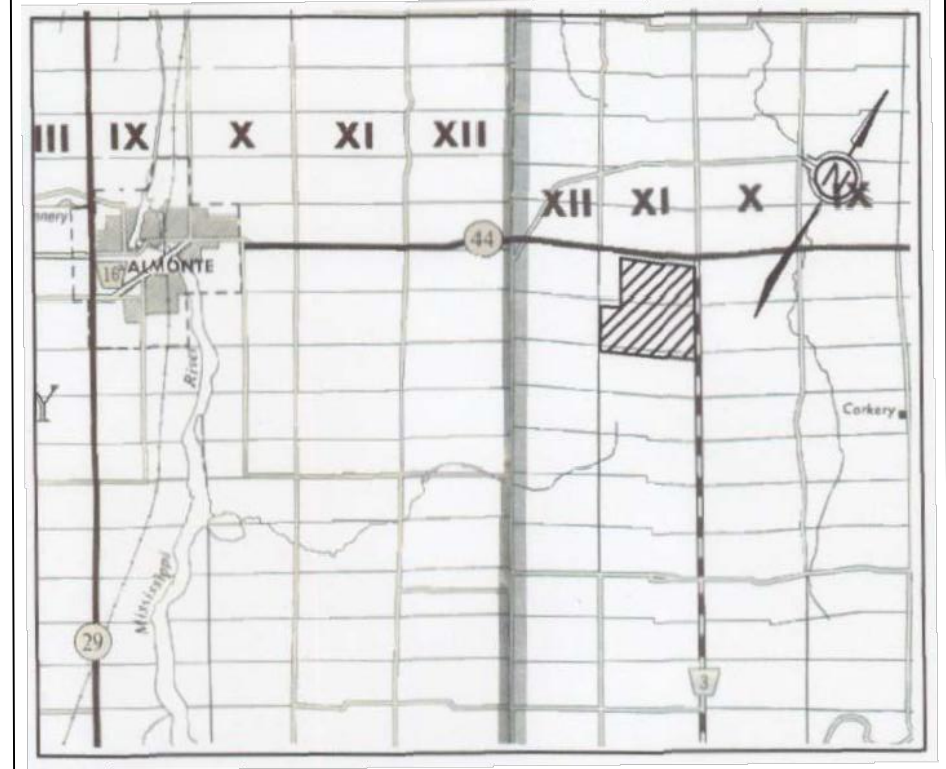
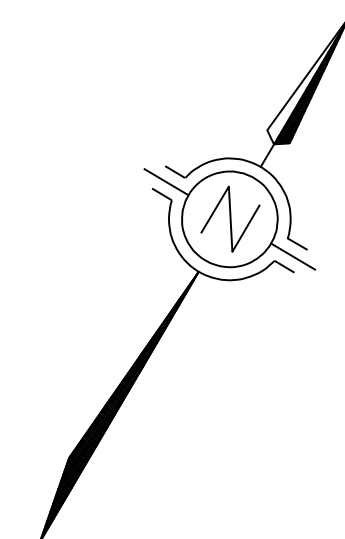


THE FORMER SITE PLAN INDICATES A LICENCED AREA WHICH IS SMALLER THAN THE PRESENT LICENCED AREA. PLEASE NOTE THAT THE ACTUAL LICENCED AREA HAS NOT CHANGED BUT NEW TECHNOLOGIES ALLOW A MORE ACCURATE CALCULATION OF THE HECTARAGE.

CONC XII
CONC XI

CONC XI
CONC X



EXISTING FEATURES – GENERAL

LOT 16
LOT 15

LOT 15
LOT 14

LOT 14
LOT 13



LOT 16
LOT 15

LOT 15
LOT 14

LOT 14
LOT 13

CONC XII
CONC XI

CONC XI
CONC X

NOTES

- LICENCED AREA 141.6 HECTARES.
- AREA OF OPERATION 44.8 HECTARES.
- EXISTING DISTURBED AREA 44.8 HECTARES.
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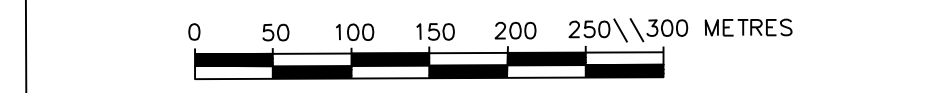
WEST CARLETON QUARRY
PART OF LOT 14 AND 15
CONCESSION XI
TOWNSHIP OF WEST CARLETON
CITY OF OTTAWA

THOMAS CAVANAGH CONSTRUCTION LIMITED
R.R. 2
ASHTON, ON K0A 1B0

LICENCE NUMBER : 4085

- LEGEND
- BOUNDARY OF AREA TO BE LICENCED
 - SETBACK LIMIT
 - SURROUND LIMIT
 - ENTRANCE AND OR EXIT
 - pit/quarry face
 - STOCKPILE
 - DIRECTION OF OPERATION AND PHASE
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 - BUILDING: S-SILO, H-HOUSE, G-GARAGE, B-BARN, S-SHED, O-OFFICE
 - FENCE/GATE
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 - CROSS SECTION

MAP SCALE	CONTOUR INTERVAL	HORIZONTAL DATUM	VERTICAL DATUM
1:5000	1 METRE	NAD 83 3 DEGREE UTM	GEOIDIC
PHOTO SCALE	PHOTO DATE	DATE OF SITE PLAN	
1:12000	APRIL 17, 2001	MAY 2004	



AMENDMENTS	DATE	APPROVAL DATE
QUARRY DEEPENING TO 107.0 M ASL	JAN 15/01	
RELOCATION OF SCALE/SCALE HOUSE	MARCH 2004	
ADDITION OF STORAGE BUILDINGS	MARCH 2004	
SITE PLANS APPROVED BY MINISTRY OF NATURAL RESOURCES.		
SIGNATURE	DATE	
PAGE 1 OF 4	CONTRACT	1846-04

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NOVEMBER 23, 2005
DATE SIGNATURE

SITE PLAN AMENDMENTS			
No.	DATE	DESCRIPTION	BY
1	2023-11-21	INTEGRATED OPERATIONS & REHABILITATION AMENDMENT - WEST CARLETON QUARRY EXTENSION LICENSE NO. 626555	JPAO

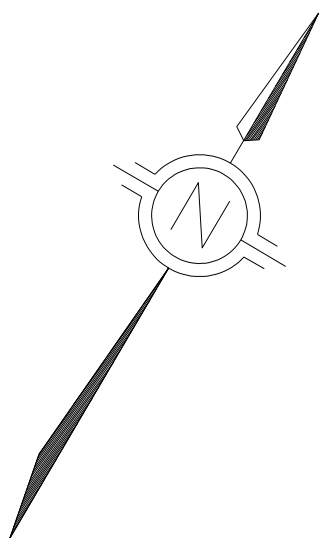
wsp

CON.	LOT	WELL NO.	WELL ELEV. (M)	WATER FOUND (M)	STATIC LEVEL (M)
10	15	15-19236	128.0	37.19	3.05
11	15	15-14106	152.4	15.24	2.14
10	16	15-17189	129.5	32.00	3.00
11	16	15-13680	129.5	59.43	12.19
11	16	15-13629	153.9	24.38	1.82
11	16	15-13628	153.3	60.38	13.72

FOR INFORMATION PERTAINING TO THE TO THE SEE STANTON REPORT DATED MAY 30, 2001.

BASE MAPPING
37-81 AURIGA DRIVE, OTTAWA, ONTARIO K2E 7V3
TEL: 613 723-8100 FAX: 613 723-8569
WWW.BASEMAP.CA

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EXISTING FEATURES

PROPERTY IS ZONED FOR AGGREGATE EXTRACTION. BUFFER ZONES HAVE BEEN PLACED ALONG THE EAST LOCATED BOUNDARY DUE TO THE WETLANDS THERE. THE WETLANDS ARE ZONED HL-1 (HAZARD LAND).

A DISTURBED AREA OF APPROXIMATELY 44.8 HECTARES PRESENTLY EXISTS ON THE LICENCED PROPERTY. THE 2 ENTRANCES/EXITS TO THE EXISTING QUARRY ARE FOUND ALONG THE NORTH LICENCED BOUNDARIES ONTO HIGHWAY 44 AND EAST ONTO DWYER HILL ROAD. THE EAST ENTRANCE/EXIT ROADS THROUGH THE EXISTING BUFFER ZONE.

THE MAJORITY OF THE EXTRACTION AREA IS MIXED BUSH. NO OPERATIONS WILL TAKE PLACE IN THE EAST BUFFER ZONE, INCLUDING BERMING AND STOCKPILING.

NATURAL SURFACE DRAINAGE OF THE LICENCED PROPERTY IS TO THE EAST.

THERE IS A WEIGH SCALE WITH A SHED/OFFICE ON THE PROPERTY LOCATED AT THE NORTHERN ENTRANCE/EXIT. THE SHED/OFFICE IS APPROXIMATELY 12.5 SQUARE METRES. SOME FENCING EXISTS ALONG THE NORTH-WEST CORNER OF THE PROPERTY FROM THE PROPERTY BOUNDARY EAST ALONG MARCH ROAD TO THE QUARRY ENTRANCE. THE FENCING IS IN FAIR TO POOR CONDITION. NO OTHER FENCING EXISTS AS THERE IS A NATURAL ROCK BARRIER TO THE NORTH-EAST AND A WET AREA TO THE EAST THUS PREVENTING ACCESS. THE SOUTH AND WEST BOUNDARIES ARE UNACCESSIBLE FROM THE ROAD.

THERE IS VERY LITTLE TOPSOIL OR OVERBURDEN ON THIS SITE AND CANNOT ACCOMMODATE REHABILITATION. QUARRY FACES WILL BE SLOPED USING ALL EXISTING STRIPPING MATERIAL AND OVERBURDEN. ALL TOPSOIL WILL BE STORED IN BERMS AND USED FOR THE REHABILITATION.

THERE IS AN EXPLOSIVES SHED ABOVE THE QUARRY FACE AT THE WESTERN LICENCED BOUNDARY. IT WILL BE MOVED DOWN ONTO THE QUARRY FLOOR WHEN OPERATIONS REACH THAT AREA.

THE LIMIT OF EXTRACTION FOLLOWS THE EDGE OF THE WETLANDS RATHER THAN MINING TO THE LICENCED BOUNDARY.

IN RESPONSE TO A REQUEST FROM THE MNR TO DEFINE THE PROPERTY BOUNDARY THE LICENCE/PROPERTY LINE WAS BULLDOZED AND BERMED.

THE AREA TO THE WEST OF THE LICENCED PROPERTY IS DESIGNATED AS AN 'AREA OF NATURAL AND SCIENTIFIC INTEREST' (ANESI). IT HAS A UNIQUE ENVIRONMENTAL ECOSYSTEM RESULTING FROM A LIMITED AMOUNT OF OVERBURDEN OVER BEDROCK (ALVAR FEATURE).

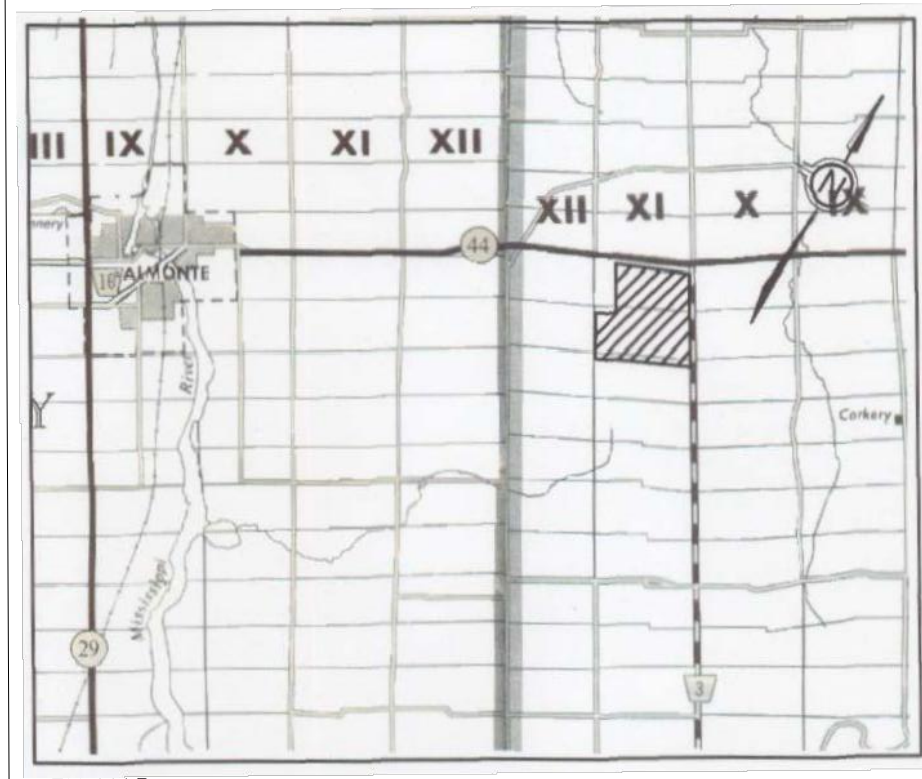
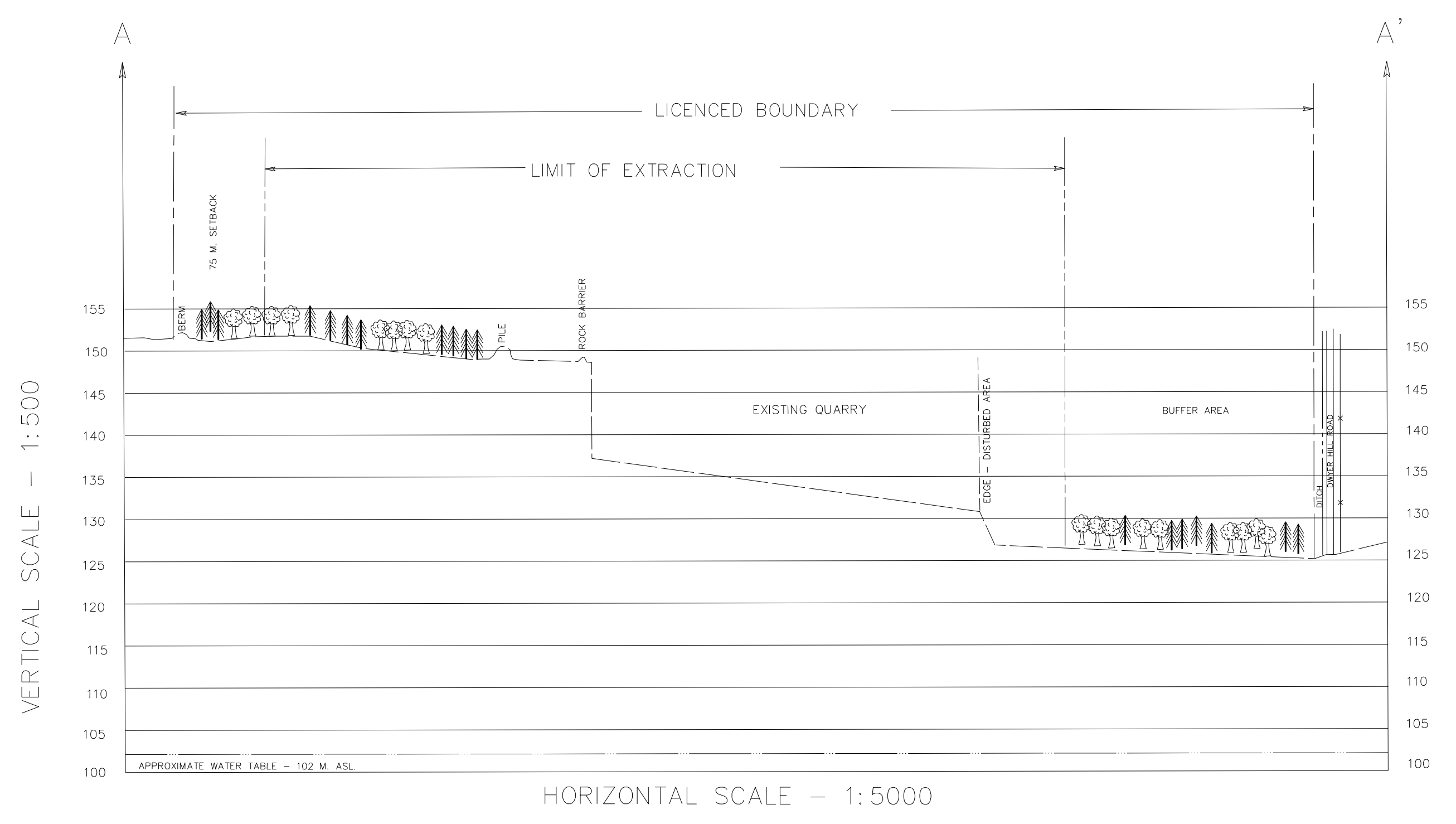
LOT 16
LOT 15

LOT 15
LOT 14

LOT 16
LOT 15

LOT 15
LOT 14

LOT 14
LOT 13



EXISTING FEATURES - SITE

- NOTES
- LICENCED AREA 341.8 HECTARES.
 - AREA OF OPERATION 91.2 HECTARES.
 - EXISTING DISTURBED AREA 44.8 HECTARES.
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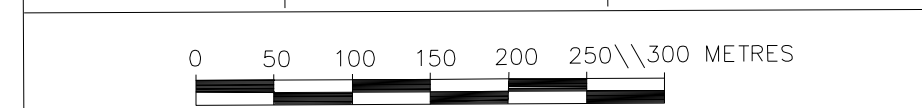
WEST CARLETON QUARRY
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PHOTO SCALE	PHOTO DATE	DATE OF SITE PLAN	
1:12000	APRIL 17, 2001	MAY 2004	



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RELOCATION OF SCALE/SCALE HOUSE	MARCH 2004	
ADDITION OF STORAGE BUILDINGS	MARCH 2004	

SITE PLANS APPROVED BY MINISTRY OF NATURAL RESOURCES.	
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PAGE 2 OF 4	CONTRACT 1846-04

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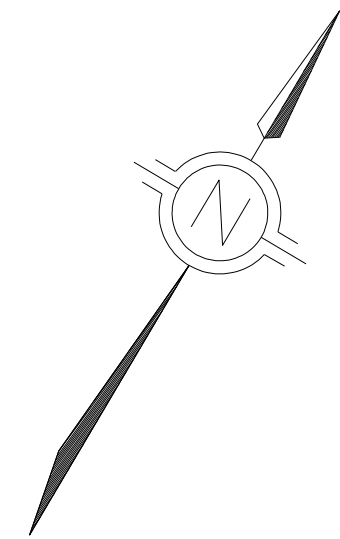
JANUARY 25, 2006
DATE

SIGNATURE

SITE PLAN AMENDMENTS			
NO.	DATE	DESCRIPTION	BY
1	2023-11-21	INTEGRATED OPERATIONS & REHABILITATION AMENDMENT - WEST CARLETON QUARRY EXTENSION LICENSE NO. 626555	JPAO

BASE MAPPING
37-81 AURIGA DRIVE, OTTAWA, ONTARIO K2E 7V3
TEL: 613 723-8100 FAX: 613 723-8569
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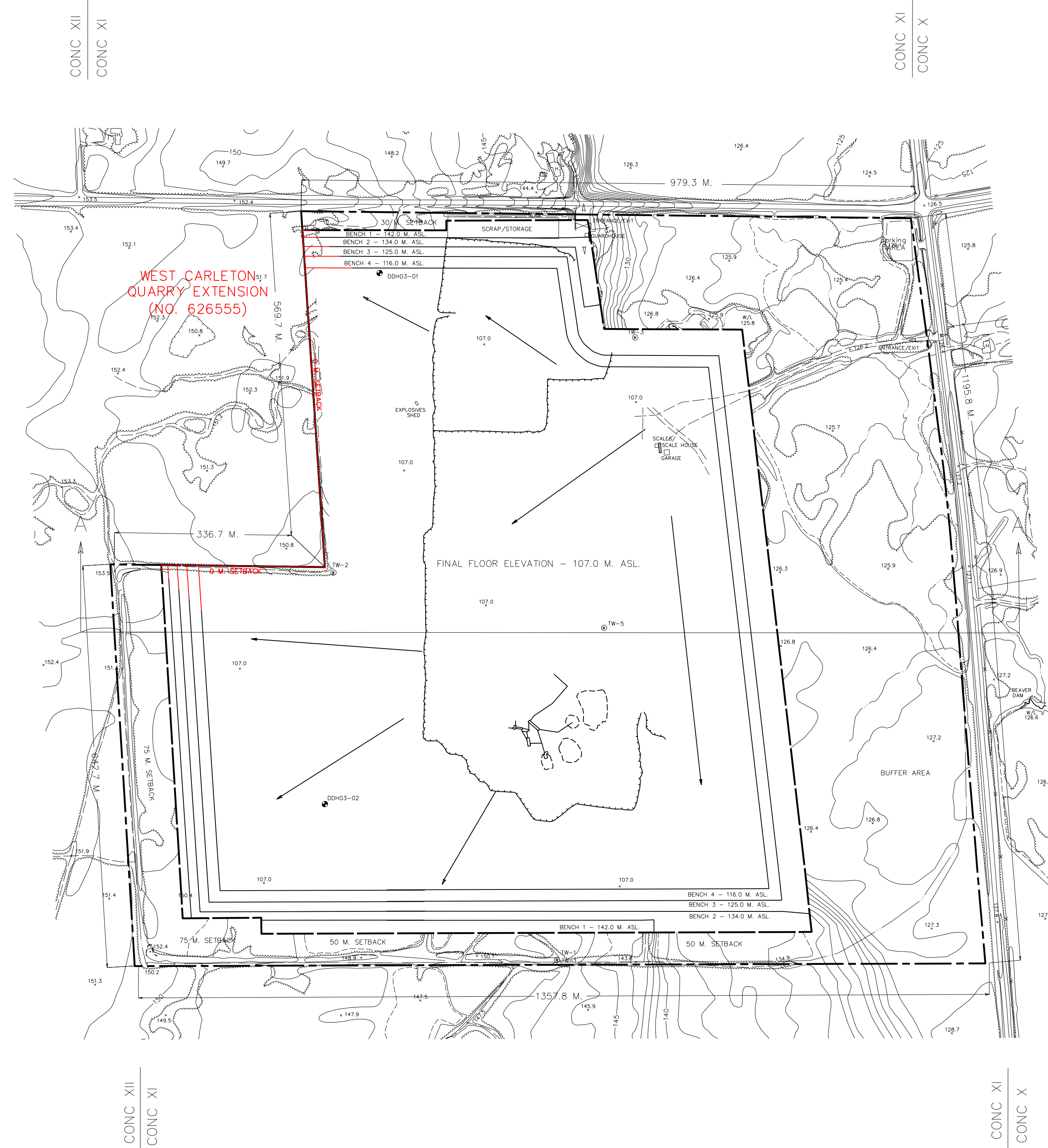
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LOT 16
LOT 15

LOT 15
LOT 14

LOT 14
LOT 13



LOT 16
LOT 15

LOT 15
LOT 14

LOT 14
LOT 13

GENERAL

ALL FENCING IS MADE OF 1.5 METRE HIGH WIRE FENCE.

THERE EXISTS NO LIMITATIONS TO THE TYPES OR LOCATION OF EQUIPMENT WHICH MAY OPERATE ON THE SITE. EQUIPMENT MAY INCLUDE TRUCKS, BULDOZERS, CONVEYERS, LOADERS, PORTABLE CRUSHING EQUIPMENT, ETC. ALL MACHINERY WILL BE EQUIPPED WITH NOISE AND DUST SUPPRESSORS.

INFORMATION PERTAINING TO WATER WELLS IS INDICATED ON THE EXISTING FEATURES PLAN.

PRODUCT STOCKPILES WILL BE STORED WITHIN THE CONFINES SET BY THE LIMIT OF EXTRACTION SUBJECT TO AREA REGULATIONS.

CLEAN, INERT MATERIAL SUCH AS TOPSOIL, SAND, RAG, CRUSHED ROCK, ETC. MAY BE IMPORTED AND STORED ON SITE TO BE REMOVED AS MARKET DEMANDS. RECYCLABLE/IMPORTED MATERIAL CAN BE USED TO MIX FOR RESALE.

THERE IS EXISTING NATURAL MIXED BUSH ALONG THE LICENCED BOUNDARY WITHIN THE 25 METRE SETBACK WHICH WILL BE LEFT UNDISTURBED DURING OPERATIONS TO ACT AS A VISUAL SCREEN FROM THE TRAVELLED ROAD. NO OTHER SCREENING IS REQUIRED.

TO PROTECT BREEDING BERMS, TREE OR SHRUB REMOVAL WILL NOT OCCUR BETWEEN MAY 15TH AND JULY 15TH.

THE EXISTING SURFACE WATER FLOW FROM THE SOUTH OF THE EXISTING LICENCED AREA WOULD BE REDIRECTED TO THE EAST OF THE ACTIVE QUARRY AND DIRECTED TO THE LOW-LYING AREA IN THE NORTHEAST PORTION OF THE SITE. THIS WILL REDUCE THE NEED FOR DEWATERING DURING THE QUARRY OPERATION AND ASSOCIATED POTENTIAL FOR INCREASED SUSPENDED SEDIMENT INPUTS.

THERE WILL BE NO DEWATERING ACTIVITY IN THE VICINITY OF THE SAND LANDS. THE QUARRY DOES NOT REQUIRE DEWATERING PRESIDENTLY. ANY FUTURE DEWATERING WILL BE DIRECTED TO THE NORTHEAST PORTION OF THE SITE.

GROUNDWATER LEVELS WILL BE TAKEN ANNUALLY FOR THE EXISTING MONITORING WELLS AND RECORDS WILL BE KEPT ON-SITE FOR FUTURE INSPECTION.

NO FURTHER BERMS ARE TO BE CREATED AS WELL AS NO VEGETATION REMOVAL IS TO OCCUR WITHIN THE SETBACK LIMITS ALONG THE WEST AND SOUTH BOUNDARIES.

OPERATION

MERCANTABLE TIMBER WILL BE UTILIZED AND VEGETATION WILL BE REMOVED FROM THE LICENCED AREA PRIOR TO STOPPING. ALL AVAILABLE OVERBURDEN AND STRIPPING MATERIAL WILL BE RELOCATED INTO THE FORM OF BERMS AND STOCKPILES FOR PROGRESSIVE REHABILITATION PURPOSES. BERMS WILL BE LOCATED IN THE SETBACK AREAS ALONG THE SOUTH AND WEST LIMITS OF EXTRACTION AS SHOWN ON THE PLAN. OTHER STRIPPING MATERIAL MAY BE DIRECTLY MOVED TO OTHER DESIGNATED QUARRY FACES ALONG THE LIMIT OF EXTRACTION. NO OVERBURDEN OR TOPSOIL MAY BE REMOVED FROM SITE. THESE IN THE SETBACK AREA, WHERE BERMS ARE LOCATED, WILL NOT BE DAMAGED, WHEREVER POSSIBLE.

THE LICENCED QUARRY HECTARAGE WILL BE MINED IN FIVE LIFTS OF OPERATION. LIFT 1 WILL MINE DOWN TO AN APPROXIMATE ELEVATION OF 142 M. LIFT 2 TO APPROXIMATELY 134 M. LIFT 3 TO APPROXIMATELY 127 M. LIFT 4 TO APPROXIMATELY 117 M. WITH LIFT 5 BEING THE FINAL ELEVATION OF 107.0 M. ASL. ALL LIFTS MAY OPERATE SIMULTANEOUSLY. DUE TO ROCK QUALITY LIFTS MAY BE COMBINED BUT WILL NOT EXCEED A 25 METRE FACE.

ALL LIFTS WILL PROCEED FROM THE EXISTING QUARRY FACE IN THE NORTH AND EAST PORTIONS OF THE QUARRY AND CONTINUE WESTWARD AND SOUTHWARD TO THE LIMIT OF EXTRACTION.

SHOULD LIFT 1 BE EXTRACTED PRIOR TO LIFT 2, THE MUCK (BLASTED ROCK) PILE WILL BE UTILIZED AS TEMPORARY RAMPS.

A 16 METRE BENCH WILL BE LEFT BETWEEN LIFT 1 AND 2 TO HELP SUPPORT A 2:1 SLOPE DURING REHABILITATION.

EQUIPMENT WOULD BE LOCATED AND MAINTAINED, INCLUDING FUELLING, AWAY FROM THE WEST, SOUTH AND EAST EDGES OF THE QUARRY OPERATION TO AVOID POTENTIAL CONTAMINATION OF THE SURFACE WATERS TO THE EAST OF THE QUARRY AND THE ADJACENT HABITAT TO THE WEST AND SOUTH OF THE LICENCED AREA. SORENT MATERIAL WOULD BE STORED ON-SITE AND BE ACCESSIBLE TO CONTROL ANY SPILLS. SPILLS WOULD BE CLEANED UP IMMEDIATELY AND THE CONTAMINATED MATERIAL DISPOSED OF IN AN APPROVED MANNER.

IMPORTATION OF MATERIAL WILL BE PERMITTED AND WILL BE STORED ON THE QUARRY FLOOR.

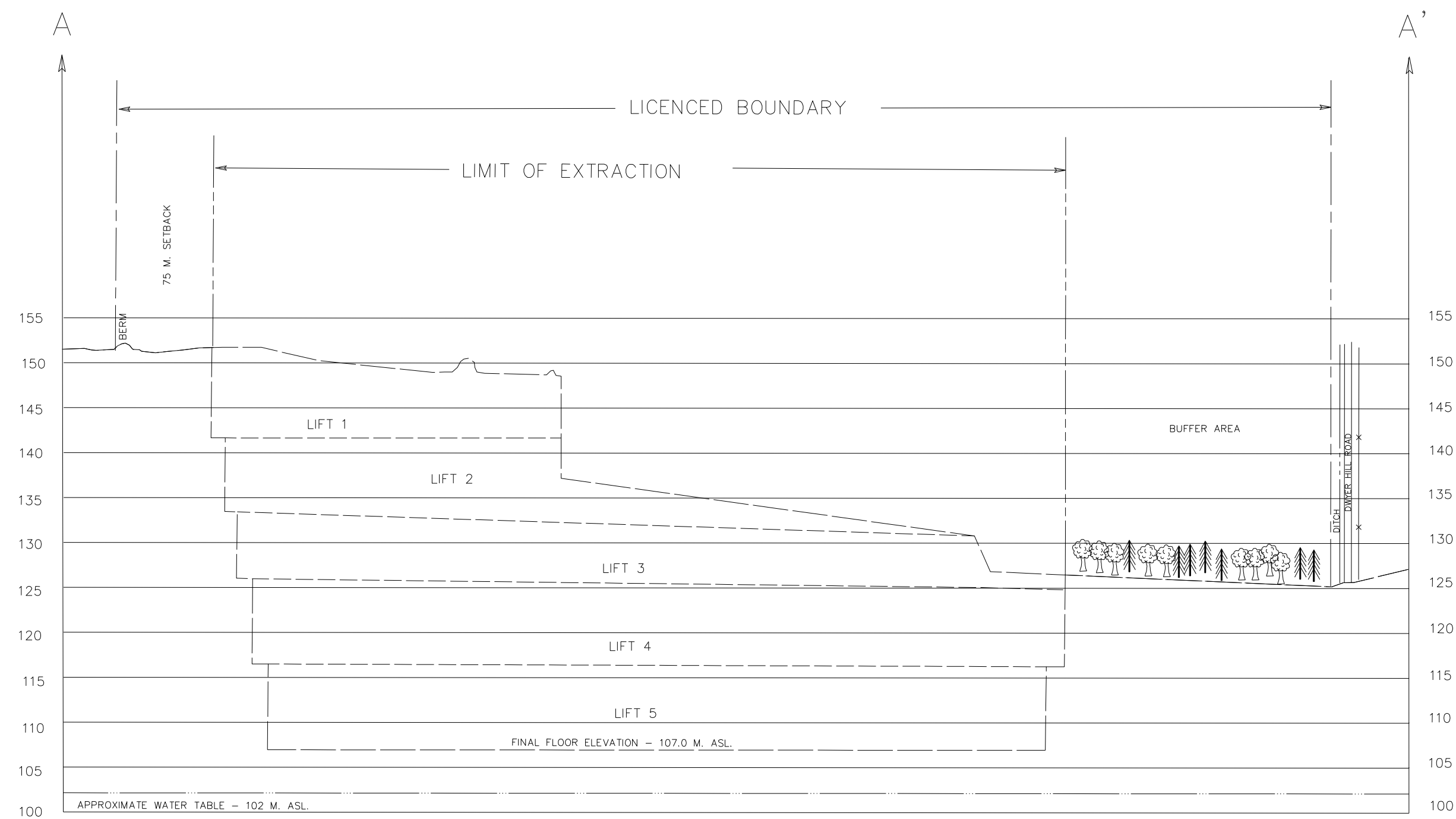
NO MORE THAN 2,000,000 TONNES OF AGGREGATE SHALL BE REMOVED FROM THIS SITE IN ANY CALENDAR YEAR. FURTHERMORE, IF AGGREGATE IS REMOVED FROM THE SITE OF LICENSE #626555 IN THE SAME CALENDAR YEAR AS MATERIAL IS REMOVED FROM THIS LICENSE, NO MORE THAN 2,000,000 TONNES OF AGGREGATE SHALL BE REMOVED FROM THE TWO SITES COMBINED IN THE CALENDAR YEAR.

AN OPERATIONAL ENTRANCE/EXIT WILL BE LOCATED ALONG THE COMMON BOUNDARY WITH LICENSE #626555. (SEE VARIATIONS FROM CONTROL AND OPERATION STANDARDS TABLE ON THIS PAGE)

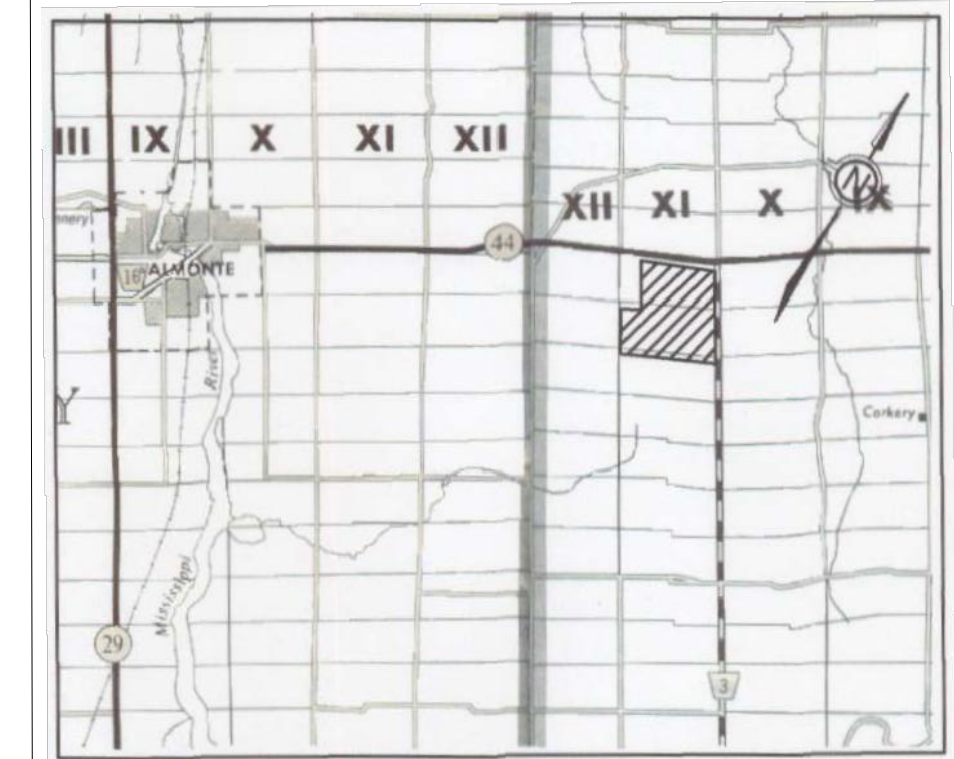
VARIANCE FROM OPERATIONAL STANDARDS		
ITEM	DESCRIPTION	STANDARD
FENCING	RELIEF OF COMPLIANCE FROM FENCING WAS GRANTED ON JUNE 27, 1985. AS THIS QUARRY IS NOT EASILY ACCESSIBLE TO THE PUBLIC FENCING IS NOT A REQUIREMENT AT THIS TIME. HOWEVER, FENCING MAY BE REQUIRED BY MNR IN THE FUTURE.	16 (010)

VARIATIONS FROM CONTROL AND OPERATION STANDARDS			
No.	O. REG. 244/97 SECTION 0.13	VARIATION	RATIONALE
1	(17)	NO LATES FOR OPERATIONAL ENTRANCE/EXIT ALONG COMMON BOUNDARY WITH LICENSE #626555.	ADJACENT QUARRY IS OWNED BY LICENSEE. ACCESS TO THIS SITE AND LICENSE #626555 MAY VARY ALONG THE COMMON BOUNDARY.
2	(110)	ZERO-M EXCAVATION SETBACK ALONG COMMON BOUNDARY WITH LICENSE #626555.	ADJACENT QUARRY IS OWNED BY LICENSEE.
3	(113)	STOCKPILES OF AGGREGATE, TOPSOIL OR OVERBURDEN AND PROCESSING PLANTS MAY BE LOCATED WITHIN 50 M OF THE COMMON BOUNDARY WITH LICENSE #626555 EXCEPT WHERE WITHIN 10 M OF MUCK ROAD.	STOCKPILES AND PROCESSING PLANTS ARE LOCATED WITHIN COMMON BOUNDARY AS ADJACENT QUARRY IS OWNED BY LICENSEE.
4	(17) & (18)	TOPSOIL AND OVERBURDEN MAY BE TRANSFERRED BETWEEN THE LICENSE AND LICENSE #626555.	ADJACENT QUARRY IS OWNED BY LICENSEE. THIS IS ALLOWED FOR EFFICIENT SITE OPERATIONS AND TO PREVENT INADEQUATE REHABILITATION ACTIVITIES.
5	(3)	NO FENCING ALONG THE COMMON BOUNDARIES WITH LICENSE #626555.	ADJACENT QUARRY IS OWNED BY LICENSEE.

VERTICAL SCALE - 1:500



HORIZONTAL SCALE - 1:5000



OPERATIONAL PLAN

NOTES

- LICENCED AREA 141.6 HECTARES.
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WEST CARLETON QUARRY
PART OF LOT 14 AND 15
CONCESSION XI
TOWNSHIP OF WEST CARLETON
CITY OF OTTAWA

THOMAS CAVANAGH CONSTRUCTION LIMITED
R.R. 2
ASHTON, ON K0A 1B0

LICENCE NUMBER : 4085

LEGEND

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1:5000	1 METRE	NAD 83 3 DEGREE UTM	GEODETIC

PHOTO SCALE	PHOTO DATE	DATE OF SITE PLAN
1:12000	APRIL 17, 2001	MAY 2004

AMENDMENTS		
	DATE	APPROVAL DATE
QUARRY DEEPENING TO 107.0 M. ASL.	JAN. 15/01	
RELOCATION OF SCALE/SCALE HOUSE	MARCH 2004	
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SITE PLANS APPROVED BY MINISTRY OF NATURAL RESOURCES

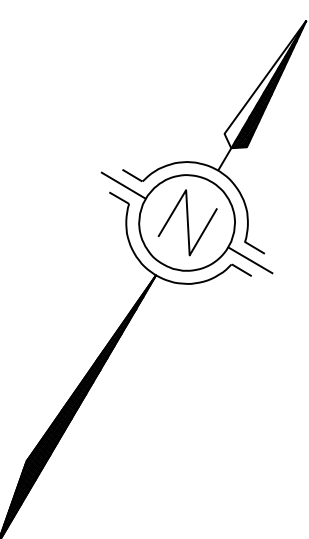
SIGNATURE _____ DATE _____
PAGE 3 OF 4 CONTRACT 1846-04

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JANUARY 25, 2008
DATE _____ SIGNATURE _____

SITE PLAN AMENDMENTS			
No.	DATE	DESCRIPTION	BY
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37-81 AURIGA DRIVE, OTTAWA, ONTARIO K2E 7V3
TEL: 613 723-2100 FAX: 613 723-8569
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REHABILITATION

PROGRESSIVE REHABILITATION WILL TAKE PLACE ON THE SITE UPON COMPLETION OF QUARRYING ACTIVITY NEAR TO THE WEST LIFT FACE ADJACENT TO A LIMIT OF EXTRACTION. GENERALLY THE NORTHERN, THEN WESTERN AND FINALLY SOUTHERN SLOPES WILL BE PROGRESSIVELY REHABILITATED.

THE LIFT FACE WILL BE BACKFILLED AT A 2:1 GRADIENT BY USING EXISTING OVERBURDEN AND STRIPPING MATERIALS. THE SLOPES WILL, AFTERWARDS, BE SEWN WITH A GRASS-LEGUME MIXTURE AND WILL BE MAINTAINED.

THE REHABILITATED QUARRY FACE WILL SLOPE AT 2:1 FROM THE LIMIT OF EXTRACTION TO A MINIMUM OF 3 METRES BELOW THE FINAL WATER ELEVATION.

THE SITE WILL FORM A LAKE AND MAY BE USED FOR WILDLIFE/RECREATION.

INTEGRATED REHABILITATION ACTIVITIES

IN CONJUNCTION WITH THE APPROVAL OF THE WEST CARLETON QUARRY EXTENSION (LICENSE #20555), REHABILITATION IN SETBACK AREAS SHALL INCLUDE 3 HECTARES (3 HA) OF UPLAND FOREST HABITAT AND 0.5 HA OF THICKET SWAMP TO PROVIDE TIMELY COMPENSATION FOR THE LOSS OF SIGNIFICANT NATURAL FEATURES ON LICENSE #20555. THIS ALLOWS FOR THE SIGNIFICANT FEATURES ON THE EXTENDING LANDS TO BE COMPENSATED FOR SHORTLY AFTER THEY ARE DISTURBED (I.E. WITHIN ONE TO TWO YEARS). AS A MEANS OF PROMOTING THE HEALTH OF OFF-SITE ALIEN COMMUNITIES TO THE WEST, ENHANCED INVASIVE SPECIES MANAGEMENT WILL BE UNDERTAKEN WITHIN THE WESTERN BOUNDARY OF THE EXISTING QUARRY. THESE ENHANCED REHABILITATION AREAS ARE IDENTIFIED ON THE REHABILITATION PLAN.

UPLAND FOREST HABITAT

APPROXIMATELY 3 HA OF UPLAND FORESTED AREA WILL BE PLANTED ALONG THE SOUTHERN BOUNDARY WITH A MIX OF NATIVE DECIDUOUS AND CONIFEROUS TREES REFLECTIVE OF SURROUNDING FORESTS AND ADJACENT #20555. DECIDUOUS FOREST SOIL FROM THE WOODED AREAS ON LICENSE #20555 SHALL BE SALVAGED DURING SITE PREPARATION AND DISTRIBUTED IN THIS AREA PRIOR TO PLANTING. THIS WILL CARRY THE SEED BANK OF WOODED DISTURBED SPECIES TO THE REHABILITATION AREA TO ASSIST WITH TIMELY NATURALIZATION. IN ADDITION, WOODY MATERIALS REMOVED FROM THE WOODED AREAS IN LICENSE #20555 WILL BE RELOCATED TO THIS AREA.

THE PROXIMITY OF THE PROPOSED FOREST PLANTINGS TO EXISTING ADJACENT FOREST TO THE SOUTH AND EAST WILL ALSO ASSIST IN THE COLONIZATION BY FOREST WOODY AND HERBACEOUS SPECIES THROUGH NATURAL DISPERSION AS THE PLANTED TREES MATURE. THE TRANSPLANTED SOILS FROM LICENSE #20555 AND PROXIMITY TO THE ADJACENT FOREST WILL ALSO ALLOW FOR SOIL FUNGI TO BE PRESENT IN THE REFORESTED AREA.

THE UPLAND FOREST HABITAT WILL SEEK TO MIMIC THE FORESTED HABITATS OBSERVED ON LICENSE #20555 INCLUDING DECIDUOUS AND CONIFEROUS NATIVE TREES SUCH AS WHITE CEDAR (THUJA OCCIDENTALIS), WHITE SPRUCE (PICEA GLAUCA), WHITE PINE (PINUS STROBUS), BUR OAK (QUERCUS MACROCARPA), RED BARKED PINE (PINUS RESINOSA), ASPEN (POPULUS TREMULOIDES), BALSAM POPLAR (POPULUS BALSAMIFERA), WHITE BIRCH (BETULA PAPPYRIFERA), WHITE ASH (FRAXINUS AMERICANA) AND RED OAK (QUERCUS RUBRA).

A MINIMUM OF 1,200 SEEDLINGS PER HA WILL BE PLANTED IN THE UPLAND FOREST HABITAT. PLANTING SHOULD BE AT APPROXIMATELY 3-METRE TO 5-METRE SPACING. TREES PLANTED ARE RECOMMENDED TO BE A VARIETY OF HEIGHTS CONSISTING OF BARE ROOT STAKES A MINIMUM OF 30 CM IN HEIGHT. ALL PLANTING STOCK IS TO BE IN GOOD CONDITION WITHOUT BROKEN STEMS OR MOULDY OR ROTTEN ROOTS WITH SUFFICIENTLY DEVELOPED ROOT BALLS TO SUSTAIN PLANTING. BASED ON AVAILABILITY, SELECTING TREES OF A VARIETY OF HEIGHTS (LOOK TO 80CM) IS RECOMMENDED. GROUNDING OF DECIDUOUS TREES VULNERABLE TO RODENT DAMAGE AND MULCHING WITH EITHER GOOD DISCS OR WOOD CHIPS WILL BE IMPLEMENTED.

NATIVE SHRUBS SHOULD BE PLANTED CONCURRENTLY AND SHOULD INCLUDE CHOKECHERRY (PRUNUS VIRGINIANA), MANNIBERRY (VIBURNUM LENTAGO) AND PRINCEBERRY (PRUNUS PENNSYLVANICA) TO ADD DIVERSITY AND INCREASE POLLINATOR/INSECT DIVERSITY.

IN ADDITION TO THE REGULAR FOREST REHABILITATION PLANTINGS, NODES WILL BE PLANTED IN THESE AREAS THAT INCLUDE FOREST HERBACEOUS SPECIES 20 METRES MEASURING TO METRES IN DIAMETER ARE RECOMMENDED IN EACH NODE. THE DENSITY OF TREE AND SHRUB SPECIES WILL BE GREATER THAN THE HERBACEOUS FOREST PLANTINGS. EACH NODE WILL CONSIST OF APPROXIMATELY 40 WOODY PLANTINGS FROM THE LIST OF RECOMMENDED SPECIES AND AT LEAST 12 HERBACEOUS PLANTS REPRESENTING AT LEAST 4 NATIVE SPECIES TO BE SELECTED FROM A LIST OF AT LEAST 12 RECOMMENDED SPECIES INCLUDING: YELLOW VIOLET (VIOLA PULSCENS), CANADA MAYFLOWER (MAYFLEW CANADENSIS), FALSE SOLONCHOK'S SEA (SALICORNIA CANADENSIS), PENNSYLVANIA SEED (CAREX PENNSYLVANICA), WILD COLUMBINE (COLUMBINE CANADENSIS), WILD SAGEPANICULA (LAMBIA NUDICALIS), BUNCHBERRY (CORNUS CANADENSIS), SHIMMERY (EMPHRASIUM ALBIS) AND WINTERBERRY (GALAXTERIA PROCUMBENS) ARE WOODY PLANTS BUT ARE LOW GROWING FOREST SPECIES THAT MAY DO WELL IN THE EXPECTED CONDITIONS. SPECIES SELECTED WILL DEPEND ON AVAILABILITY. FOREST REHABILITATION AREAS WILL BE ASSESSED ON THE GROUND IN FIVE-YEAR INTERVALS TO DETERMINE WHEN ENOUGH CANOPY HAS ESTABLISHED TO PROVIDE SUITABLE CONDITIONS FOR SHADE-TOLERANT HERBACEOUS PLANTS. TO BE DETERMINED BY A QUALIFIED ECOLOGIST AND REVIEWING THE EXISTING HERBACEOUS COVER IF COVER OF NATIVE HERBACEOUS PLANTS IS LESS THAN WHAT IS OBSERVED IN COMPARABLE FORESTS ON ADJACENT CAVANAGH-COMED LANDS (BY PERCENT COVER), AN ADDITIONAL 120 INDIVIDUAL HERBACEOUS PLANTS FROM THE ORIGINAL LIST OF 12 SPECIES RECOMMENDED WILL BE PLANTED (10 INDIVIDUALS OF EACH OF THE 12 SPECIES). ADDITIONAL OR ALTERNATIVE HERBACEOUS SPECIES MAY BE CONSIDERED FOR PLANTING AT THAT TIME.

TREE AND SHRUB PLANTINGS SHALL OCCUR IN THE SPRING (E.G. MAY), OR FALL (E.G. MID-SEPTEMBER TO EARLY-OCTOBER). SOIL COMPACTION SHALL BE AVOIDED TO PROVIDE OPTIMAL CONDITIONS FOR PLANT GROWTH. WHERE REQUIRED THE SOIL WILL BE TILLED PRIOR TO PLANTING. TREES AND SHRUBS ARE TO BE PLANTED IN A STAGGERED PATTERN TO SIMULATE NATURAL REGENERATION AND ALLOW FOR NATURAL REGENERATION TO INFILL SPACES.

WHEN MOVING SOILS FROM LICENSE #20555 TO THIS AREA, CARE SHALL BE TAKEN TO AVOID AND LIMIT THE ESTABLISHMENT OF INVASIVE SPECIES WITHIN THE UPLAND FOREST HABITAT AS THESE MAY SLOW THE RECOVERY OF THE RESTORATION WOODLAND. THIS AREA SHALL BE MONITORED FOR INVASIVE SPECIES WITH ANY SIGNIFICANT POPULATIONS OF INVASIVE SPECIES BEING REMOVED USING BEST PRACTICES.

THICKET SWAMP

THE THICKET SWAMP HABITAT WILL BE DESIGNED TO PROVIDE SUITABLE BREEDING HABITAT FOR WESTERN CHORUS FROG BY PLANTING A RANGE OF NATIVE WETLAND HERBACEOUS PLANTS AND SHRUBS SUCH AS WILLOW (SALIX SP.) AND DOGWOOD (CORNUS SP.). SPECIES REQUESTED BY THE ALDOUNGONS OF ONTARIO WILL ALSO BE INCLUDED. NOTABLY PROXY WILLOW (SALIX OSCULARIS), RED-OAK DOGWOOD (CORNUS STOLONIFERA) AND MEADOWSWEET (SPIRAEA ALBA). WETLAND SOILS SALVAGED FROM LICENSE #20555 DURING SITE PREPARATION WILL BE CARRIED TO THIS AREA TO ASSIST IN ESTABLISHING WETLAND PLANTS. MICROHABITAT FEATURES, SUCH AS LOGS AND ROCKS, WILL BE ADDED TO INCREASE HABITAT COMPLEXITY.

THE SHRUB PLANTINGS SHALL OCCUR IN THE SPRING (E.G. MAY), OR FALL (E.G. MID-SEPTEMBER TO EARLY-OCTOBER). SOIL COMPACTION SHALL BE AVOIDED TO PROVIDE OPTIMAL CONDITIONS FOR PLANT GROWTH. WHERE REQUIRED THE SOIL WILL BE TILLED PRIOR TO PLANTING. THE SHRUBS ARE TO BE PLANTED IN A STAGGERED PATTERN TO SIMULATE NATURAL REGENERATION AND ALLOW FOR NATURAL REGENERATION TO INFILL SPACES.

THE DEPTH OF THE PROPOSED WETLAND WILL BE NO GREATER THAN 0.3M.

ENHANCED INVASIVE SPECIES MANAGEMENT (AIAV)

INVASIVE SPECIES MANAGEMENT ACTIVITIES ALONG THE WESTERN BOUNDARY OF THE EXISTING WEST CARLETON QUARRY WILL BE IMPLEMENTED TO REDUCE IMPEDIMENTS TO THE NATURAL DISPERSION OF ALIEN PLANTS FROM ADJACENT LANDS. WHILE ALSO REDUCING THE RISK OF SPREAD OF INVASIVE SPECIES FROM THE LICENCED AREA TO ADJACENT NATURAL AREAS OF THE BURNT LANDS ALVAZ AND PROVINCIAL PARK. THE INVASIVE SPECIES MANAGEMENT SHALL BE INITIATED IMMEDIATELY FOLLOWING SITE PREPARATION AT LICENSE #20555. ALTHOUGH ALL INVASIVE SPECIES THAT ARE PRESENT WILL BE TARGETED, SOME EXAMPLES THAT ARE KNOWN IN THE WOODY INCLUDE EUROPEAN BUCKTHORN (FRAXINUS CATHARTICA), GLOSSY BUCKTHORN (FRAXINUS FRANGULA) AND SPOTTED KNAYWEED (CENTAUREA STROBIL). SIGNIFICANT POPULATIONS OF INVASIVE SPECIES ARE IDENTIFIED THEY WILL BE REMOVED USING BEST PRACTICES.

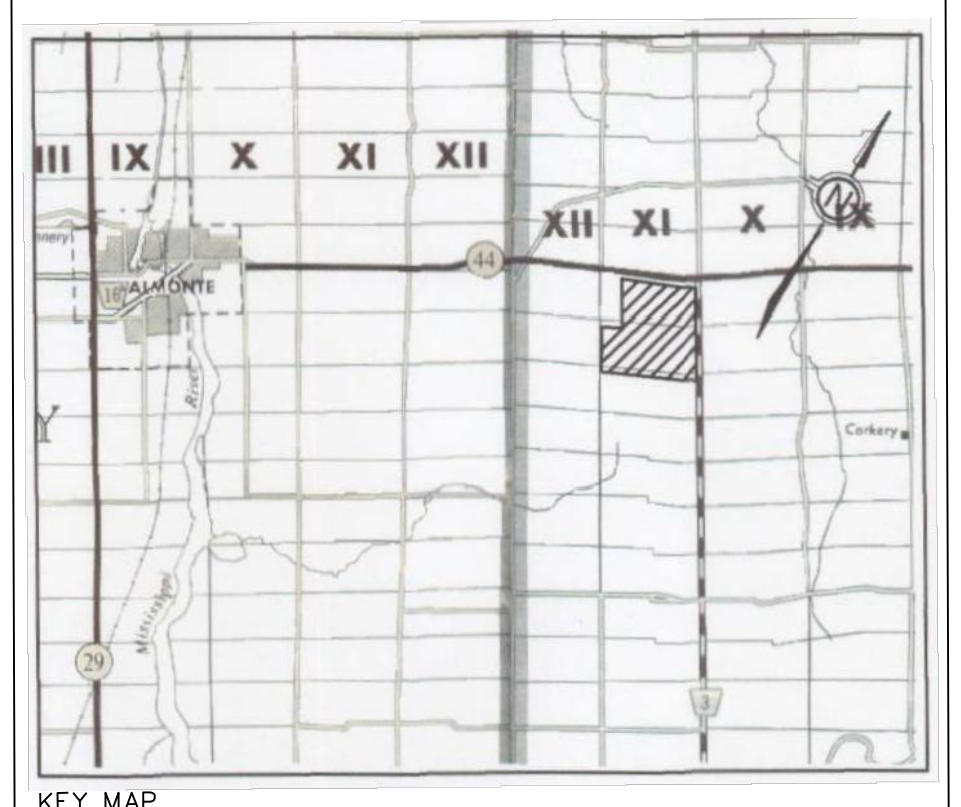
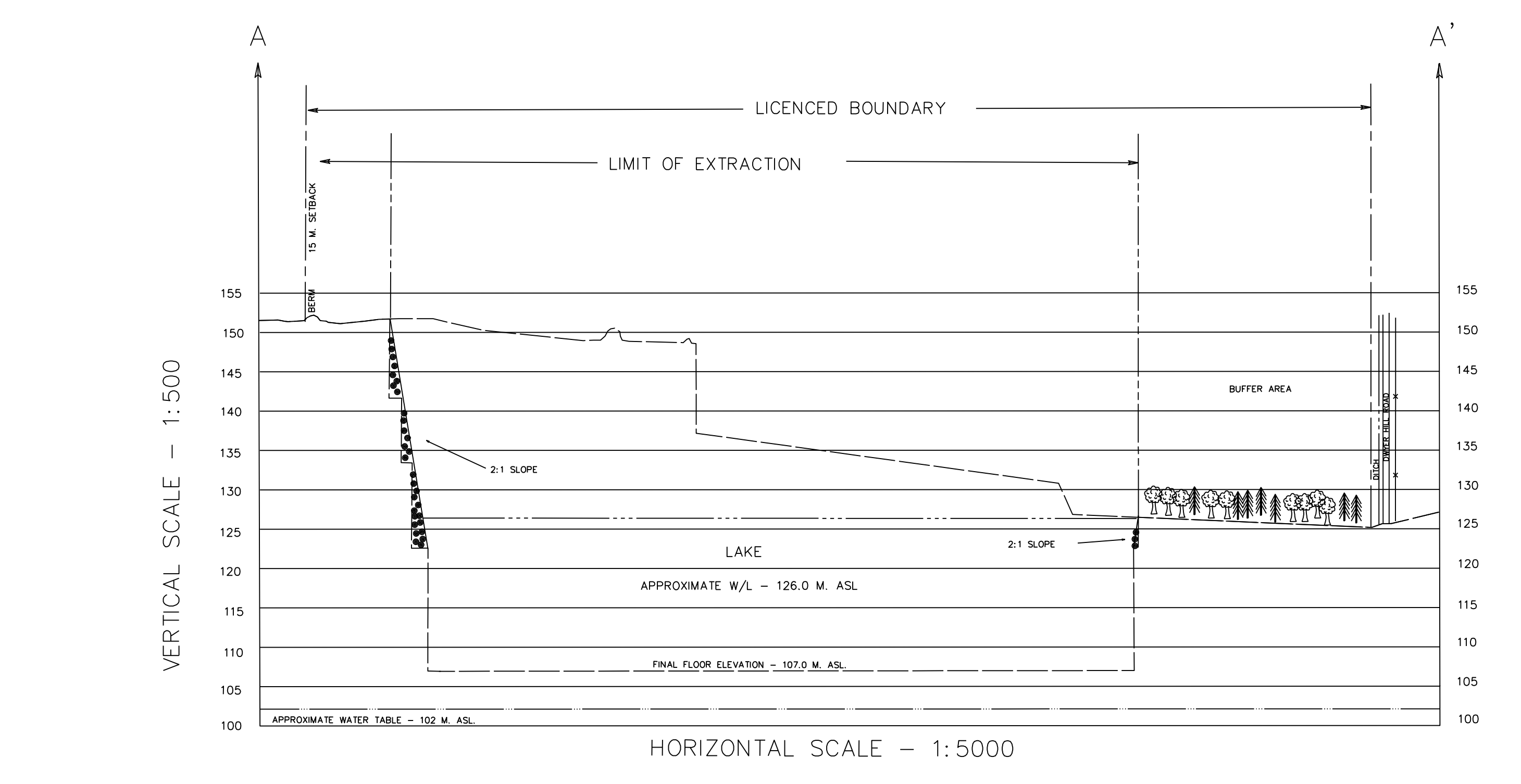
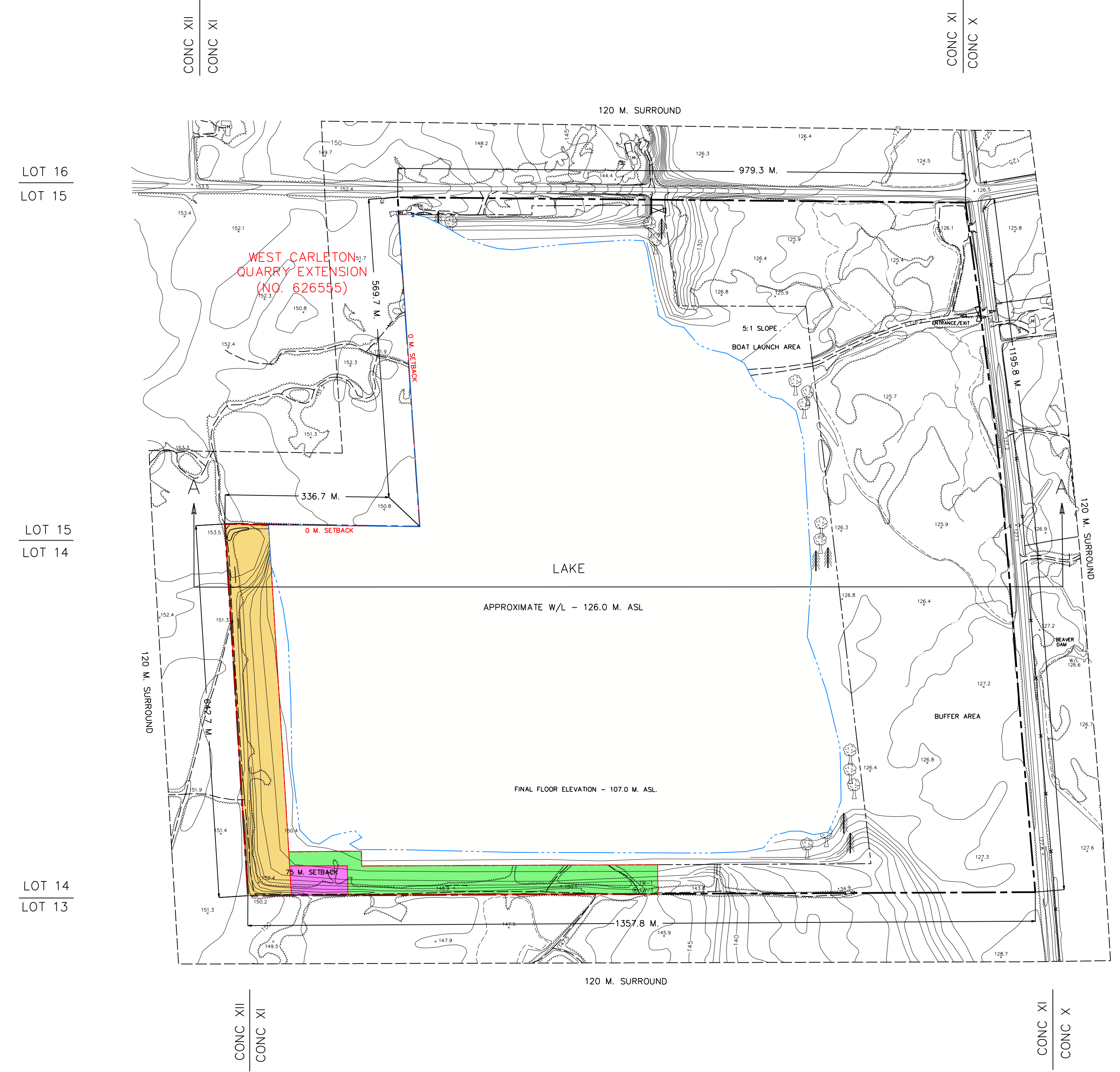
MONITORING

ANNUAL REHABILITATION MONITORING SHALL BE UNDERTAKEN FOLLOWING THE START OF THE INTEGRATED REHABILITATION ACTIVITIES. THE MONITORING SHOULD DOCUMENT THE STATUS OF THE REHABILITATION AND OBTAIN RECOMMENDATIONS REQUIRED TO ENSURE CONTROL OF INVASIVE SPECIES AND THE OVERALL SUCCESS OF REHABILITATION ACTIVITIES. AT THE END OF EACH MONITORING PERIOD, THE MONITORING PROGRAM, AN ASSESSMENT OF WHETHER ADDITIONAL REMEDIAL ACTIONS AND/OR ADDITIONAL MONITORING ARE REQUIRED WILL BE UNDERTAKEN.

A TARGET OF 60% COVER BY NATIVE SPECIES WITHIN THE THICKET SWAMP AND UPLAND FOREST REHABILITATION AREAS AND 80% SURVIVAL OF WOODY PLANTINGS. CONSISTENT UNDERPERFORMING SPECIES SHOULD BE REPLACED WITH A SPECIES THAT IS PERFORMING WELL OR IS KNOWN TO PERFORM WELL UNDER SIMILAR CONDITIONS, WHILE MAINTAINING TARGET DIVERSITY. REPLACEMENT PLANTINGS TO OCCUR IN SPRING OR FALL.

ANNUAL MONITORING OF INVASIVE SPECIES WILL OCCUR FOLLOWING THE START OF THE ENHANCED REHABILITATION ACTIVITIES ON THE SITE. IF SIGNIFICANT POPULATIONS OF INVASIVE SPECIES ARE IDENTIFIED THEY WILL BE REMOVED USING BEST PRACTICES.

ANNUAL MONITORING IN THE CREATED THICKET SWAMP WILL ALSO INCLUDE MONITORING TO DETERMINE THE SUCCESSFUL RECOVERY OF BREEDING HABITAT FOR MONITORING, NOTABLY WESTERN CHORUS FROG. MONITORING SURVEYS WILL BE CONDUCTED IN ACCORDANCE WITH THE PROTOCOLS OF THE MONITORING PROGRAM (BSC, 1993), OR SIMILARLY RECOMMENDED METHODOLOGY.



REHABILITATION PLAN

- NOTES**
- LICENCED AREA 141.6 HECTARES
 - AREA OF OPERATION 31.2 HECTARES
 - EXISTING DISTURBED AREA 48.8 HECTARES
 - THIS SITE PLAN IS PREPARED FOR SUBMISSION TO THE MINISTRY OF NATURAL RESOURCES IN CONJUNCTION WITH AN APPLICATION FOR A CLASS A LICENCE UNDER THE AGGREGATE RESOURCES ACT.
 - THIS PLAN WAS PREPARED USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS.
 - LOT, CONCESSION AND BOUNDARY LINES ON THIS PLAN ARE APPROXIMATE.
 - THIS IS NOT A LEGAL SURVEY DRAWING IN ACCORDANCE WITH THE PROVISIONS OF ONTARIO SURVEYS ACT 1987.

WEST CARLETON QUARRY
PART OF LOT 14 AND 15
CONCESSION XI
TOWNSHIP OF WEST CARLETON
CITY OF OTTAWA

THOMAS CAVANAGH CONSTRUCTION LIMITED
R.R. 2
ASHTON, ON KOA 1B0
LICENCE NUMBER : 4085

- LEGEND**
- BOUNDARY OF AREA TO BE LICENCED
 - SETBACK LIMIT
 - ENTRANCE AND OR EXIT
 - pit/quarry face
 - STOCKPILE
 - DIRECTION OF OPERATION AND PHASE
 - WELL
 - STANDING WATER
 - TEST HOLE
 - BUILDING: S-SILO, H-HOUSE, G-GARAGE, B-BARN, S-SHED, O-OFFICE
 - FENCE/GATE
 - ROAD: PAVED
 - ROAD: UNPAVED
 - RAILWAY
 - H/T
 - POLE: HYDRO/TELEPHONE
 - HYDRO TOWER
 - LAKE/POND AND WATER LEVEL
 - WATERCOURSE: STREAM, DITCH
 - BRIDGE/CULVERT
 - MARSH
 - CONTOURS/INDEX CONTOURS
 - 20
 - SPOT ELEVATION
 - BUSH: DECIDUOUS/CONIFEROUS
 - BERM
 - REHABILITATION LAKE BOUNDARY
 - CROSS SECTION
 - ENHANCED INVASIVE SPECIES MANAGEMENT AREA (SEE INTEGRATED REHABILITATION ACTIVITIES)
 - THICKET SWAMP (SEE INTEGRATED REHABILITATION ACTIVITIES) (0.5 HA)
 - UPLAND FOREST (SEE INTEGRATED REHABILITATION ACTIVITIES) (3 HA)

MAP SCALE	CONTOUR INTERVAL	HORIZONTAL DATUM	VERTICAL DATUM
1:5000	1 METRE	NAD 83 3 DEGREE UTM	GEODETIC
PHOTO SCALE	PHOTO DATE	DATE OF SITE PLAN	
1:12000	APRIL 17, 2001	MAY 2004	

0 50 100 150 200 250 300 METRES		
AMENDMENTS	DATE	APPROVAL DATE
QUARRY DEEPENING TO 107.0 M. ASL	JAN. 15/01	
RELOCATION OF SCALE/SCALE HOUSE	MARCH 2004	
ADDITION OF STORAGE BUILDINGS	MARCH 2004	
SITE PLANS APPROVED BY MINISTRY OF NATURAL RESOURCES		
SIGNATURE	DATE	

PAGE 4 OF 4 CONTRACT 1846-04

THIS IS NOT A CERTIFIED COPY UNLESS EMBOSSED WITH SEAL

JANUARY 25, 2006 DATE SIGNATURE

SITE PLAN AMENDMENTS

NO.	DATE	DESCRIPTION	BY
1	2023-11-21	INTEGRATED OPERATIONS & REHABILITATION AMENDMENT - WEST CARLETON QUARRY EXTENSION LICENSE NO. 62655	JAD

wsp

BASE MAPPING
37-81 AURIGA DRIVE, OTTAWA, ONTARIO K2E 7V3
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