

Ministry of Energy, Northern Development and Mines Ministère de L'Énergie, du Développement du Nord et des Mines

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Subject: Haldimand County, 192-222 Argyle St N., Commercial Development Proposal: Zoning By-law Amendment Review Developer: Goodreid Planning Group

The comments below are provided by the Southern Ontario Regional Land Use Geologist for the Ministry of Energy, Northern Development and Mines regarding mineral values in the area of a proposed commercial development at 192-222 Argyle St. N. in Caledonia, Seneca Township.

 Mineral Occurrences: The Ontario Geological Survey's Mineral Deposits Inventory (MDI) database was checked. There are 3 MDI sites that correspond to Abandoned Mine sites with associated mine hazards (underground workings) that affect the subject property, as described below:

MDI30M04SW00006, Caledonia #1 gypsum mine

MDI30M04SW00008, Caledonia #3 gypsum mine

MDI30M04SW00010, "Old Mine", Caledonia Gypsum Co.

 Abandoned Mines Hazards: The following comments on abandoned mine hazards were provided by the Mine Hazards Technical Specialist, Mineral Development Branch, ENDM:

The following AMIS (Abandoned Mines Information System) sites are located within 1km radius of the proposed project area:

- 1) Caledonia #1 (#04906)
 - History:
 - o site closed out in 1952,
 - some rehabilitation was conducted in 1995
 - Site Class B

- Features present: 3 Shaft (23m deep); Portal; 3 Lateral workings
- 2) Caledonia #3 (#04899)
 - History:
 - a. Site is closed out
 - b. Rehabilitated in 2006 (as per THE 2005 "MINE CLOSURE MATERIAL CHANGES TO THE CLOSURE PLAN GEORGIA-PACIFIC CANADA INC #3 MINE".)
 - Site Class B
 - Features present: 1 shaft (depth unknown)
- 3) Old Mine (#04898)
 - History:
 - Domtar property, only producing 1 yr due to mill burn down
 - Features present: mill/foundation, 2 shafts, 2 lateral workings

With this in mind, ENDM recommends the following:

• That the extent of mining hazards in the proposed development area are confirmed in-situ and not only delineated by historic mine plans.

If mine workings exist in or may influence the proposal area:

- A Geotechnical study should be completed to determine the long-term stability of mine workings and the setback distance required if a failure were to occur. At a minimum, the report must meet Part 3 of Sch.1 of O.Reg.240/00.
- If development is proposed to occur over a hazard (including within its failure set back distance) a rehabilitation plan must include a detailed geotechnical investigation, and a rehabilitation plan that certifies long term stability of the proposed area for **the land use** being proposed.

Please note all AMIS information should be used as per the instructions provided in the AMIS Disclaimer attached to this e-mail.

- 3. Bedrock Geology: The project area is underlain by Paleozoic (Silurian age) dolostone, shale and evaporites (gypsum) of the Salina Formation (Armstrong and Dodge, 2007).
- 4. Aggregate Potential: There are no significant deposits of surficial aggregate on the property. Bedrock consists of Salina Formation dolostone, shale and gypsum under 8 to 15 metres of overburden and is not considered to be a source of high-quality aggregate (Ontario Geological Survey 1985).
- 5. Mining Lands Status: There are no Crown Lands and no mining leases on or in the vicinity of the property.
- 6. Mineral Potential: An area of Gypsum Deposits, described as "known gypsum deposits and/or areas that have been affected by underground mining activity related to gypsum extraction" (Haldimand County Official Plan, section A.3.2) overlaps part the project area.

7. Natural Hazards: There are no identified areas of known or potential karst development (Brunton and Dodge 2008).

Maps of bedrock geology, aggregate potential, karst potential, Mineral Deposit Inventory and Abandoned Mines records are available for viewing or free download through the OGS Earth portal using the following link: <u>http://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth</u>.

ENDM Concerns

To summarize, ENDM has concerns regarding the overlap of the project area with underground mine workings of former gypsum mines. Due to the complexity of the mine hazards issue, staff of the ENDM Rehabilitation, Inspection and Compliance Section will review the proponent's technical documents on identification of mine hazards and proposed rehabilitation measures and respond to the developer.

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References:

Armstrong, D.K. and Dodge, J.E.P. 2007. Paleozoic geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 219 (May 2017 update). <u>http://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth/paleozoic-geology</u>

Brunton, F.R. and Dodge, J.E.P. 2008. Karst of southern Ontario and Manitoulin Island; Ontario Geological Survey, Groundwater Resources Study 5 (May 2017 update). <u>http://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth/karst</u> Marich, A.S. 2012. Aggregate resources inventory of the County of Frontenac, southern Ontario; Ontario Geological Survey, Aggregate Resources Inventory Paper 187, 50p.

Ontario Geological Survey 1985. Aggregate Resources Inventory of the Town of Haldimand, Regional Municipality of Haldimand-Norfolk, Southern Ontario; Ontario Geological Survey, Aggregate Resources Inventory Paper 64, 35p