

Rockridge Quarry

Applications for Official Plan and Zoning Bylaw Amendment,
Municipality of Trent Lakes, County of Peterborough

PLANNING ADDENDUM REPORT

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BACKGROUND

In June 2016 Harrington McAvan Ltd. made applications under the Aggregate Resources Act and the Planning Act on behalf of 2329059 Ontario Ltd. to permit the development of a quarry.

The initial proposal outlined a licensed area of 98.5 hectares (236 acres) with extraction proposed on a portion, 81 hectares (200 acres) of the subject lands. Through review and consultation, the proposed licensed area has been refined to 59.7 hectares (147.5 acres) with the proposed area of extraction reduced to 46.9 hectares (116 acres). The reduced area removed the westerly portion of the property from the proposed area to the licensed.

The quarry operations would consist of two general product categories: dimension stone for general landscaping purposes; and aggregates for construction use. Removal of dimension stone will be conducted by mechanical means, but may also employ occasional low-intensity blasting in order to loosen rock faces. The extraction of construction aggregates will require drilling, blasting, crushing and possibly washing of the crushed material to create various marketable commodities. The site will be rehabilitated to forest using tree species native to the area, as well as areas of meadow, talus slope and exposed bedrock.

The Rockridge Quarry lands are currently designated as *Agricultural (A)* in the Official Plan. The lands are also identified in the Official Plan as a *Secondary Mineral Resource Area*. The Rockridge site is identified on Schedule 'C' of the Trent Lakes Official Plan within a Mineral Aggregate Resource Area. The applicant has submitted an application to designate the lands as "Aggregate Resource Extraction".

The area to be licensed is currently zoned 'RU-12' (Rural) according to the Trent Lakes Zoning By-law. An application for amendment the zoning by-law has been filed, and proposes to change the zoning to 'EX' (Extractive Industrial). The proposed quarry uses are consistent with the permitted uses in the EX zone.

The "Rock Ridge Quarry" applications were supported by the following technical reports submitted by the applicant:

- "Natural Environment Technical Report: Level I & II" prepared by Niblett Environmental
- "Hydrogeologic Assessment" prepared by WSP Group
- "Noise Impact Study" prepared by Valcoustics Canada Ltd.
- "Blast Impact Study" prepared by Explotech Engineering Ltd.
- "Summary Statement" prepared by WSP Group
- "Aggregate Resources Act Site Plans" prepared by Harrington McAvan Ltd.
- "Archaeological Assessment" prepared by WSP Group

The application and associated technical reports were reviewed and/or peer reviewed by the County of Peterborough, the Ministry of Natural Resources and Forestry (MNRF), and the Ministry of Environment, Conservation and Parks (MECP).

A public information session was hosted by the applicant in 2016 to address questions and concerns from public. There have also been numerous meetings with groups and individuals who have an interest in the application over the past 4 years. These include: Ministry of Natural Resources and Forestry staff, local citizens who have filed an objection to the licence application, peer review consultants, and staff from Curve Lake First Nation.

Through the consultation and review process, which included peer review of the technical reports, the applicant made a number of modifications to the proposal in response to questions that were raised. This includes the following key changes to the initial proposal:

- The extraction area has been reduced to provide greater separation from wetlands, surface water features, nearby residents and those traveling along County Road 507.
- Additional on-site monitoring wells have been installed.
- The monitoring frequency of on-site monitoring wells has been increased.
- The final mining depth has been raised to provide greater separation to the established water table.
- A screening berm, originally proposed to be located along the frontage of County Road 507, has been relocated into the interior of the site where, in conjunction with existing tree cover, will provide more effective noise mitigation. In addition, the “view-scape” along County Road 507 will remain unchanged, as the requirement for a berm adjacent the traveled roadway is no longer required.

All of the recommended revisions, including some additional technical recommendations, are reflected on the updated Site Plans, dated March 2020. These plans are attached as Appendix 1 to this report.

Since the time the applications were originally filed, some policy changes have come into effect, including a new Provincial Policy Statement (PPS 2020). The County of Peterborough has also initiated a project to update the Official Plan. Once approved, this will replace the current Township Official Plan. The project is still in early stages, and for the purposes of this application, the policies of the existing Official Plan for the Township and County are in effect. Please refer to the Planning Justification Report, dated May 2017 for a discussion of the Official Plan policies as they relate to this proposal.

This Planning Addendum Report has been prepared to address the changes to the PPS and assess the conformity of the revised applications with current provincial and local planning policies. The Report should be read in conjunction with the previously filed applications, and relevant supporting reports and information.

PROVINCIAL POLICY STATEMENT 2020 (PPS 2020)

The Minister of Municipal Affairs and Housing, under Section 3 of the Planning Act, can issue policy statements that provide direction to other ministries, municipalities and agencies on matters of provincial interest as they relate to land use planning. These policy statements are developed in consultation with other ministries and are updated from time to time. The latest PPS came into effect on May 1, 2020 and any land use decision by any authority that affects a planning matter must be consistent with the PPS.

The Provincial Policy Statement provides a policy-led planning approach that recognizes the complex inter-relationship among environmental, economic and social factors in land use planning. The PPS supports a comprehensive, integrates and long-term approach to planning and recognizes linkages among policy areas. (Part III)

The PPS recognizes that the Province's natural heritage resources, water, agricultural lands, mineral aggregate resources, cultural heritage and archaeological resources provide important environmental, economic and social benefits. The wise use and management of these resources over the long term is a key provincial interest. The province must ensure that its resources are managed in a sustainable way to conserve biodiversity, protect essential ecological processes and public health and safety, provide for the production of food and fiber, minimize environmental and social impacts and meet its long term economic needs. (PPS, Part IV)

The subject property contains resources which are of provincial significance: a high quality aggregate resource, and natural heritage features. The operations and progressive rehabilitation plans, have been designed to achieve the balance required to manage these overlapping provincial interests. The proposal will provide for access to provincially significant mineral aggregate resource, while ensuring the protection of natural heritage features through operations and rehabilitation of the site.

Changes from PPS 2014

On February 28, 2020 the Province issued a new Provincial Policy Statement (PPS) to replace the 2014 PPS. The new PPS takes effect May 1, 2020. The new PPS applies to any existing Planning Act application where a final decision has not been made.

The majority of the changes to the PPS are focused on housing and employment areas. As it relates to natural heritage resources, water, agricultural and mineral aggregate resources, the new PPS is essentially unchanged from the 2014 PPS. The 2020 PPS recognizes the importance of mineral aggregate resources and the policies continue to promote the protection of mineral aggregate resources close to market. One notable change related to the mineral aggregate resources of the PPS is confirmation that "where the Aggregate Resources Act applies, only processes under the Aggregate Resources Act shall address the depth of extraction of new or

existing mineral aggregate operations.”

The PPS 2020 also clarifies the requirement for consultation with Aboriginal communities on planning matters when section 35 Aboriginal or treaty rights are affected. This language is changed from to “shall” and provides certainty as to when consultation with an Aboriginal community shall be required.

PPS 2020 Summary

Based on the foregoing, the proposed Rock Ridge Quarry is consistent with the policies of the Provincial Policy Statement 2020.

CONCLUSIONS

The proposed application has been reviewed by County staff, together with their peer review consultants, and applicable review agencies. The applicant has revised the application in response to public and agency comments. The proposed application is consistent with the Provincial Policy Statement, conforms to the Growth Plan for the Greater Golden Horseshoe and the County of Peterborough Official Plan. Based on the foregoing, the proposed application is in the public interest and represents good planning.

APPENDIX 1

Aggregate Resources Act Site Plans

PHASE A

- ESTABLISH MAIN COMMERCIAL ENTRANCE TO COUNTY ROAD 36 AND SECONDARY ENTRANCE TO COUNTY ROAD 507 ACCORDING TO APPROPRIATE MUNICIPAL STANDARDS, ESTABLISH SCALES, SCHEDULES, AS SHOWN ON THE SITE PLAN AND HULL ROAD INTO THE SITE.
- USE STRIPPED MATERIAL FROM ROAD CONSTRUCTION TO BECOM CONSTRUCTING WEST ACQUICUT BERM PER NOISE TECHNICAL RECOMMENDATION PAGE 4. PLANT TREES ON WEST SIDE OF BERM (SEE REHABILITATION NOTE 19 ON PAGE 9).
- PRIOR TO EXTRACTION COMMENCING IN AREA 1, CONSTRUCT OR UPGRADE THE FENCING ALONG THE WEST AND PART OF THE NORTH PERIMETER OF THE SITE TO THE STANDARDS OF THE ACT, AS REQUIRED.
- STRIP TOPSOIL AND OVERBURDEN SEPARATELY FROM AREA 1 AND PLACE IN INTERNAL STOCKPILES.
- PRIOR TO DIMENSION STONE EXTRACTION BEGINNING IN AREA 1, RETAIL SILT FENCE AT OUTLINE OF TRAIL ALONG EXISTING EAST BOUNDARY. 1.5' FENCE WILL BE INSTALLED PROGRESSIVELY AS STRIPPING MOVES IN A NORTHERLY DIRECTION. BEGIN DIMENSION STONE EXTRACTION IN AREA 1 IN DIRECTION SHOWN. TRANSPORT WASTE ROCK TO PIT ENTRANCE/EXIT FOR PROCESSING.
- BEGIN EXTRACTION IN AREA 1 IN DIRECTION SHOWN USING A BRINKING CUT TO ESTABLISH THE QUARRY FLOOR AND FACE, AND PROCESS THE ROCK IN ORDER TO PRODUCE A VARIETY OF MATERIALS TO MEET MARKET DEMANDS. PORTABLE PROCESSING PLANT AND STOCKPILE AREA WILL BE LOCATED IN AREA 1.
- CONTINUE EXTRACTION OF AREA 1 IN THE DIRECTION SHOWN AND PROCESS AND STOCKPILE MATERIALS ON THE QUARRY FLOOR.
- AREAS 2 AND 3 WILL REMAIN UNDISTURBED WITH THE EXCEPTION OF THE HULL ROAD.

SITE PLAN OVERRIDE (VARIANCE)

THE FOLLOWING CONDITIONS ILLUSTRATED ON THESE PLANS VARY FROM THE OF THE PROVINCIAL STANDARDS MADE UNDER THE AGGREGATE RESOURCES ACT

ITEM	SECTION
1. SETBACK ALONG SOUTH BOUNDARY IS REDUCED TO 0m FOR AGREEMENT WITH ADJACENT LICENSEE. SETBACK ALONG EAST, WEST AND WEST PORTION OF NORTH BOUNDARY IS REDUCED AS PROPERTY IS OWNED BY THE LICENSEE.	S.1E.1
2. FENCING IS OMITTED ALONG THE SOUTH BOUNDARY PER AGREEMENT WITH ADJACENT LICENSEE. ON THE EAST BOUNDARY DUE TO TOPOGRAPHICAL CONDITIONS, ON THE WEST AND THE WEST PORTION OF NORTH BOUNDARY AS PROPERTY IS OWNED BY LICENSEE, AND TEMPORARILY ON THE EAST PORTION OF THE NORTH BOUNDARY UNTIL EXTRACTION REACHES 90% FROM THIS BOUNDARY PER AGREEMENT WITH ADJACENT LANDOWNER.	S.1
3. EXTERNAL GATES OMITTED AT THE FOUR ENTRANCE/EXITS TO PIT. EXTERNAL GATES WILL BE INSTALLED AND MAINTAINED AT THE ACTIVE ENTRANCE TO THE QUARRY.	S.2

OPERATIONS NOTES CONTINUED

HYDROLOGICAL INFORMATION

- HYDROLOGICAL INFORMATION INCLUDING GROUNDWATER ELEVATION WAS OBTAINED FROM REPORT BY WSP DATED MAY 2011 AND SUPPLEMENTAL REPORT DATED NOVEMBER 2016.
- IN THE EAST OF THE SITE, GROUNDWATER HAS BEEN DETERMINED TO AT AN APPROXIMATE ELEVATION OF BETWEEN 270 AND 282.8 mASL. THIS IS BASED ON A DETAILED EXAMINATION OF TOPOGRAPHY, BEDROCK COMPOSITION, EXISTING SURFACE WATER FEATURES, MONITORING WELLS ALONG THE WEST OF THE SITE. SITE INFORMATION FROM THE ADJACENT QUARRY TO THE SOUTH, AND DATA FROM MONITORING WELLS, HOW-2.
- IN THE WEST OF THE SITE, SUSTAINABLE GROUNDWATER IS ANTICIPATED BELOW ELEVATION 290 mASL. THIS IS BASED ON LONG-TERM MONITORING DATA FROM HOW-1 AND 888-2. WHERE GROUND WATER RANGES FROM ELEVATION 292 TO 285.6 mASL. WHILE SURFACE WATER OCCASIONALLY ENTERS WELLS, COMPARISON OF INVESTIGATIONS INDICATE THAT THIS IS AN UNSTAINABLE WATER SUPPLY, WITH A DISCONTINUED LOW RECOVERY RATE OF 0.003 L/MIN. WATER IN BERM-3 IS BELIEVED TO BE A CONTROL ELEVATION FROM WHICH TO PROVIDE A CONSERVATIVE MARGIN OF SAFETY TO ACTUAL GROUNDWATER, ANTICIPATED TO BE FOUND AT DEEPER ELEVATIONS. GROUNDWATER IS MORE ACCURATELY REPRESENTED BY MW-1-1 AND IS FOUND AT ELEVATION 291 mASL.
- FULL REFERENCE TO ASSOCIATED HYDROLOGICAL ASSESSMENTS PREPARED IN SUPPORT OF THE APPLICATION SHOULD BE MADE TO FURTHER UNDERSTAND GROUNDWATER WITHIN AND SURROUNDING THE SITE.
- SURFACE DRAINAGE ON THE QUARRY FLOOR WILL BE DIRECTED TO LOW AREAS FOR WATER TO INFILTRATE INTO EXISTING WETLANDS.

NOISE MITIGATION INFORMATION

- ADDITIONAL INFORMATION WAS OBTAINED FROM NOISE REPORT BY VALCOUSTIS CANADA LTD., DATED MAY 2017, UPDATED NOVEMBER 2018 (REFERS TO SHEET 4 FOR TECHNICAL RECOMMENDATIONS).
- IN ORDER TO AVOID NEIGHBOURS, EXTRACTION, REHABILITATION, AND MAINTENANCE, AND PROCESSING WITHIN AREAS 1 AND 2, PROCESSING WITHIN AREA 3, LOADING AND DATA FROM MONITORING WELLS, HOW-2.
- IN THE WEST OF THE SITE, SUSTAINABLE GROUNDWATER IS ANTICIPATED BELOW ELEVATION 290 mASL. THIS IS BASED ON LONG-TERM MONITORING DATA FROM HOW-1 AND 888-2. WHERE GROUND WATER RANGES FROM ELEVATION 292 TO 285.6 mASL. WHILE SURFACE WATER OCCASIONALLY ENTERS WELLS, COMPARISON OF INVESTIGATIONS INDICATE THAT THIS IS AN UNSTAINABLE WATER SUPPLY, WITH A DISCONTINUED LOW RECOVERY RATE OF 0.003 L/MIN. WATER IN BERM-3 IS BELIEVED TO BE A CONTROL ELEVATION FROM WHICH TO PROVIDE A CONSERVATIVE MARGIN OF SAFETY TO ACTUAL GROUNDWATER, ANTICIPATED TO BE FOUND AT DEEPER ELEVATIONS. GROUNDWATER IS MORE ACCURATELY REPRESENTED BY MW-1-1 AND IS FOUND AT ELEVATION 291 mASL.

AIR QUALITY INFORMATION

- WATER OR CALCIUM CHLORIDE WILL BE APPLIED TO INTERNAL HAUL ROADS AND PROCESSING AREAS AS OFTEN AS REQUIRED TO MITIGATE DUST.

SITE MANAGEMENT INFORMATION

- MAINTENANCE PROTECTION OF VEGETATION INFORMATION
- EXISTING VEGETATION WITHIN THE LICENSED AREA SHALL BE MAINTAINED IN A HEALTHY VIGOROUS GROWING CONDITION UNTIL SUBSTANTIAL STRIPPING OF THE REHABILITATION IS COMPLETE. ANY VEGETATION PLANTED AS PART OF SITE IMPROVEMENTS OR PROGRESSIVE AND FINAL REHABILITATION SHALL ALSO BE MAINTAINED IN A HEALTHY, VIGOROUS GROWING CONDITION.
- FENCING INFORMATION
- BOUNDARIES OF THE AREA TO BE LICENSED THAT ARE PRESENTLY FENCED ARE SHOWN ON DRAWING 1 OF EXISTING FEATURES, PRIOR TO ANY STRIPPING OR IMPROVEMENT, FENCING ON THE WEST PORTION OF THE NORTHERN LICENSED BOUNDARY WILL BE UPGRADED TO 1.2m HIGH POST AND WIRE FENCE TO COMPLY WITH THE AGGREGATE RESOURCES ACT. ALL OTHER BOUNDARIES ARE IDENTIFIED FROM FENCING AS NOTED IN SITE PLAN OVERRIDE #2.
- HIGHLY VISIBLE AND SEPARATELY DISTINGUISHABLE 1.2m HIGH PAINTED MARKER POSTS WILL BE INSTALLED AT INTERVISIBLE DISTANCES ALONG THE UNFENCED BOUNDARIES. IN LIEU OF MARKING THE EAST LICENSED BOUNDARY WHERE TOPOGRAPHY AND VEGETATION RESTRICT ACCESS, THE EXTRACTION LIMIT WILL BE STAKED IN THE SAME MANNER AS THE OTHER BOUNDARIES.
- PRIOR TO EXTRACTION WITHIN EACH AREA THE LIMIT OF EXTRACTION WILL BE DEMARCATED IN THE FIELD WITH INTERVISIBLE MARKER POSTS AND GEOREFERENCED INFORMATION FOR THE SETBACK/EXTRACTION LIMITS AND CORNER POSTS WILL BE PROVIDED TO WORKER UPON REQUEST.
- TOPSOIL/SUBSOIL/OVERBURDEN STORAGE INFORMATION
- TOPSOIL AND OVERBURDEN SHALL BE STRIPPED AND STORED SEPARATELY IN BERMS AND STOCKPILES, AS SHOWN. TOPSOIL, BERMS SHALL BE COVERED TO STABILIZE SOILS AND SEEDED WITH A GRASS/LEGUME MIXTURE TO PREVENT EROSION AND MINIMIZE DUST.
- BERM INFORMATION
- BERMS SHALL CREATE AN EFFECTIVE ACQUICUT BARRIER AS SPECIFIED IN THE VALCOUSTIS NOISE ASSESSMENT REPORT DATED MAY 2017. BERMS SHALL NOT EXCEED 2.1' HEIGHT. TYPICAL BERM CROSS SECTION ON DRAWING 4 OF 5 OF DETAILS AND SECTIONS. ALL BERMS SHALL BE SEEDED USING GRASS/LEGUME MIXTURE, SEE REHABILITATION PLAN, NOTE #7) IMMEDIATELY UPON COMPLETION.
- ON COMPLETION OF THE BERMS, EXCESS ON-SITE OVERBURDEN WILL BE USED TO PROGRESSIVELY BACKFILL AND REHABILITATE THE SITE.
- SCRAP STORAGE INFORMATION
- ALL SCRAP, USED MACHINERY AND STUMPS GENERATED THROUGH THE OPERATIONS WITHIN THIS LICENSE WILL BE STORED IN THE PORTABLE PLANT SITE, WHERE SHOWN, AND SHALL BE DEPOSITED ON AN ONDRAINING BASE. TREES TO BE REMOVED WITHIN THE EXTRACTION AREA WILL BE UTILIZED FOR FIREWOOD OR MARKETABLE TREES IN USE POSSIBLE. STUMPS, LOGS AND OVERBURDEN ROCK MAY REMAIN ON SITE, STORED IN THE SCRAP AREA FOR USE IN PROGRESSIVE AND FINAL REHABILITATION. STUMPS AND LOGS WILL NOT BE BURIED. UPON COMPLETION OF EXTRACTION, ALL SCRAP MACHINERY AND USED MACHINERY SHALL BE REMOVED.
- PETROLEUM STORAGE INFORMATION
- FUEL STORAGE MAY BE LOCATED WITHIN THE AGGREGATE PLANT SITE AREA OR IN OTHER LOCATIONS WITHIN THE ACTIVE EXTRACTION AREA. FUEL STORAGE SHALL BE IN ACCORD WITH THE REQUIREMENTS THAT MEET THE REQUIREMENTS OF THE GASOLINE HANDLING ACT, 1990 AND THE GASOLINE HANDLING CODE AND REGULATIONS DATED JANUARY 1, 1992, OR AS AMENDED BY THE TECHNICAL STANDARDS AND SAFETY ACT (TSSA) AND LIQUID FUELS HANDLING CODE WHERE DOUBLE-WALLED TANKS ARE NOT USED. REFUELING SHALL BE WITH A CONTAINMENT PAD. ANY SPILLS SHALL BE REMOVED AND SPILLS OF IMMEDIATELY AT AN APPROVED FACILITY. FUEL TANKS SHALL BE SHIELDED FROM VEHICULAR IMPACT BY BOLLARDS, BOLLARDS OR BERM.
- WASH WATER INFORMATION
- THE PRODUCER WILL APPLY TO THE MFCOP FOR A PERMIT-TO-TAKE WATER FOR A WASH PLANT WITH A PERMITTED WETLANDS OF 0.003 L/MIN OR MORE. NO WASH POND SHALL BE CREATED PRIOR TO MFCOP APPROVAL OF A PERMIT-TO-TAKE WATER. THIS PERMIT APPLICATION WILL BE ACCOMPANIED BY THE APPROPRIATE SUPPORTING DOCUMENTS.
- WASH POND WILL BE SUBJECT TO DETAILED DESIGN AND APPROVAL BY APPLICABLE AGENCIES. AFTER EXTRACTION IS COMPLETED WASH POND WILL BE REHABILITATED TO 1.5m ABOVE THE WATER TABLE.

IMPORTATION OF TOPSOIL INFORMATION

- IN ORDER TO AVOID NEIGHBOURS, RECOVERY, IMPORTATION OF CLEAN INERT FILL (E.G. TOPSOIL AND/OR OVERBURDEN) MAY BE REQUIRED TO FACILITATE A SLOPE REHABILITATION. ONLY SUFFICIENT MATERIAL TO CREATE FINAL GRASSES AS SHOWN MAY BE IMPORTED.
- IMPORTED MATERIAL SHALL MEET THE MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS (MFCOP) REGULATIONS FOR IMPORTED FILL.
- SAMPLING AND TESTING OF ALL IMPORTED MATERIAL SHALL BE PERFORMED AT SOURCE PRIOR TO THE IMPORTATION OF MATERIAL ONTO THE LICENSED SITE BY A COP LICENSED. IT WILL ALSO DESIGN FILL MONITORING PROGRAM (PER L3 NOTES). RANDOM SAMPLING OF ALL IMPORTED MATERIAL SHALL BE CONDUCTED AT THE REQUEST OF MINE.
- THE LICENSEE SHALL KEEP DETAILED RECORDS OF THE AMOUNT OF MATERIAL BROUGHT ON SITE FOR REHABILITATION AND THE TESTING RESULTS OF ALL SAMPLES. ALL RECORDS AND TESTING RESULTS SHALL BE AVAILABLE UPON REQUEST BY MINE OR MFCOP.
- NATURAL ENVIRONMENT INFORMATION
- THE ANTICIPATED FINAL END USE IS A NATURALIZED AREA CONSISTING OF FOREST BLOCKS, NATIVE MEADOWS, WETLANDS AND OPEN ROCK BARRIERS, AS SHOWN ON THE REHABILITATION PLAN.
- AN ENDANGERED SPECIES ACT PERMIT (OVERALL BENEFIT PERMIT) IS REQUIRED FROM MNRF PRIOR TO ANY SITE PREPARATION AND AS PART OF THE FINAL APPROVAL OF THE AGGREGATE LICENSE.
- OPERATORS ARE TO COMPLY WITH ALL CONDITIONS OF THE MNRF ENDANGERED SPECIES ACT PERMIT ISSUED ON ... FOR THIS QUARRY.
- A COMPREHENSIVE SEDIMENT AND EROSION CONTROL PLAN WILL BE DEVELOPED AND IMPLEMENTED FOR EACH PHASE OF THE EXTRACTION AND PROGRESSIVE REHABILITATION.
- WETLANDS
- NO TREES OR VEGETATION WILL BE REMOVED AND NO DISTURBANCE UNDERTAKEN WITHIN THE SETBACK AREA. NO STUMPS OR BERRMS WILL BE LOCATED WITHIN THE SETBACK AREA.
- TREE CLEARING
- TREE CLEARING SHALL NOT BE CONDUCTED DURING THE PEAK BREEDING BIRD NESTING SEASON (APRIL 15TH TO AUGUST 15TH) PER ENVIRONMENT CANADA GUIDELINES.
- SPECIES AT RISK
- A BUTTERFLY HEALTH ASSESSMENT REPORT SHALL BE SUBMITTED TO THE MNRF 30 DAYS PRIOR TO THE PROPOSED REMOVAL OF THE TREES AS THEY ARE CATEGORY 1 TREES, NO COMPENSATION IS REQUIRED.
- DISTURBED AREA
- NO MORE THAN 60% OF THE AREA TO BE EXTRACTION SHALL BE DISTURBED AT ANY GIVEN TIME.

LEGEND

	120m INFORMATION BOUNDARY
	BOUNDARY OF AREA TO BE LICENSED
	BOUNDARY OF EXISTING ADJACENT LICENSE
	REGULATORY SETBACK LINE
	LOT/CONCRESSION LINE
	LIMIT OF EXTRACTION
	EXISTING FENCE
	EXISTING WATERCOURSE
	EXISTING VEGETATION
	EXISTING WETLAND
	EXISTING OPEN WATER
	2m EXISTING 5m CONTOUR LINE
	2m EXISTING 1m CONTOUR LINE
	EXTRACTION FACE
	ROAD ACCESS
	BERM (MIN. HEIGHT AS SHOWN)
	AREA AFFECTED BY TOPSOIL AND OVERBURDEN
	PROPOSED BUFFER ZONE REFORESTATION
	UNDISTURBED AREA
	SILT FENCE
	EXISTING BUILDING
	EXISTING HYDRO POLE
	ENTRANCE/EXIT
	DIRECTION OF EXTRACTION
	DIRECTION OF TOPSOIL AND OVERBURDEN MOVEMENT
	PRODUCT TRANSPORTATION VIA HULL ROAD
	LOCATION OF NOISE RECEPTOR
	EXISTING ELEVATION
	PROPOSED ELEVATION
	PROPOSED MARKER POST
	MONITORING WELLS RR MN-1, RR MN-2 RETAILED AND BERRMS INSTALLED BY APPLICANT ON FEBRUARY 27, 2016
	EXISTING DOMESTIC WELLS
	MONITORING WELLS MW-1, MW-2, MW-3 AND SHALLOW STAKEPILES SP-1-4, SP-2 INSTALLED APRIL 2016
	MONITORING WELL 16-3 INSTALLED MAY 30, 2018
	WETLAND STAFF GAUGE
	ADJACENT LICENSE MONITORING

REFER TO DRAWING 4 OF 5 FOR TECHNICAL RECOMMENDATIONS

OPERATIONS NOTES

GENERAL INFORMATION

- THIS PLAN DEPICTS A SCHEMATIC OPERATIONS AND REHABILITATION SEQUENCE FOR THIS PROPERTY BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION. OPERATIONS AND REHABILITATION PROCESSES ARE OF A GENERAL NATURE AND MAY VARY WITH NATURAL QUALITY, SITE HYDROLOGY AND HYDROGEOLOGY OR MARKET DEMAND. PHASES DO NOT REPRESENT ANY SPECIFIC OR EXACT SEQUENCE SHOWN ON THIS PLAN.
- EXTRACTION SHALL GENERALLY FOLLOW THE SEQUENCE SHOWN, WHEN PARTIAL REHABILITATION OF A PHASE IS POSSIBLE IT SHALL BE CARRIED OUT, NOT WITHSTANDING THE EXTRACTION AND REHABILITATION PROCESSES AHEAD OF OR CONCURRENT WITH THE EXTRACTION AND REHABILITATION PROCESSES. THE LICENSEE WILL CONTACT THE MINE TO CONFIRM IN WRITING THE NEED FOR A SITE PLAN AMENDMENT PRIOR TO DEVIATING FROM THE OPERATIONAL SEQUENCE SHOWN ON THIS PLAN.
- REFER TO DRAWING 1 OF 5, EXISTING FEATURES, FOR A DESCRIPTION OF EXISTING VEGETATION AND BUILDINGS WITHIN THE 120 METRE BOUNDARY AND IN THIS PHASE.
- SITE PLAN OVERRIDES ARE LISTED IN THE SITE PLAN OVERRIDE TABLE SHOWN ON THIS PAGE.
- REHABILITATION INFORMATION IS OBTAINED FROM ANP MAPPING, GEOLOGICAL MAPPING, AND BOREHOLES DRILLED BY APPLICANT FEBRUARY 27, 2016.

RESOURCE INFORMATION

- TOTAL AREA TO BE EXTRACTION IS 48.9 HECTARES.
- MAXIMUM NUMBER OF TONNES OF AGGREGATE TO BE REMOVED FROM THE SITE IN ANY CALENDAR YEAR IS 1,000,000 TONNES.

EXTRACTION/PROCESSING/HAULING INFORMATION

- EXTRACTION OF THE BOCCAYSEON FORMATION WILL TAKE PLACE IN ONE 48.9 - 7.0m BENCH. THE EXTRACTION OF THE UNDERLYING SHALL OVERFORMATION WILL TAKE PLACE IN ONE BENCH OF 47.0m (BENCHES MAY BE COMBINED BUT WILL NOT EXCEED A COMBINED HEIGHT OF 14m TO A MAXIMUM FINAL ELEVATION OF 287.8m ASL. ABOVE THE WATER TABLE AND WILL INCLUDE DRILLING AND BLASTING OF BEDROCK, LOADING WITH FRONT END LOADERS AND TRANSPORTING BY TRUCK OR CONVEYOR TO THE PLANT FOR FURTHER PROCESSING. REFER TO SECTIONS ON DRAWING 4 OF 5 FOR FURTHER DETAILS.
- THE EXTRACTION PRIORITY WILL BE TO SEQUENTIALLY DEplete RESOURCES WITHIN EACH AREA BY EXTRACTION THE DIMENSION STONE WITH MECHANICAL EQUIPMENT, ASSISTED PERIODICALLY BY LOW LEVEL BLASTING METHODS.
- BLASTING WILL OCCUR TYPICALLY TWICE MONTHLY. NEARBY RESIDENTS WILL BE NOTIFIED OF SCHEDULING BLAST BOREHOLES.
- PORTABLE PROCESSING EQUIPMENT FOR WASHING, SCREENING, AND CRUSHING FOR RECYCLING WILL BE USED ON SITE AND WILL BE LOCATED ON THE QUARRY FLOOR. OTHER EQUIPMENT TO BE USED IN THE OPERATION OF THE QUARRY MAY INCLUDE TRUCKS, LOADERS, EXCAVATORS, BULLDOZERS, SCRAPERS, CONVEYORS AND OTHER RELATED EQUIPMENT.
- TEMPORARY STOCKPILES MAY BE LOCATED NEAR THE QUARRY FACE. PROCESSING EQUIPMENT, STOCKPILES AND PRODUCT STOCKPILES WILL NOT EXCEED 10 METRES IN HEIGHT AND WILL BE LOCATED IN THE PLANT SITE AND/OR CLOSE TO QUARRY FACES.
- MATERIAL FROM OTHER LICENSED PROPERTIES (E.G. SAND) MAY BE IMPORTED INTO THE SITE FOR BLENDING AND CUSTOM PRODUCTS.
- PROPOSED SCALE AND SCALE HOUSE WILL BE CONSTRUCTED IN AREA 3, GREATER THAN 30m FROM LICENSE BOUNDARY.
- ACCESS TO PUBLIC ROADS
- TWO ENTRANCES FOR AGGREGATE EXTRACTION ARE PROPOSED:
- SUBJECT TO A SITE PLAN AMENDMENT APPROVAL FOR LICENSE #127479 AND ONGOING AGREEMENT WITH THE ADJACENT LICENSEE, MAIN ACCESS TO THE SITE SHALL BE VIA A SERVICE ROAD ADJACENT TO THE SCALE HOUSE AND THROUGH LICENSE #127479 TO COUNTY ROAD 36. WHILE ACCESS IS CONTROLLED EXTERNALLY, NO GATE WILL BE REQUIRED AT THIS ENTRANCE.
- A SECONDARY ENTRANCE OFF COUNTY ROAD 507 WILL BE USED IF THE COUNTY ROAD 36 ENTRANCE IS NO LONGER AVAILABLE. THIS ENTRANCE WILL BE USED FOR MAINTENANCE, DELIVERY, AND LOADING ACCESS IN THE MEANTIME AND WILL BE MAINTAINED AND GATED.
- THERE MAY BE RECYCLING OF MATERIAL (ASPHALT AND CONCRETE) ON THIS SITE. MATERIAL IMPORTED FOR RECYCLING WILL BE STORED IN SEGREGATED STOCKPILES WITHIN THE PLANT SITE AREA. RECYCLABLE ASPHALT MATERIALS WILL NOT BE STOCKPILED WITHIN OR ON ANY WATER BODY OR MAN MADE POND, OR ON THE SURFACE OF THE ESTABLISHED WATER TABLE. ANY REBAR AND OTHER STRUCTURAL METAL MUST BE RECYCLED FROM THE RECYCLED MATERIAL DURING PROCESSING AND PLACED IN A SEGREGATED SCRAP PILE ON SITE WHICH WILL BE REMOVED ON AN ONGOING BASIS. REMOVAL OF RECYCLED AGGREGATE IS TO BE ONGOING, ONCE THE AGGREGATE ON SITE HAS BEEN DEPLETED THERE WILL BE NO FURTHER IMPORTATION OF RECYCLABLE MATERIALS PERMITTED. ONCE FINAL REHABILITATION HAS BEEN COMPLETED AND APPROVED IN ACCORDANCE WITH THE SITE PLAN, ALL RECYCLING OPERATIONS MUST CEASE.
- EQUIPMENT, SCRAP AND MACHINERY ASSOCIATED WITH THE EXTRACTION OPERATIONS WILL BE REMOVED UPON COMPLETION OF EXTRACTION.

2. 100' PER MINE 2016 COMMENTS AND	ADD'D OVERRIDE 3
1. 100' PER MINE 2016 COMMENTS AND	ADD'D OVERRIDE 3
2018 BOUNDARY IPES	ADD'D OVERRIDE 3
ADD'D OVERRIDE 3	ADD'D OVERRIDE 3

Prs Licence Review

Site Plan Amendments

Harrington
Avan Ltd

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Project Name

ROCKRIDGE QUARRY

LICENCE No. _____

APPLICANT'S SIGNATURE *J. Gill*

LOT 21, CONCESSION 8, GEOGRAPHIC TOWNSHIP OF HARVEY, MUNICIPALITY OF TRENT LAKES (FORMERLY GALWAY-CAVDISH AND HARVEY TOWNSHIP), COUNTY OF PETERBOROUGH

Scale 1:2000

North

Stamp

Drawing Status

SUBMITTED FOR LICENCE APPLICATION

Drawn S.B.

Checked G.D.H./M.H.

Issue Date MAR 2020

Drawing Title

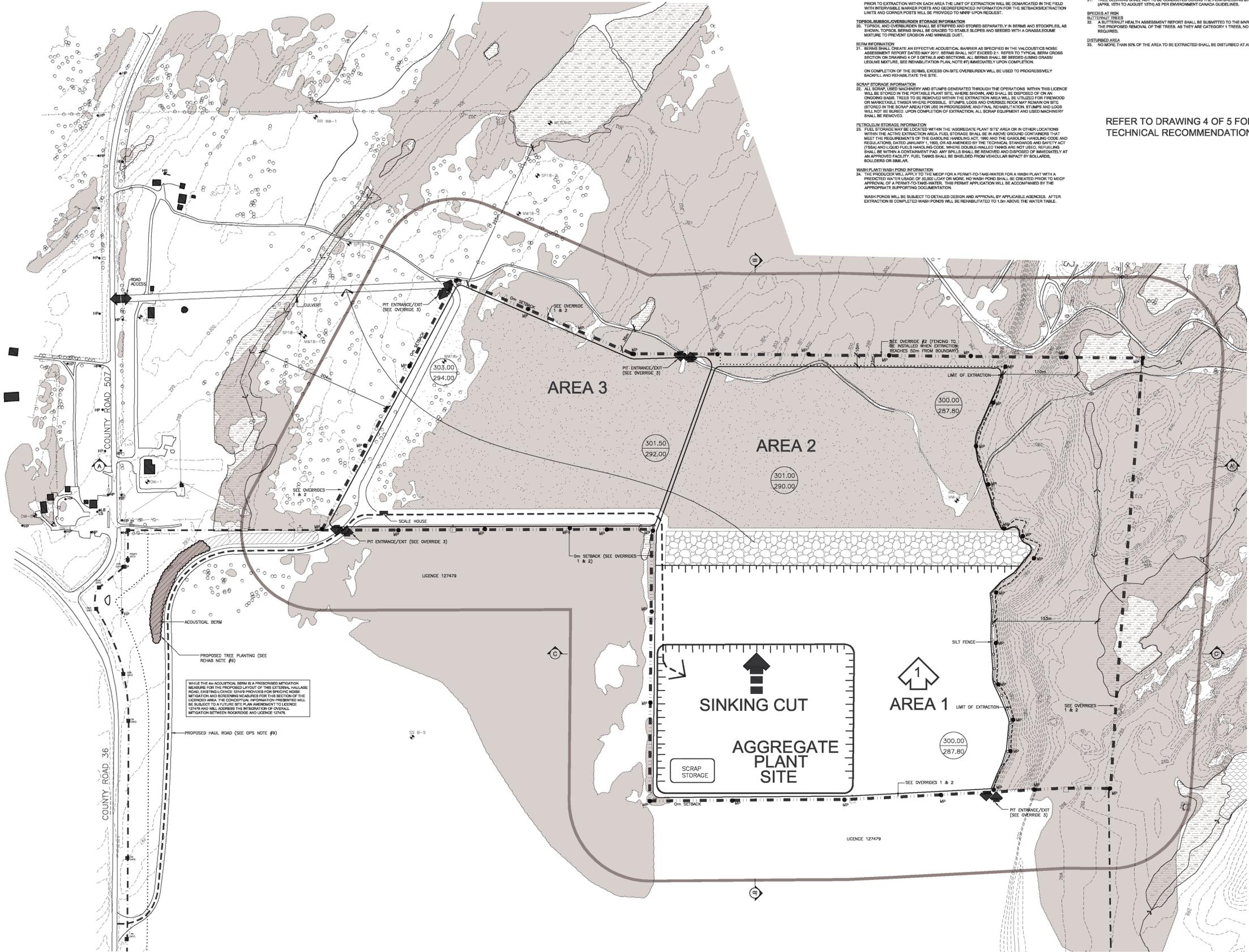
OPERATIONAL PLAN PHASE A

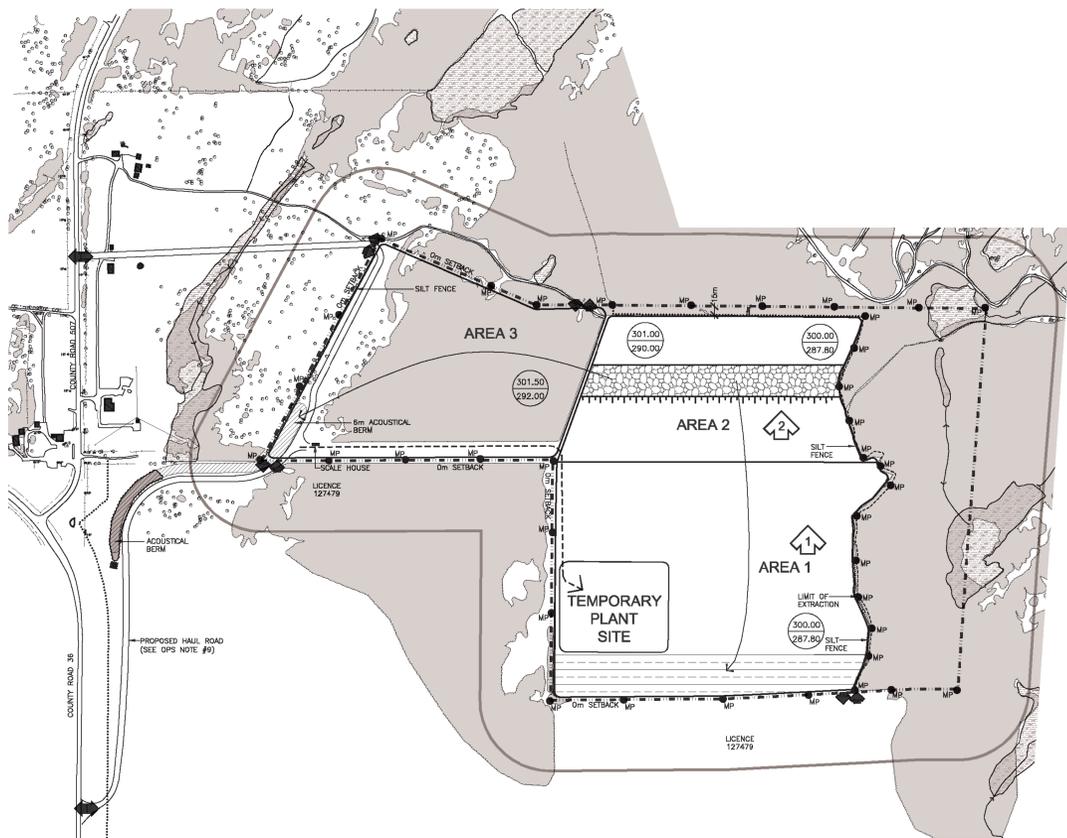
Project Number

16-01

Drawing Number

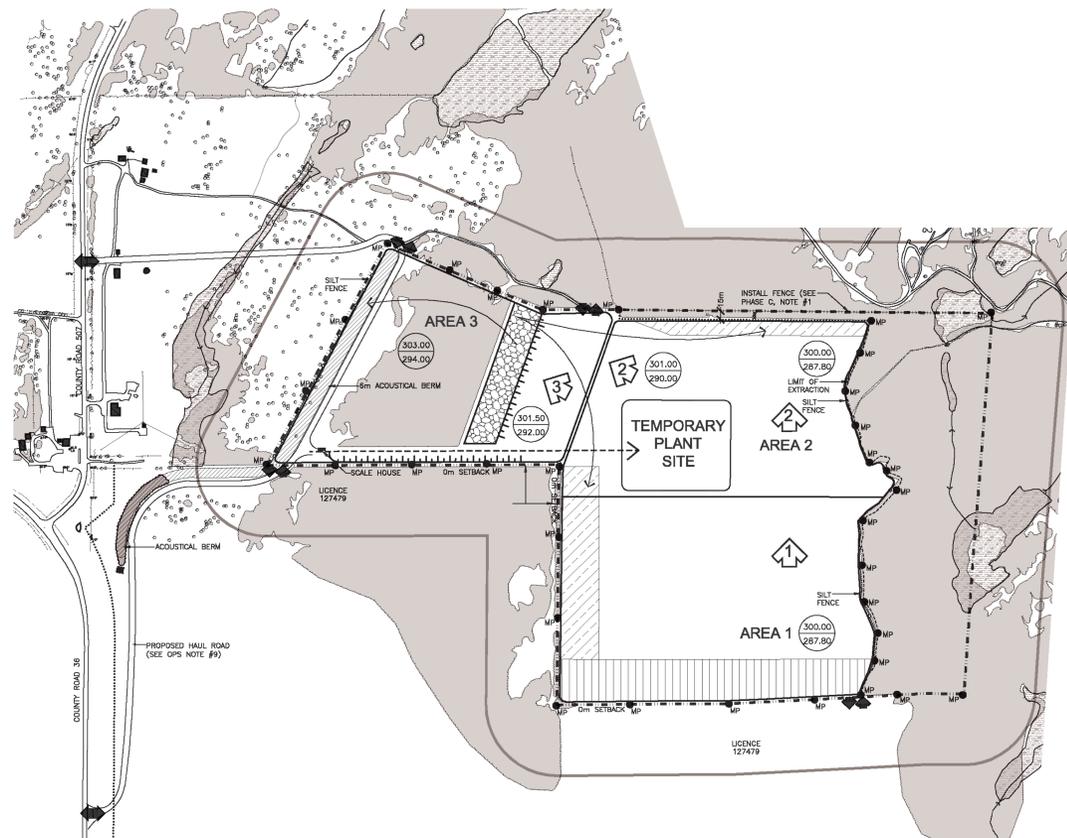
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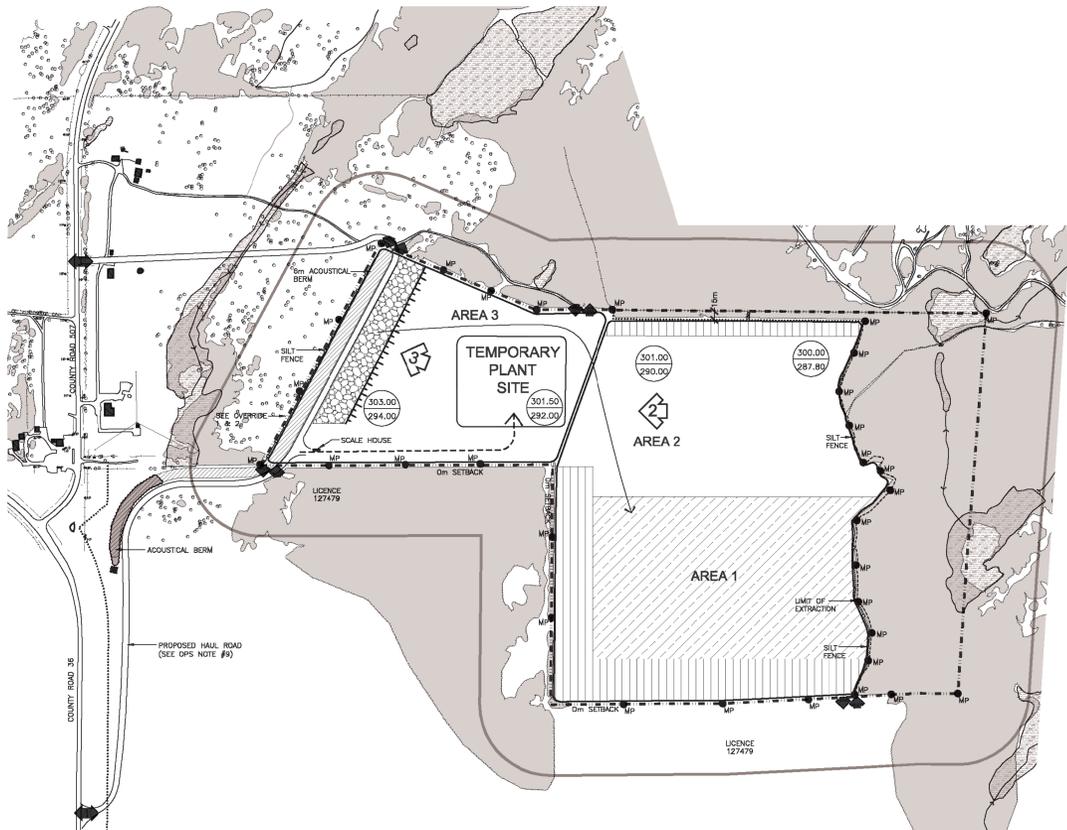
PHASE B
PHASE B NOTES

1. PRIOR TO CONSTRUCTION OF WEST ACQUSTIC BERM, INSTALL SILT FENCE ALONG WEST LICENCE BOUNDARY. SILT FENCE SHALL BE INSTALLED PROGRESSIVELY AS BERM CONSTRUCTION MOVES NORTH. BEGIN STRIPPING OF TOPSOIL AND OVERBURDEN SEPARATELY FROM AREA 2 AND USE TO BEGIN CONSTRUCTION OF ACQUSTIC BERM ALONG AREA 3 AND BEGIN PROGRESSIVE REHABILITATION OF AREA 1.
2. CREATE TALLUS SLOPE AT THE EAST SLOPE FACE USING WASTE ROCK FROM DIMENSION STONE OPERATIONS. INCORPORATE ROCKY MATERIAL INTO THE SURFACE OF THE TALLUS SLOPE FOR HABITAT CREATION.
3. EXPAND DIMENSION STONE OPERATIONS TO AREA 2.
4. CONTINUE EXTRACTION OF DIMENSION STONE AND CONSTRUCTION AGGREGATE IN AREA 1.
5. MAINTAIN ALL VEGETATION IN A HEALTHY, VIGOROUS CONDITION.
6. AREA 3 WILL REMAIN UNDISTURBED.



PHASE C
PHASE C NOTES

1. INSTALL FENCE ALONG EAST PORTION OF NORTH BOUNDARY WHEN EXTRACTION IS WITHIN 6M.
2. CONTINUE EXTRACTION OF AREA 1 AND 2.
3. BEGIN STRIPPING OF TOPSOIL AND OVERBURDEN SEPARATELY FROM AREA 3 AND USE TO CONTINUE CONSTRUCTION OF ACQUSTIC BERM (AS PER NOISE TECHNICAL RECOMMENDATIONS, PAGE 4), CONTINUE PROGRESSIVE REHABILITATION OF TALLUS SLOPES IN AREA 1 AND BEGIN PROGRESSIVE REHABILITATION OF TALLUS SLOPE IN AREA 2.
4. MOVE PLANT SITE TO AREA 2.
5. CONTINUE EXTRACTION OF DIMENSION STONE. BEGIN EXTRACTION OF CONSTRUCTION AGGREGATE IN AREA 2.
6. MAINTAIN ALL VEGETATION IN A HEALTHY, VIGOROUS CONDITION.



PHASE D
PHASE D NOTES

1. CONTINUE STRIPPING OF TOPSOIL AND OVERBURDEN IN AREA 3 AND CONTINUE PROGRESSIVE REHABILITATION OF TALLUS SLOPES AND QUARRY FLOOR IN AREA 1 AND 2.
2. BEGIN EXTRACTION OF DIMENSION STONE IN AREA 3 IN THE DIRECTION SHOWN.
3. BEGIN EXTRACTION OF CONSTRUCTION AGGREGATE IN AREA 3.
4. MOVE PLANT TO AREA 3.
5. MAINTAIN ALL VEGETATION IN A HEALTHY, VIGOROUS CONDITION.

PHASE E (NOT SHOWN)
PHASE E NOTES

1. CONTINUE EXTRACTION OF DIMENSION STONE AND CONSTRUCTION AGGREGATE IN AREA 3.
2. COMPLETE FINAL REHABILITATION OF SLOPE SLOPES AND QUARRY FLOOR USING TOPSOIL AND OVER BURDEN STORED IN ACQUSTIC BERMS.
3. UPON COMPLETION OF EXTRACTION REMOVE ALL EQUIPMENT, STOCKPILES, SCRAP AND MACHINERY FROM SITE.

LEGEND

- | | | | |
|--|-----------------------------|--|---|
| | 120m INFORMATION BOUNDARY | | EXISTING BUILDING |
| | REGULATORY SETBACK LINE | | EXISTING HYDRO POLE |
| | LIMIT OF EXTRACTION | | ENTRANCE/EXIT |
| | EXISTING FENCE | | DIRECTION OF EXTRACTION |
| | EXISTING WATERCOURSE | | AREA STRIPPED OF TOPSOIL AND OVERBURDEN |
| | EXISTING VEGETATION | | PRODUCT TRANSPORTATION VIA HAUL ROAD |
| | EXISTING WETLAND | | LOCATION OF NOISE RECEPTOR |
| | EXISTING OPEN WATER | | EXISTING ELEVATION |
| | EXTRACTION FACE | | PROPOSED ELEVATION |
| | BERM (MIN. HEIGHT AS SHOWN) | | PROPOSED MARKER POST |
| | UNDISTURBED AREA | | ROAD ACCESS |
| | AREA UNDER REHABILITATION | | |
| | REHABILITATION COMPLETE | | |
| | PROPOSED BUFFER ZONE | | |
| | REFORESTATION | | |
| | SILT FENCE | | |

2. 160' PER MINE 2016 COMMENTS	
1. 120' ADJACENT LICENSE 2018 BOUNDARY PER THESE COMMENTS	
DATE	ISSUES

Pre Licence Review Site Plan Amendments

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Scale 1:4000	North	Stamp
Drawing Status	Submitted for LICENCE APPLICATION	

Drawn S.B. Checked G.D.H./M.H. Issue Date MAR 2020

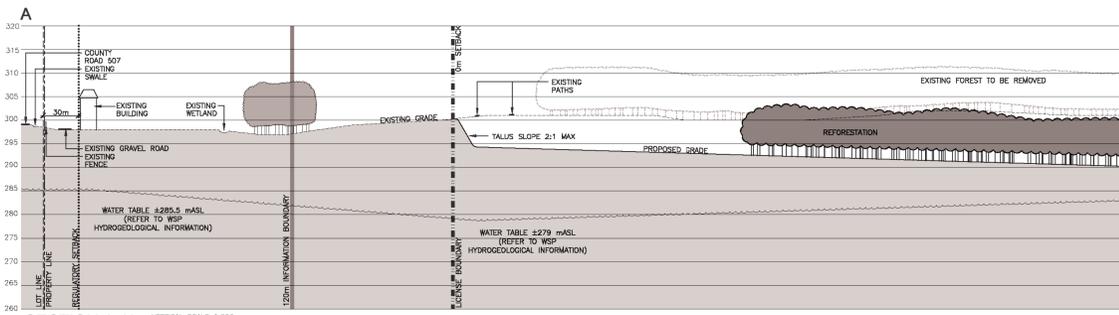
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OPERATIONAL PLAN PHASE B-E 16-01

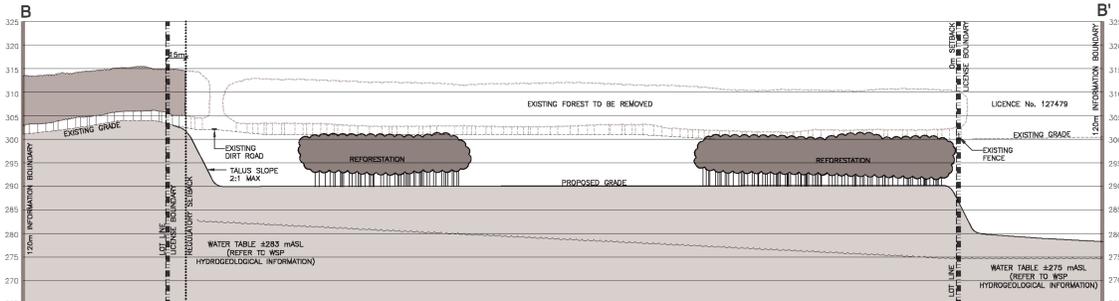
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3 OF 5

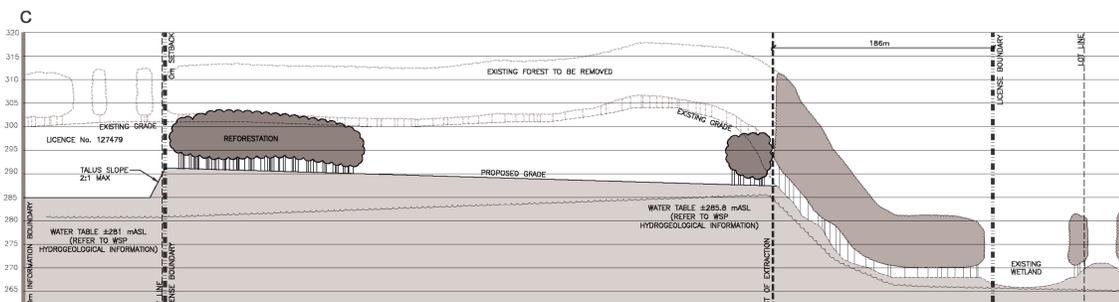
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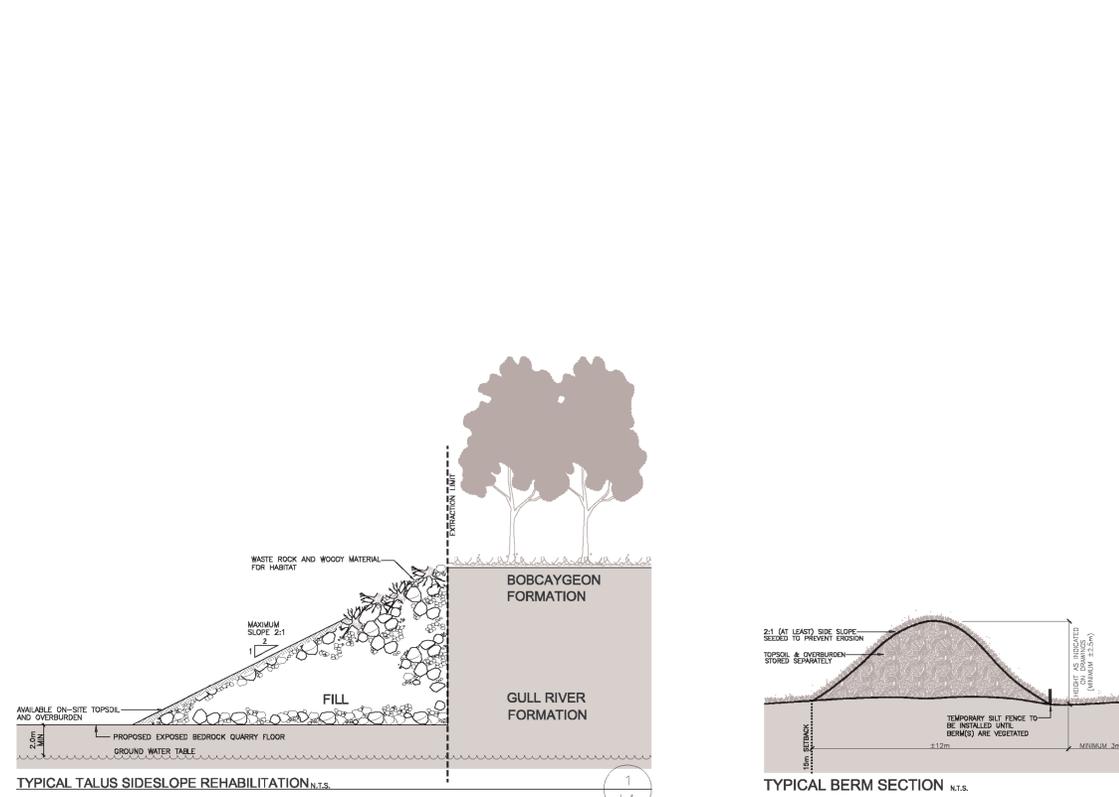
SECTION A-A' VERTICAL SCALE 1:500 HORIZONTAL SCALE 1:2000



SECTION B-B' VERTICAL SCALE 1:500 HORIZONTAL SCALE 1:2000



SECTION C-C' VERTICAL SCALE 1:500 HORIZONTAL SCALE 1:2000



TYPICAL TALUS SIDESLOPE REHABILITATION N.T.S.

TYPICAL BERM SECTION N.T.S.

TECHNICAL RECOMMENDATIONS

- THE FOLLOWING CONDITIONS ARE REQUIREMENTS BASED ON THE RECOMMENDATIONS FROM ALL OF THE EXPERTS' REPORTS AS OF MAY 2017. ADDITIONAL RECOMMENDATIONS MAY BE INCLUDED AS A RESULT OF THE LICENSE REVIEW PROCESS.
1. SHOULD ANY UNUSUAL HYDROGEOLOGICAL CONDITIONS BE DISCOVERED, THEY MAY BE A NEW HYDROGEOLOGICAL SITE AND THEREFORE SUBJECT TO SECTION 48(1) OF THE ONTARIO HERITAGE ACT. THE PROPOSITOR OR PERSON DISCOVERING THE HYDROGEOLOGICAL RESOURCES MUST CEASE ALTERATION OF THE SITE IMMEDIATELY AND ENGAGE A LICENSED CONSULTANT ARCHAEOLOGIST TO CARRY OUT ARCHAEOLOGICAL FIELDWORK, IN COMPLIANCE WITH SECTION 48(1) OF THE ONTARIO HERITAGE ACT.
 2. THE FUNERAL, BURIAL AND CREMATION SERVICES ACT, 2002, R.O. 2002, C.33 REQUIRES THAT ANY PERSON DISCOVERING HUMAN REMAINS MUST NOTIFY THE POLICE OR CORONER AND THE REGISTRAR OF CORONERS AT THE MINISTRY OF CONSUMER SERVICES.
 3. PRIOR TO THE COMMENCEMENT OF EXTRACTION, THE LICENSEE SHALL COMPLETE A BASELINE SOIL TO DOOR SURVEY OF ADJACENT DOMESTIC WELLS TO OBTAIN INFORMATION ON WELL USE AND CONSTRUCTION DETAILS AND SHALL INCLUDE, AS A MINIMUM, THE FOLLOWING INFORMATION: (1) LOCATION OF WELLS; (2) DEPTH; (3) SCREENING; (4) MATERIALS; (5) DATE OF INSTALLATION; (6) ANY ADDITIONAL WELLS BEING INSTALLED ON ANY ADJACENT LANDS PRIOR TO EXTRACTION. THOSE WELLS SHALL BE INCLUDED IN THE SURVEY.
 4. UPON LICENSING OF THE SITE, THE LICENSEE SHALL CONDUCT 866 ANNUAL MONITORING EVENTS (I.E. FEBRUARY, APRIL, JUNE, AUGUST, OCTOBER AND DECEMBER) OF WELLS MONITORING WELLS (REFER TO WSP). MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH THE FREQUENCY SHALL BE MAINTAINED FOR THE FIRST THREE YEARS FROM THE DATE OF LICENSING. AFTER WHICH TIME, A PROFESSIONAL HYDROGEOLOGIST SHALL CONDUCT A REVIEW TO DETERMINE IF ANY ADJUSTMENTS TO MONITORING AT THE SITE SHOULD BE MADE OR IF THE FREQUENCY OF MONITORING COULD BE REDUCED TO A MORE TYPICAL QUARTERLY MONITORING SCHEDULE.
 5. TO PROVIDE INFORMATION REGARDING POSSIBLE SURFACE WATER FLUCTUATIONS, AND TO ASSIST IN ASSESSING IF QUARRY EXTRACTION IS AFFECTING WATER LEVELS, THE LICENSEE SHALL ENSURE THAT THE EXISTING GRADE, INSTALLED IN THE NORTHERN WETLAND, IS MAINTAINED AND INCLUDED IN THE MONITORING OF ON-SITE WELLS.
 6. TO CONTINUE MONITORING GROUNDWATER LEVELS IN THE NORTHEAST AREA OF THE SITE, AND UNDERSTANDING THAT EXTRACTION WILL COMMENCE ALONG THE EASTERN SIDE OF THE SITE (I.E. WITHIN AREA 1) WHERE AT SOME TIME MONITORING WILL BE MAX-2 WILL BE DESIGNATED, THE LICENSEE SHALL ENSURE THAT A MONITORING WELL IS CONSTRUCTED PRIOR TO THE DECOMMISSIONING OF MAX-2. THE LOCATION SHALL BE IN CONSULTATION WITH A QUALIFIED HYDROGEOLOGIST.
 7. THE LICENSEE SHALL PREPARE AND MAKE AVAILABLE WITHIN 30 DAYS OF RECEIVING A WRITTEN REQUEST FROM ANY GOVERNMENT OF ONTARIO MINISTRY OR AGENCY, AN ANNUAL MONITORING REPORT DOCUMENTING AND DESCRIBING ALL FINDINGS, INCLUDING ANY RECOMMENDATIONS TO ADJUST THE MONITORING PROGRAM IF REQUIRED. THE REPORT SHALL BE PREPARED, SIGNED AND SEALED BY A QUALIFIED HYDROGEOLOGIST.
 8. AS PART OF AN ADAPTIVE MANAGEMENT PLAN FOR THE SITE, THE LICENSEE SHALL ENSURE THAT SHOULD THE ANNUAL GROUNDWATER MONITORING PROGRAM OR SITE CONDITIONS REVEAL CHANGES TO SURFACE OR GROUNDWATER CONDITIONS WHICH MAY WARRANT AN ADJUSTMENT TO THE SITE PLAN AND/OR EXTRACTION OPERATIONS, A QUALIFIED HYDROGEOLOGIST SHALL BE RETAINED TO ASSIST IN PERSON ADJUSTMENTS TO THE SITE PLAN AND/OR EXTRACTION OPERATIONS.
 9. THE LICENSEE SHALL ENSURE THAT PRIOR TO EXTRACTION OPERATIONS, THE LICENSEE SHALL PROVIDE TO THE MINISTER OF NATURAL RESOURCES AND FORESTRY A COMPLETED SPILLS MANAGEMENT PLAN. THE PLAN SHALL INCLUDE, AS A MINIMUM, A SPILLS RESPONSE PLAN, AND A PROVISION TO IMMEDIATELY REPORT ANY SPILL TO THE MSP'S ACTION CENTER.
 10. TO PROVIDE A MECHANISM TO ADDRESS POTENTIAL GROUNDWATER RELATED COMPLAINTS, SHOULD ANY OCCUR AS QUARRY DEVELOPMENT PROCEEDS, THE LICENSEE SHALL ENSURE THAT A COMPLAINT MANAGEMENT PLAN IS DEVELOPED AND IMPLEMENTED. IN THE EVENT OF WATER SHORTAGES OR COMPLAINTS FOR ADJACENT LANDOWNERS, PRIOR CONSULTATION OF WELLS WITH THE APPROPRIATE GOVERNMENT OF ONTARIO MINISTRY (CURRENTLY THE MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS (MECP)) OR AGENCY, THE LICENSEE SHALL ENSURE THAT THE PLAN INCLUDES THE FOLLOWING:
 - INVESTIGATION OF THE COMPLAINT BY A QUALIFIED HYDROGEOLOGIST;
 - IF NECESSARY, PROVISION OF REMEDIAL MEASURES TO INVESTIGATION UNDERWAY;
 - IF NECESSARY, PROVISION OF REMEDIAL MEASURES AS VALIDATED BY SCIENTIFIC EVIDENCE OF A CONNECTION TO QUARRY ACTIVITY, WITH SUCH REMEDIES TO INCLUDE REMEDIATION OF THE QUARRY ACTIVITIES LEADING TO THE PROBLEM AND/OR COMPENSATION FOR A NEIGHBORING WATER SUPPLY OF SUITABLE PERFORMANCE;

SPECIAL HYDROGEOLOGICAL RECOMMENDATIONS

1. PRIOR TO EXTRACTION IN AREA 1, AN ADAPTIVE HYDROGEOLOGICAL ASSESSMENT SHALL BE PROVIDED BY A QUALIFIED HYDROGEOLOGIST. THE ASSESSMENT SHALL BE COMPLETED IN CONSULTATION WITH THE MINISTER OF NATURAL RESOURCES AND FORESTRY TO ENSURE THAT EXTRACTION WITHIN AREA 1 OF THE QUARRY REMAINS ABOVE THE GROUNDWATER TABLE AND PROTECTS OR SURFACE WATER RESOURCES IMMEDIATELY WEST AND NORTH OF THE SITE. THE ASSESSMENT SHALL BE SUBMITTED TO THE MINISTER OF NATURAL RESOURCES AND FORESTRY FOR REVIEW AND INCLUDE, AS A MINIMUM, THE FOLLOWING:
 - A SUMMARY OF ANNUAL GROUNDWATER COMPLAINTS AND THE EFFORTS TO RESOLVE THEM;
 - A RECOMMENDATION TO ASSESS THE NEED TO ACTIVATE THE ADAPTIVE MANAGEMENT PROGRAM AND INITIATE ANY ADJUSTMENTS TO THE PROPOSED MINING DEPTH WITHIN THE QUARRY;
2. PRIOR TO EXTRACTION IN AREA 1, AND TO ENSURE THAT THE CONTAINED FRACTIONATION OF THE WETLAND LOCATED WEST AND NORTH OF EXTRACTION AREA IS MAINTAINED, A QUALIFIED ECOLOGIST WILL ASSESS THE WETLAND FEATURES IN CONSULTATION WITH THE HYDROGEOLOGIST'S ASSESSMENT. SHOULD ANY ADJUSTMENTS TO THE ASSESSMENT BE REQUIRED, THE ASSESSMENT SHALL BE PROVIDED BY A QUALIFIED HYDROGEOLOGIST INTO THE HYDROGEOLOGICAL ASSESSMENT IN ORDER TO ENSURE THE OVERALL PROTECTION OF THE WETLAND FEATURES.

NATURAL ENVIRONMENT ASSESSMENT - INBLETTE ENVIRONMENTAL ASSOCIATES INC., NOVEMBER 2018

- 1.1. PRE-EXTRACTION TREE CLEARING
 - 1) CLEARING OF VEGETATION IN EACH PHASE WILL OCCUR OUTSIDE THE PEAK BREASTING PERIOD (APRIL 15TH TO AUGUST 15TH) AS PER ENVIRONMENT CANADA GUIDELINES.
 - 2) CLEARING OF TREES WILL ONLY BE COMPLETED IN THE NEXT APPROVED PHASE, ONCE EXTRACTION OF THE PREVIOUS PHASE IS ALMOST EXHAUSTED.
- 1.2. REHABILITATION PLAN
 - 1) THE PROGRESSIVE REHABILITATION PLAN END USE IS REFORESTATION AND REINSTATEMENT OF THE NATURAL TREE COVER, NORTH TO SOUTH CONSECUTIVELY THROUGH THE CENTRE OF THE EXTRACTION AREA, AS WELL AS ESTABLISHING ROCK BARREN, FIELD AND MEADOW HABITATS.
 - 2) THE REHABILITATION PLAN SHALL INCLUDE ONLY NATIVE TREE AND SHRUB SPECIES INDIGENOUS TO THE BIOTOPE AREA AND BE DERIVED FROM STOCK FROM LOCAL NURSERIES.
 - 3) TOPSOIL/OVERBURDEN AND ORGANIC MATERIAL WILL BE SPREAD AT VARIABLE DEPTHS ACROSS THE SITE AND BE SEEDED WITH NATIVE MEADOW MIX INCLUDING LOW GROWING NATIVE GRASSES.
 - 4) TREES SHALL BE PLANTED IN MIXED GROUPINGS THAT INCLUDE APPROPRIATE NATIVE SPECIES CURRENTLY FOUND ON SITE SUCH AS SUGAR MAPLE, RED MAPLE, WHITE ASH, EASTERN WHITE PINE, EASTERN REDBUD, WHITE SPRUCE, WHITE BIRCH, BUR-OAK, RED OAK, AMERICAN BIRCH, LARGES TOOTH ASH, TREMULOIDES ASPEN AND HEMLOCK. TREES SHALL BE PLANTED IN EACH BLOCK OF FOREST AND THE REHABILITATION PLAN AND IN THE PERCENTAGE OF CONSPICUOUS SPECIES.
 - 5) TREE PLANTING ARRANGEMENT SHALL BE RANDOM AND NOT IN ROWS, TO IMITATE A NATURAL FOREST. SHRUB PLANTINGS SHALL BE ARRANGED IN RANDOM CLUMPS. PLANT MATERIAL CAN BE EARLY ROOTED IF PLANTED IN EARLY SPRING. OTHERWISE PLANTS MUST BE FROM POTTED STOCK OR B&B SIZES AND BE PLANTED IN EARLY SPRING.
 - 6) PLANTS MUST BE WATERED IMMEDIATELY AFTER PLANTING AND MONTHLY DURING THE FIRST GROWING SEASON. TREE GUARDS ARE TO BE PLACED ON STEMS TO REDUCE BREASTING BY MICE AND RABBITS. PLANTS WILL BE MONITORED ANNUALLY FOR TWO YEARS FOLLOWING PLANTING TO ENSURE SURVIVAL. PLANTS WILL BE REPLACED IF THESE ELIGIBLE FOR SURVIVAL.
- 2) QUARRY OPERATIONAL PHASING AND PROGRESSIVE REHABILITATION SCHEDULES WILL BE COORDINATED TO LIMIT THE AREA OF DISTURBED TREE COVER AT ANY ONE TIME.
- 3) MONITORING
 - 1) A FIVE (5) YEAR MONITORING PLAN AS PART OF THE ENDANGERED SPECIES ACT OVERALL BENEFIT PLAN WILL BE IMPLEMENTED TO ENSURE HABITAT CREATED THROUGH THE REHABILITATION PLAN IS MEETING THE PERMIT OBJECTIVES AND REQUIRED HABITAT FUNCTIONS.
 - 2) VEGETATION MONITORING WILL INCLUDE SURVIVAL RATES ON REHABILITATION EFFORTS, AND SURVIVAL RATES ON BUTTERNUT COMPENSATION PLANTINGS.
 - 3) ENHANCED HABITAT FOR SPECIES AT RISK WILL BE CREATED.
 - 4) TWO TRAIL SNARE HIBERNACULA WILL BE CONSTRUCTED IN A SUITABLE LOCATION (WITH WSP APPROVAL) IN THE LICENSED AREA OF THE REFORESTED QUARRY. THEY WILL CONSIST OF EXCAVATIONS AND PILES OF LIMESTONE ROCK AND WOODY DEBRIS RANDOMLY PILED TO MAXIMIZE SPECIES AND COVER.
- 1.3. SPECIES AT RISK
 - 1) A QUALIFIED PROFESSIONAL BIOLOGIST WILL CHECK THE INITIAL EXTRACTION AREA TO BE STRIPPED PRIOR TO THE OVERBURDEN REMOVAL AND PROVIDE SPECIES AT RISK TRAINING TO QUARRY STAFF.
 - 2) STRIPPING AND EXCAVATION ON THE SENSITIVE BERM WILL BE CONDUCTED CAREFULLY DURING THE SEASON WHEN SNAILS COULD BE IN THE HIBERNACULUM (OCTOBER-APRIL). TREE CLEARING CAN BE CONDUCTED. IF SNAILS ARE UNCOVERED, A BIOLOGIST OR WSP/MECP NEEDS TO BE CONTACTED TO PROVIDE ADVICE.
 - 3) QUARRY STAFF WILL BE BRIEFED IN A TRAINING WORKSHOP CONDUCTED BY A QUALIFIED BIOLOGIST ON THE SPECIES AT RISK THAT MAY BE FOUND IN THE AREA. THE WORKSHOP WILL BE CONDUCTED PRIOR TO TREE CLEARING AND EXTRACTION. TOPICS WILL INCLUDE SPECIES IDENTIFICATION AND CONTINGENCY RESPONSE PROTOCOLS.
 - 4) DURING THE ACTIVE PERIOD FOR SNAILS (JUNE-AUGUST), WORKERS WILL BE MADE AWARE OF SNAILS IN AND AROUND THE QUARRYING AREA. IF FOUND, THE SNAIL SHOULD BE LEFT TO LEAVE ON ITS OWN OR IF IN ACTIVE WORK AREA, ENCOURAGED TO LEAVE THE SITE. IF NECESSARY A BIOLOGIST AT WSP IS TO BE CONTACTED FOR ADVICE.
 - 5) DURING THE TURTLE NESTING SEASON (JUNE), WORKERS WILL BE MADE AWARE OF TURTLES NESTING IN STORAGE PILES OR WALKING THROUGH THE QUARRY SITE. FOUND, THE TURTLE SHOULD BE LEFT TO LEAVE ON ITS OWN OR IF EGGS ARE LAD A BIOLOGIST/TMFP SHALL BE CONTACTED TO PROVIDE ADVICE ON HOW TO REPORT THE FIND.
 - 6) IF A TURTLE OR SNAIL OR WHIP-SPOON IS FOUND, THE SPECIES IS TO BE CONFIRMED AND THE ANIMAL BE TEMPORARILY UNLIT. IT LEAVES ON ITS OWN OR IF NECESSARY, THE ANIMAL WILL BE RELOCATED OUTSIDE THE ACTIVE PIT AREA. WSP WILL BE CONTACTED REGARDING OBSERVATIONS OF THESE SPECIES.
 - 7) ALL PERSONS WORKING OR ENTERING THE SITE, INCLUDING EMPLOYEES AND CONTRACTORS, SHALL BE PROVIDED WITH WRITTEN INFORMATION ON SPECIES AT RISK AND BE MADE AWARE OF THE POSSIBLE PRESENCE OF SNAKES WITHIN THE SITE, INCLUDING RECOMMENDATIONS L, J AND K BELOW.
 - 8) THE LICENSEE SHALL INSTALL SIGNS ON SITE IN SUITABLE LOCATIONS (I.E. IN THE SCALE HOUSE) TO IDENTIFY THE POSSIBLE PRESENCE OF THESE SPECIES.
 - 9) THE LICENSEE SHALL KEEP RECORDS OF THE SEARCH DATES, PERSONNEL AND TIMES AND ACTION TAKEN REGARDING ENCOUNTERS WITH SPECIES AT RISK.
 - 10) IF A SNAIL OR TURTLE IS ACCIDENTALLY KILLED OR HARMED DURING OPERATIONS, THE LICENSEE SHALL INVESTIGATE AND WITH THE ADVICE OF A QUALIFIED BIOLOGIST, IMPLEMENT ADDITIONAL MITIGATION MEASURES TO PREVENT SIMILAR EVENTS.
 - 11) IF A NEST SITE (I.E. EGGS, YOUNG OF SNAILS OR TURTLES) ARE EXPOSED ACCIDENTALLY, WORK IN THAT AREA SHALL CEASE IMMEDIATELY AND WSP SHALL BE CONTACTED REGARDING APPROPRIATE MEASURES.
 - 12) THE SPEED LIMIT ON ACCESS ROAD FROM COUNTY ROAD 38 TO EXCAVATION AREA AND WITHIN THE QUARRY WILL BE LIMITED TO 30 KM/HR OR LESS.
 - 13) EXTERNAL LIGHTING IN QUARRY AREA WILL USE DIFFUSE OR MOTION ACTIVATED LIGHTS TO REDUCE LIGHT POLLUTION OR IF NOT NEEDED, THERE WILL BE NO LIGHTING ON THE QUARRY AREA.

NOISE ASSESSMENT - VALCOUSTICS, DATED NOVEMBER 2018

1. THE SOUND EMISSION LEVEL FOR ALL PIECES OF EQUIPMENT USED FOR CONSTRUCTION ACTIVITIES INCLUDING SITE PREPARATION AND REHABILITATION MUST COMPLY WITH THE LIMITS OUTLINED IN MECP PUBLICATION NPO-116, "CONSTRUCTION EQUIPMENT".
2. BACKLAP BARRIERS ARE EXEMPT FROM ASSESSMENT BY THE MECP STATIONARY NOISE SOURCE GUIDELINES. HOWEVER, TO REDUCE OFF-SITE NOISE IMPACTS, WHERE POSSIBLE, ALTERNATIVE TECHNOLOGIES SHOULD BE USED ON ALL EQUIPMENT OPERATING AT THE SITE.
3. SOUND EMISSIONS LEVELS FROM EQUIPMENT TO BE USED ON-SITE SHALL NOT EXCEED THE LEVELS LISTED IN TABLE 4 BELOW.

TABLE 4 - REFERENCE SOUND POWER LEVELS OF PROCESSING EQUIPMENT

EQUIPMENT	MAXIMUM SOUND EMISSION LEVEL
FRONT END LOADER	78 dBA @ 15m
ROCK DRILL	80 dBA @ 15m
EXCAVATOR	80 dBA @ 15m
DECKED HAUL TRUCK	81 dBA @ 15m
PERMANENT PROCESSING PLANT	80 dBA @ 15m
SHIPPING TRUCKS	78 dBA @ 15m

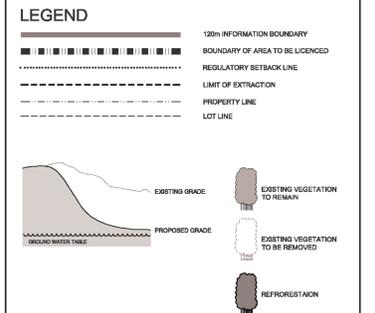
4. SOUND EMISSIONS FROM EQUIPMENT TO BE USED ON-SITE SHALL BE MEASURED TO CONFIRM THAT THEY COMPLY WITH THE LIMITS OUTLINED WITHIN THIS REPORT.
5. THESE SOUND BARRIERS WILL BE INSTALLED:
 - A 4.0 M HIGH SOUND BARRIER EXTENDING 200 M IN A WESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE SITE, IMMEDIATELY ADJACENT TO COUNTY ROAD 607;
 - A 6.0 M HIGH SOUND BARRIER EXTENDING 400 M IN A SOUTHWESTERLY DIRECTION ALONG THE WESTERN BOUNDARY OF THE LICENSED AREA;
 - PRIOR TO EXTRACTION COMMENCING ANYWHERE ON THE SITE, FOR THE 4.0 M HIGH SOUND BARRIER;
 - PRIOR TO EXTRACTION COMMENCING IN AREA 1 FOR THE 6.0 M HIGH SOUND BARRIER.
7. WHEN AGGREGATE EXTRACTION IS OCCURRING IN AREA 3 AND THE PROCESSING PLANT IS OPERATING IN AREA 3, A 8.0 M HIGH FENCE SCREEN IS TO BE LOCATED NO MORE THAN 30 M FROM THE PROCESSING PLANT TO PROVIDE ACOUSTICAL SCREENING TOWARDS RECEPTIONS 16 AND 17.
8. THE HOURS OF OPERATION ARE:
 - 0600 TO 1900 HOURS MONDAY TO SATURDAY FOR PROCESSING IN AREAS 1 AND 2 AND THE LOADING AND UNLOADING OF MATERIAL FROM THE WORKING FACE TO THE PROCESSING PLANT;
 - 0700 TO 1900 HOURS MONDAY TO SATURDAY FOR STRIPPING, REHABILITATION, MAINTENANCE, GENERAL CONSTRUCTION ACTIVITIES, DRILLING AND PROCESSING IN AREAS 3, 4 AND 5;
 - LOADING AND SHIPPING OF MATERIAL, OFFSITE, ANYTIME.
9. SITE NOISE MEASUREMENTS SHALL BE CONDUCTED WITHIN DRILLING AND PROCESSING AREAS BEING DONE ON THE SITE TO CONFIRM THE MECP NOISE GUIDELINE LIMITS ARE MET. THE AUDIT MEASUREMENTS MUST BE DONE BY A QUALIFIED ACoustical ENGINEER.
10. TO ENSURE NOISE EMISSIONS COMPLY WITH THE RECOMMENDATIONS OF THIS REPORT, SOUND EMISSION LEVELS FROM EQUIPMENT TO BE USED ON-SITE SHALL BE MEASURED TO ENSURE THEY DO NOT EXCEED THE LEVELS OUTLINED HEREIN OR, FOR EQUIPMENT BROUGHT TO THE SITE ON AN AS-NEEDED BASIS, THEY HAVE APPROPRIATE G.O.A. OR LEAD. NOTE THAT MOBILE EQUIPMENT EARS MUST HAVE MEASUREMENTS OF THESE WOULD HAVE BEEN COMPLETED PRIOR TO APPROVAL.
11. IF OTHER NEW EQUIPMENT IS BROUGHT TO THE SITE, THE SOUND EMISSIONS SHALL BE CHECKED TO ENSURE THE EQUIPMENT IS IN COMPLIANCE WITH THIS NOISE STUDY.
12. IF ALTERNATE NOISE MITIGATION MEASURES ARE TO BE IMPLEMENTED, THEY SHALL BE REVIEWED BY A QUALIFIED ACoustical CONSULTANT TO ENSURE THE MECP NOISE GUIDELINE LIMITS WILL BE MET.

TRAFFIC ASSESSMENT - TRANPLAN ASSOCIATES, DATED DECEMBER 2018

- SUBJECT TO DETAILED REVIEW AND APPROVAL BY THE RELEVANT APPROVAL AGENCY, THE FOLLOWING DRAFT CONDITIONS ARE PROVIDED:
1. A SITE ENTRANCE DESIGN BASED ON A TPO COMMERCIAL ENTRANCE DESIGN CSAS-23 TRUCK ACCESS WILL PROVIDE GOOD ACCESS TO THE STUDY SITE.
 2. THE OPTIONAL RIGHT TURN YAPER INCLUDED IN THE CSAS-23 DESIGN SHALL BE INCLUDED IN THE DESIGN OF THE NEW SITE ENTRANCE.
 3. TRUCK TURNING STORAGE SHALL BE USED FOR THE SELECTED ENTRANCE IN THE APPROPRIATE LOCATIONS ON THE ADJACENT COUNTY ROAD. THIS STORAGE CAN BE A TRUCK ENTRANCE SIGN (MS-6).
 4. ALL BARRIERS AND PAVEMENT MARKINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GUIDANCE PROVIDED IN THE ONTARIO TRAFFIC MANUAL (OTM) AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES OF CANADA (MUTCD).

BLAST IMPACT ANALYSIS - EXPLOTECH, DATED MARCH 2017, UPDATED NOVEMBER 26, 2018

1. AN ATTENTION STUDY SHALL BE UNDERTAKEN BY AN INDEPENDENT BLASTING CONSULTANT DURING THE FIRST 12 MONTHS OF OPERATION IN ORDER TO OBTAIN SUFFICIENT QUARRY DATA FOR THE DETERMINATION OF SITE SPECIFIC ATTENUATION RELATIONS. THIS STUDY WILL BE USED TO CONFIRM THE APPLICABILITY OF THE INITIAL GUIDELINE PARAMETERS AND ASSET IN DEVELOPING FUTURE BLAST DESIGN.
2. ALL BLASTS SHALL BE MONITORED FOR BOTH GROUND VIBRATION AND OVERPRESSURE AT THE CLOSEST PRIVATELY OWNED SENSITIVE RECEPTOR ADJACENT TO THE SITE. OR, CLOSE, WITH A MINIMUM OF TWO (2) DIGITAL SEISMOGRAPHS - ONE INSTALLED IN FRONT OF THE BLAST AND ONE INSTALLED BEHIND THE BLAST. MONITORING SHALL BE PERFORMED BY AN INDEPENDENT THIRD PARTY ENGINEERING FIRM WITH SPECIALIZATION IN BLASTING AND MONITORING.
3. BLASTS SHALL BE DESIGNED TO MAINTAIN VIBRATIONS AT THE ROAD TOWER AT 64 COUNTY ROAD 607 BELOW 2MM/S (4-MS) WHEN VIBRATION CALCULATIONS SUGGEST VIBRATIONS AT THE ROAD TOWER AT 64 COUNTY ROAD 607 MAY EXCEED 2MM/S. THIS STRUCTURE SHALL ALSO BE MONITORED FOR GROUND VIBRATION AND OVERPRESSURE.
4. NOTWITHSTANDING NOTE 3 ABOVE, THE GUIDELINE LIMITS FOR VIBRATION AND OVERPRESSURE AS STIPULATED IN THE MODEL MUNICIPAL NOISE CONTROL BY-LAW PUBLICATION NPC 119 OR ANY SUCCESSIVE GOVERNING REGULATION AT THE TIME SHALL BE ACHIEVED TO.
5. ORIENTATION OF THE AGGREGATE EXTRACTION OPERATION WILL BE DESIGNED AND MAINTAINED SO THAT THE DIRECTION OF THE OVERPRESSURE PROPAGATION AND FLYROCK FROM THE FACE WILL BE AWAY FROM STRUCTURES AS MUCH AS POSSIBLE.
6. BLAST DESIGNS SHALL BE CONTINUALLY REVIEWED BY SITE PERSONNEL AND BLAST CREWS WITH RESPECT TO FRAGMENTATION, GROUND VIBRATION AND OVERPRESSURE. BLAST DESIGNS SHALL BE MODIFIED AS REQUIRED TO ENSURE COMPLIANCE WITH APPLICABLE GUIDELINES AND REGULATIONS. EXCESSIVE SENSITIVE DAMAGING AND REPEATED BLASTING TECHNIQUES WILL BE USED TO ENSURE MINIMAL EXPLOSION PER DELAYED PERIOD INITIATED.
7. BLASTING PROCEDURES SUCH AS DRILLING AND LOADING SHALL BE CONDUCTED ON A YEARLY BASIS BY AN INDEPENDENT THIRD PARTY FIRM AND MODIFIED AS REQUIRED TO ENSURE COMPLIANCE WITH INDUSTRY STANDARDS.
8. DETAILED BLAST RECORDS SHALL BE MAINTAINED IN ACCORDANCE WITH CURRENT INDUSTRY BEST PRACTICES.



SECTION NOTES GENERAL INFORMATION

1. SECTION LINES ARE INDICATED ON DRAWINGS 1, 2, 3 AND 5.

NO.	REV.	PER	REVISION COMMENTS
1	NOV 2018	MECP	PER MECP COMMENTS
2	NOV 2018	MECP	ADJUSTED TO REFLECT REGULATORY CHANGES PER MECP COMMENTS

Pre Licence Review Site Plan Amendments

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Project Name

ROCKRIDGE QUARRY

LICENCE No. _____

APPLICANT'S SIGNATURE *J. Hill*

LOT 21, CONCESSION 8, GEOGRAPHIC TOWNSHIP OF HARVEY, MUNICIPALITY OF TRENT LAKES (FORMERLY GALLOWAY-CAVENDISH AND HARVEY TOWNSHIP), COUNTY OF PETERBOROUGH

Scale AS SHOWN North Stamp

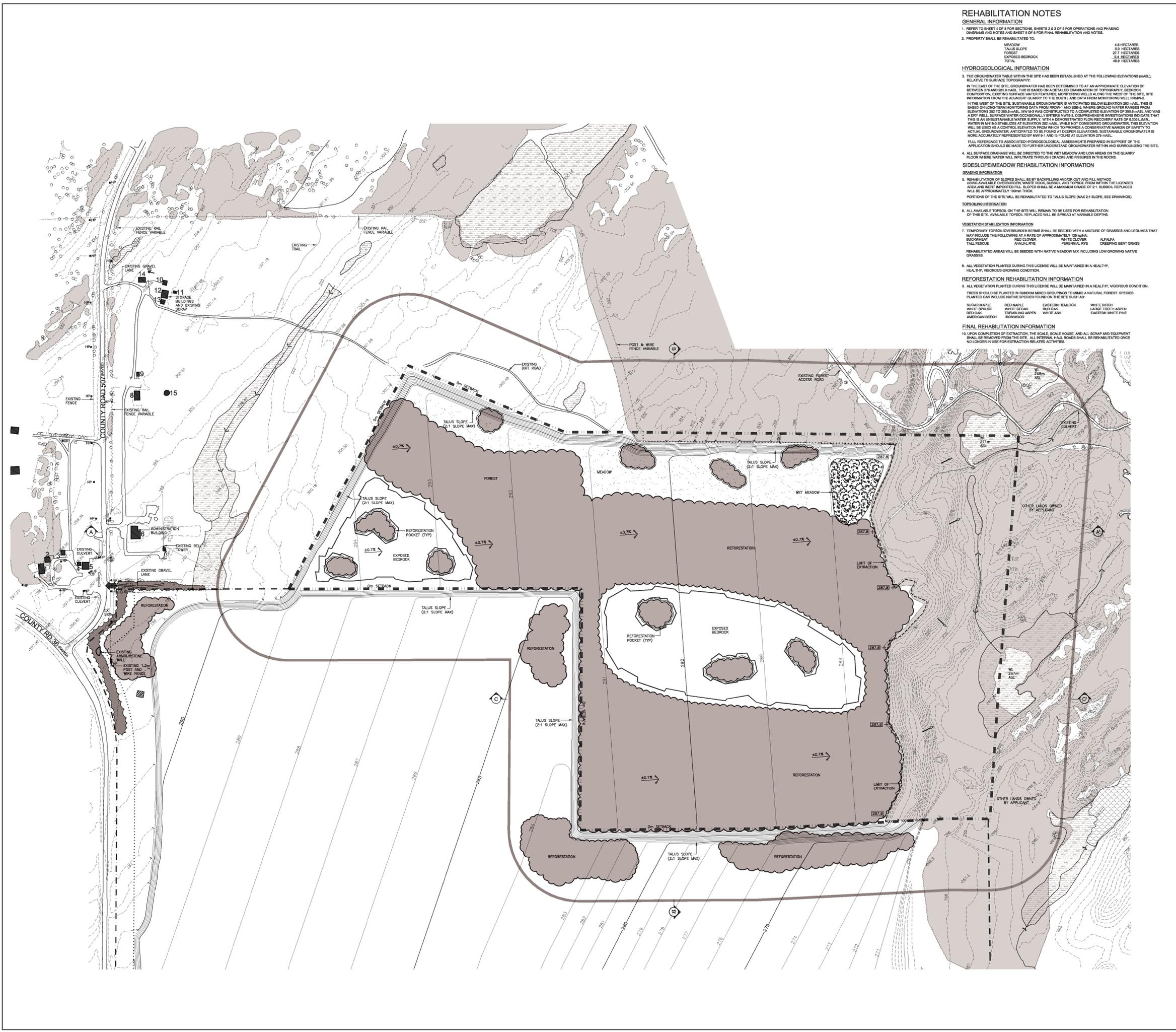
Drawing Status SUBMITTED FOR LICENCE APPLICATION

Drawn S.B. Checked G.D.H./M.H. Issue Date MAR 2020

Drawing Title SECTIONS AND DETAILS

Project Number 16-01

Drawing Number 4 OF 5



REHABILITATION NOTES

- GENERAL INFORMATION**
- REFER TO SHEET 4 OF 6 FOR SECTIONS, SHEETS 2 & 3 OF 6 FOR OPERATIONS AND PHASING DIAGRAMS AND NOTES AND SHEET 5 OF 6 FOR FINAL REHABILITATION AND NOTES.
 - PROPERTY SHALL BE REHABILITATED TO:

MEADOW	4.8 HECTARES
TALUS SLOPE	5.0 HECTARES
FOREST	27.7 HECTARES
EXPOSED BEDROCK	8.4 HECTARES
TOTAL	45.9 HECTARES
- HYDROGEOLOGICAL INFORMATION**
- THE GROUNDWATER TABLE WITHIN THE SITE HAS BEEN ESTABLISHED AT THE FOLLOWING ELEVATIONS (MASL) RELATIVE TO SURFACE TOPOGRAPHY:
 - IN THE EAST OF THE SITE, GROUNDWATER HAS BEEN DETERMINED TO AT AN APPROXIMATE ELEVATION OF BETWEEN 278 AND 283 MASL. THIS IS BASED ON A DETAILED EXAMINATION OF TOPOGRAPHY, BEDROCK COMPOSITION, EXISTING SURFACE WATER FEATURES, MONITORING WELLS ALONG THE WEST OF THE SITE, SITE INFORMATION FROM THE ADJACENT QUARRY TO THE SOUTH, AND DATA FROM MONITORING WELL IRM002.
 - IN THE WEST OF THE SITE, SUSTAINABLE GROUNDWATER IS ANTICIPATED BELOW ELEVATION 280 MASL. THIS IS BASED ON LONG-TERM MONITORING DATA FROM IRM001 AND IRM002, WHERE GROUND WATER RANGES FROM ELEVATIONS 280 TO 285 MASL. WHILE A WELL CONSTRUCTED TO A DEEPER ELEVATION OF 283 MASL AND HAS A DRY WELL, SURFACE WATER OCCASIONALLY ENTERS WELLS, COMPREHENSIVE INVESTIGATIONS INDICATE THAT THIS IS AN UNSUSTAINABLE WATER SUPPLY WITH A SIGNIFICANTLY LOW RECOVERY RATE OF 0.05 L/min. WATER IN WELLS STABILIZES AT ELEVATION 282 MASL, WHILE NOT CONSIDERED GROUNDWATER, THIS ELEVATION WILL BE USED AS A CONTROL ELEVATION FROM WHICH TO PROVIDE A CONSERVATIVE MARGIN OF SAFETY TO ACTUAL GROUNDWATER, ANTICIPATED TO BE FOUND AT DEEPER ELEVATIONS. SUSTAINABLE GROUNDWATER IS MORE ACCURATELY REPRESENTED BY IRM01 AND IS FOUND AT ELEVATION 279 MASL.
 - ALL SURFACE DRAINAGE WILL BE DIRECTED TO THE WET MEADOW AND LOW AREAS ON THE QUARRY FLOOR WHERE WATER WILL INFILTRATE THROUGH CRACKS AND FISSURES IN THE BEDROCK.
- SIDESLOPE/MEADOW REHABILITATION INFORMATION**
- GRADING INFORMATION**
- REHABILITATION OF SLOPES SHALL BE BY BACKFILLING AND/OR CUT AND FILL METHOD USING AVAILABLE OVERBURDEN, WASTE ROCK, SUBSOIL, AND TOPSOIL FROM WITHIN THE LICENSED AREA AND INERT IMPORTED FILL. SLOPES SHALL BE A MAXIMUM GRADE OF 2:1. SUBSOIL REPLACED WILL BE APPROXIMATELY 10cm THICK. PORTIONS OF THE SITE WILL BE REHABILITATED TO TALUS SLOPE (MAX 2:1 SLOPE, SEE DRAWINGS).
- TOPSOILING INFORMATION**
- ALL AVAILABLE TOPSOIL ON THE SITE WILL REMAIN TO BE USED FOR REHABILITATION OF THIS SITE. AVAILABLE TOPSOIL REPLACED WILL BE SPREAD AT VARIABLE DEPTHS.
- VEGETATION STABILIZATION INFORMATION**
- TEMPORARY TOPSOIL/OVERBURDEN BEINGS SHALL BE SEEDING WITH A MIXTURE OF GRASSES AND LEGUMES THAT MAY INCLUDE THE FOLLOWING AT A RATE OF APPROXIMATELY 125 kg/ha:

BROWNWAT	ANNUAL RYE	PERENNIAL RYE	ALFALEFA
TALL FESCUE			CREeping BENT GRASS
 - REHABILITATED AREAS WILL BE SEEDING WITH NATIVE MEADOW MIX INCLUDING LOW GROWING NATIVE GRASSES.
- REFORESTATION INFORMATION**
- ALL VEGETATION PLANTED DURING THIS LICENSE WILL BE MAINTAINED IN A HEALTHY, VIGOROUS GROWING CONDITION.
 - ALL VEGETATION PLANTED DURING THIS LICENSE WILL BE MAINTAINED IN A HEALTHY, VIGOROUS CONDITION. TREES SHOULD BE PLANTED IN RANDOM MIXED GROUPINGS TO IMITATE A NATURAL FOREST. SPECIES PLANTED CAN INCLUDE WATERSPECIES FOUND ON THE SITE SUCH AS:

SUGAR MAPLE	RED MAPLE	EASTERN HEMLOCK	WHITE BIRCH
WHITE SPRUCE	WHITE CEDAR	BUR OAK	LARGE TOOTH ASPEN
RED OAK	TREMULING ASPEN	WHITE ASH	EASTERN WHITE PINE
AMERICAN BEECH	IRONWOOD		
- FINAL REHABILITATION INFORMATION**
- UPON COMPLETION OF EXTRACTION, THE SCALE, SCALE HOUSE, AND ALL SCRAP AND EQUIPMENT SHALL BE REMOVED FROM THE SITE. ALL INTERNAL PAVEMENT ROADS SHALL BE REHABILITATED ONCE NO LONGER IN USE FOR EXTRACTION RELATED ACTIVITIES.

LEGEND

- 120m INFORMATION BOUNDARY
- BOUNDARY OF AREA TO BE LICENSED
- REGULATORY OF EXISTING ADJACENT LICENSE
- REGULATORY SETBACK LINE
- LIMIT OF EXTRACTION
- EXISTING VEGETATION
- EXISTING WETLAND
- EXISTING OPEN WATER
- EXISTING WATERCOURSE
- EXISTING 5m CONTOUR LINE
- EXISTING 1m CONTOUR LINE
- PROPOSED 5m CONTOUR LINE
- PROPOSED 1m CONTOUR LINE
- DIRECTION OF SURFACE WATER DRAINAGE
- EXISTING BUILDING
- EXISTING HYDRO POLE
- PROPOSED VEGETATION
- PROPOSED MEADOW
- PROPOSED PLANTING MIX
- PROPOSED EXPOSED BEDROCK
- PROPOSED WET MEADOW

2 NOV PER MINE 2019 COMMENTS	
1 NOV ISSUED TO REFLECT 2018 REGULATORY CHANGE PER MINE CONSULT	
Pre Licence Review	Site Plan Amendments

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Scale 1:2000	North	Stamp
Drawing Status SUBMITTED FOR LICENCE APPLICATION		PROFESSIONAL LANDSCAPE ARCHITECT CMA MAY 15 2020
Drawn S.B.	Checked G.D.H./M.H.	Issue Date MAR 2020
Drawing Title REHABILITATION PLAN	Project Number 16-01	Drawing Number 5 OF 5