

2017



State of Aggregate Resources

Contents

Overview	1
Active, New, Suspended, Revoked and Surrendered Licences	1
Map 1: Location of Aggregate Sites in Halton Region	2
Overview of Active Extractive Operations in Halton	6
History of Complaints on Extractive Operations and Transportation of Aggregate Products	10
History of Violations of Site Plan or Conditions of Licence under the <i>Aggregate Resources Act (ARA)</i>	13
Status of the Implementation of Approved Rehabilitation Plans	14
Map 2: Former and Abandoned Pits or Quarries	16
Status of the Operation and Implementation of Approved Adaptive Management Plans	17
Assessment of the Cumulative Impact of Extraction Operations on both the Greenbelt and Regional Natural Heritage System	19
Map 3: ARA Sites Located in the Greenbelt and Regional Natural Heritage System	21
Number and Status of Active and Potential Applications for Mineral Resource Extraction Areas	23
Definitions	26
Appendix 1 - Summary and Status of ARA Licences in the Region of Halton (2015-2016)	30
Appendix 2 - Status of Implementation of Approved Rehabilitation Plans - ARA Sites in Halton Region (2015-2016)	36

Note: Explanation of terms (A-Z) is provided in "Definitions" section.

State of Aggregate Resources within Halton Region

Overview

The 2009 Regional Official Plan (ROP) requires a State of Aggregate Resources Report to be prepared on a biennial basis.

This report prepared for the 2015 & 2016 period provides information on the following:

- A. Number of active, new, suspended, revoked, and surrendered licences;
- B. An overview of active extractive operations in Halton;
- C. History of complaints on extractive operations and transportation of aggregate products;
- D. History of violations of Site Plan or conditions of licence under the Aggregate Resources Act;
- E. Status of the implementation of approved rehabilitation plans;
- F. Status of the operation and implementation of approved adaptive management plans;
- G. An assessment of the cumulative impact of extraction operations on both the Greenbelt and Regional Natural Heritage System; and,
- H. Number and status of active and potential applications for Mineral Resource Extraction Areas.

A. Active, New, Suspended, Revoked and Surrendered Licences

In the Province of Ontario, all aggregate licences are issued by the Ontario Ministry of Natural Resources and Forestry (MNRF) under the *Aggregate Resources Act, 1990 (the ARA)*. Quarries in Halton Region are located in Halton Hills, Milton and Burlington. There are no quarries in Oakville. In 2014, there were 24 licensed sites in Halton Region. Since then, two licenses were surrendered: one in 2015 and one in 2016. The locations of licensed sites are shown on Map 1, and the site locations and ownership are identified in Table 1. *ARA* licenses and the operational status of each site are described in Appendix 1.

As noted in Table 2, there were 11 licensed sites with active aggregate extractions during the reporting period. No active extraction occurred at a number of licensed sites where resources had been depleted or operations completed. However, some sites continued with other permitted activities (e.g. aggregate processing, rehabilitation, remedial actions).

Map 1: Location of Aggregate Sites in Halton Region

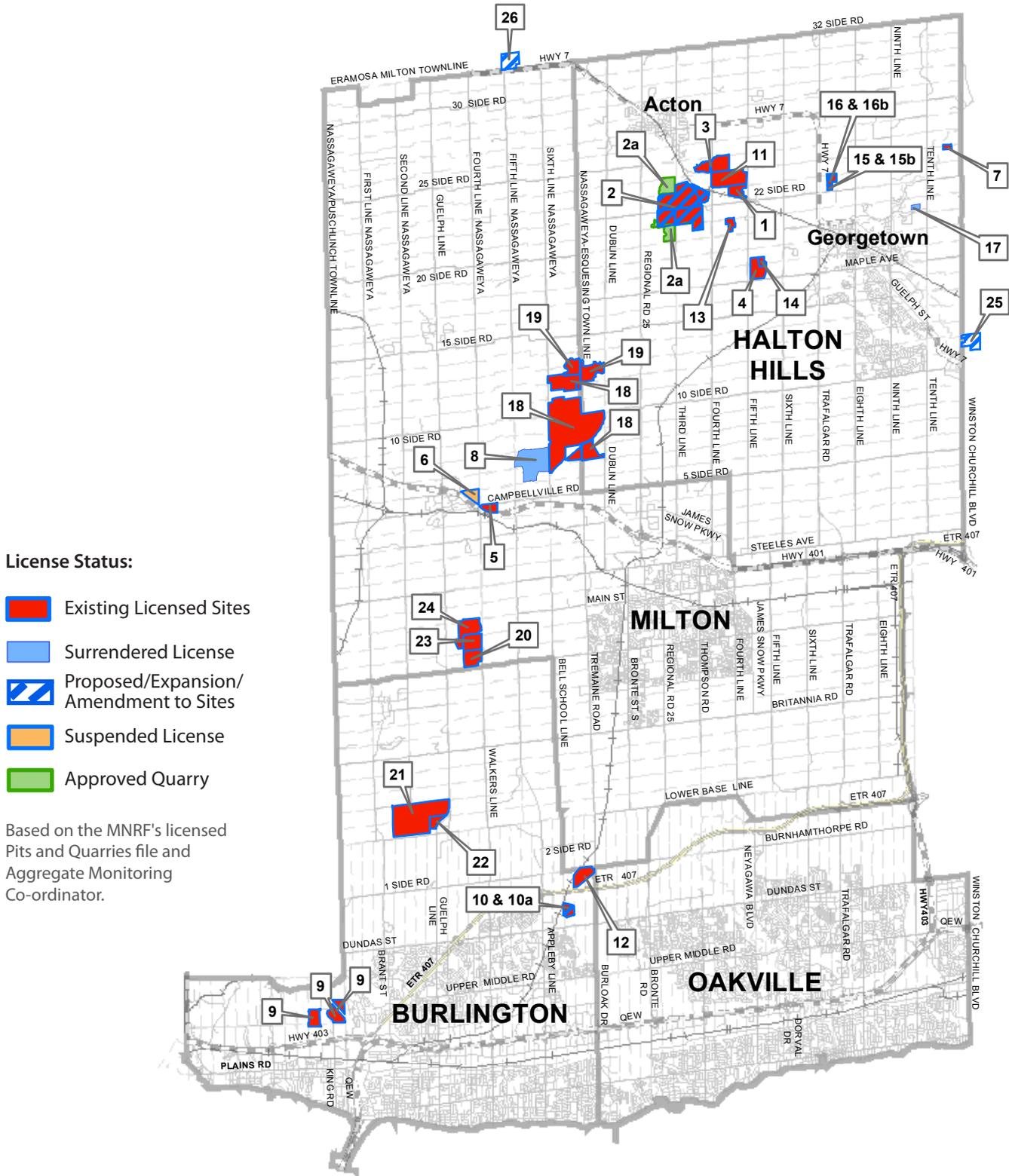


Table 1: Licensed Sites and Aggregate Applications/Proposals in and Bordering Halton Region

Map ID	ARA Licence #	Site Name	Current Owner (Applicant)	Location Lot/Concession	Town (Former Township)
1	5480	Acton Limehouse Pit	St. Marys Cement Inc. (Canada)	Lot 23, Con. (Concession) 5	Halton Hills (Esquesing)
2	5492	Acton Quarry - Phases: 1, 2, 3	Dufferin Aggregates, a Division of CRH Canada Group Inc.	Part of Lots 22 & 23; Con. 3; and Part of Lots 21- 24, Con. 4	Halton Hills (Esquesing)
2a	625003	Acton Extension Quarry - Phases: 4, 5E, 5/6W	Dufferin Aggregates, a Division of CRH Canada Group Inc.	Part of Lots 21, 22 and 24, Con.3; and Part of Lots 21 & 22, Con. 4	Halton Hills
3	5616	Bot-Duff Pit	Bot-Duff Resources (operated by St. Marys Cement Inc. (Canada))	Parts of east half & west half of Lot 25, Con. 4 & 5	Halton Hills (Esquesing)
4	20660	Brockton Farms	Brockton Farms	Lot 18 & Part Lot 19; Con. 6	Halton Hills
5	5478	Campbellville Pit - south	4000 Campbellville Road Inc.	Part of Lot 5, Con. 5	Milton (Nassagaweya)
6	5479	Campbellville Pit - north	555816 Ontario Inc.	Part of Lot 6, Con. 4	Milton (Nassagaweya)
7	5462	David Anderson Pit	David T. Anderson	Part of Lot 24, Con. 11	Halton Hills (Esquesing)
8	5493	Halton Crushed Stone Quarry	Halton Crushed Stone Ltd.	Part of Lots 7 & 8, Con. 6	Milton (Nassagaweya)
9	5500	Aldershot Quarry	Meridian Brick Canada Ltd.	Part of Lots 2 & 3; Con. 1 and Part of Lots 1, 2, 3; Con. 2	Burlington (East Flamborough)
10	5605	Burlington Pit	Meridian Brick Canada Ltd.	Lot 3, Con. 1 North Dundas Street (NDS)	Burlington (Nelson)
11	5546	Wilroy Brooks Pit	St. Marys Cement Inc. (Canada)	Part of Lot 24, Con. 5	Halton Hills (Esquesing)
12	613081	Tansley Quarry	Meridian Brick Canada Ltd.	Part of Lots 1 and 2, Con. 1, North Dundas Street (NDS)	Burlington
13	5716	Rice & McHarg Quarry	Rice & McHarg Quarries Ltd.	Part of east half & Part of west half of Lot 21, Con. 5	Halton Hills (Esquesing)
14	5720	Hilltop Quarry	Hilltop Stone & Supply Inc.	Part of east half & west half of Lot 18, part of west half of Lot 19, Con. 6	Halton Hills (Esquesing)
15	5711	Limehouse Clay Products - south	Limehouse Clay Products Ltd.	Part of west half of Lot 23, Con. 8	Halton Hills (Esquesing)
16	5614	Limehouse Clay Products - north	Limehouse Clay Products Ltd.	Part of Lot 23, Con. 8	Halton Hills (Esquesing)
17	5510	1294142 Ontario Pit	1294142 Ontario Ltd.	Part of east half Lot 21, Con. 10	Halton Hills (Esquesing)
18	5481	Milton Quarry - Main & North	Dufferin Aggregates, a Division of CRH Canada Group Inc.	Part of Lots 7-13, Con. 7 (Milton) and Part of Lots 8-10, Con. 1 (Halton Hills)	Milton (Nassagaweya) and Halton Hills (Esquesing)

Licensed Sites and Aggregate Applications/Proposals in and Bordering Halton Region (continued)

Map ID	ARA Licence #	Site Name	Current Owner (Applicant)	Location (Lot/Concession)	Town (Former Township)
19	608621	Milton Quarry Extension: Phases 1, 2, 3	Dufferin Aggregates, a Division of CRH Canada Group Inc.	Part of Lots 13-14; Con. 1 (Halton Hills) & Part of Lots 12-14; Con. 7 (Milton)	Milton and Halton Hills
20	5484	Milton Pit	368574 & 579813 Ontario Inc.	Northeast half of Lot 11, Con. 4	Milton (Nelson)
21	5499	Burlington Quarry - The Majority	Nelson Aggregates Co.	Lot 2, Con. 3; west half of Lot 1, Con. 3; and east half of Lots 1 & 2, Con. 2	Burlington (Nelson)
22	5657	Burlington Quarry - The Minority	Nelson Aggregates Co.	Part of east half of Lot 1, Con. 3 (N.S.)	Burlington (Nelson)
23	5507	Hayward Pit	Springbank Sand & Gravel Ltd.	Northeast half of Lot 12, Con. 4	Milton (Nelson)
24	5619	Leaver Pit	Springbank Sand & Gravel Ltd.	Part of Lots 12 & 13, Con. 4	Milton (Nelson)
Active Aggregate Applications/Proposals in Halton Region (2015-2016)					
2	5492 (SPA)	Acton Quarry - Phases: 1, 2, 3	Dufferin Aggregates/CRH Canada Group Inc.	Part of Lots 22 & 23; Con. 3; and Part of Lots 21- 24, Con. 4	Halton Hills (Esquesing)
10a	5605 (SPA)	Burlington Pit	Meridian Brick Ltd.	Lot 3, Con. 1 North Dundas Street (NDS)	Burlington
15-16 (b)	5711 & 5614 (SPA)	Limehouse Clay Products	Jazbrick	Part of west half of Lot 23, Con. 8	Halton Hills
Active Aggregate Applications Bordering Halton Region (2015-2016)					
25	-	Norval Quarry Application	Brampton Brick Limited	West Half of Lot 12, Con. 6, WHS,	Brampton (East side of Winston Churchill Boulevard)
26	-	Hidden Quarry Application	James Dick Construction Ltd.	Part of Lot 6, Con. 1	Township of Guelph Eramosa
Notes: SPA - Site Plan Amendment Application/Proposal					

Table 2: Licensed Aggregate Sites in Halton Region with Active Extraction

Area	Operation/Site Name (ARA Licence No.)	Current Owner/Operator	*Tonnes/year (max)
Halton Hills	¹ Acton Quarry (5492)	Dufferin Aggregates, a division of CRH Canada Group Inc.	4,000,000
	² Brockton Farms Quarry (20660)	Brockton Farms	20,000
	² Hilltop Quarry (5720)	Hilltop Stone & Supply Inc.	20,000
	³ Limehouse Clay Quarry-north (5614)	Limehouse Clay Products Ltd.	20,000
	² Rice & McHarg Quarry (5716)	Rice & McHarg Quarries Ltd.	20,000
	⁴ Bot-Duff Pit (5616)	Bot-Duff Resources Inc. ***	750,000
	⁴ Limehouse Pit (5480)	St. Marys Cement Inc.	Unlimited
Milton	¹ Milton Quarry – Main & North (5481)	Dufferin Aggregates, a division of CRH Canada Group Inc.	Unlimited
	¹ Milton Quarry Extension: Phases 1, 2, 3 (608621)		Unlimited
Burlington	³ Aldershot Quarry (5500)	Meridian Brick Canada Ltd.	Unlimited
	³ Tansley Quarry (613081)	Meridian Brick Canada Ltd.	300,000**

Notes: ¹Dolostone Quarry, ²Sandstone Quarry, ³Shale Quarry, ⁴Sand & Gravel Pit.
Information sources: ARA Licences, ARA Site Plans, and Compliance Assessment Reports (CARs)
 *Max tonnes per year indicates extraction limit per year under the ARA licence.
 ** Maximum permitted extraction at Tansley Quarry is 150,000 tonnes/year until Tremaine Road is upgraded.
 *** Operated by St. Marys Inc. (Canada)

New ARA Licence:

On October 11, 2016, following a Joint Board hearing comprising members from the Ontario Municipal Board and Environmental Review Tribunal, Joint Board released a decision to approve issuance of aggregate licence pursuant to the ARA for Acton Quarry Extension (Phases 4, 5 East, and 5/6 West) in Halton Region. The MNRF issued an ARA licence (No. 625003) to Dufferin Aggregates, a Division of CRH Canada Group Inc. on March 9, 2017.

ARA Licence Suspensions:

The ARA licence for Campbellville Pit - north (ARA 5479), which was suspended in March 2012 for contravention of Section 15 of the ARA, remained suspended in 2015-2016. The suspension of the ARA Licence for 1294142 Ontario Limited Pit (ARA 5510) was lifted in April 2016.

ARA Licence Surrenders:

The MNRF accepted two licence surrenders during the current reporting period: Halton Crushed Stone Ltd.'s (ARA 5493) in Milton on September 3, 2015, and 1294142 Ontario Ltd.'s (ARA 5510) in Halton Hills on June 16, 2016.

B. Overview of Active Extractive Operations in Halton

Discussion on the active operations in Halton includes areas under extraction, the amount of aggregate produced, as well as extraction trends in the Region, Local Municipalities in Halton and other jurisdictions in Ontario.

Areas Under Extraction

As of 2016, the total licensed area was 1,542 hectares (ha), of which the permitted extraction area totalled 1,233 ha (Table 4). Reductions in 2016 total area (Figure 2) were due to surrender of the ARA licences No. 5493 (121.5 ha) in 2015 and No. 5510 (6.7 ha) in 2016. As the Acton Quarry Extension, approved by a Joint Board for ARA licencing on October 11, 2016, was not licensed until March 9, 2017, the 65.6 ha of licensed and 49.3 ha of approved extraction areas were not included in the 2016 totals. Acton Extension areas will be part of future reporting.

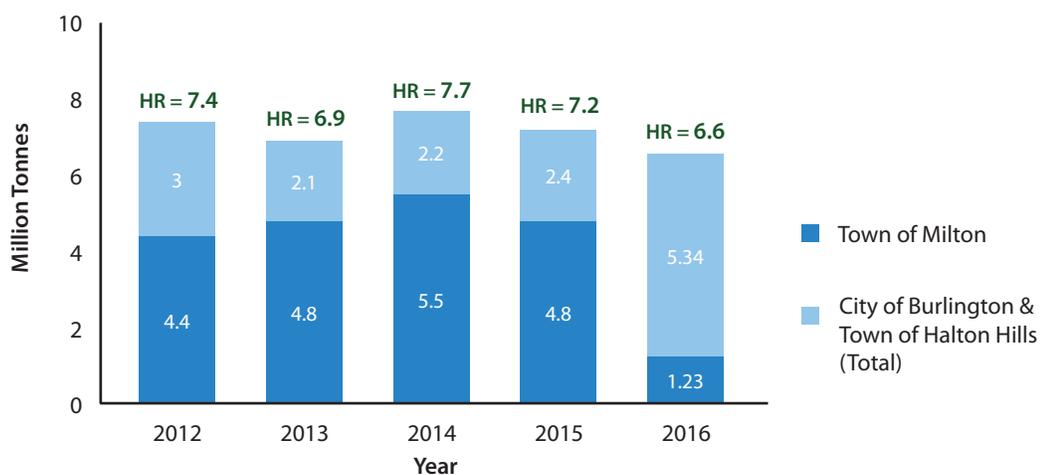
Aggregate Production in Halton Region and Local Municipalities

Table 3 displays production tonnage statistics for 2015 and 2016 for Halton Region and Local Municipalities.

Municipality	2015	2016
Town of Milton	4,854,043.22	1,226,448.47
Town of Halton Hills and City of Burlington (total)	2,382,083.75	5,344,756.95
Halton Region	7,236,126.97	6,571,205.42

Aggregate production in Halton Region and Local Municipalities over the last five year (2012-2016) period has fluctuated, averaging 7.1 million tonnes. In 2016, 6.6 million tonnes were produced.

Figure 1a: Aggregate Production by Local Municipalities in Halton Region: 2012-2016



Note: Generated based on Mineral Aggregates in Ontario Statistical Update reports; The Ontario Aggregate Resources Corporation, (TOARC) 2012-2016

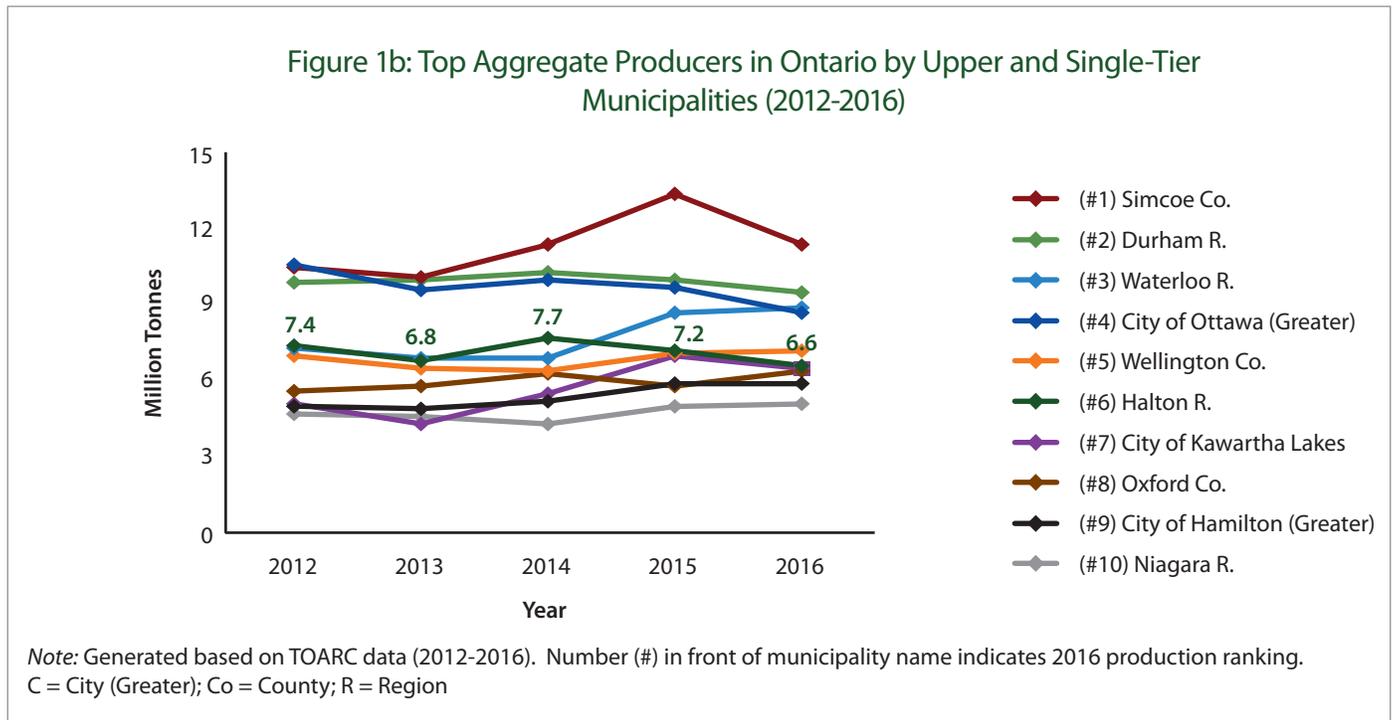
HR = 6.6 - total production in Halton Region (in million tonnes)

Aggregate Production in Upper/Single-Tier Municipalities

Annual extraction volumes for the Province and upper- and lower-tier municipalities are provided in the Mineral Aggregates of Ontario Statistical Update reports prepared by The Ontario Aggregate Resources Corporation (TOARC).

Halton Region has consistently been among the highest producers in Ontario since annual production data became available in 1990. Halton Region was the fifth highest aggregate producing municipality in Ontario in 2015 and the sixth in 2016.

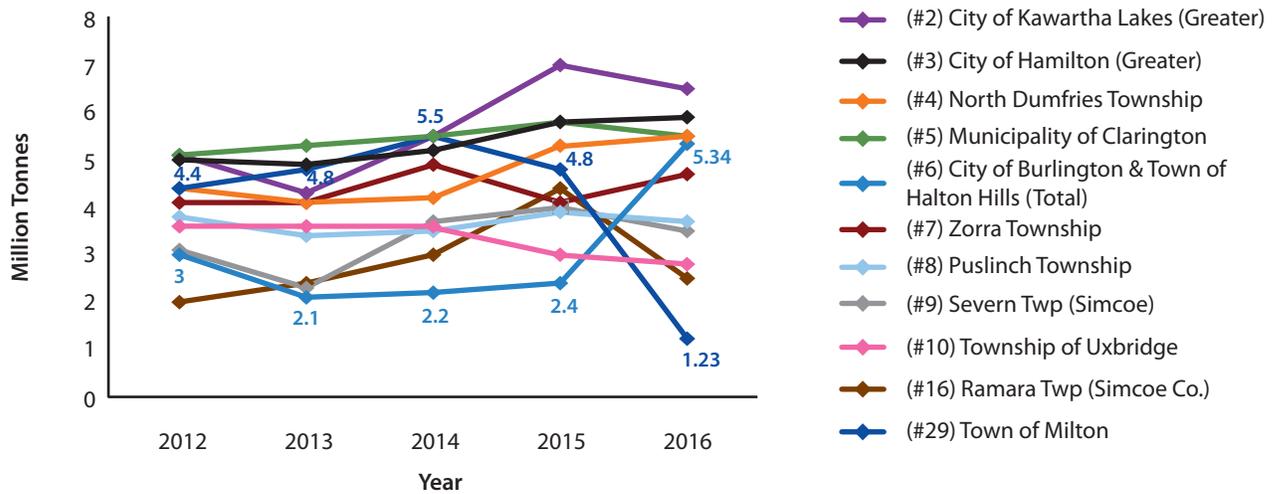
The top ten upper and single-tier producing municipalities in 2016 were as follows (production rounded to nearest million [M] tonnes): Simcoe County (11.4 M), Durham Region (9.5 M), Waterloo Region (9 M), City of Ottawa - Greater (8.7 M), Wellington County (7.1 M), Halton Region (6.6 M), City of Kawartha Lakes (6.5 M), Oxford County (6.4 M), City of Hamilton – Greater (5.9 M), and Niagara Region (5.1 M). Figure 1b displays the production trend for top upper- and single-tier municipalities for the 2012-2016 period.



Aggregate Production in Lower-Tier Municipalities

Among the lower-tier municipalities, Milton has consistently been among the highest producers in the Province since annual data for lower-tier municipalities became available in 1993. It was the sixth highest producing municipality in Ontario in 2015 (Milton was ranked #29 by TOARC in 2016). As of 2016, the City of Burlington and the Town of Halton Hills were ranked as the sixth highest by TOARC, based on the total (amalgamated) extraction tonnage (TOARC does not separate tonnage for these municipalities in Halton). Figure 1c displays the production trend for lower and single-tier municipalities.

Figure 1c: Top Aggregate Producers in Ontario by Lower (and Single-Tier) Municipalities (2012-2016)



Note: Generated based on TOARC's data (2012-2016). 2012-2016 production for #1 City of Ottawa (Greater) is shown in Figure 1b. Number (#) in front of municipality name indicates 2016 production ranking. Town of Milton ranked #6 in 2015, Ramara Twp. ranked #7 in 2015, Uxbridge Twp. ranked #12 in 2015
Twp = Township

Disturbed and Rehabilitated Areas at Four Largest ARA Sites in Halton Region

The available Compliance Assessment Reports (CARs) submitted by aggregate operators to MNRF (with copies to municipalities) annually, provide a checklist of compliance with ARA Site Plans, including reporting on disturbed and rehabilitated areas. Based on the recent CARs, total disturbed areas at ARA sites in Halton Region were 873 ha (2015) and 764 ha (2016), and total rehabilitated areas were 660 ha (2015) and 537 ha (2016). The 2016 area decreases were due to surrender of ARA 5493 and ARA 5510. The total sums of disturbed and rehabilitated areas (1,533 ha in 2015 and 1,301 ha in 2016) is higher than the total areas permitted for extraction (1,352 ha and 1,233 ha for the respective years), and this is in part due to different methodologies in reporting by operators.

As of 2015, four ARA sites in Halton were over 100 ha in size: Acton Existing Quarry (ARA 5492), Halton Crushed Stone Quarry (ARA 5493), Milton Main and North Quarry (ARA 5481), and Burlington Quarry - The Majority (ARA 5499). The approximate total disturbed and rehabilitated areas at these four sites were 590 ha and 470 ha, respectively. As Halton Crushed Stone (ARA 5493) license surrender was accepted by MNRF in early September 2015, the approximate total disturbed and rehabilitated areas at the three remaining largest licensed sites was 472 ha and 342 ha, respectively, in 2016. Figure 2 shows total areas in Halton Region since 2012.

Figure 2: Total Permitted, Disturbed and Rehabilitated Areas for ARA Sites in Halton Region (2012-2016) in hectares

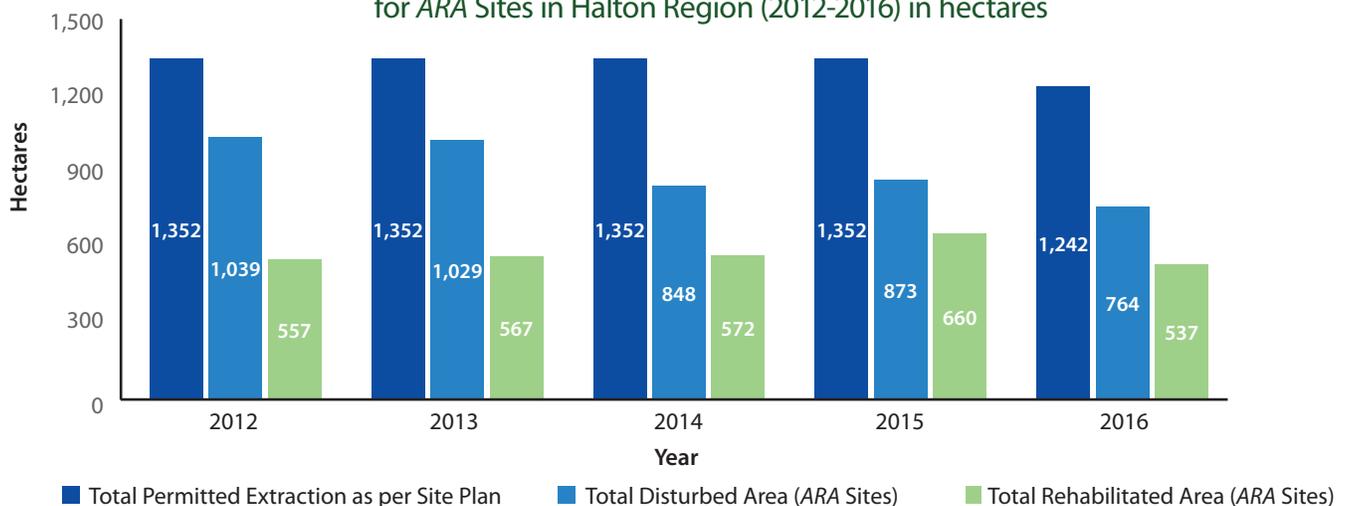


Table 4: Licensed, Permitted, Disturbed and Rehabilitated Areas at ARA Sites in Halton Region (2016)

Site Name, Owner, ARA Licence Number	¹ ARA Licensed Area (ha)	² Permitted Extraction (ha)	³ Total Disturbed Area (ha) as of 2016	³ Total Rehabilitated Area (ha) as of 2016
1. Acton Limehouse Pit; St. Marys Cement Inc. (Canada) (5480)	26.3	22.6	15.1	9
2. Acton Quarry - Dufferin Aggregates, a division of CRH Canada Group Inc. (5492)	222.3	193.25	144.7	59.2
3. Bot Duff Pit; Bot-Duff Resources Inc. (5616)	58.6	49.2	38.1	23.2
4. Brockton Farms; Brockton Farms (20660)	36.8	25.7	1	0.6
5. Campbellville Pit - south; 4000 Campbellville Road Inc. (5478) [formerly: 55816 Ontario Inc.]	15.9	12.8	15.9	15.9
6. Campbellville Pit - north; 55816 Ontario Inc. (5479)	22.2	8.3	16.7	16.7
7. David Anderson Pit; David T. Anderson (5462)	6.3	2.75	6	5
8. Halton Crushed Stone Quarry; Halton Crushed Stone Ltd. (5493)	121.5	113	-	121.5
<i>Licence surrendered on September 3, 2015</i>				
9. Aldershot Quarry; Meridian Brick Canada Ltd. (5500)	62.4	62.1	20.3	8
10. Burlington Pit; Meridian Brick Canada Ltd. (5605)	17.1	16	12.3	12.3
11. Wilroy-Brooks Pit; St. Marys Cement (Canada) Inc. (5546)	79.2	28.3	1.8	20.8
12. Tansley Quarry; Meridian Brick Canada Ltd. (613081)	37.8	28.9	17.2	8
13. Rice & McHarg Quarry; Rice & McHarg Quarries Ltd. (5716)	12.9	1.9	3.25	6.25
14. Hilltop Quarry; Hilltop Stone & Supply Inc. (5720)	9.4	6.9	5	0.7
15. Limehouse Clay Products - south; Limehouse Clay Products Ltd. (5711)	3.2	3.2	1.7	0.8
16. Limehouse Clay Products - north ; Limehouse Clay Products Ltd. (5614)	12.8	10.6	2.7	0.3
17. 1294142 Ontario Pit; 1294142 Ontario Ltd. (5510)	6.7	6.5	6.5	6.8
<i>Licence surrendered on June 16, 2016</i>				
18. Milton Quarry-Main & North; Dufferin Aggregates, a division of CRH Canada Group Inc. (5481)	467.7	382	205.3	171.2
19. Milton Quarry-Expansion; Dufferin Aggregates, a division of CRH Canada Group Inc. (608621)	84.5	70.6	47.35	0
20. Milton Pit; 368574 Ontario Inc. & 5798813 Ontario Inc. [formerly The Warren Paving Group Ltd.] (5484)	40.7	25.5	5	2.5
21. Burlington Quarry - The Majority; Nelson Aggregates Co. (5499)	202.5	193.8	122	112
22. Burlington Quarry - The Minority; Nelson Aggregates Co. (5657)	16.2	16.2	16.2	16.2
23. Hayward Pit; Springbank Sand & Gravel Ltd. (5507)	52.0	19.5	21.6	3.7
24. Leaver Pit; Springbank Sand & Gravel Ltd. (5619)	54.3	52.6	37.8	37.8
Total Areas for ARA Sites in Halton	1,542	1,233	764	537

Notes:

Site numbers reflect locations on Map 1 (#1 to #24);

¹Licensed Area is derived from ARA licences;

²Permitted Extraction Area is derived from latest approved Site Plans; where permitted extraction area is not available, the licensed area is used as an equivalent;

³Total Disturbed Area and Total Rehabilitated Area is based on the most recent Compliance Assessment Reports (2016), or prior where recent data is not available.

C. History of Complaints on Extractive Operations and Transportation of Aggregate Products

In accordance with a MNR-MOE (currently MNRF-MOECC) Agreement (2008), MNRF is the first responder to public complaints on extractive operations and aggregate transportation. MNRF has an administrative role under the *ARA*, while the Ministry of Environment and Climate Change (MOECC) has roles under the *Environmental Protection Act (EPA)* and the *Ontario Water Resources Act (OWRA)*. The Ministry of Transportation (MTO) has delegated authority under the *ARA* to administer wayside permits and aggregate permits.

Public complaints continue to be received by the Region and Regional staff continue to notify aggregate operators. As of August 2016, all third-party complaints must be reported directly to the applicable Provincial Ministry (MOECC Spills Action Centre for water related concerns, and MNRF for operational as well as health and well-being complaints).

Occasionally, the Region receives complaints on water quality and quantity from local residents living adjacent to aggregate operations. Water quality complaints are directed to the Halton Region Health Department where follow-up is carried out by a Public Health Inspector. Issues are sometimes directed to MNRF/MOECC if further investigation is required. When a complaint pertains to water quantity, Public Health refers the complaint to the MOECC. Following an inspection, the Ministry provides feedback directly to the resident regarding the water quantity issue.

Complaints Received Between 2015-2016

During 2015 and 2016, the Region received a number of complaints from Halton residents who observed new activities at some inactive sites, as well as complaints from residents near large active aggregate operations.

Summary of 2015 Complaints

Hayward Pit (ARA 5507)

- Between May and June 2015, the Region received several complaints regarding dust, noise, gravel debris, and truck-related hazards beside the Hayward Pit north of Derry Road in Milton. The MNRF's aggregate inspector advised that the activities and truck traffic were associated with site infilling and rehabilitation. No further complaints were received by the Region regarding this pit.

Acton Quarry (ARA 5492)

- In August 2015, the Region received a complaint that a drinking water well on a nearby private property was not producing water. The Region's Health Department staff advised Dufferin and MOECC about the complaint. The Ministry followed up with the operator and found no problems attributable to activities at the Acton Quarry. Dufferin's investigation revealed that the "dry well" was in fact a well pit and that the steel-cased well was located inside the subject well pit. No further complaints were received regarding this matter.

Milton Quarry (ARAs: 5481 and 608621)

- In June 2015, during the 2014 Annual Monitoring Report review meeting, Dufferin's representatives noted receipt of several complaints in relation to blasting at the Milton Quarry. Dufferin indicated that residents were satisfied with the operator's follow-ups and explanations and no further actions were required. According to Dufferin, complaints related to truck traffic were being addressed through additional surveillance and instructions to trucking companies.

Between April and September 2015, eight key complaints were received from a resident relating to water quality and quantity (i.e. potential flooding), blasting, noise, vibration, debris, air quality (i.e. dust, odours), structural-integrity concerns (i.e. potential effects of blasting on residence), multi-agency roles and multiple contacts, health and financial-burden concerns (due to alleged negative effects), unsatisfactory responses/actions from the operator, and lack of accountability for alleged damages.

The Region communicated the resident's complaints to the operator and MNRF's Aurora District office (as applicable), conducted internal review of water level and water quality data, communicated the results to the operator and provincial agencies, and kept the resident apprised of actions taken by the Region and responses received from other parties (as applicable).

The MNRF imposed additional requirements on the operator for dust control related to berm removal and reconstruction works during the summer of 2015 and followed up on all blast-related complaints from the resident. The Ministry and the operator confirmed that all seismograph readings on the resident's property were within the MOECC standards for blasting.

The operator indicated that water-level analysis conducted in response to the resident's concerns (raised on a number of occasions since 2010), showed no indication that the Milton Quarry water mitigation (recharge) system had caused or would cause property flooding. The Region was advised that the operator had adjusted the automated mitigation system to halt recharge on Dufferin's lands adjacent to the subject residence during high water conditions. The operator also noted that all water quality results at the subject property were within the Ontario Drinking Water Standards.

Former Woodlawn Guelph Campbellville Pit (ARA 5574)

- In December 2015, the Region received an enquiry regarding new activities at a former (closed) aggregate site located at Reid Side Rd and Twiss Road (i.e. the former Woodlawn Guelph Campbellville Pit) in Milton. The pit was depleted in the early 1990s and the ARA licence was revoked by the MNRF in April 2008. Since 2005, the site has been owned by Fieldwest Enterprises. The Region's planning staff visited the general area and contacted MNRF, TOARC, and the Town of Milton to determine the nature of the alleged new activities. The Town of Milton indicated that area of Reid Side Rd was part of the 2016 Asphalt Overlay Program, which included core sampling and borehole investigation. No further enquiries were received regarding this site.

Summary of 2016 Complaints

Milton Pit (ARA 5484)

- In May 2016, the Region received inquiries from local residents regarding transport trucks delivering heavy equipment to the pit area of the former Warren Paving & Materials Co. Correspondence between MNRF and the licensee's representatives indicated that the activities were in regards to the ARA-compliance matters, specifically removal of imported concrete/asphalt from the site by the licensee as required by the MNRF's Notice of Inspection and Suspension Order of May 24, 2016. Compliance with MNRF's requirements was confirmed in the MNRF's Notice of Inspection dated June 16, 2016. No further complaints were received in regards to this property.

Burlington Quarry - The Majority (ARA 5499)

- In June 2016, the Halton Region's Health Department received two complaints from residents regarding water quantity possibly associated with the Burlington Quarry - The Majority operations. Although 2016 was an "exceptional" (as related by one of the residents) year in terms of water shortage, the resident noted decreases over a 4-year period. Regional planning staff conveyed this concern to the MNRF and received a response that MNRF would investigate the complaints. No follow up information has been received on this matter.

Acton Quarry (ARA 5492)

- In July 2016, during the 2015 Annual Monitoring Report review meeting, Dufferin representatives noted their receipt of three blast-related complaints in relation to the quarry operation. Dufferin noted that they had attended to the residents' concerns, including notifying residents of upcoming blasts and informing them of the blast results. Dufferin indicated that all blasts subject to complaints were below the MOECC's standards.
- Based on the 2016 Annual Monitoring Report for Acton Quarry (GHD, April 2017), one water supply complaint was received by Dufferin in 2016 in regards to the quarry operation. Dufferin had Ontario Water Well Inc. conduct inspection of the well. The MOECC was also notified. The investigation determined that the cause of the problem was sediment accumulation in the well screen and was not a result of the quarry operation.

Milton Quarry (ARAs 5481 and 608621)

- Similar to complaints received in 2015, the Region received complaints from the same resident regarding extraction and operational activities at the Milton Quarry in 2016. Key concerns included well-water treatment (i.e. domestic water quality), the quarry's water-mitigation influence (i.e. potential flooding), blasting and vibration effects (structural and health-related) even though blasting in the North Quarry was completed in 2015, and the absence of any permanent resolutions to address these and formerly raised matters.

In response to the blasting complaint in 2016, Dufferin indicated that the blast took place at the Extension's West Cell (i.e. at greater distance from the subject residence than the North Quarry) and that no prior blast-related communication protocol was agreed upon with the resident in regards to the Extension's West Cell operation.

In regards to the water-related concerns, Dufferin referred to their former water report provided to the resident in September 2015. The Region conducted an independent review of the water level and water quality data and communicated the results of the analysis to MNRF's Aurora District office.

Dufferin had adjusted the automated system to cease mitigation recharge on its lands adjacent to the subject residence during high water conditions. The operator noted that Regional recommendations to enhance monitoring, conduct localized water re-assessment, and implement other controls (as necessary) to protect the property from potential future high-water effects were not required, asserting the adequacy of existing monitoring and compliance with Adaptive Management Plan (AMP).

In regards to the water treatment matters, the Region recommended continuation of the water treatment at the resident's property to ensure the ongoing water safety for drinking purposes. The Region is not aware of a resolution concerning this matter.

The MNRF indicated that it responded to the noise and blast-related complaints, directing the operator to notify the resident of the blasting schedules and to submit blast-related reports to the MNRF's Aurora District office. The operator, MNRF and MOECC noted that that all seismograph readings on the resident's property were within the MOECC standards for blasting.

Acton Limehouse Pit (ARA 5480), Bot-Duff Pit (ARA 5616), and Wilroy Brooks Pit (ARA 5546)

- In October 2016, the Town of Halton Hills referred a complaint to the Region on a water level decline in a private residential well which was possibly attributed to the local aggregate-related activities. Operators' representative visited the property and informed the resident that the subject property was too far from the pits to be affected by the aggregate-related activities.

The Region is not aware of any other quarry-related public complaints received by other agencies or operators during this reporting period.

D. History of Violations of Site Plan or Conditions of Licence under the *Aggregate Resources Act*

1294142 Ontario Limited Pit (ARA 5510)

The Ontario Limited licence which was suspended in September 2010, remained suspended until early 2016 due to the contravention of Section 15 of ARA (i.e. stripping and asphaltting of rehabilitated areas to accommodate other activities). The licence was surrendered in July 2016 after satisfactory resolution of the MNRF's remedial requirements.

Campbellville Pit – north (ARA 5479)

The ARA Licence which was suspended in March 2012, remained suspended in 2015 and 2016 due to past contravention of Section 15 of the ARA (i.e. placing material or topsoil outside the approved area and above the approved final rehabilitation grades).

Milton Pit (ARA 5484)

The MNRF's Notices of Inspections of May 2014 and January 2016 concerning the Milton Pit indicated non-compliance with ARA requirements due to importation of unauthorized concrete/asphalt material. The MNRF's Inspection Report of June 16, 2016 indicated the lifting of Suspension Order following removal of unauthorized material from the property.

For the remaining active ARA sites, most operators or their consultants have checked off "in compliance" or "not applicable" in their annual CAR submittals. The "remedial action" notes and/or "general comments" in some of the 2015-2016 CARs refer to site maintenance, such as:

- scrap, recycling material and brash removals
- perimeter-fencing construction and repairs
- marker-post and road-signs installations
- erosion control works
- dust suppression/mitigation
- progressive rehabilitation
- setback management
- timely submissions of CARs to MNRF

The "remedial actions" section in CARs includes due-dates for completion of the required actions. The MNRF oversees implementation of CARs' directives and compliance matters by operators. There were no posts on MNRF's website on violations, enforcements, or rehabilitation orders related to aggregate operations in the Province.

E. Status of the Implementation of Approved Rehabilitation Plans

Rehabilitation at Licensed Sites

Progressive and final rehabilitation of aggregate sites are regulated under the *ARA* (1990) and the nature of rehabilitation is governed by approved *ARA* Site Plans. Compliance with approved Site Plans is administered by the MNRF. Appendix 2 provides post-rehabilitation end-use descriptions for licensed sites in Halton, as per the individual Site Plan notes. For older (legacy) disturbed areas at these sites, rehabilitation was perpetuated by older standards (i.e. former *Pits & Quarries Control Act, 1971*). Sites licensed under the *1971 Act* had been required to prepare replacement Site Plans in accordance with the *ARA* (1990) and Provincial Standards. The *ARA*-licensed sites are subject to the requirements for progressive and final rehabilitation in accordance with Site Plans amended under *ARA, 1990*.

Historically, some degree of progressive rehabilitation has occurred at all licensed sites, except for some recently approved quarries (e.g. Milton Quarry Extension - *ARA* 608621). Appendix 1 contains information on the 2015-2016 total rehabilitation areas for all licensed sites in Halton Region. Descriptions of the status of the implementation of approved rehabilitation plans are provided in Appendix 2.

According to the CARs, in total 660 ha had been rehabilitated as of 2015 and 537 ha as of 2016. Comparatively, 572.5 ha were rehabilitated as of 2014. The 2016 total area does not include the surrendered (September 2015) licence for Halton Crushed Stone Quarry (*ARA* 5493). The 121.5 ha which was rehabilitated in 2015 is subject to long-term pond-filling as per the final rehabilitation plan (1991) and the MOECC final closure plans (MNRF, September 2015). 5.5 ha of rehabilitation also occurred at Wilroy Brooks Pit (*ARA* 5546) and 8 ha at the Tansley Quarry (*ARA* 613081). No other sites reported significant changes to rehabilitation areas in the reporting period.

No changes to rehabilitated and disturbed areas had been reported for a number of years at the following nine sites: Acton Limehouse Pit (*ARA* 5480), Brockton Farms Quarry (*ARA* 20660), Hilltop Quarry (*ARA* 5720), Hayward Pit (*ARA* 5507), Limehouse Clay Products Pits (*ARA* 5711 and 5614), Leaver Pit (*ARA* 5619), Burlington Quarry - The Majority (*ARA* 5499), and Rice & McHarg Quarry (*ARA* 5716). Additionally, no changes to rehabilitation areas were reported in 2015-2016 at the following four operations: Acton Quarry (*ARA* 5492), Aldershot Quarry (*ARA* 5500), David Anderson Pit (*ARA* 5462), and Burlington Pit (*ARA* 5605). Some *ARA* sites continued rehabilitation-related activities (e.g. grading, sloping, seeding, maintenance, etc.) within the formerly established rehabilitation areas; some CARs contained notes that rehabilitation was completed and three sites had site-plan amendments/proposals in the works.

Former/Abandoned Aggregate Sites

Part of the mandate of TOARC's Management of Abandoned Aggregate Properties (MAAP) program is the rehabilitation of former pits and quarries deemed to be abandoned (i.e. former sites that have not had a valid licence issued under the *ARA* since 1990) in the *ARA*-designated areas of the province. This work is funded by the aggregate industry (i.e. through fee payable per tonne of aggregate removed from each *ARA*-licensed site). According to TOARC, these former extraction sites, which are generally less than 2 ha, were created as a result of small-scale operations and remain the property of individuals, corporate entities, or other parties. The MAAP program, which aims to rehabilitate 30 sites annually, typically targets a small geographic area (i.e. county or regional jurisdiction). Site prioritisation for rehabilitation under MAAP is based on composite ranking (including safety concerns, visibility, size, susceptibility to erosion, etc.), and requires landowners' approval. No rehabilitation under MAAP has been reported in Halton Region since 2011.

According to TOARC's MAAP Online Reporting Tool, Halton has 52 abandoned former aggregate extraction sites:

1 - classified as LNI (Landowner Not Interested)

34 - designated as "closed" for various reasons:

- four had been developed
- four had been rehabilitated by landowners
- two were rehabilitated by MNR [currently MNRF] in 1994 and 1995
- two were rehabilitated under the MAAP program in 1999 and 2011
- three were classified as other (no historical aggregate extraction was reported in the past)
- 18 had become naturalized
- one became licensed

Of the remaining sites, TOARC noted in 2015 that 17 files remained open, of which seven required rehabilitation and 10 required site visits to determine their status. Sites requiring visits are checked based on jurisdictional priorities. MAAP's focus was on jurisdictions other than Halton Region in 2015 and 2016.

Table 5 summarizes the status of former/abandoned aggregate extraction sites by district in Halton Region. The location of sites is shown in Map 2.

Table 5: Status of Former/Abandoned Aggregate Extraction Sites by District in Halton Region								
Former District	LNI	Closed (Total)	Developed (file closed)	Rehabilitated (file closed)	Naturalized (file closed)	Other (closed)	Licensed (file closed)	Unknown (file open)
Esquessing (27)	1	13		3 - Landowner	8	1	1	13
Nassagaweya (9)	0	7		1 - MNR [MNRF] 1 - Landowner	4	1		2
Nelson (8)	0	8	3	1 - MNR [MNRF] 2 - MAAP	2			0
Trafalgar (8)	0	6	1		4	1		2
Halton Region	1	34	4	8	18	3	1	17

Notes: MAAP=Management of Abandoned Aggregate Properties
MNR [MNRF] = Former MNR is currently MNRF
LNI=Landowner Not Interested (as per TOARC's designation); "Other" indicates no historical aggregate extraction had taken place.

Map 2: Former and Abandoned Pits or Quarries



F. Status of the Operation and Implementation of Approved Adaptive Management Plans

The objective of Adaptive Management Plans (AMPs) is to protect water resources and ecological features and functions. There are currently two Adaptive Management Plans in Halton Region: Dufferin's Milton Quarry Extension (ARA 608621) and Meridian Brick's Tansley Quarry (ARA 613081) formerly known as Hanson Brick and Forterra Brick respectively.

While the AMPs are part of the operating licences and the associated Site Plan conditions, the Region has an on-going oversight role as per AMP Agreements with the proponents relating to each operation.

Dufferin Aggregates Milton Quarry AMP

The Milton Quarry in the Towns of Milton and Halton Hills consists of the Main Quarry and North Quarry (ARA 5481), and Extension areas (ARA 608621). Dufferin Aggregates, a Division of CRH Canada Group Inc. (Dufferin Aggregates), is the current owner and holder of ARA licences for the Milton Quarry. The AMP (2003) applies to the Milton Extension Quarry (85 ha), which was licenced in 2007 (ARA 608621).

The Milton Extension Quarry AMP contains implementation requirements for the protection, mitigation and monitoring of water resources and groundwater-dependant ecological features adjacent to the quarry. Under the AMP Agreement (2003), Halton Region and Conservation Halton (CH), on an on-going basis, oversee the effectiveness of the water management system implemented under the AMP.

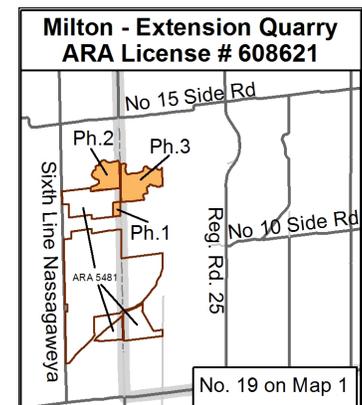
In 2015 and 2016, Halton staff conducted the following reviews as part of the AMP-related oversight:

- On-line (*WebDT*) monitoring data reviews (monthly) to assess performance and effectiveness of the quarry's water management system;
- Review of annual monitoring reports (2014 and 2015);
- Annual review of water-targets for winter and spring seasons (2016 and 2017);
- Reviews of Phase 3 (East Cell) extraction notifications (2015 and 2016);
- Reviews of water-related complaints from a local resident (2015 and 2016);
- Reviews pertaining to a new Cox Tract Haul Route Agreement (2017); and,
- AMP-related administrative reviews (2015 and 2016).

Milton Extension-Quarry Status

According to the 2015 CAR, Dufferin completed extraction in Phase 1 of the Extension Quarry, which consists of the 10.8 ha in the eastern portion of the North Quarry, and continued extraction in Phase 2 (West Cell). A total of 22.5 ha of the West Cell were reported disturbed as of 2015. Dufferin also continued construction of Townline pillar and buttress in 2015.

According to the 2016 CAR, extraction was carried in Phase 2 (West Cell) and Phase 3 (East Cell), transitioning from the "sinking cut" (i.e. initial opening of an extraction area) to "full extraction" in the latter. A total of 47.4 ha of the Extension Quarry were reported disturbed as of 2016. No rehabilitation occurred in the Extension Quarry as of 2015 or 2016.



Meridian Brick Tansley Quarry AMP

The Tansley Quarry in Burlington (licensed in 2007) is currently owned by Meridian Brick Canada Ltd. (Meridian Brick) in Burlington. In May 2007, Hanson Brick Ltd. (original licensee) entered into an Adaptive Groundwater Management Plan (AMP) Agreement and a Private Communal Water System (PCWS) Agreement with the Region of Halton.

Adaptive Groundwater Management Plan

The Adaptive Groundwater Management Plan (AMP) for the Tansley Quarry sets out a program to monitor the potential effects of the quarry and ensure that affected property owners have uninterrupted access to potable water. This is further guaranteed by the AMP Agreement and Private Communal Water System (PCWS) Agreement. These Agreements obligate Meridian Brick (previously Forterra Brick and Hanson Brick) to undertake actions set out in the AMP including construction, operation and maintenance of the PCWS. Halton staff oversees, reviews, and keeps track of deliverables associated with the AMP and PCWS Agreements, including technical, financial, and insurance matters.



Private Communal Water System

Hanson Brick Ltd. (currently Meridian Brick) constructed a PCWS and related infrastructure between December 2011 and February 2013. Since May 2013, the PCWS, classified as Non-municipal Year-round Residential Drinking Water System, provides potable water to 11 private residences and six vacant lots (referred to as Eligible Properties) adjacent to the Tansley Quarry. The System has been "fully operational" since July 15, 2013 (Hanson Brick Ltd., 2013). As per the PCWS Agreement, Meridian Brick is responsible to own, maintain, repair and replace the PCWS and is required to file annual financial and operating reports with the Commissioner of Legislative and Planning Services by April 30 of each year. The Ontario Clean Water Agency (OCWA) operates, maintains, and monitors the Tansley PCWS facility on behalf of Meridian Brick.

OCWA submitted the 2015 and 2016 Operations, Maintenance & Financial Annual Reports to the Region in advance of the April 30 annual due dates. Halton Region staff had no issues with the 2015 and 2016 reports that could affect the on-going PCWS operation.

AMP Monitoring and Reporting

The AMP requires the quarry operator to submit annual monitoring reports by April 30 of each year, for the preceding calendar year, to the MNRF, MOECC and the Region of Halton, and to report on any unusual water level and water quality data within 30 days of detection. Meridian Brick is also required to submit pumping and discharge reports to the MOECC by March 31 of each year, in accordance with water taking and discharge permits. As per the AMP, the Region also has a role in reviewing and approving Annual Monitoring Reports. In accordance with the AMP, the Region, along with Meridian Brick and the MOECC, have a role in reviewing well restoration options if dewatering activities affect properties beyond the PCWS-serviced zone. In the annual monitoring reports, the licensee reported that there were no well interference complaints within or beyond the servicing zone in 2015 and 2016.

Regional staff reviewed and commented on the 2014-2016 annual monitoring reports submitted by the operator. No amendments to the AMP or additional contingency actions had been required since commencement of the site operation in 2007. Some modifications to the off-site private well monitoring were introduced by Hanson Brick over the years due to provision of water supply to the Eligible Properties and some wells were decommissioned by the operator as requested by the well owners connected to the PCWS.

Tansley Quarry Status

Based on the 2015 and 2016 CARs, extraction within the "sinking cut" continued (i.e. quarry floor was deepened and sump area [i.e. a drainage pit at the lowest point of quarry floor] was enlarged). The operator also stripped the overburden outside of the "sinking cut" and stockpiled overburden stockpiles. About 17 ha in total were reported disturbed as of 2016.

The Permit To Take Water (PTTW) for the quarry dewatering was renewed in 2016 and the MNRF issued consent under Section 16(2) of ARA for four sediment control ponds to be constructed at the site. The 2015-2016 CARs reported total rehabilitated area of 8 ha without description for this site.

G. Assessment of the Cumulative Impact of Extraction Operations on both the Greenbelt and Regional Natural Heritage System

Active licences require some level of rehabilitation (in accordance with approved Site Plans, the Provincial Policy Statement (2014), and the Greenbelt Plan) to be compatible with the surrounding land.

Policy Context

Section 2.5.3.1 of the Provincial Policy Statement (PPS, 2014) indicates: *“Progressive and final rehabilitation shall be required to accommodate subsequent land use compatibility, to recognize the interim nature of extraction, and to mitigate negative impacts to the extent possible. Final rehabilitation shall take surrounding land use and approved land use designations into consideration.”*

Section 4.3.2.4 of the provincial Greenbelt Plan (2005) called for the MNRF’s determination of the maximum allowable disturbed area of each mineral aggregate operation (i.e. *“Any excess disturbed area, above the maximum, will be required to be rehabilitated. Existing operations have 10 years of the approval of the Greenbelt Plan to complete rehabilitation, with 50% requiring completion within six years. For new operations, including expansions, the total disturbed area shall not exceed an established maximum allowable disturbed area”*).

A new Greenbelt Plan came into effect on July 1, 2017 and Section 4.3.2 indicates:

5. *New and existing mineral aggregate operations and wayside pits and quarries, within the Protected Countryside shall ensure that:*
 - a) *The rehabilitated area will be maximized and disturbed area minimized on an ongoing basis during the life-cycle of an operation;*
 - b) *Progressive and final rehabilitation efforts will contribute to the goals of the Greenbelt Plan;*
 - c) *Any excess disturbed area above the maximum allowable disturbed area as determined by the Ministry of Natural Resources and Forestry will be rehabilitated. For new operations the total disturbed area shall not exceed an established maximum allowable disturbed area; and*
 - d) *The applicant demonstrates that the quantity and quality of groundwater and surface water will be maintained as per Provincial Standards under the Aggregate Resources Act.*

6. *For rehabilitation of new mineral aggregate operation sites in the Protected Countryside, the following policies apply:*
 - a) *The disturbed area of a site shall be rehabilitated to a state of equal or greater ecological value and, for the entire site, long-term ecological integrity shall be maintained or enhanced;*
 - b) *If there are key natural heritage features or key hydrologic features on the site, or if such features existed on the site at the time of an application:*
 - i. *The health, diversity and size of these key natural heritage features and key hydrologic features shall be maintained or enhanced; and*
 - ii. *Any permitted extraction of mineral aggregates that occurs in a feature shall be completed, and the area shall be rehabilitated, as early as possible in the life of the operation;*
 - c) *Aquatic areas remaining after extraction are to be rehabilitated to aquatic enhancement, which shall be representative of the natural ecosystem in that particular setting or ecodistrict, and the combined terrestrial and aquatic rehabilitation shall meet the intent of section 4.3.2.6 (b); and*
 - d) *Outside the Natural Heritage System, and except as provided in sections 4.3.2.6 (a), (b) and (c), final rehabilitation shall appropriately reflect the long-term land use of the general area, taking into account applicable policies of this Plan and, to the extent permitted under this Plan, existing municipal and provincial policies. In prime agricultural areas, the site shall be rehabilitated in accordance with section 2.5.4 of the PPS.*

7. Final rehabilitation for new mineral aggregate operations in the Natural Heritage System shall meet these additional policies:
- a) Where there is no extraction below the water table, an amount of land equal to that under natural vegetated cover prior to extraction, and no less than 35 per cent of the land subject to each license in the Natural Heritage System, is to be rehabilitated to forest cover, which shall be representative of the natural ecosystem in that particular setting or ecodistrict. If the site is also in a prime agricultural area, the remainder of the land subject to the license is to be rehabilitated back to an agricultural condition;
 - b) Where there is extraction below the water table, no less than 35 per cent of the non-aquatic portion of the land subject to each license in the Natural Heritage System is to be rehabilitated to forest cover, which shall be representative of the natural ecosystem in that particular setting or ecodistrict. If the site is also in a prime agricultural area, the remainder of the land subject to the license is to be rehabilitated in accordance with section 2.5.4 of the PPS; and
 - c) Rehabilitation shall be implemented so that the connectivity of the key natural heritage features and the key hydrologic features on the site and on adjacent lands shall be maintained or enhanced.

On May 10, 2017, *Bill 39 - An Act to amend the Aggregate Resources Act and the Mining Act* received Royal Assent. The amendments have strengthened the requirements for rehabilitation. Specifically, Schedule 1 requires a licensee or permittee to submit reports on the progressive rehabilitation and final rehabilitation of the site of a pit or quarry. As per Section 3.1, Rehabilitation Reports are to be prepared at prescribed times and submitted in accordance with the regulations, which are forthcoming.

Rehabilitation Status of Sites Adjacent to/Intersecting the Regional Natural Heritage System

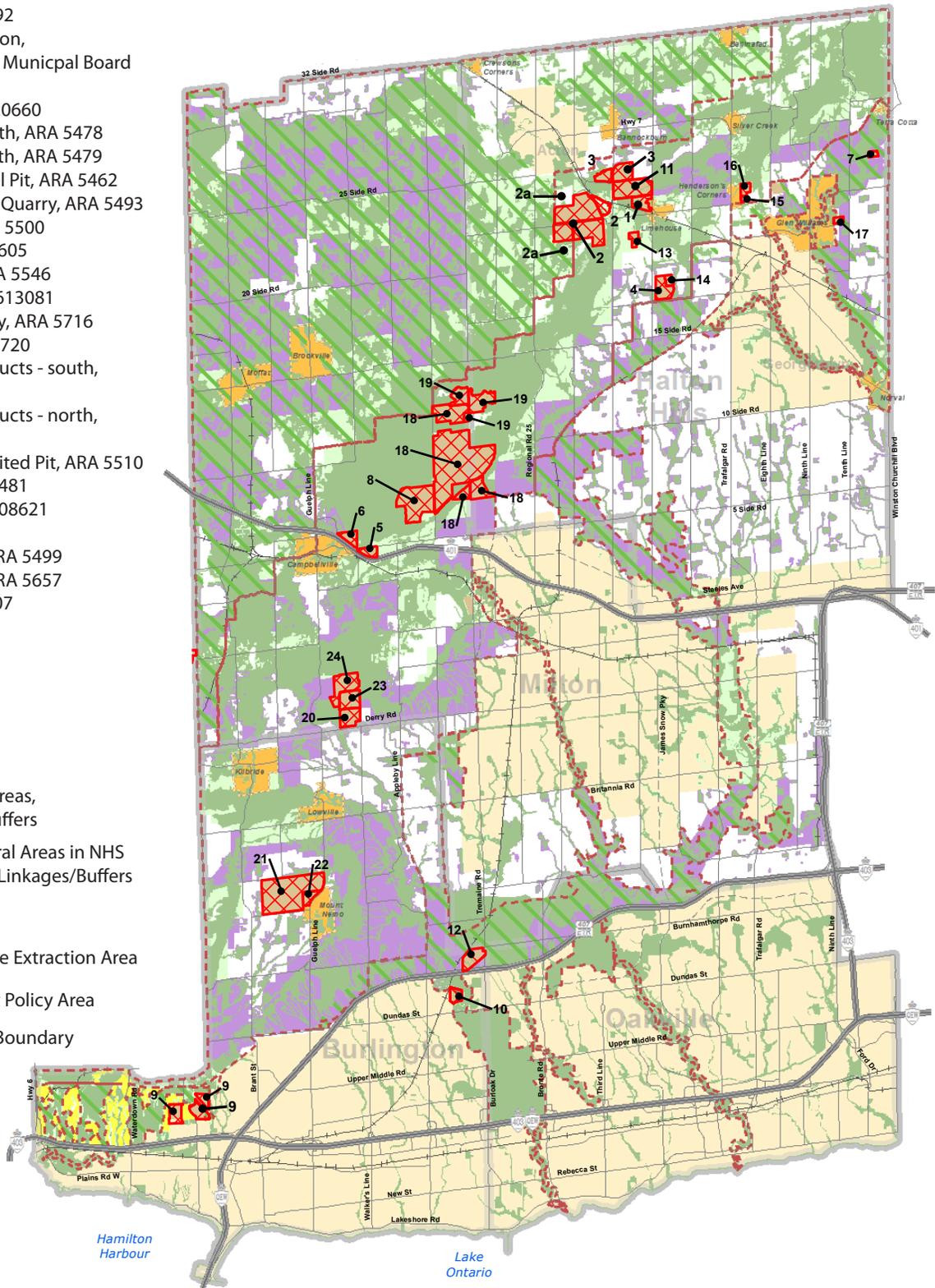
All ARA sites in 2015 (23) and in 2016 (22) in Halton Region were either within or adjacent to the Regional Natural Heritage System (RNHS), as shown on Map 1 of the 2009 ROP, and on Map 3 in this document. Historically, rehabilitation progress was reported at most of these sites. Rehabilitation status at all currently licensed ARA sites adjacent to or intersecting the RNHS, as per ROP 2009, is provided in Appendices 1 and 2, based on the recent 2015-2016 CARs (or earlier, where no recent CARs were available). The rehabilitation end-use descriptions (Appendix 2) are based on the approved Site Plans. During the 2015-2016 period, a rehabilitation area increase of 5.5 ha was reported at ARA 5546 (Wilroy Brooks Pit) and 8 ha at ARA 613081 (Tansley Quarry). Rehabilitation at Halton Crushed Stone Quarry - ARA 5493 of 121.5 ha was deemed acceptable to the MNRF as part of the licence surrender in September 2015. This quarry is subject to long-term post-rehabilitation pond filling as per the Site Plan and MOECC-approved final closure plans. No other sites in Halton Region reported significant changes to rehabilitation areas during 2015-2016.

Map 3: ARA Sites Located in the Greenbelt and Regional Natural Heritage System

Licensed Sites

- 1 - Acton Limehouse Pit, ARA 5480
- 2 - Acton Quarry, ARA 5492
- 2a - Acton Quarry Extension,
Approved by Ontario Municipal Board
- 3 - Bot-Duff Pit, ARA 5616
- 4 - Brockton Farms, ARA 20660
- 5 - Campbellville Pit - south, ARA 5478
- 6 - Campbellville Pit - north, ARA 5479
- 7 - David Anderson Gravel Pit, ARA 5462
- 8 - Halton Crushed Stone Quarry, ARA 5493
- 9 - Aldershot Quarry, ARA 5500
- 10 - Burlington Pit, ARA 5605
- 11 - Wilroy Brooks Pit, ARA 5546
- 12 - Tansley Quarry, ARA 613081
- 13 - Rice & McHarg Quarry, ARA 5716
- 14 - Hilltop Quarry, ARA 5720
- 15 - Limehouse Clay Products - south,
ARA 5711
- 16 - Limehouse Clay Products - north,
ARA 5614
- 17 - 1294142 Ontario Limited Pit, ARA 5510
- 18 - Milton Quarry, ARA 5481
- 19 - Milton Quarry, ARA 608621
- 20 - Milton Pit, ARA 5484
- 21 - Burlington Quarry, ARA 5499
- 22 - Burlington Quarry, ARA 5657
- 23 - Hayward Pit, ARA 5507
- 24 - Leaver Pit, ARA 5619

-  Urban Area
-  Hamlet
-  Key Features
-  Enhancement Areas, Linkages and Buffers
-  Prime Agricultural Areas in NHS Enhancements/Linkages/Buffers
-  Greenbelt NHS
-  Mineral Resource Extraction Area
-  North Aldershot Policy Area
-  Greenbelt Plan Boundary



Rehabilitation Status of Sites Adjacent to/Intersecting the Greenbelt Natural Heritage System:

Six ARA sites are either within or adjacent to the Greenbelt Plan NHS including Acton Quarry (ARA 5492), Brockton Farms (ARA 20660), Anderson Pit (ARA 5462) in Halton Hills and the Aldershot Quarry (ARA 5500), Tansley Quarry (ARA 613081) and Burlington Quarry (ARA 5605) in Burlington. The 1294142 Ontario Limited Pit in Halton Hills surrendered its license (ARA 5510) in July 2016. A total licensed area for these sites is about 330 ha and a total permitted extraction area (as per the approved Site Plans) is 273.5 ha. As of 2016, about 86 ha had been rehabilitated and the total disturbed at these sites was approximately 186 ha.

Rehabilitation Status at Former and Abandoned Aggregate Sites Within/Adjacent to the Natural Heritage System Areas in Halton:

Former ARA sites and abandoned aggregate sites have also been considered in relation to the Greenbelt and Regional NHS Areas. Locations of the former sites, identified through the Ontario Geological Survey's (OGS's) Aggregate Resource Inventory Papers (1982-2009) are shown in Map 2.

- There are 10 known former pits and at least 6 former wayside pits (no former quarries) identified within/adjacent to the Greenbelt NHS in Halton Region.
- There are at least 25 former pits and at least 15 quarries within/adjacent to the Regional NHS.
- Most of the formerly licensed pits had been rehabilitated or partially rehabilitated.

The following former ARA pits are within the Greenbelt NHS (as of 2015-2016):

- Former ARA 5574 - Woodlawn Guelph Ltd. Campbellville Pit (P1). The licence was revoked in 2008. Subsequent to the 2013 Halton Hills' "Study on Stand-Alone Aggregate Related Uses", OPA 16 was introduced to re-designate the land use from Mineral Extraction Area to Protected Countryside Area with a Natural Heritage System Overlay. A Regional Official Plan Amendment is needed.
- Former ARA 5477 - 555816 Ontario Inc. Campbell Pit (P24). The licence was revoked in 2006. The site was reported as "rehabilitated" in the ARIP#184 (OGS, 2009). Halton Hills OPA 16 as well as the Niagara Escarpment Plan Amendment 192 apply to this site.
- Former ARA 5495 - R. Hess Pit (28/96). The licence was revoked in 1999.

The following former ARA pits and quarries are within/surrounded by the Regional NHS:

- Former ARA 5687 - J.C. Duff Ltd. Silvercreek Gravel Pit (P21) - was rehabilitated and the licence surrendered in 2008.
- Former ARA 5498 - Nelson Aggregate Burlington (Kilbride) Pit (P41) - was rehabilitated and the licence surrendered in 1996.
- Former ARA 5496 - Conservation Halton Kelso Quarry Park; formerly Lac Properties Inc. Limestone Quarry (Q4) - was rehabilitated and the licence cancelled in 2006.
- Former ARA 5713 - 2066012 Ontario Inc.; formerly Hanson Brick Milton Quarry (Q3) - was rehabilitated and the licence surrendered in 2010.
- Former ARA 5495 - R. Hess Pit (28/96), the licence was revoked in 1999.
- Former ARA 5506 - Selco Construction Sand and Gravel Ltd. Pit (P42) - was rehabilitated and overgrown.

Most of the formerly unlicensed (abandoned) aggregate sites had been reported by the OGS as "overgrown". Nine had been reported by OGS as "rehabilitated". Two quarries were noted to be "water-filled" and one was reported as being "active" at the time of the site visit by OGS staff (2009).

H. Number and Status of Active and Potential Applications for Mineral Resource Extraction Areas

During 2015-2016, Halton staff were involved in reviewing two active applications and two new Site Plan amendment proposals in Halton Region, and two active applications adjacent to the Region. The two active applications pertained to Dufferin's Acton Quarry Expansion and Meridian Brick's Burlington Quarry (ARA 5605) Site Plan amendment matters. The two new site-plan-amendments proposals in Halton Region included Dufferin's Acton Quarry (ARA 5492) and Jazbrick's Limehouse Clay Products' Quarry (ARAs 5711/5614). The active applications adjacent to Halton Region included the Norval Quarry in Brampton and the Hidden Quarry in Guelph/Eramosa.

Active Applications in Halton Region

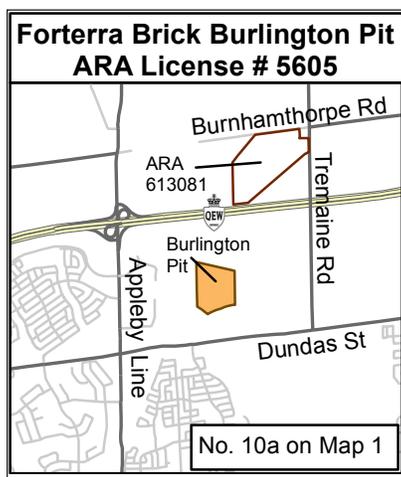
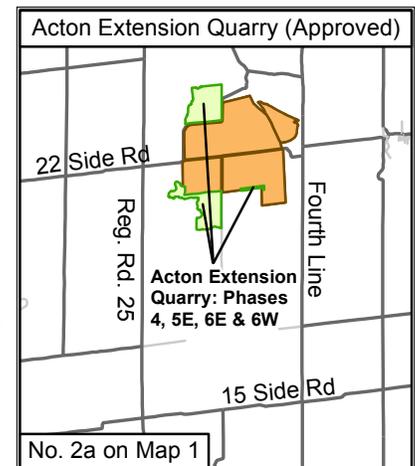
Acton Quarry Extension (Halton Hills), Dufferin Aggregates, a Division of CRH Canada Group Inc.

The Acton Quarry Extension was approved following a Joint Board hearing in October 2016. The Joint Board's decision was to approve issuance of an aggregate licence, pursuant to the ARA, for the Acton Quarry Extension (Phases 4, 5 East, and 5/6 West) in Halton Region. The MNRF issued ARA licence (625003) to Dufferin Aggregates, a Division of CRH Canada Group Inc. on March 9, 2017.

Other final instruments were issued regarding the Acton Quarry Extension including the adoption of Regional Official Plan Amendment (ROPA) 44, the Town of Halton Hills' Zoning By-Law No. 2015-0033, Amendment to the Niagara Escarpment Plan, and the Niagara Escarpment Commission's Development Permit.

In 2016, the Region and applicable local agencies entered into the following legal agreements with Dufferin: Public Benefits and Environmental Protection Framework Agreement (PB&EPFA), Water Management Agreement (WMA), Adaptive Management Agreement (AMPA), Ecological Enhancement Plan Agreement (EEPA), and Haul Route Agreement (HRA). The Town of Halton Hills and local conservation authorities also entered into Conveyance Agreement with Dufferin. As some key MNRF, MOECC, and Conservation Authority instruments were not finalized in 2016, most aspects in the agreements were not yet in full effect in 2016.

The Region commented on Dufferin's amendment applications to the *Ontario Water Resources Act (OWRA)*. In late November 2016, the MOECC issued amended Permit to Take Water (PTTW) and amended Environmental Compliance Approval (ECA) for the existing Acton Quarry (Phases 1-3) and the Extension Quarry (Phase 4, 5 East/West and 6). Decisions on the remaining provincial instruments (i.e. under the *Endangered Species Act* and *Conservation Authority Act*) for the Extension Quarry were not available at the time of writing.



Burlington Pit (ARA 5605), Meridian Brick Canada Ltd.

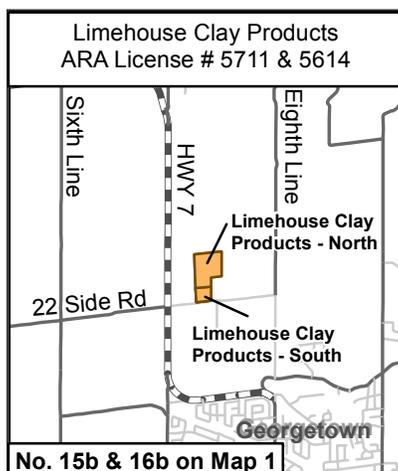
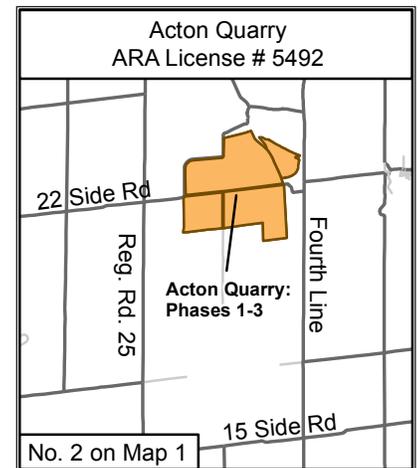
The Burlington Quarry's (ARA 5605) Major Site Plan Amendment application of June 2008 remained active in 2015-2016. Hanson Brick Ltd. (the former owner) revised Progressive Rehabilitation and Final Rehabilitation Plan in January 2011 and proceeded to complete site rehabilitation in accordance with this revised (unapproved) plan. The operator, in 2016 Forterra Brick Ltd. (now Meridian Brick Canada Ltd.) had planned to apply to the MNRF to surrender the quarry licence. As of 2016, MNRF's approval of the Site Plan Amendment (including the Progressive Rehabilitation and Final Rehabilitation Plan) was required first.

The Region participated in all relevant meetings and reviews between 2013 and 2016. The City of Burlington coordinated reviews due to the operator's desire to obtain a Site Alteration Permit, from the City, to further extend the limits of fill on the property upon the ARA licence surrender. The Region provided comments on revisions to the Progressive Rehabilitation and Final Rehabilitation Plan and relevant studies and documentation needed, prior to the Site Alteration process being commenced. At the time of writing,

the MNRF had not rendered a decision on the Site Plan Amendment or the Licence surrender request.

Existing Acton Quarry (ARA 5492) Site Plan Amendment (Phases 1-3)

In 2016, Halton Region was involved in reviewing the Site Plan Amendment proposal for the existing Acton Quarry and specifically the proposed reduction of the excavation setback from 15 metres to 0 metres along a portion of the southern boundary. Halton staff provided comments and recommendations to Dufferin in fall 2016 and were generally satisfied with Dufferin's approach to addressing staffs' comments. Specifically, Dufferin agreed to install a temporary contingency mitigation measure for wetland W9-N (pool H10) and implement the Significant Woodland Edge Management Plan at the Phase 2 southern setback, consistent with the Phase 5 East of the Extension Quarry requirements. The Region reviewed the revised Site Plan for the existing quarry and had no further comments concerning this proposal. On March 9, 2017, the MNRF approved the ARA Site Plan Amendment. That day, MNRF also approved an amendment to vary the ARA licence condition by applying the annual maximum limit of 4 million tonnes to a combination of both the existing (ARA 5492) and the extension (ARA 625003) quarries.



Limehouse Quarry (Halton Hills), Jazbrick (ARA 5614/5711)

Limehouse Quarry, located on the north side of 22nd Side Rd, just east of Henderson Corners in Halton Hills, consists of two separate ARA licences (5614 – north and 5711 – south). In August 2013, the MNRF approved a Site Plan amendment to deepen the smaller south quarry by 5 metres, within 1 ha of this 3.2 ha site, with potential below-water extraction and without increasing the annual extraction limit of 20,000 tonnes. As of 2016, no extraction below water occurred at this site.

In March 2016, representatives of Jazbrick advised the agencies of a new proposal for the north and south sites. Jazbrick wanted to amalgamate and replace the two Class B licences (totaling about 16 ha in size) with one Class A licence, increase extraction depth by 10-15 metres, increase annual extraction limit to 150,000 tonnes (i.e. from the current total limit of 40,000 tonnes), and amend the existing ARA Site Plans to reflect the Class A licence requirements. The subject lands are already designated Mineral Resource Extraction Area in both the Regional and Halton Hills' Official Plans. As there are no

Planning Act applications under the authority of the Region or the Town, the NEC and ARA application processes apply to the proposal.

Jazbrick filed a request with the MNRF to revise mapping of areas governed by ARA licence 5614 (i.e. part of the site currently designated Escarpment Rural Area) through the Provincial review of the Niagara Escarpment Plan. As of 2016, no decision had been issued.

During meetings in 2016 with the proponent, the agencies expressed preference for a Joint Agency Review Team (JART) process to review the technical aspects of the proposal. The owner generally agreed to this approach, including funding for specific peer reviews. To date, none of this has been confirmed in writing. In April 2016, the need for a Hydrogeology Study, a Traffic Impact Study, Natural Environmental Study, and Noise Study was identified. In June 2016, the Region provided input to the technical Terms of Reference for the Hydrogeologic Study, expressed the desire to review Natural Environmental Study, and requested that the Traffic Impact Study consider impact on Regional roads. The Region is not aware of a formal application submission on this amendment to MNRF.

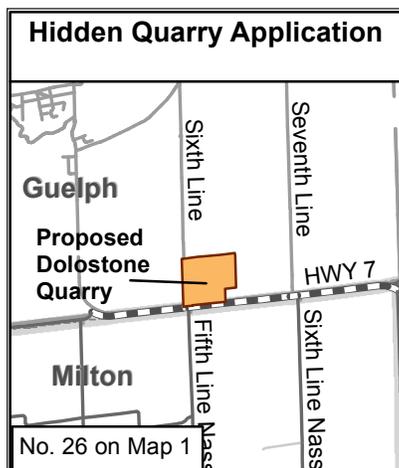
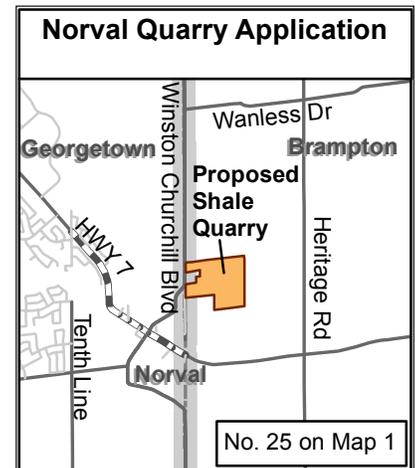
Active Applications Outside Halton with Potential to Impact the Region

Active applications outside, but adjacent to the Region, included Brampton Brick's proposal for a new shale quarry in Brampton (referred to as Norval Quarry) and James Dick's Construction proposal for a new dolostone quarry in Guelph-Eramosa (referred to as Hidden Quarry).

Norval Quarry in Brampton, Brampton Brick Ltd.

Brampton Brick Ltd. submitted a Zoning By-law amendment application to the City of Brampton in December 2008 and an ARA licence application to the MNR in August 2010 for a new shale quarry site on the east side of Winston Churchill Boulevard, immediately northeast of the Hamlet of Norval, in the City of Brampton. In September 2014, Brampton City Council refused the rezoning application. Brampton Brick had appealed the rezoning application and the pre-hearing to determine the number of parties to participate in the hearing took place on June 12, 2017.

In May 2016, Brampton Brick issued final reports in response to comments and concerns raised by the public and commenting agencies regarding the Norval Quarry proposal. The revised materials include: Haul Route Study (January 2016), Site Plan Report (February 2016), Draft Adaptive Management Plan Version 2.0 (April 2016), Level 1/2 Hydrogeological Technical Report (April 2016), Level 1/2 Natural Environment Report (April 2016), and Policy Planning Report (May 2016). Halton Region staff have reviewed the relevant material in these reports, and matters of Regional interest are being re-examined to determine next steps. The revised material is expected to be presented by the applicant to the Ontario Municipal Board (OMB) in support of the rezoning and licence applications.



Hidden Quarry in Guelph/Eramosa, James Dick Construction Ltd. (JDCL)

In 2012, James Dick Construction Ltd. submitted an application to Guelph/Eramosa Township (County of Wellington) to re-zone a 100-acre parcel near Rockwood to permit a quarry immediately north of Highway 7 along the municipal boundary with the Town of Milton.

Regional staff continued to be actively involved in reviewing material concerning both the ARA application and *Planning Act* application to ensure Regional interests are addressed. In April 2015, the Region provided comments to the Township of Guelph/Eramosa on the JDCL's 2014-2015 submissions. In May 2015, JDCL appealed the Township Zoning By-law Amendment, citing lack of a decision, to the OMB. In June 2015, Regional Council directed staff to continue working with staff from the Towns of Halton Hills and Milton, the Township, Grand River Conservation Authority and the proponent on resolving the Region's issues and, if necessary, to participate in the Ontario Municipal Board (OMB) Hearing to defend the Region's interest in this application. In July that year, MNR referred

the Licence Application to the OMB to resolve matters concerning the ARA licence application. The licence file was joined with the appeal of the zoning by-law application.

The Region was granted Party Status at the first Pre-Hearing Conference (PHC) on November 9, 2015. At the beginning of the Hearing (October 2016), the OMB heard motions from various parties regarding the Board's authority to deal with an appeal to amend a By-law that was no longer in effect. As a result of the evidence and materials provided, the OMB adjourned the Hearing sine die (with no appointed date for resumption) to allow JDCL to file new applications to the Township and the County of Wellington.

In November 2016, JDCL submitted a new Zoning By-law amendment application to the Township and in October 2016, submitted an Official Plan Amendment (OPA) application to Wellington County. The applications were deemed complete by the respective agencies in December 2016. The Township and the County circulated the Region on the new applications, and in February 2017 the Region reaffirmed its objection to the proposed new quarry and associated new planning applications.

On February 9, 2017, Halton Region and the Town of Halton Hills objected to the applications, reiterating concerns previously articulated in the Region's witness statements and citing the current Provincial Policy regime. The Town of Milton issued a separate letter also objecting to the quarry proposal. The Halton municipalities believe that JDCL's Applications are not in the public interest, do not consider good planning, and should be denied.

Definitions

Active Licence

A licence that has been issued, transferred, or under suspension prior to the end of the calendar year. (Definition adopted from TOARC's Aggregate Resource Statistics Reports.)

Adaptive Management Plans (AMP)

The objective of Adaptive Groundwater Management Plans (AMPs) is to protect water resources and ecological features and functions. The AMP provides for local control through a direct Agreement between an Agency (or Agencies) and the Owner-Operator and includes mechanisms for enforcement of the AMP through Dispute Resolution/Arbitration Process, with securities held by an Agency in case of default by the Owner.

Abandoned Sites

Abandoned sites are pits and quarries for which a licence or permit was never in force at any time after December 31, 1989 (as defined by TOARC).

Aggregate

In the Region of Halton, the primary aggregate sources include sand, gravel, clay, shale, limestone, dolostone, and sandstone (refer to Mineral Aggregate Resources for expanded definition).

Aggregate Resources Act (ARA)

The *Aggregate Resources Act (ARA)* requires licences for pits and quarries in designated parts of Ontario, wayside permits for extraction involving public construction projects, and permits for pits and quarries on Crown Land. The legislation and policy framework under the *ARA* comprises *The Act* itself, General Regulation 244/97; "Aggregate Resources of Ontario: Provincial Standards", MNR (currently MNRF), June 1997; and MNR Policies and Procedures (i.e. MNR Aggregate Resources Policy Manual).

Aggregate Licence

Aggregate licence is required to operate a pit or quarry, in a part of Ontario designated under Section 5 of *ARA*, on land that is not under water and the surface rights are not the property of the Crown.

Aggregate Permit

Aggregate permit is required to (i) operate a pit or quarry on land the surface rights of which are the property of the Crown, (ii) to excavate aggregate that is the property of the Crown from land under water, and (iii) that is the property of the Crown in a part of Ontario not designated under Section 5 of *ARA*; or (iv) to excavate aggregate that is not the property of the Crown from land under water.

Agreement between MNR(F) & MOE(CC) Re. Aggregate Matters

This refers to an Agreement to Address the Roles and Responsibilities of the MNR and the MOE [currently MNRF and MOECC] Regarding Aggregate Extraction Operations within the Province of Ontario (May 2008). Key principles and steps are outlined in Operational Procedure 1 and 2 of the Agreement.

Bill 39

Aggregate Resources and Mining Modernization Act, 2017 (Royal Assent of May 10, 2017), where Schedule 1 makes various amendments to the *Aggregate Resources Act*, while Schedule 2 amends provisions of the *Mining Act*.

Class A Licence

A licence under the *Aggregate Resources Act* to allow excavation of more than 20,000 tonnes of aggregate annually from a pit or quarry within parts of Ontario that have been designated under the *Aggregate Resources Act*. (Definition adopted from TOARC's Aggregate Resource Statistics Reports.)

Class B Licence

A licence under the *Aggregate Resources Act* to allow excavation of less than 20,000 tonnes of aggregate annually from a pit or quarry within parts of Ontario that have been designated under the *Aggregate Resources Act*. (Definition adopted from TOARC's Aggregate Resource Statistics Reports.)

Clay

Earthy, extremely fine-grained sediment, composed of clay-size or colloidal particles, having high plasticity and a considerable content of clay minerals (i.e. primarily aluminum silicates).

Compliance Assessment Report (CAR)

Under the ARA license, aggregate producers are required to submit an annual Compliance Assessment Report (CAR) to the MNRF with copies provided to regional and local municipalities. The reporting period for CARs is between September of the preceding year and September of the reporting year. These standardized reports provide a checklist of general compliance matters, including site access and security, operational activities, disturbed and rehabilitated areas, and any issues requiring attention (i.e. remedial actions) and timing for addressing such issues.

Disturbed Area

The amount of land area (in hectares) that remains excavated as a result of the operation of a pit or quarry. Areas of the site where processing equipment, offices, stockpile areas, or other structures still exist on the site are also considered disturbed. Exceptions may be where an office is shown on the Site Plan as remaining when the rehabilitation is complete (Ref.: Policy A.R. 5.00.04, MNR, March 20, 2006).

Dolostone

A term used for sedimentary rock dolomite in order to distinguish it from the mineral of the same name. Dolomite rock contains more than 90% mineral dolomite [$\text{CaMg}(\text{CO}_3)_2$] and less than 10% mineral calcite [CaCO_3]. The latter (mineral calcite) is the chief constituent of limestone.

Gravel

An unconsolidated natural accumulation of rounded rock fragments, mostly of particles larger than sand, such as boulders, cobbles, pebbles, granules, or any combination of these.

Greenbelt Plan (GBP)

Under Section 4.3.2.4 of the Greenbelt Plan (2005), MNRF is to pursue to minimize disturbed areas and maximize rehabilitated areas on an on-going basis during the life-cycle of an operation. The Greenbelt Plan calls for MNRF's determination of the maximum allowable disturbed area of each mineral aggregate operation indicating that any excess disturbed area, above the maximum, will be required to be rehabilitated. Existing operations had 10 years of the approval of the Greenbelt Plan to complete rehabilitation, with 50% requiring completion within six years. For new operations, including expansions, the total disturbed area shall not exceed an established maximum allowable disturbed area.

Under Section 4.3.2.5 of the new provincial Greenbelt Plan (2017): *New and existing mineral aggregate operations and wayside pits and quarries, within the Protected Countryside shall ensure that: a) The rehabilitated area will be maximized and disturbed area minimized on an ongoing basis during the life-cycle of an operation; b) Progressive and final rehabilitation efforts will contribute to the goals of the Greenbelt Plan; c) Any excess disturbed area above the maximum allowable disturbed area as determined by the Ministry of Natural Resources and Forestry will be rehabilitated. For new operations, the total disturbed area shall not exceed an established maximum allowable disturbed area; and d) The applicant demonstrates that the quantity and quality of groundwater and surface water will be maintained as per Provincial Standards under the Aggregate Resources Act.*

Inactive Licence

A licence that has been revoked or surrendered prior to the end of the calendar year (Definition adopted from TOARC's Aggregate Resource Statistics Reports.)

Inspection Notice

Inspector's notice can be served by MNRF's Aggregate Inspector for remedial work concerning minor violations, with no immediate need to cease activities.

Memorandum of Understanding (MOU): MNR(F) & TOARC

This refers to The Memorandum of Understanding between the MNR [MNRF] and The Ontario Aggregate Resources Corporation (TOARC) Regarding Administration of the *Aggregate Resources Act*. The MOU establishes new functions of the Trust as specified in the ARA. It consists of Memoranda 1 to 5 and includes directions on roles and information sharing between MNRF and the Trust.

Mineral Aggregate Resources

Gravel, sand, clay, earth, shale, stone, limestone, dolostone, sandstone, marble, granite, or other material prescribed under the *ARA Act*, suitable for construction, industrial, manufacturing purposes, and that does not include materials prescribed under the *Mining Act*.

Mineral Aggregate Operations

1. Lands under licence or permit, other than wayside pits and quarries, issued in accordance with the *ARA*.
2. For lands not designated under the *ARA*: established pits and quarries that are not in contravention of municipal zoning by-law [...] (ROP, 2009).

Ministry of Environment and Climate Change (MOECC)

The Ministry of Environment and Climate Change (MOECC) administers Permit to Take Water for aggregate washing and dewatering, Environmental Compliance Approval (formerly Certificates of Approval) for water discharges and other emissions, and Fill Protocols for material importation to the sites under the *Ontario Water Resources Act (OWRA)* and the *Environmental Protection Act (EPA)*.

Ministry of Natural Resources and Forestry (MNRF)

The Ministry of Natural Resources and Forestry (MNRF), regulates aggregate operations in Ontario in accordance with the *ARA* and the *Planning Act*. Under the *ARA*, MNRF receives and considers aggregate applications, issues aggregate licenses and permits, monitors and enforces compliance matters, and performs scheduled inspections of pits and quarries.

Ministry of Transportation (MTO)

The Ministry of Transportation (MTO) has delegated authority under the *ARA* to administer wayside permits and aggregate permits.

Ministry of Northern Development and Mines (MNDM)

Through Aggregate Resources Inventory Papers (ARIPs), authored by Staff of Ontario Geological Survey (OGS), the MNDM provides geological information and an assessment of aggregate resources in selected Regions of Ontario. ARIPs also identify former and existing pits and quarries.

Pit

Pit refers to land/land under water from which unconsolidated aggregate material (e.g. sand, gravel, clay, earth) is being/has been excavated, and that has not been rehabilitated.

Pits and Quarries Control Act

An Act applicable between 1971 and 1990 to manage and regulate aggregate extraction in Ontario before it was replaced by *Aggregate Resources Act* as of January 1, 1990.

Public Complaints

Ministry of Natural Resources and Forestry (MNRF) is the first responder in accordance with an Agreement to Address the Roles and Responsibilities of the MNR [MNRF] and the MOE [MOECC] Regarding Aggregate Extraction Operations within the Province of Ontario (May 2008). If the complaint relates to air quality or noise under the *Environmental Protection Act (EPA)*, or water under the *Ontario Water Resources Act (OWRA)*, then the Aggregate Inspector passes the information to the MOECC to carry out an investigation.

Quarry

Quarry is land/land under water from which consolidated aggregate (e.g. sandstone, dolostone, limestone, shale) is being/has been excavated, and that has not been rehabilitated.

Rehabilitation (General)

Rehabilitation means restoring the land from which aggregate has been excavated to its former use or condition, or to change to another use or condition compatible with adjacent land.

Rehabilitation (Progressive and Final)

Under the *ARA*, aggregate operators are required to complete progressive rehabilitation of the site to the satisfaction of the Minister of Natural Resources and Forestry and his authority is delegated to the Aggregate Inspectors. A sketch of progressive rehabilitation is required to be provided with the CAR. Final rehabilitation is to be performed in accordance with *ARA* and Site Plan conditions after the excavation of aggregate and the progressive rehabilitation are completed. Section 48 (1.1) of *Bill 39* (2017) - Schedule 1 requires reports on progressive and final rehabilitation at prescribed times and in accordance with the regulations. The Greenbelt Plan (2017) includes rehabilitation policies concerning new and existing mineral aggregate operation sites in the Protected Countryside (Section 4.3.2, items #5, 6 and 7).

Rehabilitation Order

Rehabilitation order can be served by MNRF's Aggregate Inspector where progressive rehabilitation is not being undertaken in accordance with the plan. It provides for progressive rehabilitation of a licence or permit within specified timeframe.

Revocation (of Licence)

Revocation can be served by MNRF in regards to *ARA* licences and permits in cases involving bankruptcy, site abandonment, infraction where past charges and suspensions had no effects/situations where previous enforcement tools were not effective, and sites where rehabilitation was not the primary concern.

Sandstone

Sedimentary rock composed of grains of sand set in a matrix of silt or clay and firmly united by a cementing material (commonly silica, iron oxide, or calcium carbonate) - the consolidated equivalent of sand.

Shale

Fine-grained sedimentary rock formed by the compaction of clay, silt or mud. It has a finely-laminated structure.

Sine Die

Indefinitely adjourned (i.e. without a fixed date).

Surrender (of Licence)

The MNRF may accept the surrender of a licence if the Ministry is satisfied that all applicable fees (e.g. annual licence, rehabilitation security, etc.) have been paid and the rehabilitation was completed in accordance with the *ARA*, the Site Plan and licence conditions.

Suspension (of Licence)

Suspension can be served by MNRF's Aggregate Inspector in regards to violations of active licences, waysides and aggregate permits to obtain immediate compliance (i.e. to correct infraction) where there is no immediate need to stop site activity.

The Ontario Aggregate Resources Corporation (TOARC)

The Ontario Aggregate Resources Corporation (TOARC) was established by MNR (currently MNRF) in 1997 to administer the Aggregate Resources Trust and manage rehabilitation of abandoned pits and quarries. TOARC is responsible for, among other things, collection and disbursement of aggregate resource charges, collection and publishing of production statistics, production auditing, research, and training of persons engaged/interested in management of aggregate resources in Ontario.

TOARC's Management of Abandoned Aggregate Properties (MAAP)

TOARC's MAAP program is dedicated to rehabilitation of abandoned pits and quarries (i.e. former sites that have not had a valid licence issued under the *ARA* since 1990) in the *ARA*-designated areas of the province and is funded by the aggregate industry.

Wayside Permit

Wayside permit refers to a permit issued to any person who has a contract with a public authority that required aggregate for a temporary project (road construction or road maintenance) from a source in a part of Ontario designated under Section 5 of *ARA*.

Appendix 1: Summary & Status of ARA Licences in the Region of Halton (2015-2016)*

ID # On Key Map	ARA Licence No; Site Name (owner, where not part of site name)	Licensed area and Extraction area (hectares)	Licence Class, Type (below/ above water) & Material Extracted	Extraction limit/annum (tonnes) [extraction status]	Total Disturbed Area* (hectares)	Total Rehabilitated* Area (hectares)	Operational Status/Recent Activities (as per Compliance Assessment Reports [CARs], MNRF notices and/or other available information [2015- 2016])**
1	5480; Acton Limehouse Pit (St. Marys Cement Inc. (Canada))	L - 26.33 E - 22.6	Class A, sand and gravel pit (below water ▼)	unlimited [minor below-water extraction occurred in 2015/2016]	15.1 (2016) 15 (2015)	9 (2016) 9 (2015)	The site used for processing of material brought from other licensed sites. Above-water material exhausted; below-water extraction in Area 2 to remove the remaining sources. Below-water material remains in the easterly portion. The Region commented on Permit To Take Water application via Environmental Bill of Rights (EBR) on October 14, 2016. MOECC issued PTTW on November 7, 2016.
2	5492; Acton Quarry Phases: 1, 2, 3 (Dufferin Aggregates, a Division of CRH Canada Group Inc.)	L - 222.28 E - 193.25	Class A, dolostone quarry (below water ▼)	4,000,000 [extraction in Phase 3 near depletion]; completed in Phases 1 & 2 (1995 and 2008)]	144.7 (2016) 144.7 (2015)	59.2 (2016) 59.2 (2015)	Extraction continued in Phase 3 - dewatering directed to Phase 1 pond and Phase 3 discharge works. Water management in Phase 1 and Phase 2 included discharge to Black Creek Watershed and to Escarpment Seeps (the latter in spring-fall). Region commented on the Existing Quarry Site Plan amendment proposal in fall 2016. MNRF approved amendment on March 9, 2017.
2a	Acton Extension Quarry-Phases: 4, 5E, 5/6W (Dufferin Aggregates, a Division of CRH Canada Group Inc.) - 2016 OMB approval	L - 65.6 E - 49.3	Class A, dolostone quarry (below water ▼)	4,000,000 together with ARA 5492	Site not in operation as of 2016	Site not in operation as of 2016	Acton Expansion lands (Phases 4, 5E, and 5/6 W) were approved by Joint Board for licensing on October 11, 2016. ARA licence No. 625003 was issued on March 9, 2017 [refer to extended summary].
3	5616; Bot-Duff Pit; (Bot Duff Resources Inc.; operated by St. Marys Cement Inc. (Canada))	L - 58.6 E - 49.2	Class A, sand and gravel pit (above water)	750,000 [no extraction since 2006] [inactive in 2015/16]	38.1 (2016) 38.3 (2015)	23.5(2016) 23.2(2015)	The site was inactive for approximately 9 years between 2006-2015, except for some rehabilitation work in the East Pit. Based on the 2016 CAR, the site was active in the West Pit area and additional sloping work was reported in the northeast area of the East Pit.

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4	20660; Brockton Farms Quarry (Brockton Farms)	L - 36.8 E - 25.7	Class B, sandstone quarry (above water)	20,000 [low extraction]	1 (2016) 1 (2015)	0.6 (2016) 0.6 (2015)	Small operation with limited extraction (disturbed area has not changed since 2007). Cut and blasted stone hauled to the processing area in the adjacent Hilltop Quarry (ARA 5720). Most of the worked areas had been backfilled with waste rock and overburden. Formerly rehabilitated and vegetated areas were reported as "maintained".
5	5478; Campbellville Pit - south (4000 Campbellville Road Inc.)	L - 15.88 E - 12.8	Class A, sand and gravel pit (below water ▼)	unlimited [no extraction; rehabilitation in progress]	15.9 (2016) 12.45 (2015)	15.9 (2016) 12.45 (2015)	Rehabilitation as per remedial actions including soil importation and infilling. Nine-hectare area was under rehabilitation in 2015 to a total of 12.45 ha. Progressive rehabilitation continued in the east portion in 2016. No final grades reached.
6	5479; Campbellville Pit - north; (555816 Ontario Inc.)	L - 22.19 E - 8.3	Class A, sand and gravel pit (above water)	unlimited [extraction completed; site filled]	N/A (2016) N/A (2015)	N/A (2016) N/A (2015)	ARA Licence remained suspended in 2015 and 2016. Original suspension (2012) was in regards to placing material/topsoil outside of approved area and above the approved final rehabilitation grades. No CARs submitted since 2013.
7	5462; David Anderson Pit (David T. Anderson)	L - 6.28 E - 2.75 (SW area)	Class A, gravel pit (above water)	unlimited [extraction ceased; site rehabilitated]	N/A (2016) N/A (2015)	5 (2016) 5 (2015)	No extraction activities. The 2015 CAR indicated, "rehabilitation completed". The 2016 CAR indicated "everything done to meet MNR's approval". No specifics available.
8	5493; Halton Crushed Stone (HCS) Quarry (HCS Ltd.) – ARA licence surrendered in September 2015	L-121.5 E-113	Class A, dolostone quarry (below water ▼)	2,000,000; [extraction completed; site rehabilitated]	N/A (2016) N/A (2015) 100.5 (2014)	N/A (2016) 121.5 (2015) 43 (2014)	2015 CAR reported quarry fully rehabilitated; monitoring ceased and final closure plans to allow the quarry to fill with water approved by MOECC. MNR, in their letter to licensee (September 3, 2015) indicated that final rehabilitation was acceptable and that MNR accepted surrender of ARA licence No. 5493.

Appendix 1: Summary & Status of ARA Licences in the Region of Halton (2015-2016)*

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9	5500; Aldershot Quarry (Meridian Brick Canada Ltd.; formerly Forterra Brick Ltd. and Hanson Brick Ltd.)	L - 62.4 E - 62.1	Class A, shale quarry (above water)	unlimited [active extraction]	20.3 (2016) 20.3 (2015)	8 (2016) 8 (2015)	2015 CAR reported West and Centre quarries being mined and East quarry held in reserve. Licensee was planning to initiate site preparation for East quarry in 2017; activity registered under Ontario Regulation No. 242/08 <i>Endangered Species Act (ESA)</i> in 2016. The Environment Compliance Approval (ECA) for Centre & East quarries was revised and submitted for approval; ECA regarding sewage was issued for the West Quarry.
10	5605; Burlington Pit (Meridian Brick Canada Ltd.; Formerly Forterra Brick Ltd. and Hanson Brick Ltd.)	L - 17.1 E - 16.0	Class A, shale quarry (below water ▼)	195,000 [extraction ceased before 2009]	12.3 (2016) 12.3 (2015)	12.3 (2016) 12.3 (2015)	Extraction ceased and the last of stockpiles were removed around 2009. Licensee maintains that the quarry has since been rehabilitated. Forterra Brick was in discussions with MNRF and local agencies regarding licence surrender, and with the City of Burlington regarding future rezoning (refer to extended summary).
11	5546; Wilroy Brooks Pit (St. Marys Cement Inc. (Canada))	L - 79.18 E - 28.3	Class A, sand and gravel pit (above water)	363,000 [no extraction since 2005]	1.8 (2016) 2.5 (2015)	20.8 (2016) 20.1 (2015)	Pit inactive; no stockpiles, equipment, or buildings on-site; inactive faces are overgrown. Haul road used to bring material from ARA 5616 to ARA 5480. Re-grading of southwest slopes took place in 2015. Some re-seeding was planned for barren areas in fall 2015.
12	613081; Tansley Quarry (Meridian Brick Canada Ltd.; Formerly Forterra Brick Ltd. and Hanson Brick Ltd.)	L - 37.8 E - 28.9	Class A, shale quarry (below water ▼)	300,000 [1/2 limit permitted until Tremaine Road widening is completed]	17.2 (2016) 17.2 (2015)	8 (2016) 8 (2015)	Extraction within the “sinking cut” continued (quarry floor deepened and sump enlarged). Stripping of overburden outside of the “sinking cut” and building of overburden stockpiles (2015). PTTW for quarry dewatering was renewed in 2016; and MNRF issued consent under Section 16(2) of ARA regarding four sediment control ponds (October 2016). Private Communal Water System (PCWS) has been in operation since 2013 with no incidents reported. Region involved in AMP- and PCWS-related reviews (refer to extended summary).

Appendix 1: Summary & Status of ARA Licences in the Region of Halton (2015-2016)*

ID # On Key Map	ARA Licence No; Site Name (owner, where not part of site name)	Licensed area and Extraction area (hectares)	Licence Class, Type (below/ above water) & Material Extracted	Extraction limit/annum (tonnes) [extraction status]	Total Disturbed Area* (hectares)	Total Rehabilitated* Area (hectares)	Operational Status/Recent Activities (as per Compliance Assessment Reports [CARs], MNRF notices and/or other available information [2015- 2016])*
13	5716; Rice & McHarg Quarry (Rice & McHarg Quarries Ltd.)	L - 12.85 E - 1.9	Class B, sandstone quarry (below water ▼)	20,000 [resource almost depleted]	3.25 (2016) 3.25 (2015)	6.25 (2016) 6.25 (2015)	CARs indicate that active extraction occurred along the north-east quarry face; low volume of stone removed; limited equipment used; no processing on-site; grades established as extraction occurs and dependant on the volume of waste-rock available for backfilling. Extended summary was included in LPS06-12 (no changes reported since).
14	5720; Hilltop Quarry, (Hilltop Stone & Supply Inc.)	L - 9.36 E - 1.5	Class B, sandstone quarry (below water ▼)	20,000 [active sandstone quarry]	5.0 (2016) 5.0 (2015)	0.7 (2016) 0.7 (2015)	CARs indicate that extraction continued in southwesterly direction; stone is processed and stockpiled on pallets on site; stone processing equipment (saws, drills, etc.) used on-site. Disturbed and rehabilitated areas have not changed since 2007. Annual CARs refer to progressive rehabilitation of quarry faces.
15	5711; Limehouse Clay Products - south (Limehouse Clay Products Ltd. is a subsidiary of Jazbrick)	L - 3.24 E - 3.2	Class B, shale quarry (above water - original Site Plan); amended Site Plan (2013) permits quarry deepening by 5m on 1ha ▼	20,000 [no apparent active extraction in 2015/2016]	1.7 (2016) 1.7 (2015)	0.8 (2016) 0.8 (2015)	No activity notes provided in annual CARs; all items denoted "in compliance". Below-water extraction within 1 ha (as per 2013 amended and approved Site Plan) not started as of 2016. In 2016, Jazbrick informed agencies of their desire to amalgamate ARA 5711 and ARA 5614 and to deepen both quarries to extract shale from greater depths and below water table. JART pre-consultation took place in 2016 (refer to extended summary).
16	5614; Limehouse Clay Products - north (Limehouse Clay Products Ltd. is a subsidiary of Jazbrick)	L - 12.8 E - 10.6	Class B, shale quarry (above water)	20,000 [active shale quarry]	2.7 (2016) 2.7 (2015)	0.3 (2016) 0.3 (2015)	Extraction was close to setbacks in southeast area of the site. Stripped/disturbed areas have not changed since 2012. New pond was being constructed as per a revisited Site Plan (i.e. settling pond construction since 2014). Jazbrick proposed to amalgamate ARA 5614 and ARA 5711 and expressed their desire to deepen both quarries to extract shale from well below water table. JART-proponent pre-consultation took place in 2016 (refer to extended summary).

Appendix 1: Summary & Status of ARA Licences in the Region of Halton (2015-2016)*

ID # On Key Map	ARA Licence No; Site Name (owner, where not part of site name)	Licensed area and Extraction area (hectares)	Licence Class, Type (below/ above water) & Material Extracted	Extraction limit/annum (tonnes) [extraction status]	Total Disturbed Area* (hectares)	Total Rehabilitated* Area (hectares)	Operational Status/Recent Activities (as per Compliance Assessment Reports [CARs], MNRF notices and/or other available information [2015- 2016])*
17	5510; 1294142 Ontario Pit (1294142 Ontario Limited)	L - 6.59 E - 6.5	Class B, sand and gravel pit (above water)	20,000 [licence was surrendered in 2016]	N/A (2015) N/A (2016) licence was suspended September 2010 - May 2016	6.8 (2016) NA - (2015): licence was suspended September 2010 - May 2016	MNRF accepted surrender of the licence under Section 19 of ARA. The MNRF's Inspection Report of June 16, 2016 was marked "in compliance" or "n/a". MNRF confirmed to the Region in December 2016 that the licence had been surrendered and that MNRF was satisfied with the condition of the site.
18	5481; Milton Quarry - Main & North (Dufferin Aggregates, a Division of CRH Canada Group Inc.)	L - 467.7 E - 382	Class A, dolostone quarry (below water ▼)	unlimited [extraction in North Quarry since early 2000s is near completion]	205.3 (2016) 204.2 (2015)	171.2 (2016) 177.3 (2015)	Extraction continued in the North Quarry, primarily in Area 1 (2015) and Areas 2, 3a and 3b (2016). In 2015, 1,481 truckloads of topsoil were imported. On February 8, 2017, MNRF granted consent regarding recycling material storage and reprocessing (incidental and subordinate to the mineral resources extraction) as per Dufferin's Minor Site Plan Amendment request of March 9, 2016.
19	608621; Milton Quarry Extension: Phases 1, 2, 3 (Dufferin Aggregates, a Division of CRH Canada Group Inc.)	L - 84.5 E - 70.6	Class A, dolostone quarry (below water ▼)	unlimited [extraction: completed in Phase 1; carried in Phase 2 and 3]	47.4 (2016) 40.6 (2015)	0 (2016) 0 (2015)	In 2015, extraction was completed in Phase 1 (10.8 ha in North Quarry) and continued in Phase 2 (22.5 ha disturbed in total). Townline pillar and buttress construction works continued. In 2016, extraction was carried in Phases 2 and 3 (the latter - transition from "sinking cut" to "full extraction"). Based on the 2016 CAR, disturbed and progressive rehabilitation numbers changed from 2015 based on review of AutoCAD files. Ongoing oversight of agreements and review of AMP-related monitoring data and reporting by the Region (refer to extended summary).
20	5484; Milton Pit (368574 Ontario Ltd. and 579813 Ontario Inc.; formerly The Warren Paving & Materials Inc.)	L - 40.74 E - 25.5	Class A, sand and gravel pit (above water)	unlimited [extraction completed]	N/A (2016) 5 (2015)	N/A (2016) 0 (2015)	ARA licence was temporarily under suspension in 2016 (i.e. until June 16, 2016) following MNRF's review of the 2015 CAR ("scrap" and "importation of material" were inaccurately marked "in compliance" despite MNRF's previous Notice of Inspection identifying unauthorized importation of concrete and asphalt). MNRF required removal of the unauthorized material by June 17, 2016). Compliance with this requirement was confirmed in the MNRF's Notice of Inspection of June 16, 2016.

Appendix 1: Summary & Status of ARA Licences in the Region of Halton (2015-2016)*

ID # On Key Map	ARA Licence No; Site Name (owner, where not part of site name)	Licensed area and Extraction area (hectares)	Licence Class, Type (below/ above water) & Material Extracted	Extraction limit/annum (tonnes) [extraction status]	Total Disturbed Area* (hectares)	Total Rehabilitated* Area (hectares)	Operational Status/Recent Activities (as per Compliance Assessment Reports [CARs], MNRF notices and/or other available information [2015- 2016])*
21	5499; Burlington Quarry – The Majority (Nelson Aggregates Co.)	L - 202.5 E - 193.8	Class A, dolostone quarry (below water ▼)	unlimited [extraction completed; stockpiles and some reserves]	122 (2016) 120 (2015)	112 (2016) 112 (2015)	Similar to previous years' CAR-reporting, portable processing plant on-site; stockpiles on quarry floor; excavation not at final limits (disturbed area increased by 1-2 ha between 2015 and 2016). Approximately 20 metres of berm on the south side was replaced. Progressive rehabilitation reported at southwest corner and along south faces of the site. In 2016, the Region commented on the EBR posting concerning an application for industrial Stormwater Management (SWM) works (i.e. to replace the existing PTTW).
22	5657; Burlington Quarry – The Minority (Nelson Aggregates Co.)	L - 16.2 E - 16.2	Class A, dolostone quarry (below water ▼)	up to 2,722,000 [operations completed; site fully rehabilitated]	16.2 (2016) 16.2 (2015)	16.2 (2016) 16.2 (2015)	The site was previously operated as one quarry with ARA 5499. It appears that extraction at this site was completed in early 2000s and full rehabilitation was completed soon after (i.e. disturbed and rehabilitated areas have not been changed since 2002). The licensee has retained the licence.
23	5507; Hayward Pit (Springbank Sand & Gravel Ltd.)	L - 52.0 (in ARA Licence) L - 42.3 E - 19.5 (in Site Plan)	Class A, sand and gravel pit (above water)	unlimited [operations completed]	21.1 (2016) 21.1 (2015)	3.7 (2016) 3.7 (2015)	Based on the 2015-2016 CARs sketch note: resource had been depleted and rehabilitation was "in progress". The 2016 CAR was submitted in early April 2017.
24	5619; Leaver Pit (Springbank Sand & Gravel Ltd.)	L - 54.27 (in ARA Licence) L - 61.8 E - 52.6 (in Site Plan)	Class A, sand and gravel pit (above water)	1,500,000 [operations completed; pit depleted]	37.8 (2016) 37.8 (2015)	37.8 (2016) 37.8 (2015)	The 2015-2016 CAR sketch-notes indicate: depleted, rehabilitation in progress. Under "other conditions", the CAR contains an added reference to "tonnage" (marked "in compliance") which might be indicative of material stockpiles or processing; although, CAR comments indicate there are no internal roads or a haul route on-site. The 2016 CAR was submitted in early April 2017.

*Notes: CAR - Compliance Assessment Report; L - licensed area; E - permitted extraction area; N/A - information not available; n/a - not applicable;
Refer to LPS96-15 and LPS06-12 for earlier information on State of Aggregate Resources in Halton Region; ▼ - extraction permitted below water.

Appendix 2: Status of Implementation of Approved Rehabilitation Plans. ARA Sites in Halton Region (2015-2016)

ID # On Key Map	ARA Licence No; Site Name (owner, where not part of site name)	Rehabilitation/End-use Description	Status of Implementation of Approved Rehabilitation Plans based on 2015-2016 CARs
1	5480; Acton Limehouse Pit (St. Marys Cement Inc. (Canada))	Seven features including ponds, protected dabbling area, meadow and deep water aquatic habitat etc.	Total rehabilitated area (9 ha) has not changed since 2006 (i.e. relative to about 15 ha disturbed area which had fluctuated slightly since 2006). Based on the historical CARs, most of the pit faces above water had been sloped and rehabilitated and have self-sustaining vegetation growth. The proposed final rehabilitation pond expanded further in 2015/2016.
2	5492; Acton Quarry - Phases 1, 2, 3 (Dufferin Aggregates, a Division of CRH Canada Group Inc.)	Conservation and/or Recreation	As of 2015/2016, the total rehabilitated area of 59.2 ha (and total disturbed area of 144.7 ha) remained the same as in 2014. Based on the CARs, approved (MOECC's Table 1) soil was imported to the site in 2015/2016. Rehabilitation specifics were not available in the annual monitoring reports or CARs.
2a	Acton Extension Quarry - Phases 4, 5E, 5/6W (Dufferin Aggregates, a Division of CRH Canada Group Inc.)	Lakes, shoreline wetlands, cliffs, and terrestrial (i.e. wooded slopes)	Not applicable as of 2015/2016; Extension Quarry (Phases 4, 5E, 5/6W) was approved for licensing on October 11, 2016; ARA licence (625003) was issued by MNRF on March 9, 2017.
3	5616; Bot-Duff Pit (Bot-Duff Resources Inc.; operated by St. Marys Cement Inc. (Canada))	Agricultural	Total rehabilitated area of 23.2 ha (2014) increased by about 0.3 ha, to 23.5 ha as of 2016 (disturbed area decreased from 42 ha to 38.1 ha since 2011). According to CARs, part of the north area of the West Pit was sloped and treed in 2016, and part of the East Pit floor was sloped and rehabilitated in 2015, including completion of a berm along the eastern setback; regrading of the southern section of the East pit carried into 2016. According to CARs, formerly rehabilitated and vegetated areas were in productive agricultural and natural environment (pond) use.
4	20660; Brockton Farms Quarry (Brockton Farms)	Agricultural	Total rehabilitated area of 0.6 ha (relative to 1 ha disturbed) has not changed since 2004. Annual CAR notes indicate that most of the worked areas of the quarry had been backfilled with waste rock and overburden; rehabilitated area is vegetated and maintained by licensee; importation of material is not proposed; and that previously rehabilitated areas meet rehabilitation standards.
5	5478; Campbellville Pit - south (4000 Campbellville Road Inc.)	Agricultural, Reforestation/ Recreation, Estate Residential; or Recreational/Commercial in conjunction with Reforestation/ Recreation	In 2015, the site continued to be filled; no final grades reached. Based on the 2015 CAR, 9 ha were under rehabilitation with total rehabilitated area at 12.45 ha. Based on the 2016 CAR, the site filling continued in the eastern portion and a total rehabilitated area was reported at 15.88 ha. Rehabilitation carried in accordance with Site Plan (2011), the OMB decision (2006), and the Provincial Officer Order (June 2011)

Appendix 2: Status of Implementation of Approved Rehabilitation Plans. ARA Sites in Halton Region (2015-2016)

ID # On Key Map	ARA Licence No; Site Name (owner, where not part of site name)	Rehabilitation/End-use Description	Status of Implementation of Approved Rehabilitation Plans based on 2015-2016 CARs
6	5479; Campbellville Pit - north (555816 Ontario Inc.)	Agricultural, Reforestation/ Recreation, Estate Residential, or Recreational/Commercial in conjunction with Reforestation/ Recreation	Licence remained under suspension in 2015 and 2016; no CARs have been submitted since 2012. The 2012 CAR notes indicated that application to surrender the licence was submitted to MNRF. During that year, the MNRF indicated that “absolutely no additional importation of fill material or topsoil to the site will occur without prior written approval from MNRF”. No new information is available for this site since 2012.
7	5462; David Anderson Pit (David T. Anderson)	Agriculturally viable landscape. Based on the 1991 Site Plan, area to be rehabilitated is 5.65 ha	The 2015 CAR indicated “rehabilitation completed”. The 2016 CAR indicated “everything done to meet MNR’s approval”. Total rehabilitated area for 2015 and 2016 was reported at 5 ha which was less than the rehabilitated areas reported in 2013 and 2014 (i.e. 5.5 ha rehabilitated relative to 6 ha disturbed). No further specifics provided in the CARs.
8	5493; Halton Crushed Stone Quarry (Halton Crushed Stone Ltd.) (HCS). HCS Ltd. surrendered ARA licence in September 2015	The final rehabilitation is to re-establish water levels in a post-rehabilitation pond at about 301 metres above sea level (masl).	Based on the 2015 CAR, the quarry had been fully rehabilitated in accordance with the approved rehabilitation plan; the final closure plans to allow the property to fill in with water had been approved by MOECC. MNRF completed final inspection of compliance of final rehabilitation with ARA-approved Site Plan and licence conditions and deemed it acceptable. The MNRF, in accordance with Section 19 of ARA, accepted surrender of the licence No. 5493 (MNRF; September 3, 2015).
9	5500; Aldershot Quarry (Meridian Brick Canada Ltd., formerly Forterra Brick Ltd. and Hanson Brick Ltd.)	Final after use to be determined upon completion of the extraction operation. Interim use will be open space. The Greenbelt Plan area (4.7 ha) is to be rehabilitated to 100% forest cover; all watercourse diversions and remaining Stormwater Management ponds to be rehabilitated to aquatic enhancement representative of the local natural ecosystem.	About 2 ha were rehabilitated between 2008 and 2010 to a total area of 8 ha with no increase in rehabilitated area since (total disturbed was 20.3 ha in 2016). The 2015/2016 CARs had all rehabilitation items denoted “in compliance”. The 2016 CAR notes indicate: areas of West and Centre quarries had been backfilled and slopes seeded. No further rehabilitation specifics provided; CAR notes indicate “as per rehabilitation plans”.
10	5605; Burlington Pit (Meridian Brick Canada Ltd., formerly Forterra Brick Ltd. and Hanson Brick Ltd.)	Originally, Site Plan was for a Pond. However, the site had been largely filled with waste brick and soil, sloped and grassed, and 1 ha of the Greenbelt area adjacent to the Bronte Creek had been reforested. Final rehabilitation matters under discussions with agencies.	The 2015/2016 CARs indicated that the quarry was rehabilitated, including reforestation of 1 ha adjacent to the Bronte Creek. The prior (i.e. 2014) CAR indicated that total rehabilitated area was equal to total disturbed area (i.e. 12.3 ha). The Site Plan amendment approval (concerning final rehabilitation) is required prior to licence surrender (refer to extended summary). Site alteration permit may be required by MNRF prior to licence surrender. City of Burlington requested four-season Environmental Impact Assessment study, including Terms of Reference before EIA is commenced.

Appendix 2: Status of Implementation of Approved Rehabilitation Plans. ARA Sites in Halton Region (2015-2016)

ID # On Key Map	ARA Licence No; Site Name (owner, where not part of site name)	Rehabilitation/End-use Description	Status of Implementation of Approved Rehabilitation Plans based on 2015-2016 CARs
11	5546; Wilroy Brooks Pit (St. Marys Cement Inc. (Canada))	Rural Residential and Agricultural	Pit's Area 7 (northeast corner) had been rehabilitated to agricultural and natural environment use (amendment previously submitted to MNRF to remove 15.5 ha from the ARA license). Based on the 2015/2016 CARs, rehabilitated area increased by about 5.5 ha (i.e. 4.8 ha in 2015 and about 0.7 ha in 2016) to a total area of 20.8 ha. Southwest faces were sloped and seeded or re-seeded (1.8 ha was reported disturbed in 2016).
12	613081; Tansley Quarry (Meridian Brick Canada Ltd., formerly Forterra Brick Ltd. and Hanson Brick Ltd.)	The site is to be rehabilitated to upland habitat with future lake of 18.2 ha.	The 2015/2016 CARs reported total rehabilitated area of 8 ha (relative to 17.2 ha disturbed in total); no rehabilitation specifics provided in the CARs. As per the prior CARs, operator completed landscaping campaign as part of "Progressive Vegetation Management Plan [...] Phase 3" (2011) and tree-planting along boundary berm (2012-2014).
13	5716; Rice & McHarg Quarry (Rice & McHarg Quarries Ltd.)	To be seeded.	The total rehabilitated area of 6.2 ha has not changed since 2009 (disturbed area remained at 3.25 ha since 2012). Based on historical CARs, previously rehabilitated areas are vegetated and have self-sustaining growth; some areas previously rehabilitated are in final rehabilitation conditions; natural regeneration of vegetation occurring in unworked areas of the quarry; importation of inert fill from off-site is allowed (it does not appear this occurred in 2015/2016).
14	5720; Hilltop Quarry (Hilltop Stone & Supply Inc.)	Agricultural	The total rehabilitated area (0.7 ha) has not changed since 2007 (disturbed area remained at 5 ha since 2011). Based on the historical CARs, quarry faces are backfilled with waste rock and overburden on a progressive basis; grades, contours and quarry elevations are generally established during excavation; no importation of material for rehabilitation purposes is proposed; and areas that are rehabilitated have been seeded and are self-sustaining.
15	5711; Limehouse Clay Products - south (Limehouse Clay Products Ltd., a subsidiary of Jazbrick)	Estate Residential, Agricultural (Pasture Land); amended Site Plan approved on August 28, 2013, permits below-water extraction on 1 ha of this licence; after uses remain the same	The total rehabilitated area (0.8 ha) has not changed since 2003 (total disturbed area has been 1.7 ha since early 2000s). No rehabilitation specifics provided (CAR denoted all rehabilitation items "in compliance"). In spring 2016, Jazbrick expressed desire for further quarry deepening and licence amalgamation with ARA 5614. JART pre-consultation took place in 2016. No formal application for Site Plan amendment had been filed.

Appendix 2: Status of Implementation of Approved Rehabilitation Plans. ARA Sites in Halton Region (2015-2016)

ID # On Key Map	ARA Licence No; Site Name (owner, where not part of site name)	Rehabilitation/End-use Description	Status of Implementation of Approved Rehabilitation Plans based on 2015-2016 CARs
16	5614; Limehouse Clay Products - north (Limehouse Clay Products Ltd., a subsidiary of Jazbrick)	Estate Residential and Agricultural (Pasture Land)	The total rehabilitated area (0.3 ha) has not changed since 2003 (total disturbed area has been 2.7 ha since 2012). No rehabilitation specific provided (CAR denoted "in compliance"). In spring 2016, Jazbrick expressed desire for below-water extraction, quarry deepening, and licence amalgamation with ARA 5711. JART pre-consultation took place in 2016. No formal Site Plan amendment application had been filed.
17	5510; 1294142 Ontario Pit (1294142 Ontario Ltd.)	The intension of final rehabilitation was to fill the site to a level so that it would blend with the surrounding fields.	ARA licence remained suspended between 2011 and 2015 due to post-rehabilitation activities and not meeting MNRF's directions from November 2010. Following the early-April 2016 notices, MNRF issued a final Inspection Report on April 25, 2016, which indicated that progressive rehabilitation was in compliance. On July 7, 2016, MNRF indicated that final rehabilitation was acceptable, and that the Ministry accepted surrender of the licence under Section 19 of ARA.
18	5481; Milton Quarry - Main and North (Dufferin Aggregates, a Division of CRH Canada Group Inc.)	In 2000, Dufferin developed Final Rehabilitation Plan (FRP) superseding prior alternatives. Dufferin received MNR's (now MNRF) approval for the FRP (and related approvals under Lakes and Rivers Improvement Act (LRIA), Ontario Water Resources Act (OWRA) and Environmental Protection Act (EPA)). The key components of the FRP for the Main Quarry are reservoir, lake and wetland on the west side and dry land after-uses on the east side.	The 2016 CAR notes indicated that disturbed and rehabilitated numbers changed (relative to 2015) based on the review of AutoCAD files. Based on the 2015/2016 CARs' map attachments, the Main Quarry lake and wetland rehabilitated area was 90.48 ha; reservoir rehabilitation area was 69.81 ha; and "other rehabilitated area" was 9.55 ha. The 2015 CAR reported importation of 1,481 truckloads of topsoil (no importation of soil was reported for 2016). Tree planting included 2,500 trees planted in 2015 in the previously rehabilitated area on the southeast side of the Main Quarry. In the North Quarry, overburden was used for rehabilitation of slopes.
19	608621; Milton Quarry Extension: Phase 1, 2, 3 (Dufferin Aggregates, a Division of CRH Canada Group Inc.)	Two lakes in the two extension areas as an after-use, and 5 ha of wetlands. It was originally estimated that it would take between 15 and 48 years to fill the lakes depending on a number of factors including climate conditions and the approach in water management.	Based on the 2015 CAR, no new rehabilitation areas were started. Based on the 2016 CAR, no rehabilitation started in Phase 2. Total rehabilitation area reported as "0" for both years (extracted areas totalled 40.6 ha in 2015 and 47.4 ha in 2015 in Phases 1 to 3 of the Extension).

Appendix 2: Status of Implementation of Approved Rehabilitation Plans. ARA Sites in Halton Region (2015-2016)

ID # On Key Map	ARA Licence No; Site Name (owner, where not part of site name)	Rehabilitation/End-use Description	Status of Implementation of Approved Rehabilitation Plans based on 2015-2016 CARs
20	5484; Milton Pit (368574 Ontario Ltd. and 5798813 Ontario Inc., formerly The Warren Paving & Materials Group Ltd.)	Agricultural, Reforestation or Recreation	In the revised 2015 CAR (as requested by MNRF), "unauthorized importation of concrete" was denoted non-compliant, and this material was to be removed by June 17, 2016. The MNRF's Inspection Report of June 16, 2016 indicated: "the unauthorized materials have been removed from the licensed property in accordance with the May 16, 2016 Notice of Suspension". The remaining rehabilitation items were denoted "in compliance" in the Inspection Report. Based on historical CARs, rehabilitated area was only reported between 2007 and 2012 (i.e. 2 to 2.5 ha in total); the latest disturbed area was reported at 5ha (2015).
21	5499; Burlington Quarry - The Majority (Nelson Aggregates Co.)	Lake with vegetated slopes, residential, public and/or private recreational uses (i.e. sports fishing, swimming and boating).	The total rehabilitated area (112 ha) has been the same since 2008; although, rehabilitation activities have been reported in the CARs (since 2011) in the southwest corner and along south face. Inert fill, in accordance with the MOE's Table 1 standards and Nelson Aggregate Co. procedures may be brought in for rehabilitation. All rehabilitation items denoted "in compliance" in annual CARs. No specifics provided; the 2015-2015 CAR notes indicate "as per Site Plan" (i.e. same as in the prior CARs).
22	5657; Burlington Quarry - The Minority (Nelson Aggregates Co.)	Lake with vegetated slopes, residential, public and/or private recreational uses (i.e. sports fishing, swimming and boating).	Site fully rehabilitated; total area rehabilitated of 16.2 ha has been reported since 2002 (this area corresponds to the licensed and permitted extraction area).
23	5507; Hayward Pit (Springbank Sand & Gravel Ltd.)	Potential after uses include recreation/conservation. The pit floor grading to incorporate "mounds" and "depressions" that will increase the sites' potential for wildlife habitat.	Based on the 2015 CAR, all rehabilitation items were denoted "in compliance" including "final rehabilitation" which is not clear as total rehabilitated area is identified as 3.65 ha relative to 21.06 ha disturbed (the area to be rehabilitated as per Site Plan is 20.9 ha). The 2016 CAR sketch showed "rehabilitation in progress" in the southeast-central area of the pit.
24	5619; Leaver Pit (Springbank Sand & Gravel Ltd.)	Potential after uses include recreation/conservation.	Based on the 2015-2016 CARs, all rehabilitation items were denoted "in compliance" including "final rehabilitation". Total rehabilitation area of 37.8 ha has been identified as equal to the disturbed area since 2010.

