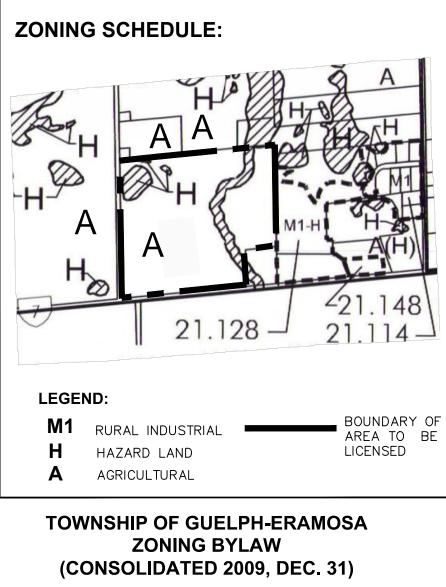


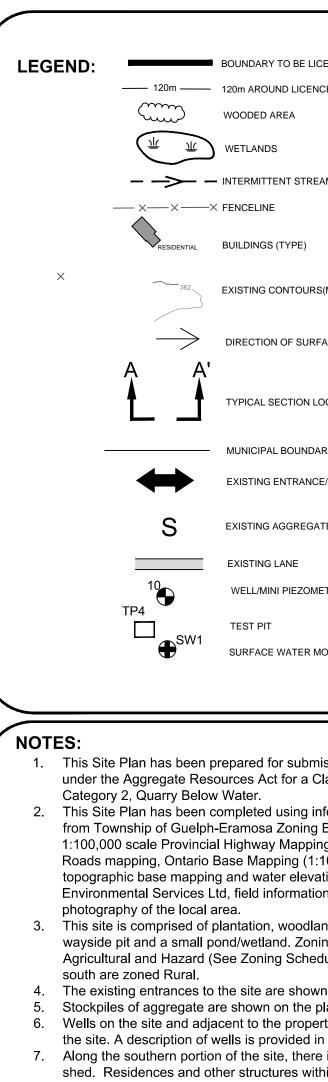
	2	*	35
	3	*	36
	5 10	* 6705424	36
	19	2802048	35
	* No MOE	Water Well Red	ord:
	Monitoring Station		Туре
	M1D M1S	Drilled Groundw ater M Drilled Groundw ater M	
V = V	M2 M3	Drilled Groundw ater M	onitor
W Chi	M4	Drilled Groundw ater M Drilled Groundw ater M	onitor
	M 5 M 6	Drivepoint Groundwate Drivepoint Groundwate	
	M7 M7R	Drivepoint Groundwate Drivepoint Groundwate	
LOT 1 DEDAR RAL DOWN AS PER INST COMMENT) P4	M 8 M 9	Drivepoint Groundwate Drivepoint Groundwate	er Monitor
	M9R M10	Drivepoint Groundwate	er Monitor
$\mathbb{TP8} = \mathbb{TP8} = \mathbb$	M11	Drivepoint Groundwate Drilled Groundwater M	
	M12 M13S	Drilled Groundw ater M Drilled Groundw ater M	
	M13D M14S	Drilled Groundw ater M Drilled Groundw ater M	
(eAST BOUNDARY LINE RECENTLY STIAKED AND FLAGGED)	M14D	Drilled Groundw ater M	onitor
	M 15 M 15-I	Drilled Groundw ater M Multi-Installation Drilled	Groundwa
The manual manual man	M 15-II M 15-III	Multi-Installation Drilled Multi-Installation Drilled	
	M 15-IV M 16	Multi-Installation Drilled Drilled Groundw ater M	Groundwa
	M 17 TP1	Drilled Groundw ater M	onitor
	TP2	Test Pit Location With D Test Pit Location With D	
	TP3 TP4	Test Pit Location Test Pit Location	
	TP5 TP6	Test Pit Location With D Test Pit Location	)riv epoint (
	TP7 TP8	Test Pit Location Test Pit Location With [	
	TP9 MPN-1	Test Fit Location With D	
	MPN-2	Mini-Piezometer Mini-Piezometer	
ТР9	MPE-1 MPE-2	Mini-Piezometer Mini-Piezometer	
	MPS-1 MPS-2	Mini-Piezometer Mini-Piezometer	
	MPW-1 MPW-2	Mini-Piezometer Mini-Piezometer	
ATION	MP1	Mini-Piezometer	-
	MP2 MP3	Mini-Piezometer Mini-Piezometer	
	MP4 SW1	Mini-Piezometer Surface Water Gauge	
	SW2 SW3-D	Surface Water Gauge Surface Water Gauge	and Stream
	SW3-U SW3A/SW8	Surface Water Gauge	and Stream
oru J F	SW4	Streamflow Measurem Surface Water Gauge	
A SIE A MARCH AND STORES	SW5 SW6	Surface Water Gauge Surface Water Gauge	
	SW7 SW14	Surface Water Gauge Surface Water Gauge	and Stream
	RS1 *TBD - To Be De	Surface Water Gauge	and Stream
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## TABLE 1:DESCRIPTION OF WELLS

Water Wells	s Within 120m	of Subject Prop	perty			
Well Location	MOE Well No.	Ground Elevation (mAMSL)	Depth of Well (mbgs)	Static Level (mbgs)	Pumped Level (mbgs)	Pumping Test Discharge (igpm)
1	6705627	358.46	30.48	12.41	13.72	8
2	*	357.20	3.33	1.77	n/a	n/a
3	*	360.01	approx 61	6.23	n/a	n/a
5	*	360.25	n/a	n/a	n/a	n/a
10	6705424	355.97	approx 27	n/a	18.29	10
19	2802048	355.90	20.12	10.35	n/a	n/a

Monitoring Station	Туре	Date Installed	Inside Diameter (mm)	Stick- up (m)	Ground Elevation (mAMSL)	Reference Point Elevation (mAMSL)	Depth (mbgs
11D	Drilled Groundwater Monitor	May -1990	51	0.87	358.83	359.70	12.8
11S	Drilled Groundwater Monitor	Dec-2010	51	1.00	358.84	359.84	9.3
12	Drilled Groundwater Monitor	May-1990	51	0.94	362.45	363.39	55.4
13	Drilled Groundwater Monitor	May-1990	51	0.93	359.27	360.20	11.1
14	Drilled Groundwater Monitor	May-1990	51	0.74	355.89	356.63	18.5
15	Drivepoint Groundwater Monitor	Nov-1996	32	1.07	358.64	359.71	5.9
16	Drivepoint Groundwater Monitor	Nov-1996	32	1.13	354.97	356.10	1.9
17	Drivepoint Groundwater Monitor	Apr-1998	32	1.14	352.43	353.57	2.8
17R	Drivepoint Groundwater Monitor	Nov-2010	32	0.82	352.45	353.27	3.1
18	Drivepoint Groundwater Monitor	Apr-1998	32	1.16	356.30	357.46	1.5
19	Drivepoint Groun dwater Monitor	Apr-1998	32	1.35	355.67	357.02	2.6
19R	Drivepoint Groundwater Monitor	Nov-2010	32	1.03	355.67	356.70	2.9
110	Drivepoint Groun dwater Monitor	Apr-1998	32	1.14	355.13	356.27	0.9
111	Drilled Groundw ater Monitor	Dec -2010	51	0.86	358.57	359.43	9.3
112	Drilled Groundw ater Monitor	Dec -2010	51	0.89	362.00	362.89	8.8
113S	Drilled Groundw ater Monitor	Dec -2010	51	0.99	356.78	357.77	4.3
113D	Drilled Groundw ater Monitor	Dec -2010	51	0.90	356.75	357.65	10.0
114S	Drilled Groundw ater Monitor	Dec -2010	51	0.98	354.64	355.62	4.2
114D	Drilled Groundw ater Monitor	Dec -2010	51	0.78	354.50	355.28	7.6
115	Drilled Groundwater Monitor	May-2013	152	0.51	360.03	360.54	54.3
115-1	Multi-Installation Drilled Groundw ater Monitor	May-2014	25	0.51	360.03	360.54	44.0
115-II	Multi-Installation Drilled Groundw ater Monitor	May-2014		0.51	360.03	360.54	37.8
115-111	Multi-Installation Drilled Groundw ater Monitor	May-2014		0.51	360.03	360.54	29.8
115-IV	Multi-Installation Drilled Groundw ater Monitor	May-2014		0.51	360.03	360.54	19.8
116	Drilled Groundwater Monitor	TBD*	TBD*	TBD*	TBD*	TBD*	TBD*
117	Drilled Groundwater Monitor	TBD*	TBD*	TBD*	TBD*	TBD*	TBD*
P1	Test Pit Location With Drivepoint Groundwater Monitor	Sep-1996	32	1.07	355.35	356.41	4.6
P2	Test Pit Location With Drivepoint Groundwater Monitor	Sep-1996	32	1.37	354.66	356.03	5.0
P3	Test Pit Location	Sep-1996	n/a	n/a	358.45	n/a	8.0
P4	Test Pit Location	Sep-1996	n/a	n/a	n/a	n/a	8.0
P5 P6	Test Pit Location With Drivepoint Groundwater Monitor	Sep-1996	32	0.96	355.68	356.64	7.4
P0 P7	Test Pit Location	Sep-1996	n/a	n/a	359.30 356.25	n/a	7.0
F7 P8	Test Pit Location	Sep-1996 Feb-2012	n/a 32	n/a 0.91	359.45	n/a 360.36	6.0
P9	Test Pit Location With Drivepoint Groundwater Monitor	Feb-2012	32	0.91	356.65	357.59	4.5
IPN-1	Test Pit Location With Drivepoint Groundwater Monitor	Jul-2009	19	0.84	354.67	355.51	2.0
IPN-2	Mini-Piezometer	Jul-2009	19	1.29	355.29	356.58	1.6
1PE-1	Mni-Piezometer Mni-Piezometer	Jul-2009	19	0.79	354.71	355.50	2.1
IPE-2	Mni-Piezometer	Jul-2009	19	0.79	355.29	356.08	2.1
IPS-1	Mni-Piezometer	Jul-2009	19	0.77	354.73	355.50	2.1
IPS-2	Mni-Piezometer	Jul-2009	19	0.68	355.54	356.22	2.2
IPW-1	Mni-Piezometer	Jan-2011	19	0.38	354.90	355.28	2.2
IPW-2	Mini-Fiezometer	Jan-2011	19	0.76		355.85	1.8
1P1	Mini-Piezometer	Nov-2010	19	1.14	355.81	356.95	3.6
1P2	Mini-Piezometer	Nov-2010	19	0.44	356.95	357.38	4.3
1P3	Mini-Piezometer	Nov-2010	19	0.75	359.80	360.55	4.0
1P4	Mini-Piezometer	Nov-2010	19	0.76	359.23	359.99	3.9
5W1	Surface Water Gauge	Aug-1996	n/a	n/a	n/a	355.34	n/
SW2	Surface Water Gauge	Aug-1996	n/a	n/a	n/a	355.28	n/
SW3-D	Surface Water Gauge and Streamflow Measurement	Aug-1996	n/a	n/a	349.04	351.02	n/
SW3-U	Surface Water Gauge and Streamflow Measurement	Aug-1996	n/a	n/a	n/a	351.96	n/
W3A/SW8	Streanflow Measurement	Mar-2009	n/a	n/a	n/a	355.33	n/
SW4	Surface Water Gauge and Streamflow Measurement	Aug-1996	n/a	n/a	358.87	360.52	n/
SW5	Surface Water Gauge	Aug-1996	n/a	n/a	354.72	355.66	n/
SW6	Surface Water Gauge	Oct-2001	n/a	n/a	n/a	354.96	n/
SW7	Surface Water Gauge and Streamflow Measurement	Oct-2001	n/a	n/a	n/a	356.46	n/
SW14	Surface Water Gauge	Mar-2012	n/a	n/a	n/a	358.64	n/
RS1	Surface Water Gauge and Streamflow Measurement	Apr-2004	n/a	n/a	n/a	359.78	n/
FBD - To Be De	termined						



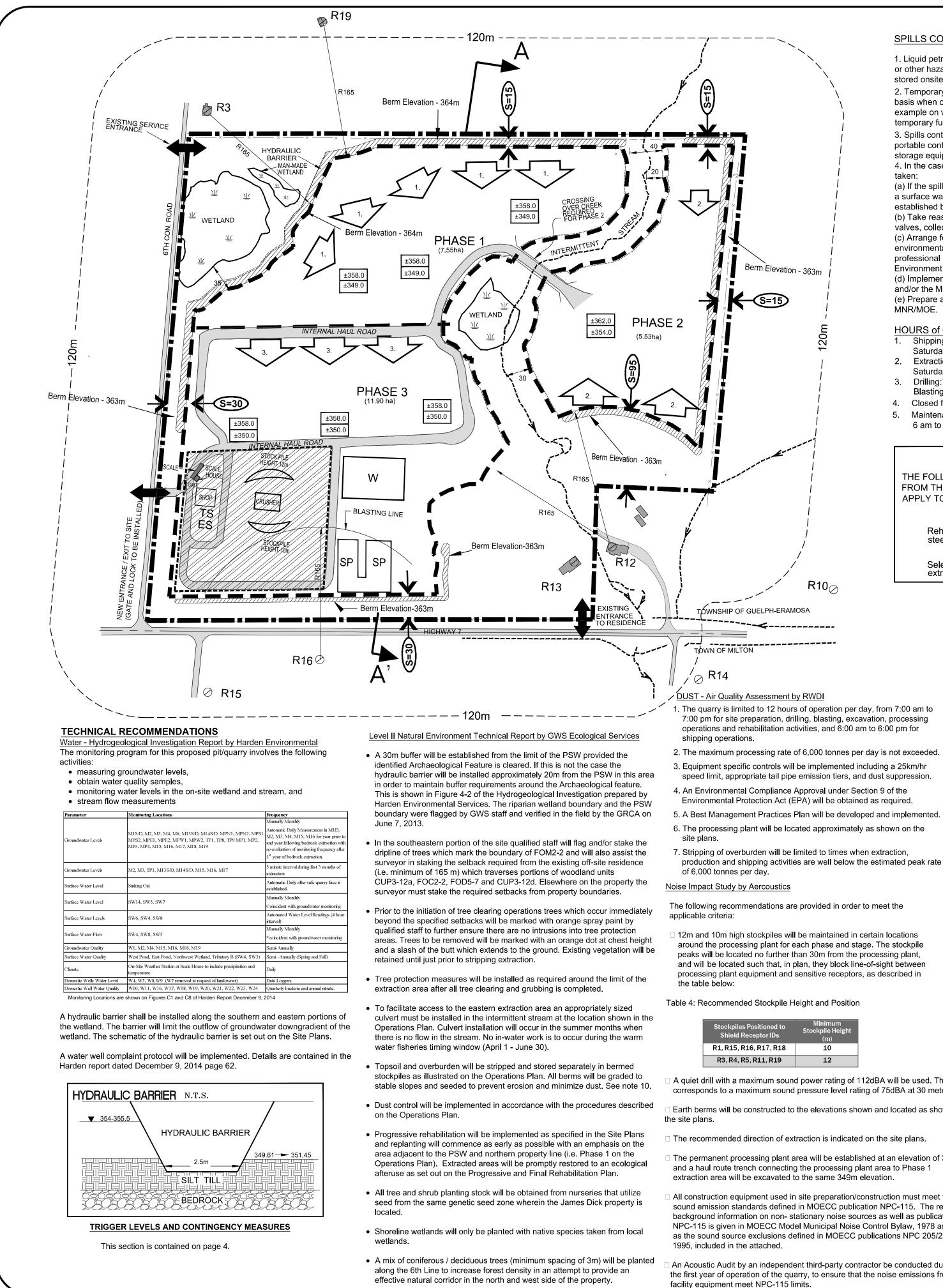


- are shown. There are no existing piles of scrap on the si There are no existing fuel storage areas on t The existing surface water drainage is shown intermittent watercourse is shown on the Site Wetlands/ponds on the site and adjacent to illustrated on the Site Plans.The riparian wet the PSW boundary were flagged by GWS st the field by the GRCA on June 7, 2013. 11. The existing ground water table ranges from All measurements shown on the Site Plans 12. Proposed Licensed Area = 39.4 ha. **REFERENCES:** Aercoustic Engineering Ltd. November 19, 2012. Project No. 11007, Hidden Quarry, Rockwood, On Cole Engineering Limited. 2012. Traffic Impact As Hidden Quarry.
- County of Wellington. 1999. Official Plan.

8. 9.

- Explotech Engineering Ltd. November 19, 2012. E -James Dick Hidden Quarry.
- Grand River Conservation Authority. 2011. Conto Photography.
- GWS Ecological and Forestry Services Inc. 2012. Level 2 Natural Environment Technical Report.
- Harden Environmental Services Ltd. 2012. Level Investigation - Hidden Quarry.
- K. W. Ingram. 1990. Borehole Records Lot 1, Co Township, County of Wellington.
- RWDI. 2012. Air Quality Assessment Proposed 1201429.
- Township of Guelph-Eramosa. Comprehensive Zo
- York North Archaeological Services., 2012, Stage Assessment of the Proposed James Dick Ltd. Hid

SED	HIDDEN
	QUARRY
	PART OF LOT 1, CONCESSION 6
	TOWNSHIP OF GUELPH-ERAMOSA FORMER TOWNSHIP OF ERAMOSA COUNTY OF WELLINGTON
RES ABOVE SEA LEVEL) RUN-OFF	
ONS	Page 1 of 5
	EXISTING
FOCKPILE	FEATURES
OR	
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120 m of the site	Arkell Farnham
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e site are Id boundary and and verified in	NTS
18 to 356 (masl). ⊨in metres.	THIS SITE PLAN IS PREPARED UNDER THE AGGREGATE RESOURCES ACT FOR A CLASS A LICENCE, CATEGORY 2 - QUARRY BELOW WATER.
ise Impact Study,	THESE SITE PLANS HAVE BEEN PREPARED UNDER THE DIRECTION OF AND CERTIFIED BY A PERSON APPROVED BY THE MINISTER OF NATURAL RESOURCES (AS PER SECTION 8(4) OF THE AGGREGATE RESOURCES ACT).
rio. ssment of the Proposed	
	PREPARED FOR: JAMES DICK CONSTRUCTION LTD
st Impact Analysis	www.jamesdick.com Box 470 Bolton Ontario L7E 5T4
nformation and Aerial	Bolton:(905)857-3500 Fax:(905)857-4833   Toll Free: 1-888-535-3333   APPROVED: R.P.S. DRAWN: G.K.S.
oposed Hidden Quarry -	PLOTTED: MARCH 19, 2015 FILE: Brit Bastrin 188800 1975 Brite plane Store (Laure CARViete plane Store) Laure CARViete plane Store) Laure CARViete plane Store (Laure CARViete plane Store) Laure CARVie
nd 2 Hydrogeological	No. DATE DESCRIPTION
ession 6, Eramosa	AMENDMENTS
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ng By-law. I ,Archaeological	STOVEL 297 BRIARHILL DRIVE STRATFORD, ONTARIO N5A 7T1
en Quarry	and Associates Inc. N5A 7T1 PHONE (519) 272-2884



- 1. The quarry is limited to 12 hours of operation per day, from 7:00 am to 7:00 pm for site preparation, drilling, blasting, excavation, processing operations and rehabilitation activities, and 6:00 am to 6:00 pm for
- 2. The maximum processing rate of 6,000 tonnes per day is not exceeded. 3. Equipment specific controls will be implemented including a 25km/hr
- 4. An Environmental Compliance Approval under Section 9 of the
- Environmental Protection Act (EPA) will be obtained as required.
- 6. The processing plant will be located approximately as shown on the
- 7. Stripping of overburden will be limited to times when extraction, production and shipping activities are well below the estimated peak rate

The following recommendations are provided in order to meet the

12m and 10m high stockpiles will be maintained in certain locations around the processing plant for each phase and stage. The stockpile peaks will be located no further than 30m from the processing plant, and will be located such that, in plan, they block line-of-sight between processing plant equipment and sensitive receptors, as described in

Table 4: Recommended Stockpile Height and Position

Stockpiles Positioned to Shield Receptor IDs	Minimum Stockpile Height (m)
R1, R15, R16, R17, R18	10
R3, R4, R5, R11, R19	12

A quiet drill with a maximum sound power rating of 112dBA will be used. This corresponds to a maximum sound pressure level rating of 75dBA at 30 meters.

- Earth berms will be constructed to the elevations shown and located as shown on
- The recommended direction of extraction is indicated on the site plans.
- The permanent processing plant area will be established at an elevation of 349m, and a haul route trench connecting the processing plant area to Phase 1 extraction area will be excavated to the same 349m elevation.
- All construction equipment used in site preparation/construction must meet the sound emission standards defined in MOECC publication NPC-115. The relevant background information on non- stationary noise sources as well as publication NPC-115 is given in MOECC Model Municipal Noise Control Bylaw, 1978 as well as the sound source exclusions defined in MOECC publications NPC 205/232,
- An Acoustic Audit by an independent third-party contractor be conducted during the first year of operation of the quarry, to ensure that the noise emissions from

SPILLS CONTINGENCY AND RESPONSE PROGRAM

1. Liquid petroleum products (fuels, oil) in quantities greater than 500 litres or other hazardous liquid chemical associated with the operation will not be stored onsite on a permanent basis.

2. Temporary fuel storage facilities will be inspected for leaks on a regular basis when operations are occurring. If operations are not occurring (for example on weekends or during an extended shutdown period), inspection of temporary fuel storage facilities remaining onsite will occur weekly. 3. Spills containment materials (for example, absorbency materials and portable containers) are to be available on-site as part of the temporary fuel

storage equipment. 4. In the case of an accidental spill of fuel or oil, the following action is to be

(a) If the spill volume is approximately 5 L or more, or the spill occurs directly to a surface water feature, contact the Township and the Spills Action Centre established by MOECC (1-800-268-6060).

(b) Take reasonable measures to stop or control the spill (such as closing valves, collecting leakage in a container, applying the absorbency materials). (c) Arrange for an inspection of the spill site and a general assessment of the environmental impact by a Qualified Person (Qualified Person means a professional engineer or professional geoscientist) and/or the Ministry of the Environment

(d) Implement remedial measures as recommended by the Qualified Person and/or the Ministry of the Environment. (e) Prepare a written report on the incident for review by the Township,

HOURS of OPERATION

MNR/MOE.

- 1. Shipping and Loading: 6 am to 6 pm Weekdays and 6 am to 1 pm -Saturdavs
- 2. Extraction and Processing: 7 am to 7 pm Weekdays and 7 am to 1 pm -Saturdavs
- 3. Drilling:7 am to 7 pm Weekdays, 7 am to 1pm Saturdays Blasting: 8 am to 5 pm - Weekdays.
- 4. Closed for Operations on Sundays and Public Holidays.
- 5. Maintenance and Rehabilitation may occur during normal weekday hours, 6 am to 7 pm, and on Saturdays from 7 am to 5 pm.

#### SITE PLAN OVERRIDE TABLE

THE FOLLOWING CONDITIONS ILLUSTRATED ON THIS PLA FROM THE REQUIREMENTS OF THE PROVINCIAL STANDA APPLY TO LICENSED PITS AND QUARRIES IN ONTARIO.	
OVERRIDE	STANDARD

Rehabilitation of side slopes may occur at a slope steeper than 2:1 to promote ecological diversity	5. 19.2
Selected trees will not be removed within 5m of the extraction face.	5.5

Blasting - Blasting Impact Assessment by EXPLOTECH

It is recommended that the following conditions be applied for all blasting operations at the proposed James Dick Construction Hidden Quarry:

1. An attenuation 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 development of site specific attenuation relations. This study will be used to confirm the applicability of the initial guideline parameters and assist in developing future blast designs.

- 2. All blasts shall be monitored for both ground vibration and overpressure at the closest privately owned sensitive receptors adjacent the site, or closer, 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 party engineering firm with specialization in blasting and monitoring.
- 3. 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.
- 4. Blast designs shall be continually reviewed with respect to fragmentation, ground vibration and overpressure. Blast designs shall be modified as required to ensure compliance with applicable guidelines and regulations. Decking, reduced hole diameters and sequential blasting techniques will be used to ensure minimal explosives per delay period initiated.
- 5. Clear crushed stone will be used for stemming.
- 6. Primary and secondary dust collectors will be employed on the rock drills to keep the level of rock dust to a minimum.
- 7. Blasting procedures such as drilling and loading shall be reviewed on a yearly basis and modified as required to ensure compliance with industry standards.
- 8. Detailed blast records shall be maintained. The MOECC (1985) recommends that the body of blast reports should include the following information:
- Location, date and time of the blast.
- Dimensional sketch including photographs, if necessary, of the location of the blasting operation, and the nearest point of reception.
- Physical and topographical description of the ground between the
- source and the receptor location.
- Type of material being blasted.

Sub-soil conditions, if known.

• Prevailing meteorological conditions including wind speed in m/s, wind direction, air temperature in <sub>o</sub>C, relative humidity, degree of cloud cover and ground moisture content.

- Number of drill holes.
- Pattern and pitch of drill holes.
- Size of holes. • Depth of drilling.
- Depth of collar (or stemming).
- Depth of toe-load.
- Weight of charge per delay.
- Number and time of delays. • The result and calculated value of Peak Pressure Level in dB and Peak Particle Velocity in mm/s.
- Applicable limits.
- The excess, if any, over the prescribed limit.

#### (SEE NOTE "SE CONTROL" PAG 1. This plan depicts a schematic oper upon the best information availabl are schematic and may vary with deposit. Phases do not represent lifts may be operated concurrently. water table. 2. The lands are to be rehabilitated incorporation of a lake (s). 3. The site will be operated in severa the Site Plan. The first lift will invol material above the water table. The consolidated material above and b stone and sand gradations, and with aggregate products, extraction may of the site, unless otherwise specif 4. Extraction operations will use load feed a processing plant(s), i.e. cru equipment to be used on the site scrapers, and dozers. Equipment and fence installation will occur alo gate will be installed about 20m in both sides of the entrance into the 7. Processing equipment and aggreg shall proceed as close to the excav phase of operations. A main proce western portion of the site once a s 8. It is anticipated that the only buildir a scale, scalehouse and a mainten scalehouse will be located close to

- Scrap will not be stored permanent located in the main processing area
- may be stored together in the stoc there is a sufficient depth of subsoi occur separately.
- legume seed mixture to prevent er All vegetation planted during the o
- within one growing season. 13. One (looped) internal haul road is a need to be modified during the cou different product stockpiles. The in entrance to the scale. The internal often as required, to ensure that d municipal road system. Dust will be
- 14. Aggregate will be transported from
- 15. The existing ground water table of 16. There will be no proposed water d water from this site. Surface draina
- as possible. Dust control will be maintained thro
- suppressant or water as required. 18. During the early stages of operation temporarily established on the pit/ to provide water for dust suppress permit to take water will be obtained
- 19. The location of existing vegetation 20. Any trees or stumps that are needed shall be harvested, mulched or use
- 21. The maximum tonnage to be remo
- 22. The existing Service Entrance at the
- traffic will be restricted to the main 23. The commercial entrance to the sit
- travelled portion of the road with th 24. Topsoil that is stripped from opera around the perimeter of the site as rehabilitation the topsoil in berms
- 25. Truck Entrance warning signs will b according to the Ontario Traffic Ma 100km/hr (Hwy 7) subject to MTO r 26. Vegetation clearing operations will
- period (May 15 July 31).

# TYPICAL SEC MUNICIPAL B TREE PROTEC NOTES:

LEGEND:

±358.0 ±350.0

\_\_\_\_\_\_

RESIDEN

\_\_\_\_ 120m \_\_

SPOT FLEVATION.

SPOT EL

TOP OF SAND & GRAVEL

BOTTOM OF SAND & GRAV

WATERCOURS

HYDRAULIC B

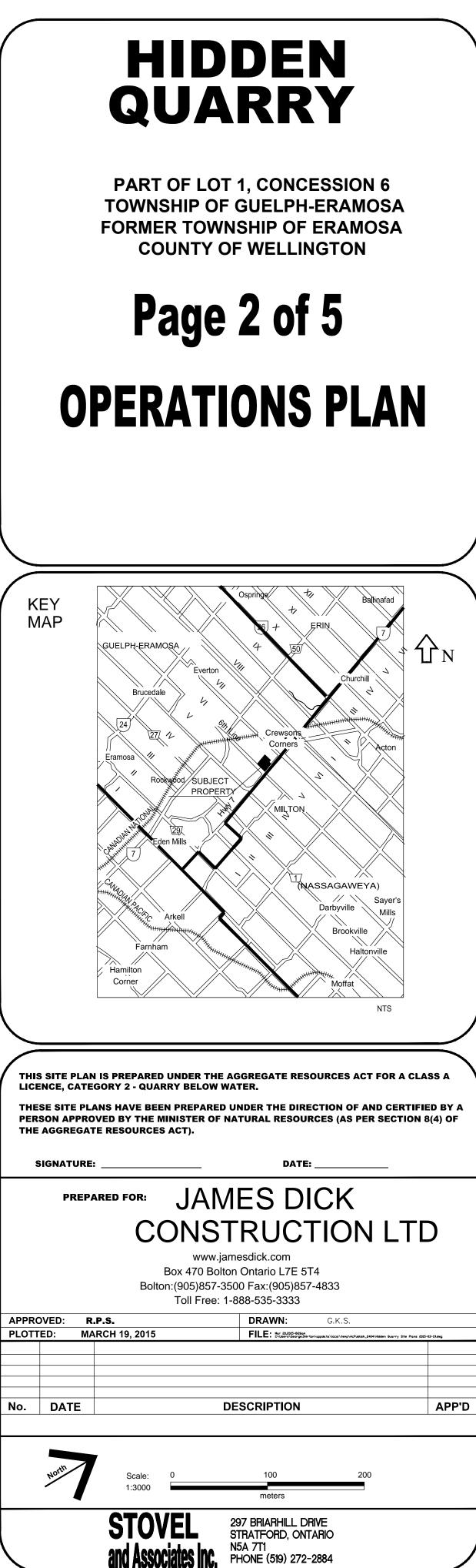
ENTRANCE/E

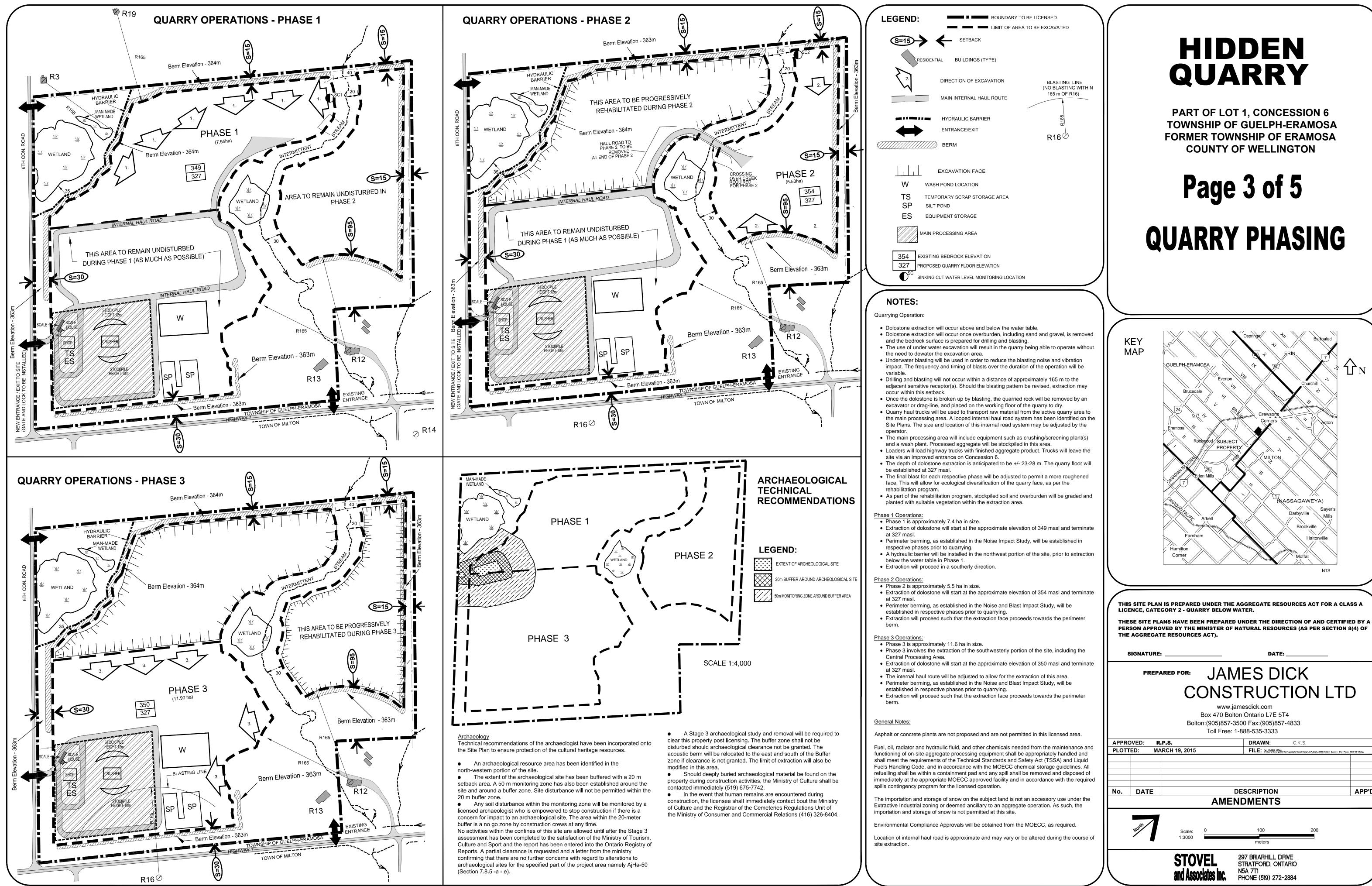
BERM

SETBAC

- Existing property limits are fenced.
- 6. On site permanent fuel storage wil
- the 6th Concession.
- 10. Onsite overburden quantities are
- 11. Topsoil and overburden stockpiles
- healthy growing condition. Should
- and or treatment with water.
- Concession. Trucks will use Provi
- rehabilitated pit/quarry floor and ref
- operations taking place as required
- extracted is 24.5 ha.
- shall be 700,000 tonnes.
- permit access for maintenance and
- Township of Guelph/Eramosa Desi
- design of the commercial entrance
- indicated on the site plans.

	$\left( \right)$
BOUNDARY TO BE LICENSED	
— — 120m AROUND LICENCE	
TIAL BUILDINGS (TYPE)	
2. DIRECTION OF EXCAVATION/QUARRY PHASE	
EL VIIII	
MAIN PROCESSING AREA	
E W WASH POND LOCATION	
ARRIER SP SILT POND TS TEMPORARY SCRAP	
KIT ES EQUIPMENT STORAGE	
BLASTING LINE	
(NO BLASTING WITHIN 165 m OF R16)	
CATION	
TION SILT FENCING TION SILT FENCING TIMENT AND EROSION GE 4 OF 5) R16	
erations sequence for this property based	
e at the time of preparation. Phases shown demand and variations in the aggregate any specific or equal time period. Phases and	$\geq$
. Excavation will occur above and below the	( KE
o an ecological after-use with the al Phases, consisting of two lifts, as shown on	MA
lve the extraction of the unconsolidated he second lift will involve the extraction of below the water table. Due to the variability in	
ith fluctuations in market demand for various ay occur simultaneously at different portions fied in the technical reports, i.e. noise and	
lers, drag-lines and excavators, which will	
ishing, screening and washing plants. Other includes: trucks, tractors, portable drill, will be stored in the main processing area.	
. Once extraction initiated, fencing repairs ong the perimeter of the site as required. A front of the scale house. Fencing will follow	
e quarry to the gate. Il not occur in quantities greater than 500	
gate stockpiles resulting from this operation wation face as possible, during the initial essing area will be developed in the south	
sufficient area has been cleared. ngs or structures that will be constructed are	
nance shop/office/ quality lab. The scale and o the main entrance to the site, adjacent to	
ntly onsite. Temporary scrap piles will be ea as shown on the Site Plan. minimal, therefore overburden and topsoil	
ckpile locations or perimeter berms. Where bil and overburden, stripping and storage will	
s will be seeded with an appropriate grass rosion(See typical screening berm detail). operation of the site will be maintained in a	
any planted vegetation die, it will be replaced	$\geq$
shown on the plan. Internal haul roads may urse of operations to permit efficient access to nternal haul road will be paved from the	THIS SI
I haul road will be inspected daily, or more lust and aggregate are not tracked onto the e controlled through mechanical sweeping	THESE PERSO THE AG
n the pit to a year-round access onto 6th incial Highway 7 as the main haul route.	SIG
ccurs at +/- 348 to 356 masl. liversions or points of discharge to surface age will be allowed to percolate through the	
eflect the existing surface drainage as much	
ough the use of a MOECC approved dust	
quarry floor to permit washing operations and sion. Silt may be deposited in quarry ponds. A ed from the MOECC prior to any washing	
d. n/natural tree screening is shown on Page 1. led to be removed from the extraction area	APPROVE
ed for rehabilitation purposes. The area to be oved from this license in any calendar year	PLOTTED
he north end of the site on the 6th line will d operational vehicles only. Commercial	
n commercial scale entrances only. ite will be designed in accordance with the	No. [
sign Standards within the right of way. The e shall allow at least one full truck to be off the he gate closed.	
ational areas will be placed in screening berms s shown on the site plans. As part of final will be used to achieve final contours as	<u>"</u>
be placed on the sixth line as required, anual, based on 80km/hr speed (6th line and	
recommendations for Hwy 7. I not take place during the breeding bird	
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297 BRIARHILL DRIVE

STRATFORD, ONTARIO

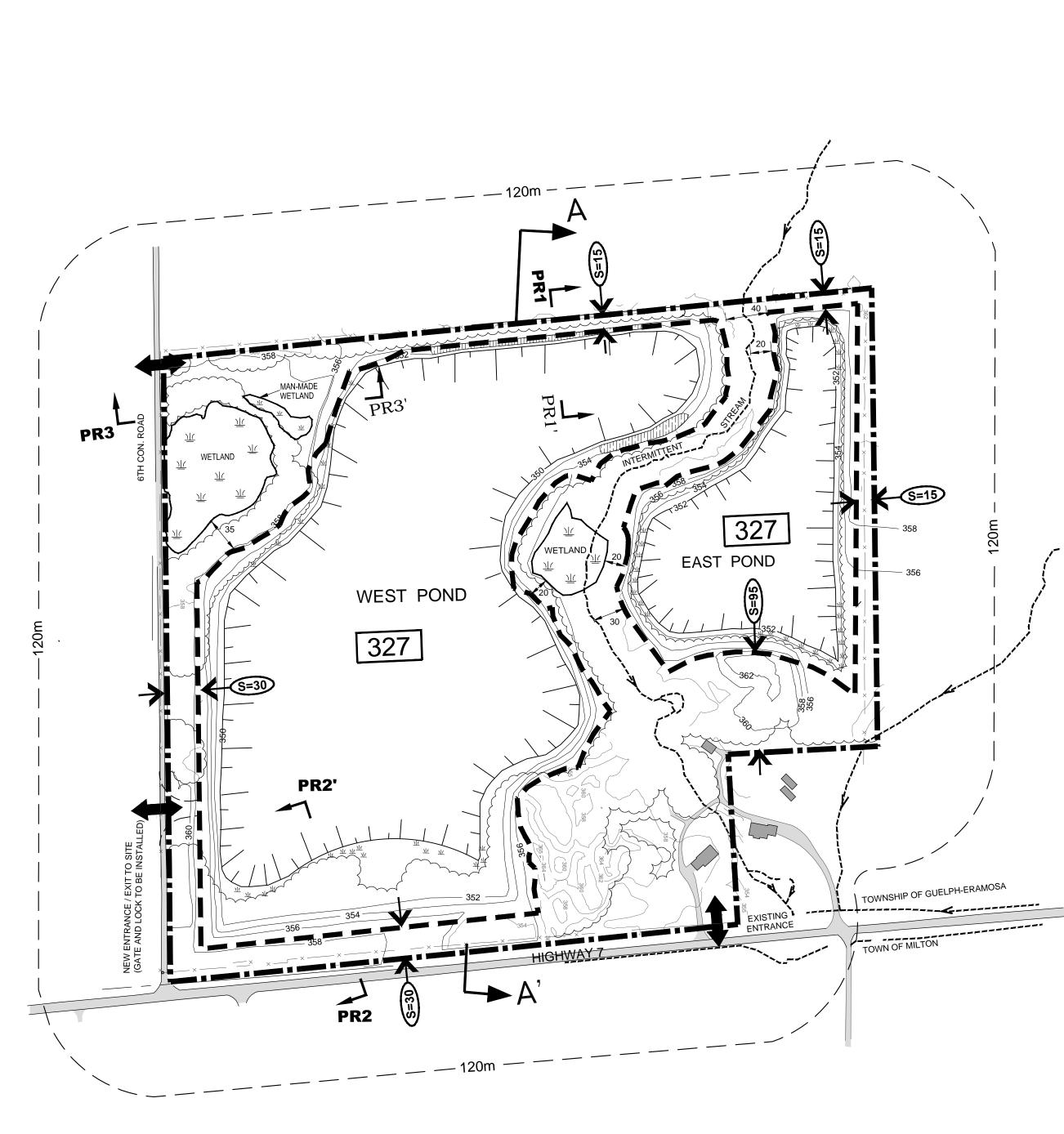
APP'D

(NASSAGAWEYA)

Darbyville

G.K.S.

Brookville



### TRIGGER LEVELS AND CONTINGENCY MEASURES (FROM PAGE 2 OF 5)

Parameter	Monitor	Warning	Trigger	Trigger Level Contingency Measures
	Location	Level	Level	which shall be implemented
Bedrock Aquifer	M1D	349.98	349.78	Increase Monitoring Frequency
	M2	348.31	347.81	and one or more of:
	M13D	351.63	351.28	Decrease the Rate of or Cease Extraction;
	M14D	352.36	351.98	and/or
	M15	TBD	TBD	Increase the Length or Width of Barrier;
	M16	TBD	TBD	and/or
	M17	TBD	TBD	Change Mining Configuration or Mining Extent;
	M18	TBD	TBD	and/or
	M19	TBD	TBD	Alter Timing to Coincide with High Water Season
NW Wetland	SW6 Winter	354.35	354.2	such that water levels recover above Trigger Leve
-	SW6 Spring	354.48	354.33	
	SW6 Fall	358.38	354.23	
Allen Wetland	SW4 May	<25 L/S		
	SW4 June 22		No Flow	
Sinking Cut	Buoy in Pond		346.83	Cease Extraction until Water Levels Recover
If any trigger level	is breached, the foll	owing mea	asures wil	l be taken;
1) Confirmation of	water level within 2	4 hours. In	crease mo	onitoring to weekly until source of the trigger
level exceedence i				
2) Within seven da	ivs complete an eval	uation of r	recipitati	on, groundwater monitoring data and quarry
,	, ,			for the low water level observed.
				e actions will be considered and a response
	GRCA and the Townsh	•		
Note: An annual hy	ydraulic monitoring i	report will	be submi <sup>.</sup>	tted to the MOE, MNR and Guelph/Eramosa
	to March 31st of the	fallouing	ممامهمامه	



The goal of the ecological enhancement strategy is to create a growing environment that will provide for the long-term development of a healthy, diverse ecosystem.

- The following features will be incorporated into the rehabilitation plan:
- Quarry lake areas, including the littoral zone, Quarry face,
- Created wetland areas, and
- Reforested tableland areas.

Quarry Lake Areas:

The extracted quarry lake areas will comprise good quality cold/cool water. The following features will be incorporated into the rehabilitation plan:

- Large boulders can be left in the bottom of the quarry
- Stone and screening piles can be left in the bottom of the guarry
- Boulders, stone and screenings piles can be dumped over the bank of the quarry • Along the edge of the quarry, a productive littoral zone can be created by dumping soil over the edge. Stumps and logs can be strategically placed along the shoreline.

The opportunity exists to create a diversified shoreline through the extraction process. In near shore areas, on lands that will not be rehabilitated as wetlands, variable shorelines will also be considered. The area receiving this modified side sloping detail focuses on the first 2 m of the final lake water level. Side sloping and planting details similar to the wetland enhancement program will be employed.

#### Cliff and Talus Slope Rehabilitation:

Cliffs will be created where steep exposures of bedrock remain after extraction that are more than 3 m high. Sharp to variably broken edges, faces, and rims will be established by rough blasting the final face. Vegetation cover will be established that ranges from patch to < 60 %tree cover, and an average substrate depth of < 15 cm. Talus are slopes of rock rubble, with coarse rocky debris making up > 50 % of substrate surface

and an average substrate depth of < 15 cm, and a vegetation cover that ranges from patch to < 60 % tree cover. Talus slopes will be created where limestone faces are less than 3m high after extraction.

Species to be planted in these areas are Canada Bluegrass, White Cedar, Sugar Maple, and Ironwood.

It is recommended, however, that at least 20 per cent of the quarry face remain barren and untreated.

#### Created Wetlands:

The site plans illustrate areas on the subject property where wetlands will be created. These areas are in immediate proximity to where the perimeter berming is located. The object of this process is to create wetland with a slope of approximately 5:1 to 10:1. Appropriate native vegetation should be planted in this area.

#### Reforested Tableland Areas:

Once the tableland areas have been graded using overburden to backfill, these areas should be treated with a layer of topsoil, and then planted with appropriate native vegetation. In general, the tableland areas will have a finished slope not to exceed 2:1. The objective is to achieve a soil mass of 50-100 cm in depth with a topsoil layer that is 10-20 cm in depth.

During the rough grading stage of the northwestern and southern portion of the site, the licensee shall consider creating microhabitat features such as, small depressions, mounding of soil in long, linear formations, brush piles, ephemeral pools, and small stone and screening piles. The intent of this grading program is to diversify the landscape and to create habitat opportunities for a variety of wildlife including amphibians. It is also recommended, that in portions of the rehabilitated quarry, the exposed dolostone quarry floor be left in a roughened condition without the treatment of a soil layer or planted with native vegetation

Native species, such as white pine, white spruce, white cedar, red oak, sugar maple, red maple, white birch and bur oak, shall be used. Seedling stock from an appropriate nursery can be used with a minimum planting density of 1500 seedlings per ha, planted at a 2.4 x 2.4m spacing. Prior to reforestation common buckthorn and other invasive non-native shrubs shall be cut down low to the ground and/or treated with an appropriate herbicide. A minimum of 70% of the trees planted as part of the reforestation program will be coniferous trees. The following shrubs may be included in the replanting program, grey dogwood, red-osier dogwood, staghorn sumac, nannyberry, chokecherry and serviceberry. Forest cover should be approximately 80% of the tableland area.

To reduce undesirable competition and improve the probability of seedling survival and growth, grass and weed competition in planting areas may be scalped or controlled by other methods.

Watering of planted trees, shrubs and ground cover required during droughty periods.

All vegetation planted shall be maintained in a healthy growing condition. Should planted vegetation die, it shall be replaced within one growing season.

#### MONITORING

Monitoring will be carried out to ensure that the survival and growth of planted trees, shrubs and ground covers are sufficiently established to restore the site to the desired woodland and wetland vegetation.

Monitoring will be carried out until trees and shrubs are considered free to grow which means their root systems well established and the height of the competing herbaceous vegetation particularly grass and golden rod (i.e. about 1m).

It is estimated that this will take 5 years.

To ensure adequate stocking in reforested areas, there must be at least 80% seedling survival after 5 years or when trees are considered free to grow.

A seedling survival census will be carried out on an annual basis during late summer/early fall to determine the need for refill plantings in failed areas areas the following spring. The same species will be used for refill plantings unless there is good reason for a change. Bareroot transplant stock 20-40 cm in height is recommended for plantings on these difficult sites.

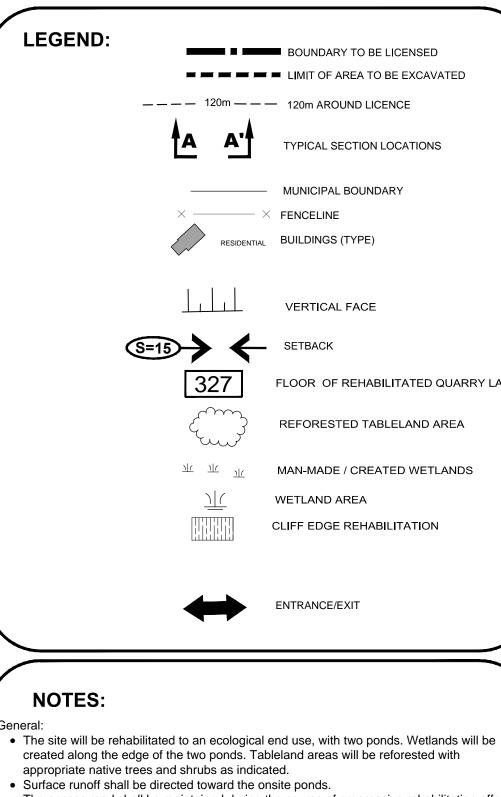
Once Progressive Rehabilitation has commenced:

- Photographic surveys from common vantage points will be taken annually. • Compliance with final ground elevations shown on the rehabilitation plans (subject to minor
- modification so long as rehabilitation objectives are met). • Quarterly assessment of depth of water (not to exceed 2m) for staff gauges installed within created wetland areas.
- Prior to license surrender, a biological survey of wetland vegetation characteristics including species density, distribution and percent cover such that in wetland areas hydrophytic cover will be at least 25% and dominated with rushes, grasses and sedges. Biological surveys of target conservation species will be made at the time of license surrender and results of the study will be circulated to the MNRF and the GRCA.

Surface water Quality testing will be conducted on a semi annual basis (spring and fall) and will assess nutrient levels (nitrate and phosphorous), pH, dissolved oxygen and alkalinity.

#### SEDIMENT AND EROSION CONTROL

Due to topographic conditions and the abundance of forest cover on this site, tree protection fencing must be erected at the limit of all setback where ground elevations are equal to or lower than the elevations in the adjacent extraction area. This is particularly required nearby wetlands, in the stream valley and where noise berms are to be constructed. Standard paige wire farm fence or similar fence will be installed in the locations identified on the Operations Plan after tree clearing and grubbing has been completed. Silt screen must also be attached to the paige wire fence where required and have its base covered with soil to ensure it can effectively trap sediment. Along the stream corridor silt fence will be located inside the extraction area and there will be a "no touch zone" within 2 meters of the silt fence.



- Surface runoff shall be directed toward the onsite ponds.
- Fencing shall remain around the perimeter of the quarry licence.
- All equipment and machinery within the extraction limits will be removed upon completion
- of extraction.
- The area to be rehabilitated is 24.5 ha. • Topsoil that is stripped from operational areas will be placed in screening berms around the perimeter of the site as shown on the site plans. As part of final rehabilitation, the
- topsoil in berms will be used to achieve final contours as indicated on the site plans. • If soil becomes significantly compacted, the rehabilitated lands will be ripped prior to the application of topsoil. The final surface soil layer should be loose with undulations so that soil depth over bedrock is variable and micro-habitats are created.
- overburden replaced on the site for rehabilitation purposes. • The riparian wetland boundary and the PSW boundary were flagged by GWS staff and verified in the field by the GRCA on June 7, 2013.

#### Aquatic Rehabilitation

- The onsite ponds are approximately 13.9 ha and 3.5 ha in size. • The predicted final water levels for the lakes are: a) 348.6 masl in the west quarry lake,
- and b) 348.4 masl, in the east quarry lake. • The area extracted below the water table will have a variable slope face that will range
- from 2:1 to vertical slopes.
- for fish and aquatic habitat. Habitat enhancement measures for the lakes include the following: boulder features, shoals, and littoral zone development.
- smallmouth bass.
- Vertical faces can be modified during the final blast. The quarry face can remain
- roughened, to create ledges and crevices, thus enhancing micro-habitats. • Available native, onsite soil and large rock piles or boulders can be dumped over the quarry face to provide a diversity of habitat.

### Wetland Creation

- The edges of the quarry ponds will be rehabilitated to create artificial wetlands as indicated. • Wetland communities can be created along the pond edges with a maximum 2 m water depth from the final estimated water table, i.e. wetland floor at +/- 346 to 349 m MASL. • In these wetlands, the excavation pattern will be modified to create a slope of approximately 5:1 to
- Available overburden and soil can be used to create these slopes as well. • Available soil can be graded to provide a medium for wetland plant communities. · Once the wetland side slope has been graded, a minimum of 100 mm of soil will be applied to this
- area to permit the establishment of wetland vegetation. This area will be allowed to naturally regenerate to a wetland habitat. Wetland plants suitable for planting in created wetlands include: Northern water-plantain, broadleat
- arrowhead, blueflag, pickerel weed, Bebb's sedge, stipitate sedge, soft rush, fowl mana grass, white water-lily, water smartweed, sago pondweed, floating pondweed.
- To help accelerate the natural process of plant succession the following wetland species will be randomly planted in small clusters at a 0.5 to 1.0m spacing along the shoreline of the quarry ponds: northern water plantain, broadleaf arrowhead, as well as the species listed in the point above. Substrates may vary from bare bedrock to parent mineral material (sand, gravel, cobble) to organic
- substrates. Hydrophytic emergent cover will exceed 25% and be dominated by grasses, sedges, and rushes. Water levels within shallow marsh areas will not exceed 2 m.
- Terrestrial Rehabilitation
- grade. A minimum of 100 mm of topsoil will be applied to the graded side slope areas. Terrestrial areas will be planted with suitable native shrubs and trees, such as white
- sumac, red-osier dogwood and raspberry. Additional plants are listed on the Site Plan. • The sideslopes and tableland areas of the quarry floor will be covered with available
- Should seeding fail, the area shall be re-seeded as soon as possible. • Minor grading of the setback areas may be required to permit proper final slopes for the
- site in areas not to be forested.

### SITE PLAN OVERRIDE TABLE

THE FOLLOWING CONDITIONS ILLUSTRATED ON THIS PLAN VARY FROM THE REQUIREMENTS OF THE PROVINCIAL STANDARDS THAT APPLY TO LICENSED PITS IN ONTARIO.

### OVERRIDE

VARIANCE OF THE SIDE SLOPES FROM 2:1 IS PERMITTED TO PROMOTE 5.10 SECRECITED AIR DE SE RASILEI CLADITIONE REMOVED WITHIN 5M OF THE 5.5 EXTRACTION FACE.

BOUNDARY TO BE LICENSED 🖛 🛲 🛲 🛲 🖛 LIMIT OF AREA TO BE EXCAVATED

\_\_\_\_ 120m \_\_\_ 120m AROUND LICENCE

TYPICAL SECTION LOCATIONS

— MUNICIPAL BOUNDARY  $- \times$  FENCELINE BUILDINGS (TYPE)

VERTICAL FACE

FLOOR OF REHABILITATED QUARRY LAKE

REFORESTED TABLELAND AREA

MAN-MADE / CREATED WETLANDS

WETLAND AREA CLIFF EDGE REHABILITATION

ENTRANCE/EXIT

• The access road shall be maintained during the course of progressive rehabilitation efforts.

KEY

Adequate vegetation will be established and maintained to control erosion of any topsoil or

• The rehabilitated lakes will be approximately 23 m in depth. The lakes will be rehabilitated

• Given the depth of the quarry ponds, it is anticipated to be suitable for walleye and

Virginia wild rye, rice cut-grass, woolgrass, dark-green bulrush, softstem bulrush, broad-leaf cattail,

• The side slopes of the setback areas will be graded to achieve a slope of 2:1. Overburden may be applied to the side slope areas and tableland areas to achieve the necessary spruce, white pine and eastern white cedar. Shrubs that may be used include staghorn

overburden and topsoil and seeded with a suitable native upland meadow seed mix.

STANDARD

## HIDDEN QUARRY

PART OF LOT 1, CONCESSION 6 **TOWNSHIP OF GUELPH-ERAMOSA** FORMER TOWNSHIP OF ERAMOSA COUNTY OF WELLINGTON

## Page 4 of 5 PROGRESSIVE REHABILITATION AND **FINAL** REHABILITATION

MAP SUELPH-ERAMO SUBJECT (NASSAGAWEYA) Darbyville Brookville

THIS SITE PLAN IS PREPARED UNDER THE AGGREGATE RESOURCES ACT FOR A CLASS A LICENCE, CATEGORY 2 - QUARRY BELOW WATER. THESE SITE PLANS HAVE BEEN PREPARED UNDER THE DIRECTION OF AND CERTIFIED BY A

PERSON APPROVED BY THE MINISTER OF NATURAL RESOURCES (AS PER SECTION 8(4) OF THE AGGREGATE RESOURCES ACT).

SIGNATURE: DATE: \_\_\_\_\_ JAMES DICK PREPARED FOR: CONSTRUCTION LTD www.jamesdick.com Box 470 Bolton Ontario L7E 5T4 Bolton:(905)857-3500 Fax:(905)857-4833 Toll Free: 1-888-535-3333 APPROVED: R.P.S. DRAWN: G.K.S. PLOTTED: MARCH 19, 2015 FILE: Nar 192015-200pn CAUSers/Grorge:Shrton/applata/local/terp/AcPublish\_3920/Hidden Quarry Site Plans 2015-69-19.deg No. DATE DESCRIPTION APP'D AMENDMENTS STOVEL 297 BRIARHILL DRIVE STRATFORD, ONTARIO

**N5**A 7T1 PHONE (519) 272-2884

