

Ontario Aggregate Resources Management: Linkages Between Effective Rehabilitation and Long Term Economic Prosperity

Jim Parkin
MacNaughton Hermsen Britton Clarkson Planning Limited

Abstract

It has been recognized for a considerable period of time that the environmental sustainability and long term viability of mining operations requires a commitment to an effective reclamation program. In Southern Ontario, current growth pressure and trends affecting the availability of mineral aggregates underlines the importance of land rehabilitation programs. The aggregate industry's commitment to rehabilitation and the ability to demonstrate positive results will have a direct bearing on now and where aggregates will be mined in the future.

BACKGROUND

A healthy economy is vital to Ontario's ongoing prosperity. It is recognized in the Provincial Policy Statement that the wise use and protection of the Province's resources over the long term is a key provincial interest. Long term economic prosperity depends, in part, on protecting resources for their economic use and/or environmental benefits.

Ontario's growth is concentrated in two key metropolitan areas. The Golden Horseshoe, within Central Ontario, is one of the fastest growing regions in North America. It includes the Greater Toronto Area, Barrie and Hamilton. The other major growth area in Central Ontario is Waterloo-South Wellington.

The GTA and Hamilton is going to grow by almost 3 million people (over 50%) over the next 30 years. During this period, the GTA alone will need another 1.1 million housing units. This growth requires significant volumes of aggregate to build and maintain the required infrastructure. Over this 30 year period, the GTA can be expected to consume over 1.5 billion tonnes of aggregate.

There is a critical need for new and expanded licenses to meet the anticipated demand. Almost 70% of today's GTA Class A licenses were originally issued over 25 years ago. Replacement of extracted reserves through the Issuance of new licenses has not kept up with depletion rates.

The pressure for new licenses will be felt most in the close to market areas around the periphery of urbanizing centres. The need for close to market supply is a fundamental provincial policy direction.

It has a strong environmental footing given the international kyoto protocol, and provincial smart growth and provincial policy statement which reinforces the messages that close to market sources should be the highest priority. Every extra kilometre added to the GTA average haul distance causes an extra 4,800 tonnes of greenhouse gas to be emitted and an extra 1.8 litres of fossil fuel to be consumed. In addition to environmental consequences, there are economic and social costs including traffic gridlock.

There is a high degree of competition for land in the close to market areas where the pressure for new licenses will be greatest. The countryside around urban areas is coveted as a place to live and play by the population seeking to escape the city.

Many of the most important aggregate deposits in the close to market area around the GTA occur in association with environmental features and landforms most notably the Niagara Escarpment Plan Area and Oak Ridges Moraine.

As a result, the aggregate industry is being squeezed from all directions. Choices for suitable locations for new and expanded operations are becoming increasingly difficult to find. As competition for land and environmental pressures continue to build, the importance of effective pit and quarry rehabilitation takes on an even higher degree of

significance.

OAK RIDGES MORaine CONSERVATION PLAN

The recently approved Oak Ridges Moraine Conservation Plan is a primary example. The Oak Ridges Moraine is one of Ontario's most significant landforms. Its ecological functions are seen as critical to the Greater Toronto Region's continuing health. The Oak Ridges Moraine Conservation Plan is an ecologically base plan established by the provincial government to provide land use and resource management direction for 190,000 hectares of land and water within the Moraine. This recently approved Plan came into effect in November 2001.

One of the Oak Ridges Moraine's important resources are its aggregate deposits. Production of aggregate from the Oak Ridges Moraine accounts for approximately one third of the total aggregate produced within the GTA. There are approximately 100 licensed pits on the Oak Ridges Moraine (GTA portion). The majority of these were licensed in the early 1970's and replacement approvals are required.

The Oak Ridges Moraine Conservation Plan recognizes the important role of the Moraine in contributing to availability of aggregate. Aggregate extraction is permitted in two of the three land use designations which have been applied to the rural portions of the Moraine. However, this availability is contingent upon demonstration of effective land rehabilitation, for example:

With the exception of prime agricultural land, in all other cases, as much of the site as possible must be rehabilitated by established or restoring natural self-sustained vegetation.

In areas with an existing or potential ecological linkage function, the location and rehabilitation of sites must maintain a 1.25 kilometre wide band of undisturbed land at all times.

Aggregate availability from portions of key natural heritage features that are occupied by young plantations or early successional habitat is contingent upon maintaining the long term ecological integrity and rehabilitating to establish a natural self sustaining vegetation of equal or greater ecological value. Ecological value is defined in the Plan as maintaining the

health of key natural heritage features and related ecological functions as measured by factors such as species diversity, habitat diversity and suitability in amount of habitats available for rare, threatened and endangered species.

In areas with diverse landform, mineral aggregate extraction areas must be rehabilitated to establish a landform character that blends in with the pattern of the adjacent land.

The Oak Ridges Moraine Conservation Plan also includes provisions for a ten year review. The potential to access additional aggregate reserves in the third designation (Natural Core Areas) is to be considered as part of that review. However, any such policy change must be carefully considered based on studies that have demonstrated the success of ecologically orientated rehabilitation. The Plan specifically requires demonstration that rehabilitation achieve natural self-sustaining vegetation of equal or greater ecological value, that the connectivity of key natural heritage features and hydrogeological features is maintained, and improved or restored; and that operational practices minimize possible impacts such as extent of exposed soil include rapid extraction and rehabilitation and places limitations on activities that may affect natural areas. In addition, policy change would only be considered where the successful performance of mineral aggregate operations and their rehabilitation has been demonstrated to maintain and improve long term ecological integrity.

NIAGARA ESCARPMENT PLAN

Turning to the Niagara Escarpment and adjacent limestone plains, there is an immediate problem in crushed stone supply within the GTA west. Crushed limestone products have been supplied from five quarries within the Regional Municipality of Halton as well as being imported from adjoining areas. All five GTA quarries were opened in the late 1950's and early 1960's. The quarries are now nearing depletion and, in order to avoid increased reliance on imports (increased haul distances), new sources within the GTA must be licensed in the next few years.

Rehabilitation of these escarpment quarries is evolving and over recent years, operators have adopted more sophisticated approaches to land from creation, establishing diverse vegetation cover,

habitat creation and water management. As these quarries are rehabilitated, they are reintegrated into the surrounding escarpment environment providing both recreational opportunities and ecological functions in keeping with the objectives of the Niagara Escarpment Plan Area. The recently depleted Milton Limestone Quarry will be developed as an extension of the adjacent conservation areas. Meanwhile, at Dufferin's Milton Quarry, the first phase of rehabilitation is nearing completion. Four hectares of wetland area with surrounding cliff shoreline habitats has been created. Lake areas and a water management reservoir will complete rehabilitation on one side of the quarry in the next few years. Innovative public private partnerships are being explored to provide for the long term management of these areas.

CONCLUSION

Licensing new aggregate supplies in Ontario is contingent upon demonstrating that extraction is an interim land use. If new pits and quarries are to be approved, applicants must meet legislative and policy requirements to demonstrate that the rehabilitation program will effectively restore the landscape to a natural condition that is in keeping with the environmental and recreational attributes of these close to market supply areas.