Proposed Reid Road Reservoir Quarry – JART COMMENT SUMMARY TABLE #3

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 objections and individual agency objections. **Additional comments may be provided once a response has been prepared to the comments raised below and additional information provided**.

These tables relate to the draft Environmental and Water Management Implementation Guide report, dated February 2020, and arising out of the October/November 2019 experts meetings and the preliminary report from December 2020. Comment based on information provided following this meeting is additionally incorporated into the table.

	Initial JART Comments (May 2020)	Page / Section	Applicant Response
Report: Environmental and Water Management Implementation Guide – February 2020 Author: James Dick Construction Limited (Plus subsequent reporting provided following March 2020 meetings)			
1.	General Comment: Recommend that at the end of each section/sub-section list the associated notes proposed to go on the Site Plan, and that the Site Plan reference this document.		
2.	Add an executive summary and a summary of keep points/ initiatives at the end of each chapter.		
3.	It is understood this environmental implementation guide is focused on terrestrial and water-based environmental management. There should be a reference in the introduction of the report to state this guide is not intended to address other matters (such as environmental air quality and noise matters). Within this clarification, there should be a reference to the document or documents that do address these issues.		
4.	In the second paragraph of section 1.1, last line expand on statement that "…changes in water quality in downgradient private wells are not likely to occur".	1.1	
5.	Monitoring program should include all new monitors, which are to be installed prior to commencement of extraction activities. A minimum of one year of monitoring data should be obtained in new monitors prior to extraction.	1.2.1	
6.	In Section 1.2.1 item #7, a CH permit will be required for these works. We assume the rail crossing signage is at the internal crossing not on Twiss Road correct? Please just clarify in the text.	1.2.1	
7.	The text of Section 1.2.1 needs to be consistent with page 3 of the Site Plans and Section 4.3 of this document.	1.2.1	
8.	Some of the rehabilitation of each phase does not appear to be clearly or accurately identified as discussed in the meeting. Please ensure that each Phase it clearly states how each previous Phase is being rehabilitated.	1.2.2	
9.	Recommend outlining a strategy for relocating sensitive species such as snapping turtles from Central Pond prior to filling for production plant area in the Implementation Guide.	1.2.2	
10.	In deeper ponds, such as P5, please confirm how the shot rock will stay stable to allow the drilling platform to get close enough to the edge of the extraction face.	1.2.3	
11.	Explain why ponds are tolerant to water level changes.	1.3.1	
12.	Recommend adding "and incorporation of mitigation measures (active pumping into Buffer Pond 1)" after "*through the implementation of a physical barrier*".	1.3.2	
13.	Under Chemical: Ammonia and nitrate water quality within the extraction ponds should be tested to confirm no water quality impacts.	1.3.3	

14.	Under Physical: Turbidity testing should be proposed to ensure that clean water is used in the mitigation system	1.3.3	
15.	Elsewhere, environmental objective 2 is described in more detail as 10% wetted area to a depth of 10 cm. This additional information should be included here so that there is no confusion. To ensure clarity, it should be stated to which ponds this objective applies to. Based on Figure 13, our interpretation is that this would apply to ponds 5, 7A, 7B, 9 & 10.	1.4.1	
16.	Text under Environmental Objective 2, "…generally require ponds to be full of water in early spring during snowmelt conditions and to maintain some water until about the end of July." Should be revised to indicate that water should be maintained later into summer/early fall. Elsewhere in the text it can be recognized that maintaining the target minimum water levels into July or August will maintain the ecologically important hydroperiod later into the season.	1.4.1	
17.	Under Environmental Objective 1 and 2, italicized text that states: "Output from the model over a 25-year historical period shows how f*requently the amphibian ponds held surface* water in at least 10% of their wetted area until July 31st under existing and proposed conditions." Should be revised to reflect that this interpretation is from a simulation and not from actual observations carried out over the 25 year period.	1.4.1	
18.	Under Environmental Objective 1 and 2, it would be appropriate to have references that support the species-specific target dates related to amphibian development into juveniles. Our position is that this may extend later in to the season, albeit, we understand that ensuring a minimum water level by late July to late August will provide a hydroperiod that extend later into the season.	1.4.1	
19.	Should water levels drop in the West Pond or the P3/Phase 1 excavation pond after closure due to increased seepage, measures should be implemented to maintain water levels in P3/Phase 1Pond and West Pond within historical levels. Groundwater and surface water monitoring should continue after termination of extraction until stable water levels have been established within historical levels to maintain springs and seepages west of the west pond. See Section 1.4.4 for commitment.	1.4.1	
20.	Should seepages within the Tributary to Kilbride Creek drop after the end of extraction operations, the applicant should be prepared to implement measures to maintain seepages (i.e. flow, water quality, and temperature) to the Tributary to Kilbride Creek within historical levels. Ground water and surface water monitoring should continue after termination of extraction until stable water levels have been established within historical levels and water quality restored to within historical levels. Addressed in Section 1.4.4.	1.4.1	
21.	As discussed at the meeting on March 5, 2020, Environmental Objective 2 should be revised to maintain the hydroperiod into August for the ponds that support salamanders, for those that are wet into August, and where the modelling demonstrates that pumping in August is required.	1.4.1	
22.	Text addition recommended in *italics*: Groundwater seepage occurs west of the West Pond in the riparian wetland of Kilbride Creek *and into Kilbride Creek*.	1.4.1	
23.	Text revision recommended in *italics*: The high-level environmental objective is to maintain flow and temperature ~~*range*~~ *regime* in the tributary.	1.4.1	
24.	Environmental Objective 5. It should be clarified/recognized in the second paragraph under this objective that the interpretation of the history of the east wetland is anecdotal. To better support this interpretation, the consulting team could review historical imagery.	1.4.1	
25.	This does not recognize the potential for turbid groundwater to be transmitted through potential fracture pathways in bedrock between Phase 1, 2, and 4 and Kilbride Creek.	1.4.2	

26.	Eastern Wetland Complex: Recommend removing the final sentence under description where it is noted “that the wetland south of the road is of high quality”, as all wetlands on the site are PSWs and of high quality.	2.1 Table 1	
27.	Tributary Arising in the Eastern Wetland Complex south of the road: Since this tributary has not been studied, and groundwater inputs are unknown, recommend removing the key features/functions description as it is theoretical and does not assist in characterizing the feature. Should works be required for this feature, then detailed information will be required at that time.	2.2 Table 3	
28.	As discussed at the meeting of March 5, 2020, it is unclear what this section is providing. Recommend removing it, if it is not needed, or revising to provide direction.	2.3	
29.	Recommend this subsection be renamed to “Flooding & Erosion Hazards”. In addition, as discussed at the January 16, 2020, and March 5, 2020, meetings, JDCL will need to demonstrate that there will be no impacts to the flood storage associated with Kilbride Creek as a result of the proposed noise berms. Please ensure that the May 4, 2020 report is referenced/summarized in this Plan. Confirmation that there are no anticipated erosion issues should also be provided.	2.5	
30.	Recommend that this section be updated to include details on contingencies in case the proposed mitigation measures are insufficient.	3	
31.	The buffer ponds are noted as only being needed during active extraction. This is premature to state as until it is known how effective the buffer ponds are and they may be needed as contingency post-extraction.	3	
32.	Recommend that post extraction contingency measures be proposed in case monitoring data suggests impacts.	3	
33.	Should describe difference between dispersion trench and infiltration trench if any difference. Dispersion trenches are described in Section 3.1.3 but no reference to infiltration trenches. Is Dispersion Trench 2 and Infiltration Trench? Clarification is required.	3	
34.	Recommend adding the associated PSW to the list of features that BP2 will maintain.	3.1 Table 5	
35.	Confirm what the contingency will be if the buffer ponds do not function as designed.	3.1.2	
36.	Confirm what the contingency will be if flow under the wetland back into the central and P5 ponds occurs.	3.1.3	
37.	Under “Source of Water”, to reduce the potential for turbid water to be used for mitigation, the source of water for mitigation should be from ponds not under active extraction	3.2 Table 6	
38.	Under column when required in row “Dispersion Trench 1, what is meant by the term “ad there are signs of ecological impairment” please clarify and correct spelling error. Identify what the signs of impairment area.	3.2 Table 6	
39.	Storing and the use of the site for asphalt recycling is a very contentious use in this area. In section 3.3, 2) is the 1 meter threshold for the storage of asphalt appropriate or does it need to be higher to reduce the change of contamination.	3.3	
40.	Strategies to enhance turtle nesting habitat by deterring predators should be confirmed with others who have tried these approaches. The vegetation approach is a reasonable idea, but may not be sufficient to deter predators.	3.4.1	
41.	Recommend that the berm associated with BP2 be maintained so that vegetation does not take over and make the site unsuitable for turtle nesting.	3.4.1	
42.	As discussed on March 5, 2020, the figures should be updated to clearly show the buffers to natural features and limits of extraction.	3.4.2	
43.	Please consider an overall invasive species management plan, including monitoring for the presence of new invasive species establishment, as opposed to individual measures.	3.4.3	
44.	Recommend that cutting not be carried during the bird nesting window, so as to not contravene the federal MBCA. While most bird nesting activity is over by the	3.4.3	

	beginning of August, it is certainly possible that late nesting species may be active. Therefore, if cutting has to occur during this time, a qualified birder will need to assess the areas to be cleared before work can be done.		
45.	On-site monitoring of temperature and precipitation should be ongoing throughout the life of the quarry operations. This is critical in assessing impact of operations on surface and groundwater levels. Off-site climate data could be used to supplement on-site data. Climate monitoring included in Table 11 should include precipitation.	4.1.1	
46.	For the climate stations, streamflow and groundwater levels, as well as temperature monitoring data, confirm how the results of this monitoring would be used and what the mechanism and/or protocols would be to make any changes to the site plan.	4.1.1 4.1.2 4.1.3	
47.	Can the intents for each monitoring station be added to the plan? As examples, CB17 and CB12s/d show those. CB16s/16d do not.	4.2.1.1	
48.	How often will water levels be monitored/recorded in the KC1 monitor? Not included in Tables 8 to 11 below. Section 4.2.1.3 indicates monthly water level readings at all ground monitoring stations.	4.2.1.1	
49.	A new groundwater monitor should be installed near the northwest corner of Phase 1 extraction area nearest to Kilbride Creek.	4.2.1.1	
50.	Recommend adding KC1 to the monitoring stations associated with BP2.	4.2.1.2	
51.	In Table 8, the reference to P13 should be P5.	4.2.1.4 Table 8	
52.	Is annual reviews sufficient or should they be done more frequently?	4.2.1.7 Table 10	
53.	To ensure no blasting water quality impacts occur, ammonia and nitrate should be added to the monitoring parameters. JART recommends sampling after each blast. If the results show consistently no negative impact, then sampling could be scaled back to annual.	4.2.1.7 Table 10	
54.	Turbidity monitoring should be included for existing ponds (West, Central, and East) as well as P3/Phase 1 pond prior to and during operations. Turbidity monitoring should also be included for mitigation features BP1, BP2, DT1, and DT2 during operations. Warning and trigger levels and mitigation plan are required in the event of elevated turbidity or other critical parameters.	4.2.1.8	
55.	Ambient Site Monitoring, Monitoring Station: Recommend adding and instrumenting CB13, CB14 and CB17 with dataloggers. The results would benefit water quality results interpretation and deal with potential water quality/ quantity complaints.	4.2.2 Table 11	
56.	CB6, CB16, CB5and KC1 are missing. CB 12 appears to be the most critical station for the potential identification of impacts to adjacent private wells. A data logger is required here doe the high potential for impacts.	4.2.2 Table 11	
57.	Water Level Monitoring, Monitoring Station: Recommend instrumenting CB12/S/D with a datalogger.	4.2.2 Table 11	
58.	Groundwater Quality, Monitoring Station: ensure that CB13 and CB 17 are tested for Cr(VI), Cu and As	4.2.2 Table 11	
59.	Should include CB16S/D in annual groundwater quality monitoring.	Table 11	
60.	Add P3/Phase1 Pond to annual water quality monitoring.	Table 11	
61.	Should include a new groundwater monitor located at the northwest corner of Phase 1 extraction area closest to Kilbride Creek. Should include turbidity monitoring for existing ponds (West, Central, and East) and P3/Phase 1 excavated Pond as well as mitigation features BP1, BP2, DT1, and DT2.	4.2.2 Table 11	
62.	In first paragraph of 4.3 Ecological Monitoring, identify how data sharing of the monitoring results will take place with Region/Agencies.	4.3	
63.	It is recommended that a more comprehensive monitoring approach be prepared for salamanders. We recommend that monitoring take place in pond 5, as well as other ponds where salamanders occur. Additionally, given the length of time	4.3.2	

	during which extraction is permitted, we recommended the use of environmental DNA to monitor late season occurrence of salamanders, which will establish that juveniles are present.		
64.	Amphibian Monitoring: It is recommended that pond P7B also be included. The proposed frequency of monitoring should also be justified. Additionally, it should be clarified that the proposed monitoring is to be continued throughout the life of the extraction license.	4.3.3	
65.	Recommend having a contingency plan if significant changes are observed, in addition to collecting and quantifying the changes.	4.3.4	
66.	Turtle Nesting, Artificial Nesting sites: It would be helpful to indicate where these are located in this document. Are areas along the edges of other ponds being checked and if not why? In addition, turtle nesting in Ontario can occur throughout June into early July. Proposed search methods should be updated to reflect this.	4.3.6	
67.	Who does the collection of the door-to-door collections and the analysis? It should be an independent third party.	5.1	
68.	The area down-gradient of the subject property on the west side of 1st Line Nassagaweya should also be included in the well survey as this area is directly down-gradient of the site. This should be shown on Figure 5.	5.1	
69.	Should include turbidity in water quality characterization.	5.1	
70.	Suggest that only wells not readily accessible not have water levels measured as criteria for measuring water levels.	5.1	
71.	Should show private wells to be monitored for water levels and frequency summarized in a Table.	5.2.1	
72.	How often will the water quality samples be taken? Please clarify.	5.2.2	
73.	Should also include water quality samples from CB16S/D located between the western edge of the site and wells along 1st Line Nassagaweya. CB16S/B should be sampled for general water quality in addition to turbidity as part of the monitoring program. Include in Table 11.	5.2.2.	
74.	Should use a statistical trend analysis for determination of increasing trend.	5.2.2	
75.	Why is well CB1 not included in 5.2.2.a)?	5.2.2 a)	
76.	Precipitation rates to include daily on-site precipitation monitoring.	5.3	
77.	As discussed on March 5, 2020, where the ponds support salamanders, and where the pond is wet beyond July and pumping is required, the minimum water level thresholds needs to be extended to August. For example, MWLT's for P5 and P10 should be established for the end of August.	6.1.1.1	
78.	Has this water level been measured in the field and calibrated against an observed area of water coverage of the wetland?	6.1.1.1	
79.	The methodology for determining MWLTs for amphibian ponds. Kilbride Tributary, and Kilbride Creek appears reasonable although it is not clear that using historical data for a relatively few years measured on-site will provide sufficient replication of historical wet and dry periods.	6.1.1.3	
80.	Request clarification of the phrase, "*it is necessary to keep a minimum water level between Phase 1 Pond and Kilbride Creek*".	6.1.1.3	
81.	It is assumed that in months where there are no MTWLs, there are no critical water level issues associated with amphibian ponds or significant ecological features or functions.	6.1.2	
82.	Include a hydrograph for the EWC (WP9) as well.	6.1.4 Table 14	
83.	Ensure that Table 15 summary shows same water levels than on Graphs 1 through 15.	6.3 Table 15	
84.	Groundwater discharge cools streams in the summer and warms them in the winter. Therefore it is recommended that the temperature targets for the Kilbride Creek tributary be that the maximum temperature not exceed 17°C and the	6.3	

	minimum temperature not be less than 4°C. A water temperature outside of that range should trigger an investigation of the cause. If the cause is determined to be a consequence of quarry operations a remedy should be enacted.		
85.	It is recommended that if a threshold is breached, that a qualified ecologist also be included in the meeting.	6.4	
86.	Recommend that if quarry activity is not found to be the cause or contributor to the trigger level breach, then the operator should contact the appropriate agencies so that the issue can be resolved.	6.4	
87.	Will new trigger levels be established in this case?	6.4	
88.	Recommend monitoring of the enhancements/rehabilitation to ensure they are successful.	9	
89.	Clarify if a solid barrier fence will be installed to block/redirect snakes.	9.1.1.1	
90.	Given that the barrier fencing will be approx. 150.0 m in length, it may be helpful if the box culverts included terrestrial benches so that none aquatic wildlife species would be comfortable using them too. This might mean that the 1.0 m width should be increased to accommodate the bench. To confirm suitability, it would helpful if all of the dimensions were included (i.e., height, width and length). Please indicate where the culverts will be located.	9.1.1.2	
91.	Shallow Littoral Zones: Please clarify the littoral areas that are supposed to be described.	9.1.2.1	
92.	Where soils have been compacted, recommend a minimum of 45 cm of clean topsoil rather than 20cm to allow root establishment.	9.1.2.5	
93.	Recommend that the discussion on the density of plantings be moved to the proceeding paragraph, so that it is clear that this density applies to all areas, not just associated with Pond 4.	9.1.2.5	