

9. Managing Aggregate Resources

Mineral aggregates are a valuable non-renewable resource essential to both the Region's and Province's growth and economic prosperity. *Mineral aggregate resources* within the region include naturally occurring sand and gravel deposits and bedrock resource areas. These resources have a finite supply and provide significant material used in the construction of buildings and *infrastructure*. They also support many secondary industries that provide employment opportunities and produce a wide range of manufactured items, including blocks, bricks and pre-cast concrete products. As such, the long-term protection of mineral aggregate resources and making them available close to markets is important both for economic and environmental reasons.

Waterloo Region is one of the largest aggregate producers in southwestern Ontario, providing several million tonnes of aggregates annually to local and provincial markets. As the region's population continues to grow, so too will the demand for aggregate products to support building and construction needs. The challenge facing the Region and Area Municipalities will be to address the growing demand for aggregates while preventing or minimizing the potential impacts of *mineral aggregate operations* on surface water and groundwater resources, surrounding communities, *cultural heritage resources*, *environmental features* and *ecological functions*, and agricultural resources and operations.

Within the Prime Agricultural Area, Provincial policy generally treats *mineral aggregate operations* as interim land uses that will return to an *agricultural use* once the aggregate resources have been extracted. However, the duration of any given aggregate operation will depend on the scale and nature of the operation. Some operations may cease to operate after a few years, while others may continue to exist for several decades. In addition, *mineral aggregate operations* that extract resources from below the water table result in permanent changes to the landscape as well as surface water and groundwater regimes. For these reasons, this Plan places a high priority on identifying and addressing, in conjunction with Area Municipal official plans, the potential long-term social and environmental effects of *mineral aggregate operations* throughout the region.

A large share of the region's mineral aggregate areas overlaps with some of the region's best groundwater aquifers and recharge areas. These water resources are the primary sources of the municipal drinking-water supply. *Mineral aggregate operations* can create *preferential pathways* or increase the *vulnerability* of these aquifers through the removal of the protective overburden. The removal of this overburden increases the risk of groundwater contamination through spills during the extraction operation and in the establishment of post-extractive uses. Accordingly, this Chapter includes policies related to the siting of *mineral aggregate operations*, best management practices, conditions or restrictions on aggregate activities and rehabilitation plans.

Def.
No. 5

All policies in this Plan should be read together. However, in light of the interrelationships between the region's *mineral aggregate resources* and its

groundwater recharge areas, the policies in this Chapter should be read particularly in conjunction with the policies in Chapter 8.

Overall Goal – Plan for the availability of *mineral aggregate resources* to support the region’s economic and growth needs, while preventing or minimizing any potential impacts of *mineral aggregate operations* on surface water and groundwater resources, surrounding communities, *cultural heritage resources*, *environmental features* and *ecological functions*, and agriculture resources and operations.

Objectives:

- 9.1 Identify and protect Mineral Aggregate Resource Areas for current and future needs.
- 9.2 Prevent any changes in land use that could conflict with *existing* or future *mineral aggregate operations*.
- 9.3 Ensure that *mineral aggregate operations* proceed as expeditiously as possible and in logical sequence so that depleted areas can be restored while extraction continues in other areas of the pit.
- 9.4 Ensure potential impacts of new *mineral aggregate operations* are prevented or minimized through the *development application* and *site plan* review processes.
- 9.5 Ensure the availability of *mineral aggregate resources* occurs as close to markets as possible.

9.A Resource Protection

- 9.A.1 Mineral Aggregate Resource Areas are designated as shown on Map 8. These areas have been identified by the *Province* as having a high potential to contain *mineral aggregate resources*. The identification of these resources in this Plan does not presume that all lands located within these areas are suitable for the establishment of new, or expansions to existing, *mineral aggregate operations*. The Region will update the boundaries of the Mineral Aggregate Resource Areas as necessary as part of the five-year *municipal comprehensive review* of this Plan, or the completion of a *municipal comprehensive review* as otherwise initiated by Regional Council.
- 9.A.2 Area Municipalities will designate Mineral Aggregate Resource Areas in their official plans in conformity with Map 8. The boundaries of these areas may be further refined within Area Municipal official plans without an amendment to this Plan.

- 9.A.3 Extraction of *mineral aggregate resources* may be permitted outside the Mineral Aggregate Resource Areas as shown on Map 8 where there is a sufficient quantity and quality of resources to warrant extraction as demonstrated to the satisfaction of the *Province*, the Region and the Area Municipality, subject to the policies in this Plan and Area Municipal official plans.
- 9.A.4 Area Municipalities will establish policies in their official plans to:
- (a) prohibit *development* in areas located within or adjacent to Mineral Aggregate Resource Areas, which would preclude or hinder the establishment of *mineral aggregate operations* or access to the resources, except where:
 - i) extraction of the resource would not be feasible; or
 - ii) the proposed land use or *development* serves a greater long-term public interest; and
 - iii) issues of public health, safety and environmental impact are appropriately addressed.
 - (b) minimize the amount of land required for any new *development* proposed under Policy 9.A.4 (a) to retain as much of the *mineral aggregate resource* potential as possible;
 - (c) encourage the recovery of *mineral aggregate resources* through the sequential use of developable land, whereby *mineral aggregate resources* are extracted prior to, or in conjunction with, development of the land;
 - (d) permit accessory uses associated with *mineral aggregate operations* such as crushing, screening, washing, stockpiling, blending with recycled asphalt or concrete materials, storage, weigh scales, and parking and office facilities;
 - (e) require a site-specific zoning by-law amendment to permit ancillary land uses, including asphalt plants, concrete plants and aggregate depots that blend and stockpile aggregate materials with salt, except where such uses are identified as a prohibited use in accordance with the policies in Chapter 8;
 - (f) ensure that *mineral aggregate operations* are provided with adequate buffering, screening and other mitigation measures to prevent or minimize any potential *adverse effects* on surrounding *sensitive land uses*; and
-

(g) plan for and regulate the subsequent use of rehabilitated *mineral aggregate operations* in accordance with the policies in this Plan.

9.A.5 The Region will promote the conservation of *mineral aggregate resources* by making provision for the recovery of these resources, wherever feasible.

9.B Existing Mineral Aggregate Operations

9.B.1 Existing licensed *mineral aggregate operations* are recognized as legal uses of land and will be permitted to continue without the need for an official plan amendment or rezoning under the Planning Act. Area Municipalities will establish policies in their official plans to protect these operations from new *development* that would preclude or hinder their expansion or continued use, or which would be incompatible for reasons of public health, public safety or environmental concerns. Existing licensed operations will be zoned appropriately in the respective Area Municipal Zoning By-laws to permit aggregate extraction.

9.B.2 Where a *development application* is required to expand the boundary of the licensed area of an existing *mineral aggregate operation*, or to increase the depth of extraction, the *development application* will be subject to all policies in this Plan that would apply to an application for a new *mineral aggregate operation* in addition to any requirements under the Aggregate Resources Act.

Def. No.6

9.B.3 Where the licensee has circulated an application to expand an existing licensed *mineral aggregate operation* or increase the depth of extraction which does not require the approval of a *development application*, the Region will review and provide comments on the application to the *Province* in the context of all relevant policies in this Plan that would apply to an application for a new *mineral aggregate operation*.

9.B.4 A *development application* to expand an existing *mineral aggregate operation* located on lands designated as Environmentally Sensitive Landscapes as shown on Map 4 will only be supported where:

- (a) it can be demonstrated to the satisfaction of the Region and the *Province* that substantial progress has been made in the rehabilitation to viable after-use of the disturbed area within the existing licensed area; and
- (b) the total active extraction area of the original licensed area and the proposed expansion area is not increasing over the long term. A lesser standard may be considered where it can be demonstrated that the overall rehabilitation goals of the site can be more effectively achieved by deferring rehabilitation until a later stage of the pit's operation.

9.C New Mineral Aggregate Operations

9.C.1 New *mineral aggregate operations* will require a site-specific amendment to the Area Municipal zoning by-law, the approval of which will be subject to all applicable policies in this Plan, in addition to the requirements for a license under the Aggregate Resources Act. Any zoning by-law amendments approved under this policy will apply only to the boundary of the licensed area.

Def.
No.7

Required Technical Information

Within the Prime Agricultural Area designation as shown on Map 7, new *mineral aggregate operations* proposing extraction below the water table will require an amendment to this Plan to identify the area of extraction below the water table on Map 8. Such amendment will be subject to the policies in Section 9.D and all other applicable policies in this Plan. An amendment to the Area Municipal official plan will also be required to identify the area of extraction below the water table.

Def.
No.8

9.C.3 *Development applications* to permit a new *mineral aggregate operation*, expand an *existing* operation, or increase the depth of extraction, will only be permitted where the following studies have been submitted to the satisfaction of the Region or agency with jurisdiction over the issue addressed by the study:

Def.
No.9

- (a) noise, dust and vibration studies demonstrating that the proposed operation is appropriately designed, buffered and/or separated from any surrounding *sensitive land uses* to prevent any *adverse effects*;
- (b) a hydrogeological study in accordance with the provisions of the Regional Implementation Guideline for Source Water Protection Studies, demonstrating that the proposed operation will have no negative impacts on the quality and quantity of any surface water or groundwater resources;
- (c) a Transportation Impact Study in accordance with Policy 5.A.25 indicating how the proposed operation will address any potential impacts on Regional roads and Provincial Highways;
- (d) an *Environmental Impact Statement* in accordance with the policies in Section 7.G, where the proposed *mineral aggregate operation* is *contiguous* to a Core Environmental Feature, or within or contiguous to a Supporting Environmental Feature;
- (e) an *archaeological assessment* and/or *Cultural Heritage Impact Assessment* in accordance with the policies in Section 3.G;

- (f) information on the estimated lifespan of the *mineral aggregate operation* and demonstration that the final rehabilitation plan is consistent with the policies in this Plan and the Area Municipal official plan; and
 - (g) any other studies identified by the Area Municipality to meet requirements of a complete application under the provisions of the Planning Act.
- 9.C.4 The studies noted in Policies 9.C.3 and 9.D.1 will take into account the potential *cumulative impacts* that may result from a proposed new *mineral aggregate operation* when added to other past, present and proposed future *mineral aggregate operations* in the vicinity of the proposed new operation. The appropriate level of detail, analysis boundaries and baseline data to be used in the cumulative impact assessment will be determined by the Region, Area Municipalities, the Grand River Conservation Authority and the owner/applicant as part of the *pre-submission consultation meeting*.
- 9.C.5 To avoid potential overlap among the studies required under Policies 9.C.3 and 9.D.1 and similar studies that may be required by the *Province*, Area Municipalities or the Grand River Conservation Authority, the Region will require the owner/applicant to participate in a *pre-submission consultation meeting* with each of these agencies prior to the submission of any supporting studies. The purpose of this *pre-submission consultation meeting* will be to identify the specific policy requirements of each of the agencies in each of the substantive areas being studied under Policies 9.B.3, 9.C.3 and 9.D.1 such that a single study can satisfy all of the requirements identified by the agencies. Following the *pre-submission consultation meeting*, the Region to the extent of its jurisdiction, may scope, waive, or establish a peer review or other suitable evaluation process for any requirements reflected in these studies.

Review Criteria

- 9.C.6 New *mineral aggregate operations* will not be permitted on lands designated as Core Environmental Features, except in accordance with the following:
- (a) within habitat of *endangered or threatened species* where authorized in accordance with provincial and federal requirements;
 - (b) within Significant Woodlands, Environmentally Significant Valley Features and/or Significant Areas of Natural and Scientific Interest, new *mineral aggregate operations* may be permitted where the features consists of habitats that can be effectively replaced or restored within a reasonable period of time, such as:
 - i) areas of crop or pasture;
 - ii) plantation;

- iii) early successional habitat;
 - iv) areas of high disturbance;
 - v) areas of low ecological diversity with high percentage of non-native species;
 - vi) small areas of non-provincially significant marsh or thicket *wetland*;
 - vii) old field meadow;
 - viii) hedgerows;
 - ix) minor areas on the perimeter of the features; or
 - x) drainage swales; and
- (c) the owner/applicant must demonstrate to the satisfaction of the Region that:
- i) the portion of the Core Environmental Feature affected by the mineral aggregate extraction will be replaced or restored within a reasonable period of time with habitat of greater extent and/or ecological value as part of the rehabilitation plans, to promote, where possible, a net ecological gain, or in the case of habitat of *endangered or threatened species*, compliance with provincial and federal requirements have been achieved;
 - ii) there will be no *adverse environmental impacts* to the *environmental features or ecological functions* and connectivity of the residual areas of the Core Environmental Feature;
 - iii) the quantity, quality and direction of local surface water and groundwater will be maintained or enhanced; and
 - iv) the extraction of *mineral aggregate resources* will be completed, and the area will be rehabilitated, as early as possible in the life of the operation.
- 9.C.7 New *mineral aggregate operations* proposed within a Source Water Protection Area designated as shown on Maps 6a to 6g may be permitted, except where such uses are prohibited in accordance with the source water protection policies in Chapter 8.
- 9.C.8 New *mineral aggregate operations* proposed *contiguous* to Core Environmental Features may be permitted, provided that there will be no *adverse environmental impacts* to their features or *ecological functions* and connectivity/*linkages*.

Area Municipalities will include site-specific regulations within their zoning by-laws to restrict extraction below the water table where subwatershed-scale hydrogeological studies, prepared in accordance with Policy 9.D.1 (b), have not demonstrated to the Region's satisfaction the acceptability of such extraction from a surface water and groundwater perspective.

Def. No.10

9.C.10 New *mineral aggregate operations*, or *wayside pits and quarries*, may be permitted within Environmentally Sensitive Landscapes where it can be demonstrated to the satisfaction of the Region, in consultation with the *Province*, Area Municipalities and the Grand River Conservation Authority that:

- (a) notwithstanding Policies 7.B.12, 7.B.13 and 7.B.14, where extraction is proposed *contiguous* to a Core Environmental Feature, there will be no significant *adverse environmental impacts* to their features or landscape level *ecological functions* and connectivity;
- (b) where extraction is proposed within or *contiguous* to the following features, which are not included within a Core Environmental Feature:
 - i) rivers, stream valleys, *floodplains*, or associated *hazardous lands* or *hazardous sites*;
 - ii) *fish habitat*;
 - iii) meromictic and kettle lakes;
 - iv) *significant* wildlife habitat; or
 - v) savannas, tallgrass prairies, rare *woodland* types, cliffs, alvars, sand barrens, marl seeps, bogs and fens;

there will be no significant *adverse environmental impacts* to their features or landscape level *ecological functions* and connectivity, although extraction may be considered in habitats which can be effectively replaced or restored in a short to medium time scale such as areas of crop or pasture land, young plantation, early successional *woodland*, small areas of non-provincially significant marsh or thicket wetland, old field meadow, hedgerows and drainage swales; and

- (c) the quantity and quality of local surface water and groundwater regimes can be maintained or enhanced.

9.C.11 Where a new *mineral aggregate operation* is proposed on lands designated as an Environmentally Sensitive Landscape as shown on Map 4, the Region will

recommend to the *Province* that the Natural Environment Report required under the Aggregate Resources Act also address the following objectives:

- (a) natural habitat that would be lost from the site will be replaced with equivalent habitat on the property or on adjacent lands, and no less than 35 per cent of the licensed area remaining above the water table after extraction will be rehabilitated to sustainable natural *woodland* habitat representative of the landscape in which it is located;
- (b) the quantity and quality of surface water and groundwater regimes and aquatic ecosystems remaining after, or created by, extraction will be rehabilitated to sustainable natural aquatic ecosystems representative of the landscape in which they are located;
- (c) the health, diversity, size, *ecological function* and connectivity of major natural features remaining within the proposed licensed area will be maintained and, where possible, enhanced before, during and after the extraction of aggregate resources;
- (d) the rehabilitated area will be maximized and the disturbed area minimized on an ongoing basis during the life-cycle of the pit operation; and
- (e) rehabilitation of any area once occupied by natural features or identified as potential enhancement/restoration and/or corridor/*linkage* areas is completed as early as possible in the life of the extraction operation.

9.C.12 Development applications that would establish an ancillary use to a mineral aggregate operation will only be permitted where applicable studies identified in Policy 9.C.3 demonstrate to the satisfaction of the Region and/or Area Municipality that the proposed use will mitigate any potential *adverse effects*.

9.C.13 The Region will collaborate with the *Province* and Area Municipalities to ensure that all appropriate requirements resulting from the review of an application for a *mineral aggregate operation* are imposed and enforced as:

- (a) conditions on the license or notes on the *site plan* required under the Aggregate Resources Act, including but not limited to spill protection measures to prevent discharges to surface water and groundwater resources from on-site fuel storage, vehicle or equipment repair and equipment operation, and spills from salt storage, use and transfer; and other best management practices; and
- (b) regulations in Area Municipal zoning by-Laws, development agreements and conservation easements as may be applicable.

Def. No.11

9.C.14 A new *mineral aggregate operation* proposing to establish or expand a *quarry operation* may only be permitted by way of an amendment to this Plan. Such amendment will be reviewed in the context of the policies of this Plan, the applicable Area Municipal Official Plan and the Provincial Standards approved under the Aggregate Resources Act.

9.D. Extraction Below the Water Table

9.D.1 In addition to all other applicable policies in this Plan, including the requirement for an amendment to this Plan in accordance with Policy 9.C.2, mineral aggregate extraction below the water table will only be permitted where:

Def. No.12

- (a) on lands identified as *prime agricultural lands* within Prime Agricultural Areas it is demonstrated to the satisfaction of the Region and Area Municipality that there is a substantial quantity of *mineral aggregate resources* below the water table warranting extraction;
- (b) the completion of a hydrogeological cumulative impacts assessment demonstrates that the removal of the resource and the subsequent rehabilitation of the lands will not negatively impact the quantity and quality of surface or groundwater resources and relevant natural heritage features. Such studies shall be completed to satisfaction of the Region, the Province, the Area Municipality and the Grand River Conservation Authority;
- (c) if necessary and feasible to protect groundwater quality, post-extractive drainage is directed away from the resulting pond, the slopes of the pond are stabilized with appropriate native species, and a pond planting plan is prepared and implemented to the satisfaction of the Region;
- (d) on lands identified as *prime agricultural lands*, other alternatives have been considered by the owner/applicant and found unsuitable, and agricultural rehabilitation in remaining areas will be maximized. The consideration of other alternatives will include investigation as to the availability of alternative resources on lands identified as Canada Land Inventory Class 4 to 7 soils, resources on lands committed to future urban uses, and resources on *prime agricultural lands* where rehabilitation to agriculture is feasible; and
- (e) it is demonstrated to the satisfaction of the Region and the applicable Area Municipality that the site will be rehabilitated in accordance with the policies in Section 9.F.

9.D.2 Where the results of an individual or sub-watershed scale hydrogeological study indicate that mineral aggregate extraction below the water table may have a negative impact on the quantity or quality of groundwater in an area,

Def. No.13

the Area Municipality will restrict extraction below the water table by means of a site-specific regulation in the zoning by-law in accordance with Policy 9.C.1. The purpose of this restriction is to maintain the depth of residual over burden necessary to protect the quality and quantity of groundwater.

9.D.3 Where the extraction of a proven significant quantity of *mineral aggregate resources* located below the water table is not permitted in accordance with Policy 9.D.1 and 9.D.2, this resource will continue to be protected from land uses incompatible with its future extraction.

9.E. Wayside Pits and Quarries, Portable Asphalt and Concrete Plants

9.E.1 Area Municipal official plans will include policies related to *wayside pits and quarries, portable asphalt plants and portable concrete plants* used for public road authority contracts. Such uses will be permitted on a temporary basis in all land use designations, without the need for an official plan amendment or rezoning, except where:

- (a) the use would be located within or adjacent to an existing Built-Up Area that would be incompatible with aggregate extraction and associated activities;
- (b) the use would be located within a Core Environmental Feature designated as shown on Map 4; and
- (c) the use is identified as a prohibited use by the policies in Chapter 8.

9.E.2 *Portable asphalt plants and portable concrete plants* will be discouraged on lands containing active agricultural operations. If asphalt or concrete for a public road project cannot be obtained from an existing asphalt or concrete plant, attempts should be made to locate the portable plant in *wayside pits and quarries*, vacant industrial sites, or on inactive or less productive agricultural lands.

9.E.3 *Portable asphalt plants and portable concrete plants* will obtain appropriate approvals pursuant to the Environmental Protection Act and will include provisions to prevent spills of petroleum chemicals to surface and groundwater resources.

9.F Rehabilitation of Aggregate Operations

9.F.1 All proposals for new *mineral aggregate operations*, including *wayside pits and quarries*, will include a rehabilitation plan to the satisfaction of the Region and Area Municipalities that will ensure that:

- (a) progressive rehabilitation will be carried out whenever feasible so that depleted areas are restored while extraction continues in other areas of the site;
- (b) final rehabilitation will comply with the land use designations contained in this Plan and Area Municipal official plan, and be compatible with the character of surrounding land uses;
- (c) within the Prime Agricultural Area and Rural Areas designations, rehabilitation to agriculture will be the first priority, as follows:
 - i) within the Prime Agricultural Area, substantially the same land area will be rehabilitated back to an agricultural condition to allow for the same range and productivity of crops common in the area; and
 - ii) within Rural Areas, rehabilitation of the site will be carried out so that substantially the same land area and same average soil quality for agriculture are restored.
- (d) where mineral aggregate extraction has occurred below the water table, rehabilitation will be in accordance with Policy 9.D.1 (c) to protect groundwater quality.

9.F.2 In the Prime Agricultural Area designation, rehabilitation to agriculture will be the first priority. Notwithstanding this, complete agricultural rehabilitation within the Prime Agricultural Area and Rural Areas designations may not be required where:

- (a) the depth of the planned extraction makes restoration of pre-extraction agricultural capability impractical;
- (b) hydrogeological investigations completed in accordance with the policies in this Plan have demonstrated to the satisfaction of the Region that agricultural rehabilitation is not desirable due to groundwater protection requirements;
- (c) the Region, in collaboration with the *Province*, Area Municipalities and the Grand River Conservation Authority, have determined a suitable alternative post-extractive use in conformity with the policies in this Plan and the Area Municipal official plan; or
- (d) aggregate extraction would remove natural features such as *woodlands*, *wetlands* and watercourses on lands not otherwise protected by the Greenlands Network policies in this Plan, in which case these natural features will be restored and, where possible, enhanced consistent with the intent of Policy 9.C.11.

- 9.F.3 Where multiple *mineral aggregate operations* are located in close proximity to one another, the Region will collaborate with the *Province*, Area Municipalities, the Grand River Conservation Authority and the affected owners/applicants to jointly develop comprehensive rehabilitation plans for multiple properties.