Legislative Assembly of Ontario


Assemblée législative de l'Ontario

# STANDING COMMITTEE ON GENERAL GOVERNMENT

## REPORT ON THE REVIEW OF THE AGGREGATE RESOURCES ACT

2nd Session, 40th Parliament
62 Elizabeth II

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Assemblée législative de l'Ontario

The Honourable Dave Levac, MPP
Speaker of the Legislative Assembly

Sir,

Your Standing Committee on General Government has the honour to present its Report and commends it to the House.

Grant Crack, MPP
Chair of the Committee

Queen's Park
October 2013

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MICHAEL HARRIS, SYLVIA JONES, ROSARIO MARCHESE AND JOHN VANTHOF regularly served as substitute members of the committee.

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TAMARA POMANSKI
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JERRY RICHMOND AND SIDRA SABZWARI
Research Officers

## EXECUTIVE SUMMARY

The Committee notes the importance of non-renewable aggregate resources to Ontario's economy and their critical role in the maintenance and construction of infrastructure. A ready supply of aggregate is essential to the construction of high-rise buildings, highways, bridges, hospitals, schools/universities, transit facilities, railways, airports, harbours, power plants, and other essential public and private structures. The Committee recognizes that up to 60 percent of the aggregate used in Ontario is associated with projects within the broader public sector. Aggregate is central to the production of concrete and asphalt, is used in the metallurgical industries, and supplies the fill used in construction. Nonetheless, the extraction and transport of aggregates can lead to social, land use, and environmental concerns.

Geography determines the natural location of available aggregate deposits, but land use planning and servicing factors, which are primarily administered by municipalities (and determine the location of land uses), can cause tension with respect to the location of new aggregate operations and/or the continuance or expansion of existing operators.

Administered by the Ministry of Natural Resources (MNR), the *Aggregate Resources Act* (*ARA*) is the primary legislation governing aggregate extraction and regulation within the province. Enacted in 1990, this legislation set new standards for the licencing, operation, and rehabilitation of pits and quarries in Ontario. The Committee believes that MNR carries out its administrative functions with integrity and diligence. Concerns expressed about the adequacy of the Ministry's enforcement resources may be addressed by using additional electronic and mobile mapping geographic information system (GIS) technologies, and by judicious enhancements to this Ministry's resources.

The Committee believes that the *ARA* and associated policies can be improved to strike a better balance between aggregate functions (resource protection, extraction, and rehabilitation), and other land uses and activities. Planning initiatives may be employed to reduce potential land use conflicts between aggregate extraction and rural residential, agricultural, and natural activities.

In testimony the Committee heard that the City of Ottawa has applied sound planning principles to minimize conflicts between a vibrant local aggregate industry and other surface land uses. The second most populous metropolitan area in Ontario, Ottawa is also, by tonnage (10.9 million tonnes in 2011), the province's top aggregate-producing municipality.[1] The Committee believes other municipalities could demonstrate improved foresight in protecting aggregate resource areas and minimize potential conflicts in the planning of other land uses. Where extraction has ceased, municipalities and private landowners should consider alternative land uses for depleted aggregate sites.

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[1] The Ontario Aggregate Resources Corporation (TOARC), Mineral Aggregates in Ontario, *Statistical Update 2011*, p. 12.

The Committee notes the recent attention directed to the re-use of former industrial brownfield sites in many Ontario urban centres. Former aggregate sites do not normally present the environmental and liability complications associated with many industrial brownfield sites. Pits and quarries may therefore present unique opportunities for restorative urban, agricultural, or greenspace/recreational uses, depending upon their location.

The Committee recognizes that a balance must be struck between efficient, viable aggregate operations and costs to nearby landowners and the municipalities that maintain local access roads. Environmental effects should be minimized and consideration given to the impact upon agricultural land and other uses. The Committee supports stronger policies within the framework of the *ARA* to ensure progressive and final rehabilitation of pits that reach the end of their operating lives.

The Committee also recognizes that aggregates are a limited non-renewable resource. There are significant opportunities to reduce environmental impacts through conservation and reduction in demand for primary aggregates through the increased use of recycled or secondary materials.

Key areas of attention within this Report are improvement of the licencing and site plan approval and administrative processes, the relationship of aggregate resource extraction to other land uses, the potential cumulative impact of aggregate operations on surface and groundwater supplies, and the improved rehabilitation of active and abandoned aggregate sites. Enhanced aggregate recycling has been identified as a new area of public policy development that may serve to augment and conserve primary sources of aggregate. Proposals have also been put forward to assess the potential role of rail and marine transport of aggregate. The Committee believes that an enhanced administrative role for the MNR and the findings and recommendations of this report address issues associated with the review and operation of large scale aggregate operations or applications.

## COMMITTEE MANDATE AND ACTIVITIES

The establishment and operation of the Standing Committee on General Government in its review of the *Aggregate Resources Act (ARA)* and related matters was conducted as a two-stage process as outlined below.

On March 22, 2012, by an Order of the House, the Legislative Assembly authorized the Standing Committee on General Government to review the *Aggregate Resources Act* and report to the House.

The *ARA*, administered by the Ministry of Natural Resources (MNR), governs the approval and operation of pits and quarries within Ontario. Section 1(1) of the Act defines “aggregate” as

> gravel, sand, clay, earth, shale, stone, limestone, dolostone, sandstone, marble, granite, rock or other prescribed material.[2]

After receiving a technical briefing during its regular meeting on May 7, 2012, the Committee held public hearings in Toronto on May 9, 14, and 16. On May 31, 2012, the House authorized the Committee to meet on up to four days during June and/or July. In addition to visiting 12 abandoned, proposed, or active aggregate extraction sites, the Committee held further public hearings in Orangeville on June 27, in Kitchener on July 9, in Kanata (Ottawa area) on July 16, and in Sudbury on July 17, 2012. The Committee`s work ceased with the prorogation of the Legislature on October 15, 2012.

On April 25, 2013, the House ordered that

> the Standing Committee on General Government be authorized to revive the review of the Aggregate Resources Act and report to the House its observations and recommendations with respect to strengthening the act. In developing such recommendations, the committee's focus shall include, but not be limited to, the following areas: the act's consultation process, how siting operations and rehabilitation are addressed in the act, best practices and new developments in the industry, fees, royalties and aggregate resource development and protection, including conservation and recycling.[3]

This Report reflects the Committee's consideration of testimony heard during the public hearings, written submissions, site visits, and background and supplementary research information received and discussed.

Appendix A consists of a Pit and Quarry Site Visits Summary describing the pit and quarry sites visited by the Committee.

## Acknowledgements and Response

The Committee thanks all witnesses who testified and/or made written submissions. The Committee appreciates the input and cooperation of the Environmental Commissioner of Ontario, the MNR, the Ontario Stone, Sand and Gravel Association (OSSGA), and all individuals and groups/organizations providing input to the *ARA* review. The viewpoints expressed have assisted the Committee in gaining an understanding of Ontario's aggregate resources industry and the many issues associated with their extraction.

The Hansard transcripts of presentations made to the Committee are accessible online at: www.ontla.on.ca. Copies of written submissions may

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[2] *Aggregate Resources Act*, R.S.O. 1990, c. A.8.
[3] Ontario, Legislative Assembly, *Hansard*, Aggregate Resources Review, April 25, 2013.

be requested from the Clerk of the Committee.

The Committee asks the Ontario government, the MNR, and any other pertinent ministries and agencies to consider this Report and its findings and recommendations.

## FINDINGS AND RECOMMENDATIONS

### Improved Public Information on Aggregate Operations

COMMENTARY

The Committee believes that better information on the aggregate industry and individual aggregate operations in Ontario would benefit the government, the industry, and the public. Improved communications could explain the importance of this industry, build public awareness of modern operational practices and achievements in restoration and rehabilitation, and enhance relationships between communities and individual aggregate operators.

The Committee commends the Ministry of Natural Resources for the recent launch of its Pits and Quarries Online website that provides factual and mapped information, including the location, licensee/permittee name, site size, operation type (pit or quarry) and maximum annual tonnage for pit and quarry operations authorized under the *ARA.*[4]

Information on individual aggregate operations could be enhanced by including progressive rehabilitation activities undertaken, or underway, at individual pit and quarry sites. It would also be worthwhile to indicate whether portions of these individual sites have been restored to natural, agricultural, or other uses or are available for public access and use. The Committee notes the recent release of the OSSGA *Study of Aggregate Site Rehabilitation in Ontario 1971-2009* (2011), based upon survey data for 337 rehabilitated sites in southern and eastern Ontario.[5]

Individual aggregate-producing municipalities should be encouraged to develop enhanced local mapped information on aggregate operations (or areas suitable for aggregate extraction) as portrayed in their local municipal official plans, zoning by-laws and other planning documents. This information would complement the recent MNR website.

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[4] Background information received from the MNR, Lands and Non-Renewable Resource Section, Policy Division, Peterborough, May 17, 2013.

[5] OSSGA, *Study of Aggregate Site Rehabilitation in Ontario 1971-2009*, Part 1, 2010-2011.

RECOMMENDATIONS

1. The Ministry of Natural Resources should publicize the establishment of its Pits and Quarries Online website on licenced/permitted aggregate operations in Ontario and act to continually enhance the information on this website. Consideration should be given to reporting progressive rehabilitation activities and progress (i.e., area rehabilitated) at individual aggregate operations recorded on this website.

2. The Ministry of Natural Resources should work and cooperate with individual aggregate-producing municipalities to add mapped information of aggregate operations and local planning designations related to aggregate resources that could complement the Pits and Quarries Online website.

3. The Ministry of Natural Resources should continue the preparation of a periodic up to date public assessment of current Ontario aggregate demand and supply and future needs, based on the findings of the State of The Aggregate Resource in Ontario Study (SAROS) (2010).[6] This information should be made available on a public website.

## Licensing Procedures and Associated Matters

COMMENTARY

The Committee believes that the efficiency of licensing processes can be improved without hindering the MNR's administrative and enforcement mandates respecting aggregate resources. Currently, notification procedures and timelines under different statutes affecting aggregate applications vary significantly, as illustrated below.

The timeline for notification under the *ARA* regarding aggregate licences is 45 days. The proponent then has up to two years to resolve concerns associated with the aggregate application. [Other requirements and approvals may proceed concurrently during this time period]. The *Planning Act* provides a municipality with up to 180 days to consider and make a decision on a pertinent planning matter (usually related to the aggregate application). If this time limit is not met, the matter may be appealed to the Ontario Municipal Board. The minimum registry posting period under the *Environmental Bill of Rights* is 30 days, which may be extended.

Simplifying overlapping administrative processes may foster improved community understanding and benefit the aggregate industry in seeking to adhere to the sometimes complex rules. The Committee also believes that, where appropriate, the Minister of Natural Resources should have the discretion to vary, scope, or extend the consultation period associated

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[6] MNR, *State of the Aggregate Resources in Ontario Study,* Consolidated Report, February 2010; and *State of the Aggregate Resources in Ontario Study (SAROS), Paper 1 – Aggregate Consumption and Demand.* Prepared for the Ontario Ministry of Natural Resources by Altus Group Economic Consulting, December 2009.

with various aggregate proposals.

The Committee heard from a broad coalition of stakeholders representing industry, municipalities, community, and environmental groups that the annual license/wayside permit fee (currently applied at the total rate of 11.5 cents per tonne for Class A and B licences and wayside permits) should be increased. The Crown royalty fees (for permits on Crown land) should be similarly increased and distributed, where appropriate, to local, county, or regional municipalities in an equitable manner. The Committee notes, for example, that the Municipality of Trent Lakes in Peterborough County contains 15 permitted aggregate operators on Crown land (February 2010 data) for which this municipality receives no share of the Crown royalty. From the 17 aggregate licensees operating within this municipality (February 2010 data), a share of the licence fee is received.[7]

These fees could be used to support the MNR's aggregate program administration, build or maintain local infrastructure, conduct innovative aggregate research, or provide programs to promote recycling and/or rehabilitation of abandoned pits and quarries. The last fee increase was put into effect in 2007, when rates were generally doubled.[8]

The Committee also believes that special purpose or trust (i.e., dedicated) funds should be expanded within the MNR for the assignment of the increased licence/permit/royalty fees. Within the mandate of the MNR, the Committee is aware that the Ontario Parks Special Purpose Account exists whereby provincial park revenues can only be spent for park purposes and that fish and wildlife licence revenues are dedicated to the management of these resources.

The Committee also heard that haulage routes and heavy aggregate-related truck traffic out of producing areas can be a matter of concern to communities and residents impacted by aggregate haulage. These concerns arise primarily in municipalities which "host" aggregate operations but may also apply in "non-host" municipalities through which substantial aggregate haulage passes. A periodic review of haulage routes should be undertaken with the intent of minimizing community impacts.

The Committee also understands that some municipalities with concentrations of aggregate operators may, through planning policies, establish "third party road agreements" whereby aggregate producers contribute towards the maintenance of local aggregate haul routes. The County of Simcoe, for example, has established a policy in this regard within its Official Plan (2007) which may be applied during municipal site

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[7] Township of Galway-Cavendish & Harvey (now Municipality of Trent lakes), written communication to Standing Committee on General Government, May 16, 2012, p. 2.

[8] MNR, *Aggregates in Ontario.* Presentation to the Standing Committee on General Government – Aggregate Resources Act Review Team, May 7, 2012, p. 23.

plan control review associated with aggregate operations.[9]
In some instances aggregate producers have also contributed to the reconstruction of local municipal roads which are major aggregate haul routes. The Committee is supportive of the broader application of local planning-related agreements and arrangements whereby aggregate producers more equitably assist in the maintenance and appropriate upkeep of local aggregate haul routes.

Aggregate companies should hold pre-consultation meetings with Ministry officials, community groups, and local municipalities to gauge potential responses to development proposals. Practices of this nature have been widely and successfully employed by the development industry in the preliminary evaluation and modification of development proposals in urban contexts across Ontario. Appropriate modification of aggregate licencing or site plan proposals prior to embarking on the formal application process and related land use planning approvals might alleviate local concerns and serve to expedite approvals.

RECOMMENDATIONS

4. The Ministry of Natural Resources, the Ministry of Municipal Affairs and Housing, and the Ministry of the Environment shall simplify and standardize, wherever feasible and practical, the consultation processes, timelines, and data requirements associated with aggregate applications, including licences, site plans, and permits subject to review or consideration under the Aggregate Resources Act, the Planning Act, the Environmental Bill of Rights, and other relevant statutes.

5. The Ministry of Natural Resources should undertake measures to simplify the Provincial Standards on Aggregate and the Aggregate Resources Policy Manual.[10] The Committee supports the use of innovative measures by the Ministry, such as the digital collection of inspection data to improve the efficiency and effectiveness of inspections.

6. The Ministry of Natural Resources (in cooperation with the Ministry of Finance) should increase the annual licence/permit fees, and royalty on Crown land, related to the tonnages of aggregate material for all types of regulated aggregate extraction, whether on private or Crown land. Where private companies operate a pit or quarry on Crown land they should be subject to the same fee, with similar distribution practices, as other private aggregate operators on private land. The increased revenues should be suitably distributed to support Ministry of Natural Resources aggregate program administration and inspection; build or maintain local infrastructure; conduct innovative aggregate research or monitoring; or provide programs to promote recycling and/or rehabilitation of abandoned

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[9] County of Simcoe, *The County of Simcoe Official Plan*, Consolidated August 2007, Section 4.4.8, p. 40. (Note: a revised updated Draft of this Plan, which serves to reaffirm the policy respecting agreements regarding aggregate haul routes, is under consideration before the Ontario Municipal Board, with determinations pending.)

[10] See the MNR, Aggregate Resources, *Provincial Standards*, June 1997 and Aggregate Resources, *Aggregate Resources Policy Manual.*

pits and quarries. A regular review of the fee/royalty structures should be conducted by the Ministry of Natural Resources. The increased fees should be appropriately placed in special purpose or dedicated funds administered by the Ministry of Natural Resources. Increased fee structures and associated programs should be subject to periodic independent financial audit and program effectiveness evaluations.

7. The Ministry of Natural Resources, in cooperation with major aggregate-producing municipalities, should periodically review and update major aggregate haulage routes to reduce adverse community impacts. The review should reflect changing haulage patterns, measures to mitigate dust, highway and roadway improvements, and recent municipal development. Municipalities are also encouraged to incorporate the definition and mapping of haulage routes in their Official Plans adopted in accordance with the Planning Act.

8. The Ministry of Natural Resources should begin a consultation process involving relevant stakeholders to simplify and standardize procedures under ss. 16 and 37 of the Aggregate Resources Act with respect to minor and major site plan amendment practices, including improved methods of informing local communities of proposed changes.

## Review of Licences

COMMENTARY

The Committee heard from many stakeholders that a defined expiry or end date should accompany the issuance of an aggregate licence/permit. The Committee also understands that in other North American jurisdictions “time limit” provisions are not absolute but flexible, and generally allow renewals or extensions. Aggregate operators have a substantial investment in their businesses and the demand for product may vary with the state of the economy and construction activity. For 2011, aggregate production in Ontario totalled 159 million tonnes, a reduction of 7 million tonnes or 4.2 percent from the previous year.[11] Aggregate producers serving smaller local markets or northern markets where economic activity may fluctuate could experience wider variations in business cycles and demand for product. Over time, production from an individual pit/quarry must be adjusted to respond to market conditions.

As noted below, the Committee makes a recommendation for a more thorough review of major site plan amendments proposed by operators associated with current operations.

The Committee also believes that annual compliance report requirements of the *ARA* (ss. 15.1 and 40.1) should be strengthened as indicated below. The MNR should assess the practicality of posting the key findings of these annual reports for individual operators, while respecting corporate confidentiality aspects, on its *Pits and Quarries Online* website.

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[11] TOARC, Mineral Aggregates in Ontario, *Statistical Update 2011,* p. 1.

The Committee also makes recommendations to facilitate improved public participation and notification regarding aggregate licence applications and/or the reactivation of activity at a licenced site.

RECOMMENDATIONS

9. For major site plan amendments, including a change to extraction depth, an increase in the amount of aggregate to be removed each year, and significant changes to the operation, or rehabilitation of the site, the aggregate licensee/permittee shall continue to be required to circulate the proposed amendment to pertinent agencies such as the Ministry of the Environment, or conservation authorities.

10. In their preparation of annual compliance reports operators shall report to the Ministry of Natural Resources on proper operating practices, progress with phased rehabilitation and, where feasible, their use of recycled aggregate materials. The Ministry of Natural Resources should post the key findings of these annual reports, while respecting corporate confidentiality requirements, on its Pits and Quarries Online website.

11. To facilitate improved public participation in association with aggregate licence applications, the Ministry of Natural Resources should increase the public notification period from the current 45 days and increase the notification area beyond the current 120 meter distance.

12. In cases where licenced pits and quarries are reactivated subsequent to being dormant for a prolonged period of time, the licensee/permittee should provide advance notice to the municipality and adjacent landowners.

## Use of Recycled Aggregate Materials

COMMENTARY

While increased use of recycled aggregate materials is supported by the aggregate, construction, and demolition industries, some municipalities, and the general public, the *ARA* does not currently contain specific provisions regarding the recycling or conservation of aggregate.

Increased use of recycled aggregate materials could reduce consumption of primary aggregate materials, particularly within the Greater Toronto Hamilton Area and adjacent urban communities and serve to reduce the need to develop new aggregate operations. At individual construction sites, the on-site reuse of recycled materials may result in less haulage and produce cost savings for public agencies responsible for the maintenance and expansion of public infrastructure.

Across Ontario it is estimated that seven percent of aggregate used comes from recycled sources (concrete and asphalt). Many familiar with the aggregate industry believe that the lack of comprehensive reporting means the actual extent of aggregate recycling activity in Ontario is understated.

Figures for the Ministry of Transportation (MTO) indicate that in their operations (2012), secondary (i.e., recycled) aggregate material comprises 2.3 million tonnes, or 18 percent, of the total aggregate (13 million tonnes) used by this Ministry (see table below). The Committee recognizes and commends the lead role of the MTO in the use of recycled aggregate materials in the expansion and maintenance of the province-wide public highway system.[12] This Ministry should play a lead role in facilitating the broader acceptance and expanded use of recycled aggregate materials.

**Total and Recycled Aggregate Used by MTO for 2011 and 2012[13]**

Tonnes of aggregate used for all of MTO's operations expressed in metric tonnes (1 metric tonne = 1,000 kilograms, or 2,205 pounds).

| Aggregate Category | 2011 | 2012 |
|---|---|---|
| Primary Aggregate Sources[14] | | |
| Commercial | 9,514,000 | 7,897,000 |
| Non-commercial | 3,749,000 | 2,826,000 |
| Sub-total | 13,263,000 | 10,723,000 |
| Secondary (i.e., recycled) Aggregate Sources[15] | 2,621,386 | 2,357,989 |
| (*% of total*) | (*16.5%*) | (*18.0%*) |
| **Total** | **15,884,386** | **13,080,989** |

The Cities of Toronto, Hamilton, Guelph, and the Regional Municipality of York accept the use of recycled aggregate materials in their municipal construction projects. The Committee understands that some municipalities may possess limited technical means to assess the quality and performance of recycled aggregate materials. The Committee strongly

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[12] As a component of the *Ontario Provincial Standards Specifications* (OPSS), which have evolved and been employed since 1984, MTO has developed detailed requirements for the use of recycled material, including asphalt and concrete material, as aggregate in roadway maintenance and construction.

[13] Soils and Aggregate Section, Materials Engineering and Research Office, Highway Standards Branch, Provincial Highways Management, Ontario Ministry of Transportation, Toronto, May 2013.

[14] Mineral aggregate obtained in accordance with the *Aggregate Resources Act* from a commercial or non-commercial source. Commercial sources operate under an aggregate licence; non-commercial sources operate under the authority of a wayside permit, an aggregate permit, or a Letter of Approval.

[15] Major types of recycled aggregate materials include: various types of recycled asphalt pavement, recycled asphalt aggregate mixes, reclamation pavement material, granular materials produced from within right-of-way, recycled concrete in granular base, and blast furnace slag in lightweight fill and concrete.

believes that aggregate recycling and conservation merit immediate public policy attention.

In April 2013, Sylvia Jones, MPP (Dufferin-Caledon), a member of the Committee, introduced Bill 56, the *Aggregate Recycling Promotion Act 2013,* to "prohibit certain restrictions on the use of aggregates in performing public sector construction work."

While it is in the interest of the aggregate industry to locate recycling operations within the boundaries of operating pits and quarries, local planning controls may limit such opportunities by requiring separate official plan and zoning approvals.

RECOMMENDATIONS

13. The Ministry of Natural Resources, the Ministry of Transportation, the Ministry of Infrastructure, and the Ministry of Municipal Affairs and Housing, in cooperation with the Association of Municipalities of Ontario (AMO) and other relevant parties, should undertake consultations to expand the use and acceptance of recycled aggregate materials by Ontario municipalities, in conformity with accepted engineering standards. The Ministry of Transportation should work with all Ontario municipalities to share its technical expertise and best practices regarding aggregate recycling.

14. The provisions of Bill 56, the Aggregate Recycling Promotion Act 2013, specifically, to prohibit restrictions on the use of recycled aggregates in public sector construction work, should be adopted on an interim basis.

15. The Ministry of Natural Resources, the Ministry of Transportation, and the Ministry of Infrastructure should use (and publicize the use of) recycled aggregate materials in the construction and completion of all significant infrastructure projects.

16. The Ministry of Natural Resources, the Ministry of Transportation, the Ministry of Infrastructure, and individual municipalities that accept recycled aggregate, should, in cooperation with civil engineering experts, share their expertise and knowledge to establish technical protocols for testing recycled aggregate materials for their suitability and performance for broader use by municipalities and other public agencies across Ontario.

17. The Aggregate Resources Act should be amended to include (as a new Part following Part VI – Rehabilitation) definitions and requirements for the use of recycled aggregate materials.

18. The Aggregate Resources Act should be amended with a new clause under s. 2 (Purposes of Act): "to promote the conservation of primary aggregate reserves and the wider use of recycled aggregate materials in Ontario."

19. The Aggregate Resources Act should be amended by adding to s.

12(1) (Matters to be considered by Minister) “provisions by the applicant to produce and/or market recycled aggregate materials.” Incentives for recycling should also be considered.

20. Various stakeholders (including relevant Ontario ministries, industry representatives, municipal governments, federal departments, and Statistics Canada) should be invited to set up a Task Force to consider establishing a standardized electronic monitoring system to measure the extent of aggregate recycling in Ontario.

21. The Ministry of Natural Resources should, in cooperation with the Ministry of Transportation and Ministry of the Environment, other interested agencies, municipalities, and with input from the aggregate, construction and demolition industries, periodically report on the state of aggregate recycling and re-use within the broader public sector in Ontario.

## Municipal Land Use Planning Responsibilities

COMMENTARY

A stated goal within the pending five-year review of the *Provincial Policy Statement*, as mandated under the *Planning Act*, is “requiring . . . aggregate resources to be identified in municipal official plans.”[16] Local land use planning approval is an essential component of the aggregate approval process in Ontario, in conjunction with requirements under the *ARA.* The Committee recognizes, for example, the planning work, knowledge and mapping of aggregate resources undertaken by the Regional Municipality of Waterloo, as reflected in its presentation to the Committee.

[16]Environmental Registry, *Provincial Policy Statement Five Year Review: Public Consultation on Draft Policies and the Review Cycle for the Provincial Policy Statement*, EBR Registry Number: 011-7070; Registry: September 24, 2012, p. 3.

**The Top Ten Aggregate Producing Municipalities in Ontario.**
**Licenced Production in 2011** (million tonnes)

| Municipality | City/County/Region | 2011 Production |
|---|---|---|
| City of Ottawa | City of Ottawa | 10.9 |
| City of Hamilton | City of Hamilton | 5.0 |
| Municipality of Clarington | Regional Municipality of Durham | 5.0 |
| Town of Milton | Regional Municipality of Halton | 4.9 |
| City of Kawartha Lakes | City of Kawartha Lakes | 4.7 |
| Twp. Of North Dumfries | Regional Municipality of Waterloo | 4.5 |
| Twp. Of Uxbridge | Regional Municipality of Durham | 3.9 |
| Twp. Of Zorra | County of Oxford | 3.6 |
| Town of Caledon | Regional Municipality of Peel | 3.6 |
| Puslinch Township | County of Wellington | 3.1 |
| **Total** | | **49.2** |

Source: TOARC, *Statistical Update 2011*, p. 12.

The Committee believes that municipalities should identify, with supporting text and maps, areas within their corporate limits that are currently used or are available and suitable for aggregate extraction. Local planning efforts to accommodate aggregate production are particularly important within the "Top Ten" aggregate-producing municipalities in Ontario (see table above).

Local planning agencies and municipal councils should act to minimize land use tension in the concurrent approval of other land uses such as rural residential development in areas of active or potential aggregate activity. Suitable distance separation between aggregate production areas and other sensitive rural land uses and activities may be recognized and employed, depending upon local conditions and the use of "buffering" terrain features.

RECOMMENDATIONS

22. All municipalities with active or potential aggregate production shall apply sound planning principles related to the separation of land uses and studies of haul routes for aggregate operations, to minimize disruption and tension with current or future non-aggregate land uses.

23. Wherever possible, the Ministry of Natural Resources and the Ministry of Municipal Affairs and Housing should work with municipalities in the exercise of the local planning responsibilities with respect to protecting the non-renewable aggregate resource, accommodating its extraction, and developing suitable relationships with neighbouring land uses.

## Aggregate Operations and Agricultural Land

COMMENTARY

The Committee is concerned whenever aggregate operations are located in areas of prime agricultural land (Canada Land Inventory (CLI) classes 1-3 and specialty crop areas), an issue primarily in southern Ontario.[17] According to statistical geographical information compiled by the MNR, the total licence/permit aggregate area amounts to a small proportion (35,000 hectares, or 0.71 percent) of the total estimated area of CLI class 1-3 lands (4.9 million hectares) outside of large urban areas within southern Ontario. In addition, out of a total land area of southern Ontario of 12.0 million hectares, licensed/permitted aggregate operations comprise only 95,500 hectares of land, or 0.78 percent, of the total area.[18]

While some pits/quarries have long operating lives, some witnesses suggest aggregate extraction be considered an "interim" use pending the rehabilitation and restoration of the sites to other land uses (including agriculture). This approach is reflected in the *Provincial Policy Statement* where aggregate operations on prime agricultural land are described as an interim use and provisions for rehabilitation are established.[19]

At some operating pits, such as the Capital Paving Wellington Pit (County of Wellington, visited by the Committee in July 2012; see Appendix A), agricultural capability has been shown to be restored and even enhanced, under certain circumstances, after aggregate extraction. Some portions of this property have been rehabilitated to higher levels of capability through the removal of stones and grading after extraction and are now under active crop production. The Committee supports the progressive rehabilitation of pits and quarries with post-extraction agricultural potential.

The Committee believes that there is a need for improved monitoring and recording of agricultural capability, or actual agricultural production, at aggregate sites where there is potential to rehabilitate all, or a portion of, the site to support post-extractive agricultural activities. The Committee understands that the original mapped CLI data may not always reflect current agricultural activity, or production, at a specific site that may also accommodate commercial aggregate extraction.

RECOMMENDATIONS

24. The Ministry of Natural Resources in its approval and administration of aggregate sites located on prime agricultural land (as defined in the Provincial Policy Statement), or on other agricultural lands that were under cultivation prior to aggregate extraction, should ensure, wherever practical, the phased progressive rehabilitation of these sites and their

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[17] Ontario, *Provincial Policy Statement*, *2005.* In this document prime agricultural land is defined as "land that includes *specialty crop areas* and/or Canada Land Inventory Classes 1, 2 and 3 soils."

[18] Information obtained from Lands and Non-Renewable Resource Section, Policy Division, MNR, Peterborough, March and May, 2013.

[19] *Provincial Policy Statement*, 2005, Section 2.5.4, p. 20.

expeditious return to agricultural production. Rehabilitative measures shall act to restore land, where practical, to agricultural capability(ies) or production equal to or higher than its capability(ies) or production prior to extraction.

25. The Ministry of Natural Resources should incorporate requirements for monitoring and recording of agricultural capability, or actual agricultural production, at aggregate sites where there are opportunities for rehabilitation that restores agricultural capability. Agricultural monitoring should take place at the initial site plan review stage. Operators should also be required to include information on the progress of agricultural rehabilitation, where feasible, in their annual compliance reports as required by the Aggregate Resources Act. Consideration should also be given to including information regarding progressive rehabilitation to agriculture at individual licenced/permitted sites on the Ministry of Natural Resources Pits and Quarries Online website.

26. When an aggregate application is made on prime agricultural land (as defined in the Provincial Policy Statement), the applicant should file the application with the Ministry of Agriculture and Food to enable the Ministry to evaluate the rehabilitation plan and the potential reduction of local agricultural capacity.[20]

27. The Ministry of Natural Resources, in cooperation with the Ministry of Agriculture and Food and the participation of the Ontario Stone Sand and Gravel Association, the Ontario Federation of Agriculture, the Ontario Aggregate Resources Corporation, and other relevant parties, should undertake an evaluation of current and potentially innovative rehabilitation practices by which excavated areas may be returned to agricultural production.

## Cumulative Impact of Aggregate Operations on Water Resources

COMMENTARY

During public hearings the Committee became aware of emerging concerns related to the potential cumulative impact of active aggregate operations upon surface and groundwater resources. The Committee believes that the Ministry of Natural Resources, in conjunction with the Ministry of Environment, conservation authorities, and aggregate producers, should ensure that potential impacts are being assessed, and mitigated where warranted.

The Committee is aware of the independent technical *Report on Cumulative Impacts for Groundwater Takings in the Carden Plain Area* (September 2012) commissioned by the Ontario, Stone, Sand and Gravel Association and prepared by Golder Associates Ltd. This study involved

[20] It is assumed that the applicant would file an independent expert study on the agricultural capacity of the site and potential for rehabilitation for agricultural production.

all local aggregate producers in this area (12 sampled quarries) and was prepared at the request of the Ministry of the Environment. The Carden Plain is an area of mainly limestone deposits and major aggregate production located northeast of Lake Simcoe in Simcoe County and Kawartha Lakes. The key finding of this study was that "most water quality parameters are expected to be negligible."[21]

RECOMMENDATION

28. The Ministry of Natural Resources, in conjunction with the Ministry of Environment, conservation authorities, and aggregate producers, should ensure that potential cumulative impacts upon surface and groundwater resources are appropriately assessed and mitigated where warranted. Independent technical analyses should be undertaken where appropriate.

## Rehabilitation of Former Sites

COMMENTARY

The Committee strongly supports the stringent application of s. 48(1) (Duty to rehabilitate site) of the *ARA*: "Every licensee and every permittee shall perform progressive rehabilitation and final rehabilitation on the site in accordance with this Act." Progressive rehabilitation normally involves the storage and gradual return of topsoil, seeding, and grading for the transformation of aggregate sites into open space, recreational land, natural heritage features, agriculture, or land suitable for more intensive development.

The Committee recognizes the work of The Ontario Aggregate Resources Corporation (TOARC) in the administration of the MAAP (Management of Abandoned Aggregate Properties Program). With the consent of landowners this program provides rehabilitation assistance for the almost 3,000 former pit or quarry sites across Ontario deemed to require rehabilitation intervention. The majority of these sites are owned by private landowners: some are owned by municipalities, or Conservation Authorities. Several sites are also on lands of First Nations.[22]

These abandoned sites have never been operated under the *ARA.* They do not include inactive or old sites that are still under licence. They include sites that were operating prior to an area of the province being designated under the *ARA* whose operators decided to cease operations rather than apply for a licence.[23] During the Committee's site visits in the Ottawa area (July 2012), two abandoned pit or quarry sites on private land were viewed

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[21] OSSGA, *Cumulative Impacts Assessment for Groundwater Takings in the Carden Plain Area*, prepared by Golder Associates Ltd., September 2012, Executive Summary, p. ii.
[22] Information obtained from The Ontario Aggregate Resources Corporation, Burlington, Ontario, June 2013.
[23] Information provided by Non-Renewable Resource Section, Natural Heritage, Lands and Protected Spaces Branch, MNR, Peterborough, July 2012.

(see Appendix A).

MAAP is supported through a 0.5 cent per tonne portion of the annual aggregate production fee of 11.5 cents per tonne of material extracted. To date over 543 hectares have been rehabilitated across Ontario through MAAP with a total expenditure of $6.3 million. Based upon information provided by TOARC the Committee understands that at the current rate of activity and funding to MAAP it will take from 100 to 130 years to rehabilitate the remaining inventory of legacy abandoned pits. TOARC indicated that if the fee allocated to MAAP was increased to 3 cents per tonne it would be possible to complete the rehabilitation of the abandoned sites within 20 years. The Committee supports a reasonable increase in this fee structure to permit a more aggressive pace of rehabilitation activity under MAAP.

A recent *Study of Aggregate Site Rehabilitation in Ontario 1971-2009* (2011), based upon survey data for 337 rehabilitated sites in southern and eastern Ontario carried out for the OSSGA, found that 32 percent (by post extraction land area) of these sites are currently in natural use, followed by 16 percent in residential use, 15 percent in recreational use, and 11 percent under water.[24] The Committee believes that greater efforts should be made to develop and share best practices for rehabilitation of former aggregate sites. One example is the transformation of the former pit at the Snyder's Flats conservation property site in Waterloo Region to recreational and natural environmental uses (see description in Appendix A).
The Committee encourages the OSSGA, its member companies, and other aggregate operators to partner with municipalities, conservation authorities, local community groups, and private developers to enable high quality rehabilitation and repurposing of depleted aggregate sites, especially on the fringes of Ontario's most populous urban centres.

The Committee also supports the existing approach of the Ministry of Natural Resources to allow the partial surrender of aggregate licences ("reduction of licenced area") when extractive activity ceases on portions of sites that have also undergone rehabilitation. The MNR considers this activity as a minor licence and site plan amendment.[25] This matter may be particularly attractive at larger, long lifespan aggregate operations. This administrative action may accelerate the transition of the rehabilitated area to its future use(s), where this remains compatible with nearby aggregate extraction. The Committee also understands that the actual change in land use in such circumstances may require supportive local municipal land use planning (i.e., zoning designation) approval.

RECOMMENDATIONS

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[24] Ontario, Stone, Sand & Gravel Association, *Study of Aggregate Site Rehabilitation in Ontario 1971-2009*, Part 1, 2010-2011, pp. 28 and 48.
[25] Background information provided by Non-Renewable Resource Section, Natural Heritage, Lands and Protected Spaces Branch, MNR, Peterborough, September 2013.

29. The Ministry of Natural Resources should, in acting to increase the annual licence fee, also consider increasing the share of this fee (s. 14 of the Aggregate Resources Act and Ontario Regulation 244/97) assigned to the Ontario Aggregate Resources Corporation to support a more aggressive program of rehabilitation of abandoned pits under the Management of Abandoned Aggregate Properties Program (MAAP).

30. The Ontario Aggregate Resources Corporation should be encouraged to publicize notable rehabilitated aggregate sites that could be attractive for enhanced use as natural or recreation sites in close proximity to urban centres.

31. Stakeholders (including relevant Ontario Ministries, representatives of the aggregate industry, engineering and agriculture specialists, the Niagara Escarpment Commission, and interested municipalities) should establish a Task Force to develop Best Practice Guidelines for the rehabilitation of aggregate sites in Ontario. Rehabilitation principles for various successor land uses should be developed.

32. The Ministry of Natural Resources, in cooperation with the Ontario Stone, Sand and Gravel Association and individual aggregate operators, should develop expedited rehabilitation standards and requirements for aggregate operations in locations surrounded by higher population densities, or in the vicinity of settlement areas. .

33. The Ministry of Natural Resources should continue to support and facilitate the partial surrender of aggregate licences ("reduction of licenced area") when rehabilitation work has been completed on a portion of the site where extraction has ceased. This action, particularly at larger, long lifespan aggregate operations, may serve to accelerate the transition to future use(s), where this remains compatible with nearby active aggregate extraction.

## Alternative Modes of Transport

COMMENTARY

Most movement of aggregate materials from extraction sites to processing facilities and construction sites across Ontario is carried out at present by truck. The Committee was impressed by the Lafarge Manitoulin quarry (see Appendix A) – one of the largest in the province – where production peaked at 5.7 million tonnes in 2004. This quarry transports high quality dolomite (limestone) to the construction and metallurgical markets in Canada and the United States via marine transport on the Great Lakes.

Some of the aggregate produced from this quarry is delivered to the Lafarge Windsor (Marine) Terminal. Recent aggregate shipments through this terminal and the Port of Windsor have increased substantially related to local major infrastructure projects, such as the Hon. Herb Gray Parkway which will connect Highway 401 to the new Windsor-Detroit international

bridge.[26] In 2012, aggregates comprised 2.35 million tonnes out of total cargo of 5.45 million tonnes handled by the Port of Windsor; in 2011, aggregate shipments at this port totalled 1.57 million tonnes.[27]

Lafarge also operates a cement terminal at the Port of Toronto. The St Mary's Cement plant at Bowmanville on Lake Ontario has its own dock, a rail link and may also be served by truck. This plant ships product by water on the Great Lakes.[28] Raw material from the Holcim quarry at Colborne east of Toronto is transported by ship to the Holcim cement plant on Lake Ontario in Mississauga.[29]

The Committee was told by the OSSGA that at present there are only some 10 docks within Ontario with the ability to receive aggregate material by ship and redistribute this material to local markets; no aggregate facilities operating in Ontario currently ship by rail.

The Committee believes that the increased use of marine transport and the possible use of rail transport in the aggregate and related-cement and asphalt industries would be advantageous with respect to community impacts and offer environmental benefits, especially within or on the fringes of the Greater Toronto Hamilton Area. The Port of Hamilton, Canada's busiest port on the Great Lakes, has longstanding experience in moving bulk commodities.[30] Without detracting from the "close to market" principal that informs most aggregate operations in southern Ontario, the Committee believes there should be a priority review of enhanced opportunities for marine and/or rail transport of aggregate materials within Ontario.[31]

The Railway Association of Canada, the Canadian Shipowners Association, the Association of Canadian Port Authorities, individual Ontario ports, and the OSSGA should be invited to explore the potential transportation opportunities that exist in the Great Lakes region for hauling aggregate by rail and ship.

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[26] David Cree, "Border Crossing Options Expand," *Great Lakes Seaway Review*, 41:3 (January-March 2013), pp. 41-42.

[27] Port Windsor, Windsor Port Authority, *Port of Windsor Statistics Year to Date, For the Period Starting 1/1/2012 and Ending 12/31/2012.*

[28] *Ontario Marine Transportation Study, Phase 1 – Final Report.* Prepared for the MTO and Ontario Marine Transportation Forum, by MariNova Consulting Ltd., April 2009, p. 62.

[29] *Mississauga Cement Plant*, Holcim (Canada) Inc.

[30] Hamilton Economic Development, *Top 10 Reasons*.

[31] The large Lafarge Exshaw limestone quarry and cement plant in southern Alberta uses rail on the CP Rail mainline to ship a substantial portion of its raw cement production to market. Current indications are that this facility "handles a maximum of about 114 trucks and 34 railcars each day." (David Husdal, "Lafarge looks to cement expansion plans," *Canmore Leader*, July 25, 2012.) With the pending expansion of this facility the company intends to make increased use of rail. (Lafarge North America, Exshaw Plant, Exshaw Plant Renewal Application and Expansion Project, 2008.)

RECOMMENDATIONS

34. The Ministry of Natural Resources, the Ministry of Transportation and the Ministry of Infrastructure should commission a technical study of the opportunities available in Ontario to utilize alternative water and rail modes of transport to move aggregate materials, drawing upon the experience of other North American jurisdictions.

35. The Ministry of Natural Resources, the Ministry of Transportation, the Ministry of Infrastructure and the Ministry of Economic Development, Trade and Employment should conduct a comprehensive inventory analysis of where raw aggregate and associated cement and asphalt products are being transported by marine transport within Ontario to determine whether such operations might be readily expanded for broader use by the aggregate industry. Appropriate consultations should be held with aggregate and shipping operators who utilize or provide these services.

36. The Ministry of Natural Resources, the Ministry of Transportation and the Ministry of Infrastructure should seek to implement pilot project(s) on a priority basis to utilize the rail and/or marine modes of transport to transport aggregate materials and products. The development of a rail corridor to the north of the Greater Toronto Area should be examined as a priority. Financial or tax incentives to support such pilot projects should be considered.

37. The analyses undertaken pursuant to recommendations 34-36 should result in a report, prepared jointly by the Ministry of Natural Resources and Ministry of Transportation, with input from other relevant Ministries, containing recommendations on how to expand the role of the rail and marine modes of transport in the movement of aggregate and associated bulk materials within Ontario.

38. Section 12(1)(h) (Matters to be considered by the Minister) of the Aggregate Resources Act should be amended to include: the enhanced use of rail or marine modes of transport .

## Large Scale Aggregate Applications

COMMENTARY

The proposal by the Highland Companies (Highland) for a multi-celled dolostone (limestone) quarry (i.e., the so-called “mega-quarry”) and the accompanying application for a Class A licence under the *ARA* (March 2011) in rural Melancthon Township (Dufferin County) generated substantial local and broader community interest.[32] Concerns arose with respect to the scale, potential impacts, and location of this proposed quarry in an agricultural area.[33]

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[32] A Class A licence under the *ARA* permits the extraction of more than 20,000 tonnes of aggregate per year.

[33] Amabel dolostone is a sedimentary rock which “forms the caprock of the

In July 2011 an MNR posting related to this application indicated that "a total of 2,051 objections were submitted during the *Aggregate Resources Act* objection period which ended on April 26, 2011."[34]

Material prepared by Highland indicated that the proposed quarry contained an estimated 1 billion tonnes of high quality Amabel dolostone; the licence area sought was approximately 937 hectares, with an excavation area of approximately 765 hectares.[35] On November 21, 2012, Highland announced that it was withdrawing the quarry application.[36] On July 16, 2013, Bonnefield announced that over 6,500 acres of farmland property owned by Highland in this area of Dufferin County had been purchased by Bonnefield Canadian Farmland LP and would be retained in agricultural production.[37]

Issues associated with proposals as large as the Melancthon quarry included the impact upon the physical character of smaller rural communities; the effects on agriculture, including the ability to progressively restore the site; possible impacts upon groundwater and watercourses, including the possible need for long-term perpetual pumping of groundwater from excavated pits; and the potential availability of alternative modes of transport (rail or marine) to haul the production.

The Committee understands the sensitivity of large aggregate operations which can involve the extraction of large tonnages of material, can cover substantial areas, and may operate for many years. The Committee sincerely believes that the findings and recommendations of this Report recognize and address matters associated with large scale aggregate operations, several of which were visited by the Committee (see Appendix A). Facilities of this nature have the capacity to produce substantial volume of product where immediate production is driven by market demand
The Committee looks forward to the reinforcement and refinement of the provisions and associated policies of the *ARA* to address these matters. The Committee recognizes the lead and enhanced regulatory role of MNR in this regard. These provincial responsibilities are also buttressed at the local level by the land use planning functions and responsibilities of local municipalities.

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Niagara Escarpment. The rock is quarried for building stone, crushed stone" (University of Waterloo, Peter Russell Rock Garden, Amabel dolostone)..

[34] MNR, *Update – Highland Companies' Melancthon Quarry application*, July 28, 2011.

[35] The Highland Companies, The Melancthon Quarry, 2012, The licence area.

[36] The Highland Companies, "The Highland Companies Withdraws its Application for a Quaryy in Malancthon Township," November 21, 2012.

[37] Bonnefield, News & Events, "Bonnefield Launches Canada's Largest Farmland Partnership," July 16, 2013.

## LIST OF RECOMMENDATIONS

Note: Page references are to the body of the report.

### Improved Public Information on Aggregate Operations

(pp 4-5)

1. The Ministry of Natural Resources should publicize the establishment of its Pits and Quarries Online website on licenced/permitted aggregate operations in Ontario and act to continually enhance the information on this website. Consideration should be given to reporting progressive rehabilitation activities and progress (i.e., area rehabilitated) at individual aggregate operations recorded on this website.

2. The Ministry of Natural Resources should work and cooperate with individual aggregate-producing municipalities to add mapped information of aggregate operations and local planning designations related to aggregate resources that could complement the Pits and Quarries Online website.

3. The Ministry of Natural Resources should continue the preparation of a periodic up to date public assessment of current Ontario aggregate demand and supply and future needs, based on the findings of the State of The Aggregate Resource in Ontario Study (SAROS) (2010).[38] This information should be made available on a public website.

### Licencing Procedures and Associated Matters

(pp. 5-8)

4. The Ministry of Natural Resources, the Ministry of Municipal Affairs and Housing, and the Ministry of the Environment shall simplify and standardize, wherever feasible and practical, the consultation processes, timelines, and data requirements associated with aggregate applications, including licences, site plans, and permits subject to review or consideration under the Aggregate Resources Act, the Planning Act, the Environmental Bill of Rights, and other relevant statutes.

5. The Ministry of Natural Resources should undertake measures to simplify the Provincial Standards on Aggregate and the Aggregate Resources Policy Manual.[39] The Committee supports the use of innovative measures by the Ministry, such as the digital collection of inspection data

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[38] Ministry of Natural Resources, *State of the Aggregate Resources in Ontario Study,* Consolidated Report, February 2010; and *State of the Aggregate Resources in Ontario Study (SAROS), Paper 1 – Aggregate Consumption and Demand.* Prepared for: Ontario Ministry of Natural Resources; Prepared by: Altus Group Economic Consulting, December 2009.

[39] See the MNR, Aggregate Resources, *Provincial Standards*, June 1997 and Aggregate Resources, *Aggregate Resources Policy Manual.*

to improve the efficiency and effectiveness of inspections.

6. The Ministry of Natural Resources (in cooperation with the Ministry of Finance) should increase the annual licence/permit fees, and royalty on Crown land related to the tonnages of aggregate material for all types of regulated aggregate extraction whether on private or Crown land. Where private companies operate a pit or quarry on Crown land they should be subject to the same fee, with similar distribution practices, as other private aggregate operators on private land. The increased revenues should be suitably distributed to support Ministry of Natural Resources aggregate program administration and inspection; build or maintain local infrastructure; conduct innovative aggregate research or monitoring; or provide programs to promote recycling and/or rehabilitation of abandoned pits and quarries. A regular review of the fee/royalty structures should be conducted by the Ministry of Natural Resources. The increased fees should be appropriately placed in special purpose or dedicated funds administered by the Ministry of Natural Resources. Increased fee structures and associated programs should be subject to periodic independent financial audit and program effectiveness evaluations.

7. The Ministry of Natural Resources, in cooperation with major aggregate-producing municipalities, should periodically review and update major aggregate haulage routes to reduce adverse community impacts. The review should reflect changing haulage patterns, measures to mitigate dust, highway and roadway improvements, and recent municipal development. Municipalities are also encouraged to incorporate the definition and mapping of haulage routes in their Official Plans adopted in accordance with the Planning Act.

## Review of Licences

(pp. 8-9)

8. The Ministry of Natural Resources should begin a consultation process involving relevant stakeholders to simplify and standardize procedures under ss. 16 and 37 of the Aggregate Resources Act with respect to minor and major site plan amendment practices, including improved methods of informing local communities of proposed changes.

9. For major site plan amendments, including a change to extraction depth, an increase in the amount of aggregate to be removed each year, and significant changes to the operation, or rehabilitation of the site, the aggregate licensee/permittee shall continue to be required to circulate the proposed amendment to pertinent agencies such as the Ministry of the Environment, or conservation authorities.

10. In their preparation of annual compliance reports operators shall report to the Ministry of Natural Resources on proper operating practices, progress with phased rehabilitation and, where feasible, their use of recycled aggregate materials. The Ministry of Natural Resources should post the key findings of these annual reports, while respecting corporate

confidentiality requirements, on its Pits and Quarries Online website.

11. To facilitate improved public participation in association with aggregate licence applications, the Ministry of Natural Resources should increase the public notification period from the current 45 days and increase the notification area beyond the current 120 meter distance.

12. In cases where licenced pits and quarries are reactivated subsequent to being dormant for a prolonged period of time, the licensee/permittee should provide advance notice to the municipality and adjacent landowners.

## Use of Recycled Aggregate Materials

(pp. 9-12)

13. The Ministry of Natural Resources, the Ministry of Transportation, the Ministry of Infrastructure, and the Ministry of Municipal Affairs and Housing, in cooperation with the Association of Municipalities of Ontario (AMO) and other relevant parties, should undertake consultations to expand the use and acceptance of recycled aggregate materials by Ontario municipalities, in conformity with accepted engineering standards. The Ministry of Transportation should work with all Ontario municipalities to share its technical expertise and best practices regarding aggregate recycling.

14. The provisions of Bill 56, the Aggregate Recycling Promotion Act 2013, specifically, to prohibit restrictions on the use of recycled aggregates in public sector construction work, should be adopted on an interim basis.

15. The Ministry of Natural Resources, the Ministry of Transportation, and the Ministry of Infrastructure should use (and publicize the use of) recycled aggregate materials in the construction and completion of all significant infrastructure projects.

16. The Ministry of Natural Resources, the Ministry of Transportation, the Ministry of Infrastructure, and individual municipalities that accept recycled aggregate, should, in cooperation with civil engineering experts, share their expertise and knowledge to establish technical protocols for testing recycled aggregate materials for their suitability and performance for broader use by municipalities and other public agencies across Ontario.

17. The Aggregate Resources Act should be amended to include (as a new Part following Part VI – Rehabilitation) definitions and requirements for the use of recycled aggregate materials.

18. The Aggregate Resources Act should be amended with a new clause under s. 2 (Purposes of Act): “to promote the conservation of primary aggregate reserves and the wider use of recycled aggregate materials in Ontario.”

19. The Aggregate Resources Act should be amended by adding to s. 12(1) (Matters to be considered by Minister) “provisions by the applicant to produce and/or market recycled aggregate materials.” Incentives for recycling should also be considered.

*20. Various stakeholders (including relevant Ontario ministries, industry representatives, municipal governments, federal departments, and Statistics Canada) should be invited to set up a Task Force to consider establishing a standardized electronic monitoring system to measure the extent of aggregate recycling in Ontario.*

*21. The Ministry of Natural Resources should, in cooperation with the Ministry of Transportation and Ministry of the Environment, other interested agencies, municipalities, and with input from the aggregate, construction and demolition industries, periodically report on the state of aggregate recycling and re-use within the broader public sector in Ontario.*

## Municipal Land Use Planning Responsibilities

(pp. 12-13)

22. All municipalities with active or potential aggregate production shall apply sound planning principles related to the separation of land uses and studies of haul routes for aggregate operations, to minimize disruption and tension with current or future non-aggregate land uses.

23. Wherever possible, the Ministry of Natural Resources and the Ministry of Municipal Affairs and Housing should work with municipalities in the exercise of the local planning responsibilities with respect to protecting the non-renewable aggregate resource, accommodating its extraction, and developing suitable relationships with neighbouring land uses.

## Aggregate Operations and Agricultural Land

(pp. 13-15)

24. The Ministry of Natural Resources in its approval and administration of aggregate sites located on prime agricultural land (as defined in the Provincial Policy Statement), or on other agricultural lands that were under cultivation prior to aggregate extraction, should ensure, wherever practical, the phased progressive rehabilitation of these sites and their expeditious return to agricultural production. Rehabilitative measures shall act to restore land, where practical, to agricultural capability(ies) or production equal to or higher than its capability(ies) or production prior to extraction.

25. The Ministry of Natural Resources should incorporate requirements for monitoring and recording of agricultural capability, or actual agricultural production, at aggregate sites where there are opportunities for rehabilitation that restores agricultural capability. Agricultural monitoring should take place at the initial site plan review stage. Operators should

also be required to include information on the progress of agricultural rehabilitation, where feasible, in their annual compliance reports as required by the Aggregate Resources Act. Consideration should also be given to including information regarding progressive rehabilitation to agriculture at individual licenced/permitted sites on the Ministry of Natural Resources Pits and Quarries Online website.

*26. When an aggregate application is made on prime agricultural land (as defined in the Provincial Policy Statement), the applicant should file the application with the Ministry of Agriculture and Food to enable the Ministry to evaluate the rehabilitation plan and the potential reduction of local agricultural capacity.*[40]

*27. The Ministry of Natural Resources, in cooperation with the Ministry of Agriculture and Food and the participation of the Ontario Stone Sand and Gravel Association, the Ontario Federation of Agriculture, the Ontario Aggregate Resources Corporation, and other relevant parties, should undertake an evaluation of current and potentially innovative rehabilitation practices by which excavated areas may be returned to agricultural production.*

## Cumulative Impact of Aggregate Operations on Water Resources

(p. 15)

28. The Ministry of Natural Resources, in conjunction with the Ministry of Environment, conservation authorities, and aggregate producers, should ensure that potential cumulative impacts upon surface and groundwater resources are appropriately assessed and mitigated where warranted. Independent technical analyses should be undertaken where appropriate.

## Rehabilitation of Former Sites

(pp. 15-18)

29. The Ministry of Natural Resources should, in acting to increase the annual licence fee, also consider increasing the share of this fee (s. 14 of the Aggregate Resources Act and Ontario Regulation 244/97) assigned to the Ontario Aggregate Resources Corporation to support a more aggressive program of rehabilitation of abandoned pits under the Management of Abandoned Aggregate Properties Program (MAAP).

30. The Ontario Aggregate Resources Corporation should be encouraged to publicize notable rehabilitated aggregate sites that could be attractive for enhanced use as natural or recreation sites in close proximity to urban centres.

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[40] It is assumed that the applicant would file an independent expert study on the agricultural capacity of the site and potential for rehabilitation for agricultural production.

31. Stakeholders (including relevant Ontario Ministries, representatives of the aggregate industry, engineering and agriculture specialists, the Niagara Escarpment Commission, and interested municipalities) should establish a Task Force to develop Best Practice Guidelines for the rehabilitation of aggregate sites in Ontario. Rehabilitation principles for various successor land uses should be developed.

32. The Ministry of Natural Resources, in cooperation with the Ontario Stone, Sand and Gravel Association and individual aggregate operators, should develop expedited rehabilitation standards and requirements for aggregate operations in locations surrounded by higher population densities, or in the vicinity of settlement areas. .

33. The Ministry of Natural Resources should continue to support and facilitate the partial surrender of aggregate licences ("reduction of licenced area") when rehabilitation work has been completed on a portion of the site where extraction has ceased. This action, particularly at larger, long lifespan aggregate operations, may serve to accelerate the transition to future use(s), where this remains compatible with nearby active aggregate extraction.

## Alternative Modes of Transport

(pp. 18-20)

34. The Ministry of Natural Resources, the Ministry of Transportation and the Ministry of Infrastructure should commission a technical study of the opportunities available in Ontario to utilize alternative water and rail modes of transport to move aggregate materials, drawing upon the experience of other North American jurisdictions.

35. The Ministry of Natural Resources, the Ministry of Transportation, the Ministry of Infrastructure and the Ministry of Economic Development, Trade and Employment should conduct a comprehensive inventory analysis of where raw aggregate and associated cement and asphalt products are being transported by marine transport within Ontario to determine whether such operations might be readily expanded for broader use by the aggregate industry. Appropriate consultations should be held with aggregate and shipping operators who utilize or provide these services.

36. The Ministry of Natural Resources, the Ministry of Transportation and the Ministry of Infrastructure should seek to implement pilot project(s) on a priority basis to utilize the rail and/or marine modes of transport to transport aggregate materials and products. The development of a rail corridor to the north of the Greater Toronto Area should be examined as a priority. Financial or tax incentives to support such pilot projects should be considered.

37. The analyses undertaken pursuant to recommendations 34-36 should result in a report, prepared jointly by the Ministry of Natural Resources and

Ministry of Transportation, with input from other relevant Ministries, containing recommendations on how to expand the role of the rail and marine modes of transport in the movement of aggregate and associated bulk materials within Ontario.

38. Section 12(1)(h) (Matters to be considered by the Minister) of the Aggregate Resources Act should be amended to include: the enhanced use of rail or marine modes of transport.

# APPENDIX A

# PIT AND QUARRY SITE VISITS SUMMARY

## Introduction

As part of its hearings on the *Aggregate Resources Act* (*ARA*), the Standing Committee on General Government spent portions of four days in June and July, 2012 visiting 12 operating, rehabilitated, proposed, or abandoned pits and quarries across Ontario. These visits were intended to provide perspective on the operation and features of the aggregate resource industry. The Committee also conducted a viewing of the site of the Highland Companies quarry proposal to extract Amabel dolostone (limestone) in Melancthon Township in Dufferin County. On November 21, 2012, Highland Companies announced that it was withdrawing its application to develop this quarry.

This document summarizes the key features of the sites visited or viewed in Dufferin-Caledon (June 27, 2012), the Kitchener-Waterloo area (July 9, 2012), the Ottawa area (July 16, 2012) and western Manitoulin Island (July 17, 2012).

From these site visits the Committee has gained an appreciation of the varying scale of pit and quarry operations and the commitment of Ontario's aggregate industry to responsible operating practices. The Committee viewed

- rehabilitation activities and farming taking place on rehabilitated land;
- a rehabilitated former wayside pit;
- operations within the Oak Ridges Moraine Conservation Area, the Greenbelt Area and the Niagara Escarpment Plan Area;
- several examples of aggregate extraction below the water table;
- a quarry operating within the National Capital Commission (Ottawa) greenbelt;
- on-site production and processing of recycled aggregate materials;
- a publicly-owned pit rehabilitated for environmental and recreational purposes within a river floodplain;
- differences in scale between sites with Class A licences and Class B licences;
- site conditions at several abandoned pit sites;[41] and
- an example of the use of marine transport to ship aggregate product to market.

The Committee wishes to recognize the assistance and cooperation provided to the Committee during these various site visits by the Ontario Stone, Sand & Gravel Association (OSSGA), Moreen Miller, President; individual aggregate companies and their on-site staff; the Grand River Conservation Authority, Joe Farwell, CAO; the Ontario Aggregate Resources Trust (TOARC), David Sterrett, President; and other individuals who participated.

[41] These sites were abandoned prior to the enactment of provincial legislation in 1971 under the former *Pits and Quarries Control Act.*

## Key Features of Sites Visited

DUFFERIN-CALEDON

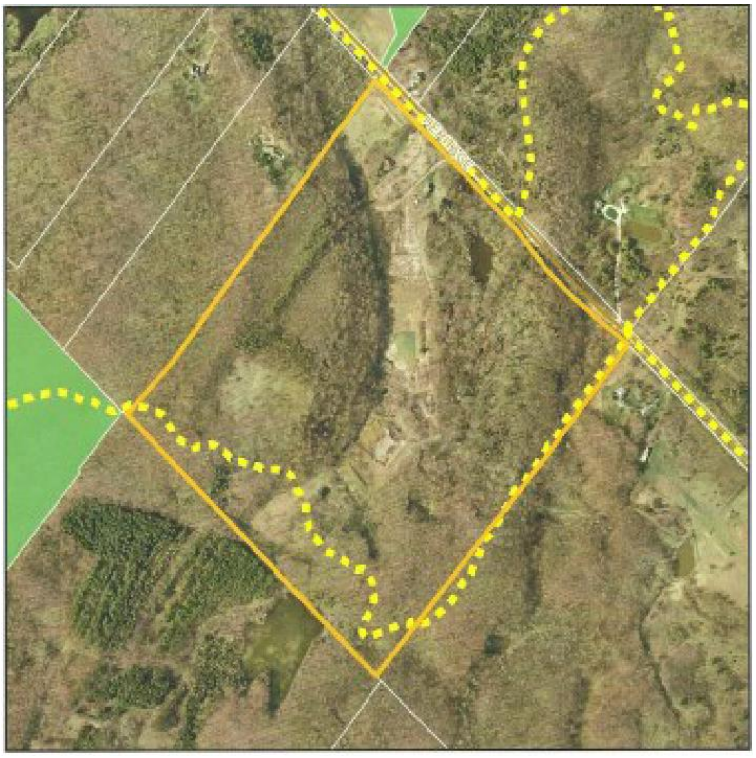
*Ken Whillans Resource Management Area, Highway 10 (Town of Caledon)*

The Ken Whillans Resource Management Area is a rehabilitated site at the base of the Oak Ridges Moraine Conservation Area in the upper Credit River watershed. A sand and gravel pit operating below the water table in the 1960s, the site was rehabilitated in the mid-1980s and the licence cancelled.

The old gravel pit extended below the water table. The Committee visited one of the sites, which is now a publicly-owned and used lake measuring two to four acres and eight to 16 feet deep. It was noted that when the site was originally rehabilitated, the lake was filled with bass but there were insufficient nutrients for the fish to survive. In the late 1990s, James Dick Construction and Enbridge brought yellow perch to the site to serve as food for the bass. The lake is now a popular fishing area.

*Credit Valley Quarries (Town of Caledon)*

Aerial Photo of Credit Valley Quarries, Town of Caledon



Source: OSSGA, August 2012.

The Credit Valley Quarries site is a family-owned quarry and settlement area located in the Niagara escarpment. It has been in operation since 1850. The quarry has a Class B licence, which allows it to extract 20,000 tonnes or less of aggregate annually under the *ARA.* The quarry does on-site recycling of smaller pieces of stone and does not extend below the water table.

Quarries within the Niagara Escarpment Plan Area can only operate on land designated for “mineral resource extraction” under the Niagara Escarpment Plan (NEP). Land reclassification requires an amendment to the NEP. Applicants wishing to commence a

quarry operation in the escarpment must obtain a licence under the *ARA* and then apply for a NEP amendment, followed by an application for a NEP development permit.

Two of the three sites owned by the Credit Valley Quarries were classified as escarpment Mineral Resource Extraction Areas, but are being reclassified as Escarpment Rural Area and Escarpment Protection Area.

*Agricultural Rehabilitation Site, Charleston Side Road (Town of Caledon)*

This area was a Ministry of Transportation wayside pit for rural highway construction in the 1970s and 1980s. (Used for government contracts, wayside permits are temporary aggregate permits issued for 18 months; they can be renewed up to three times).

The site was an extraction area for the Town of Caledon: 175,000 tonnes were removed in 14 months. The area was subsequently re-graded and now sustains hay and canola crops.

Agricultural Rehabilitation Site as Seen from Road, Town of Caledon

Photo by Legislative Research Service, June 27, 2012.

*Lafarge-Aecon Caledon Pit, Highway 10 (Town of Caledon)*

Aerial Photo of Lafarge-Aecon Caledon Pit, Town of Caledon

Source: OSSGA, August 2012.

The site is a sand and gravel pit measuring three concessions wide with an area of 570 licenced hectares. All three concessions are under a Class A licence. The pit began operating in the early 1950s and has been run by Lafarge and Aecon since the early 2000s.

The pit operates 12 hours a day, five days a week, seven months a year. It extracts 1,000 tonnes of aggregate per hour and on average about 1 million tonnes per year. The site produces approximately 40 per cent of the Region of Peel's annual consumption of construction grade aggregates.

Products are transported from the site by truck. The quarry's licence stipulates that materials can only be transported during the day.

The quarry's main products are washed sand and clear stone, used to produce asphalt, concrete, and precast products used in road, sewer, and house construction. A mining plan for the pit directs the site extraction.

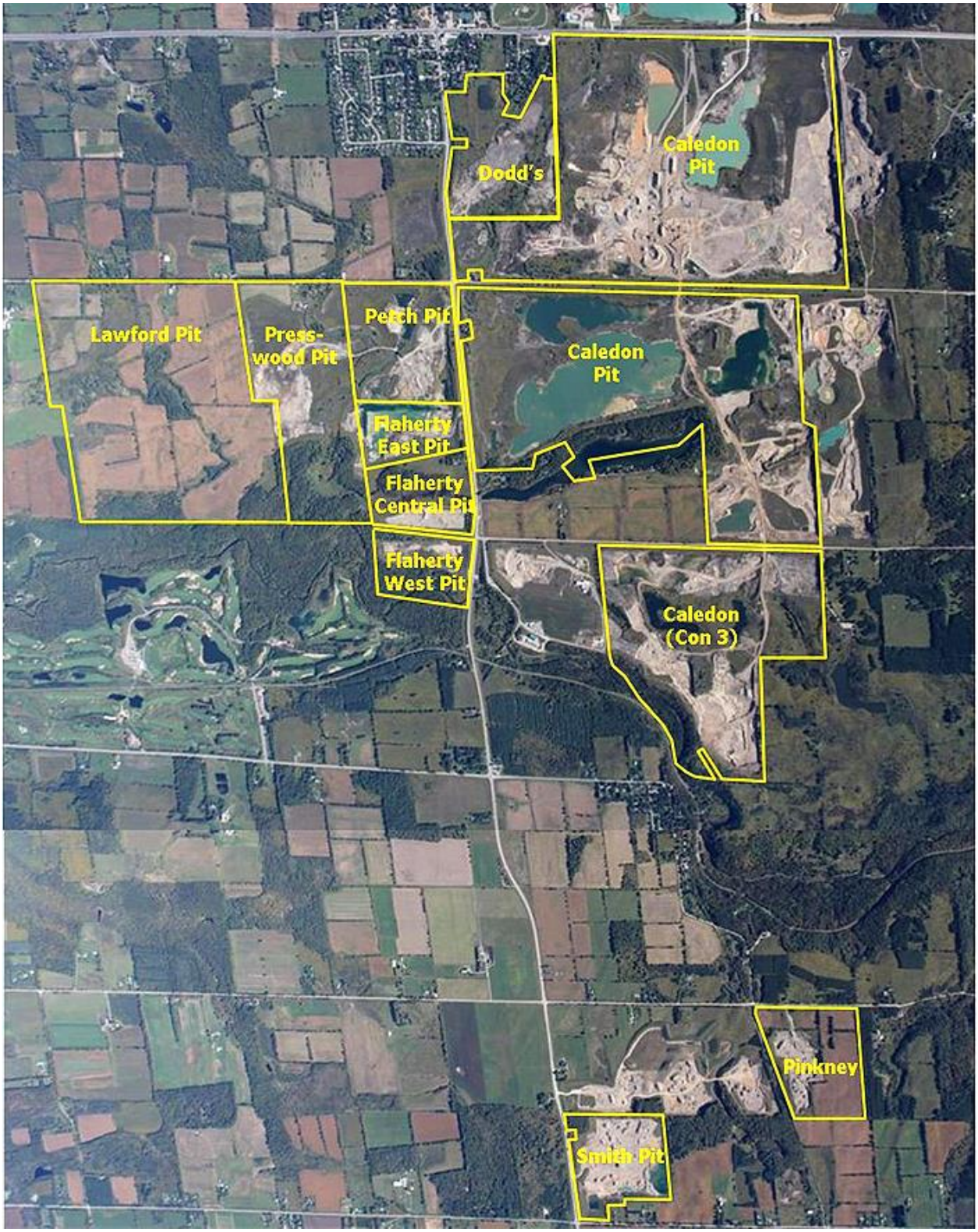
The pit uses screens and a wash plant to separate sand from stone. The natural sand goes into concrete while crushed material goes into asphalt. The company uses water from an on-site pond to wash the products. The water is recirculated and re-used on site.

The pit is licenced to operate under water. The Committee learned that the company excavates below the water (using a dragline). Neighbouring pit operators also conduct underwater extraction but this activity does not impact the groundwater. The Committee was told that Peel Region chose to place a drinking water well between the pits due to the water quality and quantity. The company does not recycle aggregates at this site.

When it first obtained its licence, the pit did not have a detailed rehabilitation plan. The operator is conducting a five-year comprehensive rehabilitation plan with the Town of Caledon and the Ministry of Natural Resources (MNR). The site has undertaken progressive rehabilitation on 55 hectares.

Final rehabilitation of parts of the pit site began in 2002 and the rehabilitated portion now measures 16 hectares. It was conducted by adding topsoil and grass. In some years the company has had to use pumps to water the grass seed. The final rehabilitated area now includes a lake with islands that has become a staging (i.e., feeding and resting) site for migratory birds. The site is one of the top twenty producing sand and gravel pits in Canada.

Aerial Photo of the Caledon Area Pits, Town of Caledon




Source: OSSGA, August 2012.

*Site of Proposed Melancthon Quarry by Highland Companies*
*(Township of Melancthon)*

Office of the Highland Companies as Seen from Road, Township of Melancthon


Photo by Legislative Research Service, June 27, 2012.

The Committee toured the area of the proposed Melancthon quarry owned by Highland Companies.

The area is said to feature one of the largest deposits of the highest quality Amabel dolostone (limestone) in Ontario.

In March 2011 Highland Companies applied to the MNR for a Class A licence. It is the first proposed quarry to be referred for an environmental assessment under section 39 of the *Environmental Assessment Act*. The proponent is required to prepare the environmental assessment and submit it for evaluation by the Ministry of the Environment before the MNR can grant the Class A licence under the *ARA*.[42]

On November 21, 2012 the Highland Companies announced that this quarry application has been withdrawn.[43] On July 16, 2013, Bonnefield Canadian Farmland LP announced that it had purchased over 6,500 acres of farmland property owned by Highland in this area of Dufferin County; the land will be retained in agricultural production.[44]

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[42] Interview with Special Project Officer, Environmental Approvals Branch, Ministry of the Environment, Toronto (August 2012).
[43] The Highland Companies, "The Highland Companies Withdraws its Application for a Quarry in Melancthon Township," November 21, 2012.
[44] Bonnefield, News & Events, "Bonnefield Launches Canada's Largest Farmland Partnership," July 16, 2013.

## Kitchener-Waterloo Area

*Capital Paving, Wellington Pit (Puslinch Township, County of Wellington)*

Committee Members and Staff, Capital Paving Pit, Puslinch Township

Photo by Legislative Research Service, July 9, 2012.

This gravel pit operates on land leased from several local landowners. The original licence was issued in 1998. The pit's operation extends below the water table.

The pit covers some 110 hectares. Roughly 30 hectares have been rehabilitated and rezoned back to agriculture. Upon the completion of extraction the property will be returned to agricultural production. Cultivated agricultural fields were noted immediately adjacent to the active aggregate production area.

Screening the soil to remove rocks, returning topsoil, and improving grading and drainage, have improved the agricultural capability of the rehabilitated fields from Capability Class Classes 3-6 (with original slope and rock limitations) to Capability Class 2.

The pit has equipment to recycle asphalt. However, company officials expressed concern (from a land use planning perspective) that some municipalities do not allow aggregate recycling activities in an active pit. They were also concerned that the site plan amendment process can be tedious and that submitting these approvals to the MNR regional office (rather than the local office) causes delay.

*Lafarge Guelph Pit & Quarry (Township of Guelph and Township of Puslinch, County of Wellington)*

Aerial Photo of Lafarge Guelph Pit and Quarry, County of Wellington

Source: OSSGA, August 2012.

This licenced pit and quarry on the outskirts of Guelph is on a site of 140 hectares. It also contains ancillary on-site activities including a ready-mix concrete plant, a hot mix asphalt plant, and recycling of concrete and asphalt materials. Some of these activities are operated by other companies. The pit produces sand, gravel and limestone. The company brings a portable crushing and screening plant onsite to process recycled material into usable aggregate products. Foreign materials such as steel, plastic and wood are removed and appropriately recycled. Granular products produced from recycled materials are used in construction projects throughout this region.
Lafarge notes that the Ministry of Transportation and the City of Guelph locally accept the use of recycled aggregate. It would like to increase the use of recycled materials and is a member of Aggregate Recycling Ontario (ARO).[45] According to Lafarge many GTA municipalities do not use recycled aggregate material on a regular basis. The

[45] Lafarge, *Lafarge Guelph Pit & Quarry,* Site Tour: July 9, 2012 [pamphlet].

company indicated that it uses fly ash, slag material from steel production, and recycled aggregates in the manufacture of cement.

*Snyder's Flats Conservation Property (Township of Woolwich, Regional Municipality of Waterloo)*

Aerial Photo of Snyder's Flats Property, Regional Municipality of Waterloo

Source: Photo by Grand River Conservation Authority, supplied by the OSSGA, August 2012.

This property was acquired by the Grand River Conservation Authority in 1969 and is an example of a rehabilitated pit located within the floodplain of a river (the Grand River). Preston Sand and Gravel – a local aggregate producer – held a lease to extract gravel from this site up to the mid-1990s. This was followed by extensive site rehabilitation and planting. The area was first settled by Jacob Snyder in 1807 and remained in agricultural production until the 1960s.[46]

Gravel extraction took place below the water table. A coldwater pond, a warm water pond, and floodplain pools and channel, created by grading the former extraction areas, now serve as aquatic habitats along the Grand River. Subsequent rehabilitation work

[46] Grand River Conservation Authority, *Snyder's Flats Rehabilitation Project Overview*, Site Visit: July 9, 2012 [pamphlet].

has consisted of floodplain meadow and forest restoration. The Kitchener-Conestoga Rotary Club and other partners have provided funds to establish the Rotary Forest on this site. A trail system provides public access. Further floodplain meadow restoration and planting work is ongoing.[47] The site represents an example of aggregate site rehabilitation for subsequent environmental and recreational purposes.

## Ottawa Area

*Lafarge Bearbrook Quarry (City of Ottawa)*

Lafarge Bearbrook Quarry, City of Ottawa

Photo by Legislative Research Service, July 16, 2012.

[47] Ibid.

Lowered Water Table Maintained by Pumping at the Lafarge Bearbrook Quarry

Photo by Legislative Research Service, July 16, 2012.

This quarry is in the community of Blackburn Hamlet within the corporate limits of the City of Ottawa. It is also within the Greenbelt of the National Capital Commission. The property consists of 123 hectares licenced for aggregate extraction and includes on-site concrete and asphalt plants. The quarry began operating in 1949 and has approximately 40 years of remaining production.[48]

Stone products produced from this site are used in the production of asphalt, concrete, and precast concrete products which supply construction needs in the Ottawa area. The quarry is the largest aggregate producer in this area.

Rubble is processed on site to produce recycled material. Pumping is utilized and extraction takes place below the water level, as seen in the accompanying photo. Progressive rehabilitation has occurred on the site, most of which will ultimately become a lake when extraction ceases.[49]

Rock blasting activity at the site is below the vibration and noise limits established by

[48] Lafarge, *Lafarge-Bearbrook Quarry,* Site Tour: July 16, 2012 [pamphlet].
[49] Ibid.

the Ministry of the Environment. Residences and schools are located in proximity to the boundary of this property.

*Watson Abandoned Pit (City of Ottawa, former Township of Cumberland)*

Source: TOARC, July 2012.

The Watson pit was viewed by the Committee from the side of the road. It is recorded in the inventory of abandoned pits and quarries on private land maintained by the Ontario Aggregate Resources Trust (TOARC). The site is small (two hectares) and shows signs of naturalization, but in terms of slopes and former areas of excavation, still resembles a pit. This site was abandoned prior to the establishment of provincial legislation respecting aggregate in 1971. It was inventoried in 2012 under the Management of Abandoned Aggregate Properties Program (MAAP) administered by TOARC.[50]

*Bank Street Abandoned Pit (City of Ottawa, former Township of Osgoode)*

Source: TOARC, July 2012.

This site, also viewed by the Committee from the side of the road, is recorded in the inventory of abandoned pits and quarries on private land maintained by TOARC. It has an area of 22 hectares and was licenced as a Class A aggregate operation up to 1989.

The site is partially rehabilitated. Because of safety issues related to the large remaining slope faces and erosion, this site is a high priority for completing final rehabilitation. The property appears to be split between two landowners.[51]

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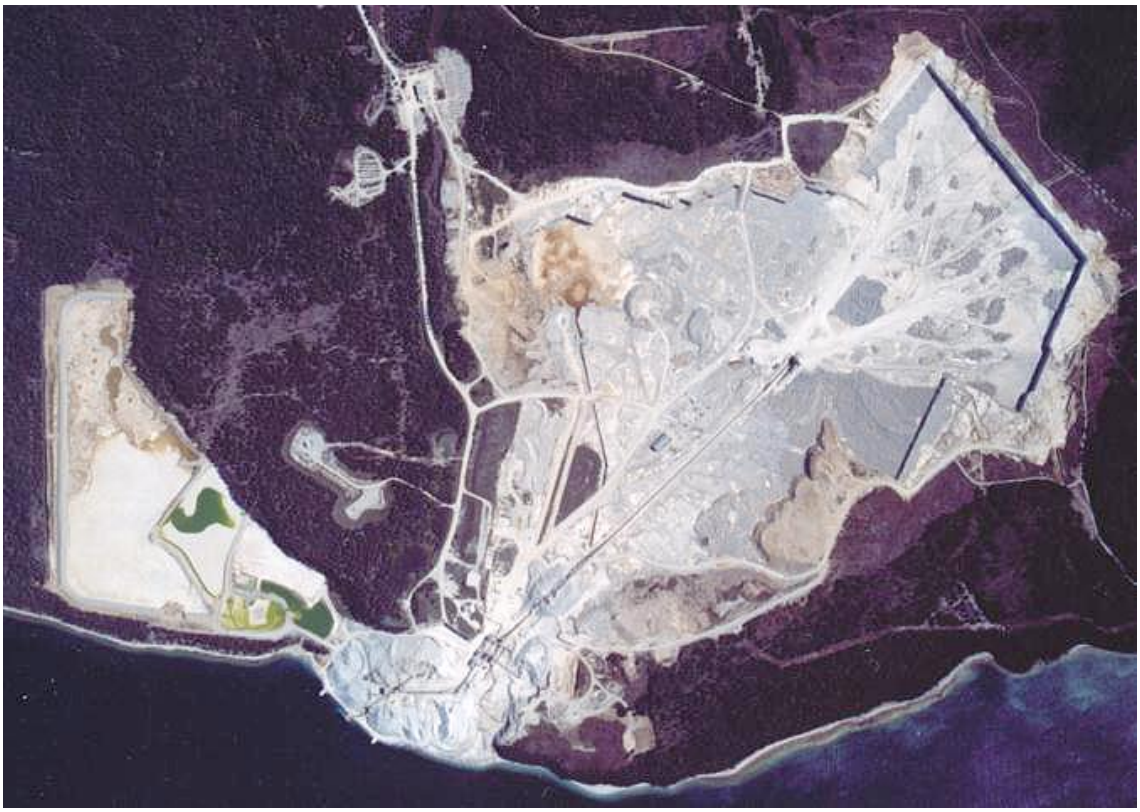
[50] Supplementary information provided in an e-mail communication from TOARC dated July 17, 2012.

[51] Supplementary e-mail information from TOARC.

## Manitoulin Island

*Lafarge Manitoulin Quarry (near Meldrum Bay, western Manitoulin Island, unorganized territory)*[52]

Aerial Photo of Lafarge Manitoulin Quarry, Manitoulin Island



Source: Lafarge, August 2012.

This quarry at the western end of Manitoulin Island near Meldrum Bay has shipping access to Mississagi Strait on Lake Huron. It produces high quality dolomite from the Amabel formation and supplies both the construction and metallurgical markets in Canada and the United States.[53] According to Lafarge, production peaked at this site in 2004 at 5.7 million tonnes. The facility transports all of its production via marine transport on the Great Lakes.

At present, the quarry consists of two abutting parcels of land – 353 hectares of leased property and 1,093 hectares of company-owned property that was purchased in 1997. Some portions of the site such as the North face have been rehabilitated by the planting

[52] This western portion of Manitoulin Island is within the geographic township of Dawson and is an area without local municipal government, i.e. unorganized territory (Source: Ontario, Ministry of Municipal Affairs and Housing, Provincial Planning and Environmental Services Branch, *Restructured Municipalities, Ontario Map #4*, [a map], 2006.

[53] This geological formation is a “dolostone, which is a variation of limestone, in which some calcium in the rock has been substituted by magnesium making the rock more resistant to weathering.” (Source: Lake Ontario Waterkeeper, *Amabel formation*, December 2, 2010).

of 10,000 trees. These rehabilitated sections were visible during the site tour.[54] Production levels at this facility could operate for up to an additional 130 years.[55]

Lafarge maintains that marine shipment from this relatively remote site is more expensive than other inland aggregate operations and that the site cannot compete in all construction markets. For material shipped to the Toronto market, “logistics comprises 75% of the total landed costs.”[56] Marine shipments are affected by weather, lake water levels, and the seasonal nature of shipping. Due to the remoteness of this site, electrical power is supplied by on-site supplementary diesel generators.

Committee Members and Staff, Lafarge Manitoulin Quarry Dock and Loading Area

Photo by Legislative Research Service, July 17, 2012.

[54] Lafarge Aggregates, *Manitoulin Quarry*, [pamphlet]. The rehabilitated sections were also visible during the site tour.
[55] Information obtained from telephone interviews with and related e-mail communications from Plant Manager, Lafarge Manitoulin Quarry, Meldrum Bay, August 1 and 2, 2012.
[56] Lafarge Aggregates, *Manitoulin Quarry*, [pamphlet].