

## Subdivision and Development Appeal Board

Electoral Division:	5 File: PRDP20223151
Date:	July 11, 2025
Presenter:	Jeevan Wareh, Development Officer
Subject:	Dwelling, Manufactured – with Variances

#### **EXECUTIVE SUMMARY**

The subject application PRDP20223151 was previously presented to the Subdivision Development and Appeal Board (SDAB) on December 15, 2022, for an appeal submitted by the landowner in respect to the prior to release conditions of approval in relation to the subject application. On December 30, 2022, Board Order 2022-SDAB-019 was issued, which overturned the decision of the Development Authority, and refused the application in its entirety. The landowner subsequently appealed the decision of the Board to the Court of Appeal of Alberta, who then ruled on February 5, 2025, that the Board's decision be quashed, and that the matter be remitted back to the Board for reconsideration.

The application is for the construction of a Dwelling, Manufactured, which is listed as a discretionary use under the Agricultural, General District (A-GEN). The subject parcel is undeveloped with no buildings/structures currently erected. The applicant is requesting a variance to the minimum side yard setback requirement from 45.00 m (147.34 ft.) to 15.51 m (50.89 ft.), a variance of 66 percent, from the northern property line. Administration is supportive of this variance request given the reasons provided through dialogue with the applicant.

Through the file circulation process, Administration received comments from Canadian National Railway (CN), which can be found in Attachment 'B' of this report. Among the several recommendations made by CN, a minimum building setback of 30.00 m (98.43 ft.) from Railway Plan RW 31 (the southern property line) was requested. CN advised Administration that the recommendation was due to health and safety concerns in the event of a train derailment.

The applicant communicated to Administration that they would face challenges with revising the building setback and they did not agree with the condition, as it was not a requirement as per *Land Use Bylaw C-8000-2020* (LUB).

Although the minimum building setback requirement of 30.00 m (98.43 ft.) from the southern property line is not a requirement in the LUB, it is Administration's position that the recommended setback from CN serves a valid planning objective as it directly relates to the health safety of the proposed dwelling and its occupants. Administration does not sub-delegate the Development Authority's discretionary powers; therefore, this requirement was identified as an important condition of approval in accordance with Section 100 b) of the LUB allowing the Development Authority ability impose conditions as deemed appropriate, so long as they serve a legitimate planning objective for a discretionary use.

#### **ADMINISTRATION DECISION**

Approval, subject to conditions



#### **OVERVIEW**

Applicant	Landry, Regina
Landowner	Landry, Regina
Subject Site(s)	280003 RANGE ROAD 262
Land Use District	Agricultural, General District (A-GEN)
Site Area	1.82 hectares (4.50 acres)
Proposal	Construction of a Dwelling, Manufactured, with variances
Surrounding Uses	Agricultural and Residential
Applicable Regulations	Land Use Bylaw C-8000-2020, Municipal Development Plan (County Plan), County Servicing Standards

#### SITE MAPS

## Figure 1 – Site Location (Regional Context)





#### Figure 2 – Site Plan (Intended Use Areas)



#### POLICY/LAND USE BYLAW REVIEW

#### Land Use Bylaw C-8000-2020 (LUB):

"Dwelling, Manufactured" means a detached Dwelling Unit consisting of a transportable dwelling that is designed and built to CAN/CSA Standard, to be moved, from one point to another as a single unit, and which is upon its arrival at the site where it is to be located, ready for occupancy except for incidental building operations such as connection to utilities. A Dwelling, Manufactured shall have a minimum GFA of 37.10 m2 (399.34 ft2).

• Proposed dwelling is a Ready-To-Move (RTM) Home, which is a transportable dwelling, and meets and exceeds the minimum Gross Floor Area (GFA) requirement of 37.19 sq. m (399.34 sq. ft.). Therefore, the subject development meets the definition of the applied-for use, as defined in Part 8 of the LUB.

#### A-GEN Agricultural, General District:

- 303) PURPOSE: To provide for agricultural activities as the primary use on a Quarter Section of land or larger or on large remnant parcels from a previous subdivision, or to provide for residential and associated minor agricultural pursuits on a small first parcel out.
  - Subject application is for the construction of a dwelling, therefore a residential use. In turn, the proposed development is consistent with the purpose and intent of the A-GEN district.
- 304) DISCRETIONARY USES: Dwelling, Manufactured
  - Subject application is for a Dwelling, Manufactured, which is listed as a discretionary use under the A-GEN district; Development Permit is required.

#### 305) MINIMUM PARCEL SIZE:

• Subject parcel was not formally subdivided out from remainder of quarter section via an approved subdivision, but rather physically separated via the registration of the two adjacent rail rights-of-way (ROW). Subject parcel is not an unsubdivided quarter section nor a first



parcel out, however in essence the parcel does not the minimum parcel size of A-GEN district. No issues/concerns noted.

#### 306) MAXIMUM DENSITY:

- a) On parcels less than 32.4 ha (80.0 ac), a maximum of two Dwelling Units one Dwelling, Single Detached and one other Dwelling Unit where the other Dwelling Unit is not a Dwelling, Single Detached
  - Subject parcel is currently undeveloped with no dwellings. Proposed dwelling unit is a Dwelling, Manufactured with no other dwellings (such as a secondary suite) proposed within. No issues/concerns noted in respect to maximum density.

#### 307) MAXIMUM BUILDING HEIGHT:

- a) Dwelling Units: 12.00 m (39.37 ft.)
  - Maximum: 12.00 m (39.37 ft.)
  - Proposed: Unclear on submitted building plans, however given the scale and nature of the dwelling, building height was not noted of concern during application review.

#### 308) MINIMUM SETBACKS:

- Front yard setback requirement: 45.00 m (147.64 ft.)
- Proposed front yard setback: 145.07 m (475.95 ft.)
- Side yard setback requirement (S1): 6.00 m (19.69 ft.)
- Proposed side yard setback (S1): 15.55 m (51.02 ft.)
- Side yard setback requirement (S2): 45.00 m (147.64 ft.)
- Proposed side yard setback (S2): 15.51 m (50.89 ft.)
- Rear yard setback requirement: 15.00 m (49.21 ft.)
- Proposed rear yard setback: 109.30 m (358.60 ft.)

#### 309) EXCEPTIONS:

- b) On parcels less than 4.0 ha (9.88 ac), the uses within the R-RUR District shall apply, and
  - Subject parcel is 1.82 hectares (4.50 acres) in area. *Dwelling, Manufactured* is listed as a discretionary use under Section 318) of the Residential, Rural District (R-RUR); therefore, a Development Permit is required.

#### Development Permit Conditions

#### CONDITIONS OF APPROVAL

#### 100) The Development Authority, in imposing conditions on a Development Permit may:

- a) For a Permitted Use, impose conditions only to ensure compliance with this Bylaw, or
- b) For a Discretionary Use, impose conditions as deemed appropriate, so long as they serve a legitimate planning objective and do not sub-delegate the Development Authority's discretionary powers.
  - Subject application is for a Dwelling, Manufactured, which is listed as a discretionary use under the A-GEN district. Prior to release conditions regarding minimum distancing of the dwelling from the adjacent southerly railway, along with the construction of a chain-link fence, have





been included within the approval to ensure safe occupancy of the dwelling and site. Although such requirements are not included within the LUB, Administration is of the opinion that such requirements serve a legitimate planning rationale (safety) and are not a form of subdelegation. Therefore, such conditions are deemed appropriate pursuant to this Section of the LUB.

#### **VARIANCE SUMMARY**

The variance was discussed, and direction was agreed upon at the County development team meeting; reflecting a collaborative team approach to decision making.

Variance	Requirement	Proposed/Approved	Percentage Approved (%)
LUB Section 308) Minimum Side Yard Setback Requirement	45.00 m (147.64 ft.)	15.51 m (50.89 ft.) / 3.00 m (9.84 ft.)	93.3%

#### DISCUSSION

The subject parcel abuts Range Road 262 to the east, Canadian National Railway (CN) corridor (Plan RW 31) to the south, an undeveloped open road allowance to the north (TWP RD 280), and a defunct Canadian Pacific Railway corridor (Plan RY 226) to the west, which is now a pedestrian walking/bicycle path owned by Alberta Trailnet Society.

Based on the location of the subject parcel and the surrounding road network, Administration does not expect the northerly road allowance to be developed in the foreseeable future. Therefore, a variance in respect to the property line shared with the road allowance does not appear to cause any issues/concerns/complications in the future.

The subject parcel is currently accessed via a dirt road approach off Range Road 262. The approach shall be required to be upgraded as part of conditions of approval. The dwelling is to be serviced via a new groundwater well and a new private sewage treatment system (septic field). The dwelling is a Ready-To-Move home (RTM), approximately 163.51 sq. m (1,760.00 sq. ft.) in area, to be constructed on a basement foundation along with an attached rear deck and double car garage.

As part of the circulation process, Administration received comments from Canadian National Railway (CN). The recommendations provided by CN are taken from the document titled *GUIDELINES for New Development in Proximity to Railway Operations*, dated May 2013. CN advised Administration of a number of recommendations including:

- 1) A minimum building setback of 30.00 m (98.43 ft.) from the Railway Plan RW 31;
- 2) Construction of a 2.50 m (8.20 ft.) high earthen berm; and
- 3) Construction of a 1.83 m (6.00 ft.) chain link fence along the entire length of the southern property line.

CN advised that the berm and building setback recommendations are due to safety concerns in the event of a train derailment, and the fencing recommendation is to prevent the risk of animals (pets/livestock) and/or people (mainly children) from travelling onto the railway tracks.

After concern was shared by the applicant regarding the increased costs of constructing the berm and fence, as well as setting the proposed dwelling unit back 30.00 m (98.43 ft.), Administration worked with CN to remove the berm condition, given the rural context of the site, the scale of the proposed development, and the extenuating circumstances of the applicant. However, it was Administration's



position that the building setback requirement and fencing shall remain as a minimum safety measure for the dwelling occupants, in respect to potential train derailments and preventing access to the CN train corridor.

Administration clarified to the applicant that although the above-mentioned requirement was not a formal regulation in the Land Use Bylaw C-8000-2020 or County Servicing Standards, they are seen to serve a valid planning rationale as they are directly related to the safety of the occupants of the parcel, which is a responsibility of Administration when approving new dwelling units. Administration also contacted Transport Canada and was advised that Section 24 of the Railway Safety Act does speak to construction/activities that may "constitute a threat to safe railway operations" but does not include regulations in respect to the safety of uses adjacent to active railways. Email correspondence from Transport Canada can be seen in Attachment 'B' of the report.

An on-site inspection of the subject parcel was conducted, and several photos were taken, most notably of: the active CN railway running west to east along the southern property line, the existing fence along the southern property line, the rail crossing to the southeast of the site traversing Range Road 262 (via a bridge), the existing dirt road approach off Range Road 262, the undeveloped road allowance to the north of the site, and the defunct Canadian Pacific Railway corridor (Plan RY 226) to the west.

It is to be noted that there are no active bylaw enforcement files on the subject parcel.

#### **A**TTACHMENTS

Attachment A: Development Permit Report Conditions Attachment B: Application Information

#### **A**PPROVALS

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#### ATTACHMENT A: DEVELOPMENT PERMIT REPORT CONDITIONS

#### **Description:**

- 1. That the construction of a Dwelling, Manufactured, may commence on the subject site, in accordance with the approved site plan, application, and drawings, as submitted by the applicant, as amended, and conditions of approval and includes:
  - i. That the minimum side yard setback requirement shall be relaxed from **45.00** (147.64 ft.) to 3.00 m (9.69 ft.).
  - ii. Ancillary works related to meet conditions of this permit.

#### **Prior to Release:**

- 2. That prior to release of this permit, the Applicant/Owner shall submit a revised site plan showing a minimum building setback from the south property line abutting Plan RW 31, of 30.00 m (98.43 ft.) to the proposed dwelling, manufactured. The plan shall also include:
  - i. The location of the required 1.83 m (6.00 ft.) high chain link or wood fence abutting the south property line. Fencing details shall also be submitted, included material type, sizing, dimensions, etcetera.
- 3. That prior to release of this permit, the Applicant/Owner shall contact County Road Operations with haul details for materials and equipment needed during construction/site development to confirm if Road Use Agreement or permits for any hauling along the County road system, or if an overweight/over dimension permit for travel on the County road system for the subject house move will be required, and to confirm the presence of County road ban restrictions.
  - i. The Applicant/Owner shall also discuss the required existing gravel approach alterations in accordance with the County's Servicing Standards. The approach shall be constructed to minimum standards to improve sightlines along Range Road 262.
  - ii. The Applicant/Owner shall submit a drawing showing the location of the "hidden approach" sign, located on the east side of Range Road 262 and south of Township Road 280.
  - iii. Written confirmation shall be received from County Road Operations confirming the status of this condition. Any required agreement or permits shall be obtained unless otherwise noted by County Road Operations

#### Prior to Building Occupancy:

- 4. That prior to building occupancy of the dwelling, the Applicant/Owner shall contact County Road Operations for a post-construction inspection of the upgraded approach for final acceptance, in accordance with the approved approach/sign drawing.
  - i. Written confirmation shall be received from County Road Operations confirming the acceptance of the approach.
- 5. That prior to building occupancy of the dwelling, the Applicant/Owner shall request an inspection from the County, to confirm that the required 1.83 m (6.00 ft.) high chain link fence along the south side property line abutting Plan RW 31 has been installed as per the approved plans.



#### Permanent:

- 6. That any plan, technical submission, agreement, matter, or understanding submitted and approved as part of the application, in response to a Prior to Release or Occupancy condition, shall be implemented and adhered to in perpetuity.
- 7. That there shall be no more than 2.00 m (6.56 ft.) of excavation and/or 1.00 m (3.28 ft.) of fill adjacent to or within 15.00 m (49.21 ft.) of the proposed building under construction, unless a separate Development Permit has been issued for additional fill.
- 8. That the dwelling shall not be used as a *Vacation Rental* or for commercial purposes at any time, unless approved by a Development Permit.
- 9. That there shall be a minimum of two (2) dedicated on-site parking stalls for the subject dwelling unit at all times.
- 10. That the Applicant/Owner shall take effective measures to control dust on the property so that dust originating therein shall not cause annoyance or become a nuisance to adjoining property owners and others in the vicinity of the area.
- 11. That no topsoil shall be removed from the site. All topsoil shall be retained on-site and shall be seeded after building construction is complete, as part of site restoration.
- 12. That the Applicant/Owner shall be responsible for rectifying any adverse effect on adjacent lands from drainage alteration, including stormwater implications from the proposed development. Post-development drainage shall not exceed pre-development drainage.
- 13. That any lot regrading and placement of material for driveway construction or development is not to direct any additional overland surface drainage nor negatively impact existing drainage patterns in County's road right-of-way of Range Road 262.
- 14. That if the development authorized by this Development Permit is not commenced with reasonable diligence within twelve (12) months from the date of issue and completed within twenty-four (24) months of the date of issue, the permit is deemed to be null and void, unless an extension to this permit shall first have been granted by the Development Officer.
- 15. That if this Development Permit is not issued by **January 31, 2026**, or the approved extension date, then this approval is null and void and the Development Permit shall not be issued.

#### Advisory:

- That a Building Permit and sub-trade permits shall be obtained from Building Services, prior to any construction taking place, using the appropriate checklist and application forms and include any requirements noted on the *Building Code Comments for Proposed Development notice, dated July 11, 2022.*
- That the Applicant/Owner implement basic mitigation measures in the dwelling design and construction in order to limit potential impacts from the railway, as per recommendations from Canadian National Railway Company (CN) to the County, dated June 28, 2022, and should include:
  - Provision for air-conditioning, allowing occupants to close windows during the warmer months;
  - Exterior cladding facing the railway achieving a minimum STC rating of 54 or equivalent, for example, masonry;
  - o Acoustically upgraded windows facing the railway with appropriate specifications;



- o Locating noise sensitive rooms away from the railway side; and
- Noise barrier and fencing for outdoor play areas.
- That it is the Applicant/Owner's responsibility to obtain and display a distinct municipal address in accordance with the County *Municipal Addressing Bylaw (Bylaw C-7562-2016)*, for each dwelling unit located on the subject site, to facilitate accurate emergency response. The municipal address for the subject dwelling unit is **280003 RGE RD 262**.
- That the County's Noise Control Bylaw C-8067-2020 shall be adhered to at all times.
- That during construction, all construction and building materials shall be maintained on-site in a neat and orderly manner. Any debris or garbage shall be stored/placed in garbage bins and disposed at an approved disposal facility.
- That there shall be adequate water and sanitary sewer servicing provided for the proposed dwelling unit.
- That there shall be adequate water servicing provided for the proposed dwelling unit, and it is the Applicant/Owner's responsibility to provide water quantity in accordance with the recommendations found in Module 2 of the document *"Water Wells That Last for Generations" published by Agriculture and Agri-Food Canada, Alberta Environment, Alberta Agriculture and Food.*
- That the site shall remain free of Regulated, Prohibited Noxious, Noxious, or Nuisance weeds and the site shall be maintained in accordance with the *Alberta Weed Control Act* [Statutes of *Alberta, 2008 Chapter W-5.1, December 7, 2023*].
- That the Applicant/Owner contact Canadian National Railway Company (CN) for the registration of an environmental easement on title in regard to operational noise and vibration emissions, originating from the active railway line on Plan RW 31, in favor of CN.
- That any other federal, provincial, or County permits, approvals, and/or compliances, are the sole responsibility of the Applicant/Owner.
  - i. That it is the responsibility of the Applicant/Owner to obtain all necessary Alberta Environment & Park *Water Act* approvals should the development impact any wetlands.



#### **ATTACHMENT B: APPLICATION INFORMATION**

APPLICANT:	<b>OWNER:</b>
Landry, Regina	Landry, Regina
DATE APPLICATION RECEIVED:	DATE DEEMED COMPLETE:
June 10, 2022	June 23, 2022
<b>GROSS AREA:</b>	LEGAL DESCRIPTION:
1.82 ha (4.50 ac)	NE-34-27-26-04

APPEAL BOARD: Subdivision and Development Appeal Board

#### **HISTORY**:

No building/planning history noted on the subject parcel.

#### **PUBLIC & AGENCY SUBMISSIONS:**

The application was circulated to seven adjacent landowners at time of the original Board hearings in 2022. At the time this report was prepared, zero letters were received in support or objection to the application, excepting the appeal.

**Exhibit 10 - Preliminary Submission -**





#### - PRDP20223151



## Site Aerial

#### **Development Proposal**

Construction of a dwelling, manufactured, relaxation to minimum side yard setback requirement





#### **Exhibit 10 - Preliminary Submission -**



#### **Exhibit 10 - Preliminary Submission -**



Existing road approach



Pedestrian walkway west of parcel



Undeveloped northern road allowance looking west

Applicant proposed location of dwelling



## Site Photos (Cont'd)

#### **Development Proposal**

Construction of a dwelling, manufactured, relaxation to minimum side yard setback requirement



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## Railway Plan RY 226 (Dated 1910)

#### **Development Proposal**

Construction of a dwelling, manufactured, relaxation to minimum side yard setback requirement



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## Railway Plan RW 31 (Dated 1913)

#### **Development Proposal**

Construction of a dwelling, manufactured, relaxation to minimum side yard setback requirement





Exhibit 10 - Preliminary Submission -







## Beiseker Derailment 2024

#### **Development Proposal**

Construction of a dwelling, manufactured, relaxation to minimum side yard setback requirement



## **Notice of Appeal**

Subdivision and Development Appeal Board Enforcement Appeal Committee

Appellant Informat	ion				
Name of Appellant(s)					
Regine Landry					
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Main Phone #	Alternate Phone	#	Email Address		
403-999-8748		marble@carbertwaite.co	m		
Site Information					
Municipal Address			Legal Land Description (lot, bloc	k, plan OR quarter-section-township-range-meridian)	
280003 RGE RD 262	2		NE-34-27-26-04		
Property Roll #		Developm	ent Permit, Subdivision Application,	or Enforcement Order #	
07134004		PRDP20	)223151		
Lam annealing: (chec	k one hox only)				
Development Au	thority Decision	Subdiv	ision Authority Decision	Decision of Enforcement Services	
	choncy beension	50501	Approval		
Conditions	of Approval		Conditions of Approval		
	of Approval		Refusal		
			Refusal		
<b>Reasons for Appeal</b>	(attach separate)	page if requ	ired)		
			Received by Legisla Intergovernmental August 30, 20	tive and Services 22	

This information is collected for Rocky View County's Subdivision and Development Appeal Board or Enforcement Appeal Committee under section 33(c) of the Freedom of Information and Protection of Privacy Act (FOIP Act) and will be used to process your appeal and create a public record of the appeal hearing. Your name, legal land description, street address, and reasons for appeal will be made available to the public in accordance with section 40(1)(c) of the FOIP Act. Your personal contact information, including your phone number and email address, will be redacted prior to your appeal being made available to the public. If you have questions regarding the collection or release of this information, please contact the Municipal Clerk at 403-230-1401.

August 30, 2022

Date

1 Appellant's Signature **CURTIS E. MARBLE** BARRISTER and SOLICITOR

Last updated: 2020 August 07

SCHEDULE "A"

### Rocky View Subdivision and Development Appeal Board

In the Matter of:

Appeal by Regine Landry against a decision of the Subdivision Authority of Rockyview County to place restrictions on the development of lands described as 280003 RGE RD 262

#### APPEAL REASONS OF THE APPELLANT REGINE LANDRY

Date: August 30, 2022

Submitted by Curtis E. Marble, Barrister and Solicitor

Agent for the Appellant, Regine Landry

#### SCHEDULE "A"

#### I. Introduction

- 1. The Appellant appeals to the Subdivision and Development Appeal Board (the "SDAB" or "Board") the conditions placed upon Development Permit #PRDP20223151, for the lands described as NE-34-27-26-04; (280003 RGE RD 262) (the "Lands"). This property is owned by the appellant, Regine Landry.
- 2. The Appellant submits that
  - (a) notwithstanding multiple inquiries to the appropriate municipal authorities, she had no proper notice of any requirement for the restrictions placed upon the lands;
  - (b) the restrictions placed on her lands are not reasonable and are not required by legislation; and
  - (c) such further and other grounds as the appellant may advise.

#### II. Background

- 3. The Lands were purchased by Regine Landry, Appellant, in 2009. These lands were purchased for the purpose of building a residence on the lands. At the time of the purchase, the Appellant received no information from the seller as to any special requirements for set-backs on the lands related to neighbouring roads, or the neighbouring CN railway (the "Railway"). The documents related to this transaction are attached hereto at **Appendix "A"**.
- 4. The Appellant approached Rocky View with respect to any development restrictions. A copy of the response received in 2021 indicating a requirement setback from the CN railway of 6 metres is attached hereto at Appendix "B". In reliance on this information, the Appellant prepared and submitted an application for a Development Permit.
- 5. On or about August 16, 2022, the Appellant received a Notice of Decision dated August 9, 2022 (the "Decision") with respect to Development Permit application PRDP2022231 (the "Application"). In the Application, the Appellant had applied for a Development Permit allowing the construction of a residence on the Lands. The Notice of Decision, while approving the construction of the residence, places certain restrictions on the Appellant's use of the Lands that render much of the land unusable by the Appellant.
- These conditions include, in particular, that a setback from the Railway of 30 metres is required.
- The impact of this restriction is a large portion of the lot is rendered unusuable for residential development because the developable area is reduced from approximately 4.5 to approximately 1.3 acres.
- 8. Given the above, the Appellant respectfully requests a variance of the required 30 metre setback from the Railway. The proposed development and setback variance does not materially interfere with the use, enjoyment and value of the adjacent properties and does not unduly impact the amenities of the neighbourhood.

#### SCHEDULE "A"

#### IV. Evidence and Arguments

- As indicated in the attached Appendix "A", the Appellant received no notice of any restrictions on development of the Lands.
- 10. The Appellant conducted further due diligence prior to submitting an application prior to submitting an application for a development, including to request, requesting confirmation of the required setbacks. As indicated in **Appendix "B"** the requested setback was only 6 metres. As late as 2021, there was still no indication of the extensive setback now being required by Rocky View County.
- 11. The Appellant has not been advised of any legislative or safety reasons requiring the 30 meter setback now being imposed. Imposing this setback is a significant prejudice to the Appellants use of the Lands.

#### V. Summary

- 12. It is the Appellant's position that there is no legislative or other requirement for the setback imposed by the Decision.
- 13. In accordance with the factual evidence, this condition should be removed.

#### VI. Conclusion

14. The Appellant respectfully requests that the condition of the setback from the rail line be removed.

Respectfully submitted on behalf of the Appellant,

CARBERT WAITE LLP

Curtis E. Marble, FCIArb.

Agents for the Appellant

cc: Appellant, by email.

# **APPENDIX "A"**

# Lirenman Peterson

BARRISTERS • SOLICITORS • NOTARIES Suite 300, Notre Dame Place, 255 – 17th Avenue SW, Calgary, Alberta T2S 2T8

Tel: (403) 245-0111 Fax: (403) 245-0115

May 7, 2010

Our file No. 93-639

Regina Landry

Dear Ms. Landry:

Re: Purchase of 4-28-27-34 N.E. County of Rocky View

Further to the above, we are enclosing the updated Certificate of Title showing that all the Vendors encumbrances have been discharged.

As this completes this matter we are now closing our file and trust you will find this to be in order. If we can be of any assistance to you in the future, please do not hesitate to contact the writer.

Yours truly, LIRENMAN PETERSON

Daniel D. Peterson, Q.C. DDP/slk Enls.

do.

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## Lirenman Peterson

BARRISTERS 

Solicitors

NOTARIES

Suite 300, Notre Dame Place, 255 - 17th Avenue S.W., Calgary, Alberta T2S 2T8

TEL (403) 245-0111 FAX (403) 245-0115

Our File Number: 93-673 May 7, 2010

**Regina Landry** 



Dear Ms. Landry:

Further to the above, we are enclosing the updated Certificate of Title. As this completes this matter we are closing our file and would like to once again take this opportunity to thank you for allowing us to have been of assistance to you in this matter. If we can be of any help to you in the future, please do not hesitate to contact the writer.

Yours truly, LIRENMAN PETERSON PER:

DANIEL D. PETERSON Q.C. DDP/slk Encls. 1 - PRDP20223151

Exhibit 10 - Preliminary Submission -Development Authority Report

CERTIFIED COPY OF

## Certificate of Title

LINC 0016 793 663 SHORT LEGAL 4;26;27;34;NE

> TITLE NUMBER: 091 379 930 TRANSFER OF LAND DATE: 15/12/2009

AT THE TIME OF THIS CERTIFICATION

REGINA LANDRY

IS THE OWNER OF AN ESTATE IN FEE SIMPLE OF AND IN

THAT PORTION OF THE NORTH EAST QUARTER OF SECTION 34 IN TOWNSHIP 27 RANGE 26 WEST OF THE 4 MERIDIAN WHICH LIES TO THE NORTH OF THE RAILWAY ON PLAN RW 31 AND TO THE EAST OF A STRAIGHT LINE PARALLEL WITH AND 100 FEET PERPENDICULARLY DISTANT SOUTH EASTERLY FROM THE CENTRE LINE OF THE SAID RAILWAY ON PLAN RY 226 CONTAINING 1.82 HECTARES (4.5 ACRES) MORE OR LESS

EXCEPTING THEREOUT ALL MINES AND MINERALS AND THE RIGHT TO WORK THE SAME

SUBJECT TO THE ENCUMBRANCES, LIENS AND INTERESTS NOTIFIED BY MEMORANDUM UNDER-WRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

#### ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER DATE (D/M/Y) PARTICULARS

1008FL .

RESTRICTIVE COVENANT

091 379 931 15/12/2009 MORTGAGE MORTGAGEE - FIRST NATIONAL FINANCIAL GP CORPORATION. 100 UNIVERSITY AVE, SUITE 700 NORTH TOWER TORONTO ONTARIO M5J1V6 ORIGINAL PRINCIPAL AMOUNT: \$215,000

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 08 DAY OF JANUARY ,2010





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## Certificate of Title

TITLE NUMBER: 091 379 930

\*SUPPLEMENTARY INFORMATION\* VALUE: \$90,000 CONSIDERATION: CASH & MORTGAGE MUNICIPALITY: ROCKY VIEW COUNTY REFERENCE NUMBER: 911 024 196 TOTAL INSTRUMENTS: 002 1 - PRDP20223151

Exhibit 10 - Preliminary Submission -Development Authority Report

CERTIFIED COPY OF

## Certificate of Title

LINC 0016 793 663 SHORT LEGAL 4;26;27;34;NE

> TITLE NUMBER: 091 379 930 TRANSFER OF LAND DATE: 15/12/2009

AT THE TIME OF THIS CERTIFICATION

REGINA LANDRY OF 285 WEST CREEK CIRCLE CHESTERMERE ALBERTA TIY 1R5

IS THE OWNER OF AN ESTATE IN FEE SIMPLE OF AND IN

THAT PORTION OF THE NORTH EAST QUARTER OF SECTION 34 IN TOWNSHIP 27 RANGE 26 WEST OF THE 4 MERIDIAN WHICH LIES TO THE NORTH OF THE RAILWAY ON PLAN RW 31 AND TO THE EAST OF A STRAIGHT LINE PARALLEL WITH AND 100 FEET PERPENDICULARLY DISTANT SOUTH EASTERLY FROM THE CENTRE LINE OF THE SAID RAILWAY ON PLAN RY 226 CONTAINING 1.82 HECTARES (4.5 ACRES) MORE OR LESS

EXCEPTING THEREOUT ALL MINES AND MINERALS AND THE RIGHT TO WORK THE SAME

SUBJECT TO THE ENCUMBRANCES, LIENS AND INTERESTS NOTIFIED BY MEMORANDUM UNDER-WRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER,

ENCUMBRANCES, LIENS & INTERESTS

NUMBER DATE (D/M/Y) PARTICULARS

1008FL

REGISTRATION

RESTRICTIVE COVENANT

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 06 DAY OF MAY ,2010







S

# **APPENDIX "B"**

#### 1 - PRDP20223151

#### Exhibit 10 - Preliminary Submission -Development Authority Report

Page 33 of 84

#### **Curtis E. Marble**

From: Sent: To: Subject:

Friday, July 22, 2022 10:02 AM

FW: Setbacks for NE-34-27-26-W04M - Rocky View County

From: ENeilsen@rockyview.ca <ENeilsen@rockyview.ca> Sent: April 30, 2021 4:23 PM

To:

Subject: Setbacks for NE-34-27-26-W04M - Rocky View County

Hi Regina,

Thank you for your patience in responding to your voicemail earlier in the week. I was waiting to connect with one of my colleagues regarding setbacks and was finally able to hear back regarding how she would interpret setbacks as applied to your property. I have enclosed a map below for your consideration, and it would be my pleasure to provide any further information required. The writing in red indicates how far from each property line a dwelling (or other structure) would need to be located in order to comply with any required setbacks. I hope this helps and please feel free to reach out if we can assist further.



Page 34 of 84



Best regards,

EVAN NEILSEN Development Assistant | Planning Services

ROCKY VIEW COUNTY 262075 Rocky View Point | Rocky View County | AB | T4A 0X2 Phone: 403-520-7285 ENeilsen@rockyview.ca | www.rockyview.ca

This e-mail, including any attachments, may contain information that is privileged and confidential. If you are not the intended recipient, any dissemination, distribution or copying of this information is prohibited and unlawful. If you received this communication in error, please reply immediately to let me know and then delete this e-mail. Thank you.



262075 Rocky View Point Rocky View County, AB, T4A 0X2

> 403-230-1401 questions@rockyview.ca www.rockyview.ca

#### THIS IS NOT A DEVELOPMENT PERMIT

Please note that the appeal period *must* end before this permit can be issued and that any Prior to Release conditions (if listed) *must* be completed.

NOTICE OF DECISION

Landry, Regina

Page 1 of 4

Tuesday, August 09, 2022

**Roll:** 07134004

#### RE: Development Permit #PRDP20223151

#### NE-34-27-26-04; (280003 RGE RD 262)

The Development Permit application for construction of a dwelling, manufactured and relaxation to minimum side yard setback requirement has been **conditionally-approved** by the Development Officer subject to the listed conditions below (PLEASE READ ALL CONDITIONS):

#### **Description:**

- 1. That the construction of a Dwelling, Manufactured, may commence on the subject site, in accordance with the approved site plan, application, and drawings, as submitted by the applicant, as amended, and conditions of approval and includes:
  - i. That the minimum side yard setback requirement shall be relaxed from **45.00 m** (147.64 ft.) to 3.00 m (9.69 ft.).
  - ii. Ancillary works related to meet conditions of this permit;

#### **Prior to Release:**

- That prior to release of this permit, the Applicant/Owner shall submit a revised site plan showing a minimum building setback from the south property line abutting Plan RY 1083, of 30.00 m (98.43 ft.) to the proposed dwelling, manufactured. The plan shall also include:
  - i. The location of the required 1.83 m (6.00 ft.) high chain link or wood fence abutting the south property line. Fencing details shall also be submitted, included material type, sizing, dimensions etc.
- 3. That prior to release of this permit, the Applicant/Owner shall contact County Road Operations with haul details for materials and equipment needed during construction/site development to confirm if Road Use Agreement or permits for any hauling along the County road system or if an overweight/over dimension permit for travel on the County road system for the subject house move will be required and to confirm the presence of County road ban restrictions.



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Landry, Regina **#PRDP20223151** Page 2 of 4

- i. The Applicant/Owner shall also discuss the required existing gravel approach alterations in accordance with the County's Servicing Standards. The approach shall be constructed to minimum standards to improve sightlines along Range Road 262.
- ii. The Applicant/Owner shall submit a drawing showing the location of the "hidden approach" sign, located on the east side of Range Road 262 and south of Township Road 280.
- iii. Written confirmation shall be received from County Road Operations confirming the status of this condition. Any required agreement or permits shall be obtained unless otherwise noted by County Road Operations.

#### **Prior to Building Occupancy:**

- 4. That prior to building occupancy of the dwelling, the Applicant/Owner shall contact County Road Operations for a post-construction inspection of the upgraded approach for final acceptance, in accordance with the approved approach/sign drawing.
  - i. Written confirmation shall be received from County Road Operations confirming the acceptance of the approach.
- 5. That prior to building occupancy of the dwelling, the Applicant/Owner shall request an inspection from the County, to confirm that required 1.83 m (6.00 ft.) high chain link fence along the south side property line abutting Plan RY 1083 has been installed as per the approved plans.

#### Permanent:

- 6. That any plan, technical submission, agreement, matter, or understanding submitted and approved as part of the application, in response to a Prior to Release or Occupancy condition, shall be implemented and adhered to in perpetuity.
- 7. That there shall be no more than 2.00 m (6.56 ft.) of excavation or 1.00 m (3.28 ft.) of fill adjacent to or within 15.00 m (49.21 ft.) of the proposed building under construction, unless a separate Development Permit has been issued for additional fill.
- 8. That the dwelling shall not be used as a *Vacation Rental* or for commercial purposes at any time, unless approved by a Development Permit.
- 9. That there shall be a minimum of two (2) dedicated on-site parking stall for the subject dwelling unit at all times.
- 10. That the Applicant/Owner shall take effective measures to control dust on the property so that dust originating therein shall not cause annoyance or become a nuisance to adjoining property owners and other in the vicinity of the area.
- 11. That no topsoil shall be removed from the site. All topsoil shall be retained on-site and shall be seeded after building construction is complete, as part of site restoration.


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Landry, Regina **#PRDP20223151** Page 3 of 4

- 12. That the Applicant/Owner shall be responsible for rectifying any adverse effect on adjacent lands from drainage alteration, including stormwater implications from the proposed development. Post-development drainage shall not exceed pre-development drainage.
- 13. That any lot regrading and placement of material for driveway construction or development is not to direct any additional overland surface drainage nor negatively impact existing drainage patterns in County's road right-of-way of Range Road 262.
- 14. That if the development authorized by this Development Permit is not commenced with reasonable diligence within twelve (12) months from the date of issue, and completed within twenty-four (24) months of the issue, the permit is deemed to be null and void, unless an extension to this permit shall first have been granted by the Development Officer.
- 15. That if this Development Permit is not issued by **February 28, 2023**, or the approved extension date, then this approval is null and void and the Development Permit shall not be issued.

#### Advisory:

- That a Building Permit and sub-trade permits shall be obtained from Building Services, prior to any construction taking place, using the appropriate checklist and application forms and include any requirements noted on *the Building Code Comments for Proposed Development notice, dated July 11, 2022.*
- That the Applicant/Owner implement basic mitigation measures in the dwelling design and construction in order to limit potential impacts from the railway, as per recommendations from CN to the County, dated June 28, 2022, and should include:
  - i. Provision for air-conditioning, allowing occupants to close windows during the warmer months;
  - ii. Exterior cladding facing the railway achieving a minimum STC rating of 54 or equivalent, e.g. masonry;
  - iii. Acoustically upgraded windows facing the railway with appropriate specifications;
  - iv. Locating noise sensitive rooms away from the railway side;
  - v. Noise barrier and fencing for outdoor play areas.
- That it is the Applicant/Owner's responsibility to obtain and display a distinct municipal address in accordance with the County Municipal Addressing Bylaw (Bylaw C-7562-2016), for each dwelling unit located on the subject site, to facilitate accurate emergency response. The municipal address for the subject dwelling unit is 280003 RGE RD 262.
- That the County's Noise Control Bylaw C-8067-2020 shall be adhered to at all times
- That during construction, all construction and building materials shall be maintained onsite, in a neat and orderly manner. Any debris or garbage shall be stored/placed in garbage bins and disposed at an approved disposal facility.
- That there shall be adequate water & sanitary sewer servicing provided for the proposed dwelling unit.



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Landry, Regina **#PRDP20223151** Page 4 of 4

- That there shall be adequate water servicing provided for the proposed dwelling unit, and it is the Applicant/Owner's responsibility to provide water quantity in accordance with the recommendations found in Module 2 of the document "Water Wells That Last for Generations" published by Agriculture and Agri-Food Canada, Alberta Environment, Alberta Agriculture and Food.
- That the site shall remain free of restricted and noxious weeds and maintained in accordance with the Alberta Weed Control Act [Statutes of Alberta, 2008 Chapter W-5.1, December 2017].
- That the Applicant/Owner contact Canadian National Railway Company (CN) for the registration of an environmental easement on title in regards to operational noise and vibration emissions, originating from the active railway line on Plan RY 1083, in favor of CN.
- That any other federal, provincial, or County permits, approvals, and/or compliances, are the sole responsibility of the Applicant/Owner.
- That it is the responsibility of the Applicant/Owner to obtain all necessary Alberta Environment & Park Water Act approvals should the development impact any wetlands.

If Rocky View County does not receive any appeal(s) from you or from an adjacent/nearby landowner(s) by **Tuesday, August 30, 2022**, a Development Permit may be issued, unless there are specific conditions which need to be met prior to issuance. If an appeal is received, then a Development Permit will not be issued unless and until the decision to approve the Development Permit has been determined by the Development Appeal Committee.

Regards,

Development Authority Phone: 403-520-8158 Email: <u>development@rockyview.ca</u>

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		DEVELOPMENT PERMIT APPLICATION CHECKLIST - GENERAL
Se	elect [	All plans shall be submitted as one (1) legible hard copy and in DIGITAL form (pdfs)
4	APF	LICATION FORM(S) AND CHECKLIST: All parts completed and signed.
*	APF	LICATION FEE: Refer to Planning and Development Fee Schedule within the Master Rates Bylaw.
~	CUF	RENT LAND TITLES CERTIFICATE COPY - dated within 30 days of application, and:
	0	Digital copy of non-financial instruments/caveats registered on title
	LET App affid	<b>TER OF AUTHORIZATION:</b> Signed by the registered landowner(s) authorizing person acting on behalf (if not the licant). If registered owner on title is a company, authorization to be provided on a company letterhead <u>or</u> as an lavit (signed by a Commissioner of Oaths).
	CO	/ER LETTER, shall include:
	0	Proposed land use(s) and scope of work on the subject property
	0	Detailed rationale for any variances requested
	0	For businesses - Complete operational details including days/hours of work, number of employees, parking provisions, types of vehicles, outdoor storage areas, site access/approach, traffic management, etc.
	0	Reference to any Supporting Documents, images, studies, plans etc. provided within application package
	SITI	E PLAN, shall include:
	0	Legal description and municipal address
	0	North arrow
	0	Property dimensions (all sides) Setbacks/dimensions from all sides of the property line(s) to existing/proposed buildings, structures (cantilevers, decke, and perchap), outdoor storage group at
	$\circ$	Dimensions of all buildings/structures
	õ	Location and labels for existing/pronosed approach(s)/access to property
	õ	Identify names of adjacent internal/municipal roads and highways
	0	Identify any existing/abandoned/proposed oil wells, septic fields/tanks, or water wells on site, including their distances to existing/proposed buildings
	0	Identify any existing/proposed site features such as trees, shelterbelts, canals, waterbodies, etc.
	0	Identify site slopes greater than 15% and distances from structures
	0	Location and labels for easements and/or rights-of-way on title
	FLC	OR PLANS/ELEVATIONS, shall include:
	0	Overall dimensions on floor plans for all buildings/structures (for new construction, additions, renovations etc.)
	0	Indicate floor area and existing/proposed uses on floor plans and height(s) on elevations
	0	Indicate type of building/structure on floor plans and elevations
P	<b>COI</b> feat	<b>_OUR PHOTOGRAPHS (Min. 3) - one hard and digital copy:</b> Of existing site, building(s), structure(s), signage, sit ures, taken from all sides including surrounding context, and when existing floor plans/elevations are not available
	SUP prop use	PORTING DOCUMENTS (as applicable): Include technical studies/reports and any additional plans relating to the posed development (lot grading, site lighting, storm water management plans etc.). Refer to the Land Use Bylaw for or district specific requirements.
ropo	sed (	Jse(s): Dwelling, Single Detached [Land Use District: A-GEN
pplic	cable	ASP/CS/IDP/MSDP: Greater Bragg Creek ASP
		ithin file: 17 Information Shoot 🛛 Darcel Summany 🖾 Site Aprial 🕅 Land Lice Man Aprial 🕅 Site Plan

Development Permit Application - Updated August 2020

Staff Signature: \_



TITLE NUMBER

091 379 930



LAND TITLE CERTIFICATE

S LINC SHORT LEGAL 0016 793 663 4;26;27;34;NE

LEGAL DESCRIPTION

THAT PORTION OF THE NORTH EAST QUARTER OF SECTION 34 IN TOWNSHIP 27 RANGE 26 WEST OF THE 4 MERIDIAN WHICH LIES TO THE NORTH OF THE RAILWAY ON PLAN RW 31 AND TO THE EAST OF A STRAIGHT LINE PARALLEL WITH AND 100 FEET PERPENDICULARLY DISTANT SOUTH EASTERLY FROM THE CENTRE LINE OF THE SAID RAILWAY ON PLAN RY 226 CONTAINING 1.82 HECTARES (4.5 ACRES) MORE OR LESS EXCEPTING THEREOUT ALL MINES AND MINERALS AND THE RIGHT TO WORK THE SAME

ESTATE: FEE SIMPLE

MUNICIPALITY: ROCKY VIEW COUNTY

REFERENCE NUMBER: 911 024 196

REGISTERED OWNER (S) REGISTRATION DATE (DMY) DOCUMENT TYPE VALUE CONSIDERATION

	-	

091 379 930 15/12/2009 TRANSFER OF LAND \$90,000 CASH & MORTGAGE

OWNERS

REGINA LANDRY

	ENCUMBRANCI	S, LIENS & INTE	IRESTS	
REGISTRATION NUMBER DAT	E (D/M/Y) P	ARTICULARS		
1008FL .	RESTRICT	IVE COVENANT		
TOTAL INSTRUMENT	S: 001			

PAGE 2 Page 42 of 84 # 091 379 930

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 10 DAY OF JUNE, 2022 AT 04:38 P.M.

ORDER NUMBER: 44684141

CUSTOMER FILE NUMBER: PRDP20223151



\*END OF CERTIFICATE\*

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER, SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION, APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S). June 10, 2022

To: Rockyview County Development Unit

I will be building a single family residence. This will be a bungalow on a basement foundation.

58 feet long 35 feet wide 24x24 attached garage

I am requesting a relaxation of the road allowance. The property is a long triangle shape and the building envelope gives a very limited location if there was no relaxation. Building within the building envelope would put the house in close proximity to the CP Rail line. This location would then require a very long road approach and increase the cost of the road, electrical and gas lines.

I would like to centralize the house on the property both between north and south and east and west. This would not only be aesthetically pleasing and provide a better view of the surrounding area.

This is raw land and there are no existing buildings or structures on the property. There are two shelter belts on the land; the southeast and southwest corner both parallel to CP Rail line.

In speaking to the water and septic contractors, both state these utilities can be placed in a variety of locations. The contractor for the septic has viewed the acreage and states it can be either a field or tank and with the location of where I want to build, the septic can be accommodated in a number of locations. The location for drilling the water will be determined after the location for the septic is defined.

Thank you,

**Regina Landry** 







Detail Scale 1:250	C/L Ditch Edge of Road C/L Road GOVERNMENT F	79°41'14" 27.02 Gravel Approach ROAD ALLOWANCE
CLIENT REGINE LANDRY		
ALL DIMENSIONS AND SERVICES SHOWN MUST	BE CONFIRMED BY CONTRACTOR PRIOR TO EXCAVATION	
PORTION OF N.E.1/4 SEC.34, TWP.27, RGE.26, W.4thM. 280003 RANGE ROAD 262 ROCKY VIEW COUNTY, ALBERTA Scale: 1:1200	Suggested Grade Lowest Top of Footing Actual Top of Footing Top of Main Floor Joist Sanitary Sewer Storm Sewer	Area of Lot <u>17379.14 SQ.M.</u> Area of House <u>237.490 SQ.M.</u> Remainder <u>17141.65 SQ.M.</u> Area of Coverage <u>1.2 %</u> Date:1 <u>3/06/22</u> File No. <u>NP22283-22</u>





1 - PRDP20223151

#### Exhibit 10 - Preliminary Submission -Development Authority Report



#### 1 - PRDP20223151

Page 50 of 84



Page 51 of 84

From:	Saadia Jamil on behalf of Proximity
To:	Jeevan Wareh
Subject:	[EXTERNAL] - 2022-06-29_CN Comments_280003 RGE RD 262, Rocky View County AE
Date:	June 28, 2022 10:44:06 PM
Attachments:	image001.png

Do not open links or attachments unless sender and content are known.

Hi,

Thank you for circulating CN on the subject application. It is noted that the subject site is abutting the CN railway corridor. It should be noted that CN has concerns of developing/densifying residential uses in proximity to our railway right-of-way. CN recommends the following to be implemented as a condition of approval:

- 1. A minimum 30 metre building setback, from the railway right-of-way, in conjunction with a 2.5 metre high earthen berm;
- 2. A chain link fence of minimum 1.83 metre height to be installed and maintained along the mutual property line;
- 3. The following clause to be inserted in all development agreements, offers to purchase, and agreements of Purchase and Sale or lease of each dwelling unit within 300 metres of the railway right-of-way "Warning: Canadian National Railway Company or its assigns or successors in interest has or have a rights-of-way within 300 metres from the land the subject hereof. There may be alterations to or expansions of the railway facilities on such rights-of-way in the future including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid rights-of-way."
- 4. Registration of an environmental easement for operational noise and vibration emissions, in favor of CN
  - . Implementation of certain basic mitigation measures in the dwelling design and construction in order to limit potential impacts, including:
    - Provision for air-conditioning, allowing occupants to close windows during the warmer months;
    - Exterior cladding facing the railway achieving a minimum STC rating of 54 or equivalent, e.g. masonry;
    - Acoustically upgraded windows facing the railway with appropriate specifications;
    - Locating noise sensitive rooms away from the railway side;
    - Noise barrier and fencing for outdoor play areas.

Thanks,

#### Saadia Jamil

Planner (CN Proximity) Planning, Landscape Architecture and Urban Design Urbanisme, architecture de paysage et design urbain



E : proximity@cn.ca 1600, René-Lévesque Ouest, 11e étage Montréal (Québec) H3H 1P9 CANADA wsp.com

From: Jeevan Wareh <JWareh@rockyview.ca> Sent: Thursday, June 23, 2022 7:33 PM To: Proximity <proximity@cn.ca>; beiseker@beiseker.com; approvals@rvgc.ca; surfacerentals@emberresources.com Subject: PRDP20223151 - Circulation Package Importance: High

CAUTION: This email originated from outside CN: DO NOT click links or open attachments unless you recognize the sender AND KNOW the content is safe.

AVERTISSEMENT : ce courriel provient d'une source externe au CN : NE CLIQUEZ SUR AUCUN lien ou pièce jointe à moins de reconnaitre l'expéditeur et d'avoir VÉRIFIÉ la sécurité du contenu.

Hello,

Please find enclosed the circulation package for application PRDP20223151. Please respond with any comments on, or prior to **July 14<sup>th</sup>, 2022**. If no response is received it will be assumed there are no comments.

Thank you,

JEEVAN WAREH, T.T. Development Officer | Planning and Development Services Rocky View COUNTY 262075 Rocky View Point | Rocky View County | AB | T4A 0X2 Phone: 403-520-6333 JWareh@rockyview.ca | http://secure-web.cisco.com/1u0NK\_cz14tdpC3\_z1z1zloly4jVuG4UDRscWHr4R-8vu7hP8j\_zMwnjHZ\_XRUJqacKWbyGhOR\_cL2DLPV8vhgIP59pNd54wnOhC65vJNzoMzhgodjJxz8zba6OPf5-

From:	Tataryn, Philip
To:	Jeevan Wareh
Subject:	[EXTERNAL] - FW: For Action - FW: Minimum Setback Requirements from Railways - New Dwelling Adjacent to CN Railway
Date:	July 28, 2022 9:51:09 AM
Attachments:	PRDP20223151-Circulation Package (reduced size) pdf EXTERNAL - 2022-06-29 CN Comments 280003 RGE RD 262 Rocky View County AB.msg
Importance:	High

#### Do not open links or attachments unless sender and content are known.

#### UNCLASSIFIED / NON CLASSIFIÉ

Hello Jeevan: Thanks for your inquiry regarding an email received by Rocky View County from Canadian National Railway (CN) recommending setback distances and details for construction of a new dwelling adjacent to an active rail corridor. In your inquiry, you asked whether CN's recommendations are also required by Transport Canada (TC) regulations, or are more so recommendations based on best practices.

The recommendations that CN provided may be based on a document published on the Railway Association of Canada (RAC) website, titled "Guidelines for New Developments in Proximity to Railway Operations" dated May 2013. This document was prepared in collaboration with the RAC, Federation of Canadian Municipalities and both national railways, and is intended for use by municipalities, provincial governments, railways, developers and property owners when developing lands in proximity to railway operations, in order to avoid conflicts in the future. The recommendations provided by CN are recommendations, and are not mandated by any TC Regulations or Standards.

Please refer to the following TC Regulations that would apply:

- Railway Safety Act Section 24: Non-Railway Operations Affecting Railway Safety
- Grade Crossings Regulations Sections 24-26: Obstruction of Sightlines

I have appended a link to the RAC website which contains the aforementioned document on constructing in proximity to railway operations.

#### **Proximity Issues**

Also please find appended links to the Railway Safety Act, and Grade Crossings Regulations for your information.

The Railway Safety Act (canada.ca)

#### Grade Crossings Regulations

Please feel free to contact me with any further questions.

#### Phil Tataryn, P.Eng.

Railway Works Engineer, Surface Directorate Transport Canada / Government of Canada <u>philip.tataryn@tc.gc.ca</u> / Tel: 587-434-7605 / TTY: 1-888-675-6863

Ingénieur, Installations Ferroviaires, Direction des surfaces Transports Canada / Gouvernement du Canada <u>philip.tataryn@tc.gc.ca</u> / Tél. : 587-434-7605 / ATS : 1-888-675-6863



From: Jeevan Wareh <<u>JWareh@rockyview.ca</u>>
Sent: Tuesday, July 26, 2022 4:05 PM
To: PNR Civ Av Services / Services Av Civ RPN <<u>CASPNR-SACRPN@tc.gc.ca</u>>
Subject: Minimum Setback Requirements from Railways - New Dwelling
Importance: High

Good Afternoon,

We have received a Development Permit application for a new Dwelling from one of our residents, on a parcel which directly abuts a railway owned by CN Rail. Attached is the application circulation package and a site photo as a reference.

We have been advised by CN that there is a recommendation of a 30.00m setback from the railway corridor, in conjunction with the construction of a berm 2.50m in height. We are hoping to seek some clarification from your department as to whether these stipulations are actual formal *policy requirements* as per Transport Canada regulations or are more so *recommendations* based on best practice measures. I have attached the initial email from CN as well.

If one of your team members are able to please get back to me either via phone or email in a timely manner, that would be much appreciated as the subject landowner is on somewhat of a tight timeline to construct the dwelling.

Look forward to hearing from you soon. Additional information can be provided upon request.

Thanks & have a great day,

JEEVAN WAREH, T.T. Development Officer | Planning and Development Services **Rocky View County** 262075 Rocky View Point | Rocky View County | AB | T4A 0X2 Phone: 403-520-6333 JWareh@rockyview.ca | www.rockyview.ca

This e-mail, including any attachments, may contain information that is privileged and confidential. If you are not the intended recipient, any dissemination, distribution or copying of this information is prohibited and unlawful. If you received this communication in error, please reply immediately to let me know and then delete this e-mail. Thank you.





Transportation of Dangerous Goods



## **Proximity Issues**

Across Canada, cities are expanding. City planners and engineers consider numerous factors when designing roadways and reviewing proposals for new developments or construction. A very important factor to consider and plan for is the transportation of dangerous goods through or near these communities.

Dangerous goods travel through cities via all modes of transportation. To ensure public safety, Transport Canada develops, oversees and ensures compliance with safety standards and regulations for all modes of transportation. In addition to these safety requirements, there are some factors that communities should consider when planning developments to ensure an even higher safety standard.

Taking these additional factors into consideration when planning new construction or developments, especially those adjacent to railways, highways or airports, can help protect citizens in the case of incidents and can increase safety in the day to day lives of Canadians.



Add barriers, fencing and building setbacks around high speed roadways and railways. These can be an effective deterrent for trespassers and can also help protect homes and businesses from noise, vibration or any potential emissions.



Consider the impact increased traffic flow may have to crossings, especially where frequent train traffic is in play. This could determine the type of protection required at the crossing and have financial implications for the city.



Consult with railway companies, provinces, and any other stakeholders when new developments are being considered.



Avoid creating trespassing occurrences by allowing for pedestrian, bicycle and assisted users traffic over the crossings. Plan to create alternative routes to get across highways or tracks.



Ensure the municipality's Emergency Response Plan (ERP) takes into account the dangerous goods being transported within the city limits.

For more information on the proximity issues, please review the Guidelines for New Development in Proximity to Railway Operations.



# GUIDELINES

### for New Development in Proximity to Railway Operations

PREPARED FOR THE FEDERATION OF CANADIAN MUNICIPALITIES AND THE RAILWAY ASSOCIATION OF CANADA

May 2013



J.E. COULTER ASSOCIATES LIMITED

## Guidelines for New Development in Proximity to Railway Operations

May 2013

These guidelines were developed through the collaboration of the Railway Association of Canada and the Federation of Canadian Municipalities, who work together through the FCM/RAC Proximity Initiative. For further information, please visit our joint website at www.proximityissues.ca, or contact:

### The Railway Association of Canada

99 Bank Street, Suite 901 Ottawa, Ontario K1P 6B9

Tel : (613) 567-8591 Fax : (613) 567-6726 **Federation of Canadian Municipalities** 24 Clarence Street Ottawa, Ontario K1N 5P3

Tel : (613) 241-5221 Fax : (613) 241-7440

COVER PHOTOS COURTESY OF THE RAILWAY ASSOCIATION OF CANADA



EDERATION FÉDÉRATION F CANADIAN CANADIENNE DES JNICIPALITIES MUNICIPALITÉS





J.E. COULTER ASSOCIATES LIMITED



FEDERATION FÉDÉRATION OF CANADIAN CANADIENNE DES MUNICIPALITIES MUNICIPALITÉS



#### Railway Association of Canada

#### FCM/RAC Proximity Initiative

May, 2013

We are very pleased to present the new Guidelines for New Development in Proximity to Railway Operations.

These new guidelines are intended to replace and build on the FCM/RAC Proximity Guidelines and Best Practices Report, which was originally prepared and published in 2004 and reprinted in 2007. Since that time, there have been significant changes in both federal legislation and some provincial land use acts. The original guidelines have been reviewed, edited, and updated with the help and participation of stakeholders from railways, municipalities, and government to reflect the new legislative framework as well as to add a new section of guidelines and best practices that can be applied when converting industrial/commercial property into residential use when in proximity to railway operations.

The Guidelines for New Development in Proximity to Railway Operations is intended for use by municipalities and provincial governments, municipal staff, railways, developers, and property owners when developing lands in proximity to railway operations. They are meant to assist municipal governments and railways in reviewing and determining general planning policies when developing on lands in proximity to railway facilities, as well to establish a process for making site specific recommendations and decisions to reduce land-use incompatibilities for developments in proximity to railway operations. A key component is a model review process for new residential development, infill, and conversions in proximity to railways.

The guiding philisophy of this document is that, by building better today, we can avoid conflicts in the future.

Sincere Regards,

Sean Finn

FCM-RAC Proximity Co-Chair Executive VP Corporate Services and Chief Legal Officer, CN

Doug Reycraft FCM-RAC Proximity Co-Chair Mayor, Southwest Middlesex, ON

## ACKNOWLEDGMENTS//

These guidelines and best practices were developed by the FCM/RAC Proximity Initiative with the help and participation of stakeholders from government, freight, passenger, and commuter railway operators, municipal councillors and mayors, municipal urban planners, the Federation of Canadian Municipalities and the Railway Association of Canada.

I would like to especially acknowledge the members of the Guidelines Working Group who gave their time, expertise, and insight in vetting the research, developing the format, and editing the product from start to finish.

Adam Snow (Chair)	Third Party Projects Officer - GO Transit
Nick Coleman	Manager, Community Planning & Development, CN
Orest Rojik	Right-of-Way Representative, CPR
Giulio Cescato	Planner, City of Toronto

And also Daniel Fusca of DIALOG who worked with the team.

The project was initiated and approved through the Steering Committee of the FCM/RAC Proximity Initiative:

Doug Reycraft - FCM Co-chair, Mayor, Southwest Middlesex, Ontario Sean Finn - RAC Co-chair, Executive VP & Chief Legal Officer, CN Mike Lowenger - VP, Operations & Regulatory Affairs, RAC Daniel Rubinstein - Research Officer, FCM John Corey - Manager, Rail Investigations, CTA Jim Feeny - Director, Regional Public & Govt. Affairs, CN Cynthia Lulham - Project Manager, FCM/RAC Proximity Initiative Cameron Stolz - City Councillor, Prince George, BC Steve Gallagher - Manager, Ontario Rail Operations, Cando Rail Pauline Quinlan - Mairesse, Ville de Bromont, QC Gary Price - City Councillor, Cambridge, ON

Frank Butzelaar - President & CEO, Southern Railway BC Ltd.
Louis Machado - Vice-président adjoint Exploitation, AMT
Randy Marsh - Director, Government & Public Affairs, CP
Adam Snow - Third Party Projects Officer - GO Transit
Heath Slee - Director, East Kootenay RD
Ranjan Kelly - Project Manager, Data Bases & Websites, RAC
Lynda Macleod - Manager, Legislative Affairs, CN
Paul Goyette - Director, Communications & Public Affairs, RAC
Malcolm Andrews - Senior Manager, Corporate Communications, VIA
Mee Lan Wong - Policy Advisor, Transport Canada
Nick Coleman - Manager, Community Planning & Development, CN

We gratefully acknowledge their valued input and support.

Cynthia Lulham Project Manager, FCM/RAC Proximity Initiative

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FIGURE 1 // OUTCOMES OF THE GUIDELINES FOR VARIOUS STAKEHOLDER GROUPS.

#### 1.3 // INTENDED AUDIENCE

This report is intended to be used by:

- Municipalities and Provincial Governments, to create or update their policies, regulations, and standards related to new development along railway corridors, in order to create more consistency across the country.
- Municipal staff, as a tool to better understand the safety, vibration, noise, and other issues related to new development along railway corridors, and to more effectively evaluate and provide feedback on development proposals, particularly when they involve a residential component.
- Railways, to update their internal policies regarding development in proximity to railway corridors, particularly residential infill development and conversions, and to provide opportunities for collaboration with stakeholders.
- Developers and property owners, of sites in proximity to railway corridors to better understand the development approval process and the types of mitigation measures that might be required.

#### **1.4 // UNDERSTANDING STAKEHOLDER ROLES**

The research associated with this report has revealed the complexity of interaction between public and private agencies and individuals. It further indicated that a lack of understanding of roles and responsibilities has contributed to the problems identified. This section provides a brief overview of these roles. Recommendations for how each stakeholder can assist in the advancement of the goal of reducing proximity issues are found in Section 4.2 Advancing Stakeholder Roles.

#### 1.4.1 Federal

The federal government regulates the activities of CN, CPR, and VIA Rail Canada, and some short line railways that operate interprovincially or internationally. These federal railways are regulated by such legislation as the *Railway Safety Act* (RSA), and the *Canada Transportation Act* (CTA). Applicable legislation, regulations, and guidelines are available from the respective websites.

#### 1.4.2 Provincial

Provinces provide the land use regulatory framework for municipalities through Planning Acts, Provincial Policy Statements or Statements of Provincial Interest, Environmental Assessment Acts, and air quality and noise guidelines (such as the Ontario Ministry of the Environment Noise Assessment in Land Use Planning documents). This legislation generally provides direction on ensuring efficient and appropriate land use allocation and on tying land use planning to sound transportation and planning principles. Generally, provinces also have jurisdiction to establish land use tribunals to adjudicate disputes, although the approach taken by provinces with respect to establishing and empowering such tribunals varies across the country. Additionally, some provinces regulate shortline railways.

#### 1.4.3 Municipal

Municipalities are responsible for ensuring efficient and effective land use and transportation planning within their territory, including consultation with neighbouring property owners (such as railways), in carrying out their planning responsibilities. Municipal planning instruments include various community-wide and area plans, Zoning By-law/ Ordinances, Development Guidelines, Transportation Plans, Conditions of Development Approval, and Development Agreements to secure developer obligations and requirements. Municipal governments have a role to play in proximity issues management by ensuring responsible land use planning policies, guidelines, and regulatory frameworks, as well as by providing a development approvals process that reduces the potential for future conflicts between land uses.

#### 1.4.4 Railway

Federally regulated railways are governed, in part, by the requirements of the Canada Transportation Act (CTA). Under the CTA, railways are required to obtain an approval from the Canadian Transportation Agency for certain new railway construction projects. Through this process, railways must give notification and consult with interested parties. For existing railway operations, the CTA requires that railways make only such noise and vibration as is reasonable, taking into consideration their operational requirements and the need for the railway to meet its obligation to move passengers and the goods entrusted to it for carriage. Additionally, federal railways are required to adhere to the requirements of the Railway Safety Act (RSA), which promotes public safety and the protection of property and the environment in the operation of a railway. Railways also typically establish formal company environmental management policies and participate in voluntary programs and multi-party initiatives such as Direction 2006, Operation Lifesaver, TransCAER, and Responsible Care®.

Both CN and CPR, as well as VIA Rail Canada, and many short line railways across the country, have established guidelines for new development in proximity to their railway corridors, and they have a significant role to play in providing knowledge and expertise to municipal and provincial authorities, as well as developers and property owners.

#### 1.4.5 Land Developer / Property Owner

Land developers are responsible for respecting land use development policies and regulations to achieve development that considers and respects the needs of surrounding existing and future land uses. As initiators of urban developments, they also have the responsibility to ensure that development projects are adequately integrated in existing environment.

#### 1.4.6 Real Estate Sales / Marketing and Transfer Agents

Real estate sales people and property transfer agents (notaries and lawyers) are often the first and only contacts for people purchasing property, and therefore have a professional obligation to seek out and provide accurate information to buyers and sellers.

#### 1.4.7 Academia and Specialized Training Programs

Academic institutions provide training in all fields related to land use planning, development, and railway engineering.

#### 1.4.8 Industry Associations

Industry associations include bodies such as the RAC, FCM, Canadian Association of Municipal Administrators (CAMA), Canadian Institute of Planners (CIP), provincial planning associations, the Canadian Acoustical Association (CAA), and land development groups such as the Urban Development Institute.



FIGURE 2 // STANDARD MITIGATION FOR NEW RESIDENTIAL DEVELOPMENT IN PROXIMITY TO A MAIN LINE RAILWAY

#### 2.1.2 Crossings

As urban areas grow in proximity to railway corridors, road traffic at existing crossings increases and can lead to demands for improvements to such crossings, demands for additional crossings, or demands for grade separations to accommodate the flow of the traffic from the new development to areas on the other side of the railway. Conversely, Transport Canada and the railways strive to reduce the number of at-grade crossings since each new crossing increases the risk exposure for potential vehicle/train and pedestrian accidents, as well as the related road traffic delays. Grade-separated crossings address both these issues, but are expensive to construct. Safety at railway crossings is a concern for all stakeholders and planning is necessary to consider alternatives to creating new grade crossings, including upgrading and improving safety at existing crossings and grade-separated crossings.

#### 2.2 // NOISE AND VIBRATION

Noise and vibration from rail operations are two of the primary sources of complaints from residents living near railway corridors. Airborne noise at low frequencies (caused by locomotives) can also induce vibration in lightweight elements of a building, which may be perceived to be ground-borne vibration.

There are two sources of rail noise: noise from pass-by trains, and noise from rail yard activities, including shunting. Pass-by noise is typically intermittent, of limited duration and primarily from locomotives. Other sources of pass-by noise include whistles at level crossings<sup>2</sup>, and car wheels on the tracks.

Freight rail yard noises tend to be frequent and of longer duration, including shunting cars, idling locomotives, wheel and brake retarder squeal, clamps used to secure containers, bulk loading/unloading operations, shakers, and many others.

Beyond the obvious annoyance, some studies have found that the sleep disturbance induced by adverse levels of noise can affect cardiovascular, physiological, and mental health, and physical performance.<sup>3</sup> However, there is no clear consensus as to the real affects of adverse levels of noise on health.

Ground borne vibration from the wheel-rail interface passes through the track structure into the ground and can transfer and propagate through the ground to nearby buildings. Vibration is more difficult to predict and mitigate than noise and there is no universally accepted method of measurement or applicable guidelines. Vibration evaluation methods are generally based on the human response to vibration. The effects of vibration on occupants include fear of damage to the occupied structure, and interference with sleep, conversation, and other activities.

#### 2.3 // STANDARD MITIGATION

In order to reduce incompatibility issues associated with locating new development (particularly new residential development) in proximity to railway corridors, the railways suggest a package of mitigation measures that have been designed to ameliorate the inherent potential

<sup>2</sup> Applicable to federally regulated railways and some provincially regulated railways (notably in Quebec and Ontario). Trains are

required to sound their whistles for at least 400 metres before entering a public crossing, unless relief has been granted in accordance with the regulatory process.

<sup>3</sup> Berglund, B., Lindvall, T., & Schwela, D. H., eds. (1999). Guidelines for community noise [Research Report]. Retrieved from World Health Organization website: http://www.who.int/docstore/peh/noise/ guidelines2.html

for the occurrence of safety, security, noise, vibration, and trespass issues. These mitigation measures (illustrated in FIGURE 2) include a minimum setback, earthen berm, acoustical and/or chain link security fence, as well as additional measures for sound and vibration attenuation.

It should be noted that many of these measures are most effective only when they are implemented together as part of the entire package of standard mitigation measures. For example, the setback contributes to mitigation against the potential impact of a railway incident as well as noise and vibration, through distance separation. The earthen berm, in turn, can protect against the physical components of a derailment (in conjunction with the setback), and provides mitigation of wheel and rail noise, reduces the masonry or wood component (and cost) of the overall noise barrier height, and offers an opportunity for the productive use of foundation excavations. Implementation of the entire package of mitigation measures is, therefore, highly desirable, as it provides the highest possible overall attenuation of incompatibility issues. It should also be noted that implementation of such measures is easiest to achieve for new greenfield development. For this reason, these measures are not intended as retrofits for existing residential neighbourhoods in proximity to railway operations. As well, challenges may be encountered in the case of conversions or infill projects on small or constrained sites, and any implications related to the use of alternative mitigation measures need to be carefully evaluated.

#### 2.3.1 Maintenance

A common issue that emerged through this process was that of the responsibility for maintaining mitigation infrastructure. Currently, there is no standard approach to dealing with the maintenance of mitigation infrastructure. In some cases, as is the current practice in Saskatoon, the municipality takes on this responsibility. Increasingly, however, this is seen as an undue burden on municipal coffers, particularly within the current difficult budgetary climate. In Ontario, there was a time when the railways occasionally took possession of the portion of the berm beyond the fence facing onto the railway corridor, but this land attracted property taxes at residential rates. As such, this practice has largely ended. Commonly, property owners maintain ownership of this portion of land, and are expected to maintain the mitigation infrastructure themselves. This strategy can work for commercial or industrial developments, or in the case of condominium developments, where the land becomes part of the common areas of the condominium and maintenance becomes the responsibility of the corporation. In the case of freehold developments, however, where the responsibility for maintenance lies with individual property owners, it is virtually impossible for them to easily access the side of the berm facing onto the railway corridor, and would be dangerous for them to do so in any case. Recommendations regarding a Mitigation Infrastructure Maintenance Strategy are included in Section 4.1.2 of this report.

#### 2.4 // CHALLENGES ASSOCIATED WITH NEW RESIDENTIAL DEVELOPMENT

Residential development is particularly challenging in the context of a railway environment. As noted above, safety, noise, and vibration issues become more significant when dealing with residential development. Partly, this is because people are more sensitive to these issues in the context of their own homes than in other contexts (work, leisure, etc.). It is also because the negative effects of noise and vibration become more



### 3.3 // BUILDING SETBACKS FOR NEW DEVELOPMENTS

A setback from the railway corridor, or railway freight yard, is a highly desirable development condition, particularly in the case of new residential development. It provides a buffer from railway operations; permits dissipation of rail-oriented emissions, vibrations, and noise; and accommodates a safety barrier. Residential separation distances from freight rail yards are intended to address the fundamental land use incompatibilities. Proponents are encouraged to consult with the railway early in the development process to determine the capacity of the site to accommodate standard setbacks (see below). On smaller sites, reduced setbacks should be considered in conjunction with alternative safety measures. Where the recommended setbacks are not technically or practically feasible due. for example, to site conditions or constraints, then a Development Viability Assessment should be undertaken by the proponent to evaluate the conditions specific to the site, determine its suitability for new development, and suggest options for mitigation. Development Viability Assessments are explained in detail in Appendix A.

#### 3.3.1 Guidelines

Evelopt Deil Verd

 The standard recommended building setbacks for new residential development in proximity to railway operations are as follows:

200 matra

»	Freight Rall Yaru.	300 metres
»	Principle Main Line:	30 metres
»	Secondary Main Line:	30 metres
»	Principle Branch Line:	15 metres
»	Secondary Branch Line:	15 metres
»	Spur Line:	15 metres

FIGURE 4 // INCORPORATING A CRASH WALL INTO A DEVELOPMENT CAN REDUCE THE RECOMMENDED SETBACK.

- Setback distances must be measured from the mutual property line to the building face. This will ensure that the entire railway right-of-way is protected for potential rail expansion in the future.
  - » Policy Recommendation

Municipalities should establish minimum setback requirements through a zoning bylaw amendment.

- Under typical conditions, the setback is measured as a straight-line horizontal distance.
- Where larger building setbacks are proposed (or are more practicable, such as in rural situations), reduced berm heights should be considered.
- Marginal reductions in the recommended setback of up to 5 metres may be achieved through a reciprocal increase in the height of the safety berm (see Section 3.6 Safety Barriers)
- Horizontal setback requirements may be substantially reduced with the construction of a crash wall (see Section 3.6 Safety Barriers). For example, where a crash wall is incorporated into a low-occupancy podium below a residential tower, the setback distance may be measured as a combination of horizontal and vertical distances, as long as the horizontal and vertical value add up to the recommended setback. This concept is illustrated in FIGURE 4.
- Where there are elevation differences between the railway and a subject development property, appropriate variations in the minimum setback should be determined in consultation with the affected railway. For example, should the railway

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Note that in both scenarios displayed in Figures 5 & 6, the presence of intervening structures between the railway and the outdoor amenity areas may negate the need for a sound barrier. Where a barrier is not required for noise, vegetative or other screening is recommended to provide a visual barrier to the sometimes frightening onset of a high speed passenger train.



tracks be located in a cut, reduced setbacks may be appropriate.

 Appropriate uses within the setback area include public and private roads; parkland and other outdoor recreational space including backyards, swimming pools, and tennis courts; unenclosed gazebos; garages and other parking structures; and storage sheds.

Example setback configurations are illustrated in FIGURES 5 AND 6.

#### 3.4 // NOISE MITIGATION

Noise resulting from rail operations is a key issue with regards to the liveability of residential developments in proximity to railway facilities, and may also be problematic for other types of sensitive uses, including schools, daycares, recording studios, etc. As well as being a major source of annoyance for residents, noise can also have impacts on physical and mental health, particularly if it interferes with normal sleeping patterns.<sup>1</sup> The rail noise issue is site-specific in nature, as the level and impact of noise varies depending on the type of train operations. (see Appendix B for a sample rail classification system). Proponents will have to carefully plan any new development in proximity to a railway corridor to ensure that noise impacts are minimized as much as possible. Generally, during the day, noise should be contained to a level conducive to comfortable speech communication or listening to soft music, and at night it should not interfere with normal sleeping patterns.<sup>2</sup> For building retrofits, while the majority of the guidelines below will apply, special attention should be paid to windows, doors, and the exterior cladding of the building.

#### 3.4.1 Guidelines

Since rail noise is site-specific in nature, the level and impact
of noise on a given site should be accurately assessed by
a qualified acoustic consultant through the preparation of
a noise impact study. The objective of the noise impact
study is to assess the impact of all noise sources affecting
the subject lands and to determine the appropriate layout,
design, and required control measures. Noise studies should
be undertaken by the proponent early in the development
process, and should be submitted with the initial proposal.

#### » Policy Recommendation

Municipalities should consider amending their Official Plan or other appropriate legislation to require noise impact studies as part of any rezoning or Official Plan amendment near railway operations.

- The recommended minimum noise influence areas to be considered for railway corridors when undertaking noise studies are:
  - » Freight Rail Yards: 1,000 metres
  - » Principal Main Lines: 300 metres
  - » Secondary Main Lines: 250 metres
  - » Principal Branch Lines: 150 metres
  - » Secondary Branch Lines: 75 metres
  - » Spur Lines: 75 metres

<sup>1</sup> Berglund, B., Lindvall, T., & Schwela, D. H., eds. (1999). Guidelines for community noise [Research Report]. Retrieved from World Health Organization website: http://www.who.int/docstore/peh/noise/ guidelines2.html

<sup>2</sup> Canada Mortgage and Housing Corporation. (1986). Road and rail noise: Effects on housing [Canada]: Author.



FIGURE 7 // EFFECT OF A NOISE BARRIER ON THE PATH OF NOISE FROM THE RECEIVER TO THE SOURCE. A NOISE BARRIER REDUCES NOISE LEVELS IN THREE WAYS: BY DEFLECTING NOISE OFF OF IT, BY DAMPENING THE NOISE THAT IS TRANSMITTED THROUGH IT, AND BY BENDING, OR DIFFRACTING NOISE OVER IT. THE AREA RECEIVING THE MOST PROTECTION BY THE NOISE BARRIER IS TYPICALLY REFERRED TO AS THE "SHADOW ZONE".

- The acoustic consultant should calculate the external noise exposure, confirm with measurements if there are special conditions, and calculate the resultant internal sound levels. This should take into account the particular features of the proposed development. The measurements and calculations should be representative of the full range of trains and operating conditions likely to occur in the foreseeable future at the particular site or location. The study report should include details of assessment methods, summarize the results, and recommend the required outdoor as well as indoor control measures.
- To achieve an appropriate level of liveability. and to reduce the potential for complaints due to noise emitted from rail operations, new residential buildings in proximity to railway operations should be designed and constructed to comply with the sound level limits criteria shown in AC.1.4 (see AC.1.6 for sound limit criteria for residential buildings in proximity to freight rail shunting yards). Habitable rooms should be designed to meet the criteria when their external windows and doors are closed. If sound levels with the windows or doors open exceed these criteria by more than 10 dBA, the design of ventilation for these rooms should be such that the occupants can leave the windows closed to mitigate against noise (e.g. through the provision of central air conditioning systems).
- In Appendix C, recommended procedures for the preparation of noise impact studies are provided, as well as detailed information on noise measurement. These should be observed.

 It is recommended that proponents consult Section 2.4 of the Canadian Transportation Agency (CTA) report, *Railway Noise Measurement and Reporting Methodology* (2011) for guidance on the recommended content and format of a noise impact study.

#### 3.4.1.1 Avoiding Adverse Noise Impacts through Good Design

Many of the adverse impacts of railway noise can be avoided or minimized through good design practices. Careful consideration of the location and orientation of buildings, as well as their internal layout can minimize the exposure of sensitive spaces to railway noise. Site design should take into consideration the location of the rail corridor, existing sound levels, topography, and nearby buildings. Noise barriers, acoustic shielding from other structures, and the use of appropriate windows, doors, ventilation, and façade materials can all minimize the acoustic impacts of railway operations. Note that many of the design options recommended below have cost and market acceptability liabilities that should be evaluated at the outset of the design process.

#### 3.4.1.2 Noise Barriers

 A noise barrier can effectively reduce outdoor rail noise by between 5dBA and 15dBA, although the largest noise reductions are difficult to achieve without very high barriers. Noise barriers provide significant noise reductions only when they block the line of sight between the noise source and the receiver. Minimum noise barrier heights vary by the classification of the neighbouring rail line.<sup>3</sup> Though the required height will be determined by

<sup>3</sup> Note that the height of a noise barrier can be achieved in combination with that of a berm, if present.



FIGURE 8 // PRECEDENT IMAGERY DEMONSTRATING THE INCORPORATION OF URBAN DESIGN AND LIVING WALLS INTO NOISE BARRIERS SOURCES: (LEFT) WESTFIELD WINDBREAK BY WILTSHIREBLOKE. CC BY-NC-ND 3.0. RETRIEVED FROM: HTTP://WWW.FLICKR.COM/PHOTOS/ WILTSHIREBLOKE/3580334228/. (MIDDLE) AUTUMN COLORS BY GEIR HALVORSEN. CC BY-NC-SA 3.0. RETRIEVED FROM: HTTP://WWW.FLICKR.COM/PHOTOS/ DAMIEL/47160698/. (RIGHT) IMAGE BY DIALOG.

an acoustic engineer in a noise report, they are typically at least:

- » Principal Main Line: 5.5 metres above top of rail
- » Secondary Main Line: 4.5 metres above top of rail
- » Principal Branch Line: 4.0 metres above top of rail
- » Secondary Branch Line: no minimum
- » Spur Line: no minimum

Differences in elevation between railway lands and development lands may significantly increase or decrease the required height of the barrier, which must at least break the line of sight. Thus, when not at the same grade, the typical barrier heights are measured from an inclined plane struck between the ground at the wall of the dwelling and the top of the highest rail.

In keeping with existing railway guidelines for new developments, noise barriers must be constructed adjoining and parallel to the railway right-of-way with returns at each end. They must be constructed without holes or gaps and should be made of a durable material with sufficient mass to limit the noise transmission to at least 10dBA less than the noise that passes over the barrier,<sup>4</sup> at least 20 kg per square metre of surface area. Masonry, concrete, or other specialist construction is preferred in order to achieve the maximum noise reduction combined with longevity. Well-built wood fences are acceptable in most cases. Poorly constructed fences

of any type are an unnecessary burden on future residents.

- Consideration should be made to limiting the visual impact of noise barriers in order to maintain a high level of urban design in all new developments, and to discourage vandalism. This can be accomplished by incorporating public art into the design of the barrier, or through the planting of trees and shrubs on the side of the barrier facing the development, particularly where it is exposed to regular sunlight.
- Alternatively, the barrier itself may be constructed as a living wall, which also has the benefit of providing additional noise attenuation. FIGURE
   8 provides some examples of how good design practices may be incorporated into the design of noise barriers.

**N.B.** New barriers constructed on one side of a railway opposite an older neighbourhood without barriers may lead to concerns from existing residents about the potential for noise increases due to barrier reflections. It is common for the characteristics of the noise to change due to frequency, duration, and time of onset, which, combined, may be perceived as a significant increase in noise levels. However, this is not generally supported through onsite measurement, as the train will act as its own barrier to any reflected noise during pass-by.

#### 3.4.1.3 Building Location, Design Orientation, and Room Layout

While low-rise buildings may benefit from shielding provided by topography, barriers, or other buildings, high-rise buildings usually receive less noise shielding, and are, therefore, typically more exposed to noise from

<sup>4</sup> Rail Infrastructure Corporation. (November 2003). Interim guidelines for applicants: Consideration of rail noise and vibration in the planning process. Retrieved from http://www.daydesign.com.au/ downloads/Interim\_guidelines\_for\_applicants.pdf



FIGURE 9 // LOCATING NOISE SENSITIVE ROOMS AWAY FROM RAIL NOISE IN DETACHED DWELLINGS; AND FIGURE 10 (RIGHT) - LOCATING NOISE SENSITIVE ROOMS AWAY FROM RAIL NOISE IN MULTI-UNIT DWELLINGS. (SOURCE: ADAPTED FROM FIGURE 3.6 IN THE DEVELOPMENT NEAR RAIL CORRIDORS AND BUSY ROADS - INTERIM GUIDELINE BY THE STATE OF NEW SOUTH WALES, AUSTRALIA)



FIGURE 10 // LOCATING NOISE SENSITIVE ROOMS AWAY FROM RAIL NOISE IN MULTI-UNIT DWELLINGS (SOURCE: ADAPTED FROM FIGURES 3.5 & 3.6 IN THE DEVELOPMENT NEAR RAIL CORRIDORS AND BUSY ROADS - INTERIM GUIDELINE BY THE STATE OF NEW SOUTH WALES, AUSTRALIA)

#### Policy Recommendations

Urban Design Guidelines for development near railway corridors would be a valuable tool in suggesting building layout and design. Alternatively, municipal planners should pay close attention to these issues through a site planning process. Jurisdictions that do not allow comprehensive site planning may wish to consider amendments to their land use planning legislation.

Comprehensive zoning for podiums would be a valuable tool for areas in proximity to railway operations that municipalities have identified for redevelopment. Urban Design Guidelines can also speak to appropriate built form, including podium design, setbacks, step backs etc. At a minimum, municipal planners should secure podium massing as part of a site-specific zoning by-law amendment.

Balconies can be regulated through zoning if administered comprehensively and can be secured as part of a site-specific zoning by-law. Urban Design Guidelines should also speak to appropriate balcony design (e.g. recessed versus protruding balconies).

Urban Design Guidelines should contain comprehensive information on best practices for landscape design, and appropriate types and species of plants.

Urban Design Guidelines can speak to materiality. Some jurisdictions, such as Ontario, allow municipalities to regulate external materials through the site plan process. This practice should be encouraged and jurisdictions that do not currently allow for this should consider making appropriate amendments to their land use planning legislation. rail operations. In either case, noise mitigation needs to be considered at the outset of a development project, during the layout and design stage.

- One of the most effective ways of reducing the impact of rail noise is through the use of a setback, by increasing the separation between the source of noise and the noise sensitive area. Generally, doubling the distance from the noise source to the receiver will reduce the noise levels by between 3dBA and 6dBA.<sup>5</sup> (See Section 3.3 Building Setbacks)
- The layout of residential buildings can also be configured to reduce the impact of rail noise. For example, bedrooms and other habitable areas should be located on the side of the building furthest from the rail corridor. Conversely, rooms that are less sensitive to noise (such as laundry rooms, bathrooms, storage rooms, corridors, and stairwells) can be located on the noisy side of the building to act as a noise buffer. This concept is illustrated in FIGURES 9 AND 10.
- Minimizing the number of doors and windows on the noisy side of the dwelling will help to reduce the intrusion of noise. In the case of multi-unit developments, a single-loaded building where the units are located on the side of the building facing away from the rail corridor is another potential solution for reducing noise penetration.

#### 3.4.1.4 Podiums

 Outdoor rail noise can be substantially reduced by building residential apartments on top of a podium or commercial building space. If the residential

<sup>5</sup> State Government of New South Wales, Department of Planning. (2008). Development near rail corridors and busy roads - interim guideline. Retrieved from http://www.planning.nsw.gov.au/rdaguidelines/ documents/DevelopmentNearBusyRoadsandRailCorridors.pdf

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FIGURE 11 // PODIUMS CAN HELP REDUCE THE AMOUNT OF NOISE THAT REACHES RESIDENCES IF A SETBACK IS USED. (SOURCE: ADAPTED FROM FIGURE 3.13 IN THE DEVELOPMENT NEAR RAIL CORRIDORS AND BUSY ROADS - INTERIM GUIDELINE BY THE STATE OF NEW SOUTH WALES, AUSTRALIA).

tower is set back, then the podium acts to provide increased distance from the railway corridor, thus reducing the noise from the corridor and providing extra shielding to the lower apartments. This concept is illustrated in FIGURE 11.

#### 3.4.1.5 Balconies

 Providing enclosed balconies can be an effective means of reducing the noise entering a building. Where enclosed balconies are used, acoustic louvres and possibly a fan to move air into and out of the balcony space may be installed to address ventilation requirements. This concept is illustrated in FIGURE 12.

#### 3.4.1.6 Vegetation

 While vegetation such as trees and shrubs does not actually limit the intrusion of noise, it has been shown to create the perception of reduced noise levels. Vegetation is also valuable for improving the aesthetics of noise barriers and for reducing the potential for visual intrusion from railway operations.

#### 3.4.1.7 Walls

 In order to reduce the transmission of noise into the building, it is recommended that masonry or concrete construction or another form of heavy wall be used for all buildings in close proximity to railway corridors. This will aid in controlling the sound-induced vibration of the walls that rattles windows, pictures, and loose items on shelving. Additionally, care should be taken to ensure that the insulation capacity of the wall is not weakened by exhaust fans, doors, or windows of a lesser insulation capacity. To improve insulation response, exhaust vents can be treated with sound-absorbing material or located on walls which are not directly



FIGURE 12 // USING ENCLOSED BALCONIES FACING A RAILWAY CORRIDOR AS NOISE SHIELDS. (SOURCE: ADAPTED FROM FIGURE 3.16 IN THE DEVELOPMENT NEAR RAIL CORRIDORS AND BUSY ROADS - INTERIM GUIDELINE BY THE STATE OF NEW SOUTH WALES, AUSTRALIA).

exposed to the external noise.

#### 3.4.1.8 Windows

Acoustically, windows are among the weakest elements of a building façade. An open or acoustically weak window can severely negate the effect of an otherwise acoustically strong façade.<sup>6</sup> Therefore, it is extremely important to carefully consider the effects of windows on the acoustic performance of any building façade in proximity to a railway corridor. In addition to the recommendations below, proponents are advised to familiarize themselves with the Sound Transmission Class (STC) rating system, which allows for a comparison of the noise reduction that different windows provide.<sup>7</sup> In order to successfully ensure noise reduction from windows, proponents should:

- ensure windows are properly sealed by using a flexible caulking such as mastic or silicone on both the inside of the window and outside, between the wall opening and the window frame;
- use double-glazed windows with full acoustic seals. When using double-glazing, the wider the air space between the panes, the higher the insulation (50 mm to 100 mm is preferable in non-sealed widows and 25mm in sealed windows). It is also desirable in some cases to specify the panes with different thicknesses to avoid sympathetic resonance or to use at least one laminated lite to dampen the vibration within the window;
- consider reducing the size of windows (i.e. use punched windows instead of a window wall or curtain wall);

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<sup>6</sup> State Government of New South Wales, Department of Planning. (2008). Development near rail corridors and busy roads - interim guideline. Retrieved from http://www.planning.nsw.gov.au/rdaguidelines/ documents/DevelopmentNearBusyRoadsandRailCorridors. pdf

<sup>7</sup> The STC rating of a soundproof window is typically in the range of 45 to 54.

- consider increasing the glass thickness;
- consider using absorbent materials on the window reveals in order to improve noise insulation in particularly awkward cases;
- consider using hinged or casement windows or fixed pane windows instead of sliding windows;
- ensure window frames and their insulation in the wall openings are air tight; and
- incorporate acoustic seals into operable windows for optimal noise insulation.

Note that window frame contributions to noise penetration are typically less for aluminum and wood windows than for vinyl frames, as above.8

#### 3.4.1.9 Doors

In order to ensure proper acoustic insulation of doors:

- airtight seals should be used around the perimeter of the door:
- cat flaps, letter box openings, and other apertures should be avoided;
- heavy, thick, and/or dense materials should be used in the construction of the door;
- there should be an airtight seal between the frame and the opening aperture in the façade;
- windows within doors should be considered as they exhibit a higher acoustic performance than the balance of the door material: and
- sliding patio doors should be treated as windows when assessing attenuation performance.

#### 3.5 // VIBRATION MITIGATION

Vibration caused by passing trains is an issue that could affect the structure of a building as well as the liveability of the units inside residential structures. In most cases, structural integrity is not a factor. Like sound, the effects of vibration are site specific and are dependent on the soil and subsurface conditions, the frequency of trains and their speed, as well as the quantity and type of goods they are transporting.

The guidelines below are applicable only to new building construction. In the case of building retrofits, vibration isolation of the entire building is generally not possible. However, individual elevated floors may be stiffened through structural modifications in order to eliminate low-frequency resonances. Vibration isolation is also possible for individual rooms through the creation of a room-within-a-room, essentially by floating a second floor slab on a cushion (acting like springs), and supporting the inner room on top of it.<sup>9</sup> Additional information regarding vibration mitigation options for new and existing buildings can be found in the FCM/RAC Railway Vibration Mitigation Report, which can be found on the Proximity Project website.

#### 3.5.1 Guidelines

• Since vibration is site-specific in nature, the level and impact of vibration on a given site can only be accurately assessed by a qualified acoustic or vibration consultant through the preparation of a vibration impact study. It is highly recommended that an acoustic or vibration consultant be obtained by the proponent early in the design process, as mitigation can be difficult. It is recommended

<sup>8</sup> Note that STC ratings should include the full window assembly with the frame, as frames have been shown to be a weak component, and may not perform as anticipated from the glazing specifications.

<sup>9</sup> Howe, B., & McCabe, N. (March 15 2012). Railway vibration reduction study: Information on railway vibration mitigation [Ottawa, ON]: Railway Association of Canada.


that the consultant be used to determine whether vibration mitigation measures are necessary and what options are available given the particular conditions of the development site in question. The consultant will employ measurements to characterize the vibration affecting the site in question. In the absence of a future rail corridor not yet operating, estimates based on soil vibration testing are required, although such sites are quite rare.

#### » Policy Recommendation

Municipalities should consider amendments to their Official Plan, where necessary, to make vibration studies a requirement for any zoning by-law amendment and Official Plan amendment applications.

- The recommended minimum vibration influence area to be considered is 75 metres from a railway corridor or rail yard.
- The acoustic consultant should carry out vibration measurements and calculate the resultant internal vibration levels. This should take into account the particular features of the proposed development. The measurements and calculations should be representative of the full range of trains and operating conditions likely to occur at the particular site or location. The study report should include details of the assessment methods, summarize the results, and recommend the required control measures.
- See AC.2.5 for recommended procedures for the preparation of vibration impact studies. These should be observed.

- The important physical parameters that should be considered by the consultant for designing vibration control can be divided into the following four categories:
  - » Operational and vehicle factors: including speed, primary suspension on the vehicle, and flat or worn wheels.
  - » Guideway: the type and condition of the rails and the rail support system.
  - Geology: soil and subsurface conditions are known to have a strong influence on the levels of ground-borne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth of bedrock. Experience with ground-borne vibration is that vibration propagation is more efficient in stiff soils. Shallow rock (within a metre or two of the surface) seems to prevent significant vibration. Additional factors such as layering of the soil and depth to the water table, including their seasonal fluctuation, can have significant effects on the propagation of ground-borne vibration.
  - » Receiving building: the vibration levels inside a building depend on the vibration energy that reaches the building foundations, the coupling of the building foundation to the soil, and the propagation of the vibration through the building. The general guideline is that the heavier a building is, the lower the response will be to the incident vibration energy.

## 3.5.2 Examples of Vibration Mitigation Measures

Full vibration isolation requires a significant amount of specialist design input from both the acoustic consultant

and the structural engineer, and is therefore more suited to larger developments, which exhibit greater economies of scale.

## 3.5.2.1 Low-rise Buildings

- Vibration isolation of lightweight structures is difficult but possible for below grade floors. Normally, the upper floors are isolated from the foundation wall and any internal column supports using rubber pads designed to deflect 5 to 20mm under load. This concept is illustrated in FIGURE 13. Additionally, the following factors should be taken into consideration when designing vibration isolation for lightweight structures:
  - » Using hollow core concrete or concrete construction for the first floor makes the isolation problem easier to solve.
  - » Thought must be given to temporary wind and earthquake horizontal loads.
  - » A seam is created around the foundation wall that must be water sealed and insulated.
  - » Finishing components such as wood furring cannot be attached either above or below the isolation joint.
  - » All of these special items would likely be carried out by trades untrained in vibration control and therefore, a good deal of site supervision is required.
- Minor vibration control (usually only a 30% reduction) can be achieved by lining the outside of the foundation walls with a resilient layer. This practice takes advantage of the fact that the waves of vibration from surface rail travel mostly on the surface, dying down with depth. To obtain reasonable

results, however, the lining must be quite soft and yet be able to withstand the lateral soil pressures present on the foundation wall.

#### 3.5.3.2 Deep Foundation Buildings

- In the case of deep concrete foundations near rail lines, the design of vibration isolation for the surface wave should consider whether or not it is necessary to isolate the base of the building columns and walls. Often, these structures are anchored well below the depth where the surface wave penetrates and there are several levels of parking that the vibration must climb to reach a floor where vibration is of concern. Therefore, unless the rail corridor is running in a tunnel, isolation of deep foundation buildings may only require isolation of the foundation wall away from the structure.
- In severe cases, or locations where the foundation is not deeper than the surface wave, vibration isolation may also be required beneath the columns and their foundations, though it may only be necessary to isolate those portions of the structure located closest to the rail line. Consideration should be given to the differential deflection from one column row to the next, if only part of the building is vibration isolated.
- This is an unusual type of construction, which requires considerable professional supervision. The design is usually a joint effort between the vibration and structural engineers. Some architectural expertise is also needed, particularly for waterproofing the gap at the top of the foundation wall below the grade slab and making sure that there are no inadvertent connections between internal walls on the parking slabs and the vibrating

foundation wall, or between the grade slab and the lowest parking slab if the columns are isolated.

## 3.6 // SAFETY BARRIERS

Safety barriers reduce the risks associated with railway incidents by intercepting or deflecting derailed cars in order to reduce or eliminate potential loss of life and damage to property, as well as to minimize the lateral spread or width in which the rail cars and their contents can travel. The standard safety barrier is an earthen berm, which is intended to absorb the energy of derailed cars, slowing them down and limiting the distance they travel outside of the railway right-of-way. The berm works by intercepting the movement of a derailed car. As the car travels into the berm, it is pulled down by gravity, causing the car to begin to dig into the earth, and pulling it into the intervening earthen mass, slowing it down, and eventually bringing it to a stop.

3.6.1 Guidelines

#### 3.6.1.1 Berms

- Where full setbacks are provided, safety barriers are constructed as berms, which are simple earthen mounds compacted to 95% modified proctor.
  Setbacks and berms should typically be provided together in order to afford a maximum level of mitigation. Berms are to be constructed adjoining and parallel to the railway right-of-way with returns at the ends and to the following specifications:
  - Principle Main Line: 2.5 metres above grade with side slopes not steeper than 2.5 to 1
  - » Secondary Main Line: 2.0 metres above grade with side slopes not steeper than 2.5 to 1



FIGURE 14A // DEEP VIBRATION ISOLATION, COMBINED WITH CRASH WALL.



FIGURE 14B // DEEP VIBRATION ISOLATION DETAIL, COMBINED WITH CRASH WALL.



FIGURE 15 // NO BERM IS REQUIRED WHERE THE RAILWAY IS IN A CUT OF EQUIVALENT DEPTH

- » Principle Branch Line: 2.0 metres above grade with side slopes not steeper than 2.5 to 1
- » Secondary Branch Line: 2.0 metres above grade with side slopes not steeper than 2.5 to 1
- » Spur Line: no requirement

**N.B.** Berms built to the above specifications will have a full width of as many as 15 metres.

- Berm height is to be measured from grade at the property line. Reduced berm heights are possible where larger setbacks are proposed.
- Steeper slopes may be possible in tight situations, and should be negotiated with the affected railway.
- Where the railway line is in a cut of equivalent depth, no berm is required (FIGURE 15).
- There is no requirement for the proponent to drop back to grade on the side of the berm facing the subject development property. The entire grade of the development could be raised to the required height, or could be sloped more gradually. This may be desirable to avoid creating unusable backyard space, due to the otherwise steep slope of the berm. This concept is illustrated in FIGURE 16.
- Marginal reductions in the recommended setback of up to 5 metres may be achieved through a reciprocal increase in the height of the berm.
- If applicable to the site conditions, in lieu of the recommended berm, a ditch or valley between the railway and the subject new development property that is generally equivalent to or greater than the inverse of the berm could be considered (e.g. a ditch that is 2.5 metres deep and approximately 14

FIGURE 16 // GRADUALLY RETURNING TO GRADE FROM THE TOP OF THE BERM AVOIDS CREATING UNUSABLE BACKYARD SPACE OR BLOCKING SUNLIGHT

metres wide in the case of a property adjacent to a Principle Main Line). This concept is illustrated in FIGURE 17.

 Where the standard berm and setback are not technically or practically feasible, due for example, to site conditions or constraints, then a Development Viability Assessment should be undertaken by the proponent to evaluate the conditions specific to the site, determine its suitability for development, and suggest alternative safety measures such as crash walls or crash berms. Development Viability Assessments are explained in detail in APPENDIX A.

## » Policy Recommendation

Urban Design Guidelines may be useful tools for establishing specifications for the proper use and design of berms.

#### 3.6.1.2 Crash Berms

Crash berms are reinforced berms – essentially a hybrid of a regular berm and a crash wall. They are generally preferable to crash walls, because they are more effective at absorbing the impact of a train derailment. This results from both the berm's mass and the nature of the material of which it is composed. Crash berms are also highly cost effective and particularly useful in spatially constrained sites where a full berm cannot be accommodated.

In derailment scenarios other than a head-on or close to head-on interception, the standard earthen berm and setback distance will be more effective in absorbing the kinetic energy of the derailed train than a reinforced concrete crash wall. The reason for this is that anything other than a 90 degree interception of the crash wall will result in some deflection of the energy in the derailing





FIGURE 17 // A DITCH OR VALLEY OF EQUIVALENT DEPTH CAN BE USED IN PLACE OF A STANDARD BERM ADJACENT TO A MAIN LINE RAILWAY

train back towards the corridor, thus extending the time and distance of the derailment event. This extension of derailment time and distance results in greater risk of damage to private property along a longer section of the rail corridor, to more lives, and results in more expensive clean up and restoration work within the rail corridor. The preference therefore, is to design "crash berms" which are typically concrete wall structures retaining more earth behind the wall that in-turn provide more energy absorption characteristics (see FIGURE 18).

#### 3.6.1.3 Crash Walls

Crash walls are concrete structures that are designed to provide the equivalent resistance in the case of a train derailment as the standard berm, particularly in terms of its energy absorptive characteristics. The design of crash walls is dependent on variables such as train speed. weight, and the angle of impact, which will vary from case to case. Changes in these variables will affect the amount of energy that a given crash wall will have to absorb, to effectively stop the movement of the train. In addition, the load that a wall is designed to withstand will differ based on the flexibility of the structure, and therefore, on how much deflection that it provides under impact. For these reasons, it is not possible to specify design standards for crash walls. In keeping with existing guidelines developed by AECOM, the appropriate load that a crash wall will have to withstand must be derived from the criteria outlined below.

 When proposing a crash wall as part of a new residential development adjacent to a railway corridor, the proponent must undertake a detailed study that outlines both the site conditions as well as the design specifics of the proposed structure. This study must be submitted to the affected municipality for approval and must contain the following elements:

- a location or key plan. This will be used to identify the mileage and subdivision, the classification of the rail line, and the maximum speed for freight and passenger rail traffic;
- » a Geotechnical Report of the site;
- a site plan clearly indicating the property line, the location of the wall structure, and the centreline and elevation of the nearest rail track;
- layout and structure details of the proposed crash wall structure, including all material notes and specifications, as well as construction procedures and sequences. All drawings and calculations must be signed and sealed by a professional engineer;
- » the extent and treatment of any temporary excavations on railway property; and
- a crash wall analysis, reflecting the specified track speeds for passenger and/or freight applicable within the corridor, and which includes the following four load cases:
  - Freight Train Load Case 1 Glancing Blow: three locomotives weighing 200 tonnes each plus six cars weighing 143 tonnes each, impacting the wall at 10 degrees to the wall;
  - ii. Freight Train Load Case 2 Direct Impact: single car weighing 143 tonnes impacting the wall at 90 degrees to the wall;
  - iii. Passenger Train Load Case 3 Glancing Blow: two locomotives weighing 148 tonnes each plus 6 cars weighing 74 tonnes each impacting the wall at 10 degrees to the wall; and
  - iv. Passenger Train Load Case 4 Direct Impact: Single car weighing 74 tonnes impacting the



# Rail transportation safety investigation R24C0147

Main-track<br/>derailment and<br/>dangerous goodsTable of<br/>Mediadangerous goods<br/>releaseMediareleaseInvestiCanadian NationalInvestiRailway Company (CN)Mile 90.60, Three Hills SubdivisionBeiseker, Alberta1 November 2024

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<u>Media materials</u>

Investigation information

## The occurrence

On 01 November 2024, a Canadian National Railway Company (CN) freight train was travelling south on the Three Hills Subdivision when 10 rail cars derailed near Beiseker, Alberta.

An unknown amount of dangerous goods was released from one of the tank cars. There was no fire, and no injuries were reported. The TSB is investigating.

## **Media materials**

## **Deployment notice**

2024-11-01 <u>TSB deploys a team of investigators following a train</u> <u>derailment near Calgary, Alberta</u>

## 1 - PRDP20223151

## Exhibit 10 - Preliminary Submission -Development Authority Report Investigation information

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## Map showing the location of the occurrence



## **Photos**



**Download high-resolution photos from the <u>TSB</u> <u>Flickr page</u>.** 

## **Class of investigation**

This is a class 3 investigation. These investigations analyze a small number of safety issues, and may result in recommendations. Class 3 investigations are generally completed within 450 days. For more information, see the <u>Policy on Occurrence</u> <u>Classification</u>.

## **TSB** investigation process

There are 3 phases to a TSB investigation

## 1 - PRDP20223151

## Exhibit 10 - Preliminary Submission -Development Authority Report

- 1. **Field phase**: a team of investigators examines the occurrence site and wreckage, interviews witnesses and collects pertinent information.
- 2. **Examination and analysis phase**: the TSB reviews pertinent records, tests components of the wreckage in the lab, determines the sequence of events and identifies safety deficiencies. When safety deficiencies are suspected or confirmed, the TSB advises the appropriate authority without waiting until publication of the final report.
- 3. Report phase: a confidential draft report is approved by the Board and sent to persons and corporations who are directly concerned by the report. They then have the opportunity to dispute or correct information they believe to be incorrect. The Board considers all representations before approving the final report, which is subsequently released to the public.

For more information, see our <u>Investigation process</u> page.

The TSB is an independent agency that investigates air, marine, pipeline, and rail transportation occurrences. Its sole aim is the advancement of transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

