OSSGA
ONTARIO STONE, SAND & GRAVEL ASSOCIATION

Essential materials for building a strong Ontario

REHABILITATION OF PITS AND QUARRIES

Aggregate extraction is an interim land use. Once aggregate is extracted from a pit or quarry, the site is rehabilitated into productive wildlife habitats, wetlands, golf courses, recreational parks, urban uses, conservation lands, forestry or agricultural lands.

Dufferin Aggregates' Milton Quarry used landform simulation techniques to create escarpment cliff and talus slope environments as seen here. The quarry, located on the Niagara Escarpment, now features lakes, wetlands and islands. The new topography now supports aquatic, terrestrial and cliff habitats.

WHAT IS REHABILITATION?

Rehabilitation of a pit or quarry involves the management of all of the property's natural resources during the aggregate extraction process.

Topsoil, including the seed sources that it contains, and overburden are managed carefully (i.e. stripped and placed separately in a manner that reflects the original profile) throughout the life of the operation to ensure that they can be used to progressively create a new landscape and land use for the pit or quarry.

Rehabilitation sequences are carefully planned during the preliminary licensing process, and become a legal requirement when the site is first licensed. As the aggregate extraction progresses through the site, the topsoil and overburden are sequentially replaced to ensure that the property is properly prepared for its future land use.

Rehabilitation activities commonly include wildlife habitat restoration and forestry management activities, proper soil enhancement to ensure agricultural productivity, landform creation to support recreational activities, and many other state of the art techniques designed to ensure the next land use for the property is productive and sensitive to local land use patterns.

The former James Sabiston pit in the Oak Ridges Moraine is now a thriving horse farm in the town of Whitchurch-Stouffville. Between 1972 and 1983, approximately two million tonnes of sand and gravel was extracted from the site. Some extraction was below the water table in the eastern part of the site resulting in these ponds.

PROGRESSIVE REHABILITATION

Aggregate producers must perform **progressive rehabilitation** as they extract their sites. Progressive rehabilitation means rehabilitation done sequentially within a reasonable time after extraction of aggregate resources is complete.

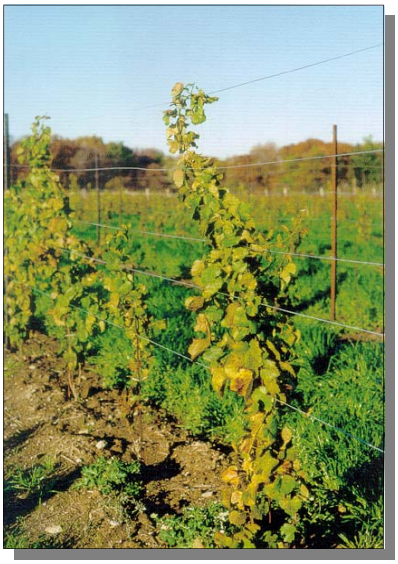
As one area of their pit or quarry is being extracted, rehabilitation must be completed in the areas where the aggregate reserves have been exhausted. Progressive rehabilitation is beneficial in many ways as it:

- Reduces the open areas within a pit or quarry
- Reduces soil erosion potential
- Reduces double-handling of soil materials

Capital's Pit #2 in Puslinch Township near Cambridge, Ontario, is an excellent example of aggregate extraction as an interim land use. This pit was extracted and fully rehabilitated within a ten year time frame. It is currently used for hay production and is fenced for livestock.

EXAMPLES OF AFTER USES

The former Preston Sand & Gravel pit near Kitchener was rehabilitated, in partnership with the Grand River Conservation Authority, to create warm and cool water ponds for fish habitat and wetland areas, and to provide flood storage functions. Currently there are osprey and eagles nesting here.



Vineland Quarries converted a 10-acre site into a productive vineyard with the assistance of the University of Guelph and Vailmont Vineyards.

There are many good examples in Ontario of after uses. These include:

- *Agriculture*
- *Tender fruit production and grape vineyards*
- *Naturalization and wildlife habitat*
- *Wetlands, floodplain habitat development*
- *Golf courses*
- *Recreational parks and lakes, trails and conservation lands*
- *Forestry*
- *Urban uses*

Factors that are considered when selecting an appropriate after use include:

- *Surrounding land uses – present and future*
- *Surrounding ecological/natural heritage systems*
- *Stakeholder input (neighbours, municipalities, special interest groups, partners)*
- *Method of extraction (depth, proximity to water table)*
- *Available resources (topsoil, overburden, seed bank, transplanting opportunities)*
- *Geology of the deposit*

There are more than 70 rehabilitated pits and quarries within the city of Toronto

Smythe Park in Toronto is a rehabilitated pit. It received the Bronze Plaque Award from the APAO in 1977 (see About Aggregates #2).

REHABILITATING PITS AND QUARRIES

These seedling at Lafarge's Uxbridge Pit on the Oak Ridges Moraine will grow to look similar to these trees which were planted in the 1970's at Lafarge's Blake Pit (inset), just down the road from the Uxbridge Pit.

Lafarge and the Ministry of Natural Resources are conducting research on reforestation techniques on this property. Reforestation is an after use that fits in well with the surrounding landscape and ecosystem.

J.C. Duff Ltd. and Armstrong Brothers Co. Ltd. extracted sand and gravel from this site in Brampton between 1949 and 1966. It was rehabilitated to an attractive lake and urban recreation area, called Norton Place Park, that also includes apartment buildings, condominiums and businesses.

"I drive by this site every day and had no idea it was once a gravel pit"
- local politician

"Many sites are not visibly recognizable as former pits"
- tour attendee

"I think it's really amazing that pits can be turned into farmland."
- student

Also available in the "About Aggregates" series:

1. Aggregates and the Law
2. Bronze Plaque Award Program
3. Rehabilitation of Pits and Quarries
4. Being a Good Neighbour
5. Importance of Aggregates
6. Geology and Aggregate Extraction
7. Controlled Blasting at Quarries
8. Groundwater in the Aggregate Industry
9. Management of Abandoned Aggregate Properties Program (MAAP)

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