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Proposed Reid Road Reservoir Quarry
JART COMMENT SUMMARY TABLE RESPONSE #2

Please accept the following as feedback from the Reid Road Reservoir Quarry Joint Agency Review Team (JART). Fully addressing each comment below will help expedite the potential for resolutions of the consolidated JART comments and individual agency objections. **Additional comments may be provided once a response has been prepared by JDCL to the comments raised below and additional information provided**.

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1.	The report uses the Significant Wildlife Habitat Technical Guide (2000) rather than the Significant Wildlife Habitat Ecoregion Criteria Schedule 6E (2015). This should be revised to reflect Provincial direction and the Province's current standards. Mitigation measures should be consistent with the Significant Wildlife Habitat Mitigation Information Support Tool (SWHMiST), 2014. In light of this, only high level deficiencies have been identified. Additional comments will be provided, as needed, once that revision has been made.	General comment	At the Reid Road Reservoir Quarry there is little difference in results if one uses the Significant Wildlife Habitat Technical Guide (SWHTG) or the Significant Wildlife EcoRegion Criteria Schedules (SWHECS). If the SWHECS is used, habitat for the bullfrog becomes significant but the locally significant species do not qualify as significant wildlife habitat. We identified significant wildlife habitat for the black spruce, ciliolate aster, Labrador tea, leatherleaf, swamp black currant, swamp dock, whorled loosestrife, brook trout, Nashville Warbler, snowshoe hare, and porcupine. The habitat of these 11 species does not qualify as significant wildlife habitat when using the SWHECS. In our response to comment #53 we explain why the proposed quarry will have no negative impact on the bullfrog, even though we do not agree that this qualifies as significant wildlife habitat.	The response has provided clarification regarding the original JART comment. Any new information and/or interpretations regarding the presence/location of, and/or potential impacts to SWH can be documented in an addendum to the Level 2 Natural Environment Report. In addition to the SWH types identified by the applicant's team, examples of other SWH that require clarification/consideration as part of the addendum to the Level 2 Natural Environment include, but are not limited to: • Turtle Wintering Areas; • Reptile Hibernacula; • Turtle Nesting Areas; and • Terrestrial Crayfish.	We have addressed this in the revised Natural Environment Addendum Report. A discussion on turtle wintering areas and reptile hibernacula is provided in Section 10.1 of the NETR Addendum. The discussion on turtle nesting is in Sec\tion 10.2.2 and the discussion on terrestrial crayfish is in Section 10.3. A discussion on the potential impacts and mitigation on turtle wintering areas is provided in Section 14.5 of the NETR Addendum and mitigation measures are provided in Section 14.6. Monitoring related to turtle wintering and nesting areas is presented in Section 14.6.3.
2.	Section 1.3 suggests that applicable legislation and land use planning policies are to be presented. The summary in this section includes: • a summary of triggers under the *Aggregate Resources Act* that result in the need for a Level II Natural Environmental Technical Report • reference to the Region of Halton Official Plan (ROP) • reference to the Town of Milton Official Plan (MOP) A summary of other relevant legislation and/or policies should be covered in this section (e.g., *Endangered Species Act*, Greenbelt Plan, *Conservation Authority Act*, *Fisheries Act*). Additionally, relevant sections of the ROP should be elaborated, particularly those related to elements of Halton's NHS that are present within and adjacent to the study area.	Section 1.3	Since this site is zoned to permit aggregate extraction, no *Planning Act* approvals are required. Consequently, we focused our attention on the *Aggregate Resources Act* (*ARA*) and only briefly mentioned the existing land use designations applicable to the subject lands. Although we did not provide a discussion of the '*Endangered Species Act*, *Conservation Authorities Act* or the *Fisheries Act* we addressed this legislation elsewhere in the report as required under the *ARA*.	These are planning and land use considerations that must be addressed.	We have addressed this in the revised Natural Environment Addendum Report. Additional information is provided in Section 1.3 of the NETR Addendum. See also responses #8, 10, and 14 under "*ARA* Summary Statement".

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3.	Conservation Halton (CH) has long term monitoring data that would be of benefit to this study. We recommend that a data request be submitted to CH to obtain any relevant data and that this information be incorporated into the report and updates made, as necessary.	Section 2.0	We would be happy to review any information that CH has that may be relevant to the study. Please consider this our request for such information.	CH staff provided the required Data Licencing Agreement (DLA) forms to Grey Owl November 1, 2019; a completed form was submitted to CH on January 16, 2020; the requested data has been provided. As noted during the January 16, 2020, meeting with JDCL, the additional background information should be reviewed and documented in an addendum to the Level 2 Natural Environment Report.	This has been addressed in the revised Natural Environment Addendum Report. Information on fish sampling results conducted by CH was obtained and incorporated into Table 3 of the NETR Addendum (Summary of Fish Sampling at Reid Road Reservoir). This resulted in 5 new species of fish being documented from the area. These 5 species were incorporated into the list of wildlife species documented within the study area. This updated list appears in Appendix C of the NETR Addendum. Other information from CH revealed that Pond 3 is within the floodplain of Kilbride Creek and we have determined that the pond is connected to the creek intermittently by a drainage channel. As a result, Pond 3 is considered fish habitat and has been removed from the extraction area and protected with a 10-m buffer. Discussion to this effect is presented in Section 4.3 of the NETR Addendum.
4.	There was limited background information reviewed from an aquatic perspective. It is reasonable to expect that past fish sampling within or in proximity to the study area would have been reviewed and summarized.	Section 2.1	We did look at background information on aquatic features within the general area, but found nothing directly relevant to our study. Consequently, we did not reference this information. We examined the 2016 Halton Regional Forest Health Report Card and the 2011 Grindstone Creek, Sixteen Mile Creek and Supplemental Monitoring Report. Again, if CH has more relevant information, we would be pleased to review it.	As noted during the January 16, 2020, meeting with JDCL, and in Comment #3, above, background information is available should be reviewed and documented in an addendum to the Level 2 Natural Environment Report.	Addressed in the revised Natural Environment Addendum Report. The information provided on fish habitat and fish species by CH has been incorporated into Sections 4.3, 7.0, and 14.3 of the NETR Addendum.
5.	The fish surveys conducted for the study did not follow generally accepted protocols. Minnow traps, which are an ineffective gear for capturing many fish species, were the only gear used to sample fish. It is generally accepted that backpack electrofishing is the most effective, and therefore the preferred, sampling method in streams and other shallow wadeable habitats.	Section 2.2.3	We concur that electrofishing is a much better fish sampling method than minnow trapping. We made a conscious decision not to electrofish. We already knew that Kilbride Creek supported brook trout, so there was little to be learned by electrofishing. This is an invasive technique that requires a minimum of 2 individuals walking through the stream and often more. Although electrofishing seldom causes direct fish mortality, it clearly stresses fish. In addition, the survey results in disturbance of the stream sediments and probably mortality	As noted during the January 16-17, 2020, meetings with JDCL, the additional background information should be reviewed and documented in an addendum to the Level 2 Natural Environment Report.	Addressed in the revised Natural Environment Addendum Report. The background information received from CH has been incorporated into Sections 4.3, 7.0, and 14.3 of the NETR Addendum.

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			of some aquatic invertebrates that are stepped upon. So there seemed to be little point in electrofishing and placing stress on fish and their habitat to attempt to prove what was already common knowledge. Because brook trout are the most sensitive species, our rationale was that if we protected them and their habitat, all other species that are present should be protected.		
6.	Confirmation of all survey protocols/methodologies is needed to ensure that all field surveys meet Provincial and Federal protocols/methodologies. Provide the list of survey protocols used for each of the different surveys, start and stop times, the weather during the survey and the time of day that the surveys occurred, as well as any justification of altering protocols. Table 1 should be revised to reflect this information. More comments related to specific surveys are noted below.	Sections 2.2, 2.2.2, 2.2.4, 2.2.5, 2.2.6	The protocols that we used to conduct the inventories are stated in the methods section of the report (Section 2.0). Most of the information requested is provided in that section. All fieldwork was done by two individuals who were inventorying several things at once while undertaking fieldwork. Thus it is difficult to present start and finish times of individual surveys. All inventories were done under suitable weather conditions. In the case of wildlife surveys, they were completed on calm days when there was no precipitation. The fact that we detected 401 plant species and 196 wildlife species, a high proportion of those reported from the entire Guelph Junction Woods Natural Area, attests to the fact that the field methods were rigorous. We address the specific comments on survey protocols as they appear below. In most cases, we exceeded the requirements of specific protocols.	As noted during the January 16-17, 2020, meetings with JDC, where additional site investigations are conducted for baseline monitoring purposes, ancillary information (such as, but not limited to, time, duration, and weather conditions) be identified for collection as part of the methodology presented in the IG.	In future investigations, including monitoring, information on time and duration of surveys, weather conditions, and other relevant information will be recorded. This is specified in the sections on monitoring in the Implementation Guide (Section 4.3) and the NETR Addendum (Section 14.6.3). Table 2 of the NETR Addendum provides information on weather conditions during the wildlife inventories that were undertaken as part of the original fieldwork.
7.	As noted in the text, inventories were only conducted for the study area proper, not adjacent lands. There may be other rare or potentially sensitive species on the adjacent lands that are affected by the proposed project. In order to fully appreciate the potential for indirect impacts and the efficacy of the proposed mitigation strategies, a conservative approach should be taken that assumes presence of rare and/or sensitive species that may occur in areas that will be affected, but that were not surveyed.	Section 2.2.1	The text did not state that only areas within 120 m were surveyed. On page 5, the report states the opposite that the study area was expanded beyond the traditional 120 m. The four reasons for doing so are outlined on page 5 of the report. The confusion may have been because our figures showed the 120-m area around the proposed licensed area and called it the 120-m investigation zone. This should have been called the 120-m adjacent lands, or should have been left off the figures. As outlined in the report, adjacent lands were considered to be the entire JDCL property in addition to the area that was within 120 m of the proposed licensed area. This area was	The applicant response has provided clarification regarding the original JART comment. No additional information or documentation are required at this time.	Resolved

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			included in the field assessment and impact analysis.		
8.	The Natural Heritage Information Centre (NHIC) is a more up-to-date source for plant names/taxonomy, and should be used over Newmaster et al. (1998). Names of numerous species listed in Appendix B are out of date, and possibly S-ranks (which are important for determining presence of Significant Wildlife Habitat if S1, S2 or S3 species are present).	Sections 2.2.1, 2.2.6	Although Newmaster may not be the most recent source document, procedures for species identification have not changed significantly and most keys to identification use the older nomenclature. Regardless of which nomenclature source document is being used, it is still clear which species is being indicated. Botanical nomenclature is still in a state of flux as MNRF botanists, in consultation with other experts, continue to make changes to species names or decide that a subspecies or variety should be considered a distinct species. In any event, we are confident that any species of local, regional or provincial significance has been appropriately identified in our list of 401 species based on our review of Riley (1989), Crins et al. (2006) and our selective checking of the NHIC website. Please advise us if there are any species we may have overlooked in our analysis of plant significance.	The applicant response has provided clarification regarding the original JART comment. No additional information or documentation are required at this time.	Resolved
9.	Although measures of species sensitivity such as coefficient of conservatism (CC) were reviewed, they were used to list a few highly sensitive species at the scale of the entire study area. Analysis/discussion of CC (and coefficient of wetness values) for individual features is required, as it allows a screening of those communities that have a higher sensitivity to changes in ground water and thus a higher priority from wetland management perspective.	Section 2.2.1	In our opinion, our ELC mapping of vegetation communities provides sufficient information to assess the sensitivity of wetlands to possible changes in surface water and/or groundwater levels. Wetlands, by definition, are adapted to changing water levels but different types of wetlands are adapted to different fluctuations in hydroperiod. The issue is how much change these communities can tolerate without changing their vegetative form (i.e. a swamp is converted to a marsh) and /or species composition. We consider conservative species, rare species and obligate wetland species to be the best barometers of community sensitivity to disturbance and we based our analysis on the presence of these kinds of species.	As noted during the January 16-17, 2020, meetings, additional information is required to clarify how wetland species that are sensitive to changes in soil moisture could be affected by reductions in the water table. This is particularly relevant to areas in the east wetland that are expected to see lowering of the water table between 30 cm and 50 cm. It is recommended that these areas be identified as potential locations for monitoring purposes and should be documented in an addendum to the Level 2 Natural Environment Report. Where monitoring is proposed for these species, it is recommended that the general locations of monitoring plots and methods be identified on the Site Plan and that specific details be proved in the IG.	Addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Eight permanent vegetation plots will be established to monitor effects of quarrying activities on vegetation communities and species in the Eastern Wetland Complex. In addition, photographic monitoring locations will be established at other wetlands. This information is provided in Section 4.3.4 of the Implementation Guide and Section 14.6.3 of the NETR Addendum. The locations of the vegetation plots within the Eastern Wetland Complex are shown on Figure 6 of the NETR Addendum and Figure 8 of the Implementation Guide. In order to mitigate any potential effects of quarrying activities on the Eastern Wetland Complex, Dispersion System 3 will be deployed in this area if the percent upland plant species reaches 40% in the permanent vegetation plots nearest to the

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					East Pond. This information is provided in Table 7 (Mitigation Measures) of the Implementation Guide.
10.	Species at Risk (SAR) land snails were searched for, which is commendable, although no methodology was provided. The dates and times of the searches were appropriate.	Section 2.2.2	Terrestrial snails were searched for while conducting other fieldwork.	The applicant response has provided clarification regarding the original JART comment. No additional information or documentation are required at this time.	Resolved
11.	The fish surveys did not examine all of the relevant areas. Paragraph 1 of Section 4.3 (Surface Drainage and Aquatic Resources) states that there are two small tributaries that originate on the property and supplement the flow in Kilbride Creek and a third watercourse that originates on the property that flows east and is part of the Sixteen Mile Creek Watershed. It is stated that all these watercourses may potentially support fish and other aquatic organisms; these watercourses were not sampled. The first paragraph of Section 14.3 reiterates that there are two areas of fish habitat within the study area: Kilbride Creek and Ponds 12 and 13, including the stream that runs out of them. As stated previously, no fish sampling was conducted in the two tributaries to Kilbride Creek that arise on the study property and the field investigations did not determine if there is a surface connection between Pond 3 and Kilbride Creek (refer also to Comment 91, 109, and 110.	Section 2.2.3 Section 14.3	We did not sample fish in the small tributary to Kilbride Creek because it is very small and we already consider it to be brook trout habitat. The stream is too small to even put a minnow trap in it and, as we explained earlier, we saw no need to disturb habitat by electrofishing to prove what we already knew. The other tributary that arises in the on-site swamp and flows southward has no distinct pathway or channel, even though it is depicted as a flowing channel on Report Figures. Southerly flow has been observed in the ditch parallel to the railway on the east side before going beneath the railway tracks. There was no effective means of sampling fish within this tributary where it occurs within the swamp habitat and there was no water in the culvert beneath the access road. Railway staff were adamant that no trespassing occur within the railway right-of-way, so we could not sample there.	As noted during the January 16-17, 2020, the outstanding issue is the inconsistency between Paragraph 1 of Section 4.3 and the first paragraph of Section 14.3. Unless evidence is provided to the contrary, the locations of potential fish habitat identified in Section 4.3 should be included as areas of fish habitat in Section 14.3. The revised information should be documented in an addendum to the Level 2 Natural Environment Report.	Addressed in the revised Natural Environment Addendum Report. The information on fish habitat has been modified in Sections 4.3, 7.0, and 14.3 of the NETR Addendum.
12.	A brook trout spawning survey was conducted on a reach of Kilbride Creek and a tributary to Kilbride Creek that originates on the site on December 1, 2017. The efficacy of a single survey this late in the season is questionable. The timing of Brook Trout spawning varies among streams and can begin by mid-October in southern Ontario. On some substrates, trout redds can be difficult to discern a month or more after spawning occurs. A single survey for brook trout redds was completed on December 1, 2017; however, no other surveys were completed to determine if brook trout spawn in Kilbride Creek. CH has records/observations of brook trout (spawning size and young of the year) both upstream and downstream of this site. Potential for brook trout spawning in this portion of Kilbride Creek should not be ruled out. The report states that beaver dams may have contributed to the low flows in Kilbride Creek and that the low flows have the potential to	Section 2.2.3 Section 4.3	Although brook trout spawning may be initiated as early as mid-October, it may also be delayed as long as January. We are involved in another project in Puslinch Township where brook trout spawning surveys have been conducted annually for several years. We scheduled the survey in Kilbride Creek to coincide with the time when brook trout were spawning at the other site in Puslinch Township. The beaver dam clearly holds back water and creates a pond behind it. The presence of the pond probably increases evaporation rates and increases stream temperatures. Increased temperatures in turn result in lower levels of dissolved oxygen concentrations. We acknowledge	The presence or absence of brook trout spawning may be addressed through brook trout spawning surveys that have been proposed as part of the draft monitoring plan. Any future monitoring plan should be incorporated into the IG. We note that the proponent's response to Item #9 in the hydrogeological summary table indicates that there is an upward groundwater gradient in Kilbride Creek which was determined with seepage monitors. That response appears to conflict with the last sentence of the JDCL's response to the original JART comment.	This has beed addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). The NETR Addendum acknowledges the potential for brook trout spawning in both Kilbride Creek and near the mouth of the Kilbride Tributary. A commitment to complete redd surveys is made in Section 14.6.3 of the NETR Addendum and Section 4.3.1 of the Implementation Guide.

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	create stress on Brook Trout and may make the stream marginal for spawning by this species. The mechanism(s) by which beaver dams may have contributed to low flow should be explained. The mechanism(s) by which the low flows have the potential to create stress on Brook Trout and make the stream marginal for spawning by this species should also be explained. Electrofishing to determine the abundance and size distribution of Brook Trout would be extremely useful in evaluating the suitability of this reach of Kilbride Creek and the tributary that arises south of Pond 1 for Brook Trout.		that it is possible that brook trout may spawn in this reach in some years if conditions are favourable. A hydrogeology monitoring and mitigation plan has been included on the Site Plan to ensure that the hydraulic head and pressure between the West Pond and Kilbride Creek and any areas of upwelling within the stream will be maintained. Groundwater is observed to discharge as seeps above the elevation of Kilbride Creek in the area west of the West Pond and then flows into the creek. Upwellings have not been observed in the Kilbride Creek creekbed in this area.		
13.	Only two nights of salamander trapping were undertaken. For Jefferson Salamander, this is less than that recommended by MNRF when ruling out presence, which requires five nights of survey effort and multiple years of trapping (e.g. up to 5 years). If the alternative methodology was approved by MNRF, the correspondence should be included as a personal communication reference and/or an appendix. If not, additional surveys maybe required to ensure the appropriate protocol is followed. Direction should be confirmed with the Province.	Section 2.2.4	The Jefferson salamander survey protocol used at the Reid Road Reservoir Quarry site has been reviewed by MECP and staff from that Ministry have visited the site to review the results of our habitat assessment. As a result of comments received from MECP staff, we have revised the Site Plan to remove Pond 4 from the extraction area and add a 10-m buffer around it. This has been agreed to by MNRF and MECP and will ensure that no Jefferson salamander habitat is within the extraction area.	The response has provided clarification regarding the original JART comment. Outcomes that have been realized in consultation with the province should be documented in an addendum to the Level 2 Natural Environment Report, as part of the IG, and/or as a detail on the updated Site Plan.	Addressed in the revised Natural Environment Addendum Report. In order to further document the absence of Jefferson salamanders within the study area, an amphibian egg-mass survey was conducted at the request of MECP. The survey was negative for the Jefferson salamander and confirmed earlier findings about on-site amphibian breeding. The report that was prepared on the egg-mass survey is presented as Appendix B in the NETR Addendum.
14.	Weather data and reference to confirmed migration times for other Ambystoma salamanders in this Ecodistrict/Ecoregion should be provided (i.e., to confirm that the trapping was conducted when salamanders are present in breeding ponds). Reference to the number of traps that were deployed should also be provided as this is important to confirm sample effort was appropriate.	Section 2.2.4	See response to #13. The timing of the original survey was consistent with when salamanders were known to be moving to the breeding ponds. We are involved in two studies where drift fences and pitfall traps are operated daily: one at the Milton Quarry and the other in the Dundas Valley. We timed the sampling at Reid Road Reservoir so that it coincided with known movements at these two sites, which occurred simultaneously.	The response has provided clarification regarding the original JART comment. Any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	Addressed in the revised Natural Environment Addendum Report. As mentioned in Comment #13, MECP recommended that an amphibian egg-mass survey be conducted. Results of the survey are presented in Appendix B of the NETR Addendum.
15.	Snake surveys were conducted on March 28 and 29, 2018. Weather data should be provided to justify doing them early (e.g. unusually warm conditions for that time of year).	Section 2.2.5	The purpose of these visits was to determine if there were on-site snake hibernacula, especially in the vicinity of a rock pile within the proposed Phase 1 area of the extraction area. It is a well-known fact that snakes emerge from their hibernacula even on what are relatively cold days in spring as long as the sun is out. They remain close to the hibernaculum and retreat to it overnight or	The response has provided clarification regarding the original JART comment. Additional information and documentation regarding survey methods are not required at this time. Additional information regarding reptile hibernacula has been requested to be included in the addendum to the Level 2 Natural Environment Report (see JART	Addressed in the revised Natural Environment Addendum Report. Additional information on reptile hibernacula is provided in Section 10.1 of the NETR Addendum.

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			if it gets too cold during the day. On a property near Cambridge eastern gartersnakes were emerging around these same dates. The maximum temperatures achieved on those two days were 6 and 10°C. We observed three male eastern gartersnake copulating with a large female at the Reid Road Quarry site on one of those days. Searching for snakes around potential hibernacula should be part of a protocol for surveying for snakes. If we had adhered strictly to the rigid protocol guidelines, we would not have observed these snakes.	response to Natural Environment comment 1).	
16.	For the Ribbonsnake surveys, no weather data or information that demonstrated the degree of effort (i.e., start/stop times) could be found in the report. Without this information, it isn't possible to conclude whether the surveys were conducted under suitable conditions and with an appropriate level of effort.	Section 2.2.5	We searched for all species of snakes whenever we were in the field. As mentioned in the report, the area where we considered the best on-site habitat for the eastern ribbonsnake had considerable undergrowth so that snakes could easily have gone undetected. We designated this area significant wildlife habitat for the eastern ribbonsnake despite the fact that we did not find it. Consequently, the eastern ribbonsnake and its habitat would be protected if it were there. During a 2019 site visit, the presence of the ribbonsnake was confirmed. This snake was observed in very cold water and the air temperature was below what is recommended for doing snake surveys. Again, if we had rigidly been following the snake sampling protocols and looking specifically for eastern ribbonsnakes, this particular snake would not have been detected because conditions when it was found would have been considered unsuitable for surveying.	The response has provided clarification regarding the original JART comment. Any new information and/or observations should be documented in an addendum to the Level 2 Natural Environment Report.	Addressed in the revised Natural Environment Addendum Report. Since the NETR was written, the presence of the eastern ribbonsnake has been confirmed in Pond 5. Discussion on this is presented in Section 10.3.1 of the NETR where it is concluded that Pond 5 provides significant wildlife habitat for this snake. Potential impacts of quarrying activity and mitigation on the ribbonsnake are discussed in Section 14.5 of the NETR Addendum. The figure showing Significant Wildlife Habitat: Species of Conservation Concern in the NETR has been modified to indicate that Pond 5 is significant wildlife habitat for the ribbonsnake.
17.	No details are provided that speak to how turtle nest searches were carried out, how long they were, and whether they were conducted consistent with MNRF recommendations. As far as the number of visits made, the June and July dates total five. If the May 31 date is included, it matches one of MNRF's recommended minimums.	Section 2.2.5	Targeted turtle surveys in all ponds were conducted on April 10, April 26, May 3, May 19, and May 31, 2017 to look for basking turtles. The early surveys were important to determine which ponds were being used for overwintering by turtles. Survey timing coincided with the emergence of turtles at a pond near Cambridge that supports both Midland painted turtles and snapping turtles. Notes were made on basking turtles on every trip to the site. In addition to the	The response has provided clarification regarding the original JART comment. Additional information and documentation regarding survey methods are not required at this time. Additional information regarding Turtle Wintering Areas and Turtle Nesting Habitat has been requested to be included in the addendum to the Level 2 Natural Environment Report (see JART	Addressed in the revised Natural Environment Addendum Report. Additional information on turtle wintering areas and turtle nesting areas are provided in the NETR Addendum as requested by JART. Turtle wintering areas are discussed in Sections 10.1, and 14.5 of the Addendum. Turtle nesting habitat is discussed in Sections 10.2.2, 14.6.1, 14.6.2, and 14.6.3.

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			dates when the targeted surveys were made, visits were made to the site on 16 other dates in May and June of 2017. Turtle nests were looked for during all site visits and these included 17 visits in the month of June when most turtle nesting activity takes place. During these surveys all ponds were visited and the perimeters of them were walked several times. Staff from MNRF and MECP have reviewed the turtle nest survey protocol as outlined in the Report.	response to Natural Environment Comment 1).	
18.	As Pond 3 is the only identified wetland within the western field/extraction area, this feature should have been specifically surveyed for marsh birds, including Least Bittern. T he report noted that four species of fish were detected in this feature (see Table 2, page 20), as well as Snapping and Midland Painted Turtles, which suggests that it supports food for a variety of species. Additional investigation and/or interpretation of wetland characteristics and wildlife habitat provided by pond 3, particularly given that it is located within Phase 1 of the proposal are needed.	Section 2.2.6	Pond 3 was not specifically surveyed for marsh birds due to the general lack of habitat for them. Most of the pond consists of open water with a community of submergent aquatic vegetation. There is a small patch of common reed at its south end, habitat that is unsuitable for most marsh-breeding birds. The patch is so small that if any marsh birds were present they would have been detected visually or aurally. All ponds support food for a variety of species. MNRF and MECP have reviewed the survey methods outlined in our Report. A representative from MECP inspected this pond on June 5, 2019.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time. JART understands the updated site plan will retain Pond 3, which we look forward to seeing in an updated site plan.	Addressed on updated Site Plan. The Site Plan will be revised to show that Pond 3 will be retained along with a 10-m buffer. An updated copy of the Site Plan will be provided to JART.
19.	Please confirm which protocol and reporting system used for the breeding bird surveys, as the report indicates that the Ontario Breeding Bird Atlas (OBBA) was not used. Forest Bird Monitoring Program (FBMP) is discussed; however, since the site is not fully forested, it may not be the appropriate system.	Section 2.2.6	As stated in the description of methods, typical breeding bird surveys were completed by walking slow meandering transects through each habitat type, stopping frequently to listen for bird calls. This was the standard method that everyone used prior to the completion of the second Ontario Breeding Bird Atlas (OBBA). The objectives of the OBBA are entirely different from those for a site-specific area. The purposes of the OBBA were to determine which species bred within each 10 by 10 km square, or an area of 100 km^2, in southern Ontario (and each 100 by 100 km block in northern Ontario) and to determine how populations changed over a 20-year period. At the site-specific level, the objective is to determine all species that breed on the site. Individuals using the OBBA methods on an individual parcel of land typically do a few 5-minute point	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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			counts spaced a minimum of 250 m apart and make casual notes on species they encounter while moving between points. This is a completely inadequate method of surveying for birds. Numerous studies have demonstrated that less than 50% of the birds that are actually present are detected during a point count. Wandering transects are still the superior method of conducting breeding bird surveys on an individual property. What we said in our discussion on methods for breeding bird surveys is that we did not use the breeding bird codes used in the OBBA. It is explained on pages 11 and 12 of the report (Section 2.2.6) why these are not applicable to breeding bird work done on an individual site. We did not use the protocol for the Forest Bird Monitoring Program, which also consists of doing point counts. We did use the recommended timing for conducting breeding bird surveys that is specified in that program because they are broadly applicable to breeding birds in general, except for very early nesting species such as waterfowl, raptors, and shorebirds.		
20.	The National Least Bittern survey protocol indicates that it can take more than two visits to determine if Least Bittern are present; however, the report notes that only two visits occurred before survey sites were removed from the study. Please confirm why Pond 12 was considered as the only potential site for Least Bittern.	Section 2.2.6	We did conduct a third Least Bittern and marsh bird survey on July 3, 2017 as indicated in Table 1 of the Report on Pg. 6. The reasons why we considered ponds other than Pond 12 to be generally unsuitable are presented on page 56 of the Report. Water levels in some of the ponds had declined significantly by early July. Staff from MECP have visited the site and have reviewed the Natural Environment Report.	The response has provided clarification regarding the original JART comment. The clarification provided and any direction provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report.	No further action required. We have received no further comments from the Province regarding the Least Bittern.
21.	Weather information is missing for marsh bird/Least Bittern surveys. The only data that is provided is for July 3, which was extrapolated from the weather data for the general breeding bird surveys completed on the same day.	Section 2.2.6	It is correct that specific weather information was not provided for when the Least Bittern surveys were conducted. All breeding bird work was done on calm days when there was no precipitation. Weather was not a limiting factor that affected the results.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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22.	The number of owl surveys was not consistent across the study area, which makes it difficult to compare the results of the surveys. We recommend that standardized survey protocols be undertaken.	Section 2.2.6	The use of a standardized owl protocol is not appropriate for an individual property. The Bird Studies Canada (BSC) owl survey protocol consists of 13-minute long point counts conducted from roads; point-count stations must be a minimum of 2 km apart. During the point count, calls of the Boreal Owl and Barred Owl are played for the southern and central Ontario protocol. The point counts are surveyed twice during the breeding season. If this protocol were applied to the Reid Road Reservoir site, there would only be room for a maximum of two point counts and possibly only one given the required spacing of a minimum of 2 km apart. One of the calls that would be played would be of a species that does not even occur in this area (Boreal Owl). Within an individual 13-minute point count, only 20 seconds of Boreal Owl calls and 1 minute and 40 seconds of Barred Owl calls are played. The rest of the point count is spent in passive listening. Assuming that two point counts were surveyed twice using the BSC protocol, a total of 1 minute and 20 seconds of Boreal Owl calls (an irrelevant species) and 6 minutes and 40 seconds of Barred Owl calls would be played. During our surveys, which were also conducted twice, broadcast calls were played for all five owl species that occur in the general region. The total amount of broadcast calls played for individual species was 20 minutes for Northern Saw-whet Owl, 25 minutes for Eastern Screech-Owl, 20 minutes for Long-eared Owl, 15 minutes for Barred Owl, and 15 minutes for Great Horned Owl. These were actual times of calls played and additional time was spent in silent listening. On the second visit, more targeted surveys were completed, selecting sites that had the greatest potential to support the Eastern Screech-Owl, Long-eared Owl, and Northern Saw-whet Owl. There is no point in playing screech-owl calls at a coniferous forest because it avoids these habitats. Similarly, the Long-eared Owl and Northern Saw-whet Owl are most likely to	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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			occur in coniferous woods and would not be expected in pure deciduous stands. We note that most consultants do not survey for owls when doing inventories.		
23.	The report indicates that it used the Guelph District MNRF survey methodology for bat surveys; however, that only covers SAR bats. The Significant Wildlife Habitat Ecoregion Criteria Schedule for 6E provides the direction for surveying for bats covered under Significant Wildlife Habitat (SWH). Additional surveys are warranted to characterize the site appropriately and mitigate as warranted.	Section 2.2.7	The SWHECS section on bat maternity colonies states that these colonies occur only in mature deciduous or mixed stands with ELC codes of FOD, FOM, SWD, and SWM. The Site Plan has been revised to remove small areas of these mature deciduous and mixed stands from the extraction area and to also add a 10m buffer from them. Bats will not be directly affected by operation of the quarry as none of the treed areas within the extraction area qualify as bat maternity colonies according to the SWHECS. In the event that bat maternity colonies occur in adjacent lands, they will not be affected by extraction activities.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
24.	Acoustic monitoring for bats took place on three evenings, however the location of these surveys did not correspond to the wooded areas that are likely to be removed. Where standard method deviate from the standards typically expected by MNRF, a clear rationale should be provided and/or correspondence with MNRF.	Section 2.2.7	The areas where treed cover will be removed are very small. The bat detectors have a detection distance of approximately 30 m, so if they were installed within the wooded areas that may be removed, it still would not be known where the bats originated because the sampling area would mostly include areas outside of the wooded areas. We opted to use the detector in areas near the large ponds. The little brown myotis in particular is known to preferentially forage over water so these were the locations where it was most likely to be encountered. Similarly, water bodies attract many other species of bats because they provide a richer source of insects than does terrestrial habitat. Both MNRF and MECP have reviewed our methods and results concerning bats. In our report, we identified the areas over the large pit ponds and the proposed Phase 1 area as foraging habitat for the little brown myotis and even the northern myotis which we did not detect but presume occurs at least occasionally. MECP have visited the site and reviewed the Report relative to habitat for	The response has provided clarification regarding the original JART comment. Any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	No further action required. We have received no further comments from the Province regarding bats.

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			endangered and threatened species within the proposed extraction area.		
25.	Paragraph 1 of Section 4.3 (Surface Drainage and Aquatic Resources) states that there are two small tributaries that originate on the property and supplement the flow in Kilbride Creek and a third watercourse that originates on the property flows east and is part of the Sixteen Mile Creek Watershed. Section 3.1.1 does not mention the watercourse that originates south of the West Pond.	Section 3.1.1	It is correct that the tributary that arises in the wetland south of the West Pond was not specifically mentioned in Section 3.1.1. However, its presence is considered throughout the study, it is shown on all figures, and it is mapped as providing significant habitat for the brook trout.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time. References to fish habitat should be consistent in future documents.	No further action required. We have been consistent in our references to fish habitat in the NETR Addendum.
26.	This section makes reference to Greenlands designations, which are covered in the Town of Milton's Official Plan, not the Region of Halton's Official Plan. Additional discussion should be provided for the designation of features as they relate to Halton's NHS.	Section 3.1.5	You are correct that the Town of Milton Official Plan includes the Greenlands Designation. The Town of Milton Official Plan (1997) designates the JDCL property as Mineral Resources Extraction Area. In the Town of Milton Zoning By-Law (144-2003), the proposed Licence area is zoned "MX" (Extractive Industrial Zone). The surrounding area is zoned Greenlands A and Greenlands B which correspond to natural heritage features, including wetlands and Environmentally Sensitive Areas. The intent of the licence boundary, as shown on the Site Plan, is to avoid the natural heritage features zoned Greenlands A and Greenlands B. The JDCL property, including the proposed licence area, is located within the Greenbelt Natural Heritage System, as mapped in the Region of Halton Official Plan.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
27.	The figures provided differ from CHs watercourse mapping. As noted above, we recommend that a data request be made for CHs mapping, aquatic resources data and other relevant natural heritage data. Table 2 will need to be revised to reflect any additional records, as well as the figures, as necessary.	Section 4.3	We have reviewed the CH watercourse mapping. Since it was prepared, the configuration of the watercourses has been altered, mostly due to the industrial area that has been established off Twiss Road south of the area. The original construction of the internal haul road may also have had an influence. Water in the vicinity of what is now Ponds 12 and 13 originally flowed to the southwest but now flows northeastward. The original mapping of this area has stream flow flowing southwesterly and now it is northeasterly.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
28.	It is indicated that, in addition to Kilbride Creek and the larger ponds on the site, there are three small watercourses that originate on the property and several old pit ponds and natural waterbodies in the study	Section 4.3	The reasons for not sampling for fish in the two tributaries to Kilbride Creek that originate on site are provided in our	The response has provided clarification regarding the original JART comment. Additional information and documentation	Resolved

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	area, and that all of these water bodies may potentially support fish and other aquatic organisms. Based on Table 2 in this section, fish sampling was not conducted in any of the three small watercourses. This section further states "Fish sampling revealed that the site supported fish habitat in two general areas: the ponds near the entrance to the site, including the watercourse that flows out of them, and Kilbride Creek." This statement might be interpreted as indicating that these two locations are the only locations where fish habitat is present but that is not necessarily the case. The two tributaries to Kilbride Creek that originate on the property were not sampled to determine if fish are present. They should be.		response to comment #11. These tributaries are less than 30 cm wide and only a few centimeters deep. We have designated the tributary that originates in the wetland south of the West Pond as significant habitat for the brook trout.	are not required at this time. References to where fish habitat is present should be consistent in future documents.	
29.	The assertion that the ponds that were created as a result of the previous aggregate extraction that support fish are not considered fish habitat is contingent upon those waterbodies having no surface connection to natural watercourses or waterbodies. It is unclear from the figures in the report whether there is a watercourse that flows, at least seasonally, from Pond 3 to Kilbride Creek. If there is, then Pond 3 would be considered fish habitat under the *Fisheries Act*. Field investigations should determine if an ephemeral, intermittent or permanent surface connection exists between Pond 3 and Kilbride Creek. Concerns regarding statements made in Section 4.3 with respect to where fish are found and what is and is not fish habitat also pertain to Section 7.0.	Section 4.3 Section 7	There is a man-made channel coming out of P3 leading to the small wetland in the south corner of the property adjacent to the railway. Further field investigations have determined that water exits this wetland and flows to Kilbride Creek during high water conditions only (there was no flow observed in late summer/fall). It is our opinion that the warmwater discharge is deleterious to the coldwater fish habitat in Kilbride Creek. Once the Licence is granted, the connection between Pond 3 and the creek will be blocked. We are in the process of consulting with DFO regarding this connection.	The response has provided clarification regarding the original JART comment. JART understands the updated site plan will retain Pond 3, which we look forward to seeing in an updated site plan.	Addressed on revised Site Plan. The Site Plan has been revised to show that Pond 3 will be retained along with a 10-m buffer. An updated copy of the Site Plan will be provided to JART.
30.	On page 21, the report states that a large spring "just above the railway bridge" was 9.6°C which is too warm and therefore unsuitable for Brook Trout spawning. The rationale for concluding that an abundance of groundwater would render an area unsuitable for Brook Trout spawning, given that this species actively selects areas of groundwater discharge for spawning, requires explanation.	Section 4.3	Upon further review of the literature, we find that brook trout may spawn in water as warm as 10°C, so the water temperature within this spring is just within the upper temperature threshold for spawning. In our experience, we have not observed brook trout spawning in such deep organic soils with such strong upwelling, but we cannot entirely preclude the fact the trout may spawn at this location. According to the Habitat Suitability Index (HSI) model for the brook trout, spawning success for this species is lower as the amount of fine sediments increases and the inter-gravel oxygen is diminished. We did not take a dissolved oxygen level reading in the spring, but levels are typically low within springs. The HSI model provides a graph showing the suitability of spawning habitat relative to the size of the stream substrate, where a score of 0 represents unsuitable habitat and 1 is optimum habitat. The optimum	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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			size of the substrate is 3-6 cm. Silt has a diameter considerably below 1 cm and is defined as particles with a diameter of 0.0039 to 0.063 mm. At best, silt would score a maximum of 0.01 on the HSI model, thus indicating that the substrate in the spring is very marginal spawning habitat. The character of this spring varies considerably in response to water-table levels. Consequently, it is conceivable that it may occasionally be used as spawning habitat. The spring is downgradient of the site and will not be affected by extraction activities.		
31.	At the bottom of page 21, and continuing on page 22, it is stated that the temperature range of 0°C to 20.2°C indicates that Kilbride Creek is not functioning as a coldwater stream at the northern end of the property. It is stated that a true coldwater stream would not get as cold in the winter or as warm in the summer. It further states that the beaver dam that is present negates any positive effects that seeps and springs may have on water temperatures. These definitive statements are not supported by data or by references to the scientific literature. This watercourse contains Brook Trout; they were caught by the investigators at the one location where minnow traps were set, which is near the northern edge of the property. Their presence indicates that Kilbride Creek is functioning as a coldwater stream.	Section 4.3	We have mapped the entirety of Kilbride Creek as brook trout habitat and are treating it as a significant and sensitive resource that will be protected through the monitoring and mitigation program. The beaver dam does degrade the stream somewhat, but that is a natural phenomenon that does not detract from the fact that it does support brook trout. According to the HSI model for brook trout, the optimum maximum water temperature for brook trout in stream habitats is 15 to 18°C. An upper temperature of 20 scores about 0.7 on the HSI model, indicating that it less than ideal. Habitat suitability drops off precipitously as water temperatures increase above 20°C and streams are completely unsuitable when temperatures reach 22°C. There is no doubt that the beaver dam and associated pond are responsible for the increased water temperature in this area of Kilbride Creek.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
32.	The report also states “It is concluded that the entire reach of Kilbride Creek along the western edge of the subject property does not support spawning brook trout.” This stream does support Brook Trout and spawning must occur for a self-sustaining population of Brook Trout to be present. Please clarify.	Section 4.3	Not all aquatic habitat that supports fish is suitable spawning habitat. This is true for all species of fish, but particularly for brook trout which has exacting microhabitat requirements for spawning. Spawning is concentrated in areas with groundwater upwelling and mostly in gravelly substrates 3 to 6 cm in diameter. Trout are highly mobile species and may move considerable distances to spawn and then spread out to occupy other areas of a watercourse. After the fry emerge from the gravel, they also	The response has not provided clarification regarding the original JART comment. Additional information is required in an addendum to the Level 2 Natural Environment Report, and spawning surveys should be conducted as part of the IG. This is particularly important because groundwater discharge has been observed in Kilbride Creek within the study area (refer to response to Hydrogeology comment #9).	Additional information has been provided in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). The requirements for redd surveys are outlined in Section 14.6.3 of the NETR Addendum and Section 4.3.1 of the Implementation Guide.

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			disperse from the actual spawning area. Therefore, it is quite common for a reach of stream to support a brook trout population but not actually have any spawning habitat present provided that trout have access to suitable spawning areas somewhere within the stream.		
33.	The interaction between groundwater and Kilbride Creek is important, as groundwater affects both discharge and temperature as well as the suitability of this reach of Kilbride Creek for Brook Trout spawning. The Natural Environment report states "There appears to be a loss of water in the creek as it flows through the site, but flow is augmented again as the creek flows near the proposed Phase 1 area. This suggests that the creek encounters an area of high permeability through the site and that surface water is lost to the water table." The Level 1 and Level 2 Hydrogeological Assessment (Harden Environmental Services Ltd.) does not discuss Kilbride Creek in Section 4.10 - Groundwater/Surface Water Interaction. In Section 7.4 (Impact Discussion - Kilbride Creek) it states "Kilbride Creek is located downgradient of the site and is an area of potential groundwater discharge. However, streamflow measurements have determined that there is a loss of water occurring in Kilbride Creek along the western edge of the West Pond. It is estimated that the loss is up to 6 1/s. The loss may be attributed to underflow occurring beneath or adjacent to the creek." This is not consistent with the suggestion in the Natural Environment Report that water is lost to the water table. Determination of the direction of groundwater gradients through this reach is required.	Section 4.3	See Harden Hydrogeological Response # 9.	The response has not provided clarification regarding the original JART comment. Additional information is required and should be documented in an addendum to the Level 2 Natural Environment Report. New information provided in the response to Hydrogeology comment #9, indicates that there is groundwater discharge into Kilbride Creek. Groundwater discharge is an important component of Brook Trout spawning habitat. The presence of groundwater discharge and its relevance should be recognized.	This has been addressed in the revised Natural Environment Addendum Report. The relevant information from the Implementation Guide has been included in Section 14.3 of the NETR Addendum that discussed the potential impacts of quarrying activity of fish habitat and associated mitigation measures.
34.	Since the plant list is not linked to specific ELC units within the study area, and the description of vegetation communities is very brief, it is difficult to determine what the composition of vegetation communities was, and hence which species may be impacted if hydrology changes. Following ELC standards, the plant species and relative abundances for each ELC polygon should be provided.	Section 4.4.1	The ELC manual does recommend that information on the dominant species within each polygon be provided. In Table 3 (pages 24-27), for each community, we have provided information on the overstorey tree cover, the woody understorey layer, and the ground flora. Detailed information is also provided on the composition of the overstorey, its age, average diameter at breast height, average height, and percent canopy closure. All of this is consistent with the requirements of the ELC manual. Detailed notes on the ground flora were not provided but the dominant species were indicated. Essentially, that is all that is required to be consistent with the ELC manual. In most vegetation communities, the composition of the ground flora is not consistent throughout. It may be different	Species lists with relative abundance for each vegetation unit would provide additional information on the sensitivity and potential response of projected changes to the water resource system. Additional information should be documented in an addendum to the Level 2 Natural Environment Report, as part of the IG, and/or as a detail on the updated Site Plan (as applicable).	It is our opinion that it is unnecessary to provide a list of dominant species in each vegetation community in order to determine their sensitivity to changes in water levels or other factors related to quarrying activities. We have committed to monitoring near the southern edge of Pond 11 (the East Pond) where water-level declines will be greatest and deploying Dispersion System 3 before adverse effects occur. We are also monitoring the most significant wetland plant species with Coefficient of Conservatism (CC) scores of 9 and 10 (see Section 14.6.3 of the NETR Addendum and Section 4.3.4 of the Implementation Guide). If the areas of greatest water-level depression and most sensitive plant species are not affected, areas with lesser water-level depressions

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			in areas where sun can access the ground as a result of a fallen tree than in areas that are in full shade all the time. These differences often occur in small patches that are not large enough to separate as a unique community. In addition, the composition of the ground flora may change year to year in response to whether it is a wet or dry year. So it is often difficult to accurately define which species are most prevalent in the ground flora. As part of our review on background information, we examined the ELC information collected as part of the Halton Natural Areas Inventory. All that is provided is a map of the communities with no information on vegetation community structure and species composition.		and less sensitive plants should not be affected. When filling out the ELC forms, only the dominant species are identified along with their percent coverage within the community. In the case of the four species with high CC scores, they represent a very small proportion of the coverage in their respective communities and would not even be identified as occurring on the ELC forms.
35.	The species composition of the SWC3-2 feature east of the existing haul road is typical of vegetation communities that are found in Ecoregions further north. Based on the presence of Black Spruce, Tamarack, and/or Leatherleaf, areas of low tree cover, and potentially sphagnum or sedge ground layers, if there are unique inclusions of these community types they should be described in text and identified on the relevant mapping.	Section 4.4	We concur that the SWC3-2 feature along the haul route has some characteristics that are typical of a more northern community. These features are widely scattered throughout the community, which is a more typical white cedar swamp. They do not form a distinct community that would warrant a separate ELC unit. They are simply more boreal inclusions that are scattered within the cedar swamp.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
36.	It is unclear why the 1989 Riley report is used for Regional status on this property, when the 2000 Varga document is more recent and applicable to this site. We recommend revising to reflect the Varga document for Regional rarity.	Section 4.4.2	We summarized Riley's information for locally significant plant species, but used the more recent document by Crins et al. to determine which species were actually significant at the local municipal level. So we discounted those species that Riley identified as being significant in Halton Region since Crins et al. had more recent information demonstrating that they were more widespread than in 1989 when Riley's work was completed. We stated in this section of the report that only three of the plants that Riley identified as being locally significant were still considered significant in Halton and noted the presence of five additional species considered significant by Crins et al. According to the SWHTG, the scale for regionally significant species is either an	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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			Ecoregion or one of the old MNR regional districts. Species that are significant at the municipal level are considered locally significant by the SWHTG. We concur that Riley's publication is old and dated but it the only one available that addresses rarity at the regional level as defined by the SWHTG. In this case, Riley's document is relevant to the old Central Region of MNR. The publication by Varga deals only with individual municipalities or the GTA, but not Ecoregion 6E or the old Central Region of MNR. The only species that this was relevant to in this study was the chinquapin oak. We did not identify its habitat as being significant wildlife habitat because it is not rare within Halton Region and it was a seedling in atypical habitat so its viability was uncertain. We checked for this tree later and it is no longer extant. If the SWHECS are used, regionally significant species do not qualify as significant wildlife habitat.		
37.	The methods section states that a detailed vegetation inventory was only completed within the study area (extraction area plus 120 m of adjacent lands). However, in Section 4.4.2 it states that "The most conservative species are generally found in the western deciduous forest (FOD5-2), and the coniferous swamp (SWC3-2) that is bisected by the internal haul road." As these communities are both mostly outside of the study area, clarification regarding the level of effort and data collected should be provided, as well as the specific location of Regionally rare species and species with high CC values.	Section 4.4.2	On page 5 of our report, it is stated that the study area included the entire property owned by the proponent in addition to all lands within 120 m of the proposed licence area. Four bullets are provided on that page explaining our rationale for expanding the study area beyond that which is required by the *Aggregate Resources Act*. Therefore, the eastern deciduous forest and the coniferous swamp that are bisected by the internal haul road were included as part of the study. Breeding bird surveys and other wildlife surveys were completed within this area as well as botanical surveys and ELC work. We may have confused this by adding a line on some of the figures that indicated the 120-m zone.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
38.	Reference is made to various species that have high CC values and are thus sensitive to specific habitat conditions. As presented, it is not clear where these species are on the landscape, their abundance, and other relevant information.	Section 4.4.2	The report states that there were 5 species found with very high CC scores and that they were found within the western deciduous forest (FOD5-2) and the coniferous swamp (SWC3-2). These species included bog sedge (Carex magellanica), leatherleaf, Labrador tea, three-leaved solomon's-seal, and	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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			chinquapin oak. The bog sedge and three-leaved solomon's-seal occurred in the coniferous swamp and the locations of the other species are shown on Figure 14. As noted in our response #36, chinquapin oak is no longer extant on site. All of these species are outside of the proposed extraction area and will not be affected by the quarry.		
39.	While not strict indicators, several species listed in Appendix B (plant list) are associated with bog and/or fen habitats, as well as groundwater discharge. This should at least be noted, and ideally would be discussed in relation to the ELC findings. This includes, for example: Calla palustris, Carex aurea, Carex magellanica, Carex scabrata, Carex viridula, Chamaedaphne calyculata, Cypripedium spp, Equisetum variegatum, Galium tinctorium, Glyceria borealis, Glyceria canadensis, Ilex verticillata, Larix laricina, Ledum groenlandicum, Lysimachia thyrsiflora, Maianthemum trifolium, Osmunda cinnemomea, Osmuda regalis, Picea mariana, Potentilla palustris, Rubus hispidus, Spiraea alba, and Thelypteris palustris.	Section 4.4.2	None of these species is an obligate fen or bog species, occurring only in those habitats. The ones that are closest to requiring fens or bogs are leatherleaf and Labrador tea, but they also occur outside of these habitats. It would be more accurate to state that these species are associated with high water tables, and not necessarily groundwater discharge. We found some of these species in marsh habitats and even in disturbed areas of cultural meadows. The most significant of these are also locally significant and we have mapped their locations on Figure 14. Within the swamps, there are numerous upland plant species growing on hummocks or upturned root wads. We have not claimed that there are upland inclusions in the wetlands and attempted to map them as separate vegetation communities.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
40.	Ensure reference for Provincial status (S-ranks) is accurate (Check NHIC). If present, list or summarize low S-rank (S1-S3) species other than just Butternut.	Section 4.4.2	We rechecked the NHIC website and determined that there is only one plant species with an S-rank of "S1" to "S3", the butternut with an S-rank of "S2?"	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
41.	Additional information is required in Table 3 to confirm local soil conditions within ELC features. In particular, the characteristics of organic soils in the organic swamp communities is requested to confirm whether or not bog or fen inclusions are present.	Section 4.4.2	Soil conditions within ELC communities are described in Table 3 (pages 24-27) as per ELC requirements. Organic soils occurred in 4 swamp communities coded as SWD 7-1, SWD 6-2, SWM 4-1 and SWC 3-2. In each of these communities the organic soil was greater than 60 cm in depth. Although some bog/fen affinities were found in some of these areas, particularly SWC 3-2, there were no distinct inclusions of bog or fen vegetation that could be identified or mapped within these swamps.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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42.	The report states, “The site supports no significant terrestrial snails.” This seems overly definitive, especially since the methods used to survey for land snails were not described in detail.	Section 4.5.1	Agreed. This should be modified to state that no significant terrestrial snails were found. For methods, we simply looked for snails while doing other fieldwork. The site is heavily infested with the introduced banded wood snail. It would undoubtedly have adverse effects on any native snails that might be present.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
43.	The report states that none of the odonates observed are significant at any level; however, the black-tipped darner is considered rare in Halton Region. This should be revised and mitigation measures developed, as necessary.	Section 4.5.1	Agreed, we overlooked this fact in the NAI list of odonates. As noted in the wildlife list, it was observed only on adjacent lands. If the SWHECS are used, its habitat would not qualify as significant wildlife habitat.	The information provided, including the location of the observation, should be documented in an addendum to the Level 2 Natural Environment Report.	Addressed in the revised Natural Environment Addendum Report Information on the black-tipped darner is provided in the NETR Addendum in Section 10.3.3.
44.	Reference to the EarthFX modeling approach used to evaluate potential impacts to the hydroperiod of vernal pools should be described in more detail. Some concerns were raised in the review of the hydrogeology reporting with regard to the model assumptions and inputs and their applicability to assessing frequency and amount of inundation. Additionally, it is not clear why an integrated approach to modeling the hydrologic system was not applied at a feature scale for all wetlands present on and/or adjacent to the property that will be affected by the proposed extraction (e.g. wetlands east of the rail line will be affected by extraction in the East Pond).	Section 4.5.2	All on-site and nearby-off-site wetlands that were determined to have suitable salamander habitat were treated specifically and evaluated with the integrated surface water and groundwater model. All other wetland areas are included in the model but are not specifically targeted.	The response has clarified part of original JART comment (i.e. that all wetlands were included in the integrated hydrologic model), however additional information is required regarding hydrologic changes to the east wetlands and should be documented in an addendum to the Level 2 Natural Environment Report. Mitigation approaches in the area south of the east pond discussed during the January 17, 2020, meeting should be identified on the Site Plan. Monitoring locations and methods can be included/updated in the IG.	Addressed in the revised Natural Environment Addendum Report and IG. See section 14.1 of the NETR Addendum and Sections 4.21 of the IG.
45.	The report should provide an assessment on whether the ponds can be considered SWH. There are a number of categories this could be included in such as Amphibian Breeding Habitat (Woodland), Seeps and Springs, Amphibian Breeding Habitat (Wetland), etc.	Section 4.5.2	Consistent with the SWHTG, we identified the best examples of amphibian breeding habitat as significant wildlife habitat, including Ponds 5, 7, 9, and 10. The remaining ponds either have limitations due to hydroperiod for amphibians (Ponds 4, 8, 14, and 15) or have fish populations that limit amphibian production (Ponds 1, 2, 3, 6, 11, 12, and 13). If one uses the SWHECS, ponds must either support 20 egg masses of two of the listed species or two species with call counts at Level 3. With the information provided in Table 4 of the Natural Environment report (results of the call-count surveys) and the table provided in response #13 of this document, it is concluded that none of the ponds that we did not identify as significant wildlife habitat meet these criteria.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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46.	As of April 2018, COSEWIC listed midland painted turtles as Special Concern species. Please revise the report and provide discussion on this in the relevant sections.	Section 4.5.3	We agree that COSEWIC has recently identified the Midland painted turtle as a special concern species. This does not affect our analysis because the PPS, NHRM, SWHTG, and SWHECS only recognize provincial designations of significance. In Ontario, the Midland painted turtle is not designated as special concern. Its S-rank has been changed from S5 (secure in Ontario) to S4 (apparently secure in Ontario). So the federal designation has no effect on the status of this species on the subject lands.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
47.	The report states, “Bats in general were not very common at the site.” This seems too definitive given that only three locations were surveyed acoustically. This assessment also seems to assume that all bats present on the property would be foraging over or near the Central and East Ponds, as opposed to other potentially attractive foraging locations on the property. Clarify implications for both SAR and SWH.	Section 4.5.5	We stand by our statement that bats do not appear to be very common within the study area. The number of recordings on the three sampling dates included 4, 10, and 20 and it is probable that multiple recordings were obtained from some bats. This is a very low count. We have done similar surveys in numerous sites and the low numbers suggest that there are no roosts nearby. In areas with nearby roosts, it is common to get 50 to 100 calls within a very short period between dusk and a few minutes after official sunset time. We have completed a detailed bat acoustic study at one site where we deployed detectors within woodlots as per MNRF’s protocol and also installed detectors outside the wooded areas adjacent to an aggregate pond. The detection rate at the pond was 6 times higher than it was within the wooded area. This was true even for the northern myotis, which is considered a forest species that forages under the tree canopy. So we selected the areas for sampling that had the highest probability of detecting bats because it is a well known fact that water bodies are particularly rich in invertebrates and are highly attractive to foraging bats, especially for the little brown myotis. There are no implications from the perspectives of the ESA or significant wildlife habitat. Although we mapped the habitat above the ponds created by previous extraction activities and the proposed Phase 1 area as foraging	The response has provided clarification regarding the original JART comment. Any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	No further action required. We have received no further comments from the Province regarding bats.

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			habitat for both the little brown myotis and northern myotis, MECP staff have visited the site and are reviewing the report and Site Plans relative to habitat for endangered or threatened species. Foraging habitat for bats will be enhanced by the conversion of Phase 1 from a cultural meadow to a pond. The small areas in which trees will be removed have limited potential to support roosting bats as these are comprised of early successional trees and coniferous plantation. In addition, the site plan requires that tree removal be done during the period November 1 to March 31 to ensure that no roosting bats are present when this occurs. Because use of tree cavities as roosts by bats is very short-term, the loss of a few trees during a period when bats are absent will have no effect on populations.		
48.	Clarify the connectivity and direction of flow within the watercourses flowing through the property/study area, and how these relate to existing PSW mapping and functions. Clarify if the KOA tributary is actually connected with Kilbride Creek. The report states that the haul road dividing the eastern half of the study area has altered the hydrology by increasing the water table. Based on Figure 9 it appears that there is a watershed divide in this area, with the Kilbride Creek tributary flowing south and the KOA tributary flowing north. Furthermore, Figure 8 is inconsistent with Figure 9 in that it shows KOA Tributary flowing south into Kilbride Creek.	Section 5	Based on the available mapping, the southern portion of the KOA tributary connects to the Kilbride Creek at the Campbellville Road as shown in Figure 8. However, the northern portion of the KOA tributary now flows north as shown in Figure 9 and does not currently connect with Kilbride Creek. It appears the haul road which was likely built in the 1980s altered the natural flow direction of the stream. So now the tributary that arises in Ponds 12 and 13 is a tributary to the KOA tributary. The inconsistency in the mapping of the tributary reflects the different dates when these provincially generated maps were created. The only relationship that the on-site portion of this stream has with the PSW is to drain stormwater that is generated on the industrial lands adjacent to the eastern wetland complex.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
49.	The area shown as Butternut Habitat on Figure 12 is within 50m (possible 25m) of the extraction area, and is very close to the haul road. Please clarify if MECP has been informed of Butternut, and if they provided feedback regarding BHA requirements.	Section 6.1.1	Yes, we are reviewing Butternut Habitat with MECP.	The response has provided clarification regarding the original JART comment. Any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	No further action required. In the NETR, broad general areas that supported butternuts were mapped as butternut habitat on Figure 12. In the text of the report, it was noted that portions of the mapped areas would not be considered butternut habitat due to its scattered distribution. MNRF requested that

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					locations of individual trees be identified because the portions of the mapped habitat were within 25 m of the access road. Surveys for butternuts were conducted on October 17 and December 3, 2018. This demonstrated that there were no butternuts or butternut habitat within the proposed extraction area or area of the access road.
50.	Although the discussion and rationale regarding a high likelihood that Jefferson Salamander is absent, the small sample size of individual salamanders that were captured should be recognized (only 13 individuals were captured). As well, discussion elsewhere in the report regarding the demographics of salamanders that are present should be recognized (i.e., that it was interpreted that there is low recruitment rate of young salamanders). In addition to the lower than usual sampling effort (two nights of trapping), both of these considerations would suggest that ruling out presence of Jefferson Salamander should not be definitive.	Section 6.2.1	See response #13.	The response has provided clarification regarding the original JART comment. Any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	Additional information has been added in the revised Natural Environment Addendum Report. At the request of MECP, an amphibian egg-mass survey was conducted and the report is presented in Appendix B of the NETR Addendum. Subsequent to the preparation of this report, an MECP staff member visited the site and all of the ponds. We have yet to receive any formal response from MECP regarding the Jefferson salamander. We do know that some of the forested area south and east of Phase 1 will be regulated as Jefferson salamander habitat as will some of the ponds within this forest. No areas within the extraction area will be regulated as Jefferson salamander habitat according to MECP verbal and email communications, but this has yet to be confirmed.
51.	The Significant Woodland assessment provided does not follow Regional standards. Significant Woodland criteria should follow those outlined in the ROP. These areas should be identified on a map to validate the study findings.	Section 8	The intent of the application is to avoid the removal of trees in significant woodlands. Changes have been made to the Site Plan (Aug. 2019) to remove small areas of woodland from the extraction area of Phase 1 and apply a 10 m buffer. In addition, the site plan commits to tree planting in areas within and outside of the extraction area to compensate for any losses in tree cover. See additional information provided by email (from James Parkin) on November 8, 2019.	The additional information regarding Woodlands and Significant Woodlands presented to JART during meetings on March 5th and March 31st, 2020 should be incorporated into an addendum to the Level 2 Natural Environment Report. Additionally, JART understands that the updated site plan will result in several woodland areas being retained that were previously proposed for removal, which we look forward to seeing in an updated site plan.	Addressed in the updated Natural Environment Report and Site Plans. Section 8 of the NETR Addendum provides a detailed discussion on significant woodlands, specifically for the communities CUW1-5 and CUP3-8. In subsequent discussions with JART following a site visit on March 31, 2020, JART concluded that these were the only two treed areas within the extraction area that had the potential to qualify as significant woodlands. Section 14.4A of the NETR Addendum provides a discussion on potential impacts on these treed areas.
52.	Significant Valleylands could be evaluated based on presence of a confined system where other key features are present. We recommend	Sections 9, 12, 14	The monitoring and mitigation plan included on the site plan will ensure that	The response has provided clarification regarding the original JART comment.	Addressed in the revised Natural Environment Addendum Report.

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	that the Significant Valleylands definition from the PPS and Greenbelt Plan be used to determine significance. In the absence of such an assessment, Kilbride Creek should be considered significant and appropriate recommendations made to protect that system. These areas should be identified on a map to validate the study findings.		the Kilbride Creek Valley and its ecological functions are protected. The proposed quarry and activities associated with it will have no effect on the vegetative cover within the valleyland or on the fish habitat and other aquatic resources associated with the valley. If the Kilbride Creek Valley is considered a significant valleyland, the proposed quarry will have no negative effects on it.	Interpretation of whether the Kilbride Creek valley is a Significant Valleyland should be included in the addendum to the updated Level 2 Natural Environment Report.	Section 9.0 of the NETR Addendum evaluates whether the Kilbride Creek valley qualifies as a significant valleyland. Section 14.4A in the NETR Addendum is a new chapter that was not included in the NETR. It discusses potential impacts on the Kilbride Creek valleyland and associated mitigation measures.
53.	The text on page 64 addresses American Bullfrog under Significant Wildlife Habitat as concentration areas for this species is a category under the SWH Technical Guide (but not the SWH Criteria Schedules). The report states that the habitat of American Bullfrog is not SWH and notes that the SWHCS “no longer recognize bullfrog habitat as being significant”. This is an incorrect interpretation as the SWH Criteria Schedules for Ecoregions 6E and 7E states, under Defining Criteria for the category Amphibian Breeding Habitat (Wetlands), “Wetland with confirmed breeding Bullfrog are significant.” Survey locations with confirmed American Bullfrog were adjacent to Pond 2, 3, and 10; the report should be updated to reflect the correct SWH designation and potential for impacts and/or mitigation strategies.	Section 10.1	The presence of very low numbers of bullfrogs (only 1 or 2 individuals) was confirmed in Ponds 2, 3, and 11. As outlined in our previous response, we do not think this constitutes significant. Nonetheless, on-site habitat for bullfrog will be maintained throughout extraction activities and additional habitat will be created through rehabilitation activities. The phasing of quarry extraction ensures that bullfrogs will have an undisturbed “refuge” area available during extraction activities. The extraction areas are phased (see revised phasing note on pg. 6 of this correspondence) and there will always be inactive areas. In addition, most of the bullfrog habitat in Pond 3 and all its habitat in Pond 2 will be retained. The only bullfrog habitat that will be temporarily lost is a small area of emergent vegetation in the East Pond where a maximum of one bullfrog was detected. This area will be temporarily filled in as part of the plant area. Through rehabilitation activities, the amount of suitable habitat for bullfrog will be increased. Shallow water habitat will be created where Buffer Pond 1 and Buffer Pond 2 will be located in addition to the creation of shallow littoral areas in phase 2 and phase 5, and a shallow amphibian pond in the north corner of Phase 2. Because bullfrog habitat will be maintained during extraction, bullfrogs in the area will be able to readily colonize the new habitats created through rehabilitation and there is no loss over the term of the proposed operation.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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54.	Section summarizing seeps and springs is missing reference to all features that have been documented on or adjacent to the property (e.g. on page 21, there is reference to a large spring that is present north of the railway bridge near Kilbride Creek. This feature is not discussed and is not mapped on Figure 13.	Section 10.2	We concur that we omitted to map the location of the spring near the railway tracks. GPS coordinates for the location of the spring will be obtained and the feature will be mapped on any revised figures. Phase 1 is the nearest extraction phase to this spring. A positive hydraulic gradient will always be maintained toward the spring and it is expected that upon closure, the hydraulic gradient between the Phase 1 pond and the spring will be of greater magnitude than presently occurs.	The information provided (spring location) should be documented in an addendum to the Level 2 Natural Environment Report.	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). The spring near the railway is identified as significant wildlife habitat in Section 10.2.2 of the NETR and the figure showing Significant Wildlife Habitat – Seasonal Animal Concentrations and Specialized Habitat has been modified to show this spring. The potential impacts on this spring are discussed in Section 14.5.
55.	Description of proposed development is too general. For example, presenting a structured analysis that identifies each key feature type, functions, and sensitivities crossed with specific activities associated with site preparation, transportation/hauling upgrade requirements, activities/actions will occur during each Phase would help to better understand anticipated impacts.	Section 13	As required by the *Aggregate Resources Act*, all potential impacts of the quarry have been considered in the technical reports, including the Natural Environment Report. The site plan includes a comprehensive list of monitoring and mitigation requirements, which have been developed based on the impact assessment, to ensure that there will be no negative impact from the operation of the quarry (both during extraction and through to after final rehabilitation is completed). In addition, the quarry operation is sequential and only involves deepening the ponds in one small area at a time. As such, most of the site will continue to function as it does today, either in an untouched state or in a rehabilitated condition.	Additional assessment is required regarding impacts, mitigation, and contingency measures in the event that blasting and extraction result in exposing unidentified channels within the groundwater flow system. As discussed during the meeting held with JDCL on January 17, 2020, this is of particular interest in the west pond and Phase 1 areas adjacent to Kilbride Creek and Pond 5. Where any additional mitigation strategies are required, they can be added to the Site Plan, and monitoring and contingency plans can be identified in the IG.	See response #3 in the Hydrogeology Section.
56.	The Environmental Objectives do not reflect Provincial direction or policies related to impacts on natural features, their ecological functions or the adjacent lands. We recommend that discussion take place with the agencies and the proponent to identify Environmental Objectives that will better satisfy all interests. For example, some concerns with the objectives include, but are not limited to, the following: • Environmental Objective 4 should be expanded to cover all watercourses. Environmental Objective 5 should be revised to ensure that no drawdown should occur in any of the wetlands from the proposed works or as the worst case, a maximum allowable drawdown for each wetland should be set depending on the pre-extraction hydroperiod monitoring data.	Section 14	The report, including Environmental Objectives, have been reviewed by other environmental agencies including the MNRF and the MECP from both water management (water quality and quantity, hydrology, and hydrogeology) and Natural Heritage (natural features, functions, endangered and threatened species and their habitats etc.) perspectives. The five high-level objectives were determined in order to maintain or enhance the site conditions. By meeting the Environmental Objectives 3, 4, and 5, all watercourses will be protected. Environmental Objective 2 ensures that hydroperiod of the wetlands	As noted during the January 16-17, 2020, meetings with JDCL, a revised and updated monitoring, mitigation and contingency plan is to be built into the IG, which is to be referenced in the Site Plan. Additionally, any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	We have addressed this in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). The Environmental Objectives have been modified in the Implementation Guide to provide specific targets for each pond for the amount of inundation, the length of the hydroperiod, and the periodicity of achieving the objectives. A third environmental objective has been identified at the request of MNRF that requires some ponds to dry out in some years to maintain their current vegetation communities. Relevant sections of the Implementation Guide include Sections

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			is maintained during the critical lifecycle of breeding amphibians (i.e. maintaining a minimum of 10% wetted surface 10 cm deep in salamander breeding ponds). This applies to all wetlands/ponds except those that are permanent water bodies. This satisfies the comment regarding environmental objective 5. In order to predict the hydroperiod of the amphibian ponds under varying conditions, detailed field topographic surveys and an integrated surface water/groundwater model simulations were undertaken. In order to meet the Environmental Objectives, a comprehensive monitoring and mitigation plan was developed and is included on the site plan. The monitoring and mitigation plan includes minimum monthly water levels that must be maintained in specific protection areas, including wetlands. See also the Environmental and Water Management Operational Guide circulated on November 29, 2019.		1.4.1. and 1.4.2 which describe the environmental objectives and the rationale for them, Section 4 which describes the monitoring protocols, and Section 6.1.1 which describes Minimum Water Level Thresholds for each pond and the frequency at which they will be achieved. This information is cross-referenced in the NETR Addendum in Sections 14.0 and 14.6.3. We have received no direction from the Province on this topic other than their request for another environmental objective stating that certain ponds should be allowed to dry out in some years. An updated copy of the Site Plan will be provided to JART which will include all monitoring and mitigation requreiments as identified in the IG.
57.	Maintaining 10% wetted areas in the ponds is focused on salamanders and does not take into consideration the other ecological and hydrological functions the wetlands provide. The specific ecological and hydrological needs of each pond should be established and appropriate mitigation measures identified and connected back to the updated Environmental Objectives. Similar comments can be found in the hydrogeological report comments.	Section 14	Maintaining 10% wetted area in the ponds for salamanders does take into account other ecological functions of the wetlands. Essentially, there are two types of ponds within the study area: ephemeral and permanent ponds. The salamander ponds are the ephemeral ponds and the salamanders are the most sensitive of the features in these ponds and they also require the longest hydroperiod of any of the amphibian species that these ponds support. By ensuring that the hydroperiod is long enough so that salamanders have the opportunity to transform into juveniles, we are also ensuring that the other amphibian species within these ponds will also have sufficient time to transform. Species that require longer hydroperiods than the salamanders, such as the bullfrog, are confined to the permanent ponds. These will remain as permanent ponds thus protecting habitat for these species. In many cases, maintaining 10% wetted area to a depth of 10 cm will be an enhancement; some of these ponds do not currently achieve this objective. As	As noted during the January 16-17, 2020, meeting with JDCL, where pond-specific mitigation strategies are proposed, these can be identified in the IG. Monitoring approaches discussed during the meeting with the JDCL on January 17, 2020, can be incorporated into the IG.	See response to #56.

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			discussed in our response #66, Pond 5 typically contains water until July 31st, but it may be reduced to small puddles. If 10% of it is maintained with a water depth of 10 cm, there will be 0.27 ha of water this deep on every July 31st while the quarry is in operation. During this period, the hydroperiod of all the salamander ponds will be suitable for production of salamanders. This is not currently the case. We would be happy to further discuss the Environmental Objectives and the monitoring and mitigation plan with you. See also the Environmental and Water Management Operational Guide circulated on November 29, 2019.		
58.	One of the key considerations missing from the impact assessment is the loss of groundwater on groundwater fed features. Replacing groundwater with surface water is not discussed in the Level II Report although it is discussed in other reports. The report should be revised to assess this impact and proposed mitigation.	Section 14	All of the wetlands can be thought of as having a dependency on groundwater in that the underlying water table supports the surface water in the wetlands. No distinct groundwater discharge areas have been observed in any of the wetlands other than the spring associated with SWD7-1 which is more related to the Kilbride Tributary. As such, the standing water in the wetlands is surface water and any pumping conducted is designed to maintain surface water levels during critical periods. The addition of pumped surface water to the wetlands, via the buffer ponds and dispersion trenches, is to replace surface water being drawn down through the base of the wetland as a result of increased downward gradients.	As noted during the January 16-17, 2020, meeting with JDCL, additional information is required on the proposed mitigation approaches and how the efficacy and adequacy will be assessed through monitoring and contingency planning. Key issues include ensuring the mitigation approaches result in hydroperiods that support full development of amphibian eggs to juveniles that disperse from ponds, and that the pond conditions created by pumping do not negatively affect the development conditions (e.g. reducing temperatures, introducing biological and/or chemical contaminants). Additional information should be documented in an addendum to the Level 2 Natural Environment Report. Mitigation strategies, monitoring and contingency plans are to be identified in the IG.	We have addressed this in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Mitigation approaches and contingencies are identified in the Implementation Guide in Sections 3, 3.1, and 3.2; the monitoring program is presented in Sections 4 through 4.5. Relevant passages from the Implementation Guide are either referenced or repeated in the NETR Addendum. Target Minimum Water Level Thresholds for the Kilbride Creek Tributary and Kilbride Creek South are presented in Sections 6.1.1.1 and 6.1.1.2. Maximum summer and minimum winter water temperatures are identified for the Kilbride Creek Tributary on Graph 16 in Appendix B of the Implementation Guide. Potential thermal and contaminant impacts on amphibian breeding ponds are discussed in the NETR in Sections 14.1 and 14.5.
59.	The Level II Natural Report does not include a fulsome impact assessment of the proposed application on the hydrologic function of the wetlands on site, in order to determine if the proposed mitigation measures are acceptable. Discussion on this should be included in the Level II report and the impacts/mitigation measures should be from an ecological perspective.	Section 14	We disagree with this comment. Section 14.1, which is 5 pages in length, discusses how the proposed mitigation will affect each wetland and each pond. MNRF and MECP are currently reviewing this information.	As noted during the January 16-17, 2020, meeting with JDCL, additional information is required for the wetlands east of the rail line and should be documented in an addendum to the Level 2 Natural Environment Report. Additionally, any direction that has been provided by the Province in this regard should be	Addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). The Eastern Wetland Complex has been dealt with more comprehensively since our last meeting with JART. Dispersion

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				documented in an addendum to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	System 3 has been added to the water management system and this will allow water to be pumped into the wetland if water levels decline below desirable levels. Information on Dispersion System 3 is provided in Section 3.1.3 of the Implementation Guide. There is also a system of groundwater monitoring stations in the Eastern Wetland Complex as described in Section 4.2.1, Table 8, and Figure 6 of the Implementation Guide. Eight permanent vegetation monitoring plots will be established in the Eastern Wetland Complex as described in Section 4.3.4 of the Implementation Guide and Section 14.6.3 in the NETR Addendum. In the event that water levels in the Eastern Wetland Complex decline below target levels, mitigation measures may include initiation of pumping via Dispersion System 3, changing pumping rates to Dispersion System 3, altering the extraction rate or phase, or changing the source of water that is pumped to various Buffer Ponds and Dispersion Systems. This commitment is presented in Section 4.2.1 of the Implementation Guide.
60.	While the Level II report refers the reader to the Harden report for more details, there should be an ecological interpretation provided in the Level II report for any of the proposed mitigation outlined in the Harden document so that a comprehensive assessment of the proposal can occur. Currently it is unclear how all of the proposed measures will interact with the natural environment. Please revise.	Section 14	Although the Harden report is more detailed than the Natural Environment report in discussing the mitigation, all the relevant information is summarized in Sections 14.0 and 14.1, Table 5, and Figure 17. We worked closely with Harden in developing the monitoring and mitigation plan.	As noted at the meeting with JDCL on January 17, 2020, additional information is requested for potential changes in the water table in the wetlands on the east side of the study area, and the implications that the expected changes will have on the moisture regime and capacity support a wetland vegetation type. Additional information should be documented in an addendum to the Level 2 Natural Environment Report.	This has been Addressed in the revised Natural Environment Addendum Report. Information on the potential impacts of quarrying activities on the Eastern Wetland Complex is provided in Section 14.1 of the NETR Addendum.
61.	As noted above, the Environmental Objectives should be amended in consultation with the relevant agencies. The proposed Active Actions could differ based on ultimate, agreed upon objectives, as the objectives are directly tied to the actions. We defer comment on the Active Actions until such time that the objectives have been updated.	Section 14	The environmental objectives, and corresponding monitoring and mitigation plan have been reviewed and discussed with the MECP and MNRF. We would be happy to further discuss the Environmental Objectives and the monitoring and mitigation plan with you. See also the Environmental and Water Management Operational Guide circulated on November 29, 2019.	Additional information regarding objectives as they relate to Significant Wildlife Habitat, Significant Woodlands, and Provincially Significant Wetlands should be documented in an addendum to the Level 2 Natural Environment Report. Mitigation, monitoring and contingency measures required to meet the environmental objectives, should be identified in the IG.	This has been addressed in the revised Natural Environment Addendum Report. Section 14.0 of the NETR Addendum provides detailed information on the environmental objectives, some of which have changed since the original report was written. Mitigation, monitoring, and contingencies for meeting the environmental objectives are presented in the Implementation Guide in Section 3 of the Implementation Guide. This is a

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				This includes, but is not limited to, mapping the limits of the Guelph Junction PSW on Map 1 of 5 of the site plan (Existing Features Plan). As well, providing comments on how the objectives conform to Section 7.3 of the Greenbelt Plan Technical Paper 1 and the stated requirement for setbacks from significant wetlands. Additionally, any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report.	comprehensive section that deals with water quality and quantity, the water transfer system, buffer ponds and dispersion systems, and contingency plans. The extent of the Provincially Significant Wetlands is shown on Page 1 of the Site Plan as requested. The PSWs are also shown on Figure 2 of the Implementation Guide and Figure 7 of the NETR. Setbacks are discussed in Section 3.6.2 of the Implementation Guide. We have received some direction from MNRF regarding the environmental objectives. They requested that Environmental Objective 3 be added. It states “Ensure that certain ponds dry out each year similar to existing conditions”. This has resulted in the determination of how frequently each pond should dry up prior to the end of July to maintain existing vegetation communities. This information is presented in Table 14 in Section 6.1.1 of the Implementation Guide. see also comment #10 under “Summary Statement”.
62.	Any mitigation measures proposed in the other reports, that could have ecological impacts, should be discussed in this report. For example, the Harden report includes discussion on warning and trigger levels for water level minimums but these are not discussed in this report. What are these levels based on and how to they relate to the aquatic community and NHS on the site? Please amend.	Section 14	On pages 80 to 84 we provide an overview of our proposed protocols for protecting aquatic natural heritage features, including passive actions, active actions and operational modifications. We then go on to describe how potential impacts to each wetland and amphibian breeding pond will be mitigated on page 85 to 88. For readers who want more details they are referred to the Harden and/or Earthfx reports. We worked closely with Harden in developing the monitoring and mitigation plan. See also the Environmental and Water Management Operational Guide circulated on November 29, 2019.	As noted during the January 16-17, 2020, meeting with JDCL, additional information is required regarding the approach to warning, minimum thresholds and target levels as these relate to mitigation and contingency planning and should be included in the IG. Additionally, any direction that has been provided by the Province in this regard should be documented as a supplement to the Level 2 Natural Environment Report, as part of the Implementation and Operations.	This has been addressed in the revised Implementation Guide (August 2020). Warnings, Minimum Water Level Thresholds, and target levels are all discussed in detail in the Implementation Guide in Section 6. These are supported by a series of hydrographs and tables. The MNRG has provided comments on the Implementation Guide which have been incorporated into the revised Implementation Guide (August 2020).
63.	Additional details regarding the time frame and proposed actions and activities associated with each phase of the proposed project is required. Does each phase correspond to one year? If so, please clarify. Additionally, a more comprehensive summary of direct, indirect, and cumulative impacts associated with each phase of the proposed project, along with direction on strategies to avoid, mitigate, and/or	Section 14	Each phase does not correspond to one year. See response to comment #62. The monitoring and mitigation plan and notes that are included on the site plan have been included to address all aspects of quarry operation, including potential direct, indirect and cumulative impacts.	The response has provided clarification regarding the original JART comment. Information related to monitoring, mitigation and contingency planning, should be included in the IG, which is to be referenced in the Site Plan. Additionally, any direction that has been	This has been addressed in the revised Implementation Guide. More detailed information on phasing of quarry activity is presented in Section 1.2.2 of the Implementation Guide and presented on Page 2 of the Site Plan. No

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	rehabilitate this site in accordance with MNRF best practices are required.		MNRF is in the process of reviewing this information. See also the Environmental and Water Management Operational Guide circulated on November 29, 2019.	provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report and the IG, as applicable.	more than two phases will be operated simultaneously. This was a request from the MNRF.
64.	Although the authors direct the reader to the Earthfx (2018) report to review the simulated hydrological functions assessment, a detailed summary with regard to pre, interim/operating, and post (with and without mitigation) disturbance water balance and hydroperiod should be presented in the natural heritage report.	Section 14	See response to comment #62. The approach taken by the hydrogeological investigators was to: a) obtain background data; b) evaluate the hydrogeological properties of the hydrostratigraphic units; and c) prepare a predictive hydrologic model that was used to evaluate firstly the closure conditions of the site and secondly operational conditions at the site. It was determined that upon closure, the site does not need any on-going maintenance (e.g. pumping or hydraulic barriers) in order to have the natural environment revert back to pre-extractive conditions. This being determined, the hydrogeological investigators, in consultation with the ecologists, evaluated the extractive conditions with the greatest potential for impact to water levels in the nearby natural heritage features. It was determined that with relatively simple methods of pumping water into buffer ponds or dispersion trenches that the natural heritage features will be maintained during the extraction phase. At any time that water-level changes cannot be managed through the pumping system, a reduction in extraction rate or in the worst case, a cessation of below-water-table extraction will resolve the issue.	As noted during the January 16-17, 2020, meeting with JDCL, additional information is required regarding the approach to warning, minimum thresholds and target levels as these relate to mitigation and contingency planning, and should be included in the IG. Additional clarification is requested to fully integrate the ecological and water resource strategies for wetlands in the east area of the subject property, adjacent to the east pond. The requested updates should be provided in the addendum to the Level 2 Natural Environment Report.	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Information on warning levels, Minimum Water Level Thresholds, and targets are presented in Section 6 of the Implementation Guide. Information on these and effects on the ecology of the Eastern Wetland Complex are provided in Section 14.1 of the NETR Addendum.
65.	The operational modifications are generally vague and not quantified. For example, “modify rate of extraction on a seasonal basis” is stated with no numerical values stating how the rate could be modified. These modifications should be adjusted to provide more quantifiable actions.	Section 14.1	See response to comment #62. The operational modifications are not vague as they relate to specific environmental objectives. There is a very detailed monitoring and mitigation plan including trigger levels shown in Tables 3 through 7 on the site plan and outlined in detail in the Hydrogeology Report. The predictive modelling concludes that there is sufficient water in storage to maintain water levels above the trigger levels for the critical periods. It is not necessary to	Clarification is required in regards to whether water level targets/thresholds may need to be adjusted based on feature-specific conditions, and/or to mimic annual variability in conditions. Additional clarification is required to fully integrate the ecological and water resource strategies based on feature-specific conditions, and areas (e.g. wetlands in the east area of the site) that	This has been addressed in the revised Implementation Guide (August 2020). Sections 8.1 and 8.2 of the Implementation Guide provide the protocol for modifying the monitoring programs. As discussed in Section 8 of the Implementation Guide, an annual report will be prepared at which time any proposed changes to targets and Minimum Water Level Thresholds may be raised for discussion with the agencies.

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			dictate pumping rates in the approved monitoring plan. See also the Environmental and Water Management Operational Guide circulated on November 29, 2019.	were not explicitly addressed in the Natural Environment Report. As noted during the January 16-17, 2020, meeting with JDCL, protocols for adjustments to thresholds and target levels should be provided in the IG. Any amendments to the proposed monitoring, mitigation and contingency planning should be addressed in the IG.	
66.	Pond 5 is located in a PSW and is the most productive of all of the ponds surveyed for salamanders. It is also confirmed SWH, as it provides habitat for bullfrog. Alteration of the existing outlet is not supported.	Section 14	We agree that Pond 5 is the most productive salamander pond. It does not support bullfrogs as is stated in the comment, but we have identified it as significant wildlife habitat for breeding amphibians. No in-wetland work would be required to improve the outlet to Pond 5. The pond overflows into the West Pond over a hump of upland habitat. The outlet was created by the previous operator of the gravel pit, who not only created the West Pond but dug an outlet from Pond 5 to it. The suggested alteration is to slightly raise the dry area so that the pond retains a little more water. The hydroperiod of this pond is currently marginal for producing salamanders. In most years, it supports enough water until the end of July, but in drought years it may not. The following picture was taken on July 31, 2018 in the deepest area of the pond, demonstrating how low water levels are in a fairly “normal” year from a precipitation perspective. The pond was reduced to a very small puddle at that time. In spring, the location where the individual is standing is 50 to 60 cm deep and floods the trees behind him. 	The response has provided clarification regarding the original JART comment. Monitoring, mitigation and contingency plans should be built into the IG.	Addressed in the revised Implementation Guide (August 2020). Monitoring proposed for Pond 5 includes amphibian call-counts and salamander sampling. An environmental objective specific to this pond has been developed based upon data collected over the past 5 years. The revised environmental objective will ensure that the pond retains water into mid-August in all years. The hydroperiod during the life of the quarry will be more regular and longer in this pond than it is currently. Water levels and the hydroperiod in Pond 5 will be maintained by Dispersion System 1. A Minimum Water Level Threshold and warning levels have been established for this pond and these will be monitored by WP6.

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			(#66 con't) It is our opinion that management that enhances the hydroperiod of this pond would be beneficial and would have no adverse effects on the provincially significant wetlands or its functions. Work can also be completed without creating any disturbances or site alterations within the wetland itself.		
67.	For those wetlands that are within the zone of influence, additional details for each unit that discuss the occurrence and distribution of wetlands plants with higher CC values should be presented and can be used to rationalize the ecological response to potential changes in hydrology and degree to which mitigation is necessary. This is particularly important for wetland features located east of the rail line that were not studied in detail with regard to anticipated changes to hydrology, for example wetland features located south of the east pond may experience a 0.3 m or greater drawdown in ground water.	Section 14.1	Again, the wetlands east of the railway were studied as intensively as the remainder of the property. Please see page 5 of the report. We apologize if the 120m line on some of the figures was confusing. During extraction operations in the East Pond (i.e. 5 to 6 years) the Earthfx model predicts up to a 0.5m drawdown along the northern edge of the eastern wetland complex and a maximum of 0.3m drawdown in the more central portion of this area with progressively less effect as one moves further southward, particularly south of the haul road in the higher-quality areas of the wetland. The wetland area north of the haul road has been subjected to abnormally high groundwater levels for several decades due to the damming effect of haul road construction in the 1980's. The entire wetland complex was similarly impacted prior to this date by construction of the railway. The presence of year round high water levels in the cedar swamp north of the haul road is indicated by the abundance of dead and dying trees found in this area. Although the groundwater level in this swamp will be temporarily lowered, it is expected that this will simply return the area to more natural pre-development conditions. The wetland will continue to remain wet to moist due to spring snowmelt and rainfall. In any event, growing conditions for wetland vegetation will improve during aggregate extraction in the East Pond and should continue to more closely approximate natural conditions in the future due to the installation of the proposed western culvert.	Monitoring, mitigation and contingency plans need to be built into the IG.	Addressed in the revised Implementation Guide (August 2020). Monitoring, mitigation, and contingency plans have been documented in the Implementation Guide in Section 3.

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68.	To appreciate the scale of influence on the groundwater system related to drawdown of main ponds it would help to see this presented on one of the maps with wetland features. This will help with evaluating the associated risk to the various wetland features that are located in and adjacent to the proposed extraction areas. Generally, a clearer integration between the hydrology, hydrogeology study and the natural environment study to characterize the wetland hydrologic functions; for example, a graph showing the average depth to ground water for all wetland features under existing conditions, during aggregate pond drawdown without mitigation, during aggregate pond drawdown with mitigation could be presented in the Natural Heritage report.	Section 14.1	In the Earthfx Report, Figures 9.6 and 11.7 show the magnitude of the maximum water level influence that will occur from the main ponds on the wetland features. Figure 9.6 shows water level change under closure and Figure 11.7 shows the maximum temporary water-level change during extractive operations. In addition, Figures 11.8 to 11.13 show anticipated water levels in several wetlands under a variety of precipitation conditions and maximum anticipated interference conditions. We have interpreted these graphs as clearly showing that the protection strategies (Table 2 on Page 3 of 5 of the Site Plan) can maintain appropriate hydroperiods in the wetlands during operations. In the event that actual conditions differ, there are several mitigation efforts available including suspension of below-water-table extraction at which point water level conditions will revert back to pre-development conditions. See also the Environmental and Water Management Operational Guide circulated on November 29, 2019.	The response has provided clarification regarding the original JART comment. The information provided should be documented in an addendum to the Level 2 Natural Environment Report, in particular, it is recommended that maximum model-simulated drawdown information be identified on a map with ELC communities to identify where soil moisture regimes may change, and affect existing vegetation. Additional clarification is still required to confirm the efficacy of the proposed mitigation strategies as part of the mitigation and contingency plan; to be included in the IG.	Addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Section 14.1 of the NETR Addendum provides additional information on the wetlands where drawdowns are anticipated. A figure is presented in the addendum that shows the drawdown in the Eastern Wetland Complex assuming no mitigation, plus the locations of the plant species with high Coefficient of Conservatism scores. The Implementation Guide presents information on the mitigation measures and contingency plans should the desired objectives not be attained. These are provided in Sections 4.2 and Table 16.
69.	Report states that based on the Earthfx modeling, `Simulated groundwater drawdowns indicated that this wetland would not be affected by a water-level reduction of 1 m if phases 1, 2, and 3 were extracted concurrently. Is this referring to just the water levels within the wetland or will wetland vegetation be affected? A 30 cm water level reduction over 5 - 6 years may significantly affect wetland vegetation, in particular where sensitive species are present. It's not clear if this has been evaluated at a spatial scale that is relevant to individual features and/or inclusions within features. Additionally, to evaluate the potential change(s) in water levels should also include a measure of variability (presumably the changes presented are the model averages).	Section 14.1	Please see response #67.	The information provided should be documented in an addendum to the Level 2 Natural Environment Report. In particular, it is recommended that maximum model-simulated drawdown information be identified on a map with ELC communities to identify where soil moisture regimes may change, and affect existing vegetation. Additional clarification is still required to confirm the efficacy of the proposed mitigation strategies as part of the mitigation and contingency plan; to be included in the IG.	See response to Comment #68.
70.	With the request to include the access road within the license area boundary, adjacent features and functions should be evaluated (120 m boundary) and any recommendations implemented accordingly.		As shown on several figures in the Natural Environment report and the site plans, the access road will not be included within the licensed area. As previously noted, detailed environmental work did occur within the wetlands that straddle the road. This was explained on	The response has provided clarification regarding the original JART comment. As the access driveway is not proposed to be included as part of the licenced area, Conservation Halton's regulation and policies apply. Conservation Halton	Resolved. Comment noted.

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			page 5 of the report but probably was confusing because of our showing the 120-m zone on the figures.	regulates, all development in or adjacent to river or stream valleys, wetlands, shorelines or hazardous lands; alterations to a river, creek, stream or watercourse; and interference with wetlands. We acknowledge JDCL's December 2019 response to a similar comment made by JART in the site plan and summary statement response table; refer to that response table for additional comments regarding CH's regulatory/permitting requirements.	
71.	For Pond 5, it is not clear how dispersion trench 1 will mitigate impacts when the water table is lowered from drawdown in ponds 1 and 6. The direction of groundwater flow identified in hydrogeology study (Figure 4.8) is from north to south, suggesting that the pumped water will infiltrate back into pond 6, not into the wetland area associated with Pond 5.	Section 14.1	Although Pond 5 is hydrogeologically connected to Pond 6 it takes several days for groundwater to travel from Pond 5 to Pond 6, so with continuous pumping and this time lag, sufficient surface water can be maintained in this wetland to ensure successful amphibian breeding. Dispersion Trench 1 and 2 are not necessarily designed to infiltrate all of the water. The intention is for the trench to disperse the energy of the water being pumped into the trench and allow for the water to trickle over the surface into the wetland under controlled non-impactful conditions. See also Hydrogeological response #52.	The information provided should be documented in an addendum to the Level 2 Natural Environment Report. Additional information should provide details on the source of water for pumping and contingency measures in the event that drawdown of Pond 5 is faster than expected during and post extraction. This information can be included in an addendum to the Level 2 Natural Environment Report, as part of the IG, and/or as a detail on the updated Site Plan (as applicable).	This has been addressed in the revised Implementation Guide (August 2020). Further information on Dispersion System 1 and Pond 5 is included in Section 10.1 of the NETR Addendum.
72.	Although there are potential benefits to amphibian habitat identified for the proposed management strategy for Pond 7 (A and B), consideration should also be made for potential impacts to obligate wetland plants that may be present and affected by the proposed hydroperiod changes.	Section 14.1	We anticipate no significant changes to the hydroperiod in any of the ponds. The overall objective for Pond 7 is to make this pond more viable for breeding salamanders by excluding fish and having a more natural vegetation community. Pond 7 will continue to support obligate wetland plant species.	The information provided should be documented in an addendum to the Level 2 Natural Environment Report. Additional information will be required with regard to monitoring and contingency measures to confirm that the proposed mitigation approaches result in the predicted outcomes. This information can be included in in an addendum to the Level 2 Natural Environment Report, as part of the IG, and/or as a detail on the updated Site Plan (as applicable).	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Further information on Buffer Pond 1 and Pond 7 is included in Section 10.1 of the NETR.
73.	To what extent will installation of the culverts affect the hydrology of the Wetland Complex south of Pond 11? Was this included in the modelling by Earthfx? Given the uncertainty around flow of surface water between these features, clarification is warranted.	Section 14.1	The 2 box culverts are intended to improve the flow of water and facilitate the movement of reptiles and other wildlife species. The more westerly culvert should help to lower the unnaturally high water levels in the wetland communities on the north side of	The information provided should be documented in an addendum to the Level 2 Natural Environment Report. Since the access driveway is not proposed to be included as part of the licenced area, Conservation Halton's	Information has been added to the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Further information on the box culverts under the haul road is provided in

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			the haul road and may also allow for the re-establishment of a south flowing stream through the cedar swamp (SWC3-2) as was the case in the past (see also response #75). The most significant wetland species are located south of the road, and installation of the western culvert has the potential to improve conditions for them by allowing more natural flow of water to this area. The eastern culvert will not change existing hydraulic conditions because it simply replaces an existing culvert. The water levels in Ponds 12 and 13 are very similar, indicating good connection through the existing culvert. The eastern box culvert will enhance this hydraulic connection but will not change flow conditions between the two ponds. We have never observed flow in the western culvert area. A small culvert presently exists but water levels have never been high enough on the north side of the road to cause flow within the culvert. The elevation of surface water (when present) at SG12 is lower than elsewhere in the Eastern Wetland Complex and yet there is no flow. Since conditions around the culvert will not change, no change in hydrology is expected to occur with the box culvert.	regulation and policies apply. As noted previously, Conservation Halton regulates, all development in or adjacent to river or stream valleys, wetlands, shorelines or hazardous lands; alterations to a river, creek, stream or watercourse; and interference with wetlands. Conservation Halton should be contacted prior to submitting a permit application to confirm permit submission requirements. Details should also be provided regarding the type of culverts proposed for installation, and monitoring to assess efficacy of use by wildlife.	Sections 10.1 and 15.1 of the NETR Addendum and section 9.1.1.2 of the Implementation Guide.
74.	Text for Pond 12 indicates that water levels are controlled by discharge of stormwater into pond 13, but discussion regarding wetlands north of the internal road indicates that the wetlands are also linked to damming of the groundwater flow (function of complex of wetlands north of internal road, pg. 86). Hydrologic function in this general area should be clarified (i.e. to what degree does the wetland depend on ground water and/or surface water). The report also identifies there is an existing, non-functioning culvert or culverts between ponds 12 and 13. A new culvert is proposed in this area to reconnect Pond 12 and 13; additional consideration should be given as to the proposed location of the culvert to avoid impacts associated with runoff that enters Pond 13.	Section 14.1	Water levels in Ponds 12 and 13 are essentially the same, indicating that the existing culvert between these two ponds is functioning at least marginally. This is the only location that makes any sense for connecting the two ponds. It is not possible to avoid impacts resulting from any discharges from Pond 13, and these discharges have been approved by MNRF and presumably by CH, as part of the industrial development to the south. It is essential that a connection between the ponds be maintained to prevent damming by the road and flow over the road. In addition, a connection between the ponds at this location allows us to install safe passage for turtles and other wildlife species.	The information provided should be documented in an addendum to the Level 2 Natural Environment Report. Since the access driveway is not proposed to be included as part of the licenced area, permission would be required from Conservation Halton. Conservation Halton regulates, all development in or adjacent to river or stream valleys, wetlands, shorelines or hazardous lands; alterations to a river, creek, stream or watercourse; and interference with wetlands. Conservation Halton should be contacted prior to submitting a permit application to confirm permit submission requirements. We acknowledge JDCL's December 2019 response to a similar comment made by	This has been addressed in the revised Natural Environment Addendum Report. Additional information on Ponds 12 and 13 and the wetlands north of the haul road are presented in Section 14.1 of the NETR Addendum.

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				JART in the site plan and summary statement response table; refer to that response table for additional comments regarding CH's regulatory/permitting requirements. Refer to Item #14 in the Summary Statement table below.	
75.	It is not clear if or how CC/CW values were used to support the statement(s) that wetlands will not be impact by the anticipated reduction in water level within several wetland communities. A more detailed analysis is required to support this statement, such as using CW values, or consulting literature and case studies that document the range of tolerances, especially for species that are likely to be more sensitive to changes in hydrology/hydroperiod.	Section 14.1	The cedar trees in the Eastern Wetland Complex have been under stress for several decades due to unnaturally high water levels in this wetland. Lowering the water table during the operational period of the site development will only improve tree health and growth, as well as habitat conditions for ground flora that are typically found in this community. The water table in other wetlands will be protected through the system of buffer ponds and dispersion trenches. By maintaining the hydrological regimes in the salamander ponds, the water table in the adjacent wetlands will also be retained.	The response has provided some clarification regarding the original JART comment; additional information regarding the location of sensitive wetland species is required and should be documented in an addendum to the Level 2 Natural Environment Report. Details regarding the proposed monitoring and contingency plan are also recommended to assess whether or not the improvements to the wetland occur as predicted. Details regarding monitoring and contingency planning can be included in an addendum to the Level 2 Natural Environment Report, as part of the IG, and/or as a detail on the updated Site Plan (as applicable).	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Eight permanent vegetation plots will be established in the Eastern Wetland Complex as discussed in Section 4.3.4 of the Implementation Guide and Section 14.6.3 of the NETR Addendum. These are intended to monitor areas near the East Pond where water drawdowns will be greatest, areas supporting the most sensitive plant species, areas where the water table may change as a result of a new culvert under the haul road, and areas where the water table may change if the culvert under Twiss Road is repaired or replaced.
76.	If the haul road needs improvements, will adjacent natural features and functions within vicinity of the haul road be impacted?	Section 14.2.1	Improvements to the road are mainly related to environmental enhancements associated with wildlife crossings. The road bed is wide enough to accommodate two on-coming trucks so there is no need to widen its base and it will not be paved. Water will be used for dust control rather than chemicals. Some trimming of branches overhanging the road may be required, but this will be the extent of disturbance. While some repair of the road surface has been made using recycled aggregate (rap) over the years, a paved surface wide enough for two trucks to pass is currently in place.	Refer to Item # 74 in the GWS Natural Environment Review table above. Refer to Item # 14 in the Summary Statement table below.	See response # 74 above and #14 in the Summary Statement Section.
77.	As noted in the report, there are regulated Jefferson Salamander breeding ponds present in the study area and the 120 m investigation zone. Although it is stated that these ponds will not be impacted, this inference relies on the ponds being outside of the 'zone of influence' of potential changes to the water table. The EarthFX report indicates a 0.1 m to >0.2 m draw down for ponds occurring in this area (Fig 9.1), which suggests hydro-period may be affected and appropriate mitigation actions identified.	Section 14.2.2	MECP is currently reviewing the hydrogeological information regarding the Jefferson salamander suitable breeding ponds as defined under the ESA regulations. We are working with them to ensure that the ESA requirements are met.	Any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, and where requested, monitoring requirements be incorporated into the IG.	This has been addressed in the revised Natural Environment Addendum Report. The only direction we have had from the Province regarding the Jefferson salamander is their request that an amphibian egg-mass survey be completed. This request was complied with and the report is included in

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	As noted in previous comments, based on mapping provided in the Natural Heritage report, it is not clear where the 'zone of influence' exists. This should be presented on a map in the Natural Heritage report, preferably overlaid with wetland features to clearly show where draw down is expected relative to wetland features.				Appendix B of the NETR Addendum. Subsequent to the submission of this report, an MECP staff member visited the site and all of the ponds. We have yet to receive any formal response from MECP regarding the Jefferson salamander. We do know that at least some of the forested area south and east of Phase 1 will be regulated as Jefferson salamander habitat as will some of the ponds within this forest. No areas within the extraction area will be regulated as Jefferson salamander habitat according to MECP verbal and email communications, but this has yet to be confirmed.
78.	More detail on the proposed Buffer Pond 2 is needed. How will it function and how will it ensure that there will be no impact on the water quality, temperature and baseflow of the creek? A more thorough discussion of the buffer ponds is needed. The conversion of groundwater to surface water via Overflow Ponds to feed groundwater fed features is not supported. An alternative should be presented.	Section 14.3	The purpose of the buffer ponds is to maintain the hydraulic head between the quarry ponds and adjacent wetlands, ponds, and Kilbride Creek. By maintaining the hydraulic gradient, groundwater discharge will continue to occur in these features. Presently, pond water migrates from the West Pond to Kilbride Creek through sandy deposits between the two features. There is a significant temperature decrease over the 21 metres of separation. This condition will not change as the water level in Buffer Pond 2 will not be higher than it is found presently. There is no change to the transmissivity of the 21 m of unconsolidated material between the pond and the creek. Therefore all conditions remain the same during extractive operations and post closure. See also the Environmental and Water Management Operational Guide circulated on November 29, 2019.	As noted during the January 16-17, 2020, meeting with JDCL additional information is required regarding the potential for surface water infiltrated via Dispersion Trench 2 to affect the temperature of the tributary that arises south of the West Pond. Additional information should be documented in an addendum to the Level 2 Natural Environment Report or as part of the IG.	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Dispersion System 2 will be a trench that allows indirect filtration of water into the wetland that gives rise to the Kilbride Tributary. There will be no direct discharge of water to the wetland or tributary so no changes in water temperature are anticipated. Water temperature will be regularly monitored in the Kilbride Tributary and thresholds have been set for minimum water temperatures and maximum summer temperatures in the tributary. Details on this are provided in Sections 14.1 and 14.3 in the NETR Addendum.
79.	In Section 4.3 (page 21) there is reference to a large spring that is present north of the railway bridge that flows to Kilbride Creek. A large spring would be expected to affect both the volume of flow and water temperature of Kilbride Creek. This feature is not discussed in this section and is not mapped on Figure 13. The potential impact of the proposed quarry on this feature and on Kilbride Creek should be assessed.	Section 14.3	We concur that we omitted to map the location of the spring near the railway tracks. GPS coordinates for the location of the spring will be obtained and the feature will be mapped on any revised figures. Phase 1 is the nearest extraction phase to this spring. A positive hydraulic gradient will always be maintained toward the spring and it is expected that upon closure, the hydraulic gradient between	The omitted information provided should be documented in an addendum to the Level 2 Natural Environment Report.	Addressed in the revised Natural Environment Addendum Report. The presence of this spring has been documented in the NETR Addendum in Section 10.2.2. It is considered to be significant wildlife habitat and the figure showing Significant Wildlife Habitat – Seasonal Animal Concentration and Specialized habitat in the addendum has been modified to indicate it as significant

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			the Phase 1 pond and the spring will be of greater magnitude than presently occurs.		wildlife habitat. The potential impacts of quarrying activity on it are discussed in Section 14.5 of the NETR.
80.	The report states that if a positive hydraulic gradient between the West Pond (Pond 1) and Kilbride Creek is maintained there will be no effect on the water quality, temperature, or baseflow of the creek or the seeps and springs that contribute to it. The Hydrogeological Report states on Page 46 "The cyclical movement of warm and cool water from the West Pond will continue as presently occurring. There may be a moderation of the higher temperatures as a result of deeper, cooler water in the West Pond." The possible effects of the deeper West Pond, the Phase 4 quarry and the Phase 1 quarry on water temperature in Kilbride Creek, the tributary to Kilbride Creek that arises south of the West Pond, and the large spring just north of the railway tracks should be discussed in greater detail. The nature of the "cyclical movement of warm and cool water" is unclear. Will a deeper West Pond actually result in cooler water discharging near Kilbride Creek?	Section 14.3	Under existing conditions, 25°C water enters the groundwater flow system at West Pond in July and discharges at a temperature of 16°C at Kilbride Creek approximately two months later. In the winter, 0°C water enters the groundwater flow system at the West Pond and discharges at a temperature of 8°C, again two months later. These are the conditions measured at the top of the groundwater flow system. The existing ponds are relatively shallow with little thermocline. A deep quarry pond will have cooler water at depth, less affected by solar radiation than the shallow pond water. Therefore, it is possible that cooler water will enter the groundwater flow system from the deeper pond. The sand and gravel deposits have an attenuating affect on the temperature of thermal plume and small changes in surface water temperature (if any) will not be significant at the discharge point. It is expected that a deeper West Pond (and Phase 4 pond) will have subtle impacts on the temperature of groundwater discharging at Kilbride Creek. The Phase 1 pond represents a new condition, however, Pond 3 is presently closer to Kilbride Creek than the future Phase 1 pond. Pond 3 is very shallow and water migrating from the pond is presently moving toward the spring adjacent to Kilbride Creek. The Phase 1 pond will be deeper and farther away from the spring neither of which condition will result in a greater impact to the spring than is already occurring (if any). As shown between the West Pond and Kilbride Creek, there is approximately a nine degree change in only 20 metres of travel distance. Assuming similar thermal properties, the temperature change at 180 m will be negligible. The estimated groundwater velocity in the southwest corner is estimated to be four metres per year based on a hydraulic gradient of 0.009, hydraulic conductivity of 2.15 x 10-	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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			6 m/s at CB4S and a porosity of 0.15. The travel time is therefore 45 years, more than sufficient to attenuate the thermal plume. See also hydrogeological response #12 and response #81 and 82 below.		
81.	The proponent should also discuss whether the presence of the new Phase 1 pond will affect the volume of groundwater discharge or the temperature of groundwater discharging to the Kilbride Creek tributary that arises south of the West Pond post-closure?	Section 14.3	The potential effect of the Phase 1 pond on groundwater discharge to the Kilbride Tributary was considered and shown on Figure 9.9 in the Earthfx report. There will be small increases in groundwater levels in the Tributary after closure. Considering that hydraulic conditions are not expected to change, there will be no significant impact on the temperature of discharge water in the Kilbride Tributary.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
82.	The Hydrogeological Assessment report states (p 47) that the minimum distance between the Phase 1 pond and Kilbride Creek is 180 m and therefore no effect on the temperature of groundwater discharging to Kilbride Creek is predicted. A figure showing a 180 m buffer around the Phase 1 pond and other ponds is requested, so that it can be readily determined if any springs or watercourses are within that distance.	Section 14.3	The distance of 180 m is not the minimum impact distance for a thermal plume from a gravel pit. On-site data already shows that 20 metres of sand greatly attenuates a thermal plume. Based on the on-site observations and estimates of groundwater flow we are confident that there will be no impact to Kilbride Creek or springs associated with Kilbride Creek southwest of Phase 1. All other ponds already have associated thermal plumes which will not be significantly affected by being deeper.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
83.	The potential effect of increased turbidity due to blasting is discussed in the Natural Environment report. The potential for direct effects of blasting on fish is not discussed. The direct effects are discussed in the Blasting Impact Analysis and should be included in the Natural Environment Report. Fisheries and Oceans Canada (DFO) has published guidelines for determining the potential for blasting to affect fish (http://publications.gc.ca/collections/Collection/Fs97-6-2107E.pdf). The Blast Impact Analysis (Explotech Engineering Ltd, 2018) considers blast impacts on adjacent fish habitats in the context of those recommendations. The report states that the two watercourses in which fish habitats are present are Kilbride Creek, located approximately 50 m offset from the Southwest portion of Phase 4, and two ponds located along the access road that drain into watercourse approximately 300 m Southeast of Phase 3. Based on these separation distances, it is concluded that water overpressures generated by the blasting will be below the DFO 100 Kpa guideline limit and will have no impact on the adult fish populations present. No	Section 14.3	To ensure that there is no effect of blasting on spawning fish species, blasting must follow DFO guidelines as outlined on the Site Plan. According to DFO, the spawning period for coldwater fish species, which applies to Kilbride Creek, is October 1 to May 31, and the spawning period for warmwater fish, which applies to the Pond 12 and Pond 13 area, is March 15 to July 15. If CH has different timing windows, it would be appreciated if they could be supplied to us.	As the proponent has indicated that they will be in discussions with DFO (Response #28) we respectfully request that they confirm the appropriate blasting timing windows with DFO, noting that there are also both fall-spawning and spring-spawning fish species present in Kilbride Creek. Additional information should be documented in an addendum to the Level 2 Natural Environment Report, as part of the IG, and referenced the updated Site Plan.	This has been addressed in the revised Natural Environment Addendum Report). The NETR Addendum recognizes that Kilbride Creek supports both warmwater and coldwater fish species in Section 7. The revised blasting windows recommended by DFO are presented in Section 14.3 of the NETR.

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	calculations are provided to support this statement. The supporting calculations should be provided. The report recommends that, during active spawning periods, vibrations be monitored at the closest spawning habitat to ensure compliance with the DFO vibration limit of 13 mm/s. No calculation to estimate the distance required to attenuate vibrations to this level is provided. To address this question, the locations where fish habitat is present should be re-evaluated based on fish sampling in the two tributaries to Kilbride Creek that arise on the site, as well as the determination as to whether or not Pond 3 has a surface connection to Kilbride Creek. The distances required to ensure that water overpressures are less than 100 Kpa, and to attenuate vibrations to 13 mm/s, should be calculated and a figure (map) provided showing areas where extraction is proposed that are less than that distance from fish habitat, if there are any such areas. This will allow an assessment of the potential interactions between blasting and fish.				
84.	There was no mapping to show extent of Significant Woodlands. There are at least two areas where woodlands are proposed for removal as a result of the proposed extraction; other woodland areas are directly adjacent to the proposed extraction areas. As Significant Woodlands have not been mapped in accordance with the ROP, it is not clear where overlaps with other significant features are present and where mitigation strategies are required. Mapping should be provided to clearly show where Significant Woodlands are present, and where mitigation strategies such as buffer areas may be required.	Section 14.4	See response 51. The limit of extraction in Phase 1 has been revised to remove wooded areas and apply a 10m buffer. Only the southern portion of Phase 4 and the southern boundary of Phase 3 proposes a limit of extraction directly adjacent to upland treed communities that could be classified as significant woodlands. These extraction limits directly correspond to the existing pond edges that were previously disturbed. In all other locations, the extraction areas are located adjacent to non-forested areas (i.e. CUM 1-1, DL, AG) or are located adjacent to plantation areas. See additional information provided by email (from James Parkin) on November 8, 2019.	The additional information regarding Woodlands and Significant Woodlands presented to JART during meetings on March 5 and March 31, 2020 should be incorporated into an addendum to the Level 2 Natural Environment Report. Additionally, JART understands that the updated site plan will result in several woodland areas being retained that were previously proposed for removal, which we look forward to seeing in an updated site plan. As well, where direction has been provided by the Province in this regard, it should be documented in an addendum to the Level 2 Natural Environment Report.	Addressed in the revised Natural Environment Report. Section 8 of the NETR Addendum provides a detailed discussion on significant woodlands, specifically for the communities CUW1-5 and CUP3-8. In subsequent discussions with JART following a site visit on March 31, 2020, JART concluded that these were the only two treed areas within the extraction area that had the potential to qualify as significant woodlands. Section 14.4A of the NETR Addendum provides a discussion on potential impacts on these two treed areas.
85.	There is no analysis and little discussion of how the specific woodland and/or swamp vegetation communities will respond to reduced water levels. The specific location of Significant Woodland areas should be identified on a map; for each Significant Woodland unit, other significant features should be identified, as well as the occurrence of all plant species. Assessment of species' CC/CW scores of species present within each vegetation community area should be used to evaluate the potential for indirect impacts based on proposed changes in ground water. Updates resulting from this comment apply to all Significant Woodland features that are within the subject lands and the 120m investigation zone, or which have the potential to be impacted by the proposal.	Section 14.4	In most wetlands and woodlands, there will be no change in water levels because of the mitigating effects of the buffer ponds, dispersion trenches and on-site management of water among operating phases. The only wetland/woodland complex that will experience any change in water table is the Eastern Wetland Complex (see Response #67). Furthermore, growing conditions for trees, shrubs and typical ground flora species established in SWM4-1 and SWC3-2 will be improved with a lowering of the water table during the growing season as these	The information provided should be documented in an addendum to the Level 2 Natural Environment Report. Mitigation strategies can be identified on the Site Plan. Any monitoring and contingency plans can be identified in the IG. Additional information is requested regarding the anticipated hydrologic changes in the east wetland, the anticipated ecological changes, and a monitoring and contingency plan to assess if outcomes reflect what is predicted. This information can be	See response to Comment #59.

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			wetland communities have experienced unnaturally high water levels for several decades. Wetland plants are adapted to this type of annual drawdown in the water table, so minimal effects are predicted to occur. There will be no negative impacts on any adjacent woodlands.	included in an addendum to the Level 2 Natural Environment Report, as part of the IG, and/or as a detail on the updated Site Plan (as applicable).	
86.	This section addresses potential impacts and provides high-level mitigation recommendations for SWH types based on those identified using the SWH Technical Guide criteria. The section should be updated to document any other SWH types (based on Ecoregional Criteria) that are present, direct/indirect impacts, and mitigation strategies.	Section 14.5	We disagree that the SWHTG analysis is a done at a high-level. It is much more detailed and considers many more potential habitats than does the SWHECS. As stated before, the only difference that occurs when the two different documents are used is that bullfrog habitat becomes significant wildlife habitat when using the SWHECS and habitat for the 11 locally significant species that we identified significant wildlife habitat for do not qualify as significant wildlife habitat. We have discussed the potential effects and mitigation on the bullfrog in our response to comment #53. In our report, we identified significant wildlife habitat for reptile hibernacula, habitat for area-sensitive breeding birds, amphibian breeding ponds, seeps and springs, the snapping turtle, eastern ribbonsnake, Eastern Wood-Pewee, and Wood Thrush as well as 11 locally significant species. The potential effects and mitigation for each of these species is discussed in Section 14.5 of the report. In most cases, we have simply avoided having any effect on the species or their habitats. Others are protected through the monitoring and mitigation measures included on the site plan.	Any new information, additional monitoring requirements, or contingency plans resulting from field investigations and/or assessment can be provided in an addendum to the Level 2 Natural Environment Report, as part of the IG, and/or as a detail on the updated Site Plan (as applicable). As outlined in the response to Natural Environment Comment #1, in addition to the SWH types identified by the applicant's team, examples of other SWH that require clarification/consideration as part of the addendum to the Level 2 Natural Environment, as part of the IG, and/or as a detail on the updated Site Plan (as applicable) include, but are not limited to: • Turtle Wintering Areas; • Reptile Hibernacula; • Turtle Nesting Areas; and • Terrestrial Crayfish.	This has been addressed in the revised Natural Environment Addendum Report. A discussion on turtle wintering areas and reptile hibernacula is provided in Section 10.1 of the NETR Addendum. The discussion on turtle nesting is in Section 10.2.2 and the discussion on terrestrial crayfish is in Section 10.3. A discussion on the potential impacts and mitigation on turtle wintering areas is provided in Section 14.5 of the NETR Addendum and mitigation measures are provided in Section 14.6. Monitoring related to turtle wintering and nesting areas is presented in Section 14.6.3.
87.	The proposed restoration may need to change as a result of addressing the above comments. Additional comments may be provided on the restoration once changes have been made.	Section 14.6	We see no need to change the restoration as a result of addressing comment #86. We are currently working with MNRF on the restoration aspects of the project, and as a result, additional details on specific aspects of proposed restoration work have been added to the revised Site Plan. MNRF is responsible for approving the details related to the restoration of the site. We are currently discussing the species composition of the wet meadow	The information provided should be documented in an addendum to the Level 2 Natural Environment Report and Site Plan as need. As well, information regarding the proposed monitoring and contingency planning can be included in the IG. Additionally, any direction that has been provided by the Province in this regard should be documented in an addendum	This has been addressed in the revised Implementation Guide (August 2020). Details on the restoration of the site are presented in the Implementation Guide in Section 9.1.2.5 and will be included on the updated on the Site Plan. Originally, we had planned to plant only cottonwood in the 10-m buffer to Pond 4 in the thoughts that it would grow fast and quickly provide shade and a source of

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			seed mix with them. A wet meadow seed mix was selected for the above the water table areas in Phase 1 and 2 as these areas are anticipated to be wet for a portion of the growing season and also contain riparian areas associated with the shallow shore and littoral areas that will be created in the adjacent ponds. This seed mix will contain facultative species that can tolerate seasonally wet conditions as well as dryer conditions later in the growing season.	to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	woody debris for the pond. MECP requested that a minimum of four tree species be planted to be consistent with CH's tree planting guidelines.
88.	Planting of "wet meadow seed mix" proposed, however without species the appropriateness of this mix cannot be confirmed. Conditions on a 3:1 or 2:1 slope will likely be too dry for a wet meadow seed mix.	Section 14.6	MNRF is responsible for approving the details related to the restoration of the site. We are currently discussing the species composition of the wet meadow seed mix with them. A wet meadow seed mix was selected for the above the water table areas in Phase 1 and 2 as these areas are anticipated to be wet for a portion of the growing season and also contain riparian areas associated with the shallow shore and littoral areas that will be created in the adjacent ponds. This seed mix will contain facultative species that can tolerate seasonally wet conditions as well as dryer conditions later in the growing season.	Any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	Addressed in the revised Implementation Guide (August 2020). The meadow seed mix has been altered slightly, with some input from MNRF. Details are in Section 9.1.2.5 of the Implementation Guide and will appear on the Site Plan. This information is also in the NETR Addendum in Section 14.6.2.
89.	Planting of "tree & shrub plantings" proposed for 15m setback along west property line (Phase 1 pit), however without a proposed species list, the appropriateness of the species chosen cannot be confirmed. Species and size details required.	Section 14.6	We are discussing tree planting with MNRF and a planting protocol, including species list, has been added to the site plan. Approximately 2.0 ha of tree planting will be carried out to enhance existing woodland edges and reforest disturbed areas, within and outside the licence area in order to improve woodland connectivity.	Any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, and monitoring requirements be incorporated into the IG.	We have received no input from the Province regarding tree planting along the western property boundary.
90.	"Shallow littoral areas" are proposed in 5 locations, however the majority of the pond edges do not have this treatment. Consider expanding extent of shallow littoral areas so that stated benefits to wetland flora and fauna can be realized. Section 14.6 of report notes that the intent with these areas is to create shallow marsh habitat, however no details on vegetation in these areas are provided. The report states that additional details are provided on figure 16, however no additional details are provided.	Section 14.6	The intent of the rehabilitation plan is to maximize the extraction of a provincially significant aggregate resources while creating environmental enhancement areas, including the shallow littoral areas identified on the site plan. Details on the creation of these shallow littoral areas are included on page 3 of 5 of the Site Plan under Environmental Enhancement Measures. We are working with MNRF on the final rehabilitation plan for the site.	Any direction that has been provided by the Province in this regard should be documented in an addendum to the Level 2 Natural Environment Report, on the Site Plan, and where monitoring requirements are proposed, that they be incorporated into the IG.	We have received no input from the Province regarding the shallow littoral zones. Their locations are shown on the Rehabilitation Plan of the Site Plan.

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91.	Page 97 - Bullet point 1 recommends replacing culverts. Depending on fish communities in existing ponds timing windows may apply - more detail required.	Section 14.6	All applicable DFO requirements will be adhered to for the replacement of the culverts. Timing is just one of the many requirements that must be considered. As mentioned in response #83, this is a warmwater fish community and DFO recommends that no activity be conducted in these waters from March 15 to July 15. Because there is minimal flow between Ponds 12 and 13 and no flow at the other location where a culvert will be installed, we will be able to do the work in the dry.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
92.	Page 97 - Bullet point 2 recommends management of Phragmites, however more detail is required about product to be used, methods, and timing windows. Recommend referring to BMPs which have been prepared by the Ontario Phragmites Working Group.	Section 14.6	We have experience implementing phragmites control measures and are aware of MNRF guidelines on phragmites control and will comply with their recommended methods. Cutting phragmites before seed set, but after the tubers have expended much of their energy in vegetative growth, has been an effective strategy to weaken and finally eradicate stands, without the use of chemical herbicides.	The information provided and the location of invasive species control should be documented in an addendum to the Level 2 Natural Environment Report. Actions that are proposed as part of this undertaking can be included in the IG, and as a detail on the updated Site Plan (as applicable).	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Information on the control of Phragmites is provided in Section 14.6.1 of the NETR Addendum, in Sections 3.6.3 and 9.1.1.4 of the Implementation Guide and will be included on the updated Site Plan.
93.	Page 97 - Bullet point 3 recommends management of Common Buckthorn, Dog Strangling Vine, and Garlic Mustard. Recommend referencing BMPs prepared by the Ontario Invasive Plant Council regarding product to be used, application rates and timing. BMPs should also be provided to avoid introduction and spread of invasive species that are not currently present on the site.	Section 14.6	We are aware of the BMPs prepared by the Ontario Invasive Plant Council and on other projects we have implemented their methods of controlling these invasive species.	The information provided and the location of invasive species control should be documented in an addendum to the Level 2 Natural Environment Report. Actions that are proposed as part of this undertaking can be included in the IG, and as a detail on the updated Site Plan (as applicable).	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Information on the control of invasive species is provided in Section 14.6.1 of the NETR Addendum, in Section 3.6.3 of the Implementation Guide ad will be included on the updated Site Plan.
94.	Should mention what surveys were done to determine presence/absence of amphibian or is presence assumed? Also how it was determined they breed unsuccessfully as it is somewhat unclear.	Section 14.6	We assume that this comment refers to Pond 15. We walked by Pond 15 on numerous occasions while doing nocturnal work such as amphibian call-count surveys and owl surveys and never heard any amphibians calling from this pond. Amphibians also commonly call during the day and none were ever heard during the day. In 2017, this pond dried up completely very early in the year, except for a small puddle that remained in an area where the previous pit operator had dug a test pit. This pond was examined in 2019 and no egg masses of any species were detected.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved

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95.	In general, a monitoring plan should be presented that provides more detail. Text should indicate whether monitoring will continue to be done during or post extraction to ensure there are no impacts on wildlife? Or is it just assumed?	Section 14.6	Page 3 of 5 of the site plan includes a detailed monitoring and mitigation plan for the operation of the quarry. We see no need to do any wildlife monitoring during or after the operation of the quarry. There will be extensive hydrogeological monitoring and provided that the mitigation measures maintain water levels in ponds and wetlands as projected, there will no effects on wildlife. If the hydrogeological monitoring determines that targets are in danger of not being met, mitigation measures will be implemented to ensure that the targets are attained. See Environmental and Water Management Operational Guide circulated on November 29, 2019.	As noted during the January 16-17, 2020, meeting with JDCL, protocols and specifics regarding mitigation approaches, monitoring, and contingency planning should be documented in an addendum to the Level 2 Natural Environment Report and Site Plan and should be included in the IG.	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Information on monitoring is included in the NETR Addendum (Section 14.6.3), the Implementation Guide (Sections 4.3) and will be included on the updated Site Plan.
96.	Figures 15 and 16 – Notes refer to maps 3 of 5 and maps 5 of 5 however only maps 2 and 4 are provided as part of the natural environment report. Other relevant maps/figures should be provided.	Section 14.6	It is best to refer directly to the current site plans, which include 5 drawings, rather than the versions in the Natural Environment report. A revised version of the Site Plans has been included with this response.	The response has provided clarification regarding the original JART comment; the information provided should be documented in an addendum to the Level 2 Natural Environment Report, as part of the IG, and/or as a detail on the updated Site Plan (as applicable).	The Site Plan has been revised to provide the latest current information on existing conditions, proposed operations, mitigation, and rehabilitation of the quarry. The Site Plan is referenced as required throughout the NETR Addendum.
97.	Figure 16 – Under “proposed vegetation” “nodal clusters of native woodland and meadow species” are proposed, however species are not given.	Section 14.6	The site plan has been updated to provide more information on tree planting, including a species list. Only native species of trees and shrubs will be utilized.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
98.	Figure 16 – A “constructed salamander breeding pond” is proposed within P15, however no details are provided about this in either section 14.6 or on figure 16. Due to the location of P15 within a natural forest, construction of this salamander breeding pond could adversely affect other vegetation or wildlife habitat which otherwise not be impacted by the extraction operations.	Section 14.6	Based on discussions with MNRF and MECP, the reference to improving Pond 15 has been deleted from the site plan.	The response has provided clarification regarding the original JART comment. Additional information and documentation are not required at this time.	Resolved
99.	Figure 16 – Under “topsoil and overburden” the following note is provided about revegetation: “Adequate vegetation will be established and maintained to control erosion…” Further detail required on species proposed, as use of non-native seed mixes could adversely impact surrounding natural vegetation communities.	Section 14.6	Only native grass seed mixes will be used to stabilize stockpiles of topsoil or overburden and thereby avoid introducing more non-native species into the area. Species such as Canada Bluegrass (Poa compressa), Switchgrass (Panicum virgatum), Virginia Wild Rye (Elymus virginicus) and Fowl Meadowgrass (Poa palustris) should be suitable for this purpose.	The information provided should be documented in an addendum to the Level 2 Natural Environment Report and/or as a detail on the updated Site Plan.	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Information on seed mixes is provided in Section 14.6 of the NETR Addendum, Section 9.1.2.5 of the Implementation Guide, and on and will be included on the updated Site Plan.

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100.	Although Section 15 provides direction on Mandatory Environmental Protection Measures, Operational Environmental Enhancement Measures (During and Pre-extraction), and Environmental Enhancement Measures (Progressive and Final Rehabilitation), there is no monitoring plan outlined that would allow for the validation and/or adaptive management of the proposed actions. This section should be updated with a comprehensive monitoring plan that address the efficacy of management actions, and provides recommendations for adaptive management in the event that the proposed actions do not work.	Section 15	Monitoring details and contingency measures are all described in detail on Page 3 of 5 of the Site Plans. It is our preference to have all relevant information on these matters in one easily accessible location rather than in a separate document entitled Adaptive Management Plan. See Environmental and Water Management Operational Guide circulated on November 29, 2019.	As noted during the January 16-17, 2020, meeting with JDCL, protocols and specifics regarding mitigation approaches, monitoring, and contingency planning should be documented in an addendum to the Level 2 Natural Environment Report and Site Plan and should be included in the IG.	This has been addressed in the revised Natural Environment Addendum Report and in the revised Implementation Guide (August 2020). Section 15 of the NETR Addendum includes the information on monitoring, mitigation, and contingencies. This information is also included in Sections 4.3 of the Implementation Guide and will be included in on the updated Site Plan.
101.	Please provide all field data sheets digitally for the surveys undertaken.		Our field data sheets are filled with our own personal codes and short forms for species, vegetation conditions and general comments. All of the information from our field notes has been incorporated into the Natural Environment Report.	Clarification was provided at the January 16-17, 2020, meeting with JDCL. The information provided, and data/information required as part of the baseline monitoring, should be documented in an addendum to the Level 2 Natural Environment Report and the IG, as applicable.	No further action proposed all information from the field data sheets has been included in the Natural Environment Report.