

ENTUITIVE

October 17, 2023

Vaughn Bender
Chief Operating Officer
Schlegel Urban Developments
519.503.2122
vbender@SchlegelUrban.com

Re: 52 Hawkesville Road, St. Jacobs – Rail Safety Phase 1 Guidance and Memo
Consulting Engineering Services
Our Project No. EN023-02665

Dear Vaughn,

We understand that Schlegel Urban Developments is looking to develop a site located at 52 Hawkesville Road in St. Jacobs, Ontario. Entuitive has been retained to provide high-level strategic input regarding the measures to be implemented to mitigate the risks associated with the site's proximity to the adjacent rail corridor. We understand that current plans for this site include a residential development comprised of single-family homes. It should be noted that the information provided as part of this memo is for preliminary guidance and does not replace the requirement for a full Rail Safety Report to be developed at a future stage. We trust that the information provided is helpful, but should you have any questions or comments please reach out to our team.

Sincerely,

Entuitive



Jonathan Hendricks, P.Eng, ing.
Principal
Entuitive Corporation
Jonathan.hendricks@entuitive.com
416-561-5245



Ashley Mustafa, P. Eng.
Project Manager – Transportation
Entuitive Corporation
Ashley.Mustafa@entuitive.com
C: 437-991-8749

SITE

The proposed development is a residential subdivision comprised of 147 single family homes located on a 9.67 ha plot of land in St. Jacobs, Ontario. The site is currently used as farmland, and is bound by farmland to the north, a church to the east, two single-family dwellings to the south, and the rail corridor to the west.

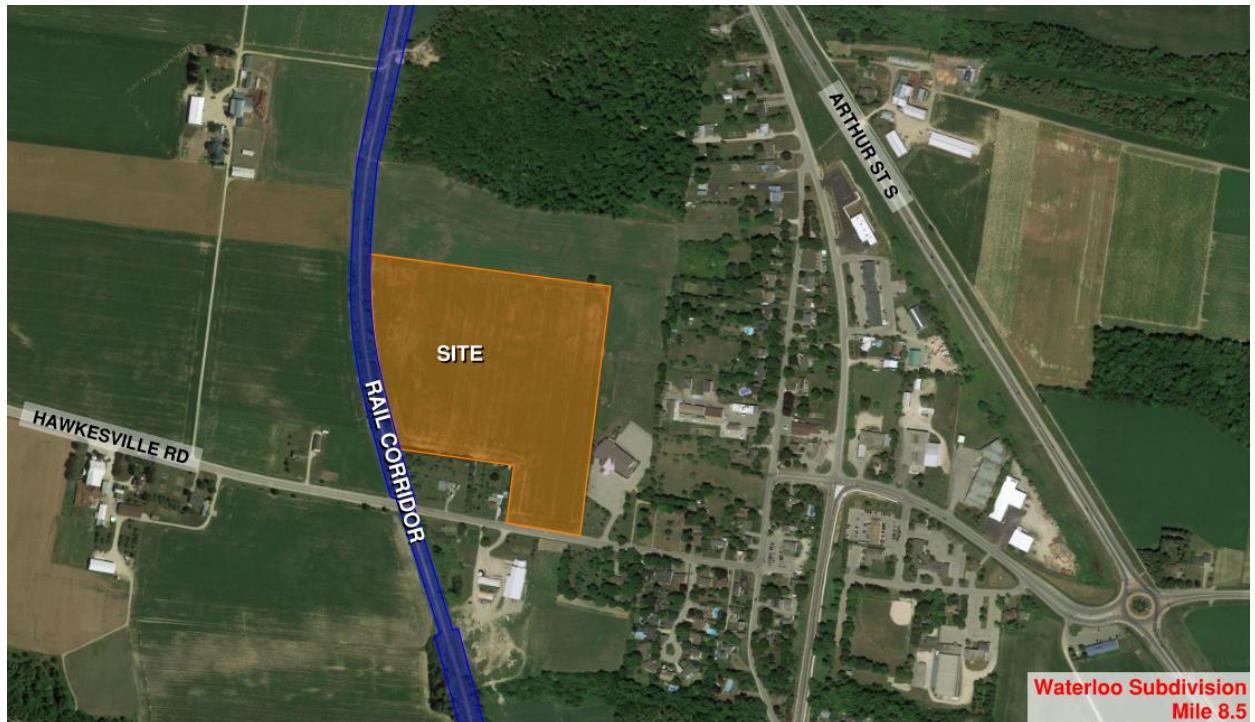


Figure 1: Context plan for site in relation to rail corridor.

TRACK INFORMATION

The proposed development site is adjacent to the Elmira Section of the Waterloo Subdivision, operated by Waterloo Central Railway. This subdivision is a spur that originates from the Guelph Subdivision in Kitchener to the south and terminates in Elmira to the north. The rail corridor in the vicinity of the proposed development is utilized now for occasional recreational use, with tourist trains running along the corridor. CN also occasionally runs freight along the line, operating at night when the Waterloo Ion Light Rail Transit is closed. Table 1 provides a summary of the track information for the rail corridor adjacent to the development.

Table 1: Summary of relevant track information adjacent to development.

Subdivision	Waterloo
Mileage	8.5
Track Information	One (1) spur track
Track Usage	Passenger (Tourists) and Freight
Elevation	Tracks located in a moderate cut – elevation difference to be confirmed at later stage.
Track Alignment	Site located on the inside of an approximate 30° curve towards the east.

GUIDELINE RECOMMENDATIONS

The following section outlines the recommendations of relevant rail safety guidelines in Canada as they relate to the proposed development of this site.

FCM GUIDELINE RECOMMENDATIONS

The guidelines for the safe development of properties in proximity to railways are set out in:

- “Guidelines for New Developments in Proximity to Railway Operations” dated May 2013, developed by the Federation of Canadian Municipalities and the Railway Association of Canada (FCM/RAC), referred to within this document as the FCM Guidelines.

The FCM Guidelines recommend the building setbacks noted in Table 2 and the berm geometry outlined in Table 3 for new residential developments in proximity to railway operations:

Table 2: Recommended setbacks to residential developments per FCM Guidelines.

Track Type	Recommended Setback
Freight Rail Yard	300m
Principle Main Line	30m
Secondary Main Line:	30m
Principle Branch Line	15m
Secondary Branch Line	15m
Spur Line	15m

Table 3: Recommended berm geometry to protect residential developments for rail hazards.

Track Type	Recommended Berm Geometry
Principle Main Line	2.5m above grade; side slopes max. 2.5 to 1
Secondary Main Line:	2.0m above grade; side slopes max. 2.5 to 1
Principle Branch Line	2.0m above grade; side slopes max. 2.5 to 1
Secondary Branch Line	2.0m above grade; side slopes max. 2.5 to 1
Spur Line	No Requirement

Based on the classification of the Waterloo Subdivision as a spur line, the recommended setback to residential developments per the FCM Guidelines is 15m and there is no berm requirement.

SITE EVALUATION

The site at 52 Hawkesville Road is a proposed development of a new residential subdivision. The site and the rail corridor share a property line. The location of the site is shown in Figure 2 below, with the site property highlighted in orange and the rail corridor highlighted in blue. A 15m setback has also been illustrated in the figure below. It should also be noted that the site is located on the inside of a curved portion of track, and therefore additional protection from train derailment is provided. Due to the curved nature of the tracks, derailments through this area are unlikely to ingress the site beyond the 15m setback.



Figure 2: Concept Plan for proposed subdivision illustrating 15m setback.

The site is located east of the Waterloo Spur, originating from the Guelph Subdivision which runs through Kitchener, approximately 8 miles south of the proposed development. This development is located at approximately mile 8.5 of the Waterloo Subdivision, where there is one (1) track operated by Waterloo Central Railway.

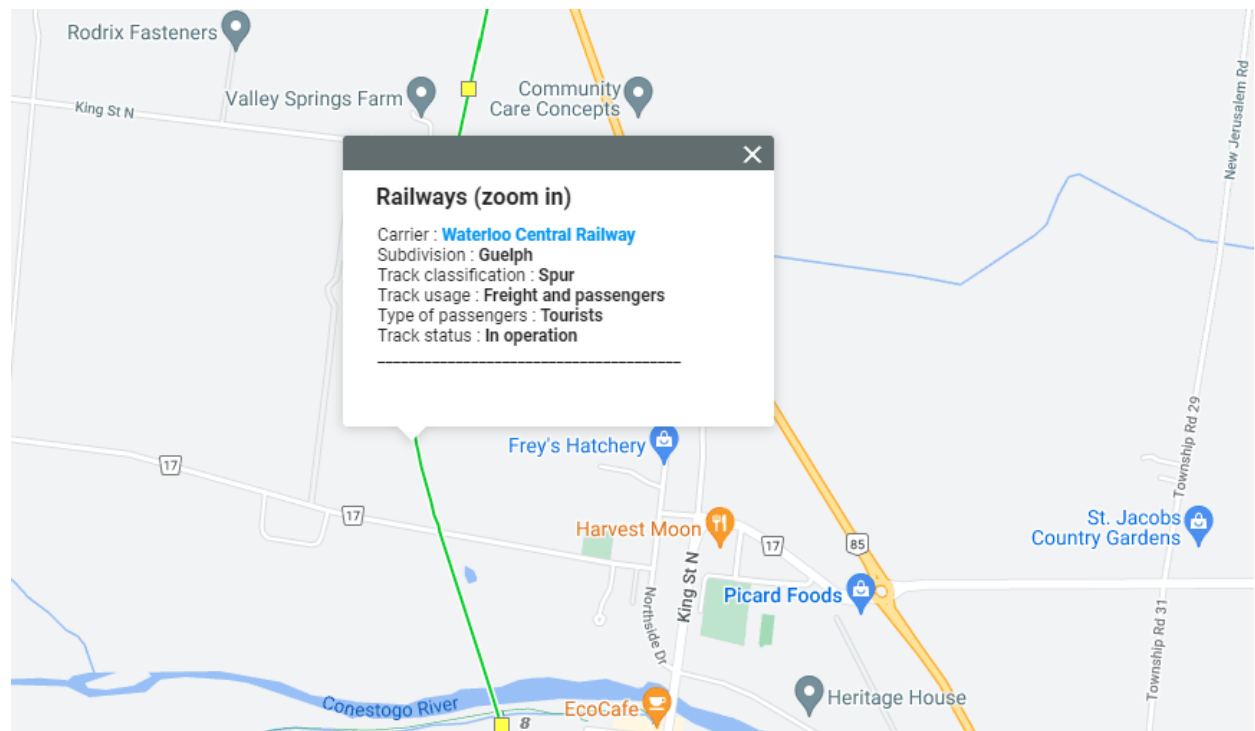


Figure 3: Canadian Rail Atlas corridor information adjacent to development site.

RAIL SAFETY MITIGATION MEASURES

As the proposed development is adjacent to a spur line, per the FCM Guidelines, the minimum recommended setback to the nearest residential occupancy is 15m and there is no requirement for additional protection by a berm. As shown in Figure 4, the current minimum setback proposed to the nearest sensitive occupancy is approximately 23.6m.

The site shall also feature a chain-link fence with a minimum height of 1.83m from grade along the property line shared with the rail corridor, to prevent trespassers from entering the rail corridor, per the FCM Guidelines.

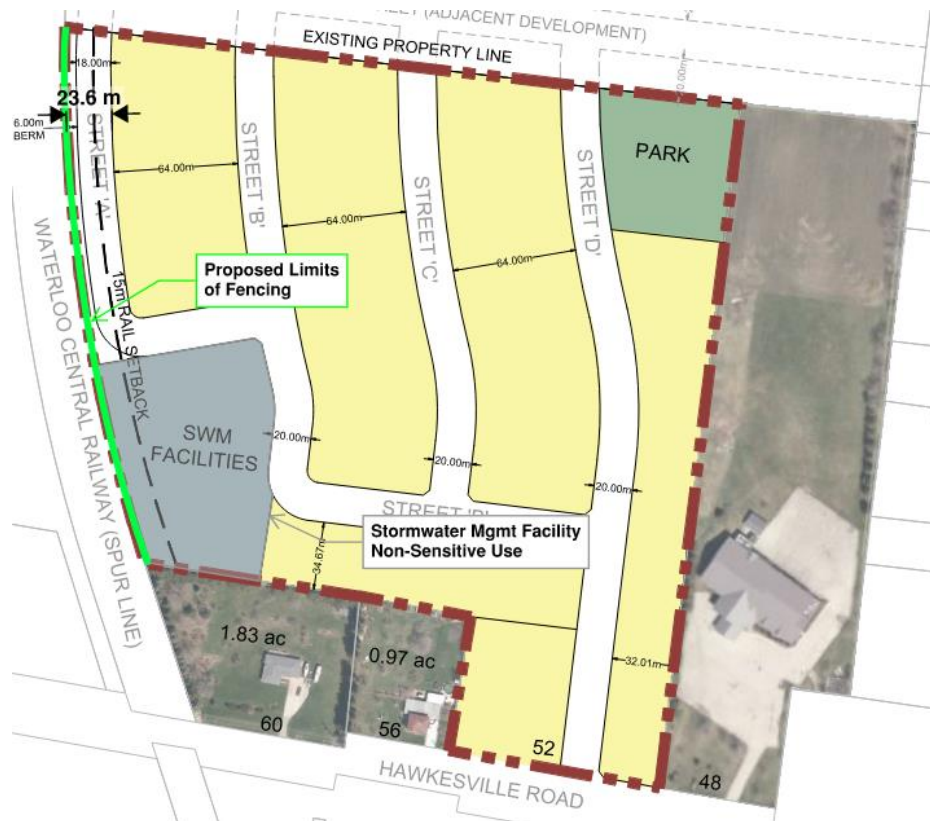


Figure 4: Minimum setback of 23.6m to nearest sensitive occupancy.

CONCLUSION

Based on the information presented in this memo, the proposed residential development will meet the recommendations outlined in the FCM Guidelines. The applicable recommendations for this site include:

- Minimum setback of 15m to nearest residential occupancy.
- Chain-link fence extending 1.83m above grade along the length of the shared property line between the development and the rail corridor.

It should be noted that this memo contains a preliminary review based on the information available at the time, and that a full Rail Safety Report shall be developed at a later stage.