: Cumulative Depth Table



WINTER STORM							
1:5-YEAR WINTER DESIGN STORM							
Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)
0.1	0.18	6.1	13.23	12.1	60.65	18.1	92.36
0.2	0.36	6.2	13.50	12.2	62.83	18.2	92.62
0.3	0.54	6.3	13.78	12.3	64.51	18.3	92.88
0.4	0.72	6.4	14.06	12.4	65.90	18.4	93.14
0.5	0.90	6.5	14.34	12.5	67.10	18.5	93.40
0.6	1.09	6.6	14.62	12.6	68.18	18.6	93.66
0.7	1.27	6.7	14.91	12.7	69.16	18.7	93.91
0.8	1.46	6.8	15.21	12.8	70.07	18.8	94.16
0.9	1.65	6.9	15.50	12.9	70.91	18.9	94.41
1.0	1.83	7.0	15.80	13.0	71.70	19.0	94.65
1.1	2.02	7.1	16.10	13.1	72.44	19.1	94.90
1.2	2.21	7.2	16.41	13.2	73.15	19.2	95.14
1.3	2.40	7.3	16.72	13.3	73.82	19.3	95.38
1.4	2.59	7.4	17.03	13.4	74.47	19.4	95.62
1.5	2.79	7.5	17.35	13.5	75.08	19.5	95.85
1.6	2.98	7.6	17.67	13.6	75.68	19.6	96.09
1.7	3.18	7.7	18.00	13.7	76.25	19.7	96.32
1.8	3.37	7.8	18.33	13.8	76.80	19.8	96.55
1.9	3.57	7.9	18.67	13.9	77.34	19.9	96.78
2.0	3.77	8.0	19.01	14.0	77.86	20.0	97.01
2.1	3.97	8.1	19.35	14.1	78.36	20.1	97.23
2.2	4.17	8.2	19.70	14.2	78.85	20.2	97.46
2.3	4.37	8.3	20.06	14.3	79.33	20.3	97.68
2.4	4.57	8.4	20.42	14.4	79.80	20.4	97.90
2.5	4.78	8.5	20.79	14.5	80.25	20.5	98.12
2.6	4.99	8.6	21.17	14.6	80.70	20.6	98.34
2.7	5.19	8.7	21.55	14.7	81.13	20.7	98.55
2.8	5.40	8.8	21.94	14.8	81.55	20.8	98.77
2.9	5.61	8.9	22.33	14.9	81.97	20.9	98.98
3.0	5.82	9.0	22.74	15.0	82.38	21.0	99.19
3.1	6.04	9.1	23.15	15.1	82.78	21.1	99.40
3.2	6.25	9.2	23.57	15.2	83.17	21.2	99.61
3.3	6.46	9.3	24.00	15.3	83.55	21.3	99.82
3.4	6.68	9.4	24.44	15.4	83.93	21.4	100.03
3.5	6.90	9.5	24.89	15.5	84.30	21.5	100.23
3.6	7.12	9.6	25.35	15.6	84.67	21.6	100.44
3.7	7.34	9.7	25.82	15.7	85.03	21.7	100.64
3.8	7.57	9.8	26.30	15.8	85.38	21.8	100.84
3.9	7.79	9.9	26.80	15.9	85.73	21.9	101.04
4.0	8.02	10.0	27.31	16.0	86.08	22.0	101.24
4.1	8.25	10.1	27.84	16.1	86.41	22.1	101.44
4.2	8.47	10.2	28.38	16.2	86.75	22.2	101.64
4.3	8.71	10.3	28.94	16.3	87.08	22.3	101.83
4.4	8.94	10.4	29.53	16.4	87.40	22.4	102.03
4.5	9.18	10.5	30.13	16.5	87.72	22.5	102.22
4.6	9.41	10.6	30.76	16.6	88.04	22.6	102.41
4.7	9.65	10.7	31.42	16.7	88.35	22.7	102.60
4.8	9.89	10.8	32.11	16.8	88.66	22.8	102.79
4.9	10.14	10.9	32.84	16.9	88.96	22.9	102.98
5.0	10.38	11.0	33.60	17.0	89.26	23.0	103.17
5.1	10.63	11.1	34.42	17.1	89.56	23.1	103.36
5.2	10.88	11.2	35.29	17.2	89.85	23.2	103.54
5.3	11.13	11.3	36.23	17.3	90.14	23.3	103.73
5.4	11.38	11.4	37.25	17.4	90.43	23.4	103.91
5.5	11.64	11.5	38.39	17.5	90.71	23.5	104.10
5.6	11.90	11.6	39.68	17.6	90.99	23.6	104.28
5.7	12.16	11.7	41.20	17.7	91.27	23.7	104.46
5.8	12.42	11.8	43.08	17.8	91.55	23.8	104.64
5.9	12.69	11.9	45.76	17.9	91.82	23.9	104.82
6.0	12.96	12.0	56.98	18.0	92.09	24.0	105.00

Rainfall data from Environment Canada and Climate Change. Rainfall Frequency Atlas Of Canada for Kentville, N.S. amounts include an additional 1.5mm/hr of snow melt and a 15% increase for climate change.

1:10-Year Winter Design Storm: Cumulative Depth Table



WINTER STORM							
1:10-YEAR WINTER DESIGN STORM							
Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)
0.1	0.19	6.1	13.78	12.1	65.14	18.1	98.83
0.2	0.37	6.2	14.07	12.2	67.52	18.2	99.11
0.3	0.56	6.3	14.36	12.3	69.33	18.3	99.38
0.4	0.75	6.4	14.65	12.4	70.83	18.4	99.65
0.5	0.94	6.5	14.94	12.5	72.13	18.5	99.92
0.6	1.13	6.6	15.24	12.6	73.28	18.6	100.19
0.7	1.32	6.7	15.54	12.7	74.33	18.7	100.45
0.8	1.52	6.8	15.85	12.8	75.30	18.8	100.71
0.9	1.71	6.9	16.16	12.9	76.20	18.9	100.97
1.0	1.90	7.0	16.47	13.0	77.04	19.0	101.23
1.1	2.10	7.1	16.79	13.1	77.84	19.1	101.48
1.2	2.30	7.2	17.11	13.2	78.59	19.2	101.74
1.3	2.50	7.3	17.44	13.3	79.30	19.3	101.99
1.4	2.69	7.4	17.77	13.4	79.99	19.4	102.24
1.5	2.90	7.5	18.10	13.5	80.64	19.5	102.48
1.6	3.10	7.6	18.44	13.6	81.27	19.6	102.73
1.7	3.30	7.7	18.78	13.7	81.88	19.7	102.97
1.8	3.50	7.8	19.13	13.8	82.47	19.8	103.21
1.9	3.71	7.9	19.48	13.9	83.04	19.9	103.45
2.0	3.92	8.0	19.84	14.0	83.59	20.0	103.69
2.1	4.12	8.1	20.20	14.1	84.12	20.1	103.92
2.2	4.33	8.2	20.57	14.2	84.64	20.2	104.16
2.3	4.54	8.3	20.95	14.3	85.14	20.3	104.39
2.4	4.75	8.4	21.33	14.4	85.64	20.4	104.62
2.5	4.97	8.5	21.72	14.5	86.12	20.5	104.85
2.6	5.18	8.6	22.11	14.6	86.58	20.6	105.07
2.7	5.40	8.7	22.51	14.7	87.04	20.7	105.30
2.8	5.61	8.8	22.92	14.8	87.49	20.8	105.52
2.9	5.83	8.9	23.34	14.9	87.93	20.9	105.74
3.0	6.05	9.0	23.76	15.0	88.36	21.0	105.96
3.1	6.27	9.1	24.20	15.1	88.78	21.1	106.18
3.2	6.50	9.2	24.64	15.2	89.19	21.2	106.40
3.3	6.72	9.3	25.09	15.3	89.60	21.3	106.62
3.4	6.95	9.4	25.56	15.4	90.00	21.4	106.83
3.5	7.18	9.5	26.03	15.5	90.39	21.5	107.05
3.6	7.40	9.6	26.52	15.6	90.77	21.6	107.26
3.7	7.64	9.7	27.01	15.7	91.15	21.7	107.47
3.8	7.87	9.8	27.53	15.8	91.52	21.8	107.68
3.9	8.10	9.9	28.05	15.9	91.89	21.9	107.89
4.0	8.34	10.0	28.59	16.0	92.25	22.0	108.10
4.1	8.58	10.1	29.15	16.1	92.60	22.1	108.30
4.2	8.82	10.2	29.73	16.2	92.95	22.2	108.51
4.3	9.06	10.3	30.33	16.3	93.30	22.3	108.71
4.4	9.30	10.4	30.95	16.4	93.64	22.4	108.91
4.5	9.55	10.5	31.59	16.5	93.98	22.5	109.11
4.6	9.79	10.6	32.26	16.6	94.31	22.6	109.31
4.7	10.04	10.7	32.96	16.7	94.63	22.7	109.51
4.8	10.30	10.8	33.69	16.8	94.96	22.8	109.71
4.9	10.55	10.9	34.46	16.9	95.28	22.9	109.91
5.0	10.81	11.0	35.28	17.0	95.59	23.0	110.10
5.1	11.06	11.1	36.15	17.1	95.90	23.1	110.30
5.2	11.32	11.2	37.08	17.2	96.21	23.2	110.49
5.3	11.59	11.3	38.09	17.3	96.51	23.3	110.68
5.4	11.85	11.4	39.19	17.4	96.81	23.4	110.87
5.5	12.12	11.5	40.41	17.5	97.11	23.5	111.06
5.6	12.39	11.6	41.80	17.6	97.41	23.6	111.25
5.7	12.66	11.7	43.43	17.7	97.70	23.7	111.44
5.8	12.94	11.8	45.48	17.8	97.99	23.8	111.63
5.9	13.21	11.9	48.40	17.9	98.27	23.9	111.81
6.0	13.50	12.0	61.11	18.0	98.55	24.0	112.00

Rainfall data from Environment Canada and Climate Change. Rainfall Frequency Atlas Of Canada for Kentville, N.S. amounts include an additional 1.5mm/hr of snow melt and a 15% increase for climate change.

1:100-Year Winter Design Storm: Cumulative Depth Table



WINTER STORM							
1:100-YEAR WINTER DESIGN STORM							
Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)	Time (hours)	Cumulative Depth (mm)
0.1	0.21	6.1	15.61	12.1	78.45	18.1	118.09
0.2	0.42	6.2	15.94	12.2	81.38	18.2	118.41
0.3	0.63	6.3	16.27	12.3	83.58	18.3	118.72
0.4	0.84	6.4	16.60	12.4	85.39	18.4	119.03
0.5	1.06	6.5	16.94	12.5	86.96	18.5	119.33
0.6	1.27	6.6	17.28	12.6	88.34	18.6	119.64
0.7	1.49	6.7	17.63	12.7	89.60	18.7	119.94
0.8	1.71	6.8	17.98	12.8	90.75	18.8	120.23
0.9	1.92	6.9	18.33	12.9	91.82	18.9	120.53
1.0	2.14	7.0	18.69	13.0	92.82	19.0	120.82
1.1	2.36	7.1	19.05	13.1	93.76	19.1	121.11
1.2	2.59	7.2	19.42	13.2	94.65	19.2	121.40
1.3	2.81	7.3	19.79	13.3	95.49	19.3	121.68
1.4	3.03	7.4	20.17	13.4	96.29	19.4	121.97
1.5	3.26	7.5	20.55	13.5	97.07	19.5	122.25
1.6	3.49	7.6	20.94	13.6	97.81	19.6	122.52
1.7	3.72	7.7	21.34	13.7	98.52	19.7	122.80
1.8	3.95	7.8	21.74	13.8	99.20	19.8	123.07
1.9	4.18	7.9	22.14	13.9	99.87	19.9	123.34
2.0	4.41	8.0	22.55	14.0	100.51	20.0	123.61
2.1	4.65	8.1	22.97	14.1	101.13	20.1	123.88
2.2	4.88	8.2	23.40	14.2	101.74	20.2	124.14
2.3	5.12	8.3	23.83	14.3	102.33	20.3	124.41
2.4	5.36	8.4	24.27	14.4	102.90	20.4	124.67
2.5	5.60	8.5	24.72	14.5	103.46	20.5	124.93
2.6	5.84	8.6	25.17	14.6	104.00	20.6	125.18
2.7	6.09	8.7	25.64	14.7	104.53	20.7	125.44
2.8	6.33	8.8	26.11	14.8	105.05	20.8	125.69
2.9	6.58	8.9	26.59	14.9	105.56	20.9	125.94
3.0	6.83	9.0	27.09	15.0	106.06	21.0	126.19
3.1	7.08	9.1	27.59	15.1	106.55	21.1	126.44
3.2	7.33	9.2	28.10	15.2	107.02	21.2	126.69
3.3	7.59	9.3	28.63	15.3	107.49	21.3	126.93
3.4	7.84	9.4	29.17	15.4	107.95	21.4	127.17
3.5	8.10	9.5	29.72	15.5	108.40	21.5	127.42
3.6	8.36	9.6	30.28	15.6	108.85	21.6	127.66
3.7	8.62	9.7	30.86	15.7	109.28	21.7	127.89
3.8	8.88	9.8	31.46	15.8	109.71	21.8	128.13
3.9	9.15	9.9	32.07	15.9	110.13	21.9	128.37
4.0	9.42	10.0	32.70	16.0	110.55	22.0	128.60
4.1	9.69	10.1	33.36	16.1	110.96	22.1	128.83
4.2	9.96	10.2	34.03	16.2	111.36	22.2	129.06
4.3	10.23	10.3	34.73	16.3	111.76	22.3	129.29
4.4	10.51	10.4	35.46	16.4	112.15	22.4	129.52
4.5	10.79	10.5	36.21	16.5	112.53	22.5	129.75
4.6	11.07	10.6	37.00	16.6	112.91	22.6	129.97
4.7	11.35	10.7	37.82	16.7	113.29	22.7	130.20
4.8	11.64	10.8	38.69	16.8	113.66	22.8	130.42
4.9	11.93	10.9	39.60	16.9	114.02	22.9	130.64
5.0	12.22	11.0	40.57	17.0	114.39	23.0	130.86
5.1	12.51	11.1	41.60	17.1	114.74	23.1	131.08
5.2	12.81	11.2	42.71	17.2	115.09	23.2	131.30
5.3	13.11	11.3	43.91	17.3	115.44	23.3	131.52
5.4	13.41	11.4	45.23	17.4	115.79	23.4	131.73
5.5	13.72	11.5	46.70	17.5	116.13	23.5	131.95
5.6	14.02	11.6	48.37	17.6	116.46	23.6	132.16
5.7	14.33	11.7	50.35	17.7	116.80	23.7	132.37
5.8	14.65	11.8	52.85	17.8	117.12	23.8	132.58
5.9	14.96	11.9	56.47	17.9	117.45	23.9	132.79
6.0	15.29	12.0	73.41	18.0	117.77	24.0	133.00

Rainfall data from Environment Canada and Climate Change. Rainfall Frequency Atlas Of Canada for Kentville, N.S. amounts include an additional 1.5mm/hr of snow melt and a 15% increase for climate change.

Municipality of the County of Kings

Report to the Planning Advisory Committee

Amendments to the text of the Land Use By-law to permit up to two Secondary Suites in the Residential One Unit (R1) Zone

File: 25-09

Date: June 10, 2025

Prepared by: Planning Staff

Applicant	Council Directed
Proposed Change	Amendments to the text of the Land Use By-law to permit Up to Two Secondary Suites in the Residential One Unit (R1) Zone and associated amendments
Designation	Residential
Zone	Residential One Unit (R1) Zone

1. PROPOSAL

In February 2024, the Municipality was the successful recipient of \$5.9 million dollars of funding from the Canada Mortgage and Housing Corporation's (CMHC) Housing Accelerator Fund. The funding agreement is conditional on the Municipality reaching growth targets and completing specific project initiatives. One of the initiatives requires the Municipality to complete amendments to the Municipality's planning documents to enable the development of four residential units as-of-right on all residential lots in Growth Centres.

2. OPTIONS

In response to the application, the Planning Advisory Committee may:

- Recommend that Council approve the amendments as drafted;
- Provide alternative direction, such as requesting further information on a specific topic, or recommending changes to the draft amendments;
- Recommend that Council refuse the amendments as drafted.

3. STAFF RECOMMENDATION

Staff recommend that the Planning Advisory Committee forward a positive recommendation by passing the following motion.

Planning Advisory Committee recommends that Municipal Council give First Reading to and hold a Public Hearing for the amendments to the text of the Land Use By-law to enable two secondary suites within a one unit dwelling in the Residential One Unit (R1) Zone and associated amendments as described in Appendix A of the report dated June 10, 2025.

4. BACKGROUND AND INFORMATION

In response to the ongoing housing crisis, the Municipality secured \$5.9 million in February 2024 through a Contribution Agreement under the Housing Accelerator Fund, administered by the CMHC. As part of this Agreement, the Municipality committed to a range of initiatives to facilitate development across the housing continuum. A key requirement under the Approved Action Plan is the implementation of as-of-right permissions for four residential units per lot in Growth Centres. While all other Residential Zones in the Municipality currently meet this requirement, the Residential One Unit (R1) Zone currently only permits three units as-of-right. To align with this commitment, the following amendments are proposed:

- Amendments to the text of section 4.3.4.1 related to Secondary Suites in the R1 zone;
- The definition of Secondary Suite
- Amendments related to the submission of stormwater management plans for certain developments

This initiative expands on recent amendments to Municipal Planning Documents that have provided greater flexibility in the development of housing in Growth Centres including the following:

- Permit accessory dwellings in all Residential Zones;
- Permit Grouped Dwellings within the Residential One and Two Unit (R2) Zone; and,
- Increased number of permitted units within multi-unit dwellings in the Residential Mixed Density (R3) Zone and the Residential Multi-Unit (R4) Zone.

A Secondary Suite is a self-contained residential unit within a dwelling. It may include shared spaces such as storage areas, service rooms, or laundry facilities. These units can be created within an existing home through renovations or as part of new construction, and may be located on the same level, above, or below the primary dwelling.

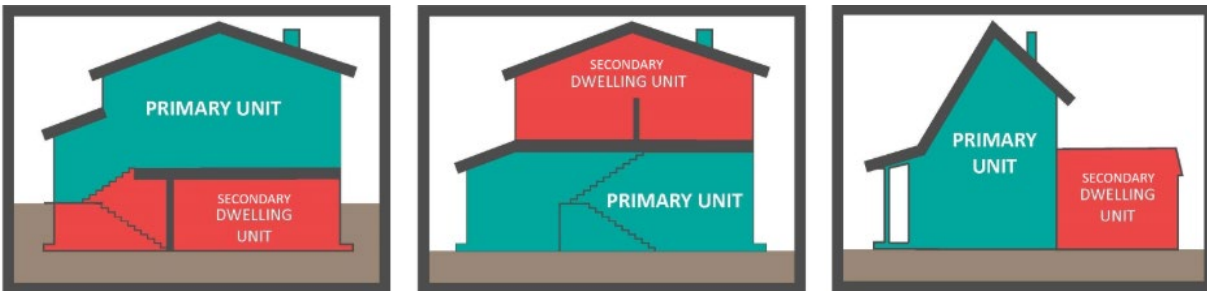


Figure 1. Types of Secondary Suite Options (Source: City of Vernon)

Secondary Suites serve as an effective tool for increasing housing supply while maintaining the character of existing neighbourhoods. They can provide affordable rental options and generate additional income for homeowners, assisting with mortgage affordability. Often referred to as a form of "gentle density" or "low-impact density," they allow for increased residential capacity in established areas without significant changes to the built form. They provide renters with an opportunity to live in lower-density residential neighbourhoods, which usually have access to schools and community amenities but may have little conventional rental housing. Many municipalities across North America have adopted similar policies to expand rental housing stock and optimize the use of existing infrastructure.

The Municipality currently utilizes the National Building Code's ('NBC') definition of a secondary suite (see Appendix B), which restricts each approved residential dwelling to a single Secondary Suite. As a result, in order to accommodate an additional secondary suite, the definition in the Land Use By-law will need to be amended.

5. PUBLIC CONSULTATION

Under the Planning Policies of the Municipality of the County of Kings (PLAN-09-004), a Public Information Meeting (PIM) was required because the application concerns an amendment to the text of the Land Use By-law. Notification emails were sent to all the towns and villages within the Municipality and the abutting municipalities. An advertisement was also placed on the Municipal Website and on social media sites on April 9, 2025, providing notice of the planning application and details about the PIM. The PIM was held in the Municipal Council Chambers on April 16, 2025. A presentation was also prepared and uploaded to the Municipal website, and it has been available for viewing since then. No members of the public attended the PIM, and no follow up questions were received.

6. POLICY REVIEW

6.1 Enabling Policy

The MPS enables Council to consider amendments to the text of the Land Use By-law in order to provide flexibility to be able to respond to changes in development conditions. Policy 5.3.2 establishes the ability to consider such amendments:

Council shall:

5.3.2 amend the text of the Land Use By-law provided the amendment is consistent with the Vision, Goals and Objectives of this Strategy.

6.2 Supporting Policies

The MPS establishes an overarching Vision for the Municipality that emphasizes a quality of life that blend rural and more urban elements to ultimately create a great place to live. The Vision as well as Objectives established to guide efforts to realizing the Vision, can be seen through subject matter themes that provide specific direction. The themes, as well as corresponding priorities within each theme relevant to this proposal are provided below:

Theme	Priorities
Settlement	<i>Concentrate new commercial and residential development, including mixed uses, in the Growth Centres with clearly defined boundaries</i> <i>Encourage efficient service and infrastructure delivery</i> <i>Enable and encourage a diversity of housing throughout the region</i>
Agriculture	<i>Identify and continue to protect agricultural land</i>
Rural and Natural Areas	<i>Retain the rural character of all areas other than the Growth Centres</i>
Healthy Communities	<i>Encourage housing that is healthy, affordable, sustainable, adequate, appropriate, safe, and accessible</i>

The Residential One Unit (R1) Zone currently encompasses approximately 60,000 acres, accounting for roughly 15% of the total land area within the Residential Designation of the Municipality. Lands within the Residential Designation represent the Municipality's available resources for addressing the housing crisis, as these areas are already serviced with essential infrastructure, and may include water and wastewater systems. Restricting the types of residential development in these areas results in an inefficient use of resources and hampers the Municipality's efforts to address housing needs in a sustainable and effective manner.

As outlined in a [Staff Report](#) related to enabling the development of accessory dwellings in Residential Zones, there is significant opportunity for intensification within the Residential One Unit (R1) Zone and the Residential One and Two Unit (R2) Zone. Enabling an additional secondary suite within dwellings in the Residential One Unit (R1) Zone represents a continued emphasis increasing opportunities for 'gentle density' within Residential Zones. This can help increase the housing stock without the significant time

and financial investments required by large-scale purpose-built rental housing developments. According to the 2023 Municipal Housing Needs Report for the Municipality prepared by Upland Planning and Turner Drake & Partners Ltd., there has been an 11% increase from 2018 to 2021 in demand for one-bedroom units, a typical layout for a secondary suite.

All proposed Secondary Suites must comply with the zoning requirements for residential uses within the Residential One Unit (R1) Zone. Property owners will be permitted one additional accessory dwelling unit and up to two Secondary Suites, provided the lot meets the required area specifications and requirements of 4.3.4.1 a and b which are not proposed to be amended. In addition to the requirements of section 4.3.4.1, property owners will be required to show that each residential unit is provided with a parking space on site.

Section 2 of the Municipal Planning Strategy outlines policies related to specific subject areas. Section 2.1 of the MPS pertains to Growth Centres and has a stated goal: *To provide vibrant, complete communities in Growth Centres with municipal servicing, economic development, a high quality of life and distinct character*". The relevant objectives related this goal, based on the themes presented earlier, state:

Theme	Objective
Settlement & Economic Development	<i>To provide a wide range of urban development and business opportunities supported by cost-effective municipal services.</i>
Agriculture & Rural and Natural Areas	<i>To protect agricultural land and rural character by directing development to clearly defined Growth Centres.</i>
Transportation	<i>To promote the development of compact, complete communities with accessible and active transportation options.</i>
Energy	<i>To promote energy efficiency in design and infrastructure</i>

Aligning with the Vision statements, there is an emphasis on efficient infrastructure and municipal service delivery, and diverse and compact community development. Policy 2.1.2 states:

Council shall identify Growth Centres as the primary growth areas within the Municipality.

This Policy speaks to the balance between rural and urban areas where urban areas are intended to accommodate most development within the Municipality to preserve agricultural land and the rural character of the area.

Higher development density lowers infrastructure costs by spreading expenses across more ratepayers, ensuring the ability of the Municipality to provide maintenance and upgrades accordingly. Similarly, density also improves the viability of public transit and active transportation networks.

Section 3 of the MPS provides general policy direction related to the Future Land Use Designations. Section 3.1 outlines broad Objectives for the Residential Designation that aim to drive the

development of housing with an environmentally and socially cognizant approach, one that reflects effective resource and land use planning methods and practice. Within this designation, relevant Objectives include:

Theme	Priorities
Settlement	<i>To accommodate a wide range of housing options, including opportunities for mixed uses and increased densities in areas where urban services are efficient to deliver; and</i> <i>To protect residential neighbourhoods from undesirable commercial and industrial activities</i>
Healthy Communities	<i>To provide a wide range of housing choices, including affordable housing</i>

The proposed amendments seek to provide greater flexibility for increased residential density within the Residential One Unit (R1) Zone, the only Residential Zone within the Municipality that does not currently permit four residential units per lot. The objective related to Healthy Communities emphasizes a wide range of housing choices, including affordable housing. While the creation of new residential units will assist in lowering housing prices for renters over time through an increase in the supply of rental residential units, these amendments also provide opportunities for homeowners to add units to their property to assist in offsetting the cost of homeownership, thereby reducing the cost of housing for a broader swath of the population.

6.3 Stormwater Management

The Municipal Planning Strategy also provides policy direction related to infrastructure such as roads, water and sewer infrastructure and stormwater management. With regard to infrastructure, the objective related to Rural and Natural Areas directs Council, *“To integrate natural areas into developed area, emphasizing low-impact drainage practices.”* To support this objective, policy 2.3.12 indicates,

Council shall

2.3.12 require new developments to preserve and integrate existing natural drainage features into all drainage plans and/or to include low-impact development drainage features where practical.

Where Council has approved amendments providing greater flexibility in the development of housing, particularly through increased residential densities in the Residential One and Two Unit (R2) Zone, greater lot coverage and increased areas of impermeability are more likely. Increased impermeability can create increased negative impacts associated with poor stormwater management, such as flooding. Additionally, impacts related to climate change are resulting in more intense weather events, which often highlight poor stormwater management.

Municipal Council recently adopted Policy BDS-03006 Storm Water Management that enables Development Officers to request stormwater management plans for developments that are expected to have development densities that are higher than those traditionally seen within the Municipality. An

amendment to the Land Use By-law is required to ensure a complete list of requirements is available to the public in preparation for submitting an application for a development permit.

7. SUMMARY OF AMENDMENT

A summary of the proposed amendments outlined in this report are as follows:

- Amendments to the text of the Land Use By-law to permit up to two secondary suites in Residential One Unit (R1) Zone, thus allowing up to 4 units per approved residential lot.
- Amendments to the definition of “Secondary Suite” to reflect proposed amendments to Residential One Unit (R1) Zone and compatibility with other legislation.
- Amendment to section 16 of the LUB to include stormwater management plans to the list of requirements for submission of materials for a development permit.

A copy of the draft amendments is provided in Appendix A of this report.

8. CONCLUSION

The proposed text amendments will modestly increase lot developability within Growth Centres, concentrating housing density in areas with existing municipal infrastructure. This supports housing needs while protecting agricultural land, expanding rental stock, and improving affordability. The Secondary Suite amendments align with municipal policies to increase density and affordability. They also fulfill the Municipality’s federal funding agreement with CMHC, requiring at least four residential units as-of-right per urban residential lot. The proposed amendments align with the general amendment criteria and the residential and housing objectives outlined in the Municipal Planning Strategy. As a result, Staff are forwarding a positive recommendation.

Appendix A – DRAFT AMENDMENTS

Proposed Land Use By-law Text Amendment (By-law 106)

THE MUNICIPALITY OF THE COUNTY OF KINGS

AMENDMENT TO BY-LAW 106

COUNTY OF KINGS LAND USE BY-LAW

Land Use By-law Text Amendment to permit up to two secondary suites within a one unit dwelling in the Residential One Unit (R1) Zone.

BY-LAW 106 Land Use By-law

1. Amend sections 4.3.4.1, 16.1 and Section 17 Secondary Suite definition of the Land Use By-Law in accordance with the with the following:

Delete section 4.3.4.1 and replace with:

4.3.4.1 Secondary Suites

Up to two secondary suites are permitted within a one unit dwelling subject to the conditions noted below.

- (a) Any exterior entrance to the secondary suite(s) shall be located on the side (excluding flankage) or rear of the one unit dwelling.
- (b) The exterior of the one unit dwelling shall be compatible with the existing design, style and materials of other one unit dwellings in the neighbourhood.
- (c) A one unit dwelling with two secondary suites shall not be considered a multi-unit dwelling.

Add section 16.1.2:

16.1.2 In addition to the requirements of 16.1.1, a stormwater management plan prepared by a Professional Engineer licensed to practice in the province of Nova Scotia and consistent with the Municipal Specifications may be requested by the Development Officer as part of the development permit application materials.

Section 17: Secondary Suite (definition)

- **Secondary Suite** means a self-contained subordinate residential unit that is located within a one unit dwelling as an independent and separate housekeeping unit in which a kitchen, sleeping and sanitary facilities are provided for the exclusive use of such individual(s).

Municipality of the County of Kings

Report to the Planning Advisory Committee

Application for a development agreement to legalise and permit the expansion of a sheet metal shop (Professional Trades) at 808 Main Street (PID 55122170), Kingston

(File #25-03)

June 10, 2025

Prepared by: Planning Services

Applicant	Warren Armstrong
Land Owner	H.E. Armstrong Mechanical Limited
Proposal	Development Agreement to legalise and permit the expansion of a sheet metal shop
Location	808 Main Street (PID 55122170), Kingston
Lot Area	9,687 square feet
Designation	Commercial
Zone	General Commercial (C1) Zone
Surrounding Uses	Commercial uses
Neighbour Notification	23 notification letters were sent to property owners within 500 feet of the subject property.

1. PROPOSAL

Warren Armstrong of H.E. Armstrong Mechanical Limited has submitted an application for a development agreement for the property located at 808 Main Street (PID 55122170), Kingston. The property is currently developed with a sheet metal shop, which is an illegal use in a non-conforming structure. The proposed development agreement seeks to legalise the use and permit the expansion of the use and the structure.

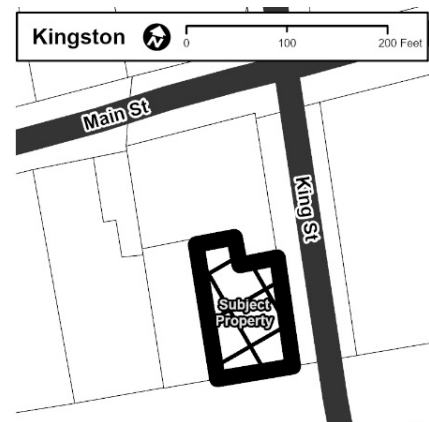


Figure 1: Subject property

2. OPTIONS

In response to the application, the Planning Advisory Committee may:

- Recommend that Council approve the development agreement as drafted;
- Provide alternative direction, such as requesting further information on a specific topic, or recommending changes to the draft development agreement;

- C. Recommend that Council refuse the development agreement as drafted.

3. STAFF RECOMMENDATION

Staff recommend that the Planning Advisory Committee forward a positive recommendation by passing the following motion.

The Planning Advisory Committee recommends that Municipal Council give Initial Consideration to and hold a Public Hearing regarding entering into a Development Agreement to legalise and permit the expansion of a Professional Trade on the property located at 808 Main Street (PID 55122170), Kingston which is substantively the same (save for minor differences in form) as the draft set out in Appendix E of the report dated June 10, 2025.

4. BACKGROUND

The subject property currently has a sheet metal shop (classified as Professional Trades under the Land Use By-law), with two trailers used for storage and a vacant sea can (previously used for storage) located south of the shop. The applicant intends to remove the trailers and the sea can and extend the shop's southern portion to accommodate storage within the building.

The building has existed on the property for many years, as confirmed by a 1979 survey plan (see Appendix B). Municipal records from 1992 and 1995 indicate the building was used for moving and storage. The applicant purchased the subject property in 1999 and established the sheet metal shop within the building in 2001; however, the Municipality has no records of permits for the shop, indicating it is an illegal use. The property is currently located within the General Commercial (C1) Zone. The Land Use By-law classifies sheet metal shops as professional trades, and professional trades are a permitted use within the General Commercial (C1) Zone, subject to the requirement of a minimum of 50 feet frontage on a public road. The property is currently accessed via King Street, which is a private right-of-way, and the property does not have frontage on a public road, thereby prohibiting the use from being considered as-of-right.



Figure 2: Sheet metal shop



Figure 3: Trailers used for storage and the sea can

Additionally, the building is a non-conforming structure. A non-conforming structure is defined as a structure that met the requirements of the Land Use By-law at the time of permitting, or predates by-law regulations, but does not meet the lot requirements of the zone under the in-force Land Use By-law. Given the location of the building along the old rail corridor, the building was an old railway building, which predates the 1979 Land Use By-law. As a result, when new planning documents were adopted in 2019, the structure did not meet some of the new requirements. The General Commercial (C1) Zone requires a minimum side setback of 10 feet (20 feet for buildings abutting a residential zone) and 20 feet of rear and front setbacks. In this case, the lack of public road frontage makes it impossible to determine the property's front, side, or rear lot lines. Furthermore, the existing setbacks on the northern, western, and part of the eastern sides are less than the required minimums. And the proposed expansion would further reduce the existing building setbacks.



Figure 4: Aerial view

Given the above factors, the proposed development agreement seeks to legalise the use and permit the expansion of the use and the structure.

5. SITE INFORMATION

On January 31, 2025, the planner on the file conducted a site visit. The subject property is located within the Growth Centre of Kingston and within the Village of Kingston. The property has an area of 9,687 square feet and lacks public road frontage. Access to the property is from Kings Street, a 66-foot right-of-way providing access to the property from Main Street. As mentioned above, the property has a sheet metal shop, along with two trailers and a sea can located to the south of the shop. The property is within the General Commercial (C1) Zone, which permits a variety of commercial uses. Neighbouring properties to the north, west, and east are within the same zone and are developed primarily with commercial uses. To the south, the property borders the Kingston Rail Trail and abuts lands zoned Comprehensive Neighbourhood Development (R5). This area includes a commercial use (within a former railway building) approved through a

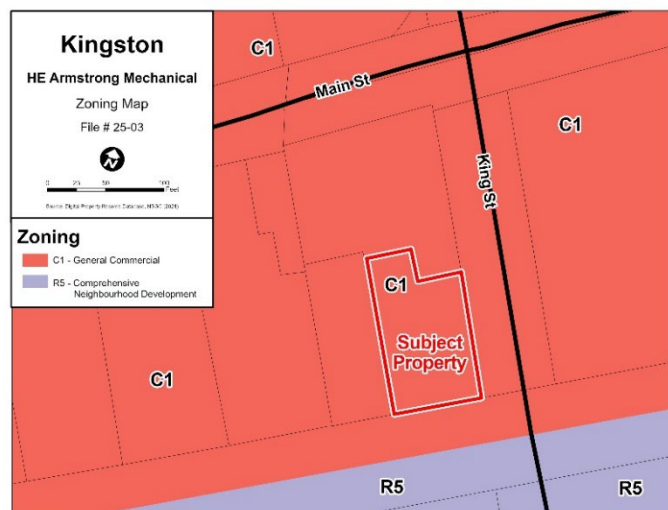


Figure 5 4: Zoning map

development agreement and residential dwellings, although most of the area remains undeveloped due to a lack of public road frontage and the need to cross the rail trail for access.

6. CONSULTATION WITH THE PUBLIC AND VILLAGE COMMISSION

Public Consultation: Under the Planning Policies of the Municipality of the County of Kings (PLAN-09-004), a Public Information Meeting (PIM) was required because the application is to enter into a new development agreement. A total of 23 property owners within 500 feet of the subject property were notified of the planning application and the associated meeting via letter mail. Advertisements were also placed on the Municipal website and social media sites a week before the meeting. The Public Information Meeting was held on March 6, 2025, at the Kingston Lions Club. The Planner's presentation was recorded the following day and posted on the municipal website, where it has been available for viewing since then.

There was no public attendance at the meeting. However, a Greenwood Village commissioner was present and expressed support for the application.

Consultation with the Village Commission: As part of the Staff review process, the application was presented to the Kingston Village Commission on April 9, 2025, for their feedback and comments. The Commissioners inquired about existing setbacks of the trailers and whether the proposed addition would align with those setbacks. They also inquired if the trailers would be removed once the expansion is developed and whether they would be permitted to remain on the property afterwards. A discussion around the use of the trailers and sea can, essentially as accessory buildings, occurred. At that time, it had not been determined what the terms of the development agreement would be. As part of the Staff review, it was determined that accessory buildings or uses would not be appropriate on the subject property.

7. POLICY REVIEW

7.1 Land Use By-Law

In order for Council to be able to consider a development agreement, the Municipal Government Act ('MGA') requires that this ability be outlined within the Land Use By-law (LUB). Section 5.3.5 of the LUB states that,

Section 5.3.5 Uses considered by Development Agreement

Pursuant to the Municipal Planning Strategy, the uses noted below may be considered by Development Agreement within the General Commercial (C1) Zone:

(d) Uses compatible with the purpose of the General Commercial (C1) Zone that do not otherwise meet the requirements of the zone in accordance with policy 3.2.9 of the Municipal Planning Strategy.

7.2 Enabling Policy

Policy 3.2.9 of the Municipal Planning Strategy (MPS) enables Council to consider entering into a development agreement for proposals for commercial development that are not otherwise permitted or cannot meet applicable zone standards. The policy states:

Council shall

Policy 3.2.9 *consider only by development agreement in all commercial zones, proposals for commercial, industrial, mixed use, and residential developments that are not otherwise permitted or cannot meet applicable commercial zone standards. In evaluating such development agreements, Council shall be satisfied that:*

(a) the condition(s) that prevents the proposal from being permitted as-of-right in the designation is addressed by the development agreement including but not limited to enhanced buffering and the positioning and design of buildings and structures;

The property is located within the General Commercial (C1) Zone, and sheet metal shops (classified as professional trades in the LUB) are a permitted use within the zone. However, the shop, as described in section 4 is an illegal use which is proposed to be legalised through the proposed development agreement. The development agreement also seeks to permit the proposed expansion of the use and the structure for storage. As the expansion would replace existing trailers and a sea can, enhancing the property's visual appeal, and given that the proposed expansion's design is similar to the existing structure (as shown in Appendix C), no additional requirements for buffers, building design, or structures are included.

(b) if the proposal is for a residential use or mixed use, Council shall be satisfied that:

- I. the residential component of the proposal has a compact built form and does not consist of low-density housing forms including, but not limited to, one and two unit dwellings or grouped dwellings;*
- II. the proposal is oriented to the street and contributes to a vibrant and active streetscape;*
- III. the proposal incorporates pedestrian friendly features into the design including pedestrian-oriented entrances, canopies, walkways, planters, amenities and/or facades; and*

Criterion b is not applicable to this proposal, as the proposal is for a commercial use.

(c) the proposal meets the general development agreement criteria set out in section 5.3 Development Agreements and Amending the Land Use By-law.

This is discussed in section 7.3 below and reviewed in detail in Appendix D.

7.3 General Policies

Section 5.3.7 of the Municipal Planning Strategy (By-law #105) contains various criteria to be used when assessing a planning application. These criteria consider the impact of the proposal on the road network, services, development pattern, environment, finances, and wellfields, as well as the proposal's consistency with the intent of the Municipal Planning Strategy. There are no costs to the Municipality because of the proposed development, and the development is compatible with the surrounding land uses. There are adequate services to support the development. These criteria are reviewed in detail in Appendix D.

8. SUMMARY OF DRAFT DEVELOPMENT AGREEMENT

The draft development agreement has been attached as Appendix E to this report. The main contents of the agreement are as follows:

- Enables the development of uses permitted in the underlying zoning within the existing building and the proposed building addition
- Enables the building to be rebuilt in the same location and footprint
- Requires the removal of the existing trailers and the sea can

9. CONCLUSION

The proposed development agreement seeks to legalise and permit the expansion of the sheet metal shop (professional trades), which is not anticipated to have any significant impacts on the surrounding neighbourhood. The proposal is in keeping with the intent of the Municipal Planning Strategy, including the general criteria for all development agreements. As a result, Staff are forwarding a positive recommendation to the Planning Advisory Committee.

10. APPENDICES

Appendix A – Future Land Use Map

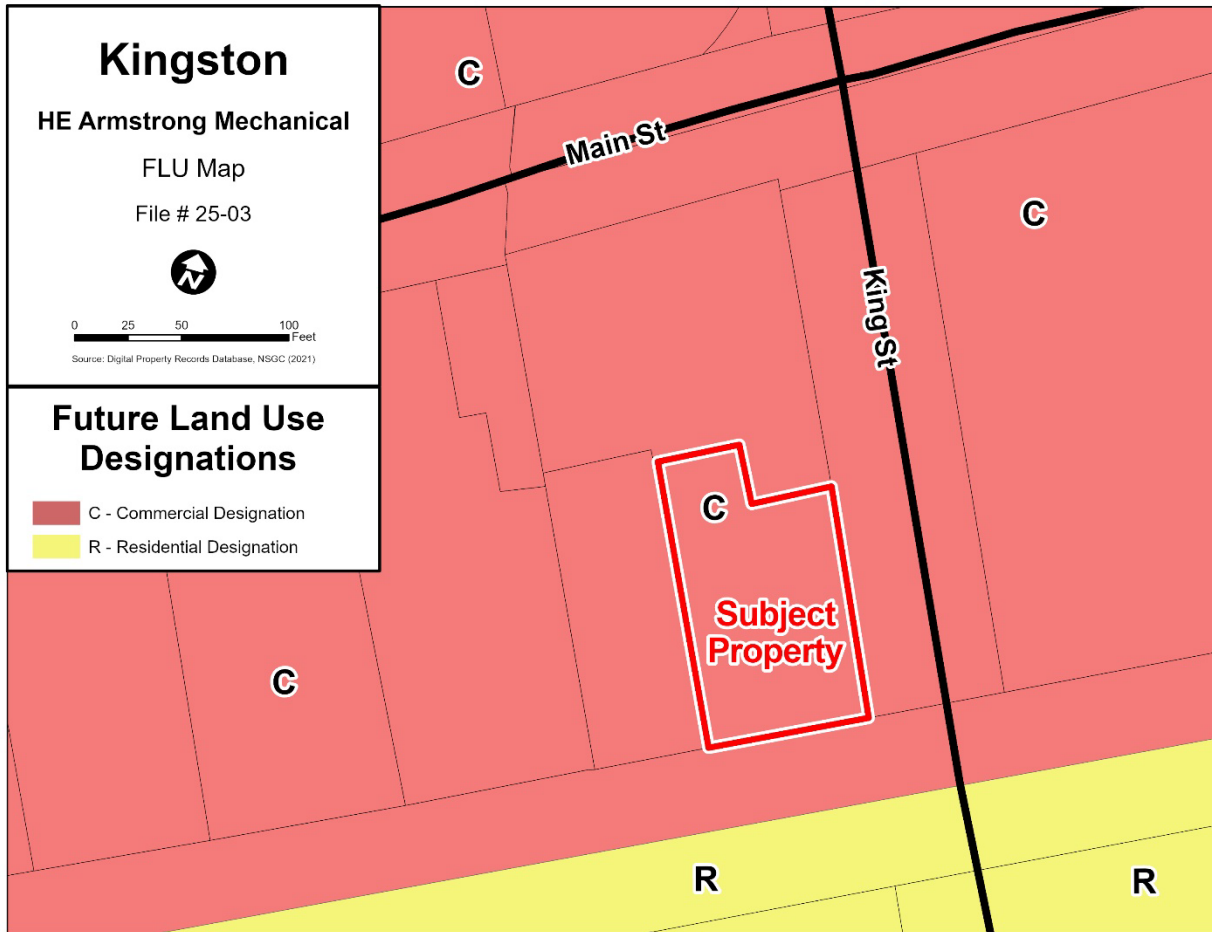
Appendix B – Survey Plan 1979

Appendix C – Rendered View of the Proposed Expansion

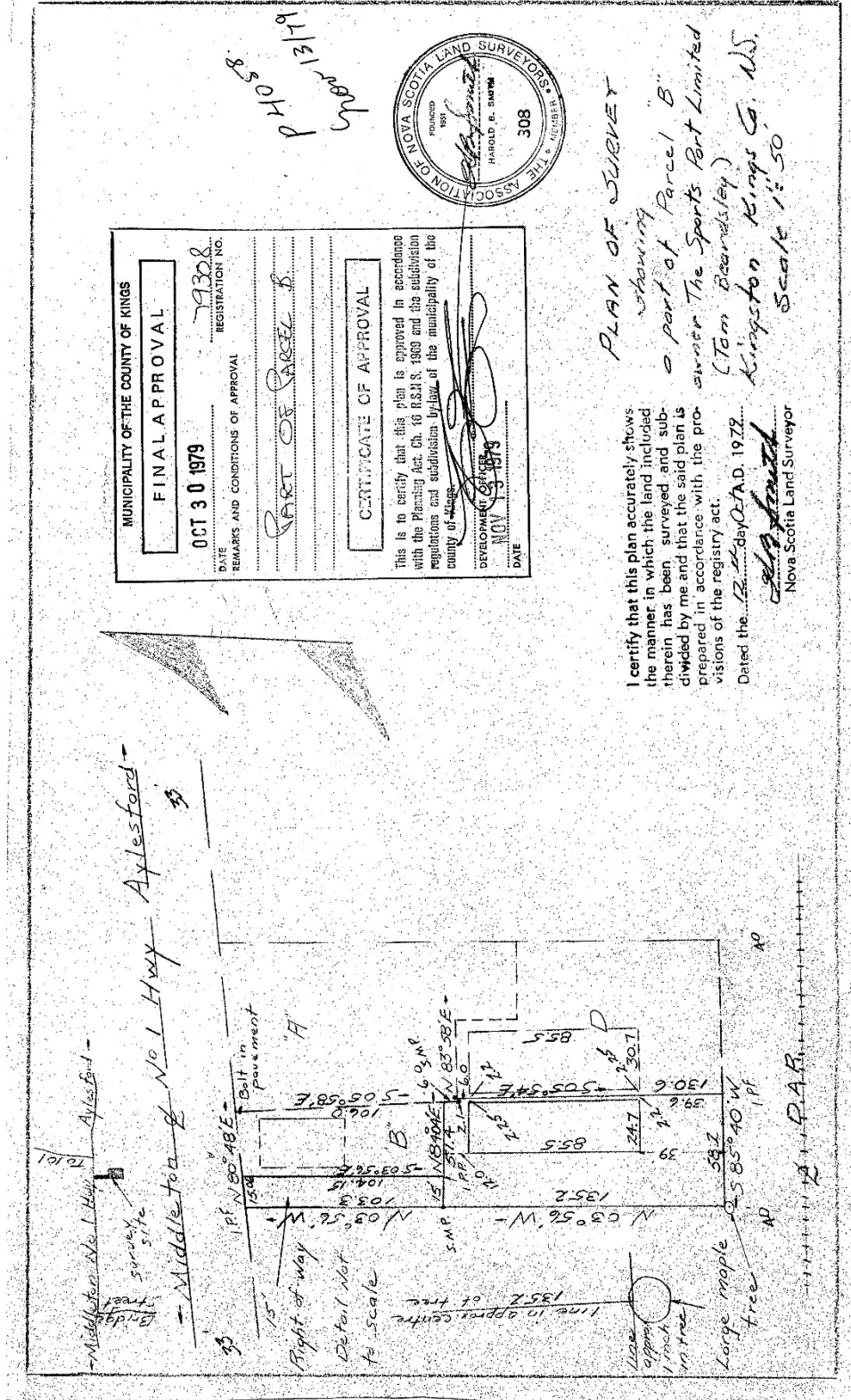
Appendix D – General Criteria for Development Agreements and Amending the Land Use By-Law

Appendix E - Draft Development Agreement

Appendix A
Future Land Use Map



Appendix B
Survey Plan 1979



Appendix C
Rendered View of the Proposed Addition



Appendix D

General Criteria

General Development Agreement Criteria Policy 5.3.7 Council expects to receive applications to amend the Land Use By-law or enter into a development agreement for development that is not permitted as-of-right in the Land Use By-law. Council has established criteria to ensure the proposal is appropriate and consistent with the intent of this Strategy. Council shall be satisfied that a proposal to amend the Land Use By-law or to enter into a development agreement:

Criteria	Comments
<i>a. is consistent with the intent of this Municipal Planning Strategy, including the Vision Statements, relevant goals, objectives and policies, and any applicable goals, objectives and policies contained within a Secondary Plan;</i>	The proposed development agreement is consistent with the intent of the Municipal Planning Strategy and the applicable goals, objectives and policies contained within the Municipal Planning Strategy.
<i>b. is not in conflict with any Municipal or Provincial programs, By-laws, or regulations in effect in the Municipality;</i>	The proposal is not in conflict with any Municipal or Provincial programs, By-laws, or regulations.
<i>c. that the proposal is not premature or inappropriate due to:</i>	
<i>i. the Municipal or village costs related to the proposal;</i>	The proposal does not involve any development costs to the Municipality.
<i>ii. land use compatibility with surrounding land uses;</i>	The proposed expansion for storage would replace the existing trailers currently used for storage and the sea can. The current use is compatible with the surrounding commercial uses.
<i>iii. the adequacy and proximity of school, recreation and other community facilities;</i>	Not applicable as no residential development is proposed.
<i>iv. the creation of any excessive traffic hazards or congestion due to road or pedestrian network adequacy within, adjacent to, and leading to the proposal;</i>	The proposal is not expected to generate additional traffic or issues related to access or egress.
<i>v. the adequacy of fire protection services and equipment;</i>	The Kingston Fire Chief has indicated that fire services and equipment are adequate to serve the proposal.
<i>vi. the adequacy of sewer and water services;</i>	The Village of Kingston has confirmed that the proposal will not impact its current sewer service.
<i>vii. the potential for creating flooding or serious drainage problems either within the area of development or nearby areas;</i>	The property owner will be required to submit a storm water management plan at the time of permitting.

<i>viii. negative impacts on identified wellfields or other groundwater supplies for the area;</i>	The property is not located within any identified wellfield protection overlay.
<i>ix. pollution, in the area, including but not limited to, soil erosion and siltation of watercourses; or</i>	Staff do not anticipate any issues.
<i>x. negative impacts on lake water quality or nearby wetlands;</i>	The property is not located within proximity to any lakes or wetlands.
<i>xi. negative impacts on neighbouring farm operations;</i>	There are no farms in proximity to the subject property.
<i>xii. the suitability of the site regarding grades, soils and geological conditions, location of watercourses, marshes, bogs and swamps, and proximity to utility rights-of-way.</i>	Staff do not anticipate any suitability issues related to grades, soils, geological conditions, or utility rights-of-way. There are no known watercourses, marshes, bogs or swamps within proximity.

Appendix E

Draft Development Agreement

THIS DEVELOPMENT AGREEMENT BETWEEN:

H.E. ARMSTRONG MECHANICAL LIMITED, of Kingston, Nova Scotia, hereinafter called the "Property Owner",

of the First Part

and

MUNICIPALITY OF THE COUNTY OF KINGS, a body corporate pursuant to the Municipal Government Act, S.N.S., 1998, Chapter 18, as amended, having its chief place of business at Coldbrook, Kings County, Nova Scotia, hereinafter called the "Municipality",

of the Second Part

WHEREAS the Property Owner is the owner of certain lands and premises (hereinafter called the "Property") which lands are more particularly described in Schedule A attached hereto and which are known as Property Identification (PID) Number 55122170; and

WHEREAS the Property Owner wishes to legalise a commercial use and expand the use and the structure on the Property; and

WHEREAS the Property is situated within an area designated Commercial on the Future Land Use Map of the Municipal Planning Strategy, and zoned General Commercial (C1) on the Zoning Map of the Land Use By-law; and

WHEREAS policy 3.2.9 of the Municipal Planning Strategy and section 5.3.5 (d) of the Land Use By-law provide that the proposed use may be developed only if authorized by development agreement; and

WHEREAS the Property Owner has requested that the Municipality of the County of Kings enter into this development agreement pursuant to Section 225 of the Municipal Government Act so that the Property Owner may develop and use the Property in the manner specified; and

WHEREAS the Municipality by resolution of Municipal Council approved this Development Agreement;

Now this Agreement witnesses that in consideration of covenants and agreements contained herein, the parties agree as follows:

PART 1 AGREEMENT CONTEXT

1.1 Schedules

The following attached schedules shall form part of this Agreement:

Schedule A Property Description

Schedule B Site Plan

1.2 Municipal Planning Strategy and Land Use By-law

- (a) *Municipal Planning Strategy* means By-law 105 of the Municipality, approved on March 5, 2020, as amended, or successor by-laws.
- (b) *Land Use By-law* means By-law 106 of the Municipality, approved on March 5, 2020, as amended, or successor by-laws.
- (c) *Subdivision By-law* means By-law 60 of the Municipality, approved September 5, 1995, as amended, or successor by-laws.

1.3 Definitions

Unless otherwise defined in this Agreement, all words used herein shall have the same meaning as defined in the Land Use By-law unless the context clearly indicates otherwise. Words not defined in the Land Use By-law but defined herein are:

- (a) *Development Officer* means the Development Officer appointed by the Council of the Municipality.

PART 2 DEVELOPMENT REQUIREMENTS

2.1 Use

That the Parties agree that the Property shall be limited to the following uses:

- (a) Uses permitted within the underlying zone within the areas identified on Schedule B -Site Plan as Existing Building and Proposed Building Addition.

Except as otherwise provided in this Agreement, the provisions of the Land Use By-law apply to any development undertaken pursuant to this Agreement.

2.2 Site Plan

The development enabled by this Agreement on the Property shall be developed in general conformity with Schedule B - Site Plan. The dimensions of the portion of the building identified

as Proposed Building Addition on Schedule B - Site Plan may be varied, provided the following is maintained:

- (a) Setbacks are not permitted to be further reduced where required setbacks of the underlying zone are not met; and
- (b) A minimum 10 foot setback from the eastern property boundary (abutting Kings Street) and 20 foot setback from the southern boundary (abutting rail trail) shall be maintained.
- (c) No further development, including expansions or accessory structures, shall be permitted on the Property.

2.3 Appearance of Property

The Property Owner shall at all times maintain all structures and services on the Property in good repair and a useable state and maintain the Property in a neat and presentable condition.

2.4 Subdivision

No alterations to the lot configuration that would result in a reduced lot area are permitted.

2.5 Replacement

Should the building containing the use enabled in section 2.1 be destroyed, it shall be permitted to be rebuilt in general conformity with Schedule B - Site Plan and shall be subject to the height requirements of the underlying zone.

2.6 Erosion and Sedimentation Control

- (a) At the time of application for a development and/or building permit, the property owner shall submit a stormwater management plan demonstrating that post-construction surface drainage does not negatively impact adjacent properties.
- (b) During any site preparation, construction activities or demolition activities of a structure or parking area, all exposed soil shall be stabilized immediately and all silt and sediment shall be contained within the site according to the practices outlined in the Department of Environment *Erosion and Sedimentation Control Handbook for Construction*, or any successor documents, so as to effectively control erosion of the soil.

2.7 Vegetation

Any portion of the property not covered by buildings or parking areas shall be landscaped with a mixture of grass, flower beds, shrubs, trees or other permeable surfaces.

2.8 Lighting

The Property Owner shall ensure that any exterior lights used for illumination of the Property shall be arranged so as to divert light downwards and away from streets and neighbouring properties.

2.9 Servicing

The Property Owner shall be responsible for providing adequate water services and wastewater disposal services to the standards of the authority having jurisdiction and at the Property Owner's expense.

2.10 Outdoor Storage

Outdoor storage and the use of truck trailers or shipping containers as storage shall be prohibited on the property.

PART 3 CHANGES AND DISCHARGE

3.1 Any matters in this Agreement which are not specified in Subsection 3.2 below are not substantive matters and may be changed by Council without a public hearing.

3.2 The following matters are substantive matters

- (a) the uses permitted on the property as listed in Section 2.1 of this Agreement;
- (b) development that would result in any change to Schedule B - Site Plan for uses specifically enabled by this Agreement.

Uses and structures permitted by the underlying zoning on the Property shall not require any amendment to this Agreement.

3.3 Upon conveyance of land by the Property Owner to either:

- (a) the road authority for the purpose of creating or expanding a public street over the Property; or
- (b) the Municipality for the purpose of creating or expanding open space within the Property;

registration of the deed reflecting the conveyance shall be conclusive evidence that this Agreement shall be discharged as it relates to the public street or open space, as the case may be, as of the date of registration with the Land Registry Office but this Agreement shall remain in full force and effect for all remaining portions of the Property.

3.4 Notwithstanding the foregoing, discharge of this Agreement is not a substantive matter and this Agreement may be discharged by the Chief Administrative Officer (CAO) at the request of the Property Owner without a public hearing.

3.5 Notice of Intent to discharge this Agreement may be given by the Municipality to the Property Owner following the receipt of approval by the Chief Administrative Officer to give such Notice:

- (a) at the discretion of the Municipality, with or without the concurrence of the Property Owner, where the Development has, in the reasonable opinion of the Chief

Administrative Officer on advice from the Development Officer, ceased operation for a period of at least twenty-four (24) months; or,

- (b) at any time upon the written request of the Property Owner, provided the use of the Property is in accordance with the Land Use By-law or a new Agreement has been entered into.

3.6 This Agreement may be discharged thirty (30) days after a Notice of Intent to Discharge has been given. Notwithstanding any other provision of this Agreement, the discharge of this Agreement is not a substantive matter and this Agreement may be discharged by the Chief Administrative Officer (CAO) without a Public Hearing.

PART 4 IMPLEMENTATION

4.1 Commencement of Operation

No construction or use may be commenced on the Property until the Municipality has issued any Development Permits, Building Permits and/or Occupancy Permits that may be required.

4.2 Completion and Expiry Date

- (a) The Property Owner shall sign this Agreement within 60 days from the date the appeal period lapses or all appeals have been abandoned or disposed of or the development agreement has been affirmed by the Nova Scotia Regulatory and Appeals Board or the unexecuted Agreement shall be null and void;
- (b) Development as provided in Part 2 of this Agreement shall commence not later than twenty-four (24) months from the date this Agreement is signed. If, in the opinion of the Development Officer, this time limit has not been met, this Agreement may be discharged at the option of the Municipality in accordance with Section 229 of the Municipal Government Act thirty (30) days after giving Notice of Intent to Discharge to the Property Owner.
- (c) Upon the written request of the Property Owner, the Development Officer, at their sole discretion, may grant an extension for a period of time they deem appropriate.
- (d) The Property Owner shall be in complete compliance with all other provisions of this Agreement within six (6) months of Final Inspection for the uses enabled by this Agreement in section 2.1.

PART 5 COMPLIANCE

5.1 Compliance with Other By-laws and Regulations

- (a) Nothing in this Agreement shall exempt the Property Owner from complying with Federal, Provincial and Municipal laws, by-laws and regulations in force or from obtaining any Federal, Provincial, or Municipal license, permission, permit, authority or approval required thereunder.

- (b) Where the provisions of this Agreement conflict with those of any by-law of the Municipality applicable to the Property (other than the Land Use By-law to the extent varied by this Agreement) or any statute or regulation, the higher or more stringent requirements shall prevail.

5.2 Municipal Responsibility

The Municipality does not make any representations to the Property Owner about the suitability of the Property for the development proposed by this Agreement. The Property owner assumes all risks and must ensure that any proposed development complies with this Agreement and all other laws pertaining to the development.

5.3 Warranties by Property Owner

The Property Owner warrants as follows:

- (a) The Property Owner has good title in fee simple to the Lands or good beneficial title subject to a normal financing encumbrance, or is the sole holder of a Registered Interest in the Lands. No other entity has an interest in the Lands which would require their signature on this Development Agreement to validly bind the Lands or the Property Owner has obtained the approval of every other entity which has an interest in the Lands whose authorization is required for the Property Owner to sign the Development Agreement to validly bind the Lands.
- (b) The Property Owner has taken all steps necessary to, and it has full authority to, enter this Development Agreement.

5.4 Onus for Compliance on Property Owner

Any failure of the Municipality to insist upon a strict performance of any requirements or conditions contained in this Agreement shall not be deemed a waiver of any rights or remedies that the Municipality may have and shall not be deemed a waiver of any subsequent breach or default in the conditions or requirements contained in this Agreement.

5.5 Breach of Terms or Conditions

Upon breach of any term or condition of this Agreement, the Municipality may notify the Property Owner in writing. In the event that the Property Owner has not cured any such breach or entered into arrangements with the Municipality related to such breach to the Municipality's satisfaction, acting reasonably, within six (6) months of such notice then the Municipality may rely upon the remedies contained in Section 264 of the *Municipal Government Act* and may enter the land and perform any of the terms contained in the Development Agreement, or take such remedial action as is considered necessary to correct a breach of the Agreement, including the removal or destruction of anything that contravenes the terms of the Agreement and including decommissioning the site. It is agreed that all reasonable expenses, whether arising out of the entry on the land or from the performance of the terms, are a first lien on the land that is the subject of the Development Agreement.

5.6 Development Agreement Bound to Land

This Agreement shall be binding upon the parties hereto and their heirs, executors, administrators, successors and assigns, and shall run with the land which is the subject of this Agreement until such time as it is discharged by the Municipality in accordance with Section 229 of the Municipal Government Act.

5.7 Assignment of Agreement

The Property Owner may, at any time and from time to time, transfer or assign this Agreement and its rights hereunder and may delegate its obligations hereunder to an assign, successor, heir, or purchaser of the land bound by this Agreement.

5.8 Costs

The Property Owner is responsible for all costs associated with recording this Agreement in the Registry of Deeds or Land Registration Office, as applicable, and all costs of advertising for and recording of any amendments.

5.9 Full Agreement

This Agreement constitutes the entire agreement and contract entered into by the Municipality and the Property Owner. No other agreement or representation, oral or written, shall be binding.

5.10 Severability of Provisions

The provisions of this Agreement are severable from one another and the invalidity or unenforceability of one provision shall not affect the validity or enforceability of any other provision.

5.11 Interpretation

- (a) Where the context requires, the singular shall include the plural, and the use of words in one gender shall include all genders as circumstances warrant;
- (b) Where the written text of this Agreement conflicts with information provided in the Schedules attached to this Agreement, the written text of this Agreement shall prevail.
- (c) References to particular sections of statutes and bylaws shall be deemed to be references to any successor legislation and bylaws even if the content has been amended, unless the context otherwise requires.

THIS AGREEMENT shall enure to the benefit of and be binding upon the parties hereto, their respective agents, successors and assigns.

IN WITNESS WHEREOF this Agreement was properly executed by the respective parties hereto and is effective as of the day and year first above written.

SIGNED, SEALED AND ATTESTED to be the proper designing officers of the Municipality of the County of Kings, duly authorized on that behalf, in the presence of:

MUNICIPALITY OF THE COUNTY OF KINGS

Witness

David L. Corkum, Mayor

Date

Witness

Janny Postema, Municipal Clerk

Date

SIGNED, SEALED AND DELIVERED

H. E. ARMSTRONG MECHANICAL LIMITED

In the presence of:

Witness

Warren Armstrong

Date

Witness

Suzanne Armstrong

Date

DRAFT

Schedule A – Property Description

(Source: Property Online (page 3 document number 2477), accessed on March 17, 2025)

SCHEDULE "A"

00038

ALL that certain lot, piece or parcel of land and premises situate, lying and being at Kingston, in the County of Kings, and Province of Nova Scotia, more particularly bounded and described as follows:

BEGINNING at a stake set in the north side line of lands of the Dominion Atlantic Railway where said north side line intersects the west side of a 66 foot right-of-way leading southerly from Provincial Highway No. 1; Thence South $85^{\circ} 48'$ West along the north side line of lands of the Dominion Atlantic Railway, 73.3 feet to a stake set in the southeast corner of lands previously conveyed or to be conveyed, to Sports Port Limited; Thence North $05^{\circ} 43'$ West along the west side line of said Sports Port Limited's lands, 130.5 feet or to a point in the southern side line of lands formerly of Frank Mailman; Thence North $83^{\circ} 58'$ East along the south side line of said Mailman lands, 38.7 feet to a corner bound of said Mailman lands; Thence South $06^{\circ} 14'$ East along the western side line of said Mailman lands, 28.4 feet to a corner bound of said Mailman lands; Thence

North $83^{\circ} 29'$ East along the south side line of said Mailman lands, 37.9 feet or to the west side line of said 66 foot right-of-way leading southerly from Provincial Highway No. 1; Thence South $03^{\circ} 50'$ East along the west side line of said 66 foot right-of-way, 104.5 feet or to the place of beginning.

TOGETHER WITH a right-of-way unto the Grantee in common with all others having the same right to and from the said described lands at all times and for all purposes, for all persons, animals and vehicles, over and along the road or right-of-way 66 feet wide, extending southerly from Provincial Highway No. 1 to lands of the Dominion Atlantic Railway.

BEING AND INTENDED TO BE Lot D as shown on a Plan of Survey showing lands of Mrs. Marguerite May Saunders prepared by H. B. Smith, N.S.L.S., dated the 6th day of August, 1974, and amended October, 1975.

AND BEING AND INTENDED TO BE those lands described as Parcel II in a Deed from Dickson Bros. Transfer Limited to Thompson Investments Limited by Deed dated April 28th, 1987 and recorded at the Registry of Deeds for the County of Kings on May 8th, 1987 in Book 697 at Page 849.

AND FURTHER BEING AND INTENDED TO BE the same lands conveyed from Thompson Investments Limited to Andrew Cleveland by Deed dated 7 February 1996 and recorded at the Registry of Deeds, Kentville, Nova Scotia, on 14 February 1996 in Book 1048 at Page 422.

S I T E P L A N

SITE PLAN SHOWING
PROPOSED BUILDING ADDITION
LOT "D"
PID 55122170
LANDS CONVEYED TO
H E ARMSTRONG MECHANICAL LTD.
KINGSTON
KINGS COUNTY

LOT "TDLG-97"
PID 55369193

SCALE 1:300
DATE: JAN 15, 2025
PLAN No. 2024-463 Site Plan2

POLE STAKE	PS	⊞
ANCHOR STAKE	AS	↓
SURVEY MARKER	SM	○
IRON PIPE	IP	○
MANHOLE	MH	○
FOUND	FD	○
UTILITY POLE	UP	⊙
OVERHEAD WIRES		—
NOT TO SCALE		—
FIELD MEASUREMENT	F	—
PLAN MEASUREMENT	P	—
DEED MEASUREMENT	D	—

DeWOLFE & MORSE
SURVEYING LIMITED

PO BOX 520
MIDDLETON
NOVA SCOTIA
B0S 1P0

