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Book 1 of 2

FINAL SUBMISSION

O.M.I.P. 1993

2.17277

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Rachel Prudhomme, M.Sc., P.Eng.
President

February 1994

EXECUTIVE SUMMARY

The original purpose of this O.M.I.P. project was to establish the type, quality and reserve quantity of competent dimension stone deposits on 16 contiguous mining claims located in Parkin Township, 42 km north of Sudbury, Ontario. This was to have been carried out through extensive exploration and pre-development activities on this property, including test block removal and A.S.T.M. testing of several different marble types that exist on the property. However, because of changes to the OMIP program in 1993, the project had to be significantly cut to accommodate new regulations for OMIP eligibility. As a result, this project focused on prospecting activities including extensive excavation of test pits and mass excavation to strip and expose the deposits found. We also conducted a very thorough exploration drilling program involving both diamond drilling and hydraulic drilling to expose fresh faces of deposits. This was needed for proper evaluation of the deposit as a dimension stone resource. There was also pre-development environmental work conducted to establish baseline environmental values, to identify risk factors and to evaluate the environmental compatibility of the proposed quarry operation.

The 16-claim block was found to contain several types of marble suitable for the production of dimension stone of world-class quality. Potential deposits are located on 5 of the 16 claims. The stone is of good colour, texture and pattern. Further work will have to be conducted to determine test block extraction potential, marketability and ASTM properties of the stone. This work was not covered under our OMIP designation because of changes in the programme.

General overviews of the work and results are in the main General Report whereas detailed descriptions including logs, dates worked, type of work done, maps, etc. are in the several appendices.

Through diamond drilling, we were able to determine that the laminated marble on the Main East Deposit extends to a depth of about 50 feet. By far the most exciting discovery was that below this, there is a layer of about 80 feet depth of what seems to be very competent breccia marble. This was totally unexpected and greatly increases the value of the deposit. The drilling and exploration work done under OMIP also permitted a more accurate reserve estimation to be calculated. The new calculated reserves are three times more than originally expected over only the Main Deposit contained on 2 claims. Revised reserves now stand at over 7 million tonnes of good limestone.

The work done on this OMIP project greatly exceeded the designated project in both magnitude and cost. However, this was a worthwhile expenditure. As a result of the OMIP work conducted in 1993, there has been a decision made by the Principals of Ontario Quarries Inc. to continue investing time and money to further investigate the potential for development of a world class marble quarry on these mining claims.

ONTARIO QUARRIES Inc. / February 1994

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1. BACKGROUND INFORMATION AND NATURE OF PROJECT

In September 1992, Ontario Quarries Inc. (formerly 749574 Ontario Limited) made an initial purchase of a series of 9 mining claims in Parkin Township, North of Sudbury from prospector Mr. John Brady. In December 1992, an additional group of adjoining claims was acquired from Mr. Brady bringing the total number of contiguous claims owned by Ontario Quarries Inc. to 37. Of the 37 claims, 16 were the focus of this OMIP project.

The claims are located 42 km north of Sudbury, in Parkin Township which is approximately 12 km north of the town of Capreol. Maps showing the general location and specific outline of the claims are on pages 4 and 5.

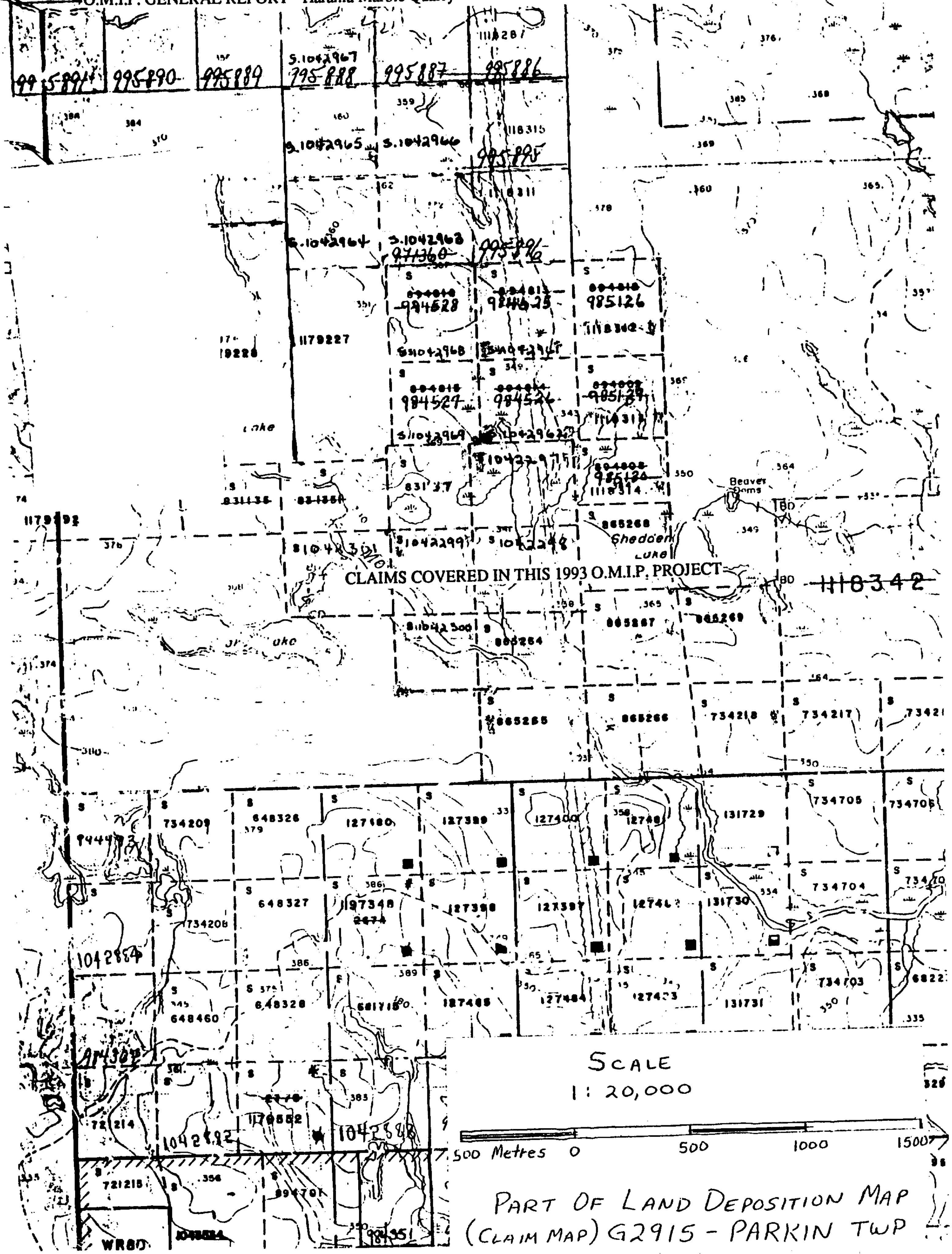
2. THE OMIP PROJECT RE-DEFINED

The official OMIP application submitted by Ontario Quarries Inc. in January 1993 was modified as a result of changes to the OMIP program effectuated by the Ministry of Northern Development and Mines. The finalized OMIP project approved for designation by MNDM contained the following components:

1. Prospecting, map and report preparation and associated costs: 200 days @ $100	20,000.
2. Line cutting, chaining, picketing, grid layout and associated costs: lump sum	25,000.
3. Geological Surveys, Assays, Map and Report Preparation and Associated costs: lump sum	20,000.
4. Stripping, trneching, assays, map and report preparation and associated costs: 60,000 cu.m. @ $5	300,000.
5. Surface drilling: 5000 ft @ $20 -	100,000.
6. Preproduction environmental studies	20,000.
7. 5% overhead:	24,250.
TOTAL PROJECT	509,250.

The main target and purpose of this OMIP project was originally to allow exploration and pre-development activities to be carried out on a block of 16 adjoining claims in order to: 1) identify all different types of dimension stone present on the property, 2) follow and determine the trend and reserves of each stone type and 3) conduct testing to determine the physical and structural properties of the stone. Because of the changes to the OMIP program in 1993, item 3 (testing of physical and structural properties of stone) had to be eliminated.

This map is part of
EMR CANADA MAP No. 41 - 1/15
"MILNET, ONTARIO"
(Edition 3)
Scale 1 : 50,000
Contour Interval = 50 ft


CLAIMS COVERED IN THIS 1993 O.M.I.P. PROJECT
Beaver Dams
Shedden Lake
SCALE
1: 20,000
500 Metres 0 500 1000 1500
PART OF LAND DEPOSITION MAP
(CLAIM MAP) G2915 - PARKIN TWP

The claims under study in this project are valuable because of the potential for presence of a significant dimension stone deposit. The dimension stone which has been found is a limestone which forms part of the Espanola and Serpent formations of the Quirke Lake Group. This limestone (which can be called a "marble" under industry definition) is unique in colour, pattern and texture. The highly attractive and distinct textural patterns present a variety of potentially marketable products. This ranges from a marble breccia consisting of a spectacular mosaic of interlocking varied-sized blocks to bedded marble with both uniform laminations and folded to convoluted "gneissic" bedding planes (see photographs in various sections of this report for the range of stones found). The marble tends to be multicoloured with pink, green, gray and cream colours predominating. As will be seen throughout this report, colour is a site-specific characteristic of the deposit, with the breccia marble, cream marble, lined grayish and green marble and the multicoloured marble being concentrated in certain specific geographical areas within the claim group.

3. NUMBER AND TYPE OF CLAIMS

The work conducted through this OMIP project concentrated on 16 contiguous unpatented mining claims in Parkin Township. These are:

S 1042298
S 1042299
S 1042300
S 865264
S 865265
S 865267
S 865269
S 865266
S 734218
S 865268
S 1118314
S 1118313
S 1118312
S 1042961
S 1042962
S 1042297

All 16 claims are in good standing.

4. REGIONAL AND LOCAL GEOLOGY

The property lies near the contact between Archean greenstone-granitoid rocks to the west and Proterozoic (Huronian) metasediments to the east which unconformably overly the Archean units. The Huronian metasediments have been subdivided into the following litho-stratigraphic formations in this area: Mississagi, Bruce, Espanola, Serpent, Gowganda, and Lorrain. The foregoing rocks have been intruded by dykes of Nipissing-type diabase and olivine-diabase. It is believed that it was the contact zones with these dykes that caused extreme brecciation in some of the marbles found on the Harama deposit.

The property containing the mining claims is underlain by the Espanola and Serpent Formations of the Quirke Lake Group. The Espanola Formation in Parkin Township consists of two members. The lower member is a limestone interbedded with siltstone and the upper member is a fine-grained siltstone to sandstone. The total thickness of the Espanola limestone formation is between 100 to 200 feet. Diamond drilling done through this OMIP project has confirmed these depths. Some of the holes drilled have also indicated good limestone to depths exceeding 200 feet. The reserve estimation is therefore conservative based on previously published figures of the expected depth of the limestone. In reality, limestone reserves will greatly exceed expectations based on the diamond drilling results that were obtained. Revised reserve estimations are presented in Section 8.

5. RESULTS OF OMIP ACTIVITIES

The geology underlying the claim group studied consists of limestone and fine grained wackes of the Espanola formation intruded by mafic intrusive rocks. The interbedded limestone was the focus of all prospecting activities in this project. Test pits yielding stone other than limestone were not of any further interest to us. Extensive prospecting, followed when warranted by stripping and trenching activities carried out by Ontario Quarries Inc. on the 16 claims has revealed very distinct areas on 5 claims in particular where good limestone was found that will be of commercial value. The claims found to contain limestone are:

S 734218
S 865266
S 865267
S 865264
S 1042298

The limestone found on each of the claims was characterized in terms of colour, pattern, texture and consistency, which are the 4 most important factors that determine the success of the stones on international markets. The stones are briefly described in the following section highlighting on each of the 5 claims. More details on geological structure, consistency, fracture patterns and other important features are given in the geological reports prepared by our independent geological consultant. The reports are contained in Appendices D, E, F and G.

6. MARKETABLE LIMESTONE FOUND ON 5 CLAIMS

The limestone finds are characterized by a very large "Main East and West" deposit spanning claim numbers 734218 and 865266. The bulk of the large main deposit is on claim number 865266. The east end of this large commercial scale deposit extends onto claim 734218. An additional limestone find was discovered to the east as a result of prospecting and exploration on claim 734218. This may in fact be an extension of the main east deposit that has folded under and reappeared on surface, as it does display similar colours and textures to the main deposit. But it could very well be an isolated knoll of significant size. Further work would be needed to determine this. This new find was labelled "Deposit 1" for the time being. Details of its geological structure and significance are found in Appendix D.

Significant limestone discoveries on the other three claims showing deposits were the subject of much additional exploration work. Clearing, grubbing, cutting and stripping were required, with much care needed to strip and stockpile topsoil, cut and pile timber, neatly trim all encroaching vegetation, and excavate all overburden to expose significant portions of the deposits for geological assessment.

Highlights of the prospecting and exploration activities and descriptions of the stones found on the five claims showing marketable limestone deposits are presented below by claim number on which the limestones were found. Details of prospecting and exploration activities on these and the rest of the 16 claims are contained in Appendix A, B and C. A general geological map showing the locations of all deposits found is contained in the back pocket of Appendix G. Each of the claims where limestone was found are briefly described below and are covered in more detail in the Appendices.

6.1 CLAIM S 734218

As discussed above, this claim contains the east extremity of the known "Main East and West" deposit. As a result of our activities, it has also been found to contain an additional deposit which we have labelled "Deposit 1". A geological report on this deposit is contained in Appendix D.

This deposit contains a limestone which is similar in colour and texture to the main breccia and the gray-green bedded limestones found on claim 865266. It has been found through our studies that there is much more limestone on this claim as than was initially indicated in the general geological report for Parkin and Hutton townships and accompanying geological map done for the Ontario Department of Mines by H.D. Meyn in 1970. Photographs of the dimension stone types to be found on this claim are shown below and on the following page. Other details including maps are given in Appendices D and G.

LIMESTONE FOUND ON DEPOSIT 1, CLAIM 734218

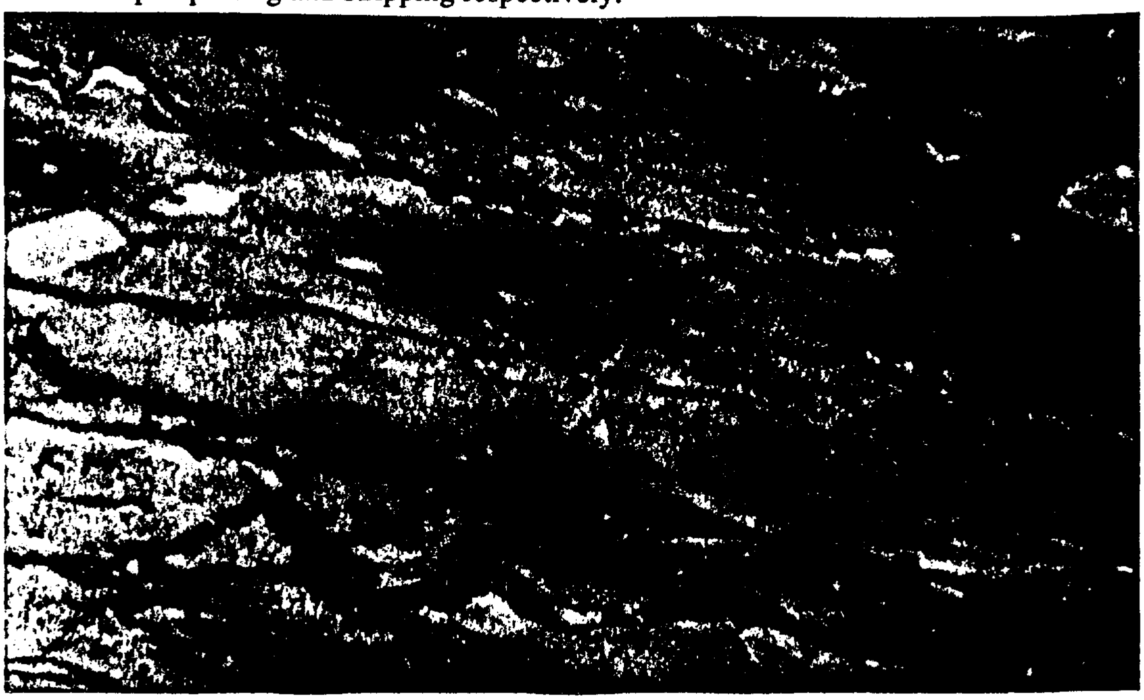
LIMESTONE FOUND ON MAIN EAST DEPOSIT, CLAIM 734218

6.2 CLAIM S 865266

Claim 865266 contains most of what we have labelled the "Main West Deposit" and the "Main East Deposit". Maps locating these deposits on the claim are given in Appendix G (back pocket on last page).

There are two basic types of limestone of commercial value as a marble dimension stone found on four distinct areas on claim 865266. The two basic limestone types can be classified as Breccia and Laminated Marble. In the north part of the claim (along the "Main West Deposit"), the limestones are brecciated. They are pink in colour, with grey and green accents. To the south of the brecciated zone, but still west of the access road, the limestones are bedded or laminated. The stone is thinly banded with pink, gray, green and black tones resembling flowlines. There is no brecciation in this south zone deposit. The third area is located to the east of the access road (i.e. "Main East Deposit"). Here, there is a thinly banded limestone with distinct white, green, pink, gray and black undertones. The laminations are melded together in a gently meandering pattern with very fine angular or jagged dark lines highlighting the finish. All limestones polish very well and will be suitable for application as dimension stone. There is evidence of some breccia here as well. There is also a fourth area further north of the main centre of activity which showed bedded limestones with thick banding. This limestone is predominantly green with gray banding.

The main east deposit which was the site of extensive investigation under this OMIP program is described in a geological report contained in Appendix G. Photographs of three types of marble found on this claim are given below and on page 12.
Extensive exploration drilling was conducted on this claim, as detailed in Appendix B. Appendix A and C show the details of prospecting and stripping respectively.



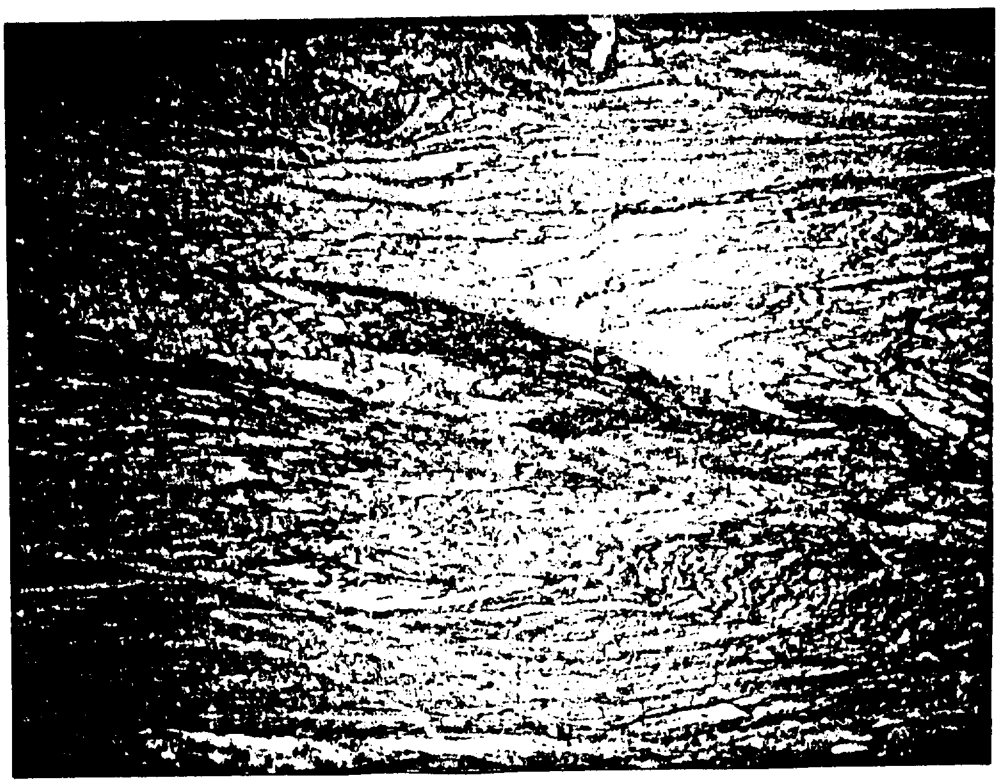
LAMINATED LIMESTONE FOUND ON MAIN DEPOSIT, CLAIM 865266

BRECCIA LIMESTONE FOUND ON MAIN EAST DEPOSIT, CLAIM 865266

BRECCIA LIMESTONE FOUND ON MAIN WEST DEPOSIT, CLAIM 865266

6.3 CLAIM S 865267

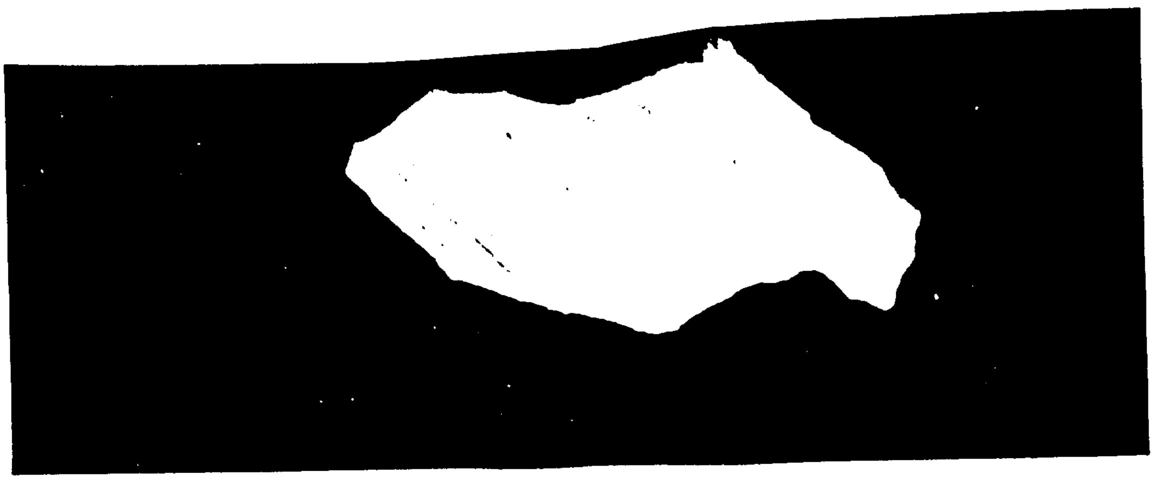
As a result of prospecting activities on this claim, several test holes were excavated to determine the extent of any marble deposits. A deposit was found in the south-west quarter of the claim. This deposit is felt to be an extension of the "Main West Deposit" found on claim 865266. Colours and texture of the limestone are similar in nature to the Main West Deposit, as shown in the photograph below. Details on the prospecting and exploration work on this claim (an others) as well as maps are found in Appendix A. An additional map locating this deposit on the claim is given in Appendix G (back pocket on last page).



PHOTOGRAPH OF DIMENSION STONE FOUND ON S865267

6.4 CLAIM S 865264

The southward extension of Deposit #2, located mainly on claim 1042298 is located on claim 865264. The geology of this deposit is detailed in a separate geological report and maps contained in Appendix E. Further test pits excavated as a result of the positive prospecting effort have indicated that this deposit extends eastwardly more than shown on the geological map in Appendix E. This deposit will likely be of commercial value and contains a marble which is significantly different from all others found in this entire block of 16 claims. The stone when polished appears white to greenish beige with pink tones and it is very interesting in banding and colour. The texture and banding pattern is both beautiful and unique. The deposit appears very promising as minimal fracturing was visible. Also, the natural horizontal benching in layers of 1 to 1.5 meters may assist in quarrying by producing a natural rock face for future block extraction. Details of the prospecting and exploration work on this deposit and the results are given in Appendix A and C. A photograph of a sample from this deposit that was cut and polished is shown below. A general map showing the location of this deposit with respect to others is given in Appendix G (back pocket on last page).



PHOTOGRAPH OF DIMENSION STONE FOUND ON S865264
(Deposit 2)

6.5 CLAIM S 1042298

Prospecting and exploration efforts on claim 1042298 were very productive as two limestone deposits of possible commercial value were found. Deposit #2, which was described previously in the section for claim 865264, occupies the wouth-east corner of the claim as shown on the map on page 20. This deposit is detailed in a geological report contained in Appendix E, and the prospecting and exploration work is detailed in Appendix A and C. The colour, texture and pattern of this deposit lead us to believe that it might have the potential of developing into a good producing quarry with a marketable product. The stone has many colours which band and blend together as shown in the photograph which was presented on page 14. This stone is beautiful and unique and it is different from all other limestones found in this block of 16 claims.

The other deposit which was located on claim 1042298 is labelled as Deposit #3. The geological report for this deposit is contained in Appendix F. This deposit appears to be more white and/or beige in colour than the other limestones found on the block of 16 claims. It does not seem as visually attractive as the stone in Deposits 1 and 2 and in the main east-west deposits. However, beauty is in the eye of the beholder and this stone may also be attractive to some markets as a multi-purpose dimension stone. Natural benches in both Deposits 2 and 3 would lead to easy quarrying in terms of block removal. Details of both deposits are given in geological reports in Appendix E and F and in the detailed report of prospecting and exploration for this claim in Appendix A. A photograph of the stone found in Deposit # is given below.

PHOTOGRAPH OF STONE FOUND ON DEPOSIT 3 (CLAIM 1042298)

7. SUMMARY OF PROSPECTING, EXPLORATION AND DRILLING

The previous section has highlighted limestone deposits found on five claims of the block of 16 claims that were studied. These limestone deposits were located as a result of very thorough prospecting and exploration work involving linecutting, traversing, observation of overburden and rock outcrops and mechanical excavation, stripping, trenching and the digging of test pits. Details of the prospecting and exploration work and observations are given in Appendix A, B and C. In addition to thorough observations on the 16 claims, additional extensive exploration work was concentrated on claims 865266 and 734218 which contain the main East-West deposit. This included extensive exploration drilling as detailed in Appendix B.

The work done on 865266 and 734218 consisted of drilling, mass excavation and stripping to expose as much of the deposit as possible. The heavy equipment used to conduct the work (and the work itself) is detailed in Appendices A, B and C which also contain several photographs showing the equipment and the work.

In addition to the large amount of excavation done, a great deal of drilling was also conducted on these claims. It should be noted that exploration drilling for dimension stone deposits varies significantly from drilling activities for more conventional deposits. Firstly, extensive diamond drilling is discouraged for dimension stone deposits because of the destructive nature of the holes. The prime purpose of quarrying activity is to extract the largest possible intact rectangular blocks of dimension stone for export markets. The location and attitude of the rectangular blocks is determined in the field based on the conditions at the horizontal and vertical free faces that are visible prior to extraction. A diamond drill hole located in the wrong place can ruin an entire block to be extracted. The best and least damaging location for a diamond drill hole in dimension stone cannot be determined ahead of time. By selecting very few holes which are strategically placed to provide as much information as possible will minimize the damage to the deposit as a result of holes ending up in the middle of a planned block for extraction.

Another factor that makes exploration drilling different for dimension stone than it is for other more conventional minerals is the fact that great depth is not required. Most limestone formations on our claims extend to a maximum of one or two hundred feet. As we are not searching for a mineable mineral, it is not necessary for us to drill any deeper than the thickness of the limestone bed.

The purpose of drilling in dimension stone is to ascertain consistency in the colour or pattern of the stone with depth, to verify the fracture patterns and see whether the fractures anneal with depth as they often do, and obtain a measurement of depth of the formation to provide truer reserve estimations. It is also very necessary to conduct surface drilling to expose broad unweathered faces of the deposit in order to determine the most important features that will dictate whether the deposit is of commercial value.

Assays are not required in dimension stone. What is most important in determining the financial feasibility of the project and the marketability of the stone is the colour, texture and pattern and most importantly the consistency of these parameters over extended fresh unweathered faces of the deposit. Such large open faces are obtained by closely spaced hydraulic drilling and splitting of the faces of the deposit for exploration drilling. This type of drilling is more valuable in providing information on the quality of the deposit than diamond drilling. Closely spaced drilling is the only way to expose the fresh faces required for exploration purposes, as blasting in marble deposits is prohibited because of the potential for ruining the deposit by fracturing.

For the above reasons, Ontario Quarries Inc. conducted about approximately 1000 ft of diamond drilling on the main east-west deposit and 17,000 feet of surface drilling of faces other than core drilling for exploration and geological purposes. The diamond drilling was conducted to determine the fracture parameters with depth, the consistency of colour, pattern and texture of the stone and to obtain the true depth of the limestone layer. We found through our drilling that the main east-west deposit extends more than 200 feet in depth in some areas. This depth exceeds that reported in the published geological report for this region (Meyn 1970).

We were also able to define that many of the fractures anneal with depth. Various fractures have been tightly cemented with calcite. There is a system of angled fractures that will make quarrying in some sections a bit more difficult. There is, however, a predominance of perfectly horizontal fractures which are not tightly cemented. These will be of tremendous assistance in quarrying by offering a natural perpendicular free face for block removal. Details are shown in core logs and drawings in Appendix B.

It was also found that the colour, pattern and texture of the stone are relatively consistent with depth. These findings are very encouraging and have led us to conclude that the deposit is more marketable for dimension stone than previously thought. But by far the most positive result was that there seems to be a competent layer of 80 feet deep of breccia marble which underlies the entire Main East deposit and part of the Main West at about 50 feet below surface. The breccia is the most valuable of all marbles found on this property and therefore, this unexpected news is extremely encouraging. Details of the drilling program are given in Appendix B.

8. RESERVE ESTIMATION

This section deals with a refinement of the reserve estimations in the Main East-West Deposits on claims 865266 and 734218. This refinement is now possible because of the extensive drilling and exploration activities conducted as part of this OMIP project. It is too early at this time to attempt any reserve estimation for deposits 1, 2 and 3. More stripping and some exploration drilling will be needed before this can be done with any degree of certainty.

The original reserve calculations done by the geological consultant in 1992 estimated what is now called the Main East-West Deposit to contain a little over 2,000,000 tonnes. This estimation was based on a depth of limestone formation conservatively taken from the published geological report for Parkin and Hutton Townships (Meyn 1970). Our stripping work done in this OMIP project identified a much larger expanse in area for the deposit. We are now certain that the depth across most of the limestone deposit significantly exceeds 200 feet as proven by our diamond drilling results. The revised reserve estimation for the Main East-West Deposit is now as follows:

Specific gravity of the material: 2.85

Depth of the deposit: >65 m

Area of Deposit: 300 m x 70 m for the south East-West portion + 220 m x 80 m for the northwest portion

Volume of Deposit: Volume = Area x Depth = 2,509,000 cubic metres

Tonnage of Deposit: Tonnage = Volume x Specific Gravity = 7,150,650 Tonnes.

This new revised tonnage based on more factual data as a result of the 1993 OMIP project increases by 3 times the size of the deposit as compared to the original estimates. There is definitely a very large reserve of limestone/marble on these claims.

9. ENVIRONMENTAL ISSUES

A detailed pre-operative environmental report identifying factors of importance to the operation of the Harama Marble Quarry is given in Appendix H. Independent consultants were hired to determine baseline values for pre-operative water quality in Mowat Creek and to sample fish, vegetation and aquatic benthic life in the creek. It was found that the creek has an extremely high iron content and relatively high copper, phosphorous and dissolved solids. The pH is acidic, which is to be expected from the many peat bogs present and the high concentration of iron.

The consultants also conducted a fish habitat study to determine whether the creek is a brook trout habitat. All indications are that there are no brook trout in Mowat Creek. The scientific data collected and analyzed through the consultants show that the creek has all indications of being a warm-water environment with many boggy sections. This environment could not support brook trout. Recent discussions with the conservation officer who has been monitoring fishing activities in the Mowat area over the past 26 years confirms this as well. The conservation officer has never seen brook trout in Mowat Creek and does not believe there are any present. However, he states that over the 26 year period, one individual has claimed that he caught a brook trout in Mowat Creek. The officer said that he is very skeptical and does not believe this one single claim over 26 years.

In general, it is concluded from the environmental report that the limestone quarry will be environmentally compatible and may, in fact, improve the envirnoment due to the neutralizing effects of limestone on acidic environments. Several scientific studies supporting the beneficial effects of limestone dust or crushed limestone on soil and water quality and on fish habitat are presented in Appendix H.

10. LIST OF EXPENDITURES

The work done under this OMIP project has greatly exceeded the proposed work both in magnitude and cost. The breakdown of actual costs is as follows:

Activity	Amount Completed	Actual Cost	Approved under OMIP
(Prospecting) + labour - hand stripping, sounding cleaning. Rock surface excav. routes + flagging	202 days	$ 20,200	$ 20,000
Stripping - power	77,885 m^3	389,425	300,000
Drilling (Core)	970 ft	19,400	
Drilling (other than core)	16,961 ft	169,610	
Drilling (total)	17,931 ft	189,010	100,000
Environmental	lump sum	25,000	20,000
Line Cutting	Lump Sum	25,000	25,000
Geological	lump Sum	20,000	20,000
Overhead	lump sum	33,432	24,250
TOTAL		$ 702,067	$ 509,250

11. CONCLUSION

In summary, the work program conducted as a result of this OMIP project included the following:

- prospecting on the property to identify the possible location and trend of building stone deposits, including the preparation of a report and map showing traverses and observations made;

- establishing a grid by line cutting, including picketing and chaining; the grid established was used for prospecting, for geological mapping and to carry out a survey;

- surface drilling by core drill and by other than core drill, and overburden test drilling for exploration purposes to determine the extent, depth and trend of deposits, types (including colours and patterns) of building stone available on the property, uniformity of deposits in terms of colour and pattern of the building stone and depth of overburden;

- extensive stripping and rock trenching, including the preparation of plans and reports outlining the results;

- surface sampling and grab sampling for test purposes;

- pre-production environmental studies, including the preparation of reports; these studies outlined the environmental implications of a future quarry on the site; they focused on fish habitat and on identifying any sensitive natural features in the vicinity of the project (i.e. natural waterways, spawning beds, moose habitats, etc.) and the way in which they can be affected by a quarry operation; the report also suggested environmental and pollution control measures to be taken during quarry operation.

Results of the work identified five claims where significant finds could result in operation of limestone quarries that would produce an internationally marketable marble product. Reserves are significantly greater than were originally expected. There is also a great deal more breccia than was expected. The new breccia found underlies the laminated green marbles of the Main Deposit starting at about 50 feet below surface. All planned quarry operations are environmentally compatible and could potentially improve the chemistry of the natural surroundings.

APPENDIX A

Details of Prospecting and Exploration Activities

INTRODUCTION

NOTE: Prospecting includes manual work eg. sounding with scaling bar to determine bedrock locations; hand stripping of overburden and cleaning and flagging excavator route

All prospecting and exploration activities conducted as part of this OMIP project were focussed on finding limestone suitable for development as commercial marble dimension stone deposits. The limestones in this area form part of the Espanola and Serpent formations of the Quirke Lake Group and are known to range from a marble breccia consisting of a spectacular mosaic of interlocking varied-sized blocks to bedded marble with both uniform laminations and folded or convoluted "gneissic" bedding planes. Multiple colours are available in the area where prospecting was conducted, with pink, green, gray and cream colours predominating. The prospecting and exploration work concentrated on 16 contiguous unpatented mining claims in Parkin Township. These are:

S 1042298
S 1042299
S 1042300
S 865264
S 865265
S 865267
S 865269
S 865266
S 734218
S 865268
S 1118314
S 1118313
S 1118312
S 1042961
S 1042962
S 1042297

All claims were the subject of thorough prospecting and additional exploration through mechanical trenching and the digging of test holes. No assays were required because we are not interested in the presence of metallic minerals and our option agreement on these claims excludes the rights to any such minerals. We are allowed only to extract dimension stone and therefore, sampling was done through boulder extraction or by splitting samples of limestone from the faces exposed using sledge hammers or picks. These samples were cut and polished to determine their colour, texture and pattern and the polishability of the stone, which are all features which determine whether or not this stone can qualify as a dimension stone for commercial purposes. Good limestones were found on 5 of the 16 claims explored. These 5 claims were subjected to further exploration work to allow preliminary evaluation of the deposits.

The prospecting and exploration activities including detailed maps for each claim are highlighted in this section. Any drilling or mass excavation activities are excluded from Appendix A, as they are detailed in Appendices B and C respectively.

CLAIM S 1042961

Activities:

Preliminary prospecting: 15 days — Frank Villano, Rachel Prudhomme
(May 3, 4, 5, 6, 7, 8, 10, 11a.m.)
+ sounding, manual stripping, flagging

Excavation and trenching: 4.5 days, using: Poclain 170 excavator, 1/2 ton truck, Prospector, Ontario Quarries Supervision
(May 11 p.m., 12, 13, 14, 15)

No. of test pits excavated: 12

Cubic meters of excavation: 120

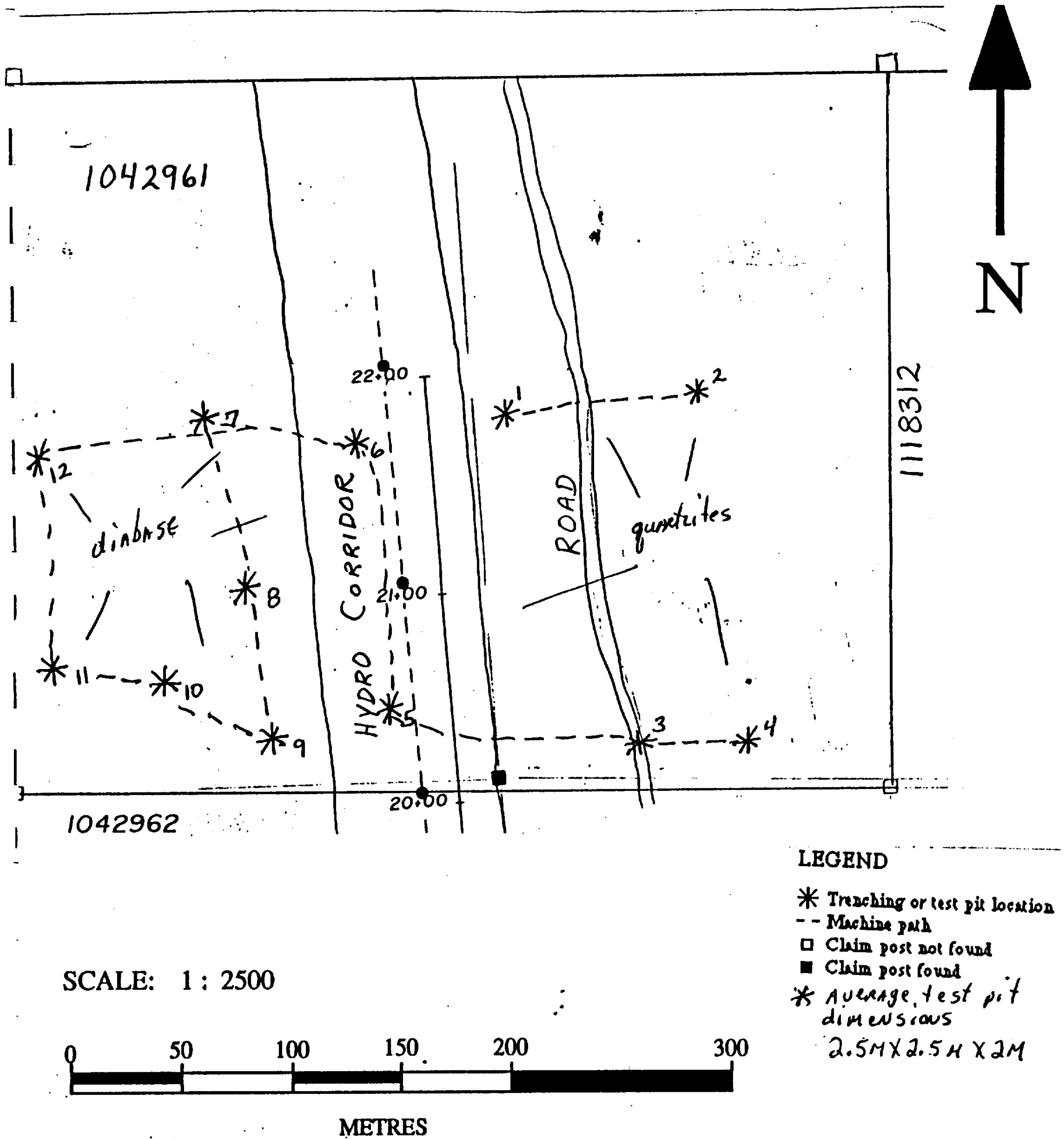
Notes:

- the prospecting team ran traverses to determine where test pits should be excavated *
- 12 sites were selected for further exploration as shown on accompanying map
- line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth where rock was encountered or to a maximum depth of 22 feet if no rock was found

Results:

- no limestone found
- rock found consisted mostly of quartzite, diabase, olivine-diabase and greenstone

* also, located suitable routes for excavator



MAP OF CLAIM S 1042961 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 1118312

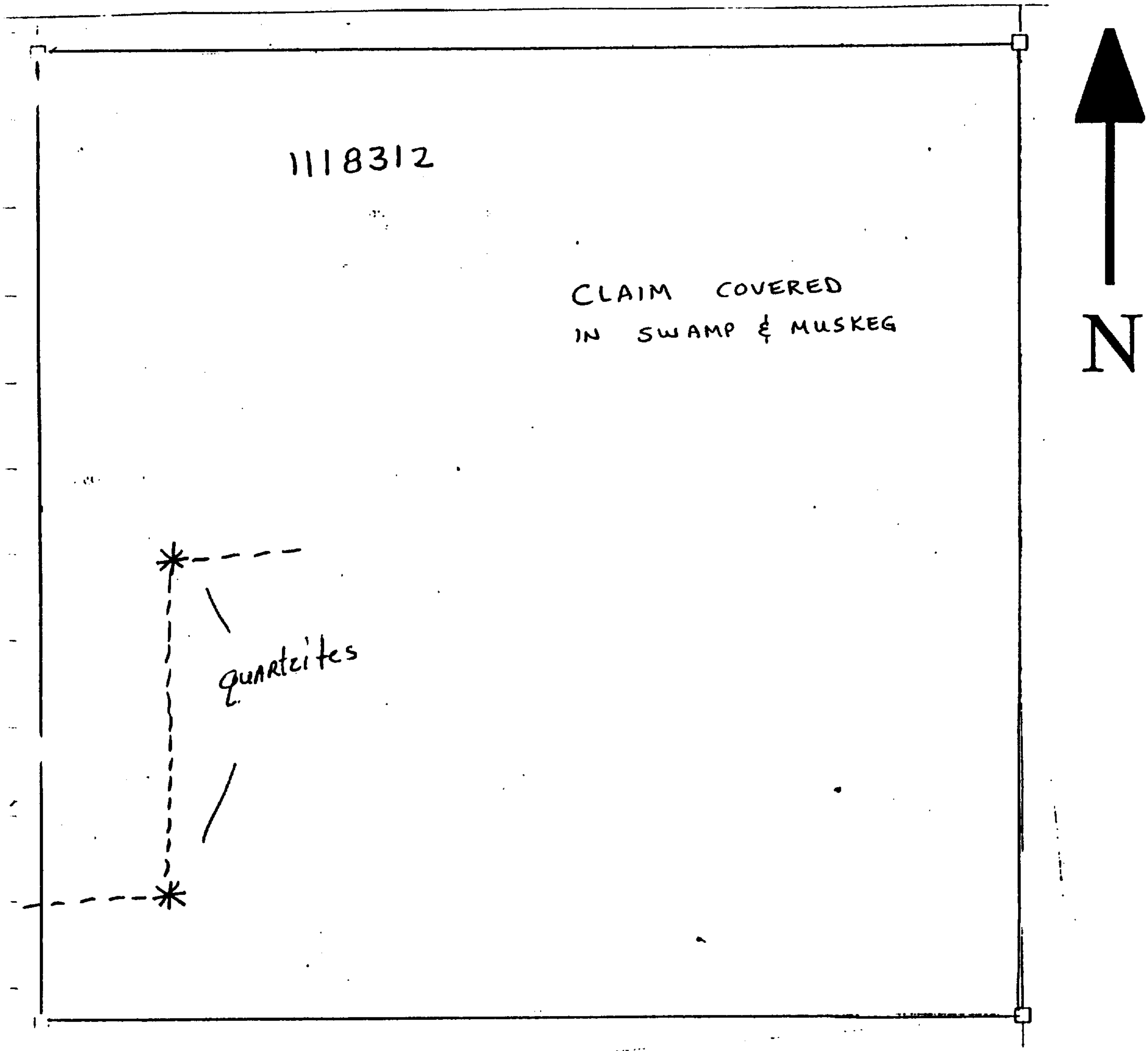
Activities:	Preliminary prospecting: *(May 11 p.m., 12, 13, 14)* + manual stripping, sounding, flagging	7 days	Frank Villano Rachel Prudhomme
	Excavation and trenching: *(May 17 a.m.)*	0.5 days, using:	Poclain 170 excavator 1/2 ton truck Prospector Ontario Quarries Supervision
	No. of test pits excavated:	2	
	Cubic meters of excavation:	20	

Notes:

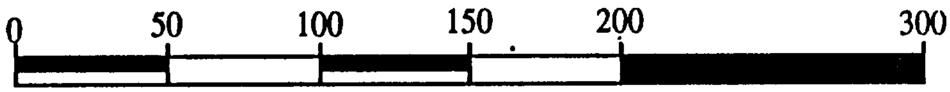
- the prospecting team ran traverses to determine where test pits should be excavated
- it was very difficult to manoeuver on this claim because of extensive swamp and muskeg; hence we did not spend much time traversing this claim because of the difficulties in travel
- there were no interesting outcrops found on this claim
- only 2 sites were selected for further exploration as shown on accompanying map
- it was very difficult to bring in heavy equipment to excavate these pits because of the site conditions
- limited line cutting, picketting and chaining helped define the location of sites
- bedrock was found but was not limestone; however, some limestone boulders were excavated with the fill

Results:

- no limestone formation found; however, some loose limestone boulders were dug out but they seemed to have been transported there by glacial or other action (i.e. these boulders did not conform with the bedrock found)
- bedrock found consisted of quartzites and conglomerates



SCALE: 1 : 2500



METRES

LEGEND

✳ Trenching or test pit location
- - Machine path
□ Claim post not found
■ Claim post found

Test pit average dimensions: 2.5M x 2.5M x 2M.

MAP OF CLAIM S 1118312 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 1042962

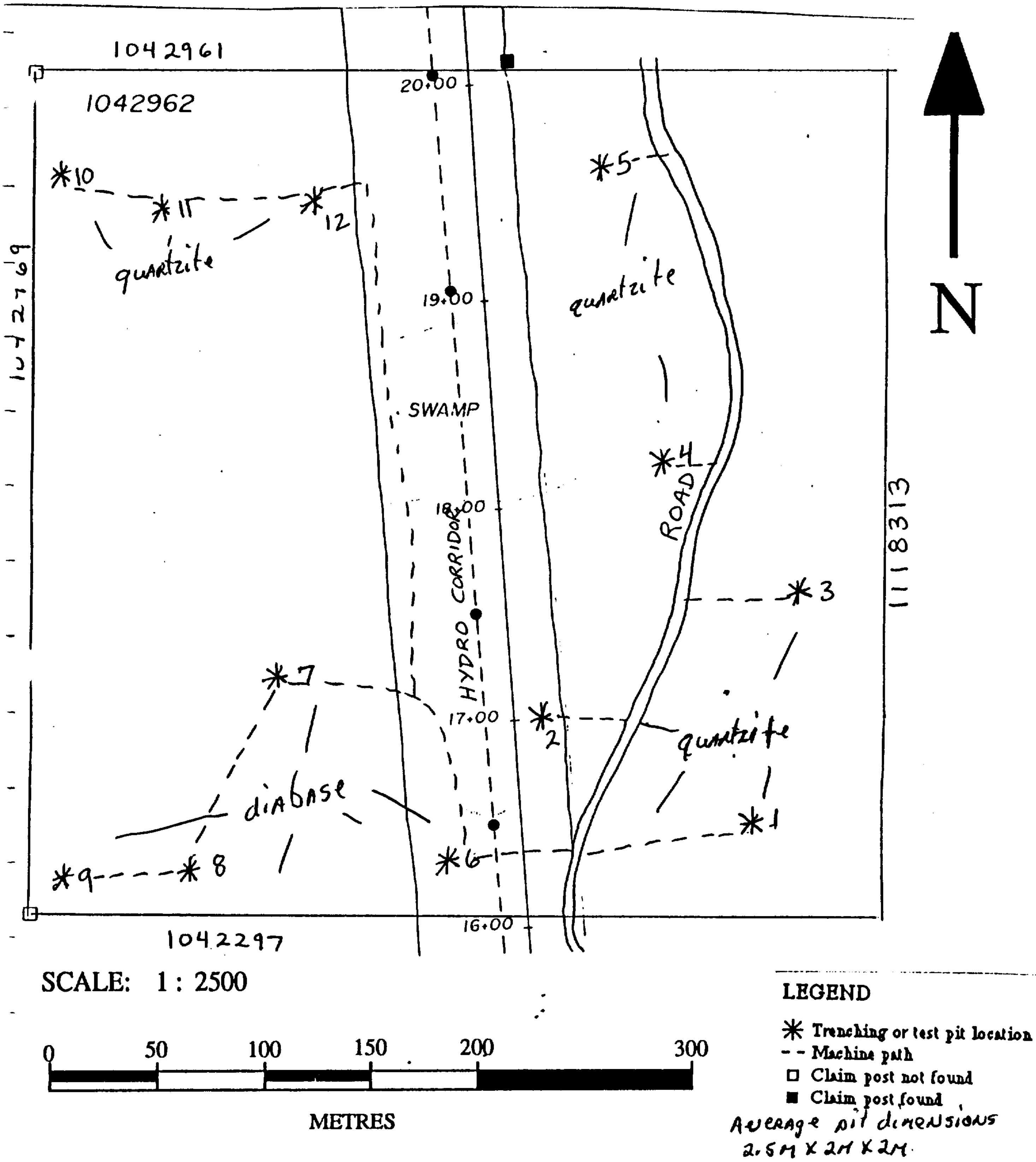
Activities:	Preliminary prospecting:	11 days	Frank Villano
	(May 15a.m., 17, 18, 19, 20, 21) + sounding, manual stripping, flagging		Rachel Prudhomme
	Excavation and trenching:	3 days, using:	Poclain 170 excavator
	(May 22, 24, 25)		1/2 ton truck
			Prospector
			Ontario Quarries Supervision
	No. of test pits excavated:	12	
	Cubic meters of excavation:	120	

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- there were several swampy areas on this claim but this did not impair "travelability"
- there was more open area without heavy vegetation on this claim, making it relatively easy to get around
- we spent more time prospecting because of the variety of rock outcroppings found
- 12 sites were selected for further exploration as shown on accompanying map
- line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth where rock was encountered or to a maximum depth of 22 feet if no rock was found
- test pits were relatively easy to dig because it was easy to travel with heavy equipment on this claim

Results:

- no limestone found
- rock found consisted mostly of gray rock types and some quartz diabase, diorite and quartzite



MAP OF CLAIM S 1042962 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 1118313

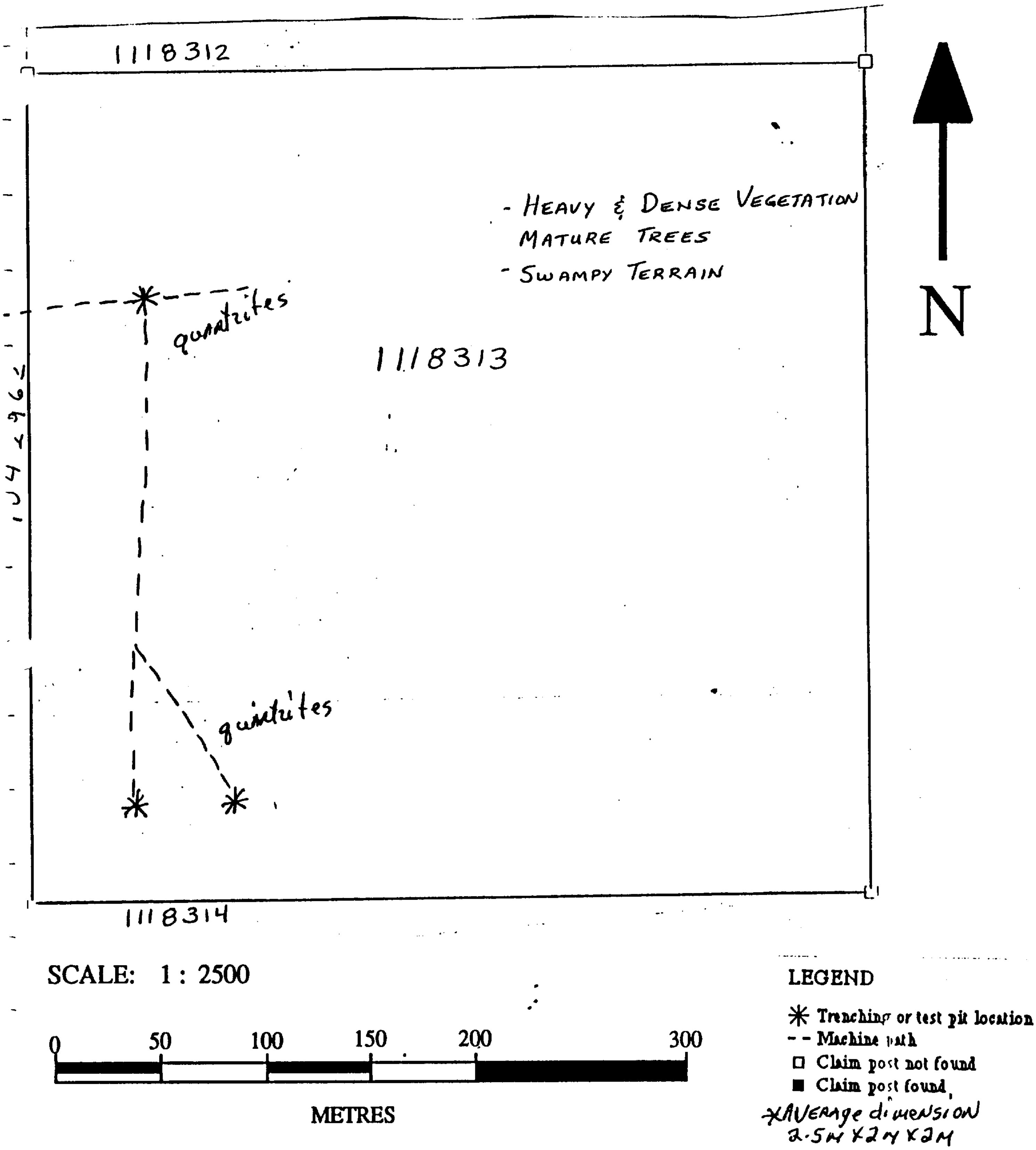
Activities:	Preliminary prospecting:	13 days	Frank Villano
	(May 22 a.m., 24, 25, 26, 27, 28, 29) + sounding, flagging, manual stripping		Rachel Prudhomme
	Excavation and trenching:	1 day, using:	Poclain 170 excavator
	(May 31)		1/2 ton truck
			Prospector
			Ontario Quarries Supervision
	No. of test pits excavated:	3	
	Cubic meters of excavation:	30	

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- it was difficult to get around on this claim because of very heavy mixed vegetation, large trees and heavy cover causing obstacles to foot and machine travel
- there were also some swampy areas on this claim where we could not walk
- some rock outcrops were present but they did not contain limestone
- preliminary prospecting efforts did not yield any indication of the presence of limestone
- prospecting results did no warrant cutting large trees for machine travel
- as a result of the above, only 3 sites were selected for further exploration as shown on accompanying map
- some line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth where rock was encountered or to a maximum depth of 22 feet if no rock was found

Results:

- no limestone found
- rock found consisted mostly of mafic gray rocks, quartz diabase and quartzites



MAP OF CLAIM S 1118313 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 1042297

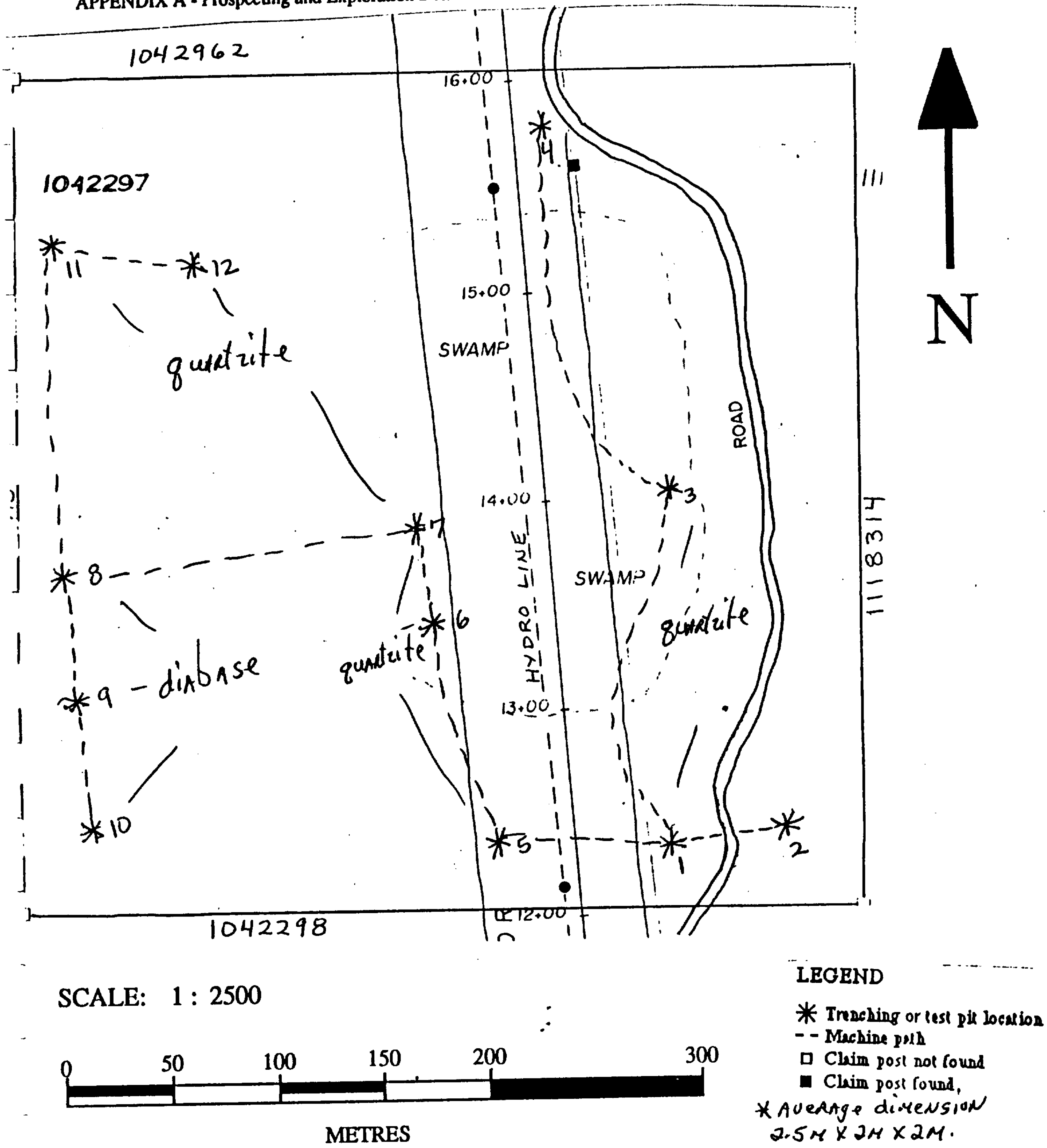
Activities:	Preliminary prospecting: *(May 31, June 1, 2, 3, 4)* + sounding + flagging	10 days	Frank Villano Rachel Prudhomme
	Excavation and trenching: *(June 5, 7, 8)*	3 days, using:	Poclain 170 excavator 1/2 ton truck Prospector Ontario Quarries Supervision
	No. of test pits excavated:	12	
	Cubic meters of excavation:	120	

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- there were many rock outcrops on this claim, but none were limestone
- there were some swampy areas on the claim
- 12 sites were selected for further exploration as shown on accompanying map
- line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth where rock was encountered or to a maximum depth of 22 feet if no rock was found

Results:

- no limestone found
- rock found consisted mostly of quartz diabase, diorite, olivine-diabase and quartzites



MAP OF CLAIM S 1042297 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 1118314

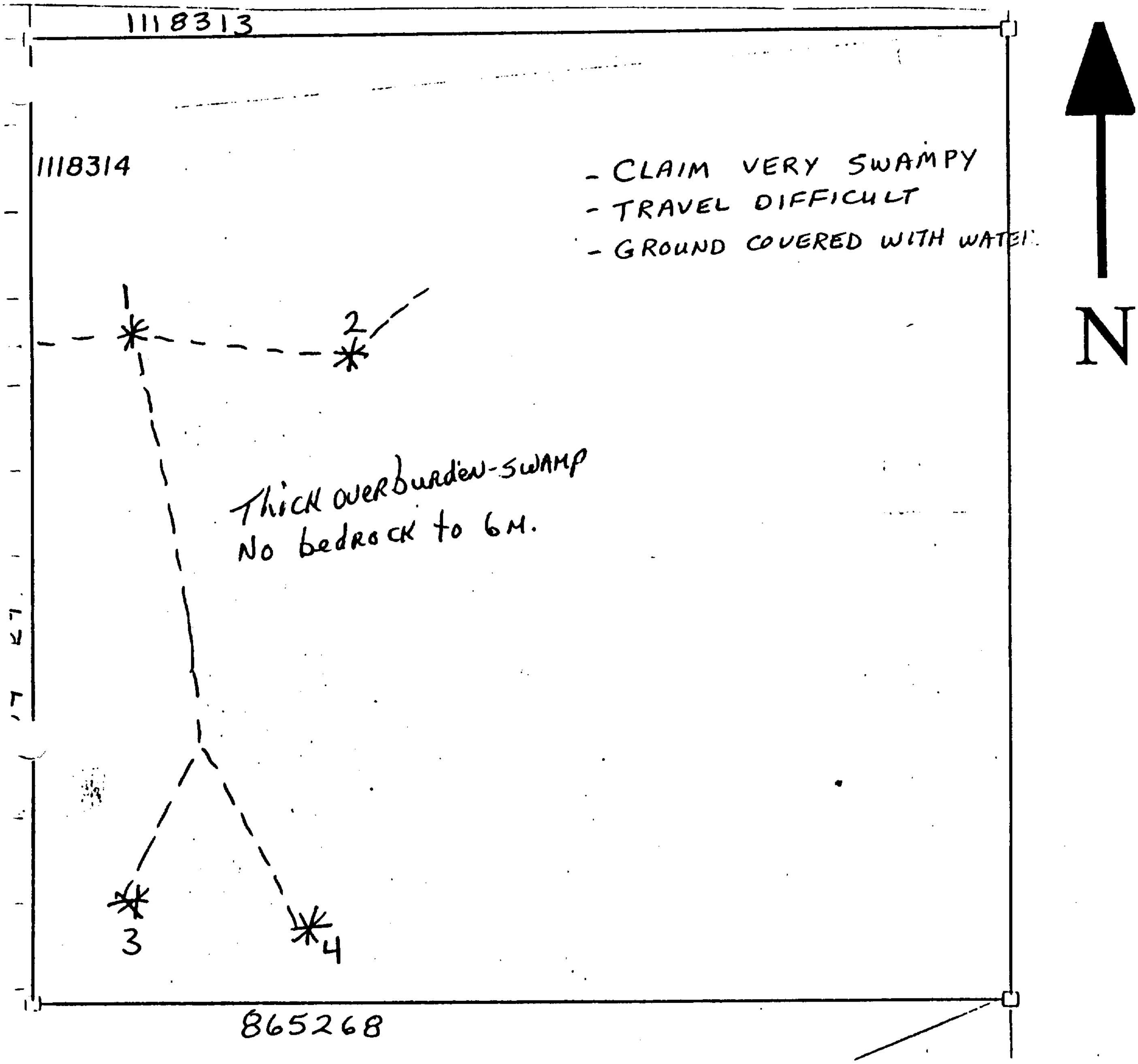
Activities:	Preliminary prospecting: *(June 5, 7, 8, 9)* + sounding, flagging	8 days	Frank Villano Rachel Prudhomme
	Excavation and trenching: *(June 10, 11)*	2 days, using:	Poclain 170 excavator 1/2 ton truck Prospector Ontario Quarries Supervision
	No. of test pits excavated:	4	
	Cubic meters of excavation:	40	

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- this claim was somewhat swampy and travel was difficult in most parts
- most of the ground was covered with water
- the ground conditions were too soft and wet to permit much activity with heavy machinery
- only 4 sites were selected for further exploration as shown on accompanying map
- limited line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth of 22 feet; no rock was found

Results:

- no limestone found
- no other rock found



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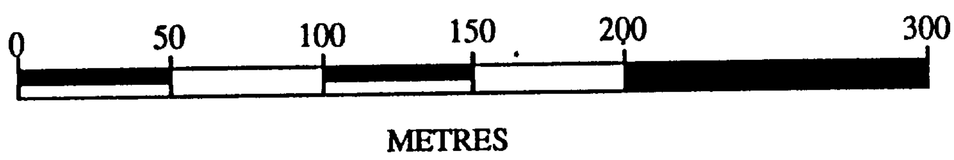


LEGEND

- ✳ Trenching or test pit location
- - - Machine path
- □ Claim post not found
- ■ Claim post found

✗ Average dimension 2.5M ✗ 2M ✗ 2M.

MAP OF CLAIM S 1118314 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 865268

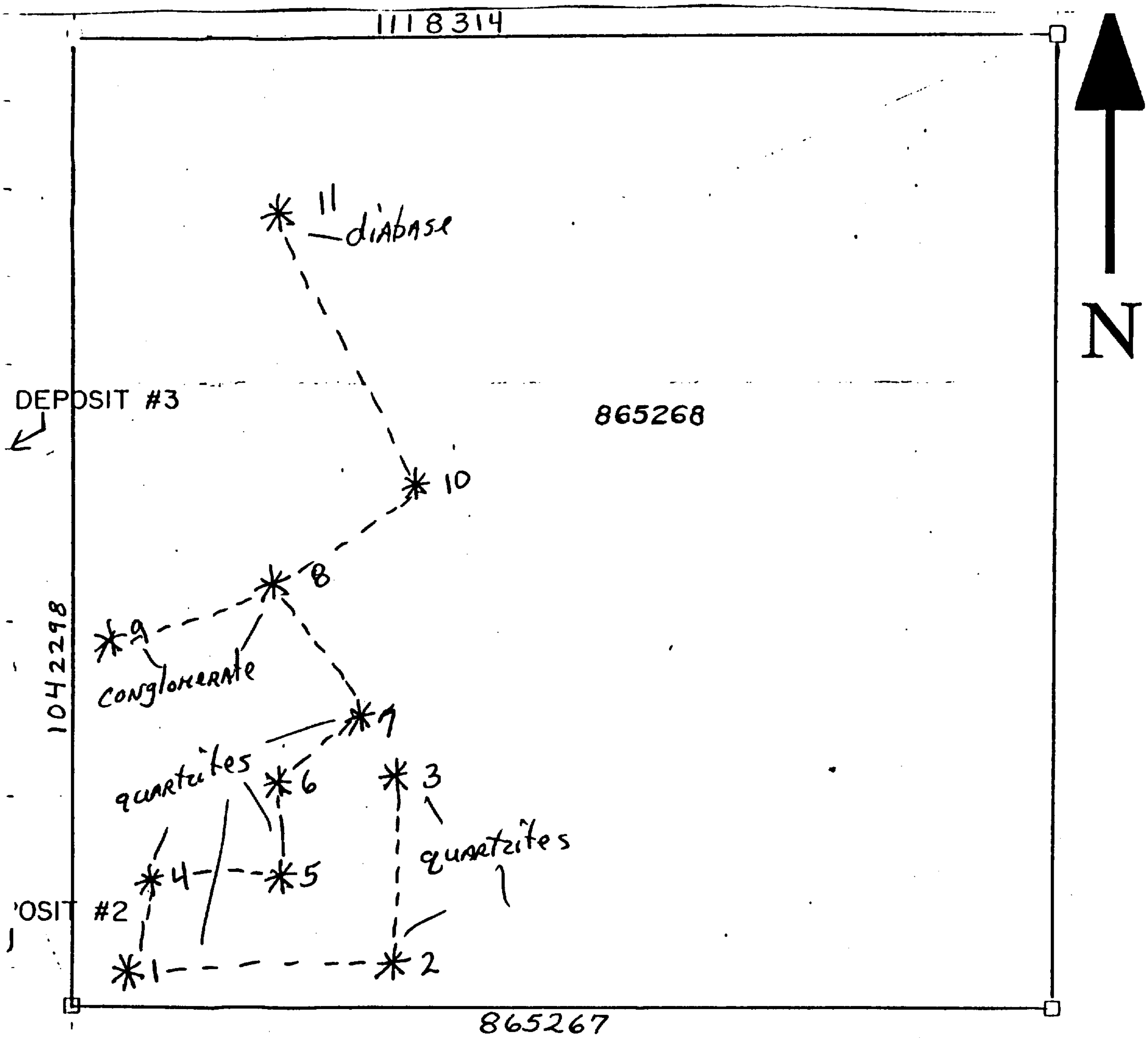
Activities:	Preliminary prospecting: *(June 10, 11, 12, 14, 15, 16)* , + Sounding, flagging, cleaning	12 days	Frank Villano Rachel Prudhomme
	Excavation and trenching: *(June 17, 18, 19)*	3 days, using:	Poclain 170 excavator 1/2 ton truck Prospector Ontario Quarries Supervision
	No. of test pits excavated:	11	
	Cubic meters of excavation:	110	

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- there was less road and trail access on this claim
- there was a significant number of rock outcrops on this claim
- it would appear that a forest fire had swept through this claim in the past; the claim has been replanted (by MNR) with a new tree plantation (these trees are not doing well at all)
- there was little topsoil, minimal fill and very little swamp on many parts of this claim
- we spent more time prospecting thoroughly on this claim because of 2 limestone deposits which were found on adjacent claim No. 1042298 - it was thought that these 2 limestone deposits may have folded and reappeared on this claim
- 11 sites were selected for further exploration as shown on accompanying map
- line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth where rock was encountered

Results:

- no limestone found
- rock found consisted mostly of quartzites, conglomerates, diabase and olivine-diabase



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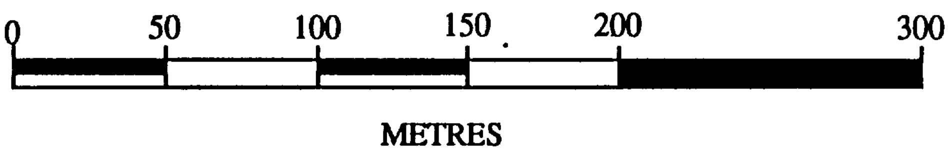


LEGEND

- ✳ Trenching or test pit location
- - - Machine path
- □ Claim post not found
- ■ Claim post found

✳ Average dimensions
2.5M X 2M X 2M

MAP OF CLAIM S 865268 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 1042298

Activities:

Preliminary prospecting: 15 days — Frank Villano, Rachel Prudhomme
(June 17, 18, 19, 21, 22, 23, 24, 25 a.m.)
+ flagging, sounding, cleaning

Excavation and trenching: 4 days, using: Poclain 170 excavator, 1/2 ton truck, Prospector, Ontario Quarries Supervision
(June 26, 28, 29, 30)

No. of test pits excavated: 17

Cubic meters of excavation: 170

ADDITIONAL WORK:

DEPOSIT #3:

Clearing and grubbing: 3 days, using: 2 chain saws, 1/2 ton truck, 2 labourers
(Aug. 2, 3, 4)

Stripping: 9 days, using: 170 Poclain excavator, D-6 Dozer equivalent, 1 labourer, 1/2 ton truck
(Aug. 5, 6, 7, 9, 10, 11, 12, 13, 14)

Prospecting: 3 days *(Aug. 2, 5, 14)*
+ sounding, flagging, cleaning

Cubic meters of excavation: 60m x 40m x 1.5m = 3,600 cu. m.

DEPOSIT #2:

Clearing and grubbing: 1.5 days, using: 2 chain saws, 1/2 ton truck, 2 labourers
(Aug. 16, 17a.m.)

Stripping: 8 days, using: 170 Poclain excavator, D-6 Dozer equivalent, 1 labourer, 1/2 ton truck
(Aug. 18, 19, 20, 21, 23, 24, 25, 26)

Prospecting: 3 days *(Aug. 16, 20, 26)*
+ sounding, flagging, cleaning

Cubic meters of excavation: 70m x 40m x 1.5m = 4,200 cu. m.

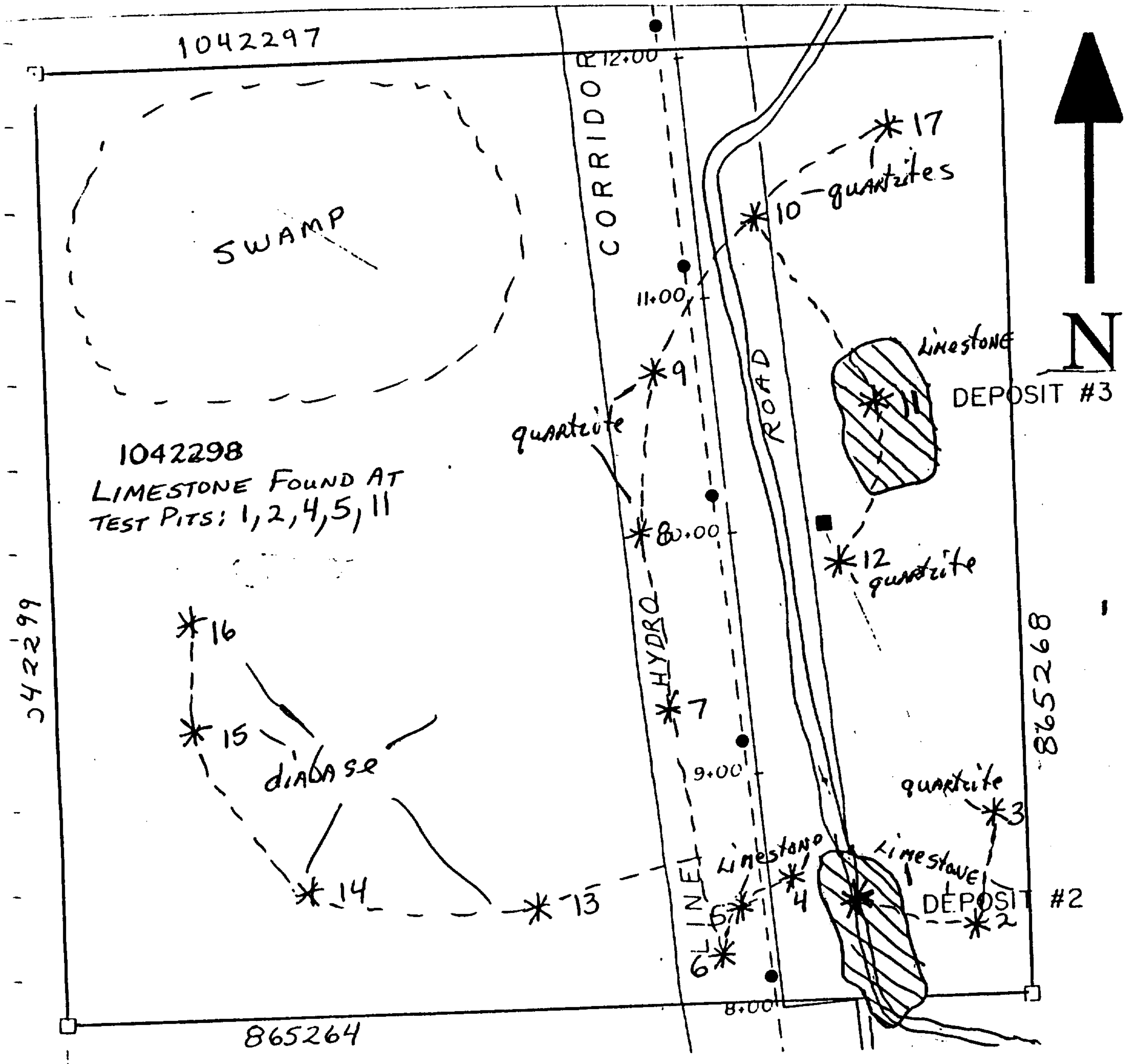
Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- prospecting was conducted over a longer period on this claim because limestone was found

- 17 sites were selected for further exploration as shown on accompanying map
- none of the test pits were located in the north-west quarter of the claim because of excessive swamp area
- of the 17 test pits excavated, 7 showed good limestone finds resulting in 2 distinct deposits being identified
- sledge hammers were used to dislodge limestone samples for testing
- line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth where rock was encountered or to a maximum depth of 22 feet if no rock was found
- the limestone finds led us to conduct more exploration work including clearing, grubbing, and stripping to expose significant portions of the deposits for geological mapping, sampling and quality assessment
- deposit 3 was covered by extensive vegetation; deposit 2 was not covered by as many trees therefore, less clearing, grubbing and line cutting was required
- the prospector was not present at all times during the additional work, but spent some days directing crews and sampling rock, as indicated above.

Results:

- limestone found in 7 test pits as shown on accompanying map
- limestone colours ranged from white to beige with pink tones; some sulphides are present
- preliminary observations show that deposit 3 seems fractured and appears to be well layered; natural benches of 1 to 1.5 metres will allow for easier quarrying operations
- deposit 2 is more colourful, containing beiges, pinks, whites, greens and grays melded together; the colours, texture and pattern are very unique; the deposit is good quality with minimal observable fractures and regular veining; natural benches of 1 to 1.5 metres will allow easy extraction of blocks here as well
- see photos of material in text of general report
- see geological reports for deposits 2 and 3 in Appendices E and F respectively



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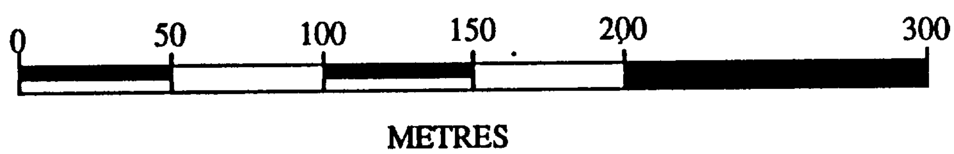


LEGEND

- ✱ Trenching or test pit location
- - - Machine path
- ☐ Claim post not found
- ■ Claim post found

✱ Average dimensions 2.5M x 2M x 2M

MAP OF CLAIM S 1042298 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 1042299

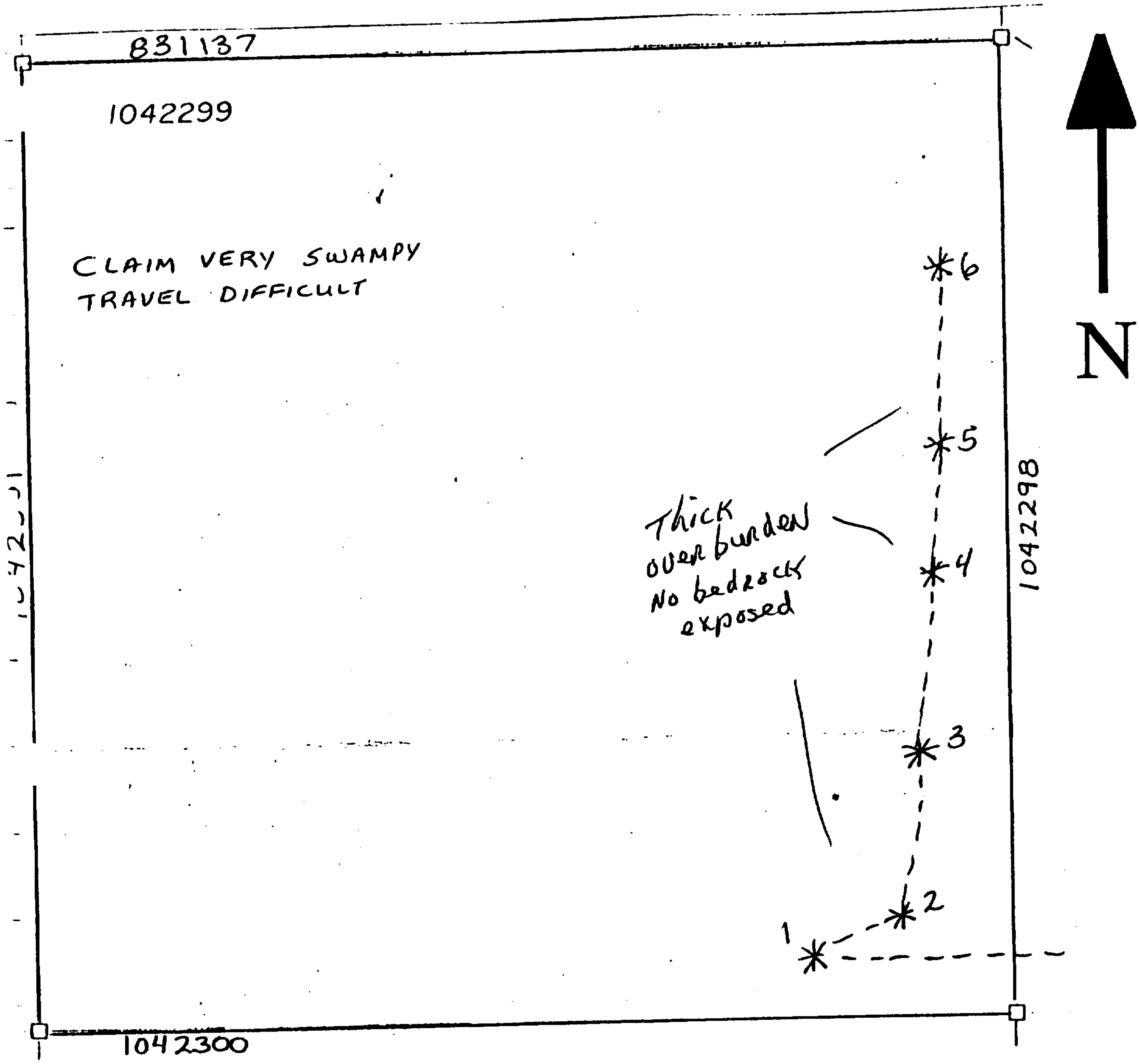
Activities:	Preliminary prospecting: *(June 25p.m., 26, 28, 29, 30, July 1)* + sounding, flagging,	11 days	Frank Villano Rachel Prudhomme
	Excavation and trenching: *(July 2, 3)*	2 days, using:	Poclain 170 excavator 1/2 ton truck Prospector Ontario Quarries Supervision
	No. of test pits excavated:	6	
	Cubic meters of excavation:	60	

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- more thorough prospecting because of limestone finds on adjacent claim 1042298
- the land was very swampy; travel by foot was difficult and travel by heavy equipment would have been practically impossible in the west half of the claim, therefore, test pits were concentrated on the east half
- there were very few rock outcrops
- 6 sites were selected for further exploration as shown on accompanying map
- line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth of 22 feet; no rock was found

Results:

- no limestone found
- no other rock found



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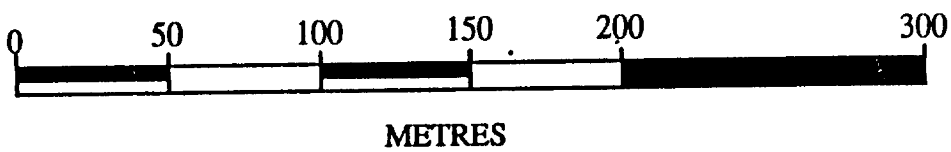


LEGEND

- ✳ Trenching or test pit location
- - - Machine path
- ☐ Claim post not found
- ■ Claim post found

✳ Average dimensions
2.5m x 2m x 2m

MAP OF CLAIM S 1042299 SHOWING WORK

CLAIM S 1042300

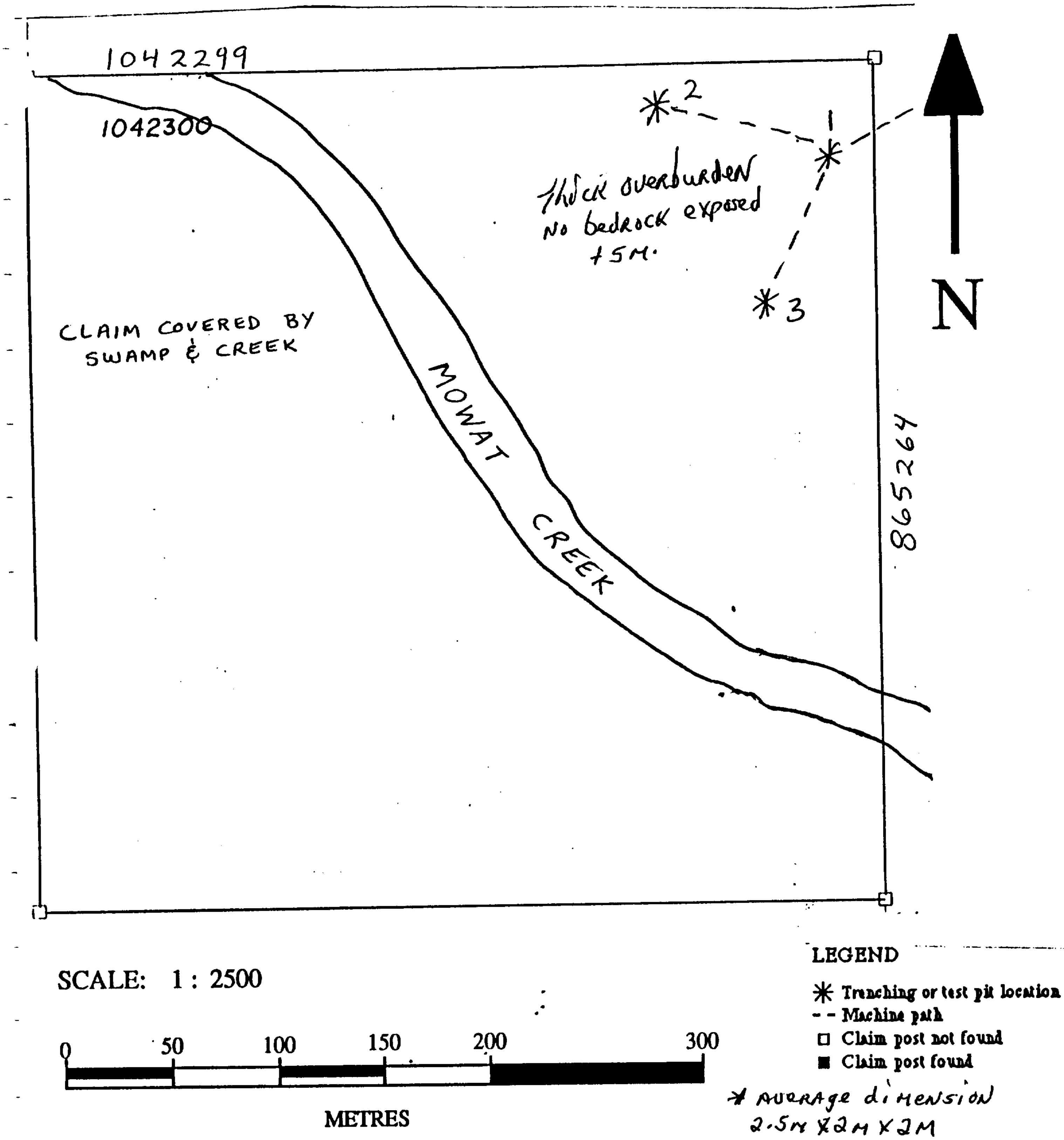
Activities:	Preliminary prospecting: *(July 2, 3 a.m., 5)* , + Flagging, sounding	5 days	Frank Villano Rachel Prudhomme
	Excavation and trenching: *(July 6)*	1 day, using:	Poclain 170 excavator 1/2 ton truck Prospector Ontario Quarries Supervision
	No. of test pits excavated:	3	
	Cubic meters of excavation:	30	

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- this claim is intersected diagonally by Mowat Creek; all prospecting efforts were conducted on the east side of the Mowat Creek intersection
- this claim is almost entirely covered by swamp and creek; there are very few trees
- only 3 sites were selected for further exploration as shown on accompanying map
- the 3 test pits were concentrated in the north-east corner of the claim as shown
- the rest of the claim was too swampy to allow any significant prospecting work
- limited line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth of 22 feet; no rock was found

Results:

- no limestone found
- no other rock found



SCALE: 1 : 2500

MAP OF CLAIM S 1042300 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 865264

Activities:

	Preliminary prospecting: *(July 6, 7, 8 a.m.)* + sounding, manual stripping, flagging	5 days	Frank Villano Rachel Prudhomme
	Excavation and trenching: *(July 9, 10)*	2 days, using:	Poclain 170 excavator 1/2 ton truck Prospector Ontario Quarries Supervision
	No. of test pits excavated:	8	
	Cubic meters of excavation:	80	

ADDITIONAL WORK:

South Edge of DEPOSIT #2:

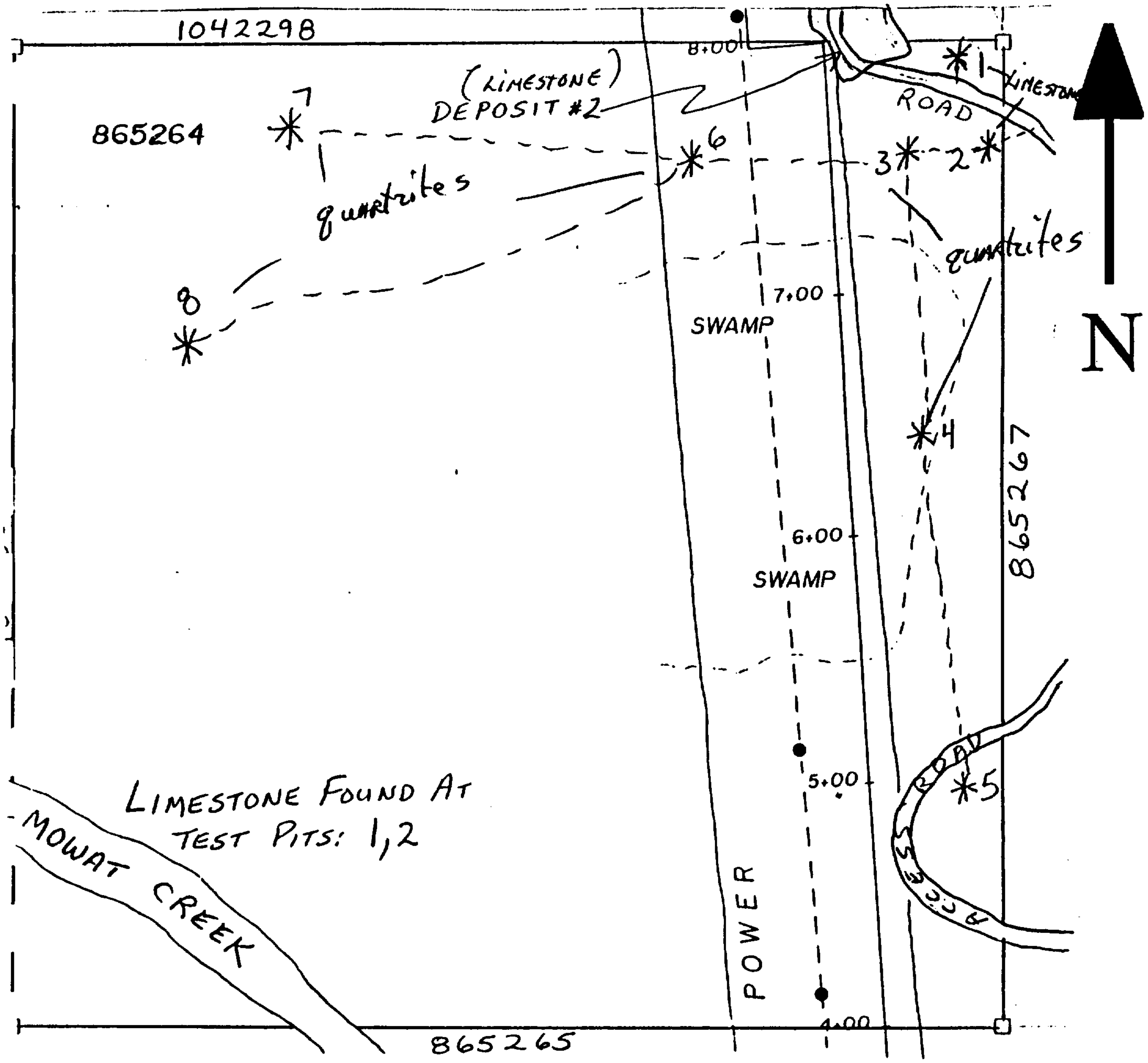
Clearing and grubbing: *(Aug. 17 p.m.)*	0.5 days, using:	2 chain saws 1/2 ton truck 2 labourers
Stripping: *(Aug. 27, 28, 30, 31)*	4 days, using:	170 Poclain excavator D-6 Dozer equivalent 1 labourer 1/2 ton truck
Prospecting:	1 day	*(Aug. 31)*
Cubic meters of excavation:		10m x 40m x 1.5m = 600 cu. m.

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- 8 sites were selected for further exploration as shown on accompanying map
- of the 8 test pits, 7 were negative but one showed good limestone
- the south end of Deposit #2 (the main part of which was on claim 1042298) extends in the north-eastern part of this claim, thereby warranting additional work in the form of clearing, grubbing, stripping and additional prospecting and sampling
- line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth where rock was encountered or a maximum 22 ft
- this claim was very swampy, had poor vegetation and not many rock outcrops

Results:

- good limestone found; same in colour, texture and pattern as Deposit 2 on claim 1042298; details of Deposit 2 are in Appendix E.



SCALE: 1 : 2500

0 50 100 150 200 300

METRES

LEGEND

✳ Trenching or test pit location
- - Machine path
□ Claim post not found
■ Claim post found

* Average depth
2.5m X 2m X 2m

MAP OF CLAIM S 865264 SHOWING WORK

CLAIM S 865267

Activities:

Preliminary prospecting: 13 days — Frank Villano, Rachel Prudhomme
(July 8 p.m., 9, 10, 12, 13, 14, 15)
+ manual stripping, sounding, flagging

Excavation and trenching: 3 days, using: Poclain 170 excavator, 1/2 ton truck, Prospector, Ontario Quarries Supervision
(July 16, 17, 19)

No. of test pits excavated: 13

Cubic meters of excavation: 130

ADDITIONAL WORK:

DEPOSIT #4:

Clearing and grubbing: 1 day, using: 2 chain saws, 1/2 ton truck, 2 labourers
(Sept. 1)

Stripping: 2.5 days, using: 170 Poclain excavator, D-6 Dozer equivalent, 1 labourer, 1/2 ton truck
(Sept. 2, 3, 4 a.m.)

Prospecting: 1 day *(Sept. 3)*

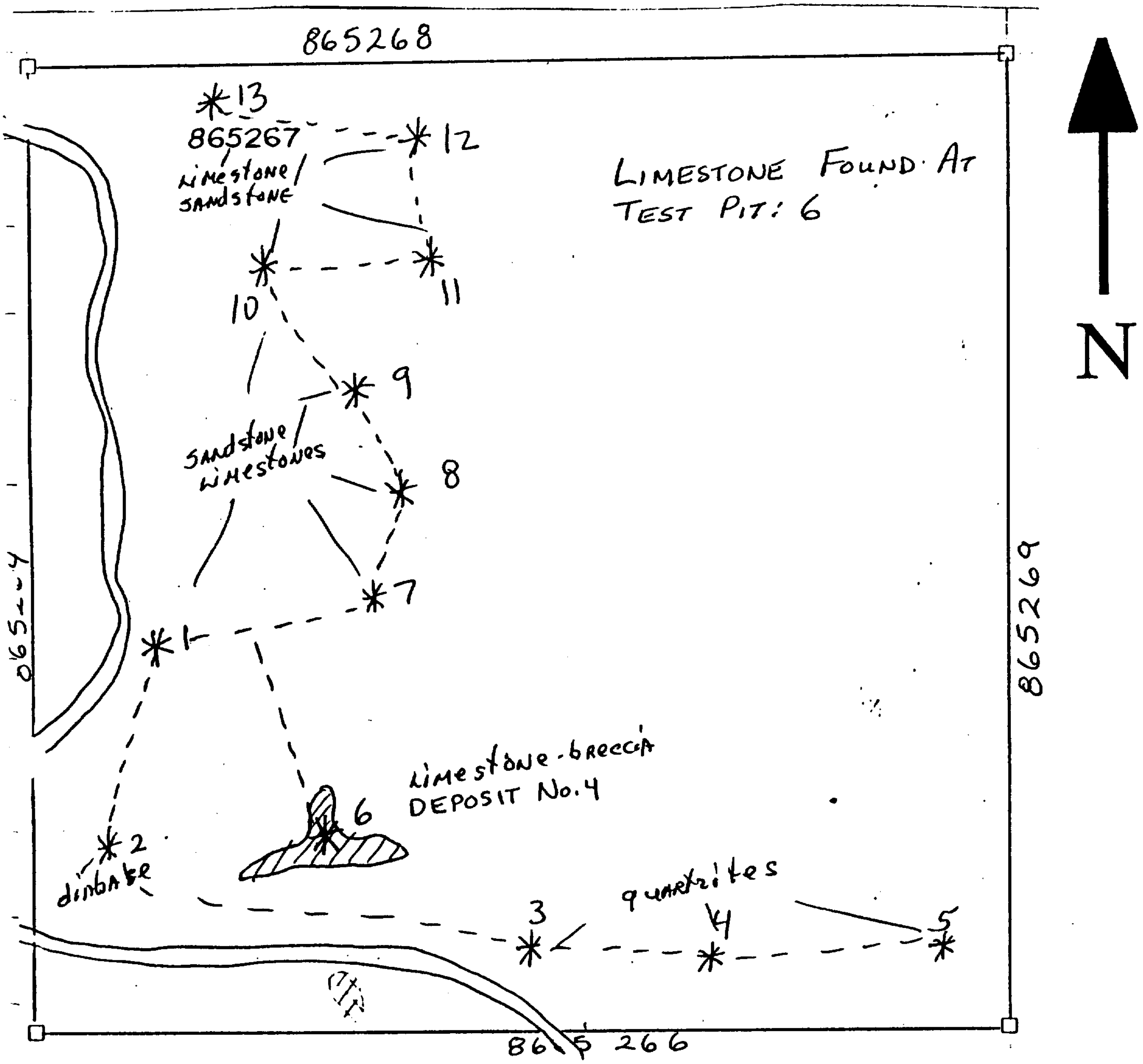
Cubic meters of excavation: 10m x 30m x 1.5m + 10m x 40m x 1.5m = 1,050 cu. m.

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- there was dense bush consisting of large mature trees in the northeast section of the claim; it was difficult to manoeuver in this area and prospecting results did not warrant cutting down the trees and destroying the natural vegetation in that section
- the west portion of the claim seems to have been ravaged by forest fire at some time and has been replanted with trees by MNR
- 13 sites were selected for further exploration as shown on accompanying map
- 2 of the 13 test excavations showed good limestone, including breccia marble
- the showings warranted extra clearing, grubbing, excavation, stripping, etc. to expose the deposit for sampling and evaluation
- line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth where rock was encountered

Results:

- limestone found; marble breccia patches and laminated limestones; calcite pockets
- more work will be needed to evaluate this deposit



SCALE: 1 : 2500

0 50 100 150 200 300

METRES

LEGEND

- ✱ Trenching or test pit location
- - - Machine path
- ☐ Claim post not found
- ■ Claim post found

MAP OF CLAIM S 865267 SHOWING WORK

CLAIM S 865269

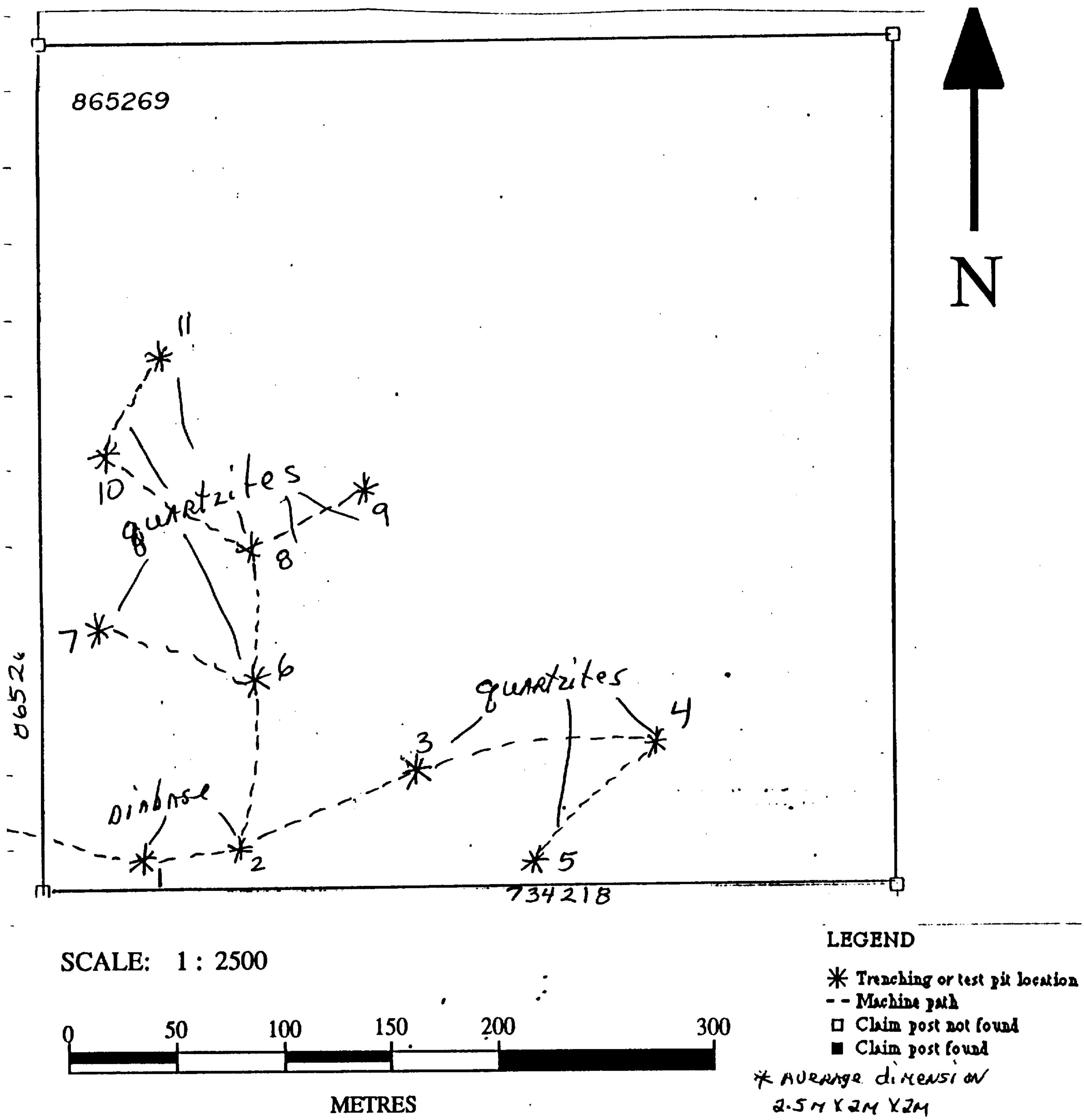
Activities:	Preliminary prospecting:	10 days	Frank Villano
	(July 16, 17, 19, 20, 21)		Rachel Prudhomme
	+ MANUAL STRIPPING, SOUNDING, FLAGGING		
	Excavation and trenching:	2.5 days, using:	Poclain 170 excavator
	(July 22, 23, 24 a.m.)		1/2 ton truck
			Prospector
			Ontario Quarries Supervision
	No. of test pits excavated:	11	
	Cubic meters of excavation:	110	

Notes:

- the prospecting team ran traverses to determine where test pits should be excavated
- the west side of the claim shows good vegetation with several well developed trees
- the east side shows poor vegetation and seems to have been subjected to fire
- 11 sites were selected for further exploration as shown on accompanying map
- no test pits were excavated in the north east quarter of the claim because prospecting results were not promising and this is the extreme east limit of our claim group
- line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth where rock was encountered or to a maximum depth of 22 feet if no rock was found

Results:

- no limestone found
- rock found consisted mostly of quartzite, diabase, olivine-diabase and greenstone



MAP OF CLAIM S 865269 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 865265

Activities:

Preliminary prospecting: 3 days — Frank Villano, Rachel Prudhomme
(July 22, 23 a.m.)
+ manual stripping, sounding, flagging

Excavation and trenching: 1.5 days, using: Poclain 170 excavator, 1/2 ton truck, Prospector, Ontario Quarries Supervision
(July 24 p.m., 26)

No. of test pits excavated: 5

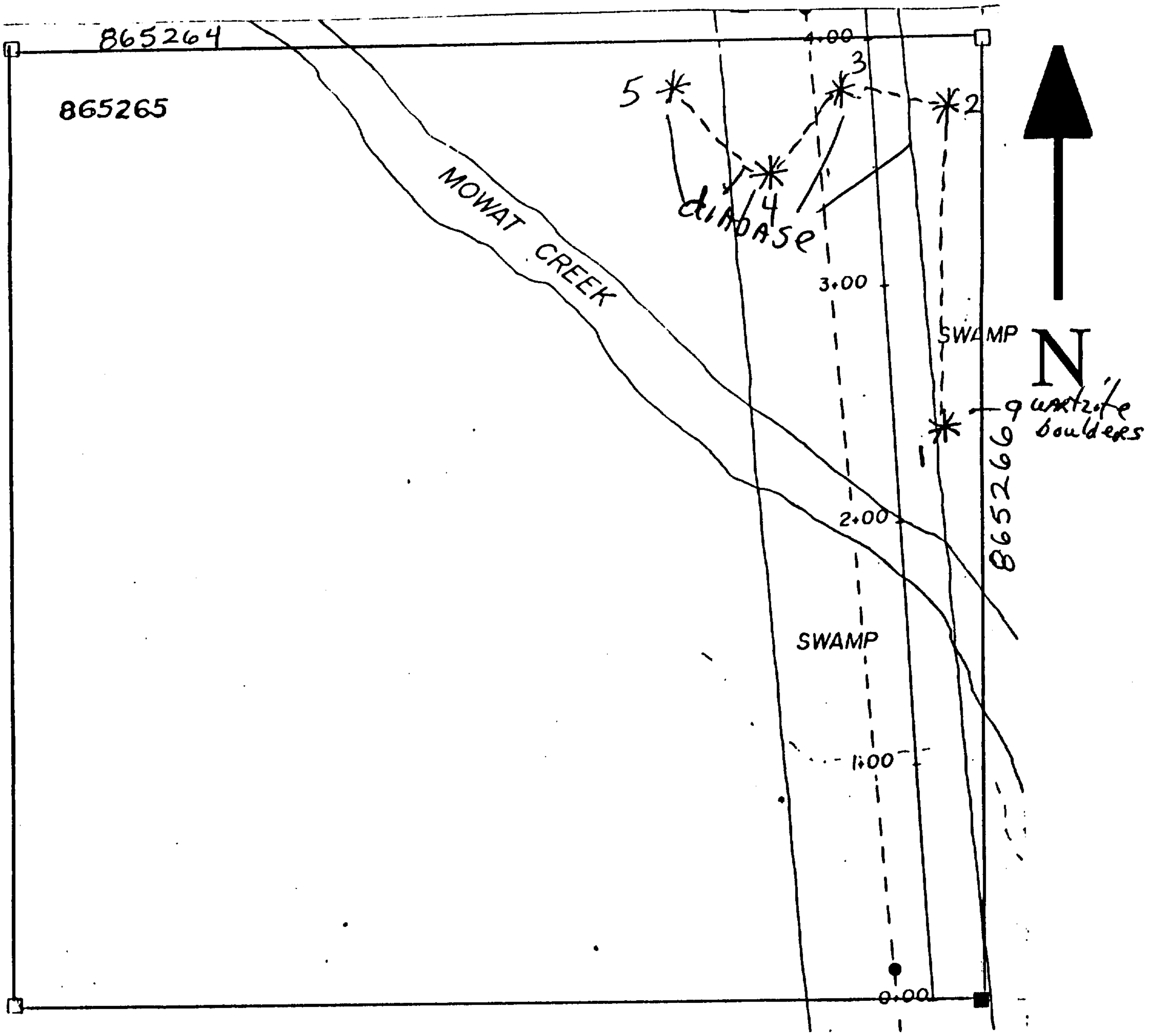
Cubic meters of excavation: 50

Notes:

- Mowat Creek intersects this claim diagonally in the north east quarter
- prospecting efforts concentrated on the east side of Mowat Creek
- the prospecting team ran traverses to determine where test pits should be excavated
- the area was entirely covered in loose muskeg; there was no clay foundation and no topsoil or other competent soil (only muskeg)
- its was possible to carefully walk in and work with heavy equipment as long as the operator was careful not to move the machine unnecessarily
- the area is above the watertable land therefore, it was not as swampy as some of the other claims
- 5 sites were selected for further exploration as shown on accompanying map
- some line cutting, picketting and chaining helped define the location of sites
- test pits were excavated to a depth of 22 feet; no rock was found, only muskeg

Results:

- no limestone found
- rock found consisted mostly of quartzite, diabase, olivine-diabase and greenstone



SCALE: 1 : 2500

0 50 100 150 200 300

METRES

LEGEND

✳ Trenching or test pit location
- - Machine path
□ Claim post not found
■ Claim post found

MAP OF CLAIM S 865265 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 734218

Activities:

Preliminary prospecting: *(July 23 p.m., 24, 26, 27)*	7 days	Frank Villano Rachel Prudhomme
Excavation and trenching: *(July 28, 29, 30 a.m.)*	2.5 days, using:	Poclain 170 excavator 1/2 ton truck Prospector Ontario Quarries Supervision
No. of test pits excavated:	12	
Cubic meters of excavation:	120	

ADDITIONAL WORK:

DEPOSIT #1:

Clearing and grubbing: *(Sept. 6, 7, 8)*	3 days, using:	2 chain saws 1/2 ton truck 2 labourers
Stripping: *(Sept. 9, 10, 11 a.m., 13, 14, 15, 16, 17)*	7.5 days, using:	170 Poclain excavator D-6 Dozer equivalent 1 labourer 1/2 ton truck
Prospecting:	3.5 days	*(Sept. 6, 13, 16 p.m., 17)*
Cubic meters of excavation:		50m x 40m x 1.5m = 3,000 cu. m.

MAIN EAST DEPOSIT:

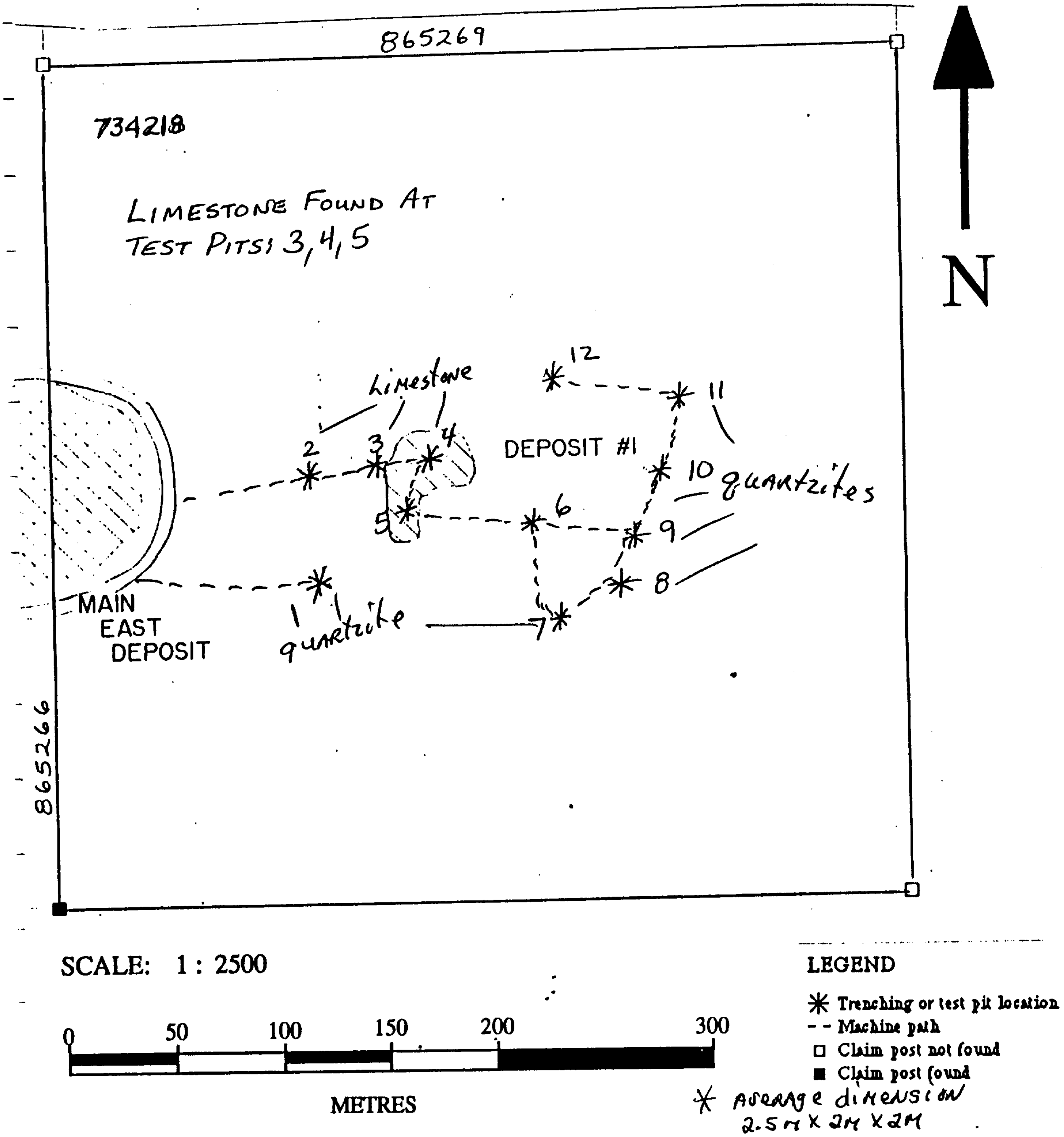
Extensive work was done on this claim to explore the main east deposit. That work is detailed in Appendices B and C.

Notes:

- this claim houses a significant portion of the main east-west deposit and much of the work on this claim is highlighted in Appendix B and C on Drilling and Mass Excavation
- the prospecting team ran traverses in areas other than the immediate vicinity of the main east-west deposit to determine where test pits should be excavated
- the area is partly covered with old trees that are quite dry and over-ripe; poor vegetation
- 12 sites were selected for further exploration as shown on accompanying map
- of the 12 holes excavated, 3 showed good limestone of a grayish colour; some breccia
- the limestone find warranted the additional work detailed above to expose the deposit
- the deposit is layered with natural planes of 1 to 1.5 meters thick that will lead to easier block extraction; the colour, pattern and texture are unique and appealing
- line cutting, picketting and chaining helped define the location of sites

Results:

- a new limestone deposit (Deposit #1) was found; grayish colour with good veining and some breccia; could be an extension of the main east-west deposit as colours are similar
- geological details of both Deposit 1 and Main East Deposit are in Appendix D and G.



MAP OF CLAIM S 734218 SHOWING WORK

ONTARIO QUARRIES Inc. / February 1994

CLAIM S 865266

Activities: Prospecting: 10 days Frank Villano
(October 18, 19 20, 21, 22) Rachel Prudhomme
+ MANUAL STRIPPING, CLEANING, WASHING, SAMPLING

Excavation and trenching: mass excavation to expose the main deposit
see APP C - MAPS + Notes

Notes:
- this claim was the subject of much exploration and prospecting work and is the site of the major part of the Main East-West deposit
- ll of the work done on this claim is detailed along with maps in Appendices B and C on Drilling and Mass Excavation
- Geological details of the Main Deposit are in Appendix G
- prospecting efforts concentrated on finding reserves and trend of the main deposit
- the prospecting team determined where excavation and exploratio drilling should be
- line cutting, picketting and chaining established a grid for geological mapping and topography measurement

Results:
- good limestone deposit for use as marble dimension stone; reserves larger than anticipated (see section 8 of General Omip Report for reserve estimation)
- limestone has varying colour with a repeating pattern (see Appendix B and C for details)
- fracture frequency varies but in general is suitable for good future block removal
- natural benches are relatively thick so that high quality blocks can be removed in the future
- contacts with waste (diabase) were identified as a result of the excavation and exploration drilling work
- there is more breccia on the East Deposit than was anticipated
- see Appendix B, C and G for maps and details

APPENDIX B

Details of Exploration Drilling

INTRODUCTION

This appendix is divided into 3 general sections:

PART 1 - Exploration Drilling Other Than Core Drilling

PART 2 - Core Drilling

PART 3 - Summary of All Drilling

Exploration drilling for dimension stone deposits varies greatly from exploration drilling for conventional mineral deposits. In fact, diamond drilling is generally discouraged for dimension stone deposits because of the destructive nature of the holes with respect to the deposit's value. In conventional mineral deposits, working the deposit entails fragmenting the ore into small pieces using explosives and then crushing and milling the ore for processing. In such deposits, extensive diamond drilling is critical for the proper assessment of the deposit because assays are needed as well as reserve estimations of deep underground deposits. Because the rock will be finely fragmented, the location of diamond drill holes with respect to the deposit will not devalue the financial return expected on the ore. On the contrary, extensive diamond drilling will qualify the deposit, resulting in fewer unknowns and increased value of the option.

The case is very different for dimension stone deposits. Although it is good to conduct a limited amount of diamond drilling on dimension stone deposits to establish certain parameters (such as colour, pattern, consistency with depth, fracture frequency and total reserves) extensive diamond drilling is discouraged because the deposit can be ruined by the presence of core holes. The prime purpose in quarrying dimension stone is to extract the largest possible rectangular blocks of intact material. The ideal location and angle of extraction of blocks is determined in the field based on conditions at the free faces that become visible only immediately before extraction. If a core hole was drilled in the wrong place, and entire marble block can be ruined, resulting in financial losses. The unfortunate truth is that the best and least damaging location for a diamond drill hole in dimension stone cannot be determined ahead of time. Therefore, selecting as few holes as possible in strategically placed locations will provide the maximum information needed with minimum damage to the deposit. Too many diamond drill holes will lead to holes ending up in the middle of blocks, thereby making them worthless.

Another factor that makes exploration drilling different for dimension stone is that great depth is not needed. The Espanola Limestone formations on our claims in Parkin Twp are known to extend to a maximum of one to two hundred feet. Because dimension stone quarries are typically quite shallow in depth, it is not necessary for us to drill any deeper than the thickness of the limestone bed. Typically, holes of 50 feet are recommended. However, our drilling program has included some holes over 200 feet deep, as discussed in Part 2 of this Appendix.

It is very important to conduct surface drilling other than core drilling (i.e. hydraulic drilling of faces) in dimension stone in order to expose broad, unweathered lengths of face of the deposit. This allows us to determine whether the deposit is of geological and commercial value. During the exploration stage, drilling other than core drilling is more valuable in providing information on the quality of a dimension stone deposit than diamond drilling of cores.

For the above reasons, Ontario Quarries Inc. limited the diamond drilling on the Harama Marble Deposit to just under 1000 ft. In addition, just under 17,000 additional feet of hydraulic ("other than core") drilling of faces for exploration and geological purposes was completed as part of this OMIP project.

PART 1: EXPLORATION DRILLING OTHER THAN CORE DRILLING

1.1 PURPOSE

Exploration drilling other than core drilling (hydraulic drilling) is critically important to the evaluation of dimension stone deposits. Closely spaced hydraulic drilling is necessary so that thicknesses of weathered rock can be removed to expose broad unweathered faces of the deposit for assessment. This is the best way to conduct exploration activities aimed at assessing the commercial value of a limestone deposit such as the Harama Marble deposit. The exposure of lengths of unweathered deposit allows us to determine the most important parameters that will indicate with any degree of certainty whether the limestone is quarriable. The parameters that determine this are colour, texture, pattern, the presence and frequency of fractures and the presence of natural horizontal benches that would assist in future block extraction. The exposed unweathered deposit also allows us to locate and better characterize waste contacts (i.e. the diabase dyke). The only way to truly define all of these variables is by opening up various long fresh faces of the deposit for exploration purposes and geological assessment.

1.2 EQUIPMENT AND LABOUR

Exploration drilling other than core drilling involved the use of 2 major pieces of equipment hired through our contractor, F.H.R. Construction Ltd. The first is a "Gardner-Denver Hydratrak" which is an all-contained, self-propelled mobile hydraulic drill rig. The other is a fully hydraulic Gardner-Denver drill rig mounted on a 1280 CASE Excavator. Both drill rigs are shown in the photographs on the next page.

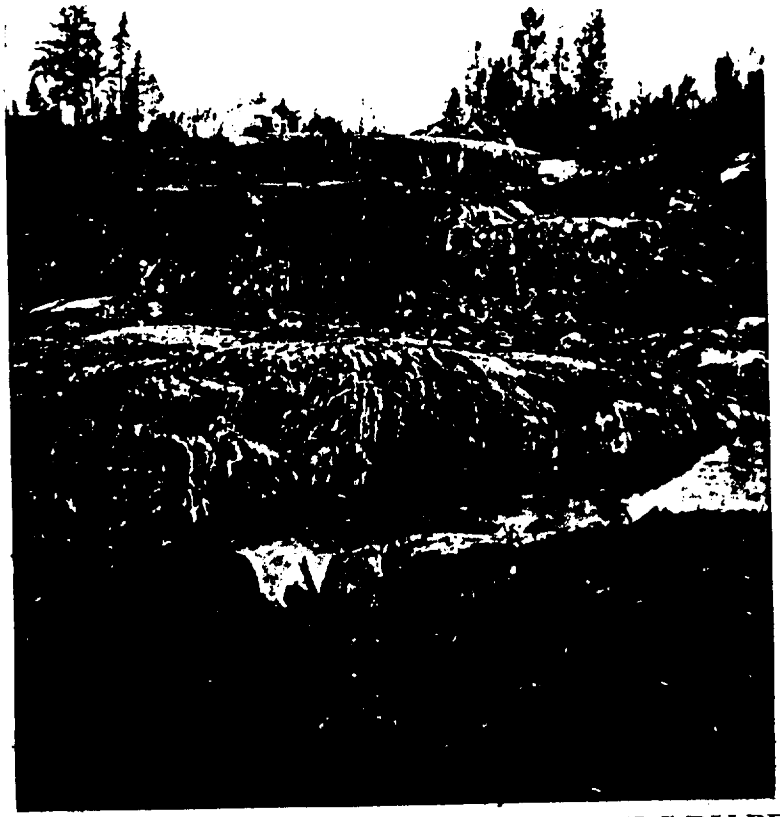
GARDNER-DENVER HYDRATRAK DRILLING SECTION D

1280-MOUNTED HYDRAULIC DRILL WORKING IN SECTION F

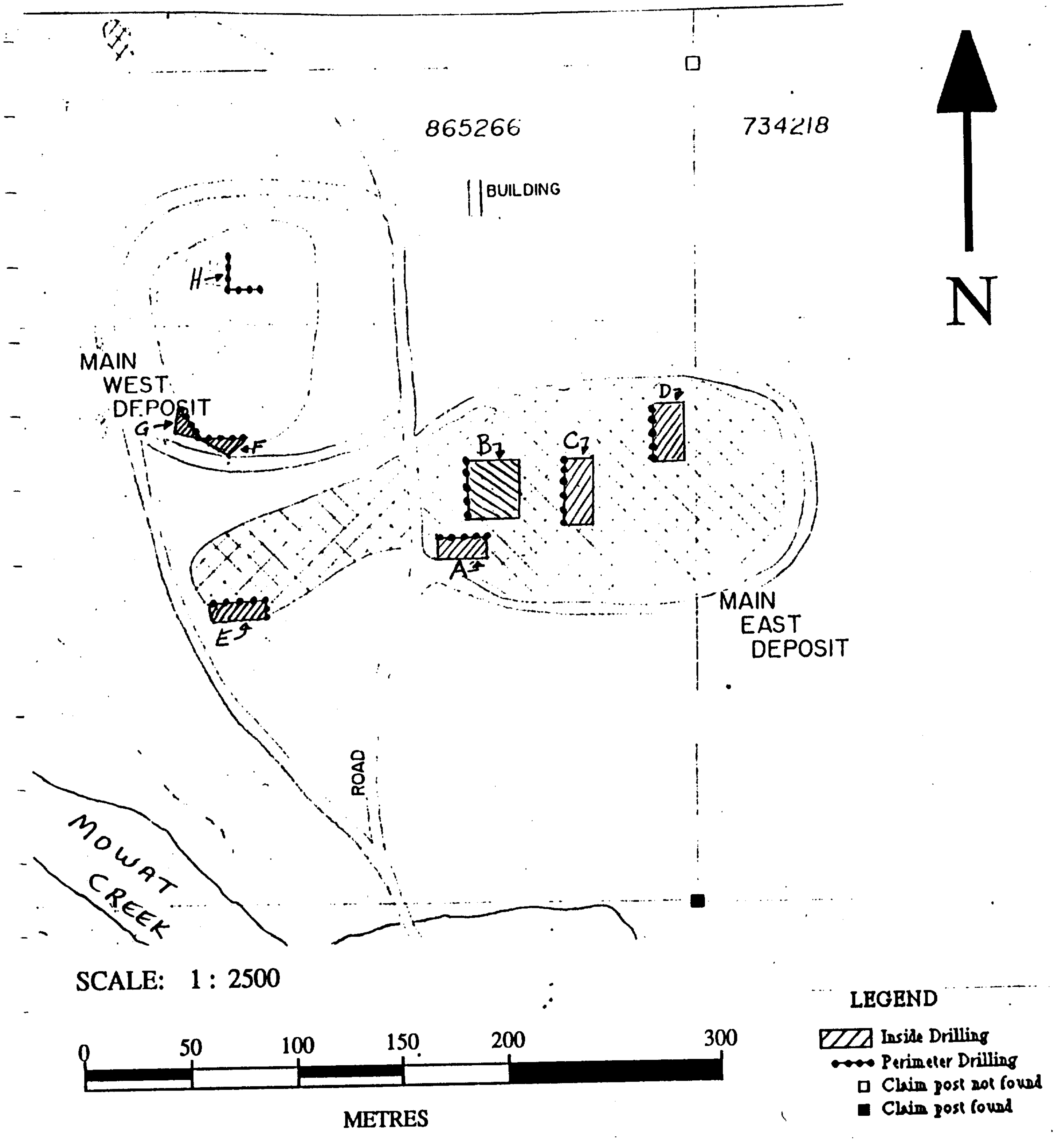
1.3 METHOD

There were 8 major sections of the Main East-West Deposit that were drilled to produce exploration faces, as shown on the scaled drawing on page B-6. In all sections, perimeter holes were drilled along the contact between the weathered section of the rock and the intact unweathered faces to be exposed. Perimeter drilling involved very closely spaced holes (1.5 foot intervals). All weathered rock covering the faces to be exposed was drilled off in 1 metre spacings. Hole diameters were either 2 or 3.5 inches. Larger diameter holes made splitting between holes cleaner and easier, providing higher quality faces for geological assessment. All holes were drilled perfectly vertical.

The tightness of the spacing in the perimeter drilling was required in order to produce relatively straight, clean faces for geological evaluation. Photographs of the clean unweathered faces produced as a result of the operation are shown below and on page B-7. Some of the perimeter holes were loaded with very light, uncoupled linear charges ("Primacord") to produce a clean cut between vertical holes. These uncoupled linear charges are ideal for marble because they rarely result in any overbreak, thereby splitting the rock between holes without damaging the deposit. Other holes were split mechanically using heavy equipment such as the 992 CAT loader of the 220 CASE excavator.



UNWEATHERED FACES EXPOSED ON 2 LEVELS BY PERIMETER AND INSIDE EXPLORATION DRILLING ON SECTIONS B AND C



MAP SHOWING LOCATIONS ON MAIN EAST-WEST DEPOSIT WHERE EXPLORATION DRILLING WAS CONDUCTED

ONTARIO QUARRIES Inc. / February 1994

UNWEATHERED FACE BEING EXPOSED IN SECTION A

CLOSE-UP OF UNWEATHERED CLEAN FACE EXPOSED BY PERIMETER DRILLING IN SECTION G

1.4 RESULTS AND OBSERVATIONS

The exploration drilling operation was successful in that several fresh unweathered faces were cleanly split and exposed for detailed geological evaluation and for deposit assessment. Photographs on pages B-5 and B-7 showed some of the unweathered face exposures accomplished by the drilling.

In general, it was found that the colour, pattern and texture of the stone are consistent vertically but are somewhat inconsistent horizontally (i.e. colour varies every few feet horizontally, but remains relatively constant with vertical depth). Waste contacts with the diabase dyke intruding the area were more visible, enabling them to be characterized geologically. This gave us a better indication of the surface area of the Main East-West Deposit. This information in combination with depth calculations from the drill cores described in Part 2 of this Appendix permitted us to better define the quarriable limestone reserves (see reserve estimation in section 8 of the General OMIP Report).

Natural horizontal benches were found to be beneficial and to occur on varying intervals ranging from 1 to over 3 metres. This will greatly assist in any future block extraction by permitting the quarrying of average to high quality sized blocks. Fracture patterns and frequency in general are consistent with those found in successful quarry operations visited overseas and pictured in international trade journals. Fracture frequency is detailed in the Geological Report contained in Appendix G and in the core logs in Part 2 of this Appendix. Fractures appeared to heal with depth and were strongly cemented on the lower levels exposed. The drilling work is summarized in the scaled drawing on page B-6 and in table form below:

SUMMARY OF EXPLORATION DRILLING OTHER THAN CORE DRILLING

DRILLING SECTION	PERIMETER DRILLING	INSIDE DRILLING	TOTAL FOOTAGE
A	50 holes x 10 feet deep	225 holes x 6 feet deep	1,850
B	60 holes x 10 feet deep	780 holes x 6 feet deep	5,280
C	66 holes x 10 feet deep	429 holes x 6 feet deep	3,234
D	60 holes x 10 feet deep	480 holes x 6 feet deep	3,480
E	66 holes x 8 feet deep	78 holes x 5 feet deep	918
F	40 holes x 10 feet deep	100 holes x 7 feet deep	1,100
G	33 holes x 10 feet deep	80 holes x 7 feet deep	890
H	19 holes x 11 feet deep	no inside drilling	209
TOTAL			16,961

1.5 CONCLUSION

A total of 16,961 feet of drilling other than core drilling was completed. This by itself exceeds our total drilling requirements under this OMIP designation by 240 percent. The exposure of the fresh unweathered faces as a result of this drilling operation permitted advanced geological evaluation of the deposit. We have concluded from this effort that the deposit has good commercial value. We have decided to continue to invest more time and money in bringing this deposit to the quarry stage as a result of the findings.

"Core Drilling"

PART 2: ~~STRIPPING TO EXPOSE NEW DEPOSITS~~

2.1 PURPOSE

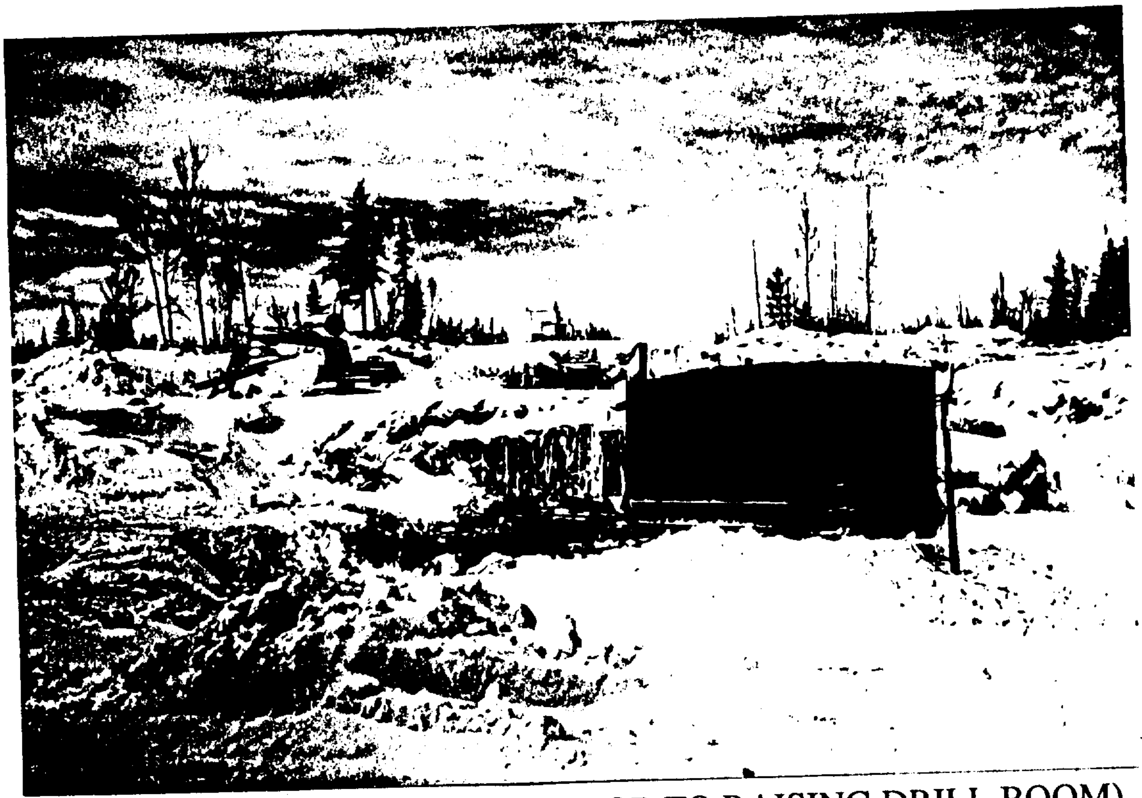
Core drilling was conducted using diamond drilling to determine the fracture parameters with depth, the consistency of colour, pattern and texture of the stone and to obtain the true depth of the limestone layer. Only limited diamond drilling is recommended in dimension stone deposits to prevent damage to the deposit, as described previously in the Introduction section of this Appendix.

2.2 EQUIPMENT AND LABOUR

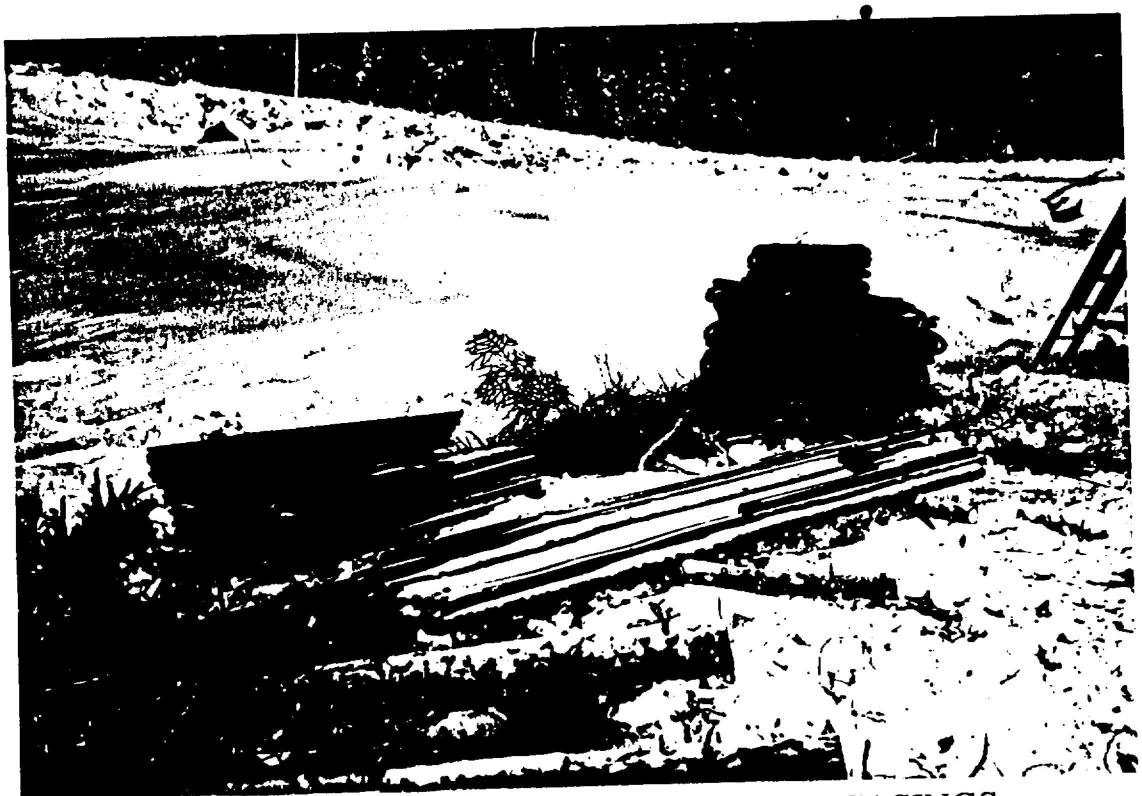
The equipment used for core drilling was a JKS 200 drill rig producing BQ size core, a 220-B CASE Excavator. The core drill belongs to (and was operated by) sub-contractor Lachapelle Drilling of Kirkland Lake, Ontario. F.H.R. Construction Ltd., the general drilling contractor, provided equipment and labour needed to move the drill to the various sites where cores were required, provided water for drilling purposes and provided room and board for Lachapelle's crew as part of their contractual agreement. F.H.R. also provided technical support and mechanical assistance to Lachapelle, including all fuel, gas, propane, grease, oil, etc. that was needed for the drills and to warm the "drill shack". Photographs of the equipment are shown on page B-10.

2.3 METHOD

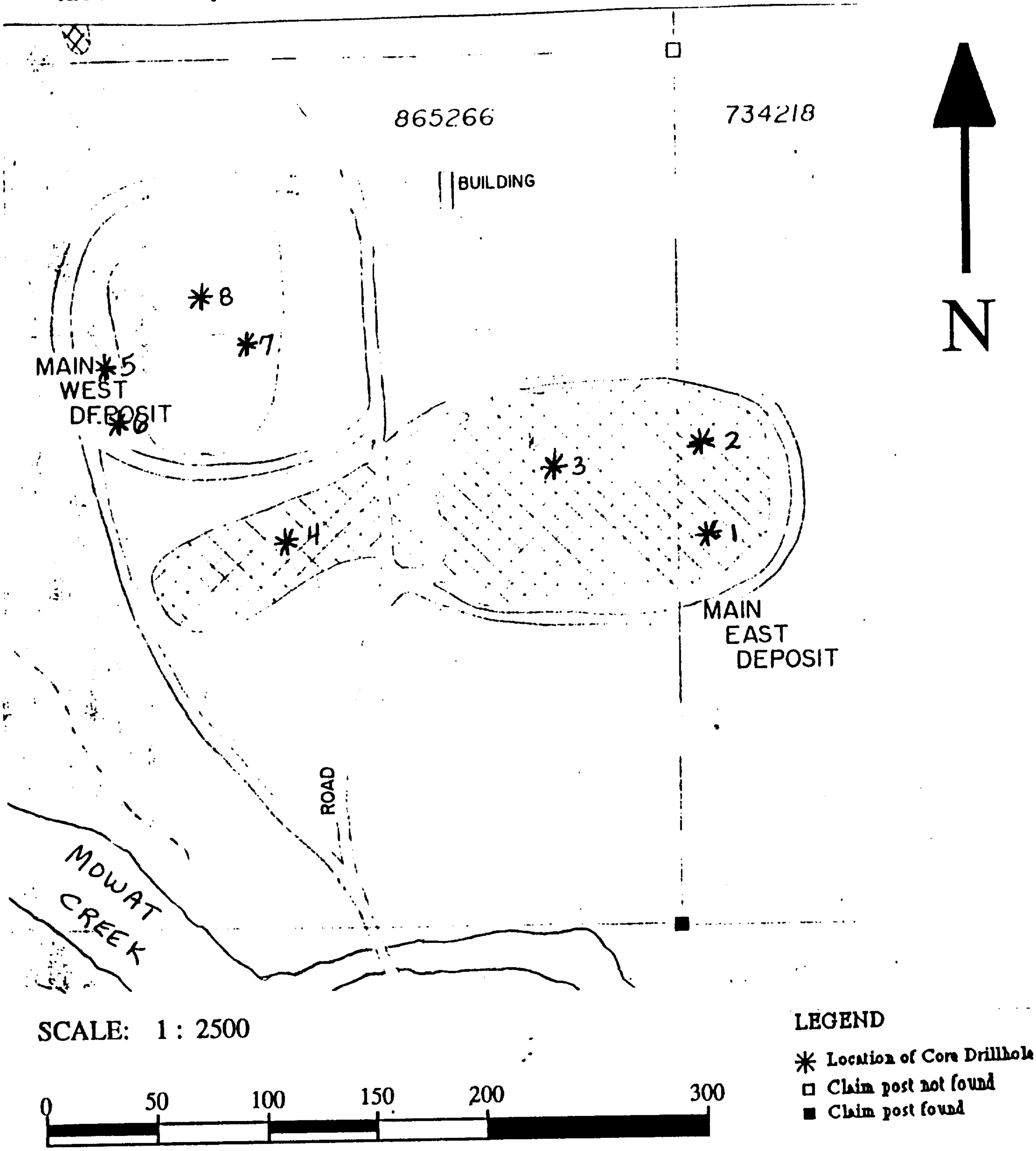
Eight holes were drilled. The locations of core holes was selected to offer maximum information with minimum damage to the deposit. Locations are shown on the map on page B-11. The drilling contractor produced cores 24 hours per day. All holes were drilled perfectly vertical. Lachapelle was instructed to continue drilling each hole until the core was no longer in limestone or to 200 feet deep.



JKS-200 CORE DRILLING RIG (PRIOR TO RAISING DRILL BOOM)
READY TO DRILL CORE HOLE 1



CORE BOXES, WATER HOSES, DRILL CASINGS
AND OTHER SUPPLIES FOR DIAMOND DRILL



MAP SHOWING THE LOCATION OF DIAMOND DRILL CORE HOLES

ONTARIO QUARRIES Inc. / February 1994

2.4 RESULTS AND OBSERVATIONS

A total of 970 feet was drilled, as shown in the table below. Some of the cores extracted exceeded the specified depth of 200 feet and were still in competent limestone, which was a pleasant surprise for us since published information on the regional geology of this area indicates an average depth of limestone in Parkin Twp of 100 to 200 feet.

Some of the holes were very difficult to drill as there was waste or rubbly rock on surface in some areas. In fact, one of the holes (Hole # 6), was drilled to a depth of 10 feet and abandoned because it was completely rubbly and too difficult to drill and extract. This 10 feet of core was impossible to log and was discarded.

The depths of the various holes drilled as well as some general comments about the material are given in the table below. Details of the rock types, grain sizes, inclusions, patterns, fractures, etc. for each hole (with the exception of Hole #6 which was discarded) are given in the log sheets contained from page B-18 to B-56. Core logs drawn to scale are given from page B-57 to B63. Photographs of the extracted cores for each hole are shown on pages B-14 to B-17.

CORE HOLES DRILLED, DEPTH ACHIEVED AND NOTES ON THE MATERIAL

HOLE #	DEPTH (ft)	NOTES
1	208	Cream, gray, green, pink colours; core ends still in good limestone
2	143	Gray, green, pink; veiny; 80 ft. of breccia starts at 47 ft; ends in limestone
3	188	Gray, green, cream, pink; breccia at 50 to 93 ft.; limestone ends at 160 ft
4	208	30 ft diabase then 200 ft hard limestone; some breccia; ends in limestone
5	57	Gabbro, sediment & diabase; no limestone
6	10	Core was difficult to extract and hole was abandoned; core discarded
7	28	Chloritized siliceous wackes; no limestone
8	128	Gray, green, pink, cream; breccia 48 to 110 ft; core ends in siltstone
TOTAL	**970**	

2.5 CONCLUSION

The predominant rock types are silty limestone, limy siltstone and limestone breccia. The breccia is tectonic and not depositional, and is associated with heavy folding. Colours are excellent, ranging from cream-grays to greens and pinks, which reflect well what is popular on international markets.

All in-filled joints are cemented tightly with calcite (no quartz) which will make cutting and polishing easier than if quartz was present. Those fractures that remain actual physical separations (i.e. they have not been cemented) are mainly associated with the shear zones identified in the geological report for the Main East Deposit contained in Appendix G. The main fractures are flat and horizontal, which will assist in the quarrying of blocks. Some of the fractures are angular. These will likely impair block extraction.

There is much more breccia than was originally anticipated. The cores seem to indicate that there is a thick layer of breccia (40 to 80 feet thick) extending throughout the Main East-West deposit, starting at a depth of about 50 feet from surface. Because of its uniqueness and desirability on world markets, the breccia is the most valuable of the marbles on this property. It is very encouraging to find significant reserves of it on the Main East deposit. This was somewhat unexpected. New reserve calculations based on the core results are given in Section 8 of the General OMIP Report preceding the Appendices.

PART 3: SUMMARY OF EXPLORATION DRILLING ACTIVITIES

A table summarizing all exploration drilling done under Parts 1 and 2 of this Appendix is given below:

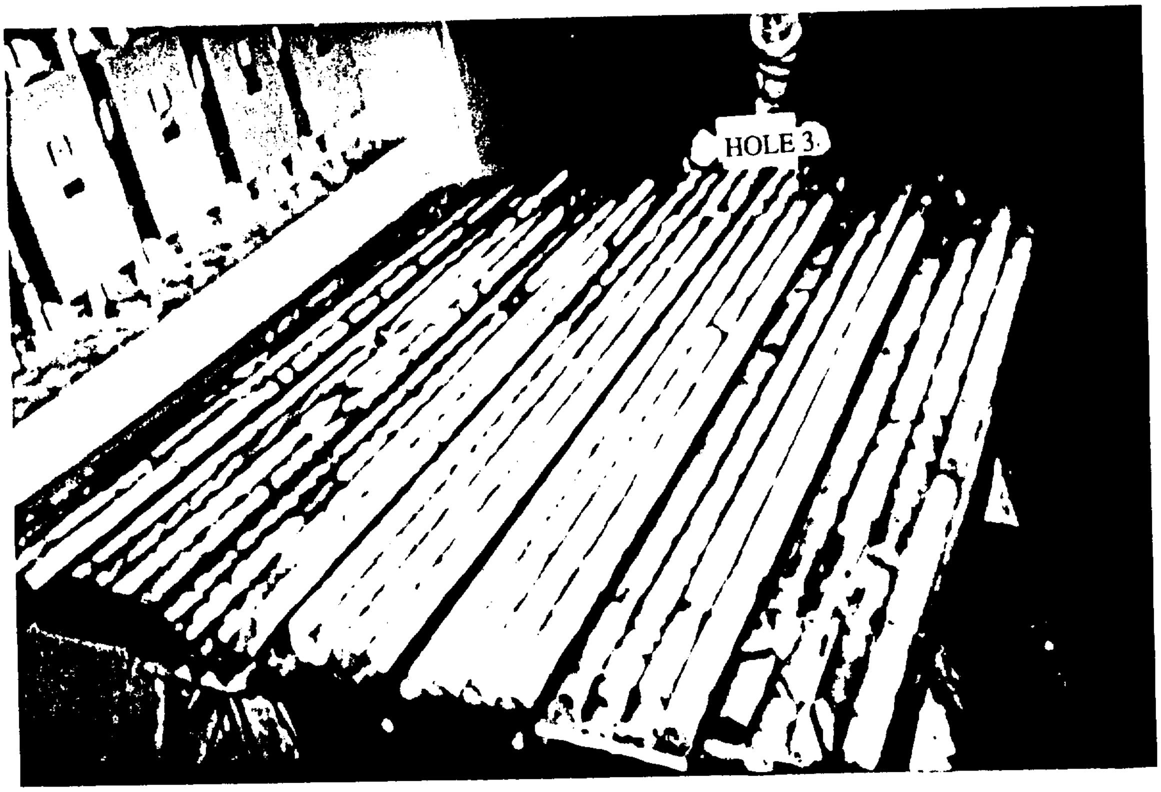
SUMMARY OF ALL EXPLORATION DRILLING ACTIVITIES

PART 1 - "Other Than Core" Drilling	16,961	vertical feet
PART 2 - Core Drilling	970	vertical feet
TOTAL FOOTAGE DRILLED:	**17,931**	Vertical Feet

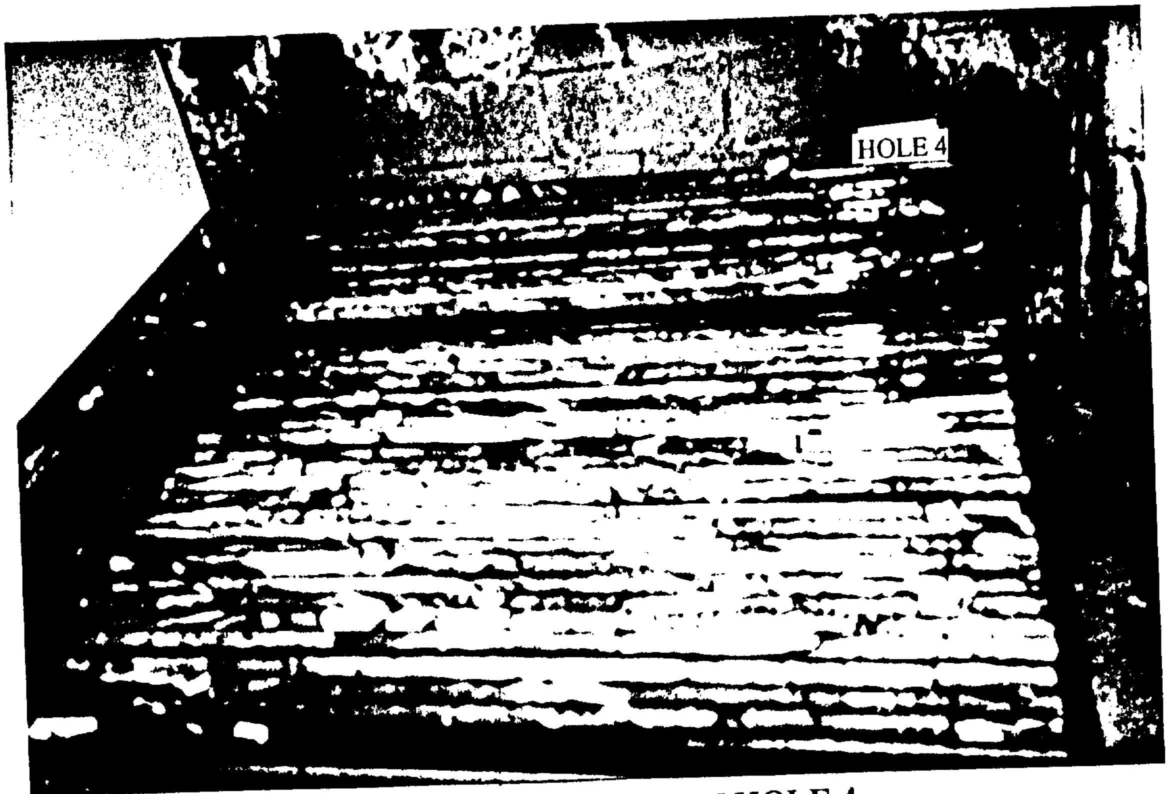
The total footage for exploration drilling surpasses by 359 % our obligations under the OMIP designated project.

CORE EXTRACTED FROM HOLE 1

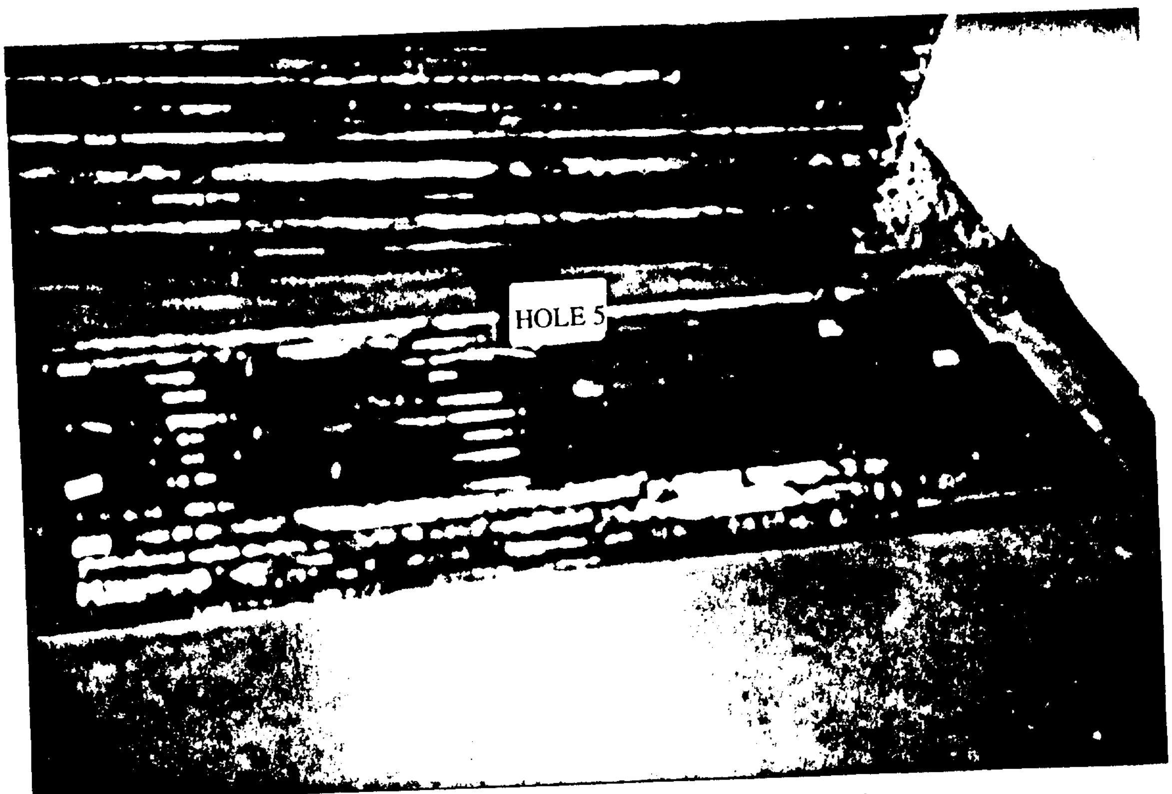
CORE EXTRACTED FROM HOLE 2



CORE EXTRACTED FROM HOLE 3

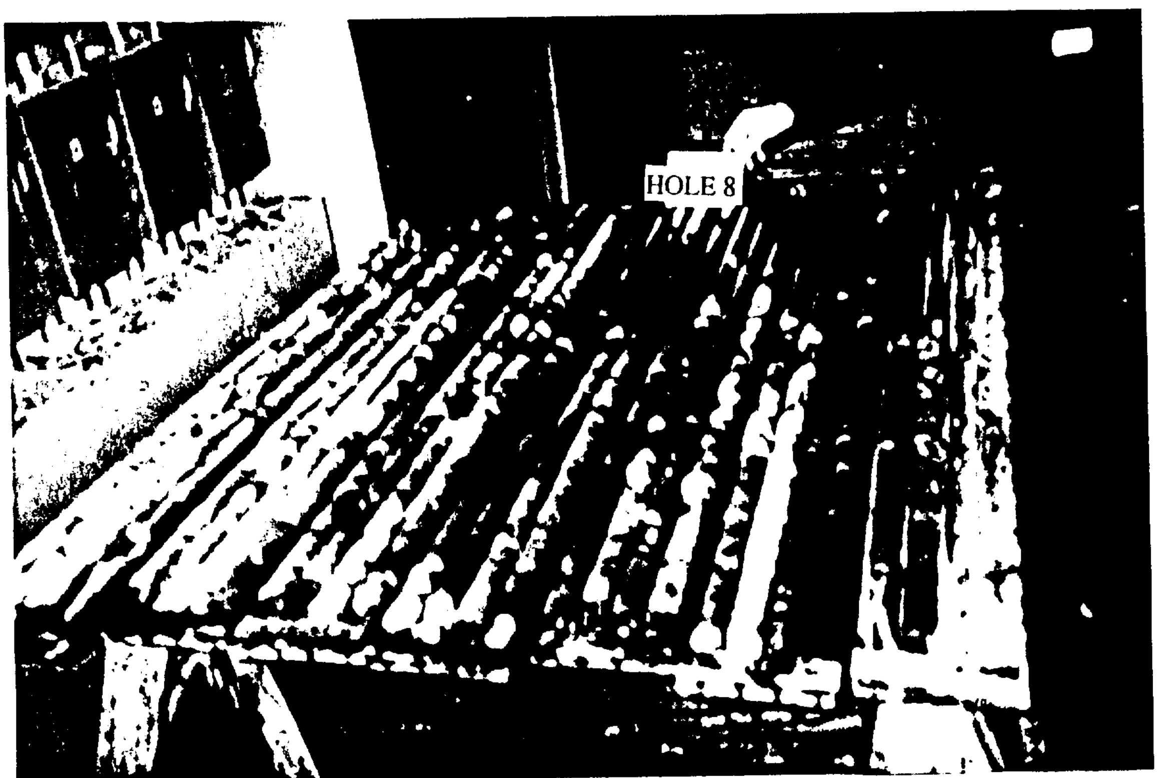


CORE EXTRACTED FROM HOLE 4



CORE EXTRACTED FROM HOLE 5

CORE EXTRACTED FROM HOLE 7



CORE EXTRACTED FROM HOLE 8

Vertical hole - 90°
CLAIM 734218 (page B 12)

PARKIN TWP

FITR CONST. / LACHAPELLE Drilling Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	Planar Feature Angle °	Core Specimen Footage 1	Sa
0	22.5'	Silty limestone + limy siltstone	f.g. equig.; laminated, planar fabric, thin (1/8" - 2") to thick laminae; cream-grey-green colour, pale to dark sections alternate; tr. sulphide; no veining.			
22.5'	88.75'	Silty limestone	v.f.g - f.g equig laminated, planar w very minor crenulated laminae; light bands = limestone, dark = ↑ in silt, often siltstone or limy siltstone laminae; thin (1/4") to thick (2") laminae; cream-grey to green colour; tr to << 1/4% py (f/c) locally dissem; calcite stringers very minor << 1/2% w widths of 1/8" to 1/2" (∥ to beds + ⊥ to beds generally);			
88.75'	181.5'	Silty limestone	f.g. equig. granular; characterized by thick beds (2" - 8") with wispy laminae "internally" wispy laminae are folded (rarely planar) or crenulated or boudinaged. between 133' to 139.16' planar laminated structure occurs; tr. sulphide, cream-grey-green (alternating) predominates w minor pink locally; very rare calcite stringers;			

FLYR CONST / Lachapelle Drilling Belle Vallee, ONT

CLAIM 734218

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	Planar Feature Angle
181.5	208'	Limestone	f-g equig. granular, laminated thin (1/4") to thick (1") planar to rarely wavy fabric; cream-grey to green colour; tr. sulphide, rare calcite stringers	
			Core Angles:	
			@ 3' 25° to C.A.	
			@ 47' 27° to C.A.	
			@ 106' 28° to C.A.	
			@ 145' 35° to C.A.	
			@ 184' 42° to C.A.	
			@ 205' 30° to C.A.	

HOLE 1 (page 2 of 7)

Claim 734218

FHR CONST. / LaChapelle Drilling - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.
		Limestone	Fractures:
			@6' ⊥ to C.A.
			@ 6.66' 30° to C.A.
			@ 9' fractured rubbly rock.
			@ 16' 10° to C.A
			@ 17' 24° to C.A.
			@ 18.5' 20° to C.A.
			@ 19' 24° "
			@ 19.83' 22° "
			@ 20' 22° "
			@ 20.16' 23° "
			@ 20.66' 24° "
			@ 27' 27° "
			@ 27.25 40° "
			@ 28.58' 45° "
			@ 30.33' ⊥ to. C.A
			@ 31.5' 88° to C.A.

HOLE 1 (page 3 of 7)

FHR CONST. / Lachapelle Drilling - Belleville, Ont

Claim 734218

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)
		Limestone	@ 35.16' 50° to C.A.
			@ 35.25' 50° to C.A.
			@ 36' 10° to C.A.
			@ 36.83' 25° to C.A.
			@ 37.58' broken core
			@ 38' 10° to C.A.
			@ 43' 20° to C.A.
			@ 45' 45° to C.A.
			@ 50' 65° to C.A.
			@ 52' 30° "
			@ 52.33' 30° "
			@ 56.6' - 57.5' fracture zone irreg.
			@ 58.25' 35° to C.A.
			@ 60' 40° to C.A.
			@ 60.66' 40° to C.A.
			@ 66.5' 30° to C.A.
			@ 68 60° to C.A.
			@ 71.75' 20° "
			@ 73.5' 22° "
			@ 76.5' 25° "

HOLE 1 (page 4 of 7)

CLAIM 734218

FITR. Cnst. / LaChapelle Drilling - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.
		Limestone	@ 76.7' 26° to C.A.
			@ 77.5' ⊥ to C.A.
			@ 81.58' ⊥ " "
			@ 83.42' ⊥ to C.A.
			@ 89' 15° to C.A.
			@ 91.33 42° " "
			@ 91.66 ⊥ "
			@ 91.92 42
			@ 93.33 87° "
			@ 94.75 15° "
			@ 96' 85° "
			@ 97.42' ⊥ "
			@ 98' 50° "
			@ 98.83 65° "
			@ 100.16' 50°
			@ 100.42' 75° "
			@ 107.5' 20° "
			@ 109' 30° "
			@ 110.5' 60° "
			@ 116.16' 30° "
			@ 120.5' 32°
			@ 122.16' 20°
			~~@ 127~~
			@ 131'-132' fracture zone irreg.
			133.75 80° to C.A.
			134.75' 85° " "
			134.92' 75° " "
			135.58' 75° "
			136.33' 75° "
			137' 30° "
			137.5' 70° "

HOLE 1 (page 5 of 7)

CLAIM 734218

FHR CONST. / LaChapelle Drilling · Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)
		Limestone	@ 138.16' 30° to C.A.
			138.33' 70° to C.A.
			139.42' 50° "
			139.75' 80°
			140.33' 80° "
			142.08' 40° "
			144.16' 30° "
			145.16' 75° "
			151.33' 15° "
			151.5' 55° "
			154.83' 70° "
			155.5' 70° "
			157.58' ⊥ "
			159.5 ⊥
			162.66' 75° "
			163, 6" seam
			165.25' ⊥ "
			166.83' 85° "
			168' ⊥ "
			170.42' ⊥ "
			174.5' ⊥ "
			175.08' ⊥ "
			175.25 ⊥ "
			175.5' ⊥ "
			183.16' ⊥ "
			184.42' ⊥ "
			185'-186' fractured (rubble) core
			186.16' 85° to C.A.
			188.16' 30° " "
			190' ⊥ " "
			190.33 25° "
			190.46' 25° "
			190.72' 25° "

HOLE 1 (page 6 of 7)

claim 734218

FHR Const. / Lachapelle Drilling · Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)
		Limestone	192' 25° to C.A.
			192.83' 25° "
			195.58' 30° "
			196.23' 30° "
			196.66' 30° "
			197' ⊥ "
			198' 45° " (irreg.)
			199' 25° "
			199.33' 25° "
			202.53' 25° "
			202.42' ⊥ "
			205.16' ⊥ "

HOLE 1 (page 7 of 7)

PARKIN Twp. Vertical Hole - 90° CLAIM 734218 - MAP PG. B11

FHR CONST / LACHAPELLE DRILLING - BELLE VALLEE, ONT

Footage From	Footage To	Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.	Planar Feature Angle °	Core Specimen Footage
0	13'	Limy siltstone	f.g. equig laminated thin (1/8 - 1") planar structure grey-green colour minor veining <1% (<1/2" widths), tr. - minor sulphides (<1/4%) dissem.;		
13'	30.5'	Limestone (silty)	f.g., equig, folded (crenulated laminae, pygmatic) cream - pink colour minor (2" - 16") limy siltstone (green) inclusions (15%) tr to minor (<1/4%) sulphides (py), calcite veining only within siltstone inclusions.		
30.5'	66.66'	Limy siltstone (minor silty limestone)	v.f.g. - f.g. equig predom. laminated with minor breccia laminae thin <1/8" - thick 1 1/2", generally planar w rare crenulations. breccia with veining (calcite) between 47.25' to 50'. green to grey-green to grey-green-pink (minor) colours. Tr - minor (<1/2%) pyrite mainly assoc. w veins + bx. Veins (calcite) occur at: 38.9' - 39.25' 47.25' - 47.75' 50' - 50.6' 57.8' - 58.7' (minor veins <1" not included). minor brecciation assoc. w calcite veining and vice versa.		

HOLE 2 (page 1 of 5)

CLAIM 734218

FNR CONST. / LaChapelle Drilling - Bello Valley, ONT

Footage From	Footage To	Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.	Planar Feature Angle °	Core Specimen Footage !	Sc
66.66'	115.1'	Limy siltstone (60%) + Silty limestone (40%)	v.f.g to f.g; equig; breccia zone with minor laminated sections (fragments?). intermixed rock types (limestone/siltstone) thru-out; latter feature results in differing colours across this section of core ranging from green → grey-green → grey-cream-green to greenish pink-cream. appearance of breccia varies across section from coarse breccia to fine breccia, laminar (planar) to folded: py Tr - <1/4% (locally) dissem/f/c.; veining <1" widths occur in sealed fractures in various parts of core. veins also occur @ 83'-84.6' (irreg. vein, 95'-185.5' calcite vein (20° C.A.); 104.8-105' (cal. vein, 15° C.A.)			
115.1'	128.83'	Limy siltstone	v.f.g - f.g. equig laminated (thin - 1/4") w/ planar structure; green to grey-green colour; porphyroblastic texture @ 124'-128.83' (amphibole); py tr - 1/2% locally (i.e. w/ porphyroblastic section); Veins @ 115.83-115.92' (calcite, ⊥ to C.A.) 119.11'-119.33' (" 60° to C.A.) 119.66' (irreg. cal. vein)			
128.83'	143'	Limy siltstone	with lime-enriched horizons; v.f.g - f.g. equig; breccia zone w/ folding and planar structure included in narrow sections; grey-green colour; veining <1" widths <3%; py tr to 138', 138-143' tr - 1/4% dissem. from 128' - 143' v.f.g., pinkish hue, altered rock, breccia - fi			

HOLE 2 (page 2 of 5)

CLAIM 734218

FitR CONST / Lachapelle Drilling - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)
		Limestone	
			Core Angles:
			@ 5' 40° to C.A.
			@ 39' 35° to C.A.
			@ 57' 12° to C.A.
			@ 73' 15° "
			@ 105' 85° "
			@ 127' 85° "
			between 130'-138' 80° → 10° to C.A.
		Fractures	
			@ 12" col./Fr. ∥ to lamin. 40° to C.A.
			@ 2.5' ⊥ to C.A.
			@ 7.9' 37° to C.A.
			@ 10.5' 40° "
			@ 11' 45° "
			@ 15' 30° "
			@ 15.75' 88° "
			@ 16.5' ⊥ "
			@ 20.8' 2° "
			@ 21.1 40° "
			@ 22' 35° "
			@ 23' ⊥ " (sealed)
			@ 24.5' 80° "
			@ 24.83' 85° "
			@ 25.5' ∥ to C.A. (broken core)
			@ 26.5' 88° to C.A.
			@ 31' 35° to C.A.
			@ 33.83' " " "

HOLE 2 (page 3 of 5)

CLM # 734218   FHR Const./LaChapelle Drilling - Belle Vallee, Ont.

Limestone

Description Colour, grain size, texture, minerals, alteration, etc.	Planar Feature Angle °	Core Specimen Footage ↑	Tour Sample No.	Sample Footage From	Sample Footage To	Sample Length
@ 36.6' 45° to C.A						
@ 36.7' 45° to C.A.						
@ 37.42' 45° to C.A.						
@ 38' 45° to C.A.						
@ 38.58 45° to C.A.						
@ 39' "vug"						
@ 40.16' 45° to C.A.						
@ 41' 20° to C.A.						
@ 43' 80° to C.A.						
@ 43.83' 85° to C.A						
@ 45.66' 85° to C.A.						
@ 47.25' 90° to C.A						
@ 49' 90° to C.A						
@ 50.16 90° to C.A.						
@ 51.9 90° to C.A						
@ 52.25 45° to C.A						
@ 53.5' 80° to C.A.						
@ 54.75' 45 to C.A.						
@ 57.8 90° to C.A						
@ 60.58' 45° " "						
between 60.6 - 64.6 10 fractures @ avg. spacing (3"-8") of 3-4 inches						
@ 66.16' 90° to C.A.						
@ 69.16 88° to C.A.						
@ 70.66' 45° to C.A.						
@ 71.16' 87° to C.A						
@ 72.83' 90° to C.A						
@ 74.42' 45° to C.A.						
@ 74.66' 90° to C.A.						
@ 77.25 25° to C.A.						
@ 77.83' 45 to C.A						
@ 79.58' 45 to C.A.						

HOLE 2 (page 4 of 5)

CLAIM 734218

FHR CONST / Lachapelle Drilling - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)
		Limestone	@ 80' 45° to C.A.
			@ 84.16' 70° to C.A.
			@ 89.4' 25° to C.A
			@ 98.5' 75° to C.A.
			@ 98.92' 70° to C.A.
			@ 101.75' 70° to C.A.
			@ 102.33' → irreg. fractured area
			→ 104.5'
			@ 106.33' - 107' irreg. fract. area
			@ 108.25' 40° to C.A.
			@ 110.5' 40° to C.A.
			@ 115.16' 80-90° to C.A.
			@ 115.58' 88° to C.A.
			@ 116.92' 75° to C.A.
			@ 117.0' 15° to C.A.
			@ 120' 30° to C.A. (slickensides)
			@ 120.16' 35° to C.A "
			@ 120.83' 25° to C.A. (")
			@ 121.83' 35° to C.A. (")
			@ 123.83 75° to C.A.
			@ 129.5' irreg. fract. zone (broken)
			@ 130.33' 30° to C.A.
			@ 131' 70° to C.A.
			@ 132' 55° to C.A
			@ 135.92' 80° to C.A.
			@ 137' 80° to C.A.
			@ 138' 45° to C.A. (slick)
			@ 142' 10° to C.A.
			@ 142.75 30° to C.A.

HOLE 2 (page 5 of 5)

PARKIN TWP
claim 865266
MAP pg B11

Vertical Hole
90°

FTR CONST / LACHAPELLE DRILLING - Belle Vallée ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	Planar Feature Angle °
0	10.3'	Silty Limestone	f.g. equig.; laminated (thin to thick 3/4"-1/4" irreg.); minor crenulations; colours variable across section from gray-green to cream-pink-green; Tr. sulph.; no veining.	
10.3'	22.4'	Silty Limestone	f.g. equig; well laminated (thin < 1/2") evenly; minor crenulations; even colourations cream-grey, (rare pinks); Tr. sulph., no veins	
22.4'	50.3'	Silty limestone (minor crenulation)	f-med. g. equig.; well-laminated generally evenly (thick-thin, 1"-1/4"); varied colours grey-green, cream-green (pinks spotty). Tr. sulph. Veining @ 34' 3" calcite vein, < 1/2" qtz stringers elsewhere (< 1/2" width).	

CLAIM 865266

FHR CONST / LACHAPELLE DRILLING - BELL VALLEE, ONT

Footage From	Footage To	Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.	Planar Feature Angle °	Core Specimen Footage !
50.3	92.5	Limestone Breccia	f.g.–med.g. equig.; laminated with incipient brecciation throughout (not typical heterolithic breccia). breccia = fragmented laminae; colours fairly uniform cream–green–pink; tr. sulph. Veining (patchy) is minor (<1%), calcite str. <1/2 inch widths;		
92.5	98.4	silty limestone	f.g.–med.g.; equig.; laminated (minor crenulations) thick to thin (1/2"–1/4"). even colours cream–green (rare pink); tr. py.; rare thin (<1/4") calcite str. or patchy.		
98.4	107.4	Limy siltstone (minor limestone beds)	f.g. equig.; well-laminated (thin <1/4") even colours green to green–cream (end of section) tr py; calcite str. <1/4" parallel to laminae <1%.		

CLAIM 865266

FHR Conts./ Lachapelle Drilling - Belleville Ont.

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	Planar Feature Angle °	Core Special Feature
107.4	116.5	Silty Limestone	f-med. g. equig. laminated to massive locally (thick + thin 6"-1/4"); thin laminae in mass sect's w crenulations; colours variable from cream to pink-green-cream; trace py.; calcite STR. rare;		
116.5'	130	Mixed limestone + siltstone	f.-med. g. equig. laminated (thick-thin 3/4" to 1/8") w/ few crenulations locally. colours even green-cream; 1/2% to tr. py.; 1% calcite STR. irreg contacts < 1/2" widths;		
120'	140.6'	Limestone	f-med. g. equig. wavy laminae to folded, rare laminated sections; colours fairly uniform cream to cream-green; tr. pyrite; calcite patchy to stringers, < 1/4" widths < 1%; (@ 131' approx. porous limestone).		
130'	159.2'	silty limestone (to siltstone)	f.g.-med. g. lamination mod. developed (thick to thin 1/2"-1/8") - colours even green to grey-green; tr. slickslides - increased calcite veins or patches (irreg) 5%; // to laminae + irreg.; heterogeneous section (laminae breccia folding) w.r.t. to colours + texture.		

CLAIM 865266

EHR CONST / LaChapelle Drilling - Belle Vallee, ONT

Footage		Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.
From	To		
159.2	188	Altered	v.f.g. equig: massive, grey siliceous
		Sediment	sediment. brecciated:
			Po/py v.f.g dissem. 1-2% : 2-3%
			rel to local stockwork calcite stringers.
			green colour = chloritization +/c.
			(rock altered strongly... next to diabase?)
			Core Angles:
			@ 2' 20° to C.A.
			@ 22' 25° "
			@ 25' 15° "
			@ 44' 25° "
			@ 105' 20° "
			@ 93' 30° "
			@ 108' 30° "
			@ 128' 30° "
			@ 138' 20° "

HOLE 3 (page 4 of 10)

CLAIM 865266

FHR CONST / LaChapelle Drilling - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)
			FRACTURES
		All sediments	
			@ 1' $\perp$ to C.A.
			33" $\perp$ " "
			37" $\perp$ "
			38" $\perp$ "
			43" $\perp$
			47" $\perp$
			53" $\perp$
			60" 20° to C.A
			62" $\perp$ "
			66" $\perp$ "
			82" 25° "
			106" 15° "
			112" 88° "
			11'06" 88° "
			12' 75° "
			12-13' parallel to C.A.
			12.83' $\perp$ to C.A.
			14' 80° " "
			13.5'-15.5' parallel to 15° to C.A.
			17' 5° to C.A.
			17.5' 15° to C.A.
			17.7' $\perp$ "
			17.9' $\perp$ to C.A.
			18' $\perp$ to C.A.
			18.33 $\perp$
			18.75 $\perp$
			19.16 $\perp$
			19.83 $\perp$
			20.75 75° to C.A

HOLE 3 (page 5 of 10)

CLAIM 865266

FCHR CONST. / LACHAPELLE DRILLING - BELLE VALLEY, ONT

Footage From	Footage To	Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.
		Alt. Sediments	20.83' 75° to C.A.
			22' 80° to C.A.
			25.25' 10° to C.A.
			27.5' 85° "
			28.66' 10° "
			28.83 ⊥ "
			30' ⊥ "
			33' 5° "
			34.75 ⊥ "
			35.42 ⊥
			36' ⊥ "
			41.33' 45° "
			46.66' 15° "
			50.66' 30° "
			54.83' 35° "
			55.5' 60° "
			56.16' 75° "
			58.25' 35° "
			59.25 70° "
			66.08' 70 "
			66.25' 70 "
			66.5' 70 "
			73.7 80° "
			74.33' 75° "
			74.42' 75° "
			75' 80° "
			80.66' 80° "
			81.16' 75°
			81.42' 80°
			82.25' 75°
			82.42 70°
			82.83' 80°

HOLE 3 (page 6 of 10)

CLAIM 865266

FHR CONST / LACHAPELLE DRILLING - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)		
		Alt Sediments	87.66	55°	to C.A
			87.83	75°	"
			88	60°	"
			91.08'	30°	"
			91.4	⊥	"
			91.5	⊥	"
			93	70°	"
			94.25	30°	"
			95'	30°	"
			97.16'	50°	"
			98'	40°	"
			98.6	25°	"
			99.5	25°	"
			100.33	30°	"
			101'-101.4	fractured (rubbly)	
			102.16	45°	"
			102.25	30°	"
			103.08	75°	
			104'	30°	
			106'	irreg.	
			108.42	75°	
			108.75	30°	
			111.33	80°	
			113.66'	80°	
			117.58'	75°	
			117.66'	75°	
			118	rubbly	
			120'	65°	
			121'	30°	
			122.83	80°	
			123.16	80°	
			124	45°	
			124.16	30°	
			125	45°	

HOLE 3 (page 7 of 10)

CLAIM 865266

FHR CONST/LACHAPELLE DRILLING - Belle Vallee, ONT.

Alt sediments

Description Colour, grain size, texture, minerals, alteration, etc.		Planar Feature Angle °	Core Specimen Footage	Tour Sample No.
125.5	45°			
126	80°			
126.5	25°			
126.66	25°			
127.33	30°			
127.83	30°			
128.00	30°			
128.78	35°			
129.08	35°			
130.9	rubbly			
132.16'	75°			
135.25'	65°			
135.66'	65°			
137.33'	65°			
139.75'	80°			
140.16'	75°			
140.25'	75			
140.42'	75			
141	60°			
141.25	30°			
141.5	80°			
142	irreg.			
143.25'-144	rubbly			
144.08	30°			
144.25	"			
145	"			
145.33-146	rubbly			
147	25°			
147	75°			
148	irreg.			
148.66	80°			
150-152.5	strongly fract. zone (30° to C.A. generally)			
154.93	45°			

HOLE 3 (page 8 of 10)

CLAIM 865266

FHR CONST / Lachapelle Drilling - Belle Valley, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	
		Alt. sediments	155.75	30° to C.A
			156.16	30°
			156.83	45° irreg.
			157.16	45
			157.33	75°
			158.5	45°
			159.5	70°
			160.16	30°
			161.5	25°
			163.75	irreg.
			164.25	irreg.
			164.75	irreg.
			165.25'	40°
			168'	75° (irreg)
			168.58'	70°
			170'	50°
			170.25	20°
			170.75	40° - 20° irreg.
			171.66	80°
			172.25	80°
			173	80°
			175	irreg. (70-80)
			176.5-177.3	strongly fract (irreg.)
			177.42	⊥
			178	⊥
			172.33	⊥
			180	80°
			180.5	80°
			180.83	65°
			181.25	70°
			181.75	80°
			182.08	75°
			183	65°

HOLE 3 (page 9 of 10)

CLAIM 865266 FHR CONST / LACHAPELLE DRILLING + Belle Vallee, ONT

Footage		Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.
From	To		
		Alt sediments	183.75 50°
			184.25 85°
			185. 70°
			185.75 Meg.
			187.5 45°
			188 ⊥

PARKIN Twp. CLAIM 865266 Vertical Hole · 90°

FHR CONST / LACHAPELLE Drilling - Belle Vallee, ONT

MAP ON page B 11

Footage From	Footage To	Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.	Feature Angle °	Core Specimen Footage	Sa
0	33.6'	DIABASE	f.g. - med.g. equigranular, massive, fractured (calcite infilled), 15% sedimentary inclusions, sulphides tr. - 2%.			
33.6'	208'	Limestone (silty) Siltstone (limy)	v.f.g. - f.g., equigranular, "glassy" to granular appearance, "hard" to scratch (indurated w secondary silica? or carbonate? or recrystallized?). Variable silt/lime ratio, (limy siltstone = chloritized limestone; contacts are gradational from limestone (silty) 85% to siltstone (limy) 15%; Colour: fresh surface cream - grey - green - pink cream - green green - pink green = chlorite pink = iron alteration pink ↑ (to weak) @ 35' - 57' ↑ (to mod/strong) @ 57' - 98' ↑ (to strong) @ 98' - E.O.H. Varieties: (1) Laminated - throughout but is predominant to 114 feet where folds and brecciation begins - thin (1/8") - thick (1") - planar to wavy to disrupted laminae - sharp to 'fuzzy' or indistinct beds - colour banding			

HOLE 4 (page 1 of 5)

CLAIM 865266

FHR CONST / LACHAPELLE DRILLING - Belle Vallee, ONT

Description Colour, grain size, texture, minerals, alteration, etc.	Planar Feature Angle °	Core Specimen Footage ↑	Tour Sample No.	Sample Footage From	Sample Footage To	Sample Length
(2) FOLDING : begins ≃ @ 114 ft to E.O.H.						
imparts wavy to convoluted						
'flow' pattern to rock						
(3) BRECCIATION : - minor to 127', 127' to E.O.H.						
thicker/wider breccia zones						
- tectonic breccias, not sedimentary						
- ↑ in breccia with ↑ in folding						
occur @ 109.8' - 110.25'						
@ 126.75' - 127.66'						
@ 134.4' - 136.66'						
@ 150' - 151.33'						
@ 161.66' - 163'						
@ 167' - 170.66'						
@ 172.83' - 173.66'						
@ 207' - 208'						
Sulphides : f.g. - v.f.g. dissem. pyrite						
tr - locally 1% (over inches)						
33.6' - 134' trace to ≤ 1/4 %						
134' - 208' minor (< 1/4 %) to locally 1% (esp. in breccia zones)						
Veining : ubiquitously, calcite infilled						
variable thickness + orientation						
contacts ∥ to and discordant to bedding, sharp						
↑ in veins @ ≃ 115' (with folding/breccias)						
occurs @ 115' - 115.5' 20° to C.A.						
@ 115.75' - 116.25' 20° to C.A.						
@ 128.5' - 128.66' 20° to C.A.						

HOLE 4 (page 2 of 5)

CLAIM 865266

FHR CONST / LACHAPELLE Drilling - Belle Vallee, ONT

Footage		Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.	Pl Fe An
From	To			
			cont'd:	
			@ 153.83' - 154' 22° to C.A.	
			@ 158.66' - 159' 3° to C.A.	
			@ 168.66' - 169.33' (ll, ⊥ to C.A.)	
			@ 184' - 184.83' ⊥ to C.A.	
			@ 206.83' - 207.42' 22° to C.A.	
			CORE ANGLES:	
			@ 58' 28° to C.A.	
			@ 104' 15° to C.A.	
			@ 112' 11 to C.A. (parallel)	
			@ 152' 15° to C.A.	
			@ 172' 10° to C.A.	
			@ 186' ⊥ to C.A.	

HOLE 4 (page 3 of 5)

CLAIM 865266 FHR CONST / NACHTFELLE DRILLING - Belle Valles, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	Plane Feet Ang.
			Faults shears	
			@ 118' rubble core	
			@ 132.5' rubble, gouge, altered rx.	
		Fractures:	"Flats" (⊥ to C.A., hairline fractures, infilled with calcite)	
			@ 55.5, 56.75, 56.92 110.75 117.33,	
			119.5, 120 120.16, 120.25 122, 125, 126	
			128, 130.33 131.16, 133.5, 134.25 138,	
			142.83 146.75 149.83 150.16, 150.83	
			150.92, 154.5, 154.75 156.42 157.75	
			159.58 160.25 161.08 161.66 167.5	
			173 173.5, 175.66, 176.08, 179.08,	
			180.58, 188.66, 192	
			Angled/other fractures	
			@ 45' ⊥, 20° to C.A	
			60.25' 20° " "	
			63.33 33° " "	
			63.83 18° " "	
			65.33 3° " "	
			66.25 20° " "	
			68 45° " "	
			69.58 25° " "	
			70.66 20° " "	
			71.66 22° " "	
			73.66 18° " "	
			74 45°	

HOLE 4 (page 4 of 5)

CLAIM 865266 FHR CONST/LACHAPELLE DRILLING - Belle Vallee, Ont

Footage		Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.
From	To		
		@	86' 35° to C.A.
			92.5 45°
			95 46°
			103.5 10°
			104.33 20°
			104.58 12°
			113.16 48°
			121 20°
			121.75 20°
			122.75 20°
			123 20
			123.5 25°
			125.33 22°
			127.66 15°
			131 30°
			139.92 40°
			146 35°
			169.66 45°
			208' irregular

HOLE 4 (page 5 of 5)

ONTARIO QUARRIES Inc. / February 1994

PARKIN Twp
Claim 865266
MAP-pg B-11

Vertical Hole 90°

FLTR CONST / LACHAPELL Drilling - Belle Vallee, Ont

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	Planar Feature Angle °	Core Specimen Footage	Your Sample
0	18'	Gabbro and altered sediment	Gabbroic intrusion with sediment inclusions, 60% gabbro 40% inclusions. Gabbro med.g. equig. massive green (dark) fresh surface w variable sized sediment (altered lithic) inclusions 1/2 - 1 1/2 % sulphides (py, cpy). Sediment is finegrained equig banded + folded + brecciated; alteration is semi-pervasive (chlorite / carbonate) Pink - green colour to fresh surface, sulphides Tr. to minor. Calcite infilled stringers minor << 1%.			
18'	45'	Altered Sediment	f.g. equig banded folded brecciated sediment. Silicic + chloritic wackes in composition w a semi-pervasive alteration (carbonate? + chloritized). Alteration gives rocks its pale grey bleached and green colouration. Rock is brecciated f[illegible] 36' to 45', contains bleached sediment and calcite stringers + patches (3%). Sulphides (py) generally minor (<< 1/2 %) locally (inches) 1/2 - 1%. Remaining minor = chlorite / calcite stringers << 1/2" widths < 1%. Colours = green - grey - reddish.			
45'	52'	Diabase	v.f.g. equig massive green-black colour, Tr - minor sulphides calcite microfractures << 1/2 %.			
52'	57'	Altered sediment	f.g. equig grey - green colour fresh surf brecciated + altered (chl + carb.) sediment (as above 18' - 45'). Minor sulphides < 1/2 % calcite infilling breccia voids (2% - 3%).			

HOLE 5 (page 1 of 3)

CLAIM 865266

FLTR CONST/LACHAPELLE DRILLING - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)		
		All sediments	Fractures		
			Between 0'-7' strong fractured; rubbly core.		
			@ 8'	80°	To C.A.
			8.25'	80°	To C.A.
			9'	80°	"
			9.25	75°	"
			10.5'	irreg.	
			10.6'	70°	"
			11.5'	80°	"
			12'	85°	"
			12.66	45°	"
			13.75	irreg (≈70°)	
			14.42	20°	To C.A.
			14.83	60°	"
			15.33	60°	"
			16.16	80°	"
			16.5	85°	"
			17.16	85°	"
			17.33	"	
			18.33	85	"
			19.25	85	"
			20'	70°	"
			21.5	30°	
			22.5	fracture zone (several/irreg.)	
			24.75	70°	
			25.33'	75°	
			25.75	75°	
			27	60°	
			27.5	75°	
			29.5	70	
			30.33	40°	

HOLE 5 (page 2 of 3)

CLAIM 865266 FitR CONST / LACHAPELLE DRILLING - Belle Vallee, ONT

Footage		Rock Type	Description
From	To		Colour, grain size, texture, minerals, alteration, etc.
			@ 31 65° to C.A.
			31.83 80°
			32.33 50°
			32.5 85°
			32.66 80°
			33 75°
			34.66 45°
			34.83 45°
			35.75 60°
			36.25 irreg.
			36.5 80°
			37.2 80°
			37.5 75°
			42' irreg
			42.42 80° 30°
			43.66 80°
			44.16 85°
			44.42 80°
			45.16 75°
			45.42 15°
			47' 60°
			47.75 70°
			48.83 irreg. (10° – 20°)
			49.66 80°
			50.42 10°
			51.16 75°
			54.5 85°
			54.83 85°
			55.16 (80° - 30°) irreg.
			56 irreg. (≈45°)

HOLE 5 (page 3 of 3)

PARKIN Twp - MAP - PG B-11   Vertical Hole - 90°
CLAIM 865266   FHR CONST / LACHAPELLE DRILLING - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	Planar Feature Angle °	Core Specimen Footage
0	2'	Altered sediment	f.g. - med.g. chloritized wacke, strongly jointed & fractured w 1/2-1% dissem. py; pink-green-grey colour.		
2'	20.25'	Bleached siliceous wacke	f-med.g., equigranular massive, grey-green coloured, strongly bleached (fracture-controlled, semi-pervasive) sulphide 1/2-1% (py) dissem (f/c), mainly criss-crossed calcite/chlorite infilled fracturing giving rock grey-white "line texture".		
20.25'	28'	Wackes	v.f.g. massive chloritized siliceous wackes w 1/2-1% dissem. py; dark grey-green colour <1% calcite stringers semi-pervasive alteration (bleaching/chloritization).		

HOLE 7 (page 1 of 2)

CLAIM 865 266

FLTR CONST / LACHAPELLE Drilling - Belle Vallee, ONT

Footage		Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.	
From	To			
			Fracturing	
			≃ 1.5' - 8 strongly fractured, rubbly core.	
			@ 9.16' 75° to C.A.	
			@ 9.5' 70° 90°, 70°	
			@ 10.7 30°	
			12.25 75°	
			12.75 30°	
			13.25 rubbly core	
			15.16 75°	
			16.33 75°	
			17' rubbly / str. fractured	
			18.66' 60°	
			19.66 75°	
			20' 80°	
			21.75 str. fractured (over 4")	
			24.16 80°	
			24.83 80°	
			25.42 25°	
			26.08 70°	
			26.75 80°	
			27 40°	

HOLE 7 (page 2 of 2)

PARKIN TWP-
CLAIM 865266
MAP-pg B-11

Vertical Hole
90°

FHR CONST / LACHAPELLE DRILLING - Belle Vallee, Ont.

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	Feature Angle
0'	16'	Limestone	Fine-med. g.; equig.; breccia + folding (minor laminated); pink-green colour; sulphides tr.; minor calcite stringers ~~minor~~ (<1/4" widths).	
16'	45.5'	SILTY LIMESTONE	f.g. equig. laminated + breccia (laminated only from 40'-45.5'); pink-cream-green grading downhole to green-cream (pink); sulphides trace-minor (1/4%); calcite stringers minor <<1% (<1/4" widths);	

HOLE 8 (page 1 of 7)

CLAIM 865 266

FHR CONST. / LACHAPELLE DRILLING - Belle Vallee, ONT.

Footage From	Footage To	Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.	Planar Feature Angle °	Core Specimen Footage !	Your Sample
45.5	47.8	SILTSTONE	f.g. equig. laminated grey-green colour, tr. sulphides, no veining.			
47.8'	63.3	LIMESTONE Breccia	mixed silty limestone and limy siltstone fragments, heterogeneous texture. coarse to fine fragments: grey-green-cream colour (pink tones); sulphides tr generally to ½% locally (fracture-controlled). calcite microstringers + irreg. patchy calcite distributed in between breccia fragments.			
63.3'	102'	SILTSTONE	f.g. equig. massive to brecciated siltstone (breccia predominately from 71 feet to 102'); grey-green colour: heterogeneous texture: sulphides tr. to ½% dissem. py. locally (generally assoc w ↑ veining); calcite stringers (stockwork) increases from 90' to 102', from 63.3' - 90' minor cal. str. (2%) < ¼" widths; mottled colouration locally due to bleaching			

HOLE 8 (page 2 of 7)

CLAIM 865266

FHR CONST/LACHAPELLE DRILLING - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)	Pb Fe An
102	107.9	LIMESTONE BRECCIA	f.g. equig.: heterogeneous texture; siltstone & limestone (%): grey-green - cream colour: sulphides Tr-1/2%. Veining (patchy to stringers) calcite < 1/2" widths.	
107.9'	109.8'	SILTSTONE BRECCIA	f.g. equig. tectonic breccia; variable frag. size; khaki-green colour; sulphides minor (< 1/2 %) generally 1% locally over inches calcite stringers minor.	
109.8'	128'	SILTSTONE	f.g. equig.: grey-green colour - mottled (weak alteration = bleaching): sulphides dissem py/po tr-1% (latter % locally developed only over inches); calcite stringers < 1% (< 1/4" widths)	

HOLE 8 (page 3 of 7)

CLAIM 865266

FLYR CONST. / LACHAPELLE DRILLING - Belle Vallee, Ont

Footage From	Footage To	Rock Type	Description Colour, grain size, texture, minerals, alteration, etc.
			Core Angles :
			@ 2' 30° to C.A.
			@ 21' ∥ to C.A. (parallel)
			@ 42' 40° to C.A.
			@ Brecciated + mass. to E.O.H.
			Fracturing
			@ 2'.16 15° to C.A.
			@ 5' ⊥ "
			@ 7' fractured broken core
			@ 14.42' 20° to C.A.
			14.5 20° "
			14.8 20° "
			@ 17' ⊥ "
			@ 17' parallel to "
			@ 19' 20° to C.A.
			@ 19.5 ⊥ " "
			@ 23 ⊥ "
			@ 24.9 80° "
			@ 27.7 ⊥
			28 ⊥ "
			28.2 ⊥ "
			@ 32' ⊥ "
			32.7 ⊥ "
			37.2 ⊥ "

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HOLE 8 (page 4 of 7)

CLAIM 865266 FHR CONST / LACHAPELLE Drilling - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)
			@ 44.8', 55° to C.A.
			47.16' 50° "
			48' broken core
			48.66' 30° to C.A.
			49.42' ⊥ "
			49.66' 55° "
			52' 55° "
			53' 20° "
			53.25 80° "
			57.66 80° "
			62.5 70° "
			63.75 45° "
			65.33 80° "
			65.58 80° "
			66' 45° "
			66.68 60° "
			66.93 80° "
			67.83' 70°
			68' 70°
			68.5 irreg. (⊥)
			68.66 75°
			69.33 45°
			70.22 irreg. (80°)
			70.66 40° to C.A.
			73.5 55° "
			74.66 25° "
			75 ⊥ "
			77.5 15° "
			81.75 30° (irreg.)
			81.5-82.3' strongly fractured.

HOLE 8 (page 5 of 7)

CLAIM 865266

FHR CONST / LACHAPELLE Drilling - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)
			84' 25° to C.A.
			84.66' 70° to C.A.
			86.16' 70° "
			86.91' 25° "
			87.16' irreg.
			88.58' 45° "
			89' 25° "
			89.66' irreg.
			89.83' ⊥
			92.42 80° ⊥
			92.83 25°
			95.25 65°
			96.5' 40°
			97.42 65
			98.33 80°
			99' ∥ (parallel) to C.A. irreg
			100.5' ⊥
			100.83' irreg.
			101.8 55°
			102.16 irreg.
			102.33 50° ∥
			105.5 broken core
			108 irreg. (∥ to 30°)
			108.75' 25°
			40°
			109.5 - 110.16' broken core
			110 75° to C.A.
			110.2' 75° "
			111.4' ⊥ "
			111.6' ⊥ "
			112.66 50° "
			112.83 55° "
			113 50° "

HOLE 8 (page 6 of 7)

CLAIM 865266

FHR CONST / LACHAPELLE DRILLING - Belle Vallee, ONT

Footage From	Footage To	Rock Type	Description (Colour, grain size, texture, minerals, alteration, etc.)
			@ 114' 15° to C.A.
			114 75° "
			114.25 70° "
			114.5 70° "
			115.66 70° illeg.
			116' 80°
			116.25' 80° and ⊥
			116.33' 80°
			116.58' 75° to C-A
			117.33 65°
			117.5 75°
			118.8 - ~~[illegible]~~ 120' fractured broken core
			120.5 55°
			120.9 80°
			121.16 75° illeg.
			122' 85°
			122.08 25°
			126.5' - 128' rubbly core.

HOLE 8 (page 7 of 7)

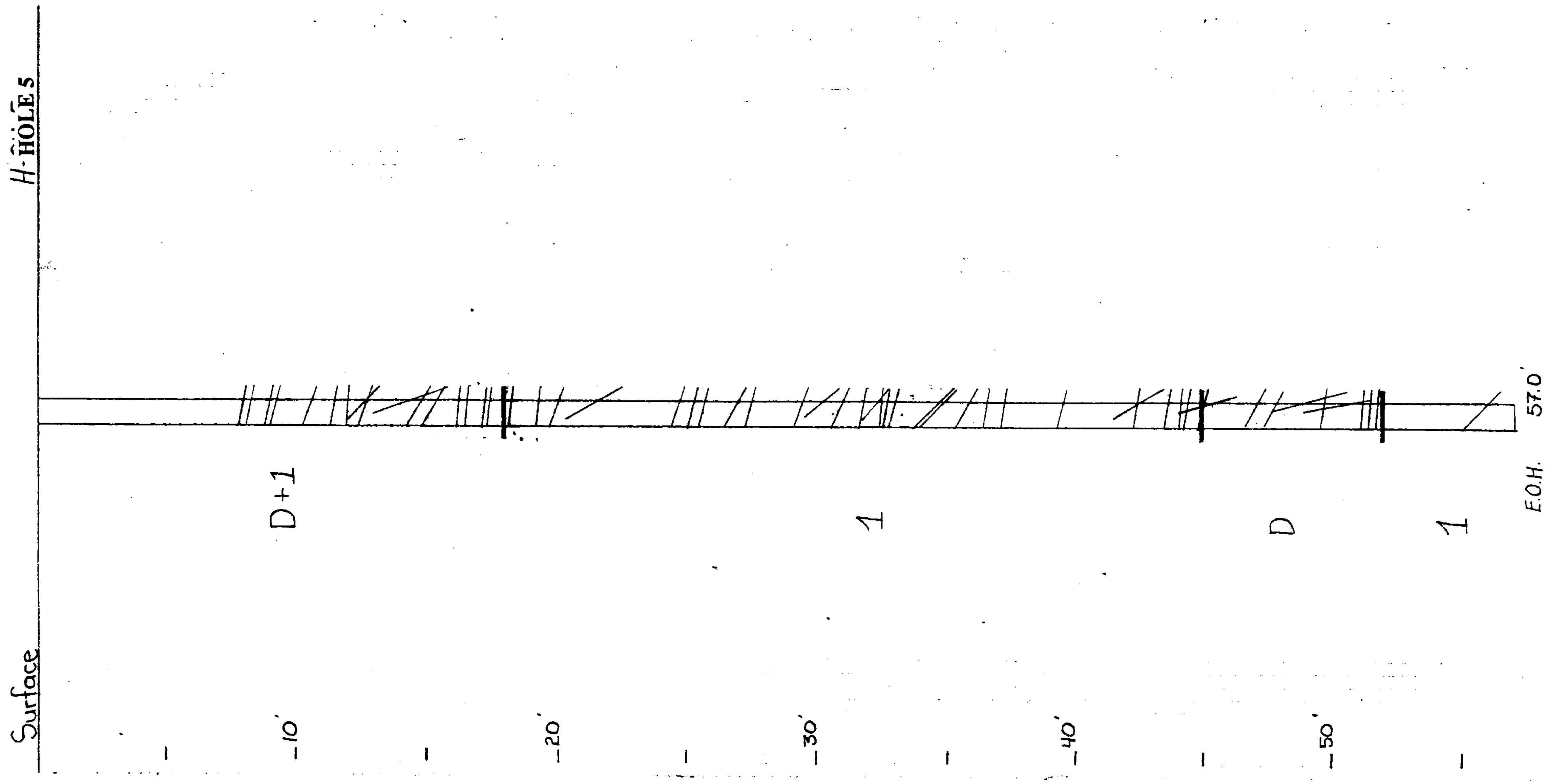
VERTICAL SECTION THROUGH CORE: HOLE 1

VERTICAL SECTION THROUGH CORE: HOLE 2

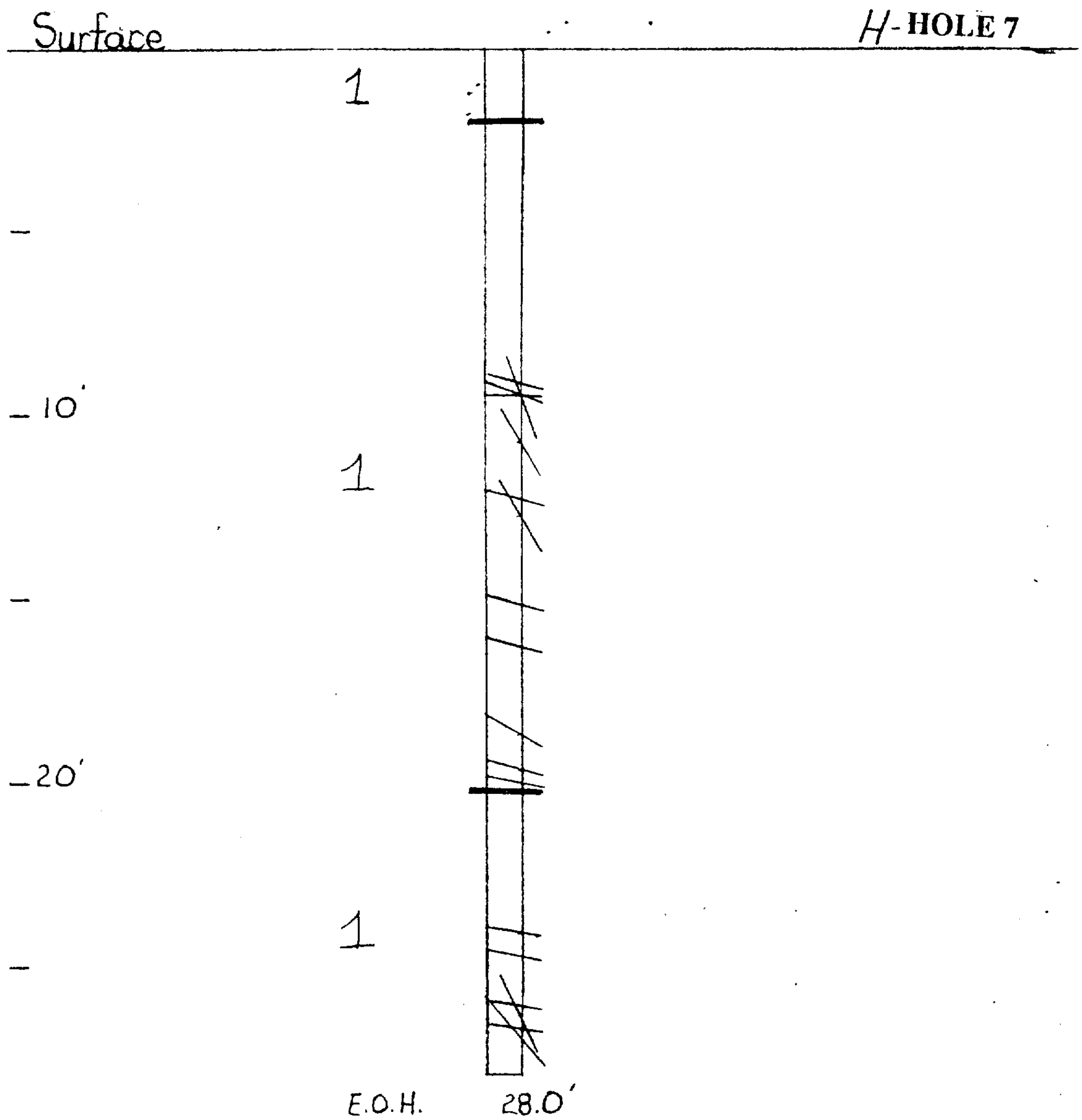
VERTICAL SECTION THR UGH CORE: HOLE 3

VERTICAL SECTION THROUGH CORE: HOLE

VERTICAL SECTION THROUGH CORE: HOLE 5



VERTICAL SECTION THROUGH CORE: HOLE 7



VERTICAL SECTION THROUGH CORE: HOLE 8

APPENDIX C

Details of Stripping, Trenching and Excavation

INTRODUCTION

This appendix is divided into 4 general sections:

PART 1 - Exploration Trenching
PART 2 - Stripping To Expose New Deposits
PART 3 - Stripping To Expose the Main East-West Deposit
PART 4 - Summary of All Stripping and Trenching Activities

PART 1: EXPLORATION TRENCHING

1.1 PURPOSE

Exploration trenching followed immediately after preliminary prospecting efforts on each claim. When prospecting indicated field conditions that could result in quarriable limestone being present (i.e. through the presence of scattered boulders, rock outcrops or through other adjacent limestone finds that could have folded and trended towards a certain area on a claim), heavy equipment was brought in to either trench or dig test pits.

1.2 EQUIPMENT AND LABOUR

Exploration trenching involved the use of a POCLAIN 170 excavator hired through our contractor, F.H.R. Construction Ltd. Also, a 1/2-ton truck was needed for travel to and from trenching sites and for service purposes. Labour included the operator for the excavator, Ontario Quarries supervision to lead and supervise the trenching and test pit operation and one prospector to idendify and characterize any limestone found in the trenches or test pits.

1.3 METHOD

The location of trenches or test pits was predetermined by the prospectors who ran traverses on each claim searching for limestone (see Appendix A for details of the prospecting operation and results). Once prospecting had been completed on any one claim and the trenching or test pit sites were selected, the excavator was mobilized to perform the trenching and test pit excavation. Each test pit or trench consisted of an excavation of 10 cubic metres. The maximum depth of trenches or pits was 22 feet or to bedrock, whichever came first. Pits or trenches where no limestone was found were rehabilitated by backfilling and covering with either topsoil or whatever natural overburden cover was present before the disturbance. The intent was to allow natural vegetation to grow in, thereby reducing the appearance of the disturbance.

1.4 RESULTS

The trenching and test pit excavation program was detailed in Appendix A, along with the prospecting information. Appendix A contains all maps, dates and locations of trenching, labour required, equipment usage, etc. This information will not be duplicated here, but the reader is urged to review Appendix A for any required detail. However, it is important to summarize the extent of trenching and test pit excavation that was conducted as part of this OMIP program. This is presented in table form below:

SUMMARY OF EXPLORATION TRENCHING AND TEST PITS

CLAIM #	DATES WORK PERFORMED	# OF SITES EXPLORED	CUBIC METRES
1042961	May 11, 12, 13, 14, 15	12	120
1118312	May 17	2	20
1042962	May 22, 24, 25	12	120
1118313	May 31	3	30
1042297	June 5, 7, 8	12	120
1118314	June 10, 11	4	40
865268	June 17, 18, 19	11	110
1042298	June 26, 28, 29, 30	17	170
1042299	July 2, 3	6	60
1042300	July 6	3	30
865264	July 9, 10	8	80
865267	July 16, 17, 19	13	130
865269	July 22, 23, 24	11	110
865265	July 24, 26	5	50
734218	July 28, 29, 30	12	120
865266	*only mass stripping (see Part 3)*	0	0
TOTAL		131	1,310

1.5 OBSERVATIONS

Of the 15 claims where trenching and test pit excavation was conducted, 5 showed evidence of new limestone deposits that required further work. The five claims along with details of the finds and maps were presented previously in Appendix A. The additional work conducted on the 5 claims where limestone was found is detailed in Part 2 below and in Appendix A.

1.6 CONCLUSION

A total of 131 trenches and test pits were excavated, for a volume of 1,310 cubic metres for exploration purposes. Trenching and test pits showed good limestone on 5 claims.

PART 2: STRIPPING TO EXPOSE NEW DEPOSITS

2.1 PURPOSE

The exploration trenching and test pit excavation described in Part 1 above and in Appendix A yielded five claims where significant limestone was found. It was therefore necessary to extend the trenches or test pits where limestone was found to expose larger portions of the deposits for further evaluation. Stripping of these new deposits allowed us to evaluate the colour, pattern and texture of the stone, as well as determine preliminary reserve estimations and assess the quality of the deposits (i.e. consistency of the stone, fracture frequency, presence of natural benching that would assist future block extraction if a quarry is developed). Stripping also permitted our geological consultant, Norwin Geological, to conduct mapping and geological assessment of the deposits.

2.2 EQUIPMENT AND LABOUR

Stripping to expose new deposits involved the use of the following equipment: chain saws, a D-6 Bulldozer, a Poclain 170 excavator and a 1/2 ton truck. All equipment was hired through our contractor, F.H.R. Construction Ltd. Two labourers were needed for cutting timber and for "clearing and grubbing" the site neatly before stripping commenced. During stripping, one labourer was needed in addition to the two heavy equipment operators. The prospector was present on an occasional basis to direct stripping operations according to the trends of the deposits, as detailed in Appendix A.

2.3 METHOD

Prior to commencing the stripping operation on each of the deposits, the areas were neatly cleared of timber and brush or vegetation by "clearing and grubbing" operations of our contractor. This took a varying amount of time depending on the type and density of the vegetation cover. When the stripping began, topsoil was first stockpiled for use in future rehabilitation activities. The D-6 Bulldozer and the 170 Excavator worked together to strip the deposit and push overburden fill to the extremities to permit maximum exposure of the limestone for mapping and evaluation purposes.

2.4 RESULTS

Stripping was conducted on 5 claims where good limestone was found. Of the 5 claims, one hosts the main East-West deposit (Claim No. 865266). The work done on that claim is described in Part 3 of this Appendix and in Appendix B on Drilling. The claim numbers of the other four claims where stripping was conducted to expose the new limestone deposits, the dates of the work and the volumes stripped are summarized in table form below. Details of the stripping work, including maps, were given in Appendix A. No backfilling or rehabilitation work on the stripped areas was done because we need these deposits to remain exposed for future work.

SUMMARY OF STRIPPING TO EXPOSE NEW DEPOSITS

CLAIM NUMBER	DEPOSIT NUMBER	DATES WORK PERFORMED	DIMENSIONS STRIPPED	CUBIC METRES
1042298	deposit #3	Aug. 2 to 14	60 x 40 x 1.5 m^3	3,600
1042298	deposit #2	Aug. 16 to 26	70 x 40 x 1.5	4,200
865264	deposit #2	Aug. 27 to 31	10 x 40 x 1.5	600
865267	deposit #4	Sept. 1 to 4	10 x 30 x 1.5 +	
			10 x 40 x 1.5	1,050
734218	deposit #1	Sept. 6 to 17	50 x 40 x 1.5	3,000
865266	*Main East-West*	*detailed in Part 3*		
TOTAL				12,450

2.5 OBSERVATIONS

Stripping operations exposed 4 new deposits which are separate from the Main East-West deposit. The new limestone deposits show good colour, pattern and texture and the deposits' quality is promising for future extraction of dimension stone. Details of the new deposits and of the work done to expose them are given in the following Appendices:

Appendix A - Details of Prospecting and Exploration
Appendix D - Geological Report and Maps for Deposit #1
Appendix E - Geological Report and Maps for Deposit #2
Appendix F - Geological Report and Maps for Deposit #3

2.6 CONCLUSION

A total volume of 12,450 cubic metres of overburden was stripped to expose four new limestone deposits. The exposed portions have shown the deposits to be of good quality. Colour, pattern and texture of the stone are unique. Fracture frequency varies but should permit the future extraction of varying qualities of blocks (i.e. from high quality to Class III blocks). Natural benches in the deposits vary in thickness from 1 to over 3 metres, making for easy block extraction and varying degrees of block quality. The deposits can potentially be developed as dimension stone quarries. Reserve estimations of the new deposits are given in Section 8 of the general OMIP report that precedes these Appendices. Geological reports and mapping were conducted and are contained in Appendices D, E and F.

PART 3: STRIPPING TO EXPOSE MAIN EAST-WEST DEPOSIT

3.1 PURPOSE

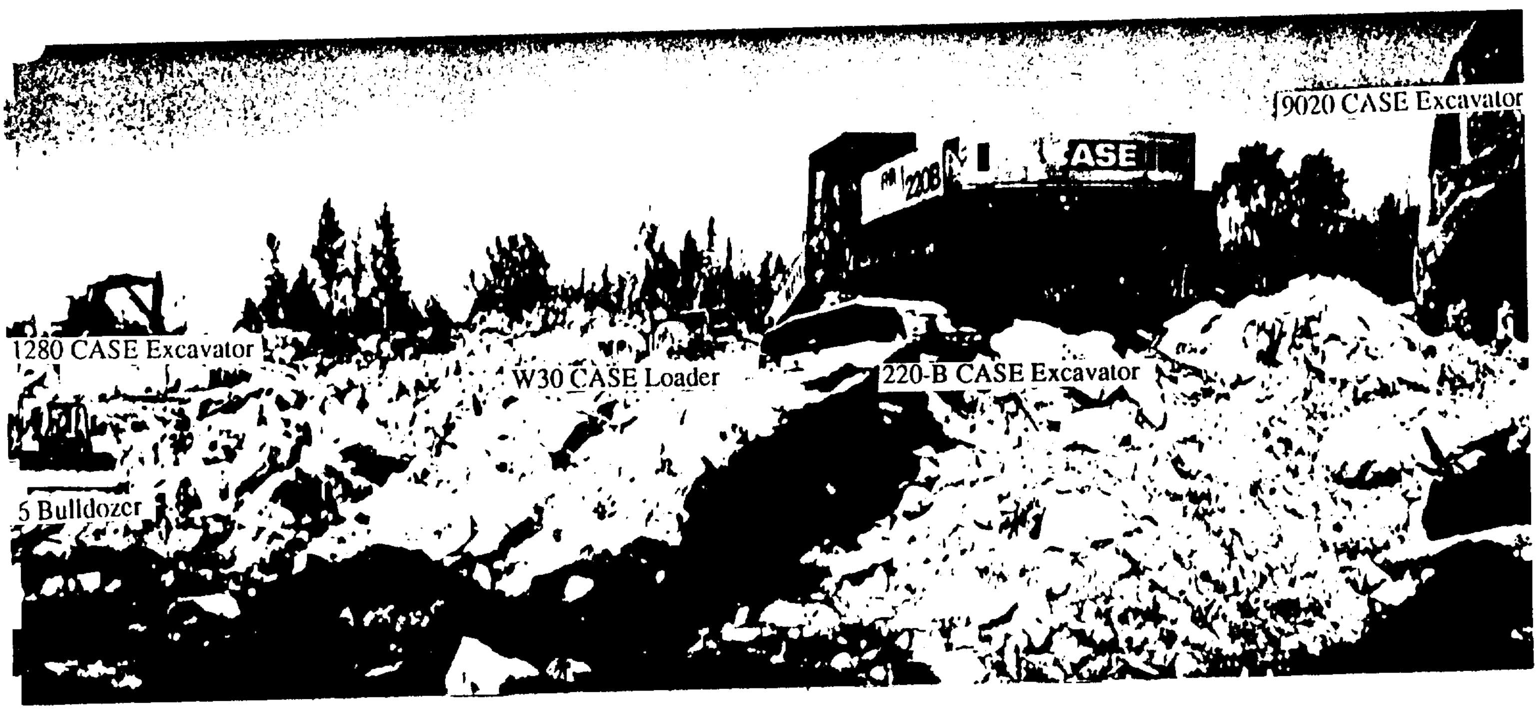
The Main East-West Deposit extends across 2 claims: 865266 and 734218. Because of the large size of this deposit, it was necessary to conduct a very large volume of stripping and excavation to expose the majority of it for exploration purposes. Stripping of this main deposit allowed us to conduct exploration activities to determine several parameters which must be known before the development of a limestone quarry can proceed. Such parameters include: fracturing in the deposit, natural benching which might assist future block extraction, colour, pattern and texture of the stone, consistency in stone colour and quality, extent of "breccia marble", location of waste contacts and reserve estimation.

3.2 EQUIPMENT AND LABOUR

Because of the high volume of stripping required and the short length of the work season, our contractor F.H.R. Construction employed several crews using several pieces of heavy equipment simultaneously. On a typical day of stripping operations on the Main East-West Deposit, the following equipment could be found working on site:

220-B CASE Excavator
170-C CASE Excavator
1280 CASE Excavator
2 x Tri-Axle Dump Trucks
992 CAT Front-End Loader
W30 CASE Front-End Loader
D-6 Bulldozer
710 JOHN DEERE Backhoe
160 cfm Compressor
9020 CASE Excavator

Photographs of the site showing various equipment used and work conducted are given below and on the next 3 pages.



HEAVY EQUIPMENT AT WORK STRIPPING MAIN DEPOSIT

STRIPPING CREW EMPLOYING 170 CASE EXCAVATOR AND RED TRIAXLE MACK DUMP TRUCK

STRIPPING CREW EMPLOYING 1280 CASE EXCAVATOR AND BLUE TRIAXLE MACK DUMP TRUCK

STRIPPING IN PROGRESS, USING 220-B AND 170-C EXCAVATORS, 992 CAT LOADER, SERVICE TRUCKS AND MECHANIC'S TRUCK

992 CAT LOADER AND D-6 DOZER PUSH STRIPPED OVERBURDEN TO EXTREMITIES OF MAIN DEPOSIT

220-B AND 1280 CASE EXCAVATORS AT WORK

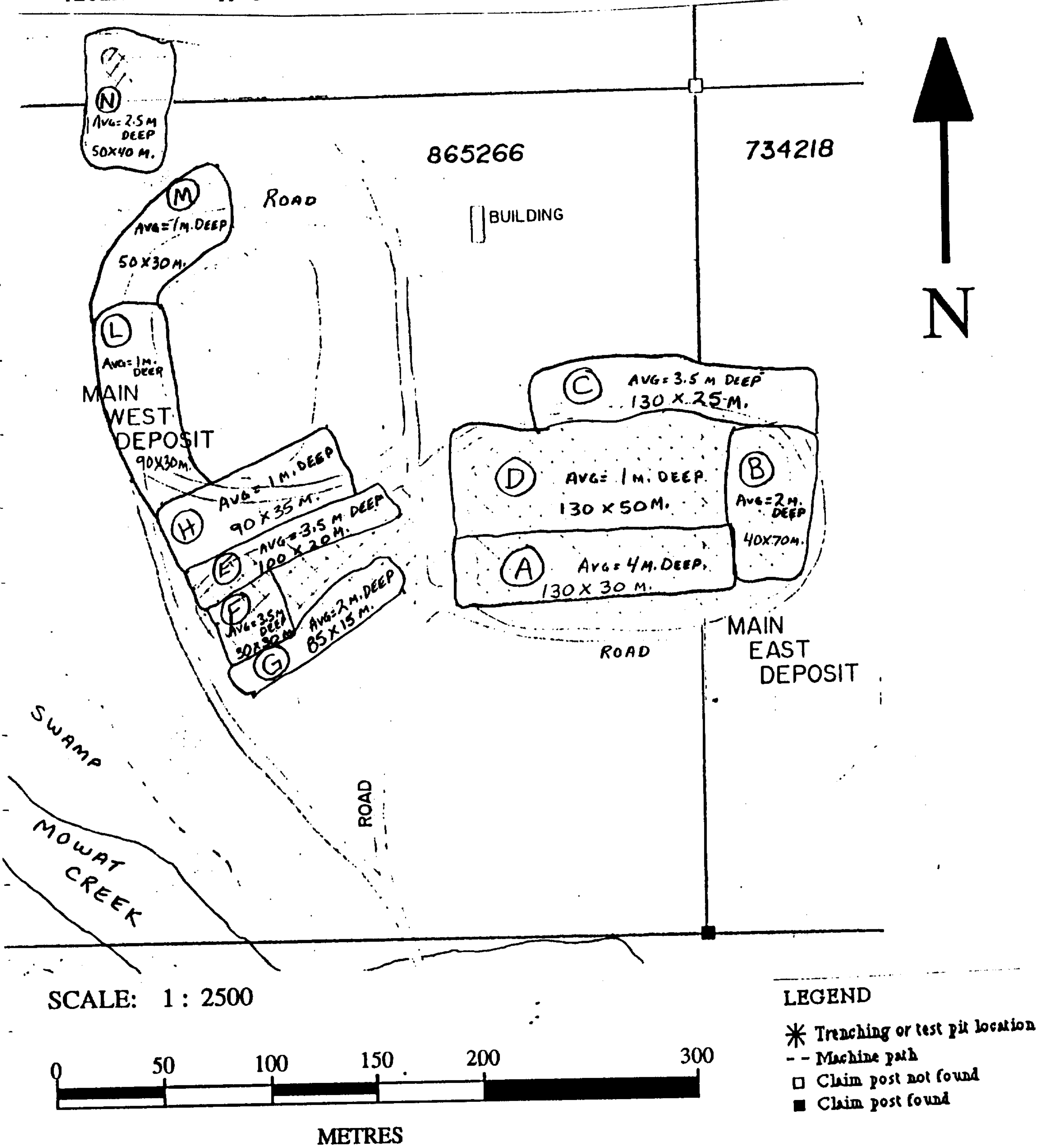
"CLEARING AND GRUBBING" UNDERWAY PRIOR TO EARTH EXCAVATION

3.3 METHOD & RESULTS

Prior to commencing the stripping operation on each of the deposits, the area was neatly cleared of timber and brush or vegetation by "clearing and grubbing" operations of our contractor. A photograph on the previous page shows clearing and grubbing under way prior to excavation. When the stripping began, topsoil was first stockpiled for use in future rehabilitation activities. The large Main Deposit was stripped in sections, as indicated on the map on the next page. The map shows the location, dimensions and depth of stripped areas. A volume calculation of each individual section as well as the total volume for stripping on the Main East-West Deposit have been tabulated below.

SUMMARY OF STRIPPING TO EXPOSE MAIN EAST-WEST DEPOSIT

SECTION (refer to map on next page)	DATES WORKED	DIMENSIONS STRIPPED	CUBIC METRES
A	Sept. 20, 21, 22, 23, 24, 25, 27, 28, 29	130 x 30 x 4 m^3	15,600
B	Sept. 30, Oct. 1, 2	70 x 40 x 2	5,600
C	Oct. 4, 5, 6, 7, 8, 9, 12	130 x 25 x 3.5	11,375
D	Oct. 13, 14, 15, 16	130 x 50 x 1	6,500
E	Oct. 18, 19, 20, 21	100 x 20 x 3.5	7,000
F	Oct. 22, 23	30 x 30 x 3.5	3,150
G	Oct. 25	85 x 15 x 2	2,550
H	Oct. 26, 27	90 x 35 x 1	3,150
L	Oct. 28, 29	90 x 30 x 1	2,700
M	Oct. 30	50 x 30 x 1	1,500
N	Nov. 1, 2, 3	50 x 40 x 2.5	5,000
TOTAL			64,125



STRIPPED SECTIONS, MAIN EAST-WEST DEPOSIT
CLAIMS 865266 AND 734218

ONTARIO QUARRIES Inc. / February 1994

3.4 OBSERVATIONS AND CONCLUSION

A total volume of 64,125 cubic metres of overburden was stripped on claims 865266 and 734218 to expose the Main East-West Deposit. Stripping operations exposed a significant portion of the Main Deposit, enabling us to locate the waste contacts on the North and South sides of the deposit and helping us better define the limestone reserves (see section 8 of the general OMIP report preceding the Appendices). Stripping also allowed detailed geological work and mapping to be conducted on the Main Deposit by our consultant, Norwin Geological, as contained in Appendix G.

The deposit shows good qualities that improve with depth. Fractures on surface seem to "heal" and cement themselves tightly with depth (with the exception of the predominant fractures highlighted in the drill core log in Appendix B). The deposit will lend itself well to future block extraction because of the natural benches that occur which offer a horizontal free face at varying intervals (ranging from 1 to more than 3 metres). Blocks of varying quality, ranging from high to average by marble standards, can potentially be extracted in the future.

Colour, texture and pattern of the stone were found to vary significantly. This is especially true in the East Deposit where colours can vary from pink to green and to gray over every few feet of horizontal distance. This might not pose a problem for block extraction if the extraction sequence is properly planned. Vertically, however, the colours are quite consistent. This offers promising results in terms of consistency of the products available from an operating quarry.

There is a good deal more breccia marble in the East Deposit than was originally thought. Also, the full reserves of the Main East-West Deposit are much better defined now that the deposit has been drilled and exposed. Reserve estimations are given in section 8 of the general OMIP report preceding the Appendices.

PART 4: SUMMARY OF STRIPPING AND TRENCHING ACTIVITIES

A table summarizing all stripping and trenching work done under Parts 1, 2 and 3 of this Appendix is enclosed on the following page.

SUMMARY OF ALL STRIPPING AND TRENCHING ACTIVITIES

PART 1 - Exploration Trenching	1,310	cubic metres
PART 2 - Stripping to Expose New Deposits	12,450	cubic metres
PART 3 - Stripping to Expose Main East-West Deposit	64,125	cubic metres
TOTAL STRIPPING AND TRENCHING	**77,885**	cubic metres

This total surpasses by nearly 30 percent the amount of stripping required by our OMIP project designation, which was 60,000 cubic metres.

APPENDIX D

GEOLOGICAL REPORT

ON THE

HARAMA MARBLE PROPERTY

DEPOSIT 1

PARKIN TOWNSHIP

DISTRICT OF SUDBURY

ONTARIO

FOR

ONTARIO QUARRIES INC.

E. Sawitzky
Norwin Geological Ltd.
December, 1993

TABLE OF CONTENTS

1. INTRODUCTION

Ontario Quarries Inc. requested Norwin Geological Ltd. to carry out a geological mapping program on a newly discovered limestone deposit within the original nine (9) claim group.

On October 25 and 26, 1993 a program of line-cutting and geological mapping was undertaken. The following report is a presentation of the results of the work carried out in evaluating the potential of the property.

2. PROPERTY LOCATION AND ACCESS

The property is located in the west central part of Parkin Township, District of Sudbury, approximately 40 kilometres north of Sudbury, Ontario.

The property can be accessed by the following route from Capreol: fifteen km along Hwy. 545, then a public service road leading northeast to the deposit, a distance of 6 km (Figure 1).

3. CLAIM GROUP AND STATUS

The property occurs on the original nine (9) unpatented contiguous mining claims, in Parkin township, District of Sudbury; claims are listed in Table 1. The claim group is in good standing with respect to the assessment credits required.

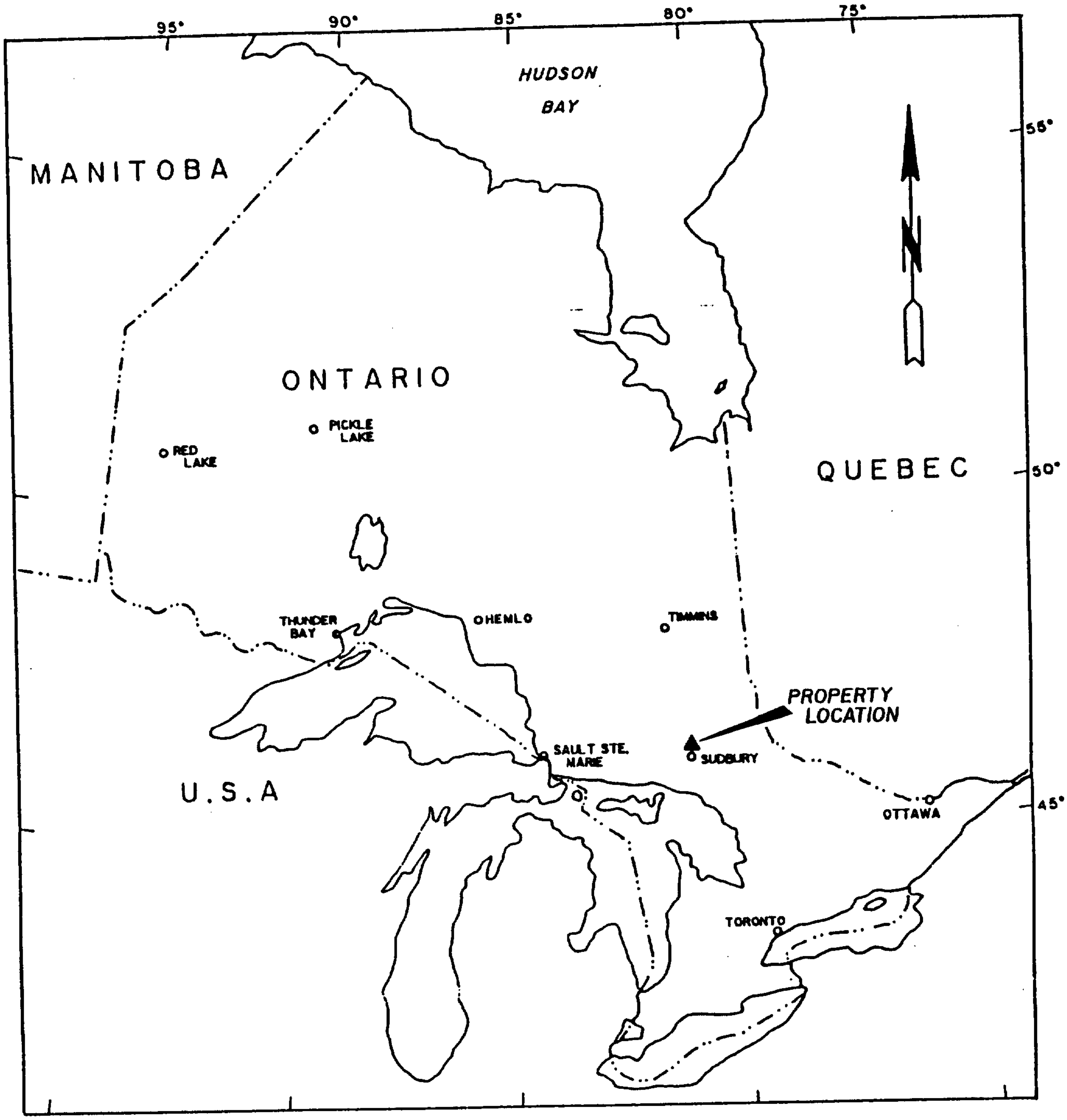


FIGURE I

GENERAL LOCATION MAP

ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONT.

DECEMBER, 1993

TABLE 1
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP CLAIM DESCRIPTION AND STATUS

Claim Number	Man-Days Credit
865264	200
865265	200
865266	200
865267	200
865269	200
1042298	60
1042299	60
1042300	60
734218	200

4. REGIONAL GEOLOGY

The property lies near the contact between Archean greenstone-granitoid rocks to the west and Proterozoic (Huronian) metasediments to the east; the latter stratigraphy unconformably overlying Archean rocks. The Huronian metasediments have been subdivided into the following litho-stratigraphic formations in this area: Mississagi, Bruce, Espanola, Serpent, Gowganda, and Lorrain (Meyn, 1970, p.ix). The foregoing rocks have been intruded by dykes of Nipissing-type diabase and olivine-diabase.

The property is underlain by Espanola and Serpent Formations of the Quirke Lake Group. The Espanola Formation in Parkin township consists of two members (Meyn, 1970). The lower member is a limestone interbedded with siltstone and the upper member is a fine-grained siltstone to sandstone. "The total thickness of the Espanola Formation is difficult to determine.... Total thickness is probably between 100 to 200 feet for the limestone...." (Meyn, opt cite, p. 17).

5. PROPERTY GEOLOGY AND STRUCTURE

The geology underlying the claim group in this area consists of interbedded limestone and varying proportions of clastic sediments of the Espanola and Bruce Formations intruded by mafic intrusive rocks.

Prospecting by Ontario Quarries Inc. personnel revealed more limestone than previously shown on Meyn's geology map (1970). Stripping and trenching carried out in this area indicates a potentially extensive zone of limestone (Figure 2, backpocket). The limestone uncovered forms a knoll trending northeast. It appears that this deposit is the eastern extension of the Main East Zone deposit (see General Location Map).

5.1 GEOLOGY

Underlying the deposit is a series of intercalated limestone, silty limestone and siltstone. A westerly trending contact separates siltstone units to the north from limestones to the south.

The siltstones north of the contact are fine grained, equigranular and poorly bedded. These rocks weather a grey-green colour and have a medium green fresh surface. Immediately north of the contact occurs a narrow unit of heterolithic rock consisting of limy siltstone and siltstone characterized by drag folding, brecciation and xenolithic inclusions.

South of the contact, rocks consist of dominantly brecciated and folded limestone with minor laminated limestone. Very minor to rare siltstone inclusions were observed in this area. In texture and structure these rocks resemble portions of the Main Deposit East Zone.

Brecciated limestone consists of variably sized fragments of original laminated limestone. The limestone is fine to medium grained and somewhat granular in texture. Thin laminae of silty composition within the limestone imparts a bedded or planar fabric to the fragments. The rocks weather a buff colour and have a pink, pinkish-green or buff-green fresh surface colour. Small scale drag folding imparts a wavy contorted structure or pattern to the rocks.

5.2 STRUCTURE

It appears from the limited exposure present in the deposit that rock contacts trend approximately west and dips are steep (80 degrees) to the north. The contact area has been strongly sheared resulting in brecciation and folding and siltstone inclusions being incorporated into the host limestones. South of the contact small-scale drag folding and brecciation of limestone is common.

Jointing cannot be adequately assessed at this time due to limited outcrop exposure and overburden cover present. Where observed however, fractures are variably spaced.

6. CONCLUSIONS AND RECOMMENDATIONS

Prospecting work carried out by Ontario Quarries Inc. resulted in the discovery of a new limestone deposit. The very distinctive colours, textures and structures of this stone make it a highly attractive and commercially viable product.

The primary objective for the next phase of exploration is to increase the deposit size to a commercially viable scale. Several approaches can be considered as recommended below.

1) Continued stripping and trenching of deposit site and immediate surrounding area.

2) Prospecting to establish continuity of deposit along strike length.

3) Exploratory drilling by shallow diamond holes along strike length and width to establish deposit continuity is recommended.

4) Hydraulic power stripping to wash main deposit area in order to carry out preliminary structural analysis.

5) ASTM testing of deposit materials.

7. BIBLIOGRAPHY

1. Meyn, H., 1970

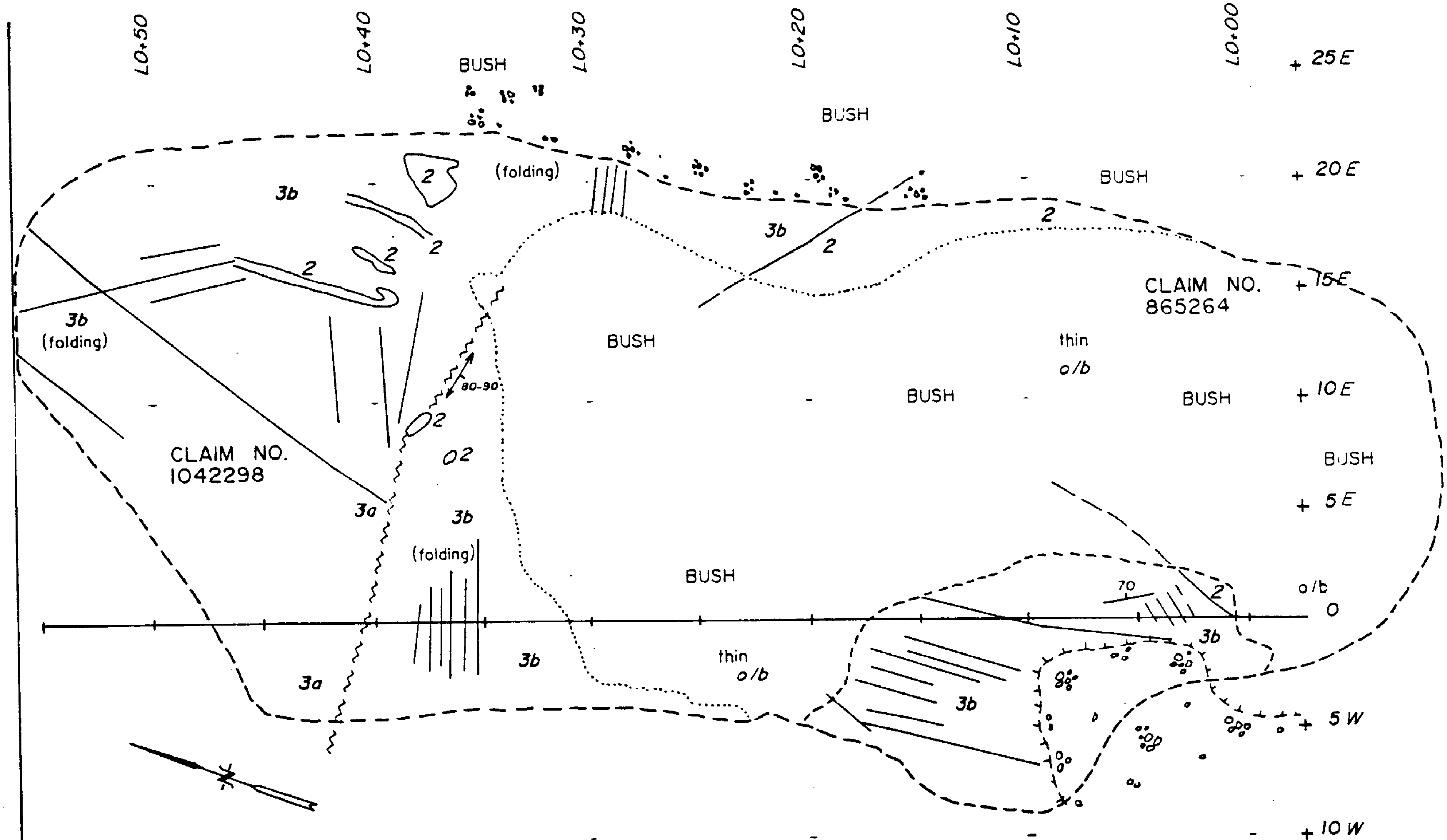
Geology of Hutton and Parkin Townships, ODM Geol. Report 80.

2. Sawitzky, E., 1991

Harama Marble Property; in-house company report.

3. Sawitzky, E., 1992

Geological Report on the Harama Marble Property; in-house company report.



LEGEND

	OUTCROP
o/b	OVERBURDEN
	CONTACT
	FRACTURES
	RUBBLE PILE
	FAULT
50	SHEAR
70	BEDDING

2	SILTSTONE
3a	LIMY SILTSTONE
3b	SILTY LIMESTONE

0 5 10
METRES

FIGURE 2
ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONTARIO
GEOLOGY (Deposit #3)
BY: NORWIN GEOLOGICAL LTD.
PREPARED BY: E.S DRAWN BY: E.P.
SCALE: 1 : 500
DATE: NOV. 1993

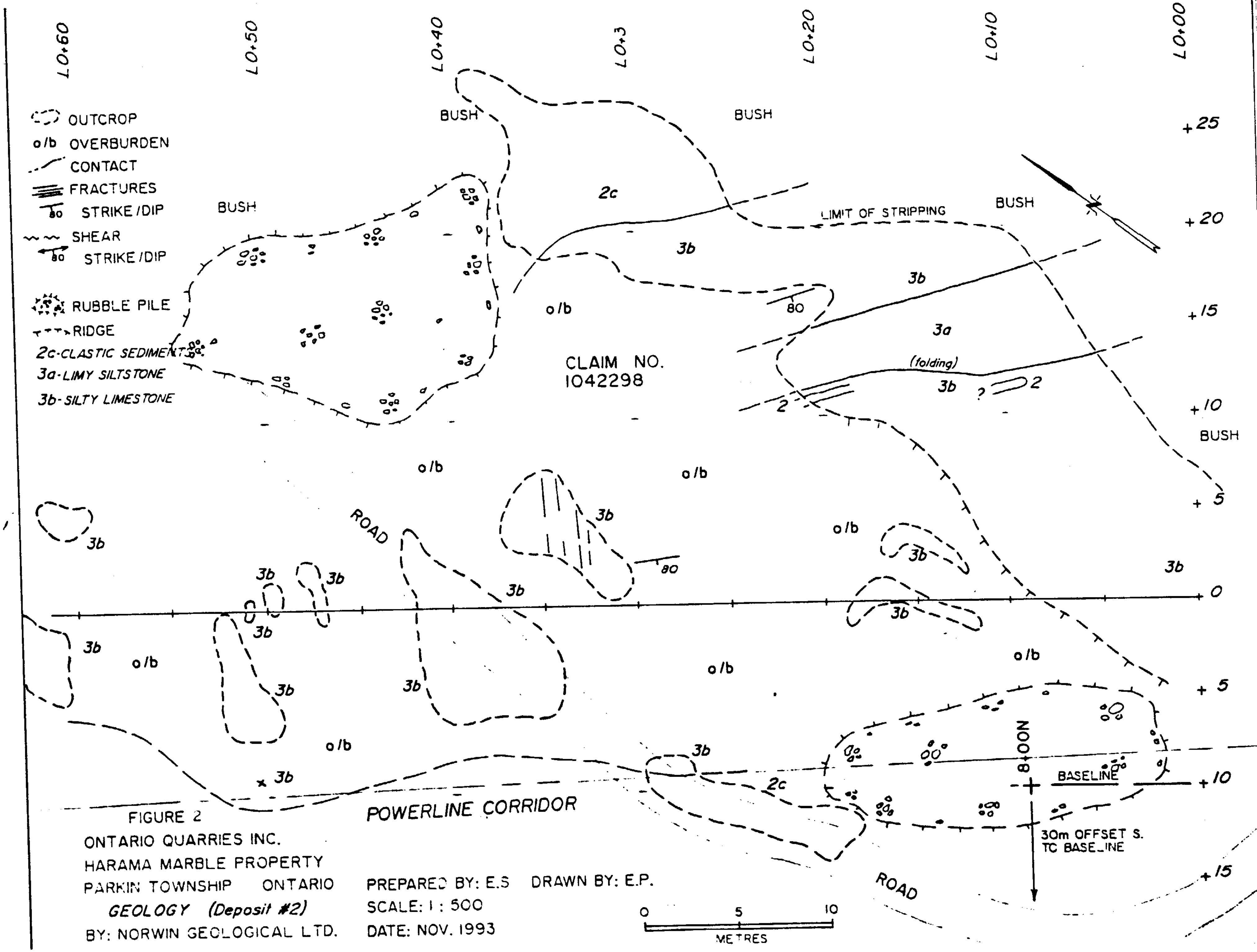


FIGURE 2
ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONTARIO
GEOLOGY (Deposit #2)
BY: NORWIN GEOLOGICAL LTD.

PREPARED BY: E.S DRAWN BY: E.P.
SCALE: 1 : 500
DATE: NOV. 1993

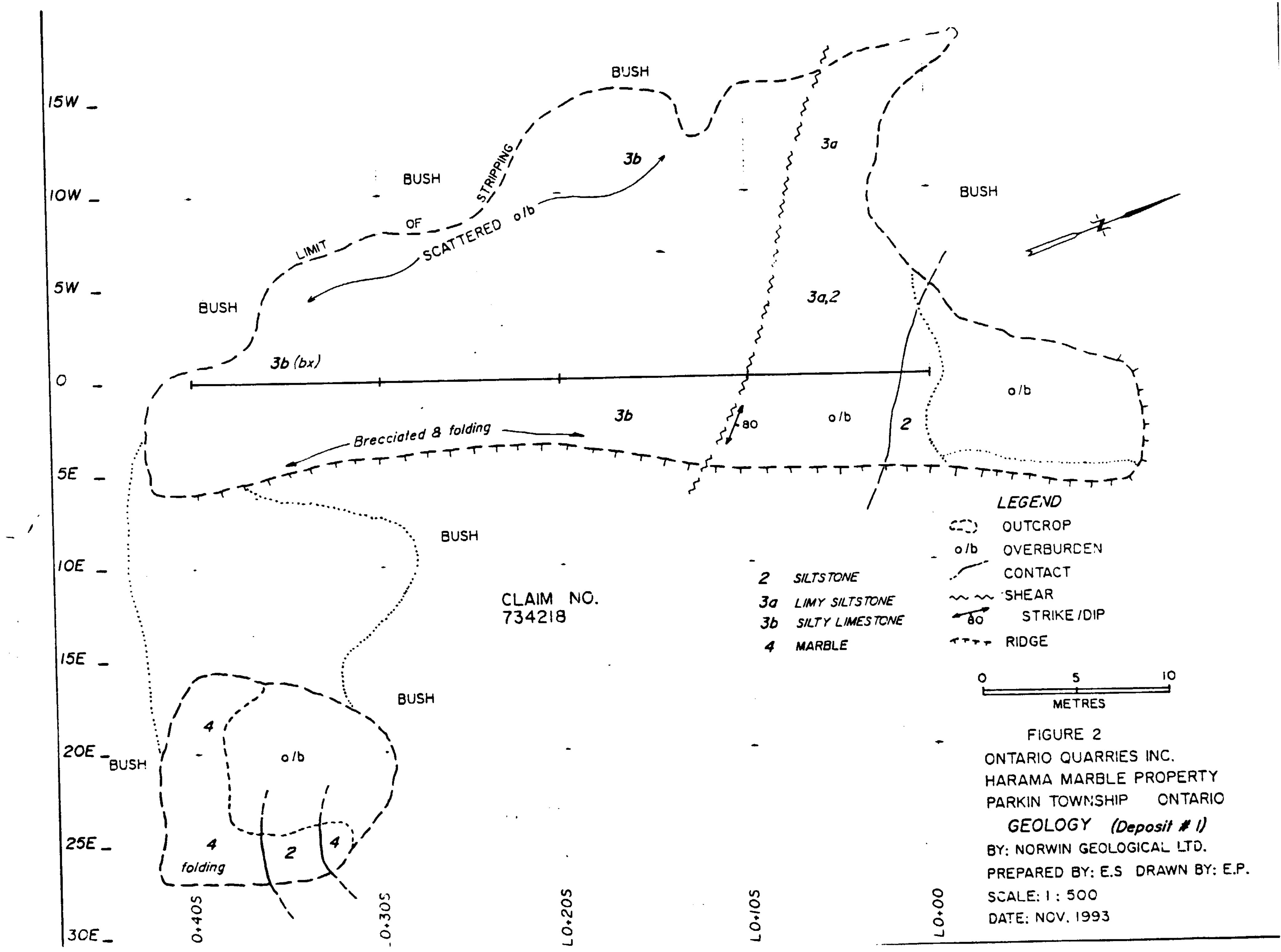


FIGURE 2
ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONTARIO
GEOLOGY (Deposit # I)
BY: NORWIN GEOLOGICAL LTD.
PREPARED BY: E.S DRAWN BY: E.P.
SCALE: 1 : 500
DATE: NOV. 1993

FOR GENERAL LOCATION MAP (GEOLOGICAL)

Showing the location of all deposits with respect to each other and the Main Claim Package,

PLEASE CONSULT BACK POCKET FOLDER IN APPENDIX G

APPENDIX E

GEOLOGICAL REPORT

ON THE

HARAMA MARBLE PROPERTY

DEPOSIT 2

PARKIN TOWNSHIP

DISTRICT OF SUDBURY

ONTARIO

FOR

ONTARIO QUARRIES INC.

E. Sawitzky
Norwin Geological Ltd.
December, 1993

TABLE OF CONTENTS

1. INTRODUCTION

Ontario Quarries Inc. requested Norwin Geological Ltd. to carry out geological mapping of a newly discovered limestone deposit found within the original nine (9) claim group.

On October 25 and 26, 1993 a program of line-cutting and geological mapping was undertaken. The following report is a presentation of the results of the work carried out in evaluating the potential of the property.

2. PROPERTY LOCATION AND ACCESS

The property is located in the west central part of Parkin Township, District of Sudbury, approximately 40 kilometres north of Sudbury, Ontario.

The property can be accessed by the following route from Capreol: fifteen km along Hwy 545, then a public service road leading northeast to the deposit, a distance of 6 km. (Figure 1).

3. CLAIM GROUP AND STATUS

The property occurs on the original nine (9) unpatented contiguous mining claims acquired by the company, in Parkin Township, District of Sudbury; claims are listed in Table 1. The claim group is in good standing with respect to the assessment credits required.

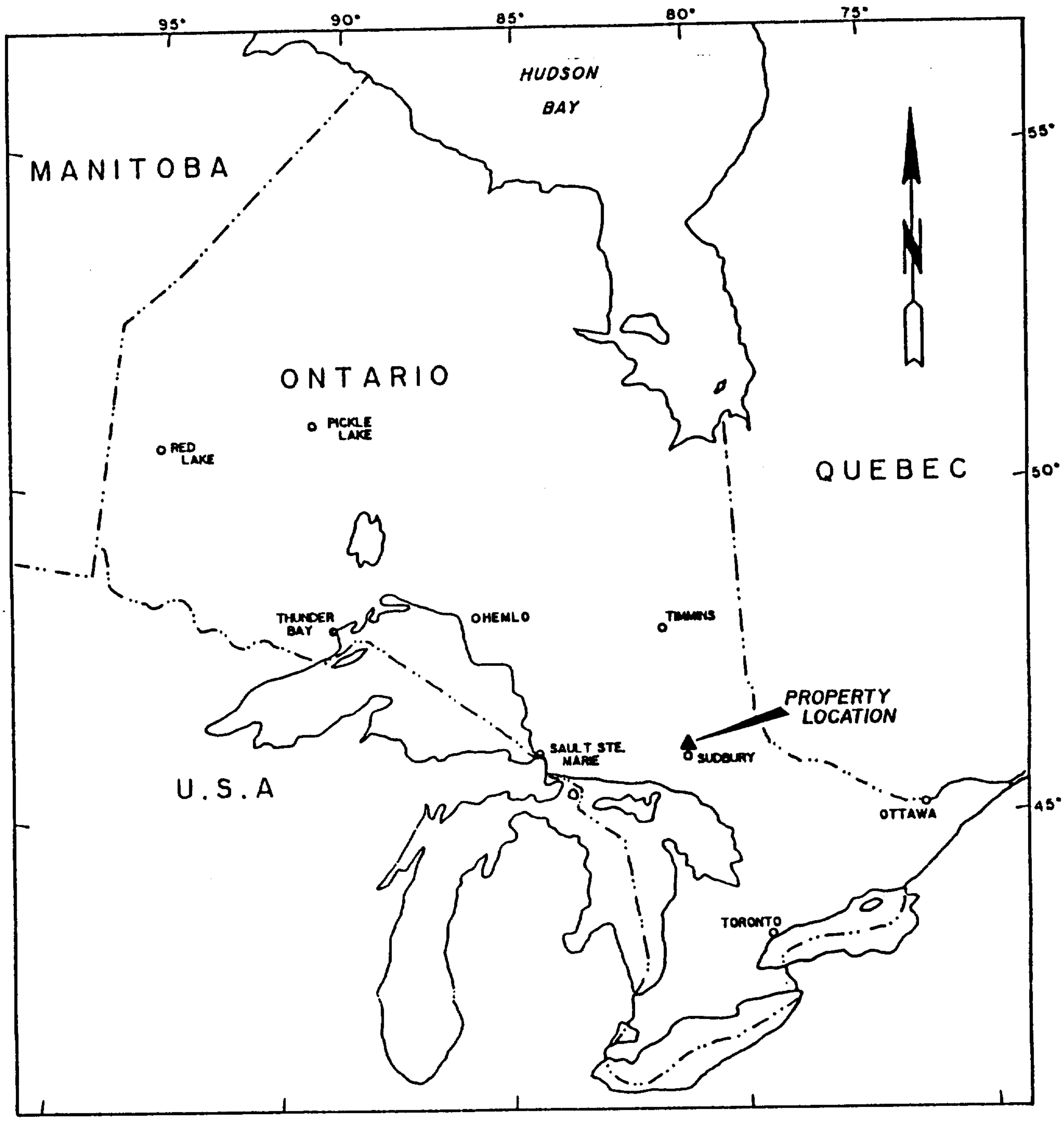


FIGURE 1

GENERAL LOCATION MAP

ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONT.

DECEMBER, 1993

TABLE 1

HARAMA MARBLE PROPERTY

PARKIN TOWNSHIP CLAIM DESCRIPTION AND STATUS

Claim Number	Man-Days Credit
865264	200
865265	200
865266	200
865267	200
865269	200
1042298	60
1042299	60
1042300	60
734218	200

4. REGIONAL GEOLOGY

The property lies near the contact between Archean greenstone-granitoid rocks to the west and Proterozoic (Huronian) metasediments to the east; the latter stratigraphy unconformably overlying Archean rocks. The Huronian metasediments have been subdivided into the following litho-stratigraphic formations in this area: Mississagi, Bruce, Espanola, Serpent, Gowganda, and Lorrain (Meyn, 1970, p.ix). The foregoing rocks have been intruded by dykes of Nipissing-type diabase and olivine-diabase.

The property is underlain by the Espanola and Serpent Formations of the Quirke Lake Group. The Espanola Formation in Parkin township consists of two members (Meyn, 1970). The lower member is a limestone interbedded with siltstone and the upper member is a fine-grained siltstone to sandstone. "The total thickness of the Espanola Formation is difficult to determine.... Total thickness is probably between 100 to 200 feet for the limestone...." (Meyn, opt cite, . 17).

5. PROPERTY GEOLOGY AND STRUCTURE

The geology underlying the claim group in this area consists of interbedded limestone and varying proportions of clastic sediments of the Espanola and Bruce Formations intruded by mafic intrusive rocks. Prospecting by Ontario Quarries Inc. personnel revealed more limestone than previously shown on Meyn's geology map (1970). Stripping and trenching carried out on claim 1042298 and 865264 indicate a potentially extensive area underlain by limestone (Figure 2, backpocket). The limestone uncovered forms a west sloping outcrop trending northwest. This deposit is separate and distinct from limestone of the Main Deposit.

5.1 GEOLOGY

The geology of the deposit area consists of limestone sandwiched between two units of clastic sediments. Both overlying and underlying contacts with clastic sediments are exposed. The limestone unit consists of both a limy siltstone and a silty limestone.

The clastic sediments bounding the deposit to the north and south consists of a heterolithic, pebble and cobble-bearing, clast-supported conglomerate and\ or breccia that lacks obvious bedding.

The deposit itself consists of silty limestone intercalated with a narrow zone of limy siltstone. The rocks are characterized by planar laminated limestones; brecciation and folding both appear to be rare.

The limy siltstone unit is approximately 2 to 4 meters wide and has a high silt/lime ratio. These rock are fine to medium grained, lack bedding and weather a buff-green colour. Very minor inclusions of siltstone fragments occur along the south contact of this unit.

The predominate rock type in this deposit is a thin to thickly laminated limestone. These rocks are generally devoid of brecciation and/or folding. The limestone is fine to medium grained, equigranular and has a granular texture. Bedding is consistent throughout giving the deposit its characteristic planar fabric. The rocks weather a buff colour and have a buff-green fresh surface colour.

5.2 STRUCTURE

It appears from the limited exposure present in the deposit that stratigraphy trends to the northwest. Bedding strikes northwest and dips steeply southwards. Minor shearing and associated drag folding occurs along the southern contact of the limy siltstone unit.

Jointing cannot be adequately assessed at this time due to limited outcrop exposure and overburden cover present. At the baseline and 0+50 west fracturing is strong but appears to be localized to this area. Observed fractures are more widely spaced elsewhere in the deposit.

6. CONCLUSIONS AND RECOMMENDATIONS

Prospecting work carried out by Ontario Quarries Inc. resulted in the discovery of a new limestone deposit. The very distinctive colours, textures and structures of this stone make it a highly attractive and commercially viable product.

The primary objective for the next phase of exploration is to increase the deposit size to a commercially viable scale. Several approaches can be considered as recommended below.

1) Continued stripping and trenching of deposit site and immediate surrounding area.

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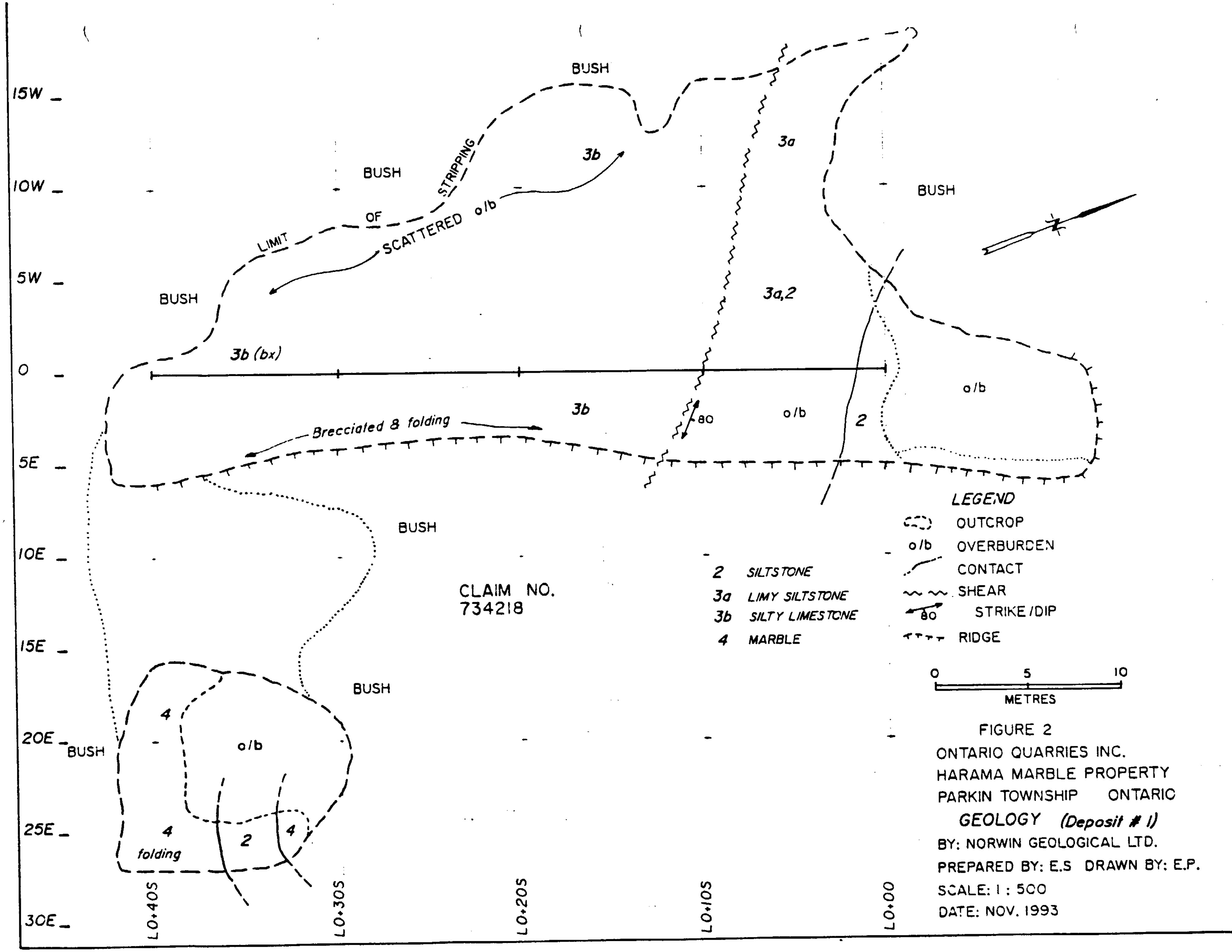

FIGURE 2
ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONTARIO
GEOLOGY (Deposit # 1)
BY: NORWIN GEOLOGICAL LTD.
PREPARED BY: E.S DRAWN BY: E.P.
SCALE: 1 : 500
DATE: NOV. 1993

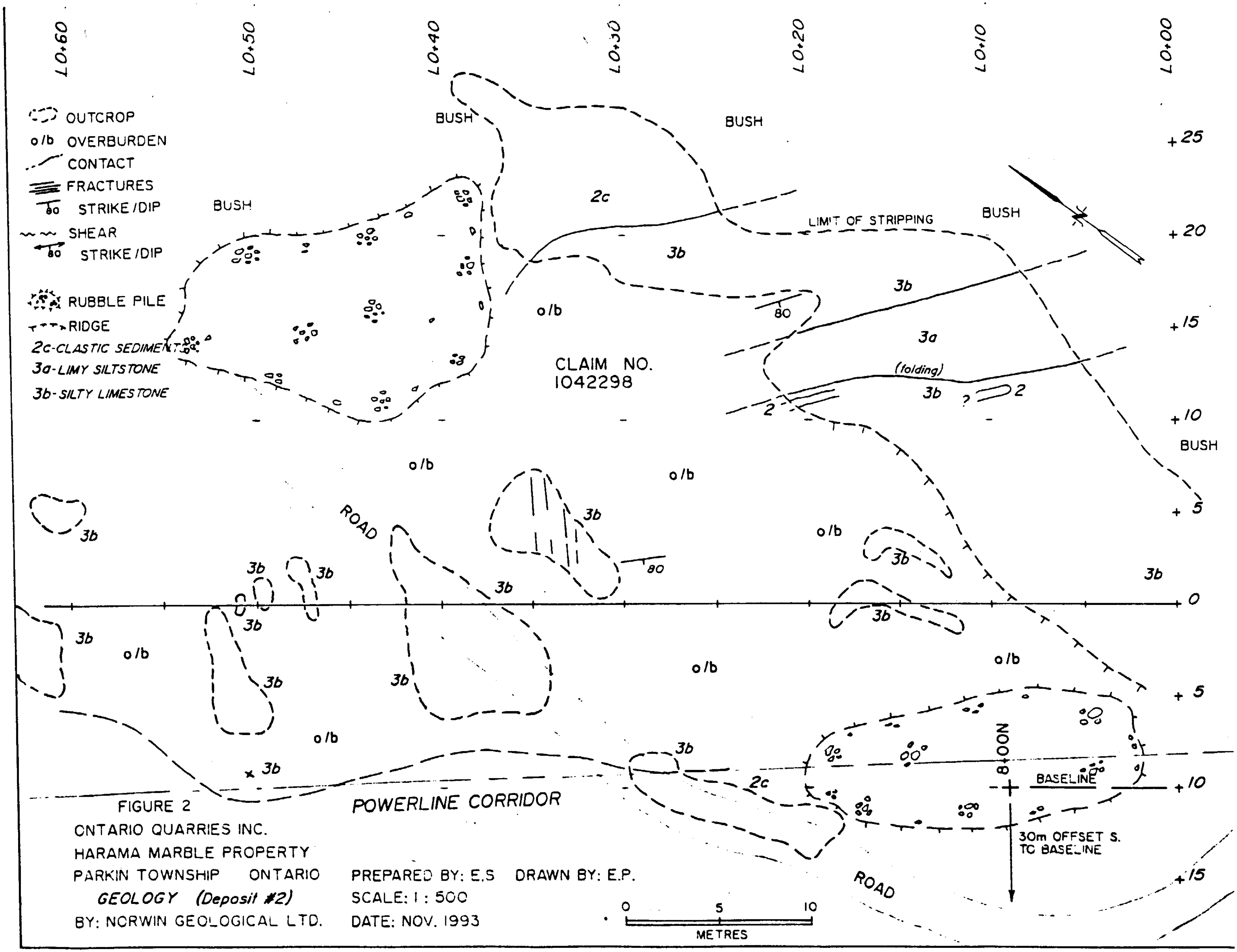

FIGURE 2
ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONTARIO
GEOLOGY (Deposit #2)
BY: NORWIN GEOLOGICAL LTD.
PREPARED BY: E.S DRAWN BY: E.P.
SCALE: 1 : 500
DATE: NOV. 1993

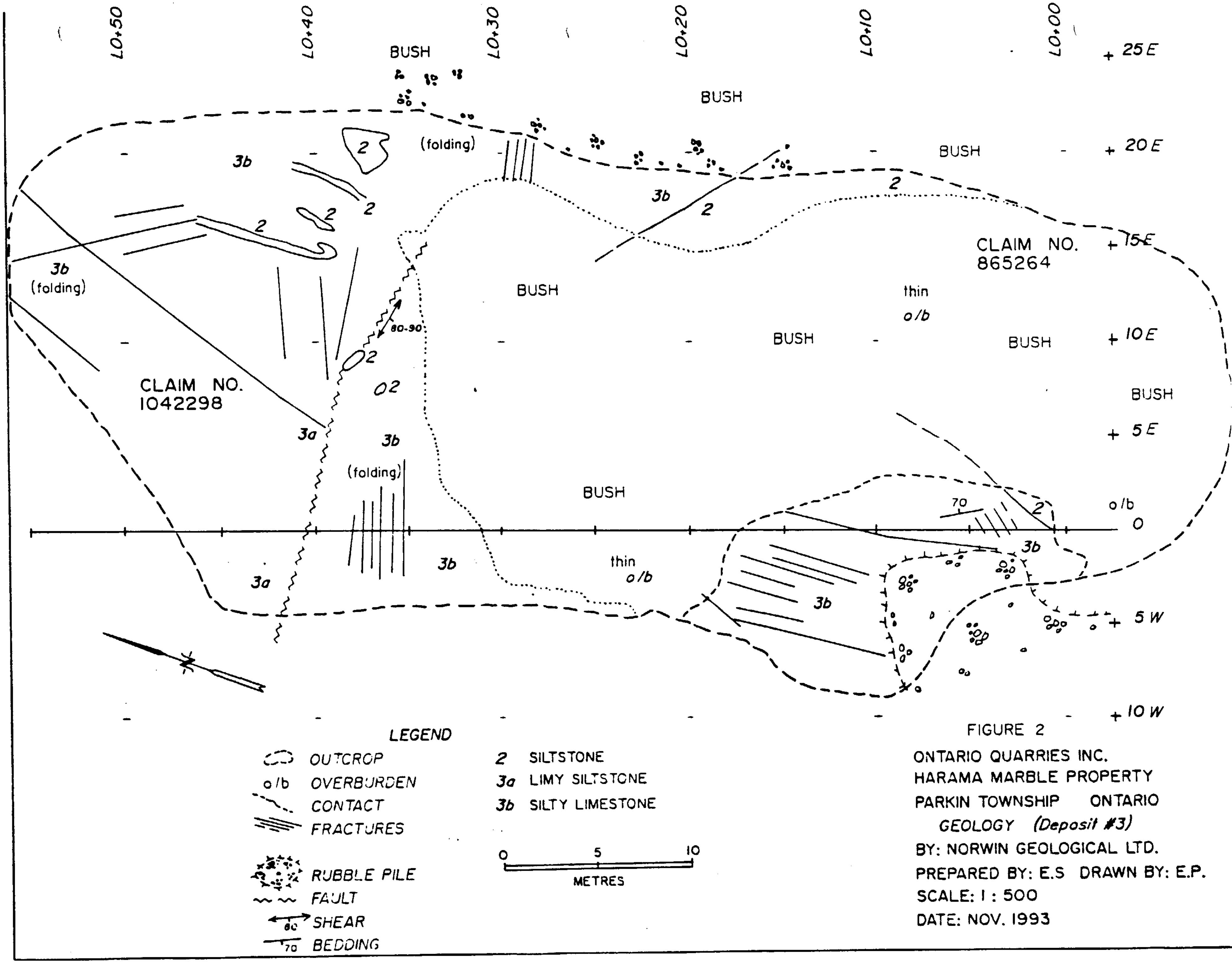

FIGURE 2

ONTARIO QUARRIES INC.

HARAMA MARBLE PROPERTY

PARKIN TOWNSHIP ONTARIO

GEOLOGY (Deposit #3)

BY: NORWIN GEOLOGICAL LTD.

PREPARED BY: E.S DRAWN BY: E.P.

SCALE: 1 : 500

DATE: NOV. 1993

FOR GENERAL LOCATION MAP (GEOLOGICAL)

Showing the location of all deposits with respect to each other and the Main Claim Package,

PLEASE CONSULT BACK POCKET FOLDER IN APPENDIX G

APPENDIX F

GEOLOGICAL REPORT

ON THE

HARAMA MARBLE PROPERTY

DEPOSIT 3

PARKIN TOWNSHIP

DISTRICT OF SUDBURY

ONTARIO

FOR

ONTARIO QUARRIES INC.

E. Sawitzky
Norwin Geological Ltd.
December, 1993

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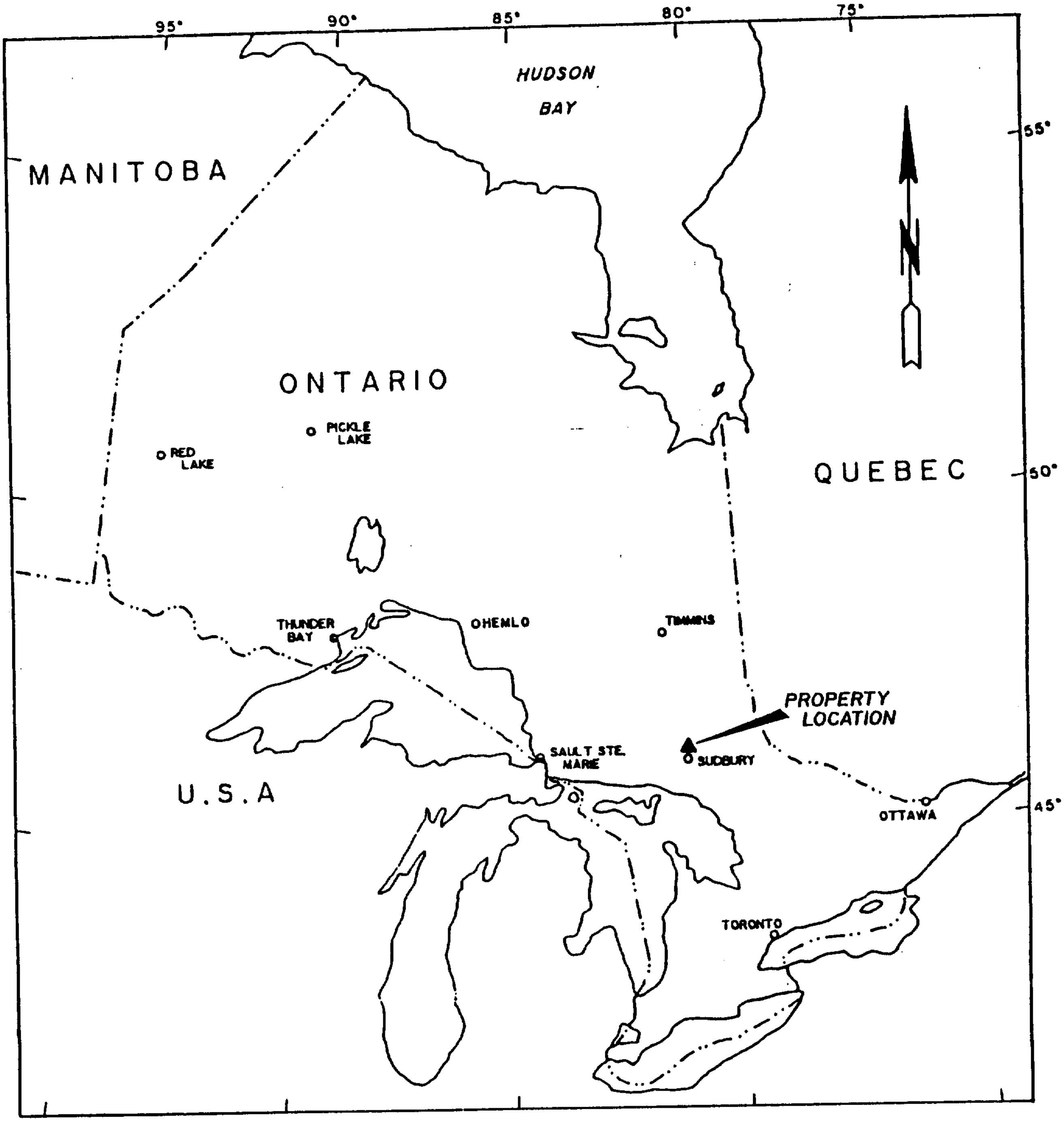

FIGURE I

GENERAL LOCATION MAP

ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONT.

DECEMBER, 1993

TABLE 1

HARAMA MARBLE PROPERTY

PARKIN TOWNSHIP CLAIM DESCRIPTION AND STATUS

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865266	200
865267	200
865269	200
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1042299	60
1042300	60
734218	200

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The geology underlying the claim group in this area consists of interbedded limestone and varying proportions of clastic sediments of the Espanola and Bruce Formations intruded by mafic intrusive rocks. Prospecting by Ontario Quarries Inc. personnel revealed more limestone than previously shown on Meyn's geology map (1970). Stripping and trenching carried out on claim 1042298 indicates a potentially extensive area underlain by limestone (Figure 2, backpocket). The limestone uncovered forms a relatively flat outcrop series trending northwest. These rocks represent a deposit separate and distinct from the Main Deposit.

5.1 GEOLOGY

The deposit is underlain by a series of limestones and clastic sediments. The southwestern contact of the limestone with heterolithic conglomerate (similar to the number 2 deposit area) occurs immediately west of the baseline (not shown on accompanying geology map due to scale). The northeast limit or contact of the limestone has not been established.

Siltstone in contact with deposit limestone occurs in the southeast corner of the stripped area. These rocks are fine grained, equigranular and poorly bedded. The rocks weather a medium grey-green colour and have a dark green fresh surface. The trend or extent of this unit is not clear. Siltstone fragments, lenses or pods occur dispersed in limestone in the northeast sector of the deposit.

Limy siltstone occurs in the northwest sector of the deposit and has a gradational contact with silty limestone to the north and a fault contact to the south. The limy siltstone is characterized by a high silt\lime ratio and its distinctly darker green weathering.

The predominate rock type in the deposit is a silty limestone characterized by thick laminations which imparts a strong planar fabric to the rock. However, in the northern portion of the deposit a number of fold styles occur resulting in an array of 'wavy' rock patterns and fabrics. The limestone is fine to medium grained, equigranular and granular in texture. The rocks weather a buff-tan colour and have a buff-grey to pink-green-buff fresh surface colour. Sulphides are absent.

5.2 STRUCTURE

It appears from the limited outcrop exposure present that stratigraphy trends northwest (?). Bedding strikes northwest and dips are steep (70 degrees) to the east. Contacts with a siltstone unit are present but its significance is not clear (see Figure 2).

Shearing occurs in the northwest portion of the deposit and forms a west trending contact between two limestone units. Drag folding is associated with this shear. Folding, in general, is common within the north portion of the deposit. Fold styles vary across the deposit.

Jointing cannot be adequately assessed at this time due to limited outcrop exposure and overburden cover present. However, it appears that three preferred orientations of jointing occur as indicated on the geology map (Figure 2, backpocket). Joint spacing may be fairly tight in places (<<0.5 meters) to wide (> 1 or 2 meters) in others.

6. CONCLUSIONS AND RECOMMENDATIONS

Prospecting work carried out by Ontario Quarries Inc. resulted in the finding of a new limestone deposit. The very distinctive colours, textures and structures of this stone make it a highly attractive and commercially viable product.

The primary objective for the next phase of exploration is to increase the deposit size to a commercially viable scale. Several approaches can be implemented as recommended below.

1) Continued stripping and trenching of deposit site and immediate surrounding area.

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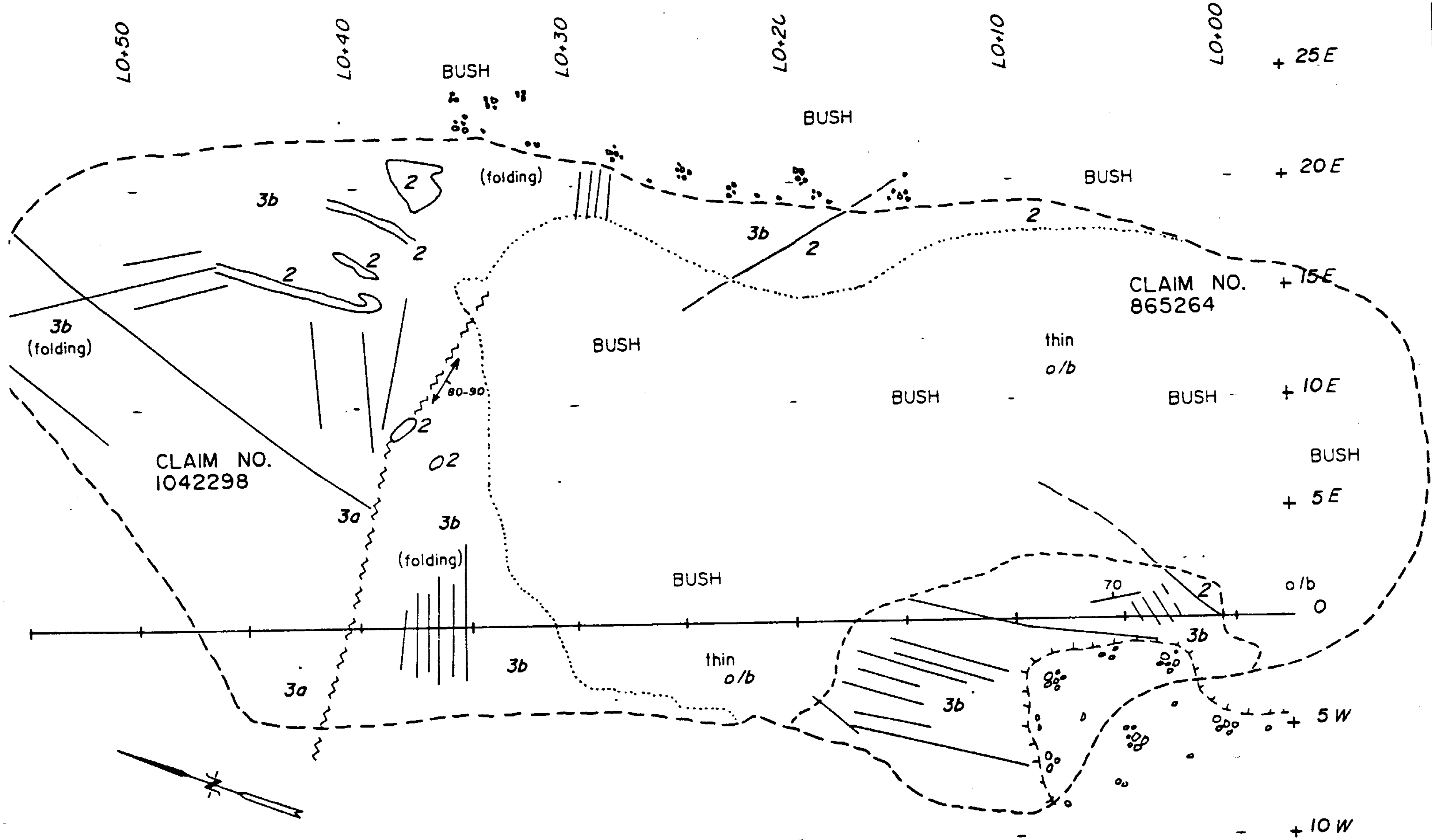

LEGEND

OUTCROP
o/b OVERBURDEN
CONTACT
FRACTURES
RUBBLE PILE
FAULT
80 SHEAR

2 SILTSTONE
3a LIMY SILTSTONE
3b SILTY LIMESTONE

0 5 10
METRES

FIGURE 2

ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONTARIO
GEOLOGY *(Deposit #3)*
BY: NORWIN GEOLOGICAL LTD.
PREPARED BY: E.S DRAWN BY: E.P.
SCALE: 1 : 500
DATE: NOV. 1993

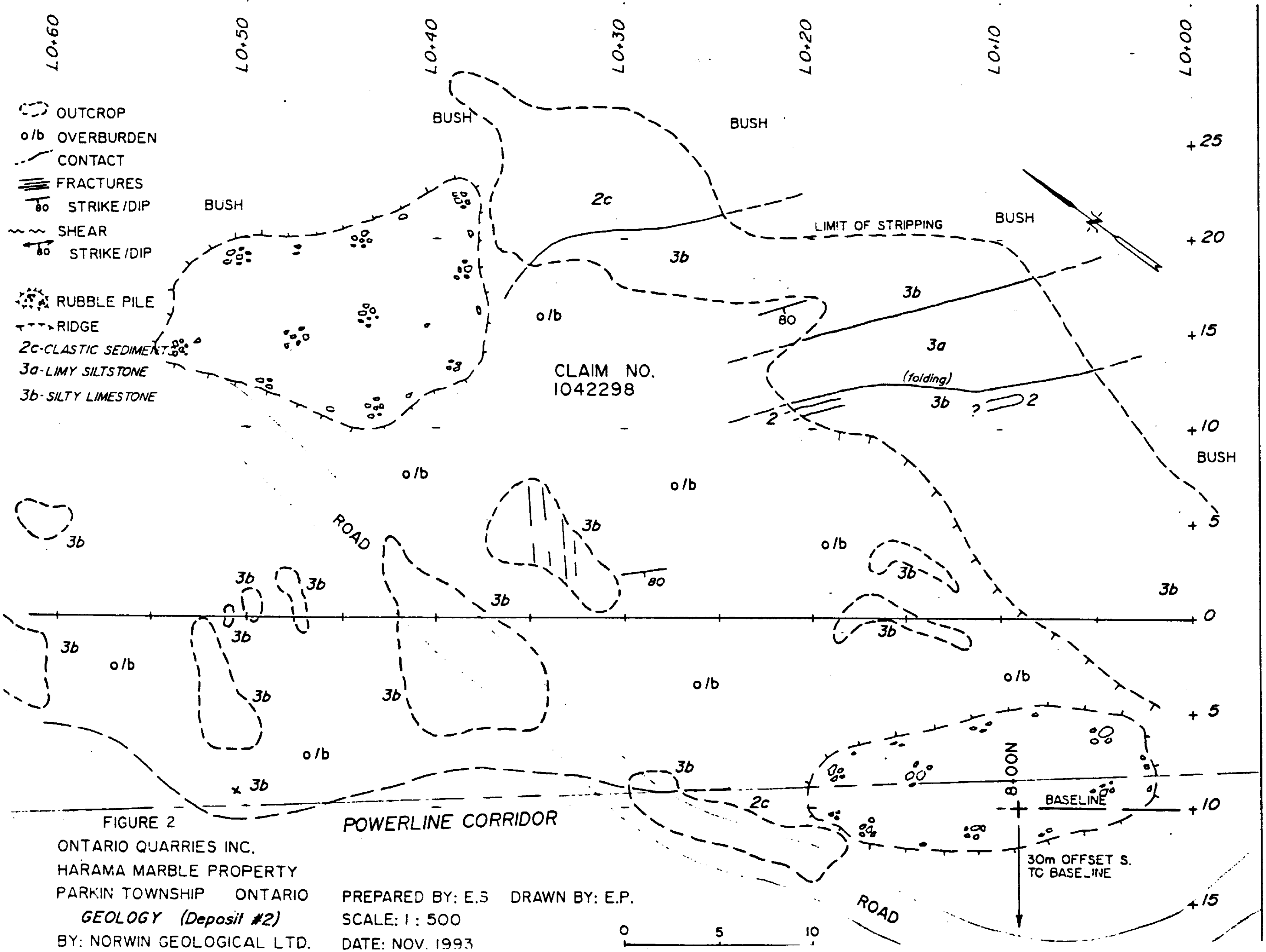

FIGURE 2

ONTARIO QUARRIES INC.

HARAMA MARBLE PROPERTY

PARKIN TOWNSHIP ONTARIO

GEOLOGY (Deposit #2)

BY: NORWIN GEOLOGICAL LTD.

PREPARED BY: E.S DRAWN BY: E.P.

SCALE: 1 : 500

DATE: NOV. 1993

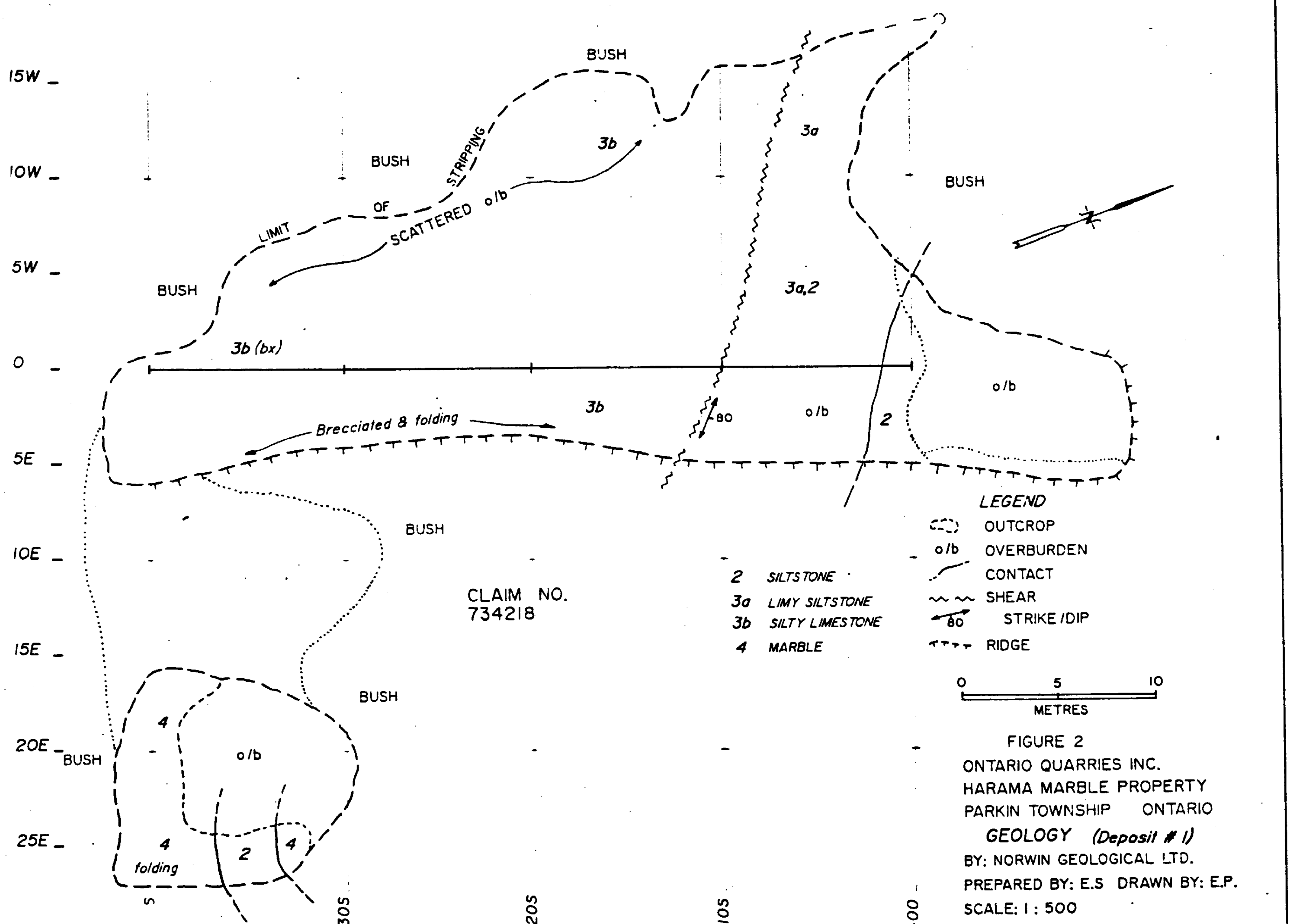

FIGURE 2
ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONTARIO
GEOLOGY (Deposit # 1)
BY: NORWIN GEOLOGICAL LTD.
PREPARED BY: E.S DRAWN BY: E.P.
SCALE: 1 : 500

Mining Program, Norton Sound, Alaska. Workshop proceedings. Held in Anchorage, Alaska on November 30-December 1, 1989.
AU - Mitchell, K.L.
CS - MBC Applied Environmental Sciences, Inc., Costa Mesa, CA (USA)
PU - 1990, 181 pp
OCS REP. U.S. MINER. MANAGE. SERV., (1990), 181 pp.
NU - OCS/MMS-90/0059
LA - English

10 / 8
AN - 1770295
VN - N2304: 3-04436
RE - 9332304436
TI - RCRA regulation impact on Alaska Mineral Development Tailings Management.
AU - Brodie, M.J.; Banta, F.R.; Skermer, N.A.
CS - Steffen, Robertson and Kirsten, Inc., Vancouver, BC (Canada)
PU - 1992, 152 pp
OPEN-FILE REP. U.S. BUR. MINES., (1992), 152 pp.
NU - BUMINES-OFR-94-92
LA - English

10 / 9
AN - 1770212
VN - N2304: 3-04341
RE - 9332304341
TI - Environmental impact of marine colliery waste disposal operations on the sea bed off Seaham, County Durham.
AU - Limpenny, D.S.; Rowlatt, S.M.; Manning, P.M. (MAFF Fish. Lab., Remembrance Ave., Burnham-on-Crouch, Essex, UK)
PU - 1992, 19 pp
AQUAT. ENVIRON. MONIT. REP. DIR. FISH. RES. (G.B.)., (1992), 19 pp.
LA - English

10 / 10
AN - 1769728
VN - N2304: 3-03644
RE - 9332303644
TI - Environmental assessment of the provision of a water supply system at Gunnison, Colorado. Final.
CS - Department of Energy, Albuquerque, NM (USA). Uranium Mill Tailings Project Off.
PU - 1991, 60 pp
REP. U.S. DEP. ENERGY., (1991), 60 pp.
NU - DOE/EA-0529
LA - English

11/
s s10 not (tailing* or acid* or Alaska or marine)

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          249      tailing* (  2   *--*TERMS )
          10597    acid* (  53   *--*TERMS )
          2938     Alaska
          48095    marine
 SET   11: 162     (10 AND NOT (tailing* or acid* or Alaska or
                    marine)) ASONE SET
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12/
type s11//1-10

11 / 1
AN - 1801894
VN - N2310: 1-19076; N2401: 3-00694
RE - 9412319076
- The structure of megabenthic assemblages of an abyssal polymetallic nodule province located in the tropical east Pacific Ocean.

La structure des assemblages megabenthiques d'une province a nodules polymetalliques de l'ocean Pacifique tropical Est
AU - Tilot, V.
CS - Bretagne Occidentale Univ., Brest (France)
PU - BREST (FRANCE), UNIV. BRETAGNE OCCIDENTALE, 1992, 380 pp
LA - French

11 / 2
AN - 1782206
VN - N2306: 3-06772
RE - 9332306772
TI - Forum on Science and Resource-Related Issues in Hydroelectric Development. An unpublished report prepared for the Office on Energy Research and Development, Department of Energy, Mines and Resources, Ottawa, Ontario.
AU - Reeves, R.R.; Bunch, J.N. (eds.)
CS - Department of Fisheries and Oceans, Ottawa, ON (Canada). Physical and Chemical Sciences Dir.
PU - 1993, 43 pp
CF - Presented at: Forum on Science and Resource-Related Issues in Hydroelectric Development, Ottawa, ON (Canada), 7 Jan 1993
LA - English

11 / 3
AN - 1781034
VN - N2310: 2-07971; N2306: 3-06780
RE - 9322307971
TI - The recovery and processing of iron-manganese nodules and the turbidity of the bottom layer of the ocean.
AU - Baturin, G.N.; Demidova, T.A.; Kontar', Y.A.; Kurlayev, N.D. (Shirshov Inst. Oceanol., Acad. Sci., Moscow, Russia)
PU - OCEANOL. ACAD. SCI. USSR., (1991), vol. 31, no. 4, pp. 473-481.
LA - English

11 / 4
AN - 1769669
VN - N2307: 2-05575
RE - 9322305575
TI - Environmental data collection and assessment for deep ocean mining programme.
AU - Markanday, S.; Singh, T.R.P. (Engineers India Ltd., New Delhi, India)
PU - THE PROCEEDINGS OF THE FIRST (1991) INTERNATIONAL OFFSHORE AND POLAR ENGINEERING CONFERENCE. VOLUME 1, 1991. Chung, J.S.; Natvig, B.J.; Kaneko, K.; Ferrante, A.J. (eds.), GOLDEN, CO (USA), INTERNATIONAL SOCIETY OF OFFSHORE AND POLAR ENGINEERS, 1991, pp. 433-439.
CF - Presented at: 1. Int. Offshore and Polar Engineering Conf., Edinburgh (UK), 11-16 Aug 1991
NU - ISBN 0-9626104-6-1
LA - English

11 / 5
AN - 1766337
VN - N2303: 1-05029; N2303: 3-03387
RE - 9312305029
TI - Auditing a flooded quarry prior to marina development.
AU - Baillie, P.W. (Mar. and Freshwat. Res. Serv., 276 State St., Guilford, CT 06437, USA)
PU - ENVIRON. MANAGE., (1992), vol. 16, no. 4, pp. 531-540.
LA - English

11 / 6
AN - 1764024

VN - N2303: 3-03533
RE - 9332303533
TI - Status of the Ocoee Reservoirs: An overview of reservoir conditions and uses.
~S - Tennessee Valley Auth., Chattanooga (USA). Water Quality Dep.
J - 1991, 30 pp
NU - TVA/WR/WQ-91/4
LA - English

11 / 7
AN - 1763971
VN - N2303: 3-03391
RE - 9332303391
TI - Some considerations on stone removal from river basin and resultant effects.
AU - Gautam, A. (Biogas and Environ. Control Plant, India Glycols Ltd., P.B. No. 22, Kashipur (Nainital) 244713 U.P., India)
PU - J. ECOBIOL., (1992), vol. 4, no. 1, pp. 55-58.
LA - English

11 / 8
AN - 1760869
VN - N2302: 1-03084; N2303: 2-01646
RE - 9312303084
TI - The battle for the eastern shores. Part 6.
AU - Anon.
PU - VELD FLORA., (1991), vol. 77, no. 4, pp. 118-119.
NU - ISSN 0042-3203
LA - English

11 / 9
AN - 1752986
VN - N2301: 3-00915
RE - 9332300915
TI - Impact of surface coal mining on three Ohio watersheds -- Ground-water chemistry.
AU - Bonta, J.V.; Amerman, C.R.; Dick, W.A.; Harlukowicz, T.J.; Razem, A.C. (USDA-ARS, North Appalachian Exp. Watershed, P.O. Box 478, Coshocton, OH 43812, USA)
PU - WATER RESOUR. BULL., (1992), vol. 28, no. 3, pp. 597-614.
LA - English

11 / 10
AN - 1752969
VN - N2301: 3-00827
RE - 9332300827
TI - Sediment problems from gold mining in the Rio Caroni Basin.
AU - Gomez, H.R.; Nordin, C.F. (C.V.G. Electr. Caroni C.A., Caracas, Venezuela)
PU - SEDIMENT MANAGEMENT. 5th INTERNATIONAL SYMPOSIUM ON RIVER SEDIMENTATION, KARLSRUHE, 1992. PROCEEDINGS, VOLUME 2. Larsen, P.; Eisenhauer, N. (eds.), (KARLSRUHE (FRG)), (UNIV. KARLSRUHE INST. OF HYDRAULIC STRUCTURES AND AGRICULTURAL ENGINEERING), 1992, pp. 1113-1120.
CF - Presented at: 5. Int. Symp. on River Sedimentation, ISRS 5, Karlsruhe (FRG), 6-10 Apr 1992
LA - English
12/
s s11 not (ocean* or sea* or reservoir* or coal*)
100 terms accessed, 100 combined, continuing
33761 ocean* (119 *--*TERMS)
terms accessed, 100 combined, continuing
200 terms accessed, 200 combined, continuing
WORKING 20 seconds

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          73269     sea* ( 281   *--*TERMS )
          4392      reservoir* (  3    *--*TERMS )
          464       coal* (  15   *--*TERMS )
s s11 not ( WORKING  20  seconds

 WORKING  40  seconds
 WORKING  60  seconds
 WORKING  80  seconds
 WORKING 100  seconds
 WORKING 120  seconds
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                      coal*)) ASONE SET
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type s12//1-10
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12 / 1

AN - 1782206
VN - N2306: 3-06772
RE - 9332306772
TI - Forum on Science and Resource-Related Issues in Hydroelectric Development. An unpublished report prepared for the Office on Energy Research and Development, Department of Energy, Mines and Resources, Ottawa, Ontario.
AU - Reeves, R.R.; Bunch, J.N. (eds.)
CS - Department of Fisheries and Oceans, Ottawa, ON (Canada). Physical and Chemical Sciences Dir.
PU - 1993, 43 pp
CF - Presented at: Forum on Science and Resource-Related Issues in Hydroelectric Development, Ottawa, ON (Canada), 7 Jan 1993
LA - English

12 / 2

N - 1766337
N - N2303: 1-05029; N2303: 3-03387
RE - 9312305029
TI - Auditing a flooded quarry prior to marina development.
AU - Baillie, P.W. (Mar. and Freshwat. Res. Serv., 276 State St., Guilford, CT 06437, USA)
PU - ENVIRON. MANAGE., (1992), vol. 16, no. 4, pp. 531-540.
LA - English

12 / 3

AN - 1763971
VN - N2303: 3-03391
RE - 9332303391
TI - Some considerations on stone removal from river basin and resultant effects.
AU - Gautam, A. (Biogas and Environ. Control Plant, India Glycols Ltd., P.B. No. 22, Kashipur (Nainital) 244713 U.P., India)
PU - J. ECOBIOL., (1992), vol. 4, no. 1, pp. 55-58.
LA - English

12 / 4

AN - 1760869
VN - N2302: 1-03084; N2303: 2-01646
RE - 9312303084
TI - The battle for the eastern shores. Part 6.
AU - Anon.
PU - VELD FLORA., (1991), vol. 77, no. 4, pp. 118-119.
NU - ISSN 0042-3203
- English

12 / 5

AN - 1752969

VN - N2301: 3-00827
RE - 9332300827
TI - Sediment problems from gold mining in the Rio Caroni Basin.
AU - Gomez, H.R.; Nordin, C.F. (C.V.G. Electr. Caroni C.A., Caracas, Venezuela)
J - SEDIMENT MANAGEMENT. 5th INTERNATIONAL SYMPOSIUM ON RIVER SEDIMENTATION, KARLSRUHE, 1992. PROCEEDINGS, VOLUME 2. Larsen, P.; Eisenhauer, N. (eds.), (KARLSRUHE (FRG)), (UNIV. KARLSRUHE INST. OF HYDRAULIC STRUCTURES AND AGRICULTURAL ENGINEERING), 1992, pp. 1113-1120.
CF - Presented at: 5. Int. Symp. on River Sedimentation, ISRS 5, Karlsruhe (FRG), 6-10 Apr 1992
LA - English

12 / 6
AN - 1730594
VN - N2206: 3-05163
RE - 9232205163
TI - Tin mining and sediment supply in peninsular Malaysia with special reference to the Kelang River basin.
AU - Balamurugan, G. (HSS Integrated, 20-24, Jalan SS 21/62, Damansara Utama, 47400 Petaling Jaya, Selangor, Malaysia)
PU - ENVIRONMENTALIST., (1991), vol. 11, no. 4, pp. 281-291.
LA - English

12 / 7
AN - 1729875
VN - N2208: 2-06390; N2206: 3-05846
RE - 9222206390
TI - The negative environmental impact of in-stream mining in Licking County, Ohio.
AU - Bradley, J.E. (Dep. Geol. and Mineral., Ohio State Univ., University Dr., Newark, OH 43055, USA)
U - OHIO J. SCI., (1989), vol. 89, no. 2, p. 10.
LA - English

12 / 8
AN - 1729857
VN - N2208: 2-06111; N2206: 3-05719
RE - 9222206111
TI - Gravel transport, gravel harvesting, and channel-bed degradation in rivers draining the southern Olympic Mountains, Washington, U.S.A.
AU - Collins, B.D.; Dunne, T. (Dep. Geol. Sci., Univ. Washington, Seattle, WA 98195, USA)
PU - ENVIRON. GEOL. WATER SCI., (1989), vol. 13, no. 3, pp. 213-224.
LA - English

12 / 9
AN - 1725229
VN - N2205: 3-04929
RE - 9232204929
TI - Study of development concept alternatives. Environmental assessment, Kaymoor, New River George National River, West Virginia.
CS - National Park Serv., Washington, DC (USA)
PU - 1990, 103 pp
LA - English

12 / 10
AN - 1718275
N - N2206: 2-04231
RE - 9222204231
TI - Analysis of hydrologic impact of quarrying system by 3-D finite

element model.
AU - Gambolati, G.; Galeati, G. (Dip. Metodi e Modelli Mat. Sci. Appl., Univ. degli Studi Padova, Via Belzoni 7, 35131 Padova, Italy)
PU - J. HYDRAUL. ENG., (1990), vol. 116, no. 11, pp. 1388-1402.
LA - English
13/
type s12//11-92

12 / 11
AN - 1716031
VN - N2204: 1-07869; N2204: 3-03734
RE - 9212207869
TI - Environmental impacts of resource exploitation in Amazonia.
AU - Smith, N.J.H.; Alvim, P.; Homma, A.; Falesi, I.; Serrao, A. (Dep. Geogr., Univ. Florida, Gainesville, FL 32611, USA)
PU - GLOBAL ENVIRON. CHANGE., (1991), vol. 1, no. 4, pp. 313-320.
LA - English

12 / 12
AN - 1715658
VN - N2202: 1-02332; N2203: 2-01640
RE - 9212202332
TI - The coastal zone -- a perspective.
AU - Nair, N.B. (Dep. Sci., Technol. and Environ., TC 27/400 Govt. Hospital Rd., Trivandrum, Kerala, India)
PU - CURRENT TRENDS IN COASTAL MARINE SCIENCE: A SPECIAL COLLECTION OF PAPERS TO FELICITATE PROF. R. NATARAJAN ON HIS 60TH BIRTHDAY. Ramachandran, S.; Rajagopal, S. (eds.), 1990, pp. 16-23.
LA - English

12 / 13
AN - 1715656
VN - N2202: 1-02320; N2204: 3-03553
RE - 9212202320
TI - Alligator Rivers Region Research Institute annual research summary for 1988-1989.
CS - Office of the Supervising Scientist for the Alligator Rivers Reg., Bondi Junction (Australia)
PU - CANBERRA (AUSTRALIA), AUSTRALIAN GOVERNMENT PUBL. SERVICE, 1991, 156 pp
ANNU. RES. SUMM. ALLIGATOR RIVERS REG. RES. INST.
NU - ISSN 0810-9532
LA - English

12 / 14
AN - 1709533
VN - N2202: 3-01539
RE - 9232201539
TI - Statistical power and BACI designs in biological monitoring: Comparative evaluation of measures of community dissimilarity based on benthic macroinvertebrate communities in Rockhole Mine Creek, Northern Territory, Australia.
AU - Faith, D.P.; Humphrey, C.L.; Dostine, P.L. (Div. Wildl. and Ecol., CSIRO, P.O. Box 84, Lyneham, A.C.T. 2602, Australia)
PU - AUST. J. MAR. FRESHWAT. RES., (1991), vol. 42, no. 5, pp. 589-602.
CF - Presented at: Workshop on Detecting Human Impacts on Aquatic Environments, Parkville, Vic. (Australia), Nov 1990
LA - English

12 / 15
AN - 1702292
N - N2109: 1-19301; N2109: 2-07001
RE - 9212119301
TI - Environmental effects of sediment on New Zealand streams: A review.

AU - Ryan, P.A. (West Coast Reg. Counc., P.O. Box 66, Greymouth, New Zealand)
PU - N.Z. J. MAR. FRESHWAT. RES., (1991), vol. 25, no. 2, pp. 207-221.
LA - English

12 / 16
AN - 1683730
VN - N2106: 3-05623
RE - 9132105623
TI - Giving away the river: Environmental issues in the construction of the Ok Tedi mine, 1981-84.
AU - Townsend, B. (Dep. Miner. and Energy, Papua New Guinea)
PU - POTENTIAL IMPACTS OF MINING ON THE FLY RIVER. Pernetta, J.C. (ed.), 1988, pp. 107-119. / UNEP REG. SEAS REP. STUD., no. 99
LA - English

12 / 17
AN - 1683610
VN - N2106: 3-05413
RE - 9132105413
TI - Nonpoint source impacts on aquatic life: Literature review.
AU - Cunningham, P.A.
CS - Research Triangle Inst., Research Triangle Park, NC (USA)
PU - 1988, 281 pp.
LA - English

12 / 18
AN - 1680556
VN - N2108: 1-16912; N2106: 3-05570
RE - 9112116912
TI - Ecological studies on the freshwater fishes of the alligator rivers region, Northern Territory. Volume 2: Synecology.
CS - Office of the Supervising Scientist for the Alligator Rivers Reg., Bondi Junction (Australia)
PU - 1990, 145 pp
RES. REP. SUPERV. SCI. ALLIGATOR RIVERS REG. (AUST.)., no. 4.
NU - ISBN 0-644-12769-4
LA - English

12 / 19
AN - 1671550
VN - N2104: 3-03709
RE - 9132103709
TI - Water development for phosphate mining in a karst setting in Florida -- a complex environmental problem.
AU - Lamoreaux, P.E. (P.E. LaMoreaux and Assoc., P.O. Box 2310, Tuscaloosa, AL 35403, USA)
PU - ENVIRON. GEOL. WATER SCI., (1989), vol. 14, no. 2, pp. 117-153.
LA - English

12 / 20
AN - 1671539
VN - N2104: 3-03678
RE - 9132103678
TI - Biodiversity and human impacts.
AU - Barker, J.R.; Henderson, S.; Noss, R.F.; Tingey, D.T.
CS - Environmental Protection Agency, Corvallis, OR (USA). Environmental Research Lab.
PU - 1990, 40 pp
ECOL. RES. SER. U.S. ENVIRON. PROT. AGENCY.
NU - EPA/600/D-90/144
LA - English

12 / 21

AN - 1664137
VN - N2103: 2-01883; N2103: 3-02185
RE - 9122101883
TI - Analysis of characteristics of simulated flows from small
surface-mined and undisturbed Appalachian watersheds in the Tug
Fork basin of Kentucky, Virginia, and West Virginia. Final report.
AU - Scott, A.G.
CS - Geological Surv., Reston, VA (USA). Water Resources Div.
PU - 1989, 176 pp
WATER RESOUR. INVEST. U.S. GEOL. SURV.
NU - USGS/WRI-84-4151
LA - English

12 / 22
AN - 1664118
VN - N2102: 2-01321; N2103: 3-02607
RE - 9122101321
TI - Suspended-sediment yields from an unmined area and from mined
areas before and after reclamation in Pennsylvania, June
1978-September 1983.
AU - Reed, L.A.; Hainly, R.A.
CS - Geological Surv., Harrisburg, PA (USA). Water Resources Div.
PU - 1989, 60 pp
WATER RESOUR. INVEST. U.S. GEOL. SURV.
NU - USGS/WRI-88-4005
LA - English

12 / 23
AN - 1664117
VN - N2102: 2-01320; N2103: 3-02116
RE - 9122101320
TI - Effects of surface mining on the streamflow, suspended sediment
and water quality in the Stony Fork drainage basin, Fayette
County, Pennsylvania.
AU - Mastrilli, T.M.; Stump, D.E.
CS - Geological Surv., Reston, VA (USA). Water Resources Div.
PU - 1989, 34 pp
LA - English

12 / 24
AN - 1661539
VN - N2101: 1-02003; N2103: 3-02141
RE - 9112102003
TI - Fish resources and water quality of an in-stream gravel excavation
pit in the Naugatuck River, Connecticut.
AU - Kasul, R.L.; Killgore, K.J.; Baker, J.A.
CS - Army Engineer Waterways Experiment Stn., Vicksburg, MS (USA).
Environmental Lab.
PU - 1990, 41 pp
MISC. PAP. U.S. ARMY ENG. WATERWAYS EXP. STN.
NU - WES-MP-EL-90-1
LA - English

12 / 25
AN - 1634527
VN - N2101: 3-00682
RE - 9032100682
TI - Sand and gravel pits as fish and wildlife habitat in the
Southwest, (US).
AU - Matter, W.J.; Mannan, R.W.
CS - Fish and Wildlife Serv., Washington, DC (USA)
PU - 1988, 20 pp
RESOUR. PUBL. U.S. FISH WILDL. SERV.
NU - RESOURCE PUB-171

LA - English

12 / 26
AN - 1634144
VN - N2101: 3-00067
RE - 9032100067
TI - Uranium mining and milling environmental studies. February 1984-May 1987 (a bibliography from the NTIS database).
CS - National Technical Information Serv., Springfield, VA (USA)
PU - SPRINGFIELD, VA (USA), NTIS, 1990, 183 pp
LA - English

12 / 27
AN - 1634143
VN - N2101: 3-00066
RE - 9032100066
TI - Uranium mining and milling environmental studies. June 1987-May 1990 (A bibliography from the NTIS database).
CS - National Technical Information Serv., Springfield, VA (USA)
PU - SPRINGFIELD, VA (USA), NTIS, 1990, 105 pp
LA - English

12 / 28
AN - 1630744
VN - N2006: 3-03839
RE - 9032003839
TI - Development and erosion in the Brazilian Amazon: A geochronological case study.
AU - Forsberg, B.; Godoy, J.M.; Victoria, R. (Inst. Nac. Pesqui. Amazonia, Dep. Ecol., Caixa Postal 478, 69.011 Manaus, AM, Brazil)
PU - GEOJOURNAL., (1989), vol. 19, no. 4, pp. 399-405.
LA - English

12 / 29
AN - 1627280
VN - N2009: 2-07179
RE - 9022007179
TI - Activities of the MMS Office of Strategic and International Minerals.
AU - Workman, J.W. (Off. Strategic and Int. Miner., Miner. Manage. Serv., 381 Elden St., Herndon, VA 22070, USA)
CS - Marine Technology Soc., Washington, DC (USA); IEEE Ocean Engineering Soc., New York, NY (USA)
PU - OCEANS '89: THE GLOBAL OCEAN. VOLUME 1: FISHERIES, GLOBAL OCEAN STUDIES, MARINE POLICY AND EDUCATION, OCEANOGRAPHIC STUDIES. 1989, pp. 22-25. / OCEANS '89.
CF - Presented at: Oceans '89, Seattle, WA (USA), 18-21 Sep 1989
NU - IEEE-89CH2780-5
LA - English

12 / 30
AN - 1614448
VN - N2004: 2-02454; N2003: 3-01751
RE - 9022002454
TI - Suggestions for coastal management of estuaries. Sugestoes para gerenciamiento de estuarios
AU - Nobrega Coutinho, P. (Univ. Fed. Pernambuco, Dep. Oceanogr., Pernambuco, Brasil)
PU - ARQ. CIENC. MAR., (1986), vol. 25, pp. 77-86.
NU - ISSN 0041-8854
LA - Portuguese; Foreign

12 / 31

AN - 1608974
VN - N2003: 1-06609; N2002: 3-01049
RE - 9012006609
TI - Effects of sand extraction on herring spawning and fishing in the Gulf of Finland.
U - Oulasvirta, P.; Lehtonen, H. (Finnish Game and Fish. Res. Inst., Fish. Div., P.O. Box 202, SF-00151 Helsinki, Finland)
PU - MAR. POLLUT. BULL., (1988), vol. 19, no. 8, pp. 383-386.
LA - English

12 / 32
AN - 1572647
VN - N1908: 2-05747
RE - 8921905747
TI - The Greenland ice-sheet margin -- a mine of ice for paleo-environmental studies.
AU - Reeh, N.; Thomsen, H.H.; Clausen, H.B. (Geol. Surv. Greenland Oester Voldgade 10, DK-1350 Copenhagen K, Denmark)
PU - PALAEOGEOGR. PALAEOCLIMATOL. PALAEOECOL., (1987), vol. 58, no. 3-4, pp. 229-234.
LA - English

12 / 33
AN - 1571826
VN - N1908: 1-18444; N1908: 2-05859
RE - 8911918444
TI - Predicting the effects of land disturbances on stream salinity in south-west Western Australia.
AU - Schofield, N.J. (Hydrol. Branch, Water Auth. Western Australia, Perth, W.A. 6007, Australia)
PU - AUST. J. SOIL RES., (1988), vol. 26, no. 2, pp. 425-438.
LA - English

12 / 34
AN - 1566383
VN - N1906: 1-13904; N1906: 2-04645
RE - 8911913904
TI - Historical transport and storage of hydraulic mining sediment in the Bear River, California.
AU - James, L.A.
CS - Wisconsin Univ., Madison (USA)
PU - 1988, 304 pp
DISS. ABST. INT. PT. B - SCI. & ENG., vol. 49, no. 4.
LA - English

12 / 35
AN - 1564986
VN - N1906: 1-12500
RE - 8911912500
TI - Haemolymph eco-biochemical differences in four crayfishes populations in a mining country.
Variations eco-biochimiques de l'hemolymphe chez quatre populations d'ecrevisses dans une region miniere
AU - Kabre, G.; Chaisemartin, C. (Lab. Biol. Exp. (Hydrobiol.), UER Sci., 123, rue Albert-Thomas, F 87060 Limoges Cedex, Unite associee au CNRS, 138, France)
PU - ANN. SCI. NAT. (B ZOOL.)., (1987), vol. 8, no. 1, pp. 19-23.
LA - French

12 / 36
AN - 1560379
N - N1904: 1-08845
RE - 8911908845
TI - The environmental impact of coral mining on coral reefs in the

Maldives.
AU - Brown, B.E.; Dunne, R.P. (Dep. Biol., Univ. Newcastle upon Tyne, Newcastle upon Tyne NE1 7RU, UK)
PU - ENVIRON. CONSERV., (1988), vol. 15, no. 2, pp. 159-165.
LA - English

12 / 37
AN - 1522203
VN - N1811: 1-17528; N1811: 2-08683
RE - 8811817528
TI - IMPROVING AQUATIC ENVIRONMENTAL IMPACT ASSESSMENT IN CANADA -- A NORTHERN CASE STUDY.
AU - DUNCAN, W.F.A.; NEIL, E.M. (SUTEK SERVICE LTD., 3939 SUNNYCREST DR., NORTH VANCOUVER, B.C. V7R 3E1, CANADA)
PU - IN WATER QUALITY MONITORING IN CANADA NORTH OF 60 DEGREE ., KWIATKOWSKI, R. (ED.), 1987., PP. 545-558 / WATER POLLUT. RES. J. CAN., (1987)., VOL. 22, NO. 4
CF - PRESENTED AT : NORTHERN WATER QUALITY MONITORING WORKSHOP, YELLOWKNIFE, N.W.T. (CANADA), 4 MAY 1987
LA - English

12 / 38
AN - 1517308
VN - N1809: 1-13709
RE - 8811813709
TI - ECOLOGICAL STUDIES ON THE FRESHWATER FISHES OF THE ALLIGATOR RIVERS REGION, NORTHERN TERRITORY. VOLUME 1: OUTLINE OF THE STUDY, SUMMARY CONCLUSIONS AND RECOMMENDATIONS.
AU - BISHOP, K.A.; ALLEN, S.A.; POLLARD, D.A.; COOK, M.G. (DIV. FISH., NEW SOUTH WALES DEP. AGRIC., SYDNEY, N.S.W., AUSTRALIA)
CS - OFFICE SUPERV. SCI., ALLIGATOR RIVERS REG., BONDI JUNCTION (AUSTRALIA)
PU - 1986., 55 PP
RES. REP. SUPERV. SCI. ALLIGATOR RIVERS REG. (AUST.)., VOL. 1, NO. 4
NU - ISBN 0644-01295-1
LA - English

12 / 39
AN - 1466196
VN - N1708: 1-11911; N1709: 2-06432
RE - 8711711911
TI - TIN MINING IN MANGROVES: THE THAILAND EXPERIENCE.
AU - PIYAKARNCHANA, T.; SUWANSINGHA, P. (DEP. MAR. SCI., CHULALONGKORN UNIV., BANGKOK 10500, THAILAND)
PU - IN PROCEEDINGS OF THE WORKSHOP ON PRODUCTIVITY OF THE MANGROVE ECOSYSTEM: MANAGEMENT IMPLICATIONS., ONG, J.-E.; GONG, W.-K. (EDS.), UNIVERSITI SAINS MALAYSIA, PENANG (MALAYSIA), 1984., PP. 79-85
CF - PRESENTED AT : WORKSHOP ON PRODUCTIVITY OF THE MANGROVE ECOSYSTEM: MANAGEMENT IMPLICATIONS, PENANG (MALAYSIA), 4-6 OCT 1983
NU - ISBN 967-99949-0-2
LA - English

12 / 40
AN - 1463052
VN - N1707: 1-10241
RE - 8711710241
TI - THE EFFECTS OF RECENT ENVIRONMENTAL CHANGES IN LAKE WAAHI ON TWO FORMS OF THE COMMON SMELT RETROPINNA RETROPINNA , AND OTHER BIOTA.
AU - WARD, F.J.; NORTHCOTE, T.G.; CHAPMAN, M.A. (DEP. ZOOL., UNIV. MANITOBA, WINNIPEG, MAN. R3T 2N2, CANADA)
PU - WATER AIR SOIL POLLUT., (1987)., VOL. 32, NO. 3-4, PP. 427-443
LA - English

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AN - 1452057
VN - N1701: 1-01057; N1702: 2-01573
RE - 8711701057
I - EFFECTS OF GOLD MINING ACTIVITIES ON THE QUALITY OF SEDIMENTS IN
THE BACK BAY AND YELLOWKNIFE BAY OF THE GREAT SLAVE LAKE.
AU - MUDROCH, A.; JOSHI, S.R.; SUTHERLAND, D.;MUDROCH, P.;DICKSON,
K.M. (NATL. WATER RES. INST., BURLINGTON, ONT. L7R 4A6, CANADA)
PU - IN IAGLR-86 PROGRAM. INTERNATIONAL ASSOCIATION FOR GREAT LAKES
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ASSOCIATION FOR GREAT LAKES RESEARCH, BUFFALO, NY (USA), 1986., P.
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CF - PRESENTED AT : 29. CONFERENCE OF THE INTERNATIONAL ASSOCIATION FOR
GREAT LAKES RESEARCH, SCARBOROUGH, ONT. (CANADA), 26-29 MAY 1986
LA - English

12 / 42
AN - 1418163
VN - N1609: 1-14456; N1609: 2-07388
RE - 8611614456
TI - THE ECOLOGY OF RUNNING WATERS NEAR ABERFELDY, SCOTLAND, IN
RELATION TO A PROPOSED BARYTES MINE: AN IMPACT ASSESSMENT.
AU - SMITH, B.D.; LYLE, A.A.; MAITLAND, P.S. (INST. TERR. ECOL., 78
CRAIGHALL RD., EDINBURGH, UK)
PU - ENVIRON. POLLUT. (A ECOL. BIOL.)., (1983)., VOL. 32, NO. 4, PP.
269-306
LA - English

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AN - 1416281
VN - N1608: 1-12974; N1608: 2-06511
RE - 8611612974
'I - STRIP MINING: IMPACTS ON WATER RESOURCES. 1977-MARCH 1986
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CS - NATIONAL TECHNICAL INFORMATION SERV., SPRINGFIELD, VA (USA)
PU - SPRINGFIELD, VA (USA) , NTIS, 1986., 214 PP
LA - English

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AN - 1412547
VN - N1606: 1-10169; N1605: 2-04157
RE - 8611610169
TI - PEAT--NEW APPROACHES TO AN OLD FUEL.
AU - ANON. (ADDRESS NOT STATED)
PU - ENERGY REV., (1985)., VOL. 12, NO. 3, P. 83
LA - English

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AN - 1410426
VN - N1605: 1-08525
RE - 8611608525
TI - ENVIRONMENTAL IMPACTS OF PEAT MINING IN THE UNITED STATES:
DOCUMENTATION FOR WETLAND CONSERVATION.
AU - WINKLER, M.G.; DEWITT, C.B. (CENT. CLIM. RES., INST. ENVIRON.
STUD., UNIV. WISCONSIN, 1225 WEST DAYTON ST., MADISON, WI 53706,
USA)
PU - ENVIRON. CONSERV., (1985)., VOL. 12, NO. 4, PP. 317-330
LA - English

12 / 46
N - 1402394
VN - N1601: 2-00570
RE - 8621600570

TI - THE IMPACT OF BEACH SAND MINING AT GOLDSBOROUGH BAY, TOBAGO.
AU - BACHEW, S.; LEWIS, N. (INST. MAR. AFF., P.O. BOX 3160, CARENAGE P.O., TRINIDAD)
PU - IN FIRST GEOLOGICAL CONFERENCE OF THE GEOLOGICAL SOCIETY OF TRINIDAD AND TOBAGO. ABSTRACTS, SESSIONS AND SYMPOSIUM. PORT-OF-SPAIN, TRINIDAD, WEST INDIES, JULY 10TH-12TH 1985., 1985., VP
CF - PRESENTED AT : 1. GEOLOGICAL CONFERENCE OF THE GEOLOGICAL SOCIETY OF TRINIDAD AND TOBAGO, PORT OF SPAIN, TRINIDAD (WEST INDIES), 10-12 JUL 1985
LA - English

12 / 47
AN - 1379695
VN - N1511: 1-23651; N1510: 2-09515
RE - 8511523651
TI - DRAFT ENVIRONMENTAL IMPACT STATEMENT, CUMMINS CREEK PROJECT, FAYETTE COUNTY, TEXAS.
CS - ENVIRONMENTAL PROTECTION AGENCY, DALLAS, TX (USA). REGION VI
PU - 1985., 483 PP
NU - EPA/906/9-85/001
LA - English

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AN - 1378416
VN - N1511: 1-22367; N1510: 2-09033
RE - 8511522367
TI - ENVIRONMENTAL ISOTOPE STUDY OF LIMESTONE AQUIFERS IN CENTRAL ITALY. IAEA-SM-270/24.
AU - CELICO, P.; GONFIANTINI, R.; KOIZUMI, M.;MANGANO, F. (CASSA MEZZOGIORNO, RIPARTIZIONE PROGETTI IDRICI, VIA CINTIA, ISOLATO 21, 80125 NAPLES, ITALY)
PU - IN EXTENDED SYNOPSES: INTERNATIONAL SYMPOSIUM ON ISOTOPE HYDROLOGY IN WATER RESOURCES DEVELOPMENT. VIENNA, AUSTRIA, 12-16 SEPTEMBER 1983., (1984)., PP. 42-45
CF - PRESENTED AT : INTERNATIONAL SYMPOSIUM ON ISOTOPE HYDROLOGY IN WATER RESOURCES DEVELOPMENT, VIENNA (AUSTRIA), 12-16 SEP 1983
NU - IAEA-SM-270
LA - English

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AN - 1377408
VN - N1510: 1-21756
RE - 8511521756
TI - THE IMPACT OF PHOSPHATE MINING ON CULEX NIGRIPALPUS AND CULEX SALINARIUS (DIPTERA: CULICIDAE) POPULATIONS IN CENTRAL FLORIDA.
AU - SLAFF, M.; HAEFNER, J.D. (POLK CTY. ENVIRON. SERV., P.O. BOX 39 BARTOW, FL 33830, USA)
PU - FLA. ENTOMOL., (1985)., VOL. 68, NO. 3, PP. 444-450
LA - English

12 / 50
AN - 1372551
VN - N1508: 1-17914; N1508: 2-07518
RE - 8511517914
TI - SEQUENTIAL CHANGES IN BED HABITAT CONDITIONS IN THE UPPER CARMEL RIVER FOLLOWING THE MARBLE-CONE FIRE OF AUGUST, 1977.
AU - HECHT, B. (HEA DIV., J.H. KLEINFELDER AND ASSOC., BERKELEY, CA, USA)
PU - IN CALIFORNIA RIPARIAN SYSTEMS: ECOLOGY, CONSERVATION, AND MANAGEMENT., WARNER, R.E.; HENDRIX, K.M. (EDS.), 1984., PP. 134-141
F - PRESENTED AT : CALIFORNIA RIPARIAN SYSTEMS CONFERENCE, DAVIS, CA (USA), 17-19 SEP 1981
NU - ISBN 0-520-05035-5

LA - English

12 / 51

AN - 1369716
VN - N1507: 1-16080; N1506: 2-05888
:E - 8511516080
ΓI - PRELIMINARY ENVIRONMENTAL IMPACT STATEMENT FOR THE KVANEFJELD URANIUM MINE.
AU - PILEGAARD, K.
CS - RISOE NATIONAL LAB., ROSKILDE (DENMARK)
PU - 1983., 123 PP
NU - INIS-MF-8994
LA - English

12 / 52

AN - 1361076
VN - N1408: 1-18692; N1407: 2-06907
RE - 8511418692
TI - MAARMORILIK. ENVIRONMENTAL IMPACT OF AN ARCTIC MINE.
AU - SPRUNK-JANSEN, E. (GREENEX A/S, LANDMARKET 8, DK-1119 KOEBENHAVN, DENMARK)
PU - IN ARCTIC ENERGY RESOURCES., REY, L. (ED.), 1983., PP. 343-348 / COLD. REG. SCI. TECHNOL., VOL. 7
CF - PRESENTED AT : COMITE ARCTIQUE INTERNATIONAL CONFERENCE ON ARCTIC ENERGY RESOURCES, OSLO (NORWAY), 22 SEP 1982
LA - English

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AN - 1360341
VN - N1504: 1-08899; N1503: 2-02958
RE - 8511508899
TI - ENVIRONMENTAL IMPACT OF ONGOING OPERATION.
AU - HENRY, L.C.
:S - ATOMIC ENERGY CONTROL BOARD, OTTAWA, ONT., (CANADA)
ƏU - 1980., 16 PP
NU - AECB-1180-10
LA - English

12 / 54

AN - 1360051
VN - N1504: 1-08609; N1503: 2-02892
RE - 8511508609
TI - CUMULATIVE IMPACTS OF PEAT MINING.
AU - GALE, J.A.; ADAMS, D.A.
CS - NORTH CAROLINA STATE UNIV., RALEIGH (USA)
PU - 1984., 441 PP
NU - NC/CEIP-40
LA - English

12 / 55

AN - 1314036
VN - N1405: 1-11924; N1405: 2-04939
RE - 8411411924
TI - ILLINOIS LAND REPORT: RICE LAKE CONSERVATION AREA. VOLUME 2. COMMENTS AND RESPONSES, APPENDICES, REFERENCES.
CS - ILLINOIS DEP. OF ENERGY AND NATURAL RESOURCES, SPRINGFIELD (USA)
PU - SPRINGFIELD, IL (USA) , ILENR, 1983., 327 PP
NU - IL ENR/LR-83/02
LA - English

12 / 56

.N - 1314006
VN - N1405: 1-11888
RE - 8411411888

TI - CHATTANOOGA SHALE EXPLOITATION AND THE AQUATIC ENVIRONMENT: THE CRITICAL ISSUES.
AU - EDDLEMON, G.K.; TOLBERT, V.R. (ENVIRON. SCI. DIV., OAK RIDGE NATL. LAB., OAK RIDGE, TN 37830, USA)
PU - ENVIRON. INT., (1983)., VOL. 9, NO. 2, PP. 85-95
LA - English

12 / 57
AN - 1313986
VN - N1405: 1-11868; N1404: 2-03584
RE - 8411411868
TI - HISTORICAL VALLEY ALLUVIATION IN MID-WALES.
AU - LEWIN, J.; BRADLEY, S.B.; MACKLIN, M.G. (DEP. GEOGR., UNIVERSITY COLL. WALES, ABERYSTWYTH, DYFED, SY23 3DB, UK)
PU - GEOL. J., (1983)., VOL. 18, NO. 4, PP. 331-350
LA - English

12 / 58
AN - 1274193
VN - N1311: 1-19014; N1310: 2-08188
RE - 8311319014
TI - REVIEW OF WATER POLLUTION PROBLEMS AND CONTROL STRATEGIES IN THE SOUTH AFRICAN MINING INDUSTRY.
AU - KEMPE, J.O. (MINING AND METALLURGICAL SECT., POLLUT. CONTROL DIV., DIRECTORATE WATER AFFAIRS, REP. SOUTH AFRICA)
PU - IN MINE WATER POLLUTION., ODENDAAL, P.E. (ED.), 1983., PP. 27-58 / WATER SCI. TECHNOL., VOL. 15, NO. 2
CF - PRESENTED AT : SEMINAR ON MINE WATER POLLUTION, PRETORIA (REP. SOUTH AFRICA), 5-6 APR 1982
NU - ISBN 0-08-030423-0
LA - English

12 / 59
AN - 1268344
VN - N1309: 1-14482; N1308: 2-06211
RE - 8311314482
TI - STRIP MINING: HYDROLOGY. 1977-JANUARY, 1983 (CITATIONS FROM THE SELECTED WATER RESOURCES ABSTRACTS DATA BASE).
CS - NATIONAL TECHNICAL INFORMATION SERV., SPRINGFIELD, VA (USA)
PU - SPRINGFIELD, VA (USA) , NTIS, 1983., 282 PP
LA - English

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AN - 1258506
VN - N1305: 1-06743
RE - 8311306743
TI - AN ECO-ETHOLOGICAL STUDY OF THE REPRODUCTION OF PERCA FLUVIATILIS L. AS OBSERVED BY DIVING IN AN INUNDATED QUARRY PIT. / ETUDE ECO-ETHOLOGIQUE DE LA REPRODUCTION DE LA PERCHE (PERCA FLUVIATILIS L.): OBSERVATIONS EN PLONGEE DANS UNE CARRIERE INONDEE
AU - DALIMIER, N.; PHILIPPART, J.C.; VOSS, J. (SERV. D'ETHOL. ET PSYCHOL. ANIM., UNITE DE RECHER. PISCICOLES, 22 QUAI VAN BENEDEN, 4020 LIEGE, BELGIUM)
PU - CAH. ETHOL. APPL., (1982)., VOL. 2, NO. 1, PP. 37-52
LA - French

12 / 61
AN - 1254617
VN - N1303: 1-03902; N1302: 2-01236
RE - 8311303902
TI - SELENIUM POLLUTION OF LAKES NEAR THE SMELTERS AT SUDBURY, ONTARIO.
AU - NRIAGU, J.O.; WONG, H.K. (NATL. WATER RES. INST., BOX 5050, BURLINGTON, ONT. CANADA L7R 4A6)
PU - NATURE., (1983)., VOL. 301, NO. 5895, PP. 55-57

LA - English

12 / 62
AN - 1254571
VN - N1303: 1-03854; N1303: 2-01905
E - 8311303854
TI - THE EFFECTS OF DISCHARGES FROM LIMESTONE QUARRIES ON WATER QUALITY AND AQUATIC BIOTA.
AU - HOBAN, M.A.; LIPPE, J.C.; KIRBY, R.;MCCLOSKEY, M.H.; PACHARZINA, N.A. (EFFLUENT GUIDELINES DIV., EPA, WASHINGTON, D.C., USA)
CS - ENVIRONMENTAL PROTECTION AGENCY, WASHINGTON, DC (USA)
PU - SPRINGFIELD, VA (USA) , NTIS, 1982., 175 PP
LA - English

12 / 63
AN - 1218569
VN - N1210: 1-13152
RE - 8211213152
TI - ANALYZING THE IMPACT OF OFFSHORE MINING OF CONSTRUCTION AGGREGATES.
AU - DEHAIS, J.A.; WALLACE, W.A. (RENSSELAER POLYTECHNIC INST., SCHOOL MANAGEMENT, TROY, NY, USA)
PU - IN PROCEEDINGS OF THE WORKSHOP ON COASTAL AREA DEVELOPMENT AND MANAGEMENT IN ASIA AND THE PACIFIC, MANILA, PHILIPPINES, 3 TO 12 DECEMBER 1979., VALENCIA, M.J. (ED.), 1981., PP. 33-40
CF - PRESENTED AT : WORKSHOP ON COASTAL AREA DEVELOPMENT AND MANAGEMENT IN ASIA AND THE PACIFIC, MANILA (PHILIPPINES), 3 DEC 1979
LA - English

12 / 64
AN - 1214716
VN - N1208: 1-10396; N1207: 2-05480
RE - 8211210396
TI - EFFECT OF SURFACE MINING ON STORM FLOW AND PEAK FLOW FROM SIX SMALL BASINS IN EASTERN KENTUCKY.
AU - BRYAN, B.A.; HEWLETT, J.D. (SCH. FOREST RESOUR., ATHENS, GA 30602, USA)
PU - WATER RESOUR. BULL., (1981)., VOL. 17, NO. 2, PP. 290-299
LA - English

12 / 65
AN - 1214459
VN - N1208: 1-10138; N1208: 2-06891
RE - 8211210138
TI - STRIP-MINED RIVER RESTORATION.
AU - GORE, J.A.; JOHNSON, L.S. (WYOMING UNIV., WATER RESOUR. RES. INST., LARAMIE, WY, USA)
PU - WATER SPECTRUM., (1980)., VOL. 13, NO. 1, PP. 31-37
LA - English

12 / 66
AN - 1212296
VN - N1207: 1-08379
RE - 8211208379
TI - SOUTHEASTERN MONTANA FISHERIES INVESTIGATIONS--FISH MANAGEMENT SURVEYS.
AU - ELSER, A.A.
CS - MONTANA DEP. OF FISH, WILDLIFE AND PARKS, HELENA (USA). FISHERIES DIV
PU - HELENA, MT (USA) , MDFWP, 1980., 25 PP
JOB PROG. REP. MONT. DEP. FISH WILDL. PARKS.
NU - PROJ-F-30-R-16 (IB)
LA - English

12 / 67

AN - 1205299
VN - N1203: 1-03842
RE - 8211203842
TI - (INCIDENCES OF ALLUVIAL EXTRACTIONS AND OF HYDRAULIC WORKS ON PERIPHYTON, PRIMARY AND SECONDARY PRODUCTIONS IN THREE STREAMS OF MASSIF CENTRAL). / INCIDENCES DES EXTRACTIONS OF GRANULATS D'ALLUVIONS ET DE CERTAINS TRAVAUX HYDRAULIQUES SUR LE PERIPHYTON, LA PRODUCTION PRIMAIRE ET LA PRODUCTION SECONDAIRE DANS TROIS COURS D'EAU DU MASSIF CENTRAL
AU - CLAVEL, P.; BOUCHAUD, B. (ADDRESS NOT STATED)
PU - ANN. STN. BIOL. BESSE-EN-CHANDESSE., (1980)., NO. 14, PP. 211-350
LA - French

12 / 68
AN - 1203198
VN - N1202: 1-02503; N1202: 2-01778
RE - 8211202503
TI - SOME EFFECTS OF CENTURY OLD ABANDONED LEAD MINING OPERATIONS ON STREAMS IN MISSOURI, USA.
AU - JENNETT, J.C.; WIXSON, B.G.; KRAMER, R.L. (CIVIL ENG., SYRACUSE UNIV., SYRACUSE, NY 13210, USA)
PU - MINER. ENVIRON., (1981)., VOL. 3, NO. 1, PP. 17-20
LA - English

12 / 69
AN - 1176184
VN - N1112: 2-10416
RE - 7821110416
TI - INFLUENCE OF OFFSHORE COARSE-GRAINED MATERIAL EXTRATION ON COASTAL EQUILIBRIUM. / INFLUENCE DE L'EXTRACTION DES GRANULATS EN MER SUR L'EQUILIBRE DU LITTORAL.
AU - MIGNIOT,C.; VIGUIER,J. (LAB. CENT. HYDRAUL. FRANCE, DEP. SEDIMENTOL., 10, RUE EUGENE RENAULT, 97700 MAISONS-ALFORT, FRANCE)
PU - HOUILLE BLANCHE, (1980), (NO. 3), 177-194
LA - French

12 / 70
AN - 1173442
VN - N1110: 2-09165
RE - 7821109165
TI - THE IMPACT OF SURFACE MINE RECLAMATION ON HEADWATER STRAMS IN SOUTHWEST VIRGINIA.
AU - MATTER,W.J.; NEY,J.J. (SCH. RENEWABLE NAT. RESUR., UNIV. ARIZONA, TUCSON, AZ 85721, USA)
PU - HYDROBIOLOGIA, (1981), 78(1), 63-71
LA - English

12 / 71
AN - 1172528
VN - N1110: 1-15827
RE - 7811115827
TI - AQUATIC INSECT DRIFT THROUGH A FINAL-CUT STRIP MINE PIT, WITH EMPHASIS ON DRIFT DISTANCES.
AU - VINIKOUR,W.S. (LAND RECLAMATION PROG., ARGONNE NATL. LAB., ARGONNE, IL 60439, USA)
PU - HYDROBIOLOGIA, (1981), 77(3), 225-232
LA - English

12 / 72
AN - 1172522
VN - N1110: 1-15821
RE - 7811115821
TI - BIOLOGICAL EFFECTS OF SAND AND GRAVEL MINING IN THE LOWER BAY OF

NEW YORK HARBOR: AN ASSESSMENT FROM THE LITERATURE.
AU - BRINKHUIS,B.H.
CS - STATE UNIVERSITY OF NEW YORK, STONY BROOK (USA). MARINE SCIENCES RESEARCH CENTER.
PU - PUBL. BY: SUNY; STONY BROOK, NY (USA)., JAN 1980., 202 P..SPEC. REP. NEW YORK STATE UNIV. MAR. SCI. RES. CENT.
NU - SUNY-SR-34,REF 80-1
LA - English

12 / 73
AN - 1172419
VN - N1110: 1-15718
RE - 7811115718
TI - IMPACT OF MINING ACTIVITIES ON WATER QUALITY IN WESTERN NORTH CAROLINA.
AU - DUDA,A.M.; PENROSE,D.L. (NORTH CAROLINA DEP. NAT. RESOUR. AND COMMUN. DEV., DIV. ENVIRON. MANAGE., P.O. BOX 27687, RALEIGH, NC 27611, USA)
PU - WATER RESOUR. BULL., (1980), 16(6), 1034-1040
LA - English

12 / 74
AN - 1169170
VN - N1108: 2-07357
RE - 7821107357
TI - INFLUENCE OF OFFSHORECOARSE-GRAINED MATERIAL EXTRACTION ON COASTAL EQUILIBRIUM. / INFLUENCE DE 'EXTRACTION DES GRANULATS EN MER SUR L'EQUILIBRE DU LITTORAL.
AU - MIGNIOT,C.; VIGUIER,J. (LAB. CDT. HYDRAUL. FRANCE, DEP. SEDIMENTOL., 10, RUE EUGENE RENAULT, 97700 MAISONS-ALFORT, FRANCE
PU - HOUILLE BLANCHE, (1980 SUP, (NO. 3), 177-194
LA - French

12 / 75
AN - 1167140
VN - N1107: 2-06769
RE - 7821106769
TI - THE MINING INDUSTRY AND THE NATURAL ENVIRONMENT.
AU - MCCOLL,G.D. (DEP. ECON., UNIV. NEW SOUTH WALES, POB 1, KENSINGTON 2033, NSW, AUSTRALIA)
PU - RESOUR. POLICY, (1980), 6(2), 153-165
LA - English

12 / 76
AN - 1166067
VN - N1107: 2-05550
RE - 7821105550
TI - MANAGEMENT OF NEW YORK HARBOR'S SAND AND GRAVEL RESOURCES.
AU - SCHUBEL,J.R.; SQUIRES,D.F. (STATE UNIV. OF NEW YORK, MAR. SCI. RES. CENT., STONY BROOK, NY 11794, USA)
PU - IN: PROCEEDINGS OF FIFTH ANNUAL CONFERENCE. RESOURCE ALLOCATION ISSUES IN THE COASTAL ENVIRONMENT., WEST,N. (ED.)., PUBL. BY: THE COASTAL SOCIETY; ARLINGTON, VA (USA)., 1980., P. 329-340..PROC. ANNU. CONF. COAST. SOC.
CF - (PRESENTED AT: 5. ANNU. CONFERENCE OF THE COASTAL SOCIETY; NEWPORT, RI (USA); 6 NOV 1979).
LA - English

12 / 77
AN - 1165597
VN - N1107: 1-11409
RE - 7811111409
TI - VITAL STATISTICS AND INSTREAM FLOW REQUIREMENTS OF FISH IN THE MONTCO MINE AREA OF THE TONGUE RIVER, MONTANA.

AU - CLANCEY,C.G.
CS - MONTANA DEP. OF FISH, WILDLIFE AND PARKS, HELENA (USA).
PU - PUBL. BY: MDFWF; HELENA, MT (USA)., APR 1980., 61 P.
LA - English

12 / 78
AN - 1163220
VN - N1106: 1-09754
RE - 7811109754
TI - SOUTHEASTERN MONTANA FISHERIES INVESTIGATIONS. FISH MANAGEMENT SURVEYS.
AU - ELSER,A.A.
CS - MONTANA DEP. OF FISH, WILDLIFE AND PARKS, HELENA (USA). FISHERIES DIV.
PU - PUBL. BY: MDFWP; HELENA, MT (USA)., MAR 1980., 17 P..JOB PROG. REP. MONT. DEP. FISH GAME
NU - MDFWP-PROJ-F-30-R-15(IB)
LA - English

12 / 79
AN - 1159907
VN - N1105: 1-07318
RE - 7811107318
TI - CLASSIFICATION AND POSSIBILITIES OF UTILIZATION OF THE OPENCAST LAKES IN THE LAUSITZ LIGNITE AREA. / KLASSIFIZIERUNG UND NUTZUNGSMOEGLICHKEITEN DER TAGEBAUGEWAESSER DES LAUSITZER BRAUNKOHLEN-REVIERES.
AU - PIETSCH,W. (8027 DRESDEN, AM TALCHEN 16, GDR)
PU - ARCH. NATURSCHUTZ LANDSCHAFTSFORSCH., (1979), 19(3), 187-215
LA - German; Foreign

12 / 80
AN - 1157465
N - N1104: 1-05849
RE - 7811105849
TI - (HYDROBIOLOGICAL IMPACTS OF GRAVEL EXTRACTIONS IN THE OUVEZE RIVER BED (VAUCLUSE)). / IMPACTS HYDROBIOLOGIQUES DES EXTRACTIONS DE MATERIAUX (GALETS-GRAVIERS) DANS LE LIT DE L'OUVEZE (VAUCLUSE).
CS - CENTRE TECHNIQUE DE GENIE RURAL DES EAUX ET FORETS, AIX-EN-PROVENCE (FRANCE). SECT. QUALITE DES EAUX.
PU - 1979., 41 P..ETUD. CENT. TECH. GENIE RURAL EAUX FOR., (NO. 17)
LA - French

12 / 81
AN - 1150670
VN - N1101: 1-00670
RE - 7811100670
TI - ENVIRONMENTAL INVESTIGATIONS DURING MANGANESE NODULE MINING TESTS IN THE NORTH EQUATORIAL PACIFIC IN NOVEMBER 1978.
AU - OZTURGUT,E.; LAVELLE,J.W.; STEFFIN,O.; SWIFT, S.A. (DOMES PROJECT, OFFICE OF MARINE POLLUTION ASSESSMENT, SEATTLE, WA, USA)
CS - NOAA ENVIRONMENTAL RESEARCH LABORATORIES, BOULDER CO (USA). MARINE ECOSYSTEMS ANALYSIS PROGRAM.
PU - PUBL. BY: NOAA/ERL; BOULDER, CO (USA)., MAY 1980., 55 P..NOAA TECH. MEMO.
NU - NOAA-TM-ERL-MESA-48
LA - English

12 / 82
AN - 1125598
VN - N1012: 1-18476
RE - 7811018476
TI - EXOGENIC SUBSIDENCE AS A FORM OF POLLUTION.
AU - PROKOPOVICH,N.P. (US DEP. INTERIOR, BUREAU OF RECLAMATION,

SACRAMENTO, CA 95814, USA)
PU - BULL. ASS. ENG. GEOL., (1979), 15(3), 269-283
LA - English

12 / 83
N - 1125476
VN - N1012: 1-18354
RE - 7811018354
TI - A PRELIMINARY REPORT FROM A STUDY ON THE ENVIRONMENTAL IMPACT OF PYRITE MINING AND DRESSING IN A MOUTAIN STREAM IN NORWAY.
AU - AANES,K.J. (NORWEGIAN INST. WATER RES., BOX 333, BLINDERN, OSLO 3, NORWAY)
PU - IN: ADVANCES IN EPHEMEROPTERA BIOLOGY., FLANNAGAN,J.F.; MARSHALL,K.E. (EDS.), PUBL. BY: PLENUM PRESS; NEW YORK, NY (USA)., 1980., P.419-442.
CF - (PRESENTED AT: 3. INTERNATIONAL CONFERENCE ON EPHEMEROPTERA; WINNIPEG, MANITOBA (CANADA); 4 JUL 1979).
NU - ISBN 0-306-40357-9
LA - English

12 / 84
AN - 1117671
VN - N1009: 1-12747
RE - 7811012747
TI - NEARSHORE EQUILIBRIUM AND OFFSHORE SANDS AND GRAVELS MINING. / INFLUENCE DE L'EXTRACTION EN MER DES GRANULATS SUR L'EQUILIBRE DU LITTORAL.
AU - MIGNIOT,C.; VIGNIER,J. (LAB. CENT. HYDRAULIQUE FR., 10, RUE EUGENE RENAULT, 94700 MAISONS-ALFORT, FRANCE)
PU - IN: OFFSHORE MINERAL RESOURCES. PROCEEDINGS. / / RESSOURCES MINERALES SOUS-MARINES. COMPTES-RENDUS., BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES, ORLEANS (FRANCE). GROUPE D'ETUDE ET DE RECHERCHE DE MINERALISATIONS AU LARGE., PUBL. BY: BRGM; ORLEANS (FRANCE)., 1979., P. 97-129.DOC. BRGM, (NO. 7)
CF - (PRESENTED AT: INTERNATIONAL SEMINAR OFFSHORE MINERAL RESOURCES; ORLEANS (FRANCE); 23 OCT 1978).
LA - French

12 / 85
AN - 1113667
VN - N1008: 1-09511
RE - 7811009511
TI - ENVIRONMENTAL EFFECTS OF OIL SHALE MINING AND PROCESSING. PART 3 THE WATER QUALITY OF PICEANCE CREEK, COLORADO, PRIOR TO OIL SHALE PROCESSING.
AU - SKOGERBOE,R.K.; LAVALLEE,C.S.; MILLER,M.M.; DICK,D.L. (COLORADO STATE UNIV., DEP. CHEM., FORT COLLNS, CO 80523, USA)
CS - ENVIRONMENTAL PROTECTION AGENCY, DULUTH, MN (USA). OFFICE OF RESEARCH AND DEVELOPMENT.
PU - PUBL. BY: EPA; DULUTH, MN (USA)., MAY 1979., 69 P..ECOL. RES. SERIES U.S. ENVIRON. PROTECT. AGENCY
NU - EPA-600/3-79-055
LA - English

12 / 86
AN - 1110740
VN - N1006: 1-07829
RE - 7811007829
TI - POSSIBLE ENVIRONMENTAL IMPACT ON INLAND WATERS OF TWO PLANNED MAJOR ENGINEERING PROJECTS IN PAPUA NEW GUINEA.
~U - PETR,T. (ADDRESS NOT STATED)
J - ENVIRON. CONSERV., (1979), 6(4), 281-286
CF - (PRESENTED AT: 49. ANZAAS CONGRESS; AUCKLAND (NEW ZEALAND); JAN 1979).

LA - English

12 / 87
AN - 1107245
VN - N1004: 1-05023
E - 7811005023
TI - AN ASSESSMENT OF THE EFFECTS OF BATHYMETRIC CHANGES ASSOCIATED WITH SAND AND GRAVEL MINING ON TIDAL CIRCULATION IN THE LOWER BAY OF NEW YORK HARBOR.
AU - WONG, K.-C.; WILSON, R.E.
CS - STATE UNIV. NEW YORK, STONY BROOK (USA). MARINE SCIENCES RESEARCH CENTER
PU - PUBL. BY: SUNY/MSRC; STONY BROOK, NY (USA)., JAN 1979., 28 P..SPEC. REP. NEW YORK STATE UNIV. MAR. SCI. RES. CENT.
NU - SUNY-MSRC-18-REF-79-1
LA - English

12 / 88
AN - 1100502
VN - N1001: 1-00502
RE - 7811000502
TI - POSSIBLE ENVIRONMENTAL EFFECTS OF MINERAL EXPLORATION AND EXPLOITATION IN ANTARCTICA.
AU - ZUMBERGE, J.H. (ED.)
CS - SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH, CAMBRIDGE (UK). GROUP OF SPECIALISTS ON THE ENVIRONMENTAL IMPACT ASSESSMENT OF MINERAL RESOURCE EXPLOITATION IN ANTARCTICA (EAMREA)
PU - PUBL. BY: SCAR; CAMBRIDGE (UK)., MAR 1979., 59 P.
CF - (AN ADAPTATION OF A REPORT BY THE GROUP OF SPECIALISTS ON THE ENVIRONMENTAL IMPACT ASSESSMENT OF MINERAL RESOURCE EXPLORATION AND EXPLOITATION IN ANTARCTIA (EAMREA) CONVENED BY THE SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR) OF THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS IN RESPONSE TO RECOMMENDATION VIII-14 OF THE EIGHTH ANTARCTIC TREATY CONSULTATIVE MEETING).
LA - English

12 / 89
AN - 1062369
VN - N0906: 1-08736
RE - 7810908736
TI - DESIGNATION OF DEPOSIT SITES FOR DREDGED MATERIAL AT/IN THE ARKANSAS RIVER: ARE THERE BIOLOGICAL CRITERIA FOR APPROPRIATE DESIGN MEMORANDA?
AU - KRAEMER, L.R. (UNIV. ARKANSAS, ARKANSAS, USA)
PU - IN: PAPERS PRESENTED AT THE SECOND INTERNATIONAL SYMPOSIUM ON DREDGING TECHNOLOGY AT TEXAS A AND M UNIVERSITY, USA, 1977. VOLUME 1., STEPHENS, H.S.; COLES, N.G.; CLARKE, J.A. (EDS.), PUBL.BY: BHRA FLUID ENGINEERING; CRANFIELD (UK)., 1977., F2.
CF - (PRESENTED AT: 2. INTERNATIONAL SYMPOSIUM ON DREDGING TECHNOLOGY; TEXAS A AND M UNIVERSITY, COLLEGE STATION, TX (USA); 2 NOV 1977).
NU - ISBN 0-900983-74-4
LA - English

12 / 90
AN - 1021483
VN - N0812: 1-15091
RE - 7810815091
TI - AN ASSESSMENT OF THE ENVIRONMENT IMPACT OF MINING OF THE CONTINENTAL SHELF.
AU - OWEN, R.M. (DEP. ATOMOS. AND OCEAN. SCI., UNIV. MICHIGAN, ANN ARBOR, MI 48104, USA)
U - MAR. MIN., (1977), 1(1-2), 85-102
LA - English

12 / 91
AN - 1006094
VN - N0804: 1-04595
RE - 7810804595
TI - FIELD STUDIES ON BENTHIC COMMUNITIES IN THE NEW ENGLAND OFFSHORE MINING ENVIRONMENTAL STUDY. (NOMES).
AU - HARRIS, L.G.
CS - NEW HAMPSHIRE UNIVERSITY, DURHAM (USA).
PU - PUBL.BY: NHU; DURHAM, NH (USA)., 1977., 135 P.
LA - English

12 / 92
AN - 1001385
VN - N0801: 2-00476
RE - 7820800476
TI - NEW ENGLAND OFFSHORE MINING ENVIRONMENTAL STUDY (PROJECT NOMES).
AU - PADAN, J.W. (NOAA, ERL, PAC. MAR. ENVIRON. LAB., SEATTLE, WA, USA)
CS - US ENVIRONMENTAL RESEARCH LABORATORIES, BOULDER, CO
PU - APR 1977, 152P.
NU - NOAA-SR-1977
LA - English

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18 / 1
AN - 1715427
VN - N2203: 3-02432
RE - 9232202432
TI - Impact of marine pollution on living resources--case studies on the effect of mining activity and organic enrichment of benthic fauna.
AU - Ansari, Z.A.; Shirwaiker, P. (NIO, Dona Paula, Goa 403 004, India)
PU - NATIONAL SCIENCE DAY, 28 FEBRUARY 1987: A COMMEMORATIVE VOLUME. NEW DELHI (INDIA), CSIR, 1987, pp. 96-99.
LA - English

18 / 2
AN - 1172500
VN - N1110: 1-15799
RE - 7811115799
TI - THE EFFECT OF ELEVATED TEMPERATURE AND REACTOR SHUTDOWN ON THE BENTHIC MARINE FLORA OF THE MILLSTONE THERMAL QUARRY, CONNECTICUT.
AU - SCHNEIDER,C.W. (DEP. BIOL., TRINITY COLL., HARTFORD, CT 06106, USA)

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PU - J. THERM. BIOL., (1981), 6(1), 1-6
LA - English

     18 / 3
AN - 1105349
 N - N1003: 1-03721
RE - 7811003721
TI - EFFECT OF ACID MINE DRAINAGE ON A SOUTHWESTERN PENNSYLVANIA STREAM.
AU - MOON,T.C.; LUCOSTIC,C.M. (BIOL. DEP., CALIFORNIA STATE COLL. (PA),
     CALIFORNIA, PA 15419, USA)
PU - WATER AIR SOIL POLLUT., (1979), 11(3), 377-390
LA - English
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          10597    acid* (  53  *--*TERMS )
          521      uranium
          1992     lead
          25902    coast* (  23  *--*TERMS )
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AN - 1725022
VN - N2205: 3-04495
RE - 9232204495
TI - Relationship between concentrations of copper and zinc in water,
     sediment, benthic invertebrates, and tissues of white sucker
     (Catostomus commersoni ) at metal-contaminated sites.
AU - Miller, P.A.; Munkittrick, K.R.; Dixon, D.G. (Dep. Biol., Univ.
     Waterloo, Waterloo, Ont. N2L 3G1, Canada)
PU - CAN. J. FISH. AQUAT. SCI., (1992), vol. 49, no. 3, pp. 978-984.
NU - ISSN 0706-652X
LA - English

     20 / 2
AN - 1715450
VN - N2203: 3-02460
RE - 9232202460
TI - Re-analysis of species associational data using bootstrap
     significance tests.
 U - Ellis, D.V.; Samoszynski, R.; Jones, A.A. (Dep. Biol., Univ.
     Victoria, Victoria, B.C. V8W 2Y2, Canada)
PU - WATER AIR SOIL POLLUT., (1991), vol. 59, no. 3-4, pp. 347-358.
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LA - English

20 / 3
AN - 1661686
'I - N2102: 1-03618; N2103: 3-02036
Ξ - 9112103618
TI - Benthic macroinvertebrates of low order streams of coal surface mining areas of the Cumberland Plateau, Kentucky, Tennessee, and Alabama. Volume 1.
AU - Gore, J.A.; Hughes, J.D.; Swartley, W.A.
CS - Tennessee Technological Univ., Cookeville (USA). Tennessee Coop. Fishery Unit
PU - 1990, 483 pp
NU - OSM-026
LA - English

20 / 4
AN - 1626097
VN - N2009: 1-19994
RE - 9012019994
TI - The influence of lime fertilizations on the benthic macrofauna of Oberer Grumbacher Teich near Hahnenklee-Bockswiese (Harz Mountains).
Der Einfluss von Naturkalkduengungen auf die Benthos-Makrofauna des Oberen Grumbacher Teiches bei Hahnenklee-Bockswiese im Oberharz
AU - Soechtig, W. (Zool. Inst., Tech. Univ. Braunschweig, Pockelsstr., 10a, D-3300 Braunschweig, FRG)
PU - BRAUNSCHW. NATURKD. SCHR., (1989), vol. 3, no. 2, pp. 499-506.
NU - ISSN 0174-3384
LA - German; Foreign

20 / 5
'N - 1604218
,N - N2002: 1-03662
RE - 9012003662
TI - The determination of limestone surface area by linear regression.
AU - Coler, M.; Chang, Yi Ying; Coler, R.A. (Environ. Health/Sci. Program, Div. Public Health, Univ. Massachusetts, Amherst MA 01003, USA)
PU - HYDROBIOLOGIA., (1989), vol. 184, no. 3, pp. 165-168.
LA - English

20 / 6
AN - 1560286
VN - N1904: 1-08751
RE - 8911908751
TI - Benthic studies in Alice Arm, B.C. during and following cessation of mine tailings disposal, 1982 to 1986.
AU - Brinkhurst, R.O.; Burd, B.J.; Kathman, R.D.
CS - Institute of Ocean Sciences, Patricia Bay, Sidney, B.C. (Canada)
PU - 1987, 50 pp
CAN. TECH. REP. HYDROGR. OCEAN SCI., no. 89.
NU - ISSN 07011-6764
LA - English

20 / 7
AN - 1510932
VN - N1806: 1-08794
RE - 8811808794
TI - BIOLOGICAL EFFECTS OF MARINE SAND MINING AND FILL PLACEMENT FOR BEACH REPLENISHMENT: LESSONS FOR OTHER USES.
AU - HURME, A.K.; PULLEN, E.J. (U.S. ARMY CORPS ENG., WATER RESOUR. SUPPORT CENT., DREDGING DIV., CASEY BUILD., FORT BELVOIR, VA 22060, USA)

PU - IN MARINE SAND AND GRAVEL MINING. PART 2., DUANE, D.B. (ED.), 1988., PP. 123-136 / MAR. MIN., VOL. 7, NO. 2
CF - PRESENTED AT : SAND AND GRAVEL WORKSHOP, SUNY, STONY BROOK, NY (USA), MAR 1986
LA - English

20 / 8
AN - 1459099
VN - N1705: 1-07181
RE - 8711707181
TI - BENTHIC MARINE ALGAE IN THE EFFLUENT QUARRY AT MILLSTONE NUCLEAR POWER STATION, CONNECTICUT.
AU - FOERTCH, J.; KESER, M.; ETHIER, R. (NORTHEAST UTILITIES ENVIRON. LAB., P.O. BOX 128, WATERFORD, CT 06385, USA)
PU - IN ABSTRACTS OF PAPERS SCHEDULED FOR THE ANNUAL MEETING OF THE PHYCOLOGICAL SOCIETY OF AMERICA AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, AUGUST 13-15, 1985., 1985., P. 15 / J. PHYCOL., VOL. 21, NO. SUPPL.
CF - PRESENTED AT : ANNUAL MEETING OF THE PHYCOLOGICAL SOCIETY OF AMERICA, GAINESVILLE, FL (USA), 13 AUG 1985
LA - English

20 / 9
AN - 1410312
VN - N1605: 1-08411
RE - 8611608411
TI - RECOVERY OF BENTHIC INVERTEBRATE COMMUNITIES IN SILVER BOW CREEK, MONTANA, FOLLOWING IMPROVED METAL MINE WASTEWATER TREATMENT.
AU - CHADWICK, J.W.; CANTON, S.P.; DENT, R.L. (CHADWICK AND ASSOC., 5721 S. SPOTSWOOD ST., LITTLETON, CO 80120, USA)
PU - WATER AIR SOIL POLLUT., (1986)., VOL. 28, NO. 3-4, PP. 427-438
LA - English

20 / 10
AN - 1410014
VN - N1605: 1-08109; N1604: 2-03105
RE - 8611608109
TI - DISTRIBUTION OF MARINE BENTHIC AMPHIPODS OFF PHUKET ISLAND, WITH EMPHASIS ON TIN MINING AND A MODEL OF SPECIES-INDIVIDUAL RELATIONSHIPS.
AU - BUSSARAWICH, S.; NATEEWATHANA, A.; HYLLEBERG, J. (PHUKET MAR. BIOL. CENT., PHUKET, THAILAND)
CS - PHUKET MARINE BIOLOGICAL CENT. (THAILAND)
PU - 1984., 21 PP
RES. BULL. PHUKET MAR. BIOL. CENT., NO. 32
CF - PROCEEDINGS OF: 15. PACIFIC SCIENCE CONF., (NEW ZEALAND), 1 FEB 1983
LA - English

20 / 11
AN - 1351527
VN - N1501: 1-01731
RE - 8511501731
TI - ON THE BENTHIC FAUNA OF SOME RIVER SYSTEMS IN NAGASAKI DISTRICT. (8) BENTHIC COMMUNITY IN THE RIVER SASU AFTER CONSTRUCTION TO PREVENT MINE-EFFLUENT. / NAGASAKI-KENNAI KASEN NO TEISEI-DOBUTSUSO. (8) KOGAI-BOSHI NOTUSHIMA, SASUGAWA NO TEISEIDOBUTSUSO
AU - ISHIZAWA, S. (NAGASAKI INST. HEALTH SCI. ENVIRON. SCI., NAMESHI, NAGASAKI-SHI, 852 JAPAN)
PU - JAP. J. LIMNOL./RIKUSUIZATSU., (1983)., VOL. 44, NO. 4, PP. 263-268
- ISSN 0021-5104
LA - Japanese; Foreign

20 / 12

AN - 1328710
VN - N1410: 1-23211
RE - 8411423211
TI - BENTHIC STUDIES IN ALICE ARM, B.C., FOLLOWING CESSATION OF MINE TAILINGS DISPOSAL.
AU - KATHMAN, R.D.; BRINKHURST, R.O.; WOODS, R.E.; CROSS, S.F.
CS - INSTITUTE OF OCEAN SCIENCES, PATRICIA BAY, SIDNEY, B.C. (CANADA)
PU - 1984., 64 PP
CAN. TECH. REP. HYDROGR. OCEAN SCI., NO. 37
NU - ISSN 0711-6764
LA - English

20 / 13

AN - 1313759
VN - N1405: 1-11609
RE - 8411411609
TI - INADEQUACY OF DIVERSITY INDICES IN DISCERNING METAL MINE DRAINAGE EFFECTS ON A STREAM INVERTEBRATE COMMUNITY.
AU - CHADWICK, J.W.; CANTON, S.P. (CHADWICK AND ASSOC., 5767 SOUTH RAPP ST., LITTLETON, CO 80120, USA)
PU - WATER AIR SOIL POLLUT., (1984)., VOL. 22, NO. 2, PP. 217-223
LA - English

20 / 14

AN - 1311051
VN - N1404: 1-09328
RE - 8411409328
TI - BENTHIC STUDIES IN ALICE ARM AND HASTINGS ARM, B.C. IN RELATION TO MINE TAILINGS.
AU - KATHMAN, R.D.; BRINKHURST, R.O.; WOODS, R.E.; JEFFRIES, D.C.
CS - INSTITUTE OF OCEAN SCIENCES, SIDNEY, B.C. (CANADA)
PU - 1983., 64 PP
CAN. TECH. REP. HYDROGR. OCEAN SCI., NO. 22
NU - ISSN 0711-6764
LA - English

20 / 15

AN - 1311009
VN - N1404: 1-09286
RE - 8411409286
TI - ECOLOGICAL EFFECTS OF MINE EFFLUENTS ON THE SOUTH ESK RIVER, NORTH-EASTERN TASMANIA. 3. BENTHIC MACROINVERTEBRATES.
AU - NORRIS, R.H.; LAKE, P.S.; SWAIN, R. (CANBERRA COLL. ADVANCED EDUC., P.O. BOX 1, BELCONNEN, A.C.T. 2616, AUSTRALIA)
PU - AUST. J. MAR. FRESHWAT. RES., (1982)., VOL. 33, NO. 5, PP. 789-809
LA - English

20 / 16

AN - 1310996
VN - N1404: 1-09272; N1403: 2-02979
RE - 8411409272
TI - NICKEL MINING AND REFINERY WASTES IN CORAL REEF ENVIRONS.
AU - CAREY, J. (SCH. EARTH SCI., MACQUARIE UNIV., N.S.W., AUSTRALIA)
PU - IN THE REEF AND MAN. PROCEEDINGS OF THE FOURTH INTERNATIONAL CORAL REEF SYMPOSIUM. VOLUME 1., GOMEZ, E.D.; BIRKELAND, C.E.; BUDDEMEIER, R.W.; JOHANNES, R.E.; MARSH, J.A.,JR.; TSUDA, R.T. (EDS.), 1981., PP. 137-146
CF - PRESENTED AT : 4. INTERNATIONAL CORAL REEF SYMPOSIUM, MANILA (PHILIPPINES), 18-22 MAY 1981
NU - ISBN 971-03-0015-6
LA - English

20 / 17

AN - 1308091
VN - N1403: 1-06959
RE - 8411406959
TI - COAL MINE DRAINAGE EFFECTS ON A LOTIC ECOSYSTEM IN NORTHWEST COLORADO, USA.
U - CHADWICK, J.W.; CANTON, S.P. (CHADWICK & ASSOC., 4901 EAST DRY CREEK RD., LITTLETON, CO 80122, USA)
PU - HYDROBIOLOGIA., (1983)., VOL. 107, NO. 1, PP. 25-33
LA - English

20 / 18
AN - 1307908
VN - N1403: 1-06776; N1402: 2-01185
RE - 8411406776
TI - CHANGES OF THE BENTHIC FAUNA OF THE PROFUNDAL ZONE OF TRAUNSEE (AUSTRIA) DUE TO SALT MINING ACTIVITIES.
AU - LOEFFLER, H. (LIMNOL. DEP., UNIV. VIENNA, BERGGASSE 18, A-1090 VIENNA, AUSTRIA)
PU - IN PALEOLIMNOLOGY. PROCEEDINGS OF THE THIRD INTERNATIONAL SYMPOSIUM ON PALEOLIMNOLOGY HELD AT JOENSUU, FINLAND., MERLTAEINEN, J.; HUTTENUNEN, P.; BATTARBEE, R.W. (EDS.), 1983., PP. 135-139 / HYDROBIOLOGIA., VOL. 103
CF - PRESENTED AT : 3. INTERNATIONAL SYMP. ON PALEOLIMNOLOGY, JOENSUU (FINLAND), 31 AUG 1981
LA - English

20 / 19
AN - 1304879
VN - N1402: 1-04330
RE - 8411404330
TI - PONTOPOREIA DISTRIBUTION ALONG THE KEWEENAW SHORE OF LAKE SUPERIOR AFFECTED BY COPPER TAILINGS.
AU - KRAFT, K.L. (DEP. BIOL. SCI., MICHIGAN TECHNOL. UNIV., HOUGHTON, MI 49931, USA)
PU - J. GREAT LAKES RES., (1979)., VOL. 5, NO. 1, PP. 28-35
NU - ISSN 0380-1330
LA - English

20 / 20
AN - 1272729
VN - N1311: 1-17517; N1310: 2-07790
RE - 8311317517
TI - CLIMATIC AND BIOLOGICAL RHYTHMS IN THE MARINE PELAGIC ENVIRONMENT. THEIR RELATIONSHIPS IN THE CRETACEOUS ALTERNATING BEDS FROM THE VOCONTIAN BASIN (FRANCE SOUTH EAST). / RYTHMES CLIMATIQUES ET BIOLOGIQUES EN MILIEU MARIN PELAGIQUE. LEURS RELATIONS DANS LES DEPOTS CRETACES ALTERNANTS DU BASSIN VOCONTIEN (SUD-EST DE LA FRANCE)
AU - DARMEDRU, C.; COTILLON, P.; RIO, M. (DEP. SCI. TERRE, UNIV. LYON 1, 27-43 BLVD. DU 11 NOVEMBRE, 69622 VILLEURBANNE CEDEX, FRANCE)
PU - IN (OCEANS-PALEOCEANS. LILLE, 7 AND 8 DECEMBER 1981. A SPECIALIZED MEETING OF THE FRENCH GEOLOGICAL SOCIETY.). / OCEANS-PALEOCEANS. LILLE, 7 ET 8 DECEMBRE 1981. SEANCE SPECIALIZEE DE LA SOCIETE GEOLOGIQUE DE FRANCE. , CHAMLEY, H.; WEVER, P. DE; MAILLOT, H.;RAOULT, J.F. (EDS.), SOCIETE GEOLOGIQUE DE FRANCE, PARIS (FRANCE), 1982., PP. 627-640 / BULL. SOC. GEOL. FR., VOL. 24, NO. 3
CF - PRESENTED AT : OCEANS-PALEOCEANS, LILLE (FRANCE), 7 DEC 1981
NU - ISSN 0037-7409
LA - French

20 / 21
- 1172482
VN - N1110: 1-15781
RE - 7811115781

TI - SEASONAL AND SPECIES DEPENDENT VARIABILITY IN THE BIOLOGICAL IMPACT ON MINE WASTES IN AN ALPINE RIVER.
AU - MOORE,J.W. (ALBERTA ENVIRON. CENT., BAG 4000, VEGREVILLE, ALTA. T0B 4L0, CANADA)
PU - BULL. ENVIRON. CONTAM. TOXICOL., (1980), 25(4), 524-529
A - English

20 / 22
AN - 1160327
VN - N1105: 1-07738
RE - 7811107738
TI - BIOLOGICAL CONSEQUENCES OF STREAM ROUTING THROUGH A FINAL-CUT STRIP MINE PIT: BENTHIC MACROINVERTEBRATES.
AU - VINIKOUR,W.S. (LAND RECLAMATION PROGRAM AND DIV. ENVIRON. IMPACT STUD., ARGONNE NATL. LAB., ARGONNE, IL 60439, USA)
PU - HYDROBIOLOGIA, (1980), 75(1), 33-43
LA - English

20 / 23
AN - 1160216
VN - N1105: 1-07627
RE - 7811107627
TI - THE EFFECTS OF MINE DRAINAGE AND ORGANIC ENRICHMENT ON BENTHOS IN THE RIVER NENT SYSTEM, NORTHERN PENNINES.
AU - ARMITAGE,P.D. (FRESHWATER BIOL. ASSOC., RIVER LAB., EAST STOKE, WAREHAM, DORSET BY20 6BB, UK)
PU - HYDROBIOLOGIA, (1980), 74(2), 119-128
LA - English

20 / 24
AN - 1150724
VN - N1101: 1-00724
RE - 7811100724
TI - BIOTIC RECOVERY OF A RECLAIMED RIVER CHANNEL AFTER COAL STIP MINING.
AU - GORE,J.A.; JOHNSON,L.S. (WYOMING UNIV., WATER RESOUR. RES. INST., LARAMIE, WY 82071, USA)
PU - IN: THE MITIGATION SYMPOSIUM: A NATIONAL WORKSHOP ON MITIGATING LOSSES OF FISH AND WILDLIFE HABITATS, COLORADO STATE UNIVERSITY, FORT COLLINS, COLORADO, JULY 16-20, 1979., PUBL. BY: US DEP. AGRICULTURE; FORT COLLINS, CO (USA)., 1979., P. 239-244.GEN. TECH. REP. U. S. DEP. AGRIC.
CF - PRESENTED AT: THE MITIGATION SYMPOSIUM: A NATIONAL WORKSHOP ON MITIGATING LOSSES OF FISH AND WILDLIFE HABITATS; FORT COLLINS, CO (USA); 16 JUL 1979.
NU - USDA-RM-65
LA - English

20 / 25
AN - 1117214
VN - N1009: 1-12290
RE - 7811012290
TI - EFFECTS OF LIMESTONE STRIP MINING ON BENTHIC MACROINVERTEBRATE COMMUNITIES.
AU - OSBORNE,L.L.; DAVIES,R.W.; LINTON,K.J. (DEP. BIOL., UNIV. CALGARY, CALGARY, ALBERTA T2N 1N4, CANADA)
PU - WATER RES., (1979), 13(12), 1285-1290
LA - English

20 / 26
AN - 1115005
VN - N1008: 1-10849
RE - 7811010849
TI - THE BIOTA OF COAL MINE SPOILS PONDS IN NORTHWESTERN COLORADO.

AU - CANTON,S.P.; WARD,J.V. (COLORADO STATE UNIV., FORT COLLINS, CO 80521, USA)
PU - BULL. ECOL. SOC. AM., (1979), 60(2), 122
CF - (PRESENTED AT: 30. ANNUAL MEETINGS OF ESA WITH AIBS; OKLAHOMA STATE UNIVERSITY, STILLWATER, OK (USA); 12 AUG 1979).
LA - English

20 / 27
AN - 1108932
VN - N1005: 1-06361
RE - 7811006361
TI - THE STREAM ENVIRONMENT AND MACROINVERTEBRATE COMMUNITIES: CONTRASTING EFFECTS OF MINING IN COLORADO AND THE EASTERN UNITED STATES.
AU - WARD,J.V.; CANTON,S.P.; GRAY,L.J. (DEP. ZOOL., COLORADO STATE UNIV., FORT COLLINS, CO 80521, USA)
PU - IN: ENERGY AND ENVIRONMENTAL STRESS IN AQUATIC SYSTEMS., THORP,J.H.; GIBBONS,J.W., PUBL. BY: TECHNICAL INFORMATION CENTER, US DEP. ENERGY; OAK RIDGE, TN (USA)., 1978., P. 176-187.DOE SYMP. SER., (NO. 48)
CF - (PRESENTED AT: SYMPOSIUM ON ENERGY AND ENVIRONMENTAL STRESS IN AQUATIC SYSTEMS; AUGUSTA, GEORGIA (USA); 2 NOV 1977).
LA - English

20 / 28
AN - 1013848
VN - N0808: 1-09678
RE - 7810809678
TI - ENERGETIC EVALUATION OF A STREAM ECOSYSTEM AFFECTED BY COAL MINE DRAINAGE.
AU - MITSCH, W.J.; MCPARTLIN, M.A.; LETTERMAN, R.D. (ADDRESS NOT STATED)
PU - IN: S.I.L. 20 CONGRESS COPENHAGEN, PUBL.BY: DIS CONGRESS SERVICE, 3 KNABROSTRAEDE, DK-1210, COPENHAGEN K, DENMARK, 1977, 306P.
CF - (PRESENTED AT: 20TH LIMNOLOGICAL CONGRESS; COPENHAGEN; 7 AUG 1977).
LA - English
21/
type s20/more/4

20 / 4
AN - 1626097
VN - N2009: 1-19994
RE - 9012019994
TI - The influence of lime fertilizations on the benthic macrofauna of Oberer Grumbacher Teich near Hahnenklee-Bockswiese (Harz Mountains).
Der Einfluss von Naturkalkduengungen auf die Benthos-Makrofauna des Oberen Grumbacher Teiches bei Hahnenklee-Bockswiese im Oberharz
AU - Soechtig, W. (Zool. Inst., Tech. Univ. Braunschweig, Pockelsstr., 10a, D-3300 Braunschweig, FRG)
PU - BRAUNSCHW. NATURKD. SCHR., (1989), vol. 3, no. 2, pp. 499-506.
NU - ISSN 0174-3384
LA - German; Foreign
21/
type s20/more/25

20 / 25
AN - 1117214
VN - N1009: 1-12290
RE - 7811012290
TI - EFFECTS OF LIMESTONE STRIP MINING ON BENTHIC MACROINVERTEBRATE COMMUNITIES.
AU - OSBORNE,L.L.; DAVIES,R.W.; LINTON,K.J. (DEP. BIOL., UNIV. CALGARY, CALGARY, ALBERTA T2N 1N4, CANADA)

PU - WATER RES., (1979), 13(12), 1285-1290
LA - English
AB - THE CHANGES IN WATER QUALITY AND BENTHIC MACROINVERTEBRATE COMMUNITY STRUCTURE AND COMPOSITION RELATED TO LIMESTONE STRIP MINING IN WESTERN PENNSYLVANIA ARE RECORDED AND STRIP MINING. IN CONTRAST TO COAL STRIP MINING CHARACTERIZED BY HIGH TOTAL ACIDITY AND IRON CONCENTRATIONS WITH DECREASED TOTAL ALKALINITY AND PH, LIMESTONE STRIP MINING SHOWED ONLY A SLIGHT INCREASE IN TOTAL ACIDITY AND BICARBONATE ALKALINITY, AND NO INCREASE IN IRON CONCENTRATION DUE TO THE FORMATION OF HEAVY DEPOSITS OF FERRIC HYDROXIDE. THE SULPHATE CONCENTRATION AND CONDUCTANCE INCREASED WITH BOTH COAL AND LIMESTONE STRIP MINING. LIMESTONE STRIP MINING DID NOT RESULT IN THE EXTREME DETERIORATION OF BENTHIC COMMUNITY STRUCTURE AND COMPOSITION REPORTED WITH COAL STRIP MINING. THE DECREASED SPECIES DIVERSITY RECORDED WAS DIRECTLY CORRELATED WITH THE SULPHATE CONCENTRATIONS AND RESULTED FROM CHANGES IN SPECIES ABUNDANCE RATHER THAN SPECIES COMPOSITION. THE CHANGES IN SPECIES ABUNDANCE APPEAR TO BE RELATED TO CHANGES IN FOOD RESOURCE AVAILABILITY DUE TO THE DEPOSITION OF FERRIC HYDROXIDE IN THE DETRITUS.

```
 21/
s brook (f) trout
           620      brook
           6436     trout
 SET   21: 358      (brook (F) trout) ASONE SET
 22/
s cold (f) stream (f) fish*
           1226     cold
           4795     stream
100 terms accessed,     100 combined, continuing
           92404    fish* ( 155  *--*TERMS )
 SET   22: 2        (cold (F) stream (F) fish*) ASONE SET
 23/
s s21 or s22
 SET   23: 360      21 or 22 ASONE SET
 24/
s s23 and s1
 SET   24: 1        (23 and 1) ASONE SET
 25/
type s24

    24 / 1
```

AN - 1112547
VN - N1007: 1-09135
RE - 7811009135
TI - GENETIC AND ENVIRONMENTAL FACTORS INVOLVED IN INCREASED RESISTANCE OF BROOK TROUT TO SULFURIC ACID SOLUTIONS AND MINE ACID POLLUTED WATERS.
AU - SWARTS,F.A.; DUNSON,W.A.; WRIGHT,J.E. (DEP. BIOL., PENNSYLVANIA STATE UNIV., UNIV. PARK, PA 16802, USA)
PU - TRANS. AM. FISH. SOC., (1978), 107(5), 651-677
LA - English

```
 25/
s s23 and lime*
           599      lime* (  12  *--*TERMS )
 SET   25: 1        (23 and lime*) ASONE SET
 26/
type s25

    25 / 1
```

AN - 1773220
VN - N2307: 1-12931; N2308: 2-05825
RE - 9312312931
TI - Thermal stratification of dilute lakes -- evaluation of regulatory

processes and biological effects before and after base addition:
Effects on brook trout habitat and growth.
AU - Schofield, C.L.; Josephson, D.; Keleher, C.; Gloss, S.P. (Dep.
Nat. Resour., Fernow Hall, Cornell Univ., Ithaca, NY 14853, USA)
PU - 1993, 36 pp
BIOL. REP. U.S. FISH WILDL. SERV., (1993), 36 pp.
NU - ISSN 0895-1926
LA - English
26/
type s25/more/1

25 / 1
AN - 1773220
VN - N2307: 1-12931; N2308: 2-05825
RE - 9312312931
TI - Thermal stratification of dilute lakes -- evaluation of regulatory
processes and biological effects before and after base addition:
Effects on brook trout habitat and growth.
AU - Schofield, C.L.; Josephson, D.; Keleher, C.; Gloss, S.P. (Dep.
Nat. Resour., Fernow Hall, Cornell Univ., Ithaca, NY 14853, USA)
PU - 1993, 36 pp
BIOL. REP. U.S. FISH WILDL. SERV., (1993), 36 pp.
NU - ISSN 0895-1926
LA - English
AB - We address the significance of changes in summer thermal stratification patterns of Adirondack lakes affected by acidification to cold-water fish populations inhabiting these sensitive lakes. The brook trout (Salvelinus fontinalis) is the primary cold-water fish species indigenous to acid-sensitive lakes in the Adirondack region of northern New York State; the ability of these lakes to sustain this important sport species is highly dependent on the availability of adequate summer habitat, consisting of cool, well-oxygenated water. We hypothesized that acidification-induced reductions in the thermal stability of sensitive Adirondack lakes could lead to degradation of potential brook trout habitat. We also hypothesized, on the basis of energetic considerations, that brook trout growth and average size at age would be sensitive indicators of differences in the extent and availability of preferred summer habitat in lakes with different thermal structures. These hypotheses were addressed in this study by utilizing data available from previous lake liming studies in the Adirondack region, brook trout growth data from management studies in the region, and the extensive Adirondack Lake Survey Corporation (ALSC) data base. We compared brook trout growth among lakes with known thermal stratification patterns; analyzed temporal changes in the extent and availability of preferred brook trout habitat, resulting from changes in acid or base status of limed Adirondack lakes; and applied a bioenergetic growth model for sensitivity analysis of temperature effects on simulated growth of brook trout populations inhabiting lakes with different thermal structures.
26/
s acid* and (limestone or marble)

```
        10597    acid* (  53  *--*TERMS )
        472      limestone
        24       marble
SET  26: 43      (acid* AND (limestone or marble)) ASONE SET
```

27/
s stream or streams

```
        4795     stream
        1907     streams
SET  27: 6300    stream or streams ASONE SET
```

28/
s s26 and s27

SET 28: 6 (26 and 27) ASONE SET
29/
type s28//1-6

28 / 1
I - 1725016
VN - N2205: 3-04486
RE - 9232204486
TI - Effects of acid, aluminium and lime additions on fish and invertebrates in a chronically acidic Welsh stream.
AU - McCahon, C.P.; Brown, A.F.; Poulton, M.J.; Pascoe, D. (Sch. Pure and Appl. Biol., Univ. Wales Coll. Cardiff, Redwood Build., P.O. Box 13, Cardiff CF1 3XF, UK)
PU - WATER AIR SOIL POLLUT., (1989), vol. 45, no. 3-4, pp. 345-359.
LA - English

28 / 2
AN - 1683677
VN - N2106: 3-05520
RE - 9132105520
TI - Lethal and sub-lethal effects of acid, aluminium and lime on Gammarus pulex during repeated simulated episodes in a Welsh stream.
AU - McCahon, C.P.; Poulton, M.J. (Rhone-Poulenc Agrochim., 14-20 Rue Pierre Baizet, 69009 Lyon, France)
PU - FRESHWAT. BIOL., (1991), vol. 25, no. 1, pp. 169-178.
NU - ISSN 0046-5070
LA - English

28 / 3
AN - 1671419
VN - N2104: 3-03459
RE - 9132103459
I - Effects of an experimental acid pulse on invertebrates in a high altitude Sierra Nevada stream.
AU - Hopkins, P.S.; Kratz, K.W.; Cooper, S.D. (Dep. Biol. Sci., Univ. California, Santa Barbara, CA 93106, USA)
PU - HYDROBIOLOGIA., (1989), vol. 171, no. 1, pp. 45-58.
LA - English

28 / 4
AN - 1615160
VN - N2003: 3-01453
RE - 9032001453
TI - Endocrine responses of brown trout, Salmo trutta L., to acid, aluminum and lime dosing in a Welsh hill stream.
AU - Whitehead, C.; Brown, J.A. (Dep. Biol. Sci., Hatherly Lab., Univ. Exeter, Exeter EX4 4PS, UK)
PU - J. FISH BIOL., (1989), vol. 35, no. 1, pp. 59-71.
LA - English

28 / 5
AN - 1354405
VN - N1502: 1-04398; N1502: 2-01923
RE - 8511504398
TI - LIMING OF ACIDIFIED SWEDISH LAKES AND STREAMS AND ITS CONSEQUENCES FOR AQUATIC ECOSYSTEMS.
AU - HASSELROT, B.; HULTBERG, H. (ADDRESS NOT STATED)
PU - IN PROCEEDINGS OF A SYMPOSIUM ON MITIGATION TECHNIQUES FOR ACIDIFIED SURFACE WATERS., BAKER, J.P. (ED.), 1984., PP. 4-9 / FISHERIES., VOL. 9, NO. 1
F - PRESENTED AT : SYMP. ON MITIGATION TECHNIQUES FOR ACIDIFIED SURFACE WATERS AT THE 113. ANNUAL MEET. OF THE AM. FISH. SOC., MILWAUKEE, WI (USA), 19 AUG 1983

LA - English

28 / 6

AN - 1274216
VN - N1311: 1-19037; N1311: 2-09177
RE - 8311319037
TI - AN EXPERIMENTAL LIMESTONE FLOW-THROUGH DEVICE FOR MAINTENANCE OF PH IN POORLY-BUFFERED STREAMS.
AU - ARNOLD, D.E. (U.S. FISH & WILDL. SERV., COOP. FISH. RES. UNIT, PENNSYLVANIA STATE UNIV., UNIVERSITY PARK, PA 16801, USA)
PU - IN ACID RAIN/FISHERIES. PROCEEDINGS OF AN INTERNATIONAL SYMPOSIUM ON ACIDIC RAIN AND FISHERY IMPACTS ON NORTHEASTERN NORTH AMERICA., JOHNSON, R.E. (ED.), AMERICAN FISHERIES SOC., BETHESDA, MD (USA). NORTHEASTERN DIV, 1982., P. 347
CF - PRESENTED AT : INTERNATIONAL SYMPOSIUM ON ACIDIC PRECIPITATION AND FISHERY IMPACTS IN NORTHEASTERN NORTH AMERICA, ITHACA, NY (USA), 2-5 AUG 1981
LA - English

29/
type s28/more/1-6

28 / 1

AN - 1725016
VN - N2205: 3-04486
RE - 9232204486
TI - Effects of acid, aluminium and lime additions on fish and invertebrates in a chronically acidic Welsh stream.
AU - McCahon, C.P.; Brown, A.F.; Poulton, M.J.; Pascoe, D. (Sch. Pure and Appl. Biol., Univ. Wales Coll. Cardiff, Redwood Build., P.O. Box 13, Cardiff CF1 3XF, UK)
PU - WATER AIR SOIL POLLUT., (1989), vol. 45, no. 3-4, pp. 345-359.
LA - English
AB - A chronically acidic stream, Nant Craflwyn, mean pH 5.2, in upland mid-Wales was subjected to an induced episode of acidity, during which acid, Al and limestone were added at different points along the stream length. An upstream reference zone, an acid zone, an acid plus Al zone and a downstream zone of Al at low pH with added limestone to increase pH were created for a 24 hr period. Four species of fish and 10 species of invertebrates were exposed in each zone and response criteria measured included mortality, metal uptake, feeding and the ability of stressed animals to recover. Fish mortalities were greater in zones B and C than in zone A and were greatly reduced by the addition of lime in zone D. Overall mortality was low amongst the invertebrate species found in acid waters. Greatest mortalities were recorded of Gammarus pulex. G. pulex infected with the acanthocephalan parasite Pomphorhynchus laevis exhibited greater mortality than uninfected animals. Invertebrate body burdens of Al were greatest in zone D, with significant increases over the dosing period for both G. pulex and Isoperla grammatica .

28 / 2

AN - 1683677
VN - N2106: 3-05520
RE - 9132105520
TI - Lethal and sub-lethal effects of acid, aluminium and lime on Gammarus pulex during repeated simulated episodes in a Welsh stream.
AU - McCahon, C.P.; Poulton, M.J. (Rhone-Poulenc Agrochim., 14-20 Rue Pierre Baizet, 69009 Lyon, France)
PU - FRESHWAT. BIOL., (1991), vol. 25, no. 1, pp. 169-178.
JU - ISSN 0046-5070
LA - English
AB - A soft-water stream in upland mid-Wales was dosed with sulphuric

acid, aluminium sulphate and limestone slurry to produce a zone of aluminium at low pH, and one of aluminium, low pH and added lime. Three episodes of 24-h duration were induced, each separated by a 12-h inter-dosing period, and the responses of the crustacean Gammarus pulex monitored throughout. G. pulex parasitized by the acanthocephalan Pomphorhynchus laevis were significantly more sensitive than unparasitized individuals. Liming significantly reduced mortality during dosing but post-exposure deaths were greatest for animals which had been exposed in the lime zone. The disruption of precopulatory behaviour in G. pulex was rapid and liming did not mitigate this response.

28 / 3

AN - 1671419
VN - N2104: 3-03459
RE - 9132103459
TI - Effects of an experimental acid pulse on invertebrates in a high altitude Sierra Nevada stream.
AU - Hopkins, P.S.; Kratz, K.W.; Cooper, S.D. (Dep. Biol. Sci., Univ. California, Santa Barbara, CA 93106, USA)
PU - HYDROBIOLOGIA., (1989), vol. 171, no. 1, pp. 45-58.
LA - English
AB - The effects of pulsed acidification on invertebrate densities and drift, and water chemistry, in a high altitude Sierra Nevada stream were measured using artificial stream channels. Water was diverted from the Marble Fork of the Kaweah River, California, USA, through twelve replicate channels; however, low flow in the summer of 1985 eliminated all but four of these channels. Channels were stocked with natural substrates and organisms from the Marble Fork of the Kaweah River. After a three week acclimation period, the researchers simulated a low pH rain event by adding acid (H sub(2)SO sub(4) and HNO sub(3)) to two of the channels, reducing pH to 5.0 for 6 hours. The other two channels acted as controls (pH 6.4). During acid additions, Baetis) drift in acidified channels was ca. 7 times higher than in control channels, and the percentage of drifting baetids that was dead was significantly higher in acidified than control channels. Other taxa showed no significant drift responses, and benthic densities of all taxa showed no effects two days after acidification, probably owing to rapid recolonization by invertebrate drift in influent waters. Stream chemistry data are presented; heavy metal concentrations did not significantly increase in the 2 m stream channels.

28 / 4

AN - 1615160
VN - N2003: 3-01453
RE - 9032001453
TI - Endocrine responses of brown trout, Salmo trutta L., to acid, aluminum and lime dosing in a Welsh hill stream.
AU - Whitehead, C.; Brown, J.A. (Dep. Biol. Sci., Hatherly Lab., Univ. Exeter, Exeter EX4 4PS, UK)
PU - J. FISH BIOL., (1989), vol. 35, no. 1, pp. 59-71.
LA - English
AB - Brown trout (Salmo trutta) caged in an acidic, softwater, Welsh hill stream running through close-canopy conifer forest and in an adjacent, circumneutral, moorland stream were studied after a natural rainfall event and after experimental acid and aluminum dosing of the forest stream. Endocrine (cortisol and thyroxine) and metabolic (glucose) stress responses occurred in fish held in the forest stream. Liming downstream of the acid zones mitigated these responses.

28 / 5
AN - 1354405
VN - N1502: 1-04398; N1502: 2-01923
RE - 8511504398
TI - LIMING OF ACIDIFIED SWEDISH LAKES AND STREAMS AND ITS CONSEQUENCES FOR AQUATIC ECOSYSTEMS.
AU - HASSELROT, B.; HULTBERG, H. (ADDRESS NOT STATED)
PU - IN PROCEEDINGS OF A SYMPOSIUM ON MITIGATION TECHNIQUES FOR ACIDIFIED SURFACE WATERS., BAKER, J.P. (ED.), 1984., PP. 4-9 / FISHERIES., VOL. 9, NO. 1
CF - PRESENTED AT : SYMP. ON MITIGATION TECHNIQUES FOR ACIDIFIED SURFACE WATERS AT THE 113. ANNUAL MEET. OF THE AM. FISH. SOC., MILWAUKEE, WI (USA), 19 AUG 1983
LA - English
AB - ACIDIFICATION OF POORLY BUFFERED LAKES, WITH NEGATIVE EFFECTS ON FISH POPULATIONS AS WELL AS THE FUNCTIONING OF WHOLE AQUATIC ECOSYSTEMS, PROMPTED AN EXTENSIVE PROGRAM FOR NEUTRALIZATION OF SURFACE WATERS IN SWEDEN. THE BIOLOGICAL RESPONSE TO LAKE LIMING HAS BEEN MAINLY POSITIVE, ESPECIALLY IN LAKES WITH WATER RETENTION TIMES OF MORE THAN 1-2 YEARS, AND IN LAKES WHERE THE DELETERIOUS EFFECTS OF ACIDIFICATION HAVE BEEN MODERATE. THE NUMBER OF PHYTOPLANKTON SPECIES GENERALLY INCREASES IN LIMED LAKES. ZOOPLANKTON SPECIES WHICH ARE SENSITIVE TO ACIDIFICATION REAPPEAR OFTEN SPONTANEOUSLY IN LIMED LAKES WITHIN A FEW YEARS. THE BENTHIC FAUNA, ESTABLISHED DURING THE ACID PERIOD, CHANGES OVER SEVERAL YEARS FOLLOWING LIMING. NEW SPECIES INVADE DURING THE NEUTRAL CONDITIONS AND POPULATIONS OF ACID SENSITIVE SPECIES, PREVIOUSLY PRESENT AT VERY LOW LEVELS, EXPAND.

28 / 6
AN - 1274216
VN - N1311: 1-19037; N1311: 2-09177
RE - 8311319037
TI - AN EXPERIMENTAL LIMESTONE FLOW-THROUGH DEVICE FOR MAINTENANCE OF PH IN POORLY-BUFFERED STREAMS.
AU - ARNOLD, D.E. (U.S. FISH & WILDL. SERV., COOP. FISH. RES. UNIT, PENNSYLVANIA STATE UNIV., UNIVERSITY PARK, PA 16801, USA)
PU - IN ACID RAIN/FISHERIES. PROCEEDINGS OF AN INTERNATIONAL SYMPOSIUM ON ACIDIC RAIN AND FISHERY IMPACTS ON NORTHEASTERN NORTH AMERICA., JOHNSON, R.E. (ED.), AMERICAN FISHERIES SOC., BETHESDA, MD (USA). NORTHEASTERN DIV, 1982., P. 347
CF - PRESENTED AT : INTERNATIONAL SYMPOSIUM ON ACIDIC PRECIPITATION AND FISHERY IMPACTS IN NORTHEASTERN NORTH AMERICA, ITHACA, NY (USA), 2-5 AUG 1981
LA - English
AB - THE AUTHORS CONSTRUCTED A PROTOTYPE FLOW-THROUGH LIMESTONE DEVICE IN A STREAM WITH LOW BUFFERING CAPACITY AND PH, AND MONITORED THE RESULTS FOR MORE THAN A YEAR. IT WAS DETERMINED THAT A SERIES OF SUCH DEVICES IS NECESSARY TO ACHIEVE SIGNIFICANT RESULTS; THAT LIMESTONE USED MUST BE UNIFORM IN SIZE, ABOUT 4" DIAMETER PIECES, AND OF THE HIGH-CALCIUM TYPE SUCH AS "CUPOLA FLUXING STONE". THE USE OF WIRE GABIONS IS AN EFFECTIVE, LOW-COST METHOD OF CONSTRUCTING SUCH DEVICES.

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 29/
typw s12/more/62
 "typw"
ERROR.  Invalid name of command or saved search.
2.6a
 29/
type s12/more/62
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12 / 62
AN - 1254571
VN - N1303: 1-03854; N1303: 2-01905

RE - 8311303854
TI - THE EFFECTS OF DISCHARGES FROM LIMESTONE QUARRIES ON WATER QUALITY
AND AQUATIC BIOTA.
AU - HOBAN, M.A.; LIPPE, J.C.; KIRBY, R.;MCCLOSKEY, M.H.; PACHARZINA,
N.A. (EFFLUENT GUIDELINES DIV., EPA, WASHINGTON, D.C., USA)
CS - ENVIRONMENTAL PROTECTION AGENCY, WASHINGTON, DC (USA)
PU - SPRINGFIELD, VA (USA) , NTIS, 1982., 175 PP
LA - English
AB - THIS REPORT DOCUMENTS THE PROCEDURES, WASTEWATER ANALYSIS RESULTS,
WATER QUALITY EFFECTS AND BIOLOGICAL EFFECTS OF LIMESTONE
QUARRING AND PROCESSING OPERATIONS ON SURFACE STREAMS. DATA WAS
GATHERED BY ON SITE SAMPLING OF PROCESS STREAMS (TREATED AND
UNTREATED) AT NINE LIMESTONE OPERATIONS AND BIOLOGICAL SAMPLING
OF THE RECEIVING STREAMS. PUBLISHED DATA WAS GATHERED ON THE
GENERAL EFFECTS OF CONSTITUENTS PRESENT IN WASTEWATER STREAMS AND
EFFECTS OF LIMESTONE EFFLUENTS ARE EVALUATED ON INFORMATION FROM
THE LITERATURE AND SAMPLING.
29/
s s21 and (water(f)temperature)
56065 water
17709 temperature
SET 29: 5 (21 AND (water (F) temperature)) ASONE SET
30/
type s29//1-5

29 / 1
AN - 1717113
VN - N2206: 1-11378
RE - 9212211378
TI - Diel and seasonal changes in resting levels of various blood
parameters in brook trout (Salvelinus fontinalis).
AU - Audet, C.; Claireaux, G. (INRS-Oceanol., 310 Allee des Ursulines,
Rimouski, Que. G5L 3A1, Canada)
PU - CAN. J. FISH. AQUAT. SCI., (1992), vol. 49, no. 5, pp. 870-877.
NU - ISSN 0706-652X
LA - English

29 / 2
AN - 1622466
VN - N2008: 1-17135
RE - 9012017135
TI - Effect of climatic warming on the southern margins of the native
range of brook trout, Salvelinus fontinalis .
AU - Meisner, J.D. (ESSA Ltd., Ste. 102, 66 Isabella St., Toronto,
Ont. M4Y 1N3, Canada)
PU - CAN. J. FISH. AQUAT. SCI., (1990), vol. 47, no. 6, pp. 1065-1070.
NU - ISSN 0706-652X
LA - English

29 / 3
AN - 1551879
VN - N1901: 1-01890
RE - 8911901890
TI - Influence of water temperature and fish age on mortality in brook
trout (Salvelinus fontinalis) infected with infectious pancreatic
necrosis virus (IPNV).
Influence de la temperature de l'eau et de l'age des poissons sur
la mortalite de la truite mouchetee (Salvelinus fontinalis)
infectee avec le virus de la necrose pancreatique infectieuse
(IPNV)
AU - Lapierre, J.; Larrivee, D.; Berthiaume, L. (Cent. Rech. Virol.,
Inst. Armand-Frappier, 531 Blvd. des Prairies, C.P. 100,
Laval-des-Rapides, Que. H7N 4Z3, Canada)
PU - AQUACULTURE., (1988), vol. 59, no. 2, pp. 81-92.

LA - English

29 / 4
AN - 1220096
VN - N1211: 1-14106
RE - 8211214106
TI - CORRELATIONS BETWEEN BROOK TROUT GROWTH AND ENVIRONMENTAL VARIABLES FOR MOUNTAIN LAKES IN ALBERTA.
AU - DONALD, D.B.; ANDERSON, R.S.; MAYHOOD, D.W. (CAN. WILDL. SERV., 1000, 9942-108 ST., EDMONTON, ALBERTA T5K 2J5, CANADA)
PU - TRANS. AM. FISH. SOC., (1980)., VOL. 109, NO. 6, PP. 603-610
LA - English

29 / 5
AN - 1112038
VN - N1007: 1-08626
RE - 7811008626
TI - THE BEHAVIOR OF JUVENILE ATLANTIC SALMON (SALMO SALAR) AND BROOK TROUT (SALVELINUS FONTINALIS) WITH REGARD TO TEMPERATURE AND TO WATER VELOCITY.
AU - GIBSON,R.J. (MACLAREN MAREX, INC., ST. JOHN'S, NEWFOUNDLAND A1A 2Y4, CANADA)
PU - TRANS. AM. FISH. SOC., (1978), 107(5), 703-712
LA - English

Last Update:
94-02-09

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  1/
  1/
  1/
s mine or mines or mining or marble or limestone or quarr*
              1619     mine
              3349     mines
              3567     mining
              64       marble
              449      limestone
              259      quarr* (  6   *--*TERMS )
 SET     1: 4929       mine or mines or mining or marble or limestone or
                        quarr* ASONE SET
  2/
s environmental
 SET     2: 12616      environmental
  3/
s study or studies
              21559    study
              12449    studies
 SET     3: 33630      study or studies ASONE SET
  4/
s impact
 SET     4: 9454       impact
  5/
s assessment or audit
              5548     assessment
              181      audit
 SET     5: 5718       assessment or audit ASONE SET
  6/
s s1 and s2 and s3
 SET     6: 20         (1 and 2 and 3) ASONE SET
  7/
s (s2 and s2 and s4) not s6
 SET     7: 4388       ((2 and 2 and 4) AND NOT 6) ASONE SET
  8/
s (s1 and s2 and s4) not s6
 SET     8: 209        ((1 and 2 and 4) AND NOT 6) ASONE SET
  9/
s (s1 and s2 and s5) not (s6 or s8)
 SET     9: 5          ((1 and 2 and 5) AND NOT (6 or 8)) ASONE SET
 10/
s s6 or s7 or s9
 SET    10: 4413       6 or 7 or 9 ASONE SET
 11/
s s6 or s8 or s9
 SET    11: 234        6 or 8 or 9 ASONE SET
 12/
s coal or hydro or acid or tailing* or uranium or peat or arctic or africa*
ERROR.  Illegal leading asterisk.
2.5a
=>
 12/
s coal or hydro or acid or tailing* or uranium or peat or arctic or africa*
              6379     coal
              557      hydro
              9362     acid
              231      tailing* (  2   *--*TERMS )
              1747     uranium
```

```
              253      peat
              433      arctic
              514      africa* (  5   *--*TERMS )
 SET    12: 19095      coal or hydro or acid or tailing* or uranium or
                        peat or arctic or africa* ASONE SET
  13/
s lead
 SET    13: 4618       lead
  14/
s s12 or s13
 SET    14: 23235      12 or 13 ASONE SET
  15/
s ocean* or sea or seas or marine or coast* or offshore
              4174     ocean* (  17  *--*TERMS )
              2751     sea
              109      seas
              2579     marine
              3042     coast* (  14  *--*TERMS )
              3076     offshore
 SET    15: 11828      ocean* or sea or seas or marine or coast* or
                        offshore ASONE SET
  16/
s s14 or s15
 SET    16: 34691      14 or 15 ASONE SET
  17/
s s11 not s16
 SET    17: 132        (11 AND not 16) ASONE SET
  18/
s tin or gold or nickel
              2887     tin
              2974     gold
              9366     nickel
 SET    18: 14885      tin or gold or nickel ASONE SET
  19/
s s17 not s18
 SET    19: 120        (17 AND not 18) ASONE SET
  20/
type s19//1-10

      19 / 1
AN - 1323845
VN - 9409
RE - EIX9409-1164660
TI - Equipment and design considerations for environmentally safe
     cement distribution terminals
AU - Wuertele, Fred
CS - Fuller Company, Bethlehem, PA, USA
PU - IEEE Cement Industry Technical Conference (Paper) 1993. Publ by
     IEEE, IEEE Service Center, Piscataway, NJ, USA,(IEEE cat n
     93CH3268-0). p 263-278.
CF - Proceedings of the 35th IEEE Cement Industry Technical Conference
     (May 23 1993 - May 27 1993 : Toronto, Ont, USA)
SP - The Industry Applications Society's Cement Industry Committee, IEEE
NU - ISSN 0731-4906; ISBN 0-7803-0960-X; Conference No: 19207
CO - ICIPD
LA - English

      19 / 2
AN - 1317916
VN - 9407
RE - EIX9407-1153267
 : - Whose risk is it anyway?
AU - Pinkowski, Brian
CS - Smuggler Mine Project, Aspen, CO, USA
```

PU - Civil Engineering (New York) v 63 n 10 Oct 1993. p 66-68.
NU - ISSN 0885-7024
CO - CIEGA
LA - English

19 / 3
AN - 1307071
VN - 9403
RE - EIX9403-1134597
TI - Preliminary assessment of the Gulf war on Kuwaiti desert ecosystem
AU - Al-Houty, W.; Abdal, M.; Zaman, S.
CS - Kuwait Univ, Safat, Kuwait
PU - Journal of Environmental Science and Health, Part A:
Environmental Science and Engineering v 28 n 8 Oct 1993. p
1705-1726.
NU - ISSN 0360-1226
CO - JESED
LA - English

19 / 4
AN - 1301310
VN - 9401
RE - EIX9401-1127531
TI - Shaking the foundations: mineral industries in the 21st century
AU - Coates, J.F.
CS - Coates & Jarratt, Inc, Washington, DC, USA
PU - Minerals Engineering v 6 n 11 Nov 1993. p 1111-1116.
NU - ISSN 0892-6875
CO - MENGE
LA - English

19 / 5
AN - 1168813
VN - 9351
RE - EIX9351-1034185
TI - Mining heritage - what, why and how?
AU - Drew, G.J.
CS - South Australian Dep of Mines and Energy, Eastwood, Aust
PU - Conference Series - Australasian Institute of Mining & Metallurgy
1993. Publ by Australasian Inst of Mining & Metallurgy, Parkville,
Aust. p 291-294.
CF - Proceedings of the AusIMM Centenary Conference - 1893-1993 (March
30 1993 - April 04 1993 : Adelaide, Aust)
SP - Broken Hill Proprietary Co Ltd
CRA Ltd
MIM Holdings Ltd
Western Mining Co Holdings Ltd
Aberfoyle Ltd
et al
NU - ISSN 0728-7178; ISBN 0-949106-79-8; Conference No: 18699
CO - CSAMD
LA - English

19 / 6
AN - 1168812
VN - 9351
RE - EIX9351-1034184
TI - Environmental concerns in operating a mine
AU - Segal, J.
CS - Allen Allen & Hemsley
PU - Conference Series - Australasian Institute of Mining & Metallurgy
1993. Publ by Australasian Inst of Mining & Metallurgy, Parkville,
Aust. p 283-290.
CF - Proceedings of the AusIMM Centenary Conference - 1893-1993 (March

30 1993 - April 04 1993 : Adelaide, Aust)
SP - Broken Hill Proprietary Co Ltd
CRA Ltd
MIM Holdings Ltd
Western Mining Co Holdings Ltd
Aberfoyle Ltd
et al
NU - ISSN 0728-7178; ISBN 0-949106-79-8; Conference No: 18699
CO - CSAMD
LA - English

19 / 7
AN - 1168810
VN - 9351
RE - EIX9351-1034182
TI - Sustainable mining in developing countries
AU - Middleton, B.
CS - United Nations, New York, NY, USA
PU - Conference Series - Australasian Institute of Mining & Metallurgy 1993. Publ by Australasian Inst of Mining & Metallurgy, Parkville, Aust. p 275-277.
CF - Proceedings of the AusIMM Centenary Conference - 1893-1993 (March 30 1993 - April 04 1993 : Adelaide, Aust)
SP - Broken Hill Proprietary Co Ltd
CRA Ltd
MIM Holdings Ltd
Western Mining Co Holdings Ltd
Aberfoyle Ltd
et al
NU - ISSN 0728-7178; ISBN 0-949106-79-8; Conference No: 18699
CO - CSAMD
LA - English

19 / 8
AN - 1168806
VN - 9351
RE - EIX9351-1034178
TI - Corporate financial risk profiles of environmental impairment
AU - Bowden, A.R.; James, S.E.
CS - AGC Woodward-Clyde, Richmond, Aust
PU - Conference Series - Australasian Institute of Mining & Metallurgy 1993. Publ by Australasian Inst of Mining & Metallurgy, Parkville, Aust. p 233-238.
CF - Proceedings of the AusIMM Centenary Conference - 1893-1993 (March 30 1993 - April 04 1993 : Adelaide, Aust)
SP - Broken Hill Proprietary Co Ltd
CRA Ltd
MIM Holdings Ltd
Western Mining Co Holdings Ltd
Aberfoyle Ltd
et al
NU - ISSN 0728-7178; ISBN 0-949106-79-8; Conference No: 18699
CO - CSAMD
LA - English

19 / 9
AN - 1168782
VN - 9351
RE - EIX9351-1034154
TI - Mining and the environment - the public perception
AU - Epps, J.M.
CS - Epps and Associates Pty Ltd, Cremorne, Aust
PU - Conference Series - Australasian Institute of Mining & Metallurgy 1993. Publ by Australasian Inst of Mining & Metallurgy, Parkville,

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     Aust. p 27-30.
CF - Proceedings of the AusIMM Centenary Conference - 1893-1993 (March
     30 1993 - April 04 1993 : Adelaide, Aust)
SP - Broken Hill Proprietary Co Ltd
     CRA Ltd
     MIM Holdings Ltd
     Western Mining Co Holdings Ltd
     Aberfoyle Ltd
     et al
NU - ISSN 0728-7178; ISBN 0-949106-79-8; Conference No: 18699
CO - CSAMD
LA - English

     19 / 10
AN - 1168779
VN - 9351
RE - EIX9351-1034151
TI - Finding mineral resources and the consequences of using them:
     Major challenges in the 21st century
AU - Skinner, B.J.
CS - Yale Univ, New Haven, CT, USA
PU - Conference Series - Australasian Institute of Mining & Metallurgy
     1993. Publ by Australasian Inst of Mining & Metallurgy, Parkville,
     Aust. p 1-8.
CF - Proceedings of the AusIMM Centenary Conference - 1893-1993 (March
     30 1993 - April 04 1993 : Adelaide, Aust)
SP - Broken Hill Proprietary Co Ltd
     CRA Ltd
     MIM Holdings Ltd
     Western Mining Co Holdings Ltd
     Aberfoyle Ltd
     et al
NU - ISSN 0728-7178; ISBN 0-949106-79-8; Conference No: 18699
CO - CSAMD
LA - English
  20/
s ((s2 and (s3 or s4 or s5)) and (limestone or marble)
ERROR.  Missing parentheses.
2.4a
=>
  20/
s ((s2 and (s3 or s4 or s5)) and (limestone or marble))
             449       limestone
             64        marble
 SET   20: 16          (((2 and (3 or 4 or 5)) AND (limestone or marble)))
                        ASONE SET
  21/
type s20

     20 / 1
AN - 1323845
VN - 9409
RE - EIX9409-1164660
TI - Equipment and design considerations for environmentally safe
     cement distribution terminals
AU - Wuertele, Fred
CS - Fuller Company, Bethlehem, PA, USA
PU - IEEE Cement Industry Technical Conference (Paper) 1993. Publ by
     IEEE, IEEE Service Center, Piscataway, NJ, USA,(IEEE cat n
     93CH3268-0). p 263-278.
CF - Proceedings of the 35th IEEE Cement Industry Technical Conference
     (May 23 1993 - May 27 1993 : Toronto, Ont, USA)
SP - The Industry Applications Society's Cement Industry Committee, IEEE
NU - ISSN 0731-4906; ISBN 0-7803-0960-X; Conference No: 19207
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CO - ICIPD
LA - English

20 / 2
AN - 1068778
VN - 9305
RE - EIX9305-0068778; Monthly No: EI9305-066789
TI - Petrographic examination of large stone for durability.
AU - Wong, G. S.; Lutton, R. J.
CS - US Army Engineer Waterways Experiment Station, Vicksburg, MS, USA
PU - ASTM Special Technical Publication n 1177. Publ by ASTM, Philadelphia, PA, USA. p 94-109. 4 Refs.
CF - Symposium on Rock for Erosion Control (June 18 1992 : Louisville, KY, USA)
SP - ASTM
NU - ISSN 0066-0558; ISBN 0-8031-1489-3; Conference No: 17947
CO - ASTTA
LA - English

20 / 3
AN - 1068774
VN - 9305
RE - EIX9305-0068774; Monthly No: EI9305-062489
TI - Insoluble residue of carbonate rock and its application to the durability assessment of rock riprap.
AU - Fisher, Henry H.
CS - USDA, Columbus, OH, USA
PU - ASTM Special Technical Publication n 1177. Publ by ASTM, Philadelphia, PA, USA. p 62-68. 7 Refs.
CF - Symposium on Rock for Erosion Control (June 18 1992 : Louisville, KY, USA)
SP - ASTM
NU - ISSN 0066-0558; ISBN 0-8031-1489-3; Conference No: 17947
CO - ASTTA
LA - English
Do you want to see additional items?
/
n
21/
s s19 not (mine or mines or mining)
1619 mine
3349 mines
3567 mining
SET 21: 22 (19 AND NOT (mine or mines or mining)) ASONE SET
22/
type s21

21 / 1
AN - 1323845
VN - 9409
RE - EIX9409-1164660
TI - Equipment and design considerations for environmentally safe cement distribution terminals
AU - Wuertele, Fred
CS - Fuller Company, Bethlehem, PA, USA
PU - IEEE Cement Industry Technical Conference (Paper) 1993. Publ by IEEE, IEEE Service Center, Piscataway, NJ, USA,(IEEE cat n 93CH3268-0). p 263-278.
CF - Proceedings of the 35th IEEE Cement Industry Technical Conference (May 23 1993 - May 27 1993 : Toronto, Ont, USA)
SP - The Industry Applications Society's Cement Industry Committee, IEEE
NU - ISSN 0731-4906; ISBN 0-7803-0960-X; Conference No: 19207
CO - ICIPD
LA - English

21 / 2
AN - 1068778
VN - 9305
'E - EIX9305-0068778; Monthly No: EI9305-066789
I - Petrographic examination of large stone for durability.
AU - Wong, G. S.; Lutton, R. J.
CS - US Army Engineer Waterways Experiment Station, Vicksburg, MS, USA
PU - ASTM Special Technical Publication n 1177. Publ by ASTM, Philadelphia, PA, USA. p 94-109. 4 Refs.
CF - Symposium on Rock for Erosion Control (June 18 1992 : Louisville, KY, USA)
SP - ASTM
NU - ISSN 0066-0558; ISBN 0-8031-1489-3; Conference No: 17947
CO - ASTTA
LA - English

21 / 3
AN - 1068774
VN - 9305
RE - EIX9305-0068774; Monthly No: EI9305-062489
TI - Insoluble residue of carbonate rock and its application to the durability assessment of rock riprap.
AU - Fisher, Henry H.
CS - USDA, Columbus, OH, USA
PU - ASTM Special Technical Publication n 1177. Publ by ASTM, Philadelphia, PA, USA. p 62-68. 7 Refs.
CF - Symposium on Rock for Erosion Control (June 18 1992 : Louisville, KY, USA)
SP - ASTM
NU - ISSN 0066-0558; ISBN 0-8031-1489-3; Conference No: 17947
CO - ASTTA
'A - English
o you want to see additional items?
/
n
22/
s s21 not (cement* or durab*)

```
            2779      cement* (  20   *--*TERMS )
            1140      durab* (  5    *--*TERMS )
 SET   22: 17         (21 AND NOT (cement* or durab*)) ASONE SET
```

23/
type s22

22 / 1
AN - 1026722
VN - 9303
RE - EIX9303-0026722; Monthly No: EI9303-037254
TI - Air overpressure problem.
AU - Wilton, Tim
PU - Quarry Manage v 18 n 7 Jul 1991 p 25-27.
NU - ISSN 0950-9526
CO - QUMAE
LA - English

22 / 2
AN - 863607
VN - 9209
RE - EIX9209-0115320; Monthly No: EI9209-121132
TI - Temporal and spatial variations in dominance, diversity and biotic indices along a limestone stream receiving a trout farm effluent.
AU - Camargo, Julio A.
CS - CIT-INIA, Madrid, Spain
PU - Water Air Soil Pollut v 63 n 3-4 Jul 1992 p 343-359. 43 Refs.

NU - ISSN 0049-6979
CO - WAPLA
LA - English

22 / 3
N - 854985
VN - 9208
RE - EIX9208-0106698; Monthly No: EI9208-096081
TI - Carbonaceous aerosol on marble and limestone monuments.
AU - Zappia, G.; Sabbioni, C.; Gobbi, G.
CS - Terra Univ Ancona, Ancona, Italy
PU - Journal of Aerosol Science v 22 n suppl 1 1991. p S581-S584. 9
Refs.
CF - Proceedings of the 1991 European Aerosol Conference (September 16
1991 - September 20 1991 : Karlsruhe, Ger)
NU - ISSN 0021-8502; Conference No: 16406
CO - JALSB
LA - English
Do you want to see additional items?
/
y
Which items?
/
4-17

22 / 4
AN - 817980
VN - 9205
RE - EIX9205-0004950; Monthly No: EI9205-067220
TI - Assessment of armourstone for shoreline protection.
AU - Koopmans, R.; Watts, R. B.
CS - Ontario Hydro Research Div, Toronto, Ont, Can
PU - Durability Stone Rubble Mound Breakwaters. Publ by ASCE, New York,
NY, USA. p 82-94. 5 Refs.
CF - Durability of Stone for Rubble Mound Breakwaters (May 22 1991 -
May 23 1991 : Cleveland, OH, USA)
SP - ASCE
American Shore & Beach Preservation Assoc
Coastal Zone Foundation
NU - ISBN 0-87262-863-9; Conference No: 16063
LA - English

22 / 5
AN - 806638
VN - 9205
RE - EIX9205-0058351; Monthly No: EI9205-066776
TI - Temporary biotopes in clay quarrying.
AU - Anon
PU - ZI Ziegelind Int v 44 n 10 Oct 1991 p 564-566.
NU - ISSN 0341-0552
CO - ZIIND
LA - English; german

22 / 6
AN - 784923
VN - 9203
RE - EIX9203-0034923; Monthly No: EI9203-035476
TI - Physicochemical damage parameters for the action of SO2 and NO2 on
single pieces of marble.
AU - Vassilakos, Ch.; Katsanos, N. A.; Niotis, A.
CS - Univ of Patras, Patras, Greece
J - Atmos Environ v 26A n 2 1992 p 219-223.
NU - ISSN 0004-6981
CO - ATENB

LA - English

22 / 7
AN - 632802
- 9111
- EIX9111-0132892; Monthly No: EI9111-136866
TI - Limestone generating station provides power for Manitoba.
AU - Lovering, R.; Hiley, L. F.; Windsor, D.
CS - Manitoba Hydro, Manit, Can
PU - Int Water Power Dam Constr v 43 n 7 Jul 1991 p 17-20, 22. 0 Refs.
NU - ISSN 0306-400X
CO - IWPCD
LA - English

22 / 8
AN - 592388
VN - 9108
RE - EIX9108-0092476; Monthly No: EI9108-089640
TI - Application of environmental protection in clay extraction.
AU - Ladnorg, Uwe
PU - ZI Ziegelind Int v 44 n 3 Mar 1991 p 120-124.
NU - ISSN 0341-0552
CO - ZIIND
LA - English; german

22 / 9
AN - 586902
VN - 9107
RE - EIX9107-0086990; Monthly No: EI9107-085168
TI - 'Having a blast in Thornton'.
AU - Stamos, Peter
PU - Proceedings of the Conference on Explosives and Blasting
Technique v 2. Publ by Soc of Explosives Engineers, Solon, OH,
USA. p 253-264.
CF - Proceedings of the 17th Annual Conference on Explosives and
Blasting Technique (February 03 1991 - February 07 1991 : Las
Vegas, NV, USA)
NU - ISSN 0732-619X; Conference No: 14699
CO - PCETD
LA - English

22 / 10
AN - 578607
VN - 9107
RE - EIX9107-0078695; Monthly No: EI9107-082216
TI - Marble weathering in an industrial environment, eastern Australia.
AU - Dragovich, D.
CS - Univ of Sydney, Sydney, Aust
PU - Environ Geol Water Sci v 17 n 2 Mar-Apr 1991 p 127-132. 34 Refs.
NU - ISSN 0177-5146
CO - EGWSE
LA - English

22 / 11
AN - 560910
VN - 9105
RE - EIX9105-0060978; Monthly No: EI9105-057311
TI - Pore pressure influence in the porelastic behaviour of rocks.
Experimental studies and results.
AU - Laurent, J.; Bouteca, M.; Sarda, J. P.
- Inst. Francais du Petrole
- Increasing the Margin European Petroleum Conference v 1. Publ by
European Offshore Petroleum Conference, London, Engl. p 385-392.
8 Refs.

CF - Proceedings of the European Petroleum Conference - EUROPEC 90
Part 1 (of 2) (October 21 1990 - October 24 1990 : Hague, Neth)
SP - Soc of Petroleum Engineers, UK
NU - Conference No: 14445
CO - PEOED
LA - English

22 / 12
AN - 530219
VN - 9103
RE - EIX9103-0030219; Monthly No: EI9103-027416
TI - Thermogravimetric studies of the reactions between dolomite and sulfur dioxide.
AU - Wiedemann, H. -G.; Boller, A.; Bayer, G.
CS - Mettler Instrumente AG, Switz
PU - Solid State Ionics v 43 n 1-5 Nov 1990 p 53-60. 8 Refs.
NU - ISSN 0167-2738
CO - SSIOD
LA - English

22 / 13
AN - 529643
VN - 9103
RE - EIX9103-0029643; Monthly No: EI9103-028213
TI - Analysis of hydrologic impact of quarrying system by 3-D finite element model.
AU - Gambolati, Giuseppe; Galeati, Giorgio
CS - Univ degli Studi di Padova, Padova, Italy
PU - J Hydraul Eng v 116 n 11 Nov 1990 p 1388-1402. 29 Refs.
NU - ISSN 0733-9429
CO - JHEND
LA - English

22 / 14
AN - 512044
VN - 9102
RE - EIX9102-0012044; Monthly No: EI9102-016275
TI - Downstream of the Novosibirsk hydroelectric station on the OB river.
AU - Bityukov, V. P.
PU - Hydrotech Constr v 23 n 10 Apr 1990 p 587-591.
NU - ISSN 0018-8220
CO - HYCOA
LA - English

22 / 15
AN - 502876
VN - 9101
RE - EIX9101-0002876; Monthly No: EI9101-008422
TI - Cleanaway restore worked-out quarry on Merseyside.
AU - Anon
PU - Quarry Manage v 17 n 3 Mar 1990 p 29.
NU - ISSN 0950-9526
CO - QUMAE
LA - English

22 / 16
AN - 378189
VN - 9011
RE - EIX9011-0128220; Monthly No: EI9011-127480
TI - Encroachment no problem for WMK.
AU - Rukavina, Mitchell
CS - Rock Products, Chicago, IL, USA
PU - Rock Prod v 93 n 5 May 1990 p 72-74.

NU - ISSN 0035-7464
CO - ROPRA
LA - English

22 / 17
AN - 303922
VN - 9005
RE - EIX9005-0053951; Monthly No: EI9005-054555
TI - Influence of construction on hydrogeological and environmental conditions in the Karst Region, Eastern Herzegovina, Yugoslavia.
AU - Milanovic, Petar
CS - Karst Water Research Inst, Trebinje, Yugosl
PU - Environ Geol Water Sci v 15 n 1 Jan-Feb 1990 p 5-11. 4 Refs.
NU - ISSN 0177-5146
CO - EGWSE
LA - English
Do you want to see additional items?
/
n
23/
type s22/more/2

22 / 2
AN - 863607
VN - 9209
RE - EIX9209-0115320; Monthly No: EI9209-121132
TI - Temporal and spatial variations in dominance, diversity and biotic indices along a limestone stream receiving a trout farm effluent.
AU - Camargo, Julio A.
CS - CIT-INIA, Madrid, Spain
PU - Water Air Soil Pollut v 63 n 3-4 Jul 1992 p 343-359. 43 Refs.
NU - ISSN 0049-6979
CO - WAPLA
LA - English
AB - Benthic macroinvertebrate response to organic pollution generated by a trout farm, located in the upper Rio Tajuna (Central Spain), was evaluated by calculating Whittaker's and Camargo's dominance indices; Margalef's, Menhinick's, Camargo's, Shannon's and MacArthur's diversity indices; and several biotic indices, including the Trent Biotic Index (TBI), the Chandler Biotic Score (CBS), the Biological Monitoring Working Party (BMWP), the Average Score Per Taxon (ASPT) and the Overall Quality Rating (OQR). An upstream sampling site (S-1) and three downstream stations placed 10 (S-2), 150 (S-3) and 1000 (S-4) m below the fish farm outlet were selected along the study area. Site S-3 was situated just below a man-made waterfall (1.8 m height). Winter, spring and summer macrobenthic surveys were conducted during 1986. Plecopterans, ephemeropterans, coleopterans, trichopterans, amphipods and planarians decreased in abundance or were basent at downstream sampling sites, whereas simuliids, leeches, chironomids and tubificid worms increased in abundance. All diversity and biotic indices had highest and lowest values at S-1 and S-2, respectively, and higher values at S-3 (below the waterfall) than at S-4. However, Shannon's and MacArthur's diversity indices and the TBI were less effective in quantifying differences among sampling sites. (Edited author abstract).
23/
s benth*
SET 23: 88 benth* (7 *--*TERMS)
24/
s s23 and s1
SET 24: 2 (23 and 1) ASONE SET
25/
type s24

24 / 1
AN - 863607
VN - 9209
RE - EIX9209-0115320; Monthly No: EI9209-121132
TI - Temporal and spatial variations in dominance, diversity and biotic indices along a limestone stream receiving a trout farm effluent.
AU - Camargo, Julio A.
CS - CIT-INIA, Madrid, Spain
PU - Water Air Soil Pollut v 63 n 3-4 Jul 1992 p 343-359. 43 Refs.
NU - ISSN 0049-6979
CO - WAPLA
LA - English

24 / 2
AN - 529800
VN - 9103
RE - EIX9103-0029800; Monthly No: EI9103-035727
TI - Effects of benthic flora on arsenic transport.
AU - Kuwabara, James S.; Chang, Cecily C. Y.; Pasilis, Sofie P.
CS - Water Resour. Div, Menlo Park, CA, USA
PU - J Environ Eng v 116 n 2 Mar-Apr 1990 p 394-409. 10 Refs.
NU - ISSN 0733-9372
CO - JOEED
LA - English

```
25/
s s23 and ((s2 and (s3 or s4 or s5))
ERROR.  Missing parentheses.
2.4a
=>
25/
s (s23 and (s3 and (s3 or s4 or s5)))
 SET   25: 6        (23 AND ((3 AND (3 or 4 or 5)))) ASONE SET
26/
type s25
```

25 / 1
AN - 1152512
VN - 9347
RE - EIX9347-1089355
TI - Experimental study of bivalve siphonal jets in a turbulent boundary layer crossflow
AU - O'Riordan, Catherine A.; Monismith, Stephen G.; Koseff, Jeffrey R.
CS - Stanford Univ, Stanford, CA, USA
PU - Proceedings - National Conference on Hydraulic Engineering pt 1 1993. Publ by ASCE, New York, NY, USA. p 1007-1012.
CF - Proceedings of the 1993 National Conference on Hydraulic Engineering. Part 1 (of 2) (July 25 1993 - July 30 1993 : San Francisco, CA, USA)
SP - ASCE
NU - ISBN 0-87262-920-1; Conference No: 19144
CO - PNCEE
LA - English

25 / 2
AN - 1151991
VN - 9347
RE - EIX9347-1087325
TI - Ongoing field study to evaluate the impacts and direct effects of offshore dredging activities on benthic organisms
AU - Drucker, Barry, S.
CS - Office of Strategic and International Minerals, Herndon, VA, USA
PU - Coastal Zone '93 Coastal Zone: Proceedings of the Symposium on

Coastal and Ocean Management v 2 1993. Publ by ASCE, New York, NY, USA. p 1482-1489.
CF - Proceedings of the Eight Symposium on Coastal and Ocean Management. Part 2 (of 2) (July 19 1993 - July 23 1993 : New Orleans, LA, USA)
? - American Shore and Beach Preservation Association
ASCE
Coastal Zone Foundation
Guenoc Winery
Louisiana Department of Natural Resources
et at
NU - ISBN 0-87262-918-X; Conference No: 18883
CO - COZOD
LA - English

25 / 3
AN - 780373
VN - 9203
RE - EIX9203-0030373; Monthly No: EI9203-041378
TI - Estuarine and coastal waters. Tenby and Weymouth case studies.
AU - Nixon, S. C.
CS - Freshwater and Marine Waters Group, Medmenham, Engl
PU - J Inst Water Environ Manage v 5 n 4 Aug 1991 p 450-459. 2 Refs.
NU - ISSN 0951-7359
CO - JIWME
LA - English
Do you want to see additional items?
/
n
26/
s s25 not s16
SET 26: 1 '(25 AND not 16) ASONE SET
27/
/pe s26

26 / 1
AN - 758758
VN - 9201
RE - EIX9201-0008757; Monthly No: EI9201-013717
TI - Etude comparee des communautes benthiques et ripicoles endogees d'un reseau mediterraneen perturbe: l'Arc (Bouches-du-Rhone, France). [Comparative study of benthic and riparian invertebrate communities in a disturbed low-altitude mediterranean river system. The Arc (Bouches-du-Rhone, France)] .
AU - Playoust, C.; Musso, J. J.; Prevot, G.
CS - Lab de Biologie Animale-Ecologie, Marseille, Fr
PU - Revue Des Sciences De L'Eau v 2 n 4 1989. p 587-605. 18 Refs.
CF - Conference Internationale des Limnologues d'Expression Francaise CILEF (May 24 1988 - May 28 1988 : Aussois, Fr)
NU - ISSN 0092-7158; Conference No: 15122
CO - RSEAE
LA - French
27/
s brook(f)trout
13 brook
31 trout
SET 27: 2 (brook (F) trout) ASONE SET
28/
type s27

27 / 1
? - 772479
VN - 9202
RE - EIX9202-0022479; Monthly No: EI9202-027983

TI - Population dynamics of brook trout (Salvelinus fontinalis) during maintenance liming of an acidic lake.
AU - Schofield, Carl L.; Keleher, Chris; Vanoffelen, Henry K.
CS - Cornell Univ, Ithaca, NY, USA
PU - Water Air Soil Pollut v 59 n 1-2 Sep 1991 p 41-53. 14 Refs.
J - ISSN 0049-6979
CO - WAPLA
LA - English

27 / 2
AN - 346054
VN - 9008
RE - EIX9008-0096083; Monthly No: EI9008-093509
TI - Differences in acid tolerance during the early life stages of three strains of brook trout, Salvelinus fontinalis.
AU - Hurley, Geoffrey V.; Foyle, Timothy P.; White, Wesley J.
CS - Hurley Fisheries Consulting Ltd, Dartmouth, NS, Can
PU - Water, Air and Soil Pollution v 46 n 1-4 Jul-Aug 1989. p 387-398. 30 Refs.
CF - Proceedings of a Symposium on the Acidification of Organic Waters in Kejimkujik National Park (October 25 1988 - October 27 1988 : Wolfville, NS, Can)
NU - ISSN 0049-6979; Conference No: 13289
CO - WAPLA
LA - English
28/
type s27/more/1-2

27 / 1
AN - 772479
VN - 9202
RE - EIX9202-0022479; Monthly No: EI9202-027983
TI - Population dynamics of brook trout (Salvelinus fontinalis) during maintenance liming of an acidic lake.
AU - Schofield, Carl L.; Keleher, Chris; Vanoffelen, Henry K.
CS - Cornell Univ, Ithaca, NY, USA
PU - Water Air Soil Pollut v 59 n 1-2 Sep 1991 p 41-53. 14 Refs.
NU - ISSN 0049-6979
CO - WAPLA
LA - English
AB - Maintenance liming of an acidic lake in the Adirondack Mountains of New York state (Woods Lake) was conducted three times over a 5 yr period in an attempt to establish a self maintaining brook trout population. Various strains and age classes of marked brook trout were stocked annually and the population was inventoried semi annually to evaluate survival, growth, and reproductive success. The Woods Lake brook trout population was dominated by young, stocked fish throughout the maintenance liming period of 1985-89. Based on spring emergent fry trap catches and fall trap net catches of unmarked fish, only one naturally produced year class (1986) was successfully recruited to the Woods Lake brook trout population. Low annual survival rates (< 20%) of juvenile trout were observed throughout the study period. Although initial growth rates and condition of young trout were satisfactory, increased intraspecific competition for food resulted in declining growth rates and condition of older age classes. Fall standing crops of brook trout remained at relatively low levels of 6 to 10 kg ha - 1 and both production per unit biomass and growth efficiency decreased over the 5-yr. Repeated whole lake liming and limited spawning habitat improvement were not sufficient to sustain brook trout natural reproduction in Woods Lake. (Edited author abstract).

27 / 2

AN - 346054
VN - 9008
RE - EIX9008-0096083; Monthly No: EI9008-093509
TI - Differences in acid tolerance during the early life stages of three strains of brook trout, Salvelinus fontinalis.
AU - Hurley, Geoffrey V.; Foyle, Timothy P.; White, Wesley J.
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CF - Proceedings of a Symposium on the Acidification of Organic Waters in Kejimkujik National Park (October 25 1988 - October 27 1988 : Wolfville, NS, Can)
NU - ISSN 0049-6979; Conference No: 13289
CO - WAPLA
LA - English
AB - Brook trout, Salvelinus fontinalis, embryos and fry from three sources (an acidic watershed in Kejimkujik Park at pH 4.7 to 5.3, a neutral watershed at pH 7, a hatchery at pH 7) were exposed separately to lethal and sublethal levels of acidity (pH 7.0, 5.2, 4.7, 4.3, 3.9), beginning at fertilization. Significant differences in mortality between the strains at low pH were observed and these suggested a genetic component to acid tolerance. Mortality in the strain from the acidic watershed was the lowest, followed by the second wild strain. Survival in both wild strains at low pH was much better than survival in hatchery embryos. These differences in survival at sublethal acidity (4.7 to 7.0) were principally the result of high mortality shortly after fertilization. After this period, survival stabilized. Only at pH 4.3 did substantial mortality occur at hatching. Additional study results are discussed. (Edited author abstract).

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 28/
s acid* and (limestone or marble)
          12309    acid* (  52  *--*TERMS )
          449      limestone
          64       marble
 SET   28: 24      (acid* AND (limestone or marble)) ASONE SET
 29/
s s28 and stream*(
          2771     stream* (  27  *--*TERMS )
 SET   29: 1       (28 and stream*) ASONE SET
 30/
type s29
```

29 / 1
AN - 1310662
VN - 9404
RE - EIX9404-1142548
TI - Effects of a pelletized limestone treatment on drainage water acidity within a forest catchment in mid-Wales
AU - Nisbet, T.R.
CS - Forestry Authority Research Div, Farnham, UK
PU - Journal of Hydrology v 150 n 2-4 Oct 1 1993. p 521-539.
CF - International Symposium on Forest Hydrology (November 22 1993 - November 26 1993 : Canberra, Aust)
NU - ISSN 0022-1694; Conference No: 19525
CO - JHYDA
LA - English

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 30/
type s29/more/1
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29 / 1
AN - 1310662
VN - 9404
RE - EIX9404-1142548

TI - Effects of a pelletized limestone treatment on drainage water acidity within a forest catchment in mid-Wales
AU - Nisbet, T.R.
CS - Forestry Authority Research Div, Farnham, UK
PU - Journal of Hydrology v 150 n 2-4 Oct 1 1993. p 521-539.
CF - International Symposium on Forest Hydrology (November 22 1993 - November 26 1993 : Canberra, Aust)
NU - ISSN 0022-1694; Conference No: 19525
CO - JHYDA
LA - English
AB - Three headwater source areas were identified within a strongly acidified forest catchment in the Llyn Brianne area of central Wales. Each received an aerial application of between 10 and 16 t ha - 1 of limestone pellets (composed of powdered chalk, starch and bentonite) in November 1988. The pH, calcium and aluminum levels within soil water and stream water were assessed at fortnightly intervals over a 3 year period to determine the impact of the treatment on drainage water acidity. The results demonstrated the importance of identifying the effective source areas within a catchment and treating these with a readily available form of powdered limestone. Treatment with a pelletized form was unsuccessful in eliminating periods of low pH and high aluminum concentrations within the headwaters of the forested catchment. This was attributed to the slow breakdown and dissolution of the limestone pellets under the forest canopy and the reduced importance of the surface runoff pathways owing to pre-aforestation cultivation and drainage, and soil drying by the forest crop. (Author abstract).

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                 EiPLUS72 January 1972 - December 1989
                        (COMPENDEX*PLUS)
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                                closed:
; mi                             94-02-07
  1/
  1/
  1/
s mine or mines or mining or marble or limestone or quarr*
            0        mis mine
            26154    mines
            27991    mining
            223      marble
            2034     limestone
            1070     quarr* (  13   *--*TERMS )
 WORKING  20  seconds
 SET    1: 31393     mis mine or mines or mining or marble or limestone
                      or quarr* ASONE SET
  2/
s environmental and (study or studies or impact or assessment or audit)
            36546    environmental
            63775    study
            40830    studies
            30416    impact
            13589    assessment
            530      audit
 WORKING  20  seconds
 SET    2: 16452     (environmental AND (study or studies or impact or
                      assessment or audit)) ASONE SET
  3/
s s1 and s2
 SET    3: 715       (1 and 2) ASONE SET
  4/
s coal or tailing* or uranium, or peat or arctic or africa* or lead or tin
            43319    coal
            1526     tailing* (  2   *--*TERMS )
            0        uranium,
            1010     peat
            1833     arctic
            2843     africa* (  9   *--*TERMS )
            13055    lead
            8237     tin
 SET    4: 69668     coal or tailing* or uranium, or peat or arctic or
                      africa* or lead or tin ASONE SET
  5/
s uranium or ocean* or sea or seas or marine or coast* or offshore
            8577     uranium
            13979    ocean* (  42   *--*TERMS )
            9024     sea
            370      seas
            11195    marine
            7260     coast* (  19   *--*TERMS )
            11571    offshore
 SET    5: 50774     uranium or ocean* or sea or seas or marine or
                      coast* or offshore ASONE SET
  6/
s s4 or s5
 SET    6: 118202    4 or 5 ASONE SET
  7/
s s3 not s6
 WORKING  20  seconds
 SET    7: 333       (3 AND not 6) ASONE SET
  8/
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s s7 not (mine or mines or mining)
          9529     mine
          26154    mines
          27991    mining
 SET    8: 44      (7 AND NOT (mine or mines or mining)) ASONE SET
   9/
type s8

      8 / 1
AN - 4599601
VN - 8910
RE - EIX8910-0099602; Monthly No: EI8910-098475
TI - Rates of air pollution induced surface recession and material loss
     for a cathedral in Belgium.
AU - Roekens, E.; van Grieken, R.
CS - Univ of Antwerp, Antwerp, Belg
PU - Atmos Environ v 23 n 1 1989 p 271-277. 20 Refs.
NU - ISSN 0004-6981
CO - ATENB
LA - English

      8 / 2
AN - 4390859
VN - 8810
RE - EIX8810-0140818; Monthly No: EI8810-099613
TI - ENVIRONMENTAL IMPACT OF QUARRYING.
AU - Holmes, P. J.
CS - Environmental Protection Authority of Western Australia
PU - Quarry Manage v 15 n 4 Apr 1988 p 37-40, 43.
NU - ISSN 0950-9526
CO - QUMAE
LA - English

      8 / 3
AN - 4378651
VN - 8809
RE - EIX8809-0128610; Monthly No: EI8809-080675
TI - ANCIENT MARBLE MONUMENTS IN ROME: A CONTRIBUTION TO THEIR
     CONSERVATION.
AU - Conforto, M. L.; Martines, G.
CS - Archeologica di Roma, Rome, Italy
PU - Durability Build Mater v 5 n 3 & 4 Apr 1988 p 495-498.
NU - ISSN 0167-3890
CO - DBMTD
LA - English
Do you want to see additional items?
   /
n
   9/
s s8 not (monument* or air)
          124      monument* (  8   *--*TERMS )
          56771    air
 SET    9: 33      (8 AND NOT (monument* or air)) ASONE SET
  10/
s s9 not gravel
          3803     gravel
 SET   10: 30      (9 AND not gravel) ASONE SET
  11/
type s10

      10 / 1
AN - 4390859
VN - 8810
RE - EIX8810-0140818; Monthly No: EI8810-099613
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TI - ENVIRONMENTAL IMPACT OF QUARRYING.
AU - Holmes, P. J.
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PU - Quarry Manage v 15 n 4 Apr 1988 p 37-40, 43.
NU - ISSN 0950-9526
CO - QUMAE
LA - English

10 / 2
AN - 4354817
VN - 8807
RE - EIX8807-0104776
TI - ENVIRONMENTAL AND ENGINEERING STUDIES OF FLY ASH DISPOSAL IN A SHALE QUARRY.
AU - Cragg, Chris; Chan, H. T.
CS - Ontario Hydro, Toronto, Ont, Can
PU - United States Department of Energy, Morgantown Energy Technology Center (Report) DOE/METC 85/6018 v 1. Publ by US DOE, Morgantown, WV, USA p 418-435. 1 Refs.
CF - Proceedings of the Seventh International Ash Utilization Symposium and Exposition. (March 04 1985 - March 07 1985 : Orlando, FL, USA)
SP - Natl Ash Assoc Inc, USA
American Public Power Assoc, USA
Edison Electric Inst, Washington, DC, USA
EPRI, Palo Alto, CA, USA
US DOE, Washington, DC, USA
et al
NU - Conference No: 09880
CO - MCDED
LA - English

10 / 3
AN - 4289158
VN - 8803
RE - EIX8803-0039117; Monthly No: EI8803-025316
TI - MONITORING THE EFFECT OF ENVIRONMENTAL POLLUTION ON MARBLE STONE STRUCTURES, USING ULTRASONIC NDT.
AU - Bindal, V. N.; Kumar, Ashok; Kumar, Yudhisther; Lal, Jagdish
CS - NPL, New Delhi, India
PU - Br J Non Destr Test v 29 n 5 Sep 1987 p 322-325. 10 Refs.
NU - ISSN 0007-1137
CO - BJNTA
LA - English
Do you want to see additional items?
/
n s10
11/
s s10 not (structur* or pollution)
167300 structur* (63 *--*TERMS)
44854 pollution
SET 11: 22 (10 AND NOT (structur* or pollution)) ASONE SET
12/
type s11//1-22

11 / 1
AN - 4390859
VN - 8810
RE - EIX8810-0140818; Monthly No: EI8810-099613
TI - ENVIRONMENTAL IMPACT OF QUARRYING.
AU - Holmes, P. J.
CS - Environmental Protection Authority of Western Australia
PU - Quarry Manage v 15 n 4 Apr 1988 p 37-40, 43.
NU - ISSN 0950-9526

CO - QUMAE
LA - English

11 / 2
AN - 4354817
VN - 8807
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CF - Proceedings of the Seventh International Ash Utilization Symposium and Exposition. (March 04 1985 - March 07 1985 : Orlando, FL, USA)
SP - Natl Ash Assoc Inc, USA
American Public Power Assoc, USA
Edison Electric Inst, Washington, DC, USA
EPRI, Palo Alto, CA, USA
US DOE, Washington, DC, USA
et al
NU - Conference No: 09880
CO - MCDED
LA - English

11 / 3
AN - 4197357
VN - 8712
RE - EIX8712-0197358; Monthly No: EI8712-120480; Annual No: EI87-017324
TI - DE LA CONNAISSANCE DU MILIEU KARSTIQUE A SA GESTION. From the Knowledge of Karst to its Management.
AU - Ek, Camille
CS - Lab de Geomorphologie et Geologie du Quaternaire, Liege, Belg
PU - Ann Soc Geol Belg v 108 Jun 1985, Colloq de Karstol Appl, Liege, Belg, May 31-Jun 3 1984 p 303-304. 2 Refs.
NU - ISSN 0037-9395
CO - ASGBA
LA - French

11 / 4
AN - 4197313
VN - 8712
RE - EIX8712-0197314; Monthly No: EI8712-126065; Annual No: EI87-084565
TI - OIL WELLS IN A KENTUCKY KARST REGION.
AU - Dilamarter, Ronald R.
CS - Western Kentucky Univ, Bowling Green, KY, USA
PU - Ann Soc Geol Belg v 108 Jun 1985, Colloq de Karstol Appl, Liege, Belg, May 31-Jun 3 1984 p 21-25. 11 Refs.
NU - ISSN 0037-9395
CO - ASGBA
LA - English

11 / 5
AN - 4144973
VN - 8709
RE - EIX8709-0144974; Monthly No: EI8709-094208; Annual No: EI87-095647
TI - THRISLINGTON QUARRY - CASE HISTORY OF A COMPROMISE.
AU - Stanyon, R. W.; Park, D. G.
PU - Trans Inst Min Metall Sect A v 96 Apr 1987, Environ Eff of Min

and Restor, Manchester, Engl, Sep 23 1986 p 88-90.
NU - ISSN 0371-7844
CO - TIMNA
LA - English

11 / 6
AN - 4128115
VN - 8708
RE - EIX8708-0128116; Monthly No: EI8708-081032; Annual No: EI87-062734
TI - LOCH FLEET: TECHNIQUES FOR ACIDITY MITIGATION.
AU - Howells, G. D.; Brown, D. J. A.
CS - CEGB, Leatherhead, Engl
PU - Water Air Soil Pollut v 31 n 3-4 Dec 1986, Acidic Precip, Proc of the Int Symp, Muskoka, Ont, Can, Sep 15-20 1985 p 817-825. 5 Refs.
NU - ISSN 0372-7092
CO - WAPLA
LA - English

11 / 7
AN - 4122950
VN - 8708
RE - EIX8708-0122951; Monthly No: EI8708-083673; Annual No: EI87-095646
TI - LES POTENTIALITES ECOLOGIQUES DES CARRIERES.
Ecological Potential of Quarries.
AU - Sionneau, J. -M.
CS - BRGM, Marseille, Fr
PU - Ind Miner Mines Carrieres v 69 Apr 1987 p 224-232. 21 Refs.
CO - IMMCE
LA - French

11 / 8
AN - 4014307
VN - 8701
RE - EIX8701-0014308
TI - BRUCE MANSFIELD PLANT FGD OPERATIONAL EXPERIENCES TWO GENERATIONS OF TECHNOLOGY.
AU - Carson, A. B.; Figley, D. H.; Hoobler, J. H.; Horrocks, W. P.; Kohl, P. G.; Malone, E. J.; Morgan, P. G.; Smith, J. C.
CS - Pennsylvania Power Co, Bruce Mansfield Plant
PU - American Society of Mechanical Engineers (Paper) Publ by ASME, New York, NY, USA 86-JPGC-Pwr-68, 9p. 1 Refs.
CF - Joint ASME/IEEE Power Generation Conference. (October 19 1986 - October 23 1986 : Portland, OR, USA)
SP - ASME, New York, NY, USA
IEEE, New York, NY, USA
NU - ISSN 0402-1215; Conference No: 08891
CO - ASMSA
LA - English

11 / 9
AN - 4005120
VN - 8701
RE - EIX8701-0005120; Monthly No: EI8701-008107; Annual No: EI87-095645
TI - ETUDE D'IMPACT D'UNE CARRIERE DE GRANULATS A ILLATS (GIRONDE).
Impact Study of an Aggregate Quarry of Illats (Gironde).
AU - Ruhard, Jean-Paul
- Bur de Recherches Geologiques et Minieres, Pessac, Fr
PU - Hydrogeologie n 1 1985 p 37-43. 2 Refs.
CO - HYGEE
LA - French

11 / 10
AN - 3917514
VN - 8610
RE - EIX8610-0166222
I - FLUE GAS HUMIDIFICATION WITH BOILER LIMESTONE INJECTION FOR
IMPROVED ESP PERFORMANCE AND INCREASED SO2 REMOVAL.
AU - Fink, Carl E.; McCoy, Duane C.; Statnick, Robert M.
CS - Conoco Coal Research Div
PU - Coal Technology, International Coal Utilization Conference and
Exhibition 1985 8th v V & VI. Publ by Industrial Presentations
Inc, Houston, TX, USA p 475-488. 2 Refs.
CF - Coal Technology '85: 8th International Coal & Solid Fuels
Utilization Conference. (November 12 1985 - November 14 1985 :
Pittsburgh, PA, USA)
NU - ISSN 0270-3661; Conference No: 08360
CO - COATD
LA - English

11 / 11
AN - 3869888
VN - 8608
RE - EIX8608-0118596; Monthly No: EI8608-076277; Annual No:
EI86-096602
TI - NEW TARMAC QUARRY IN SOMERSET.
AU - Anon
PU - Quarry Manage v 13 n 3 Mar 1986 p 13-14, 17-18.
CO - QUMAE
LA - English

11 / 12
AN - 3752964
VN - 8601
E - EIX8601-0002964; Monthly No: EI8601-006472; Annual No:
EI86-096601
TI - STREAM RELOCATION.
AU - Rapp, Doug
CS - Vulcan Materials Co, Southeast Div, USA
PU - Pit Quarry v 78 n 3 Sep 1985 p 38-40.
NU - ISSN 0032-0293
CO - PIQUA
LA - English

11 / 13
AN - 3571453
VN - 8506
RE - EIX8506-0071453; Monthly No: EI8506-047127; Annual No:
EI85-063136
TI - CALCINATION KINETICS AND SURFACE AREA OF DISPERSED LIMESTONE
PARTICLES.
AU - Borgwardt, R. H.
CS - EPA, Special Projects Office, Research Triangle Park, NC, USA
PU - AIChE J v 31 n 1 Jan 1985 p 103-111. 17 Refs.
NU - ISSN 0001-1541
CO - AICEA
LA - English

11 / 14
AN - 3555107
VN - 8505
RE - EIX8505-0055107; Monthly No: EI8505-033520; Annual No:
EI85-005563
I - DENITRIFICATION IN A MAJOR LIMESTONE AQUIFER.
AU - Howard, K. W. F.

CS - Univ of Toronto, Dep of Geology, Scarborough, Ont, Can
PU - J Hydrol v 76 n 3-4 Feb 25 1985 p 265-280.
NU - ISSN 0022-1694
CO - JHYDA
LA - English

11 / 15
AN - 3218617
VN - 8412
RE - EIX8412-0218617; Monthly No: EI8412-136609; Annual No: EI84-103594
TI - PLANNING APPLICATION PRACTICE.
AU - Parry, D. R.
CS - Tarmac Roadstone Holdings Ltd
PU - Quarry Manage v 11 n 6 Jun 1984 p 361-362.
CO - QUMAE
LA - English

11 / 16
AN - 3164706
VN - 8409
RE - EIX8409-0164706
TI - LAND COLLAPSE INDUCED BY PUMPING AND DRAINING GROUNDWATER - A KIND OF ENVIRONMENTAL ENGINEERING GEOLOGICAL PROBLEM IN KARST REGION WITH THIN COVER.
AU - Liu Guangrun; Cheng Boyu
CS - Geologic Bur of Hubei Province, Wuhan, China
PU - v 2. Publ by A. A. Balkema, Rotterdam, Neth. Distributed in USA and Canada by MBS, Salem, NH, USA p 309-319.
CF - Proceedings, 4th International Congress - International Association of Engineering Geology. (1982 : New Delhi, India)
SP - Int Assoc of Engineering Geology, Krefeld, West Ger
NU - ISBN 90-6191-268-7; Conference No: 04548
A - English

11 / 17
AN - 3002101
VN - 8401
RE - EIX8401-0002101; Monthly No: EI8401-006834; Annual No: EI84-103593
TI - ENVIRONMENTAL AND AMENITY ISSUES: SIGNIFICANCE AND PRIORITIES.
AU - Fish, Brian G.
CS - Inst of Quarrying
PU - Quarry Manage Prod v 10 n 8 Aug 1983 p 487-492. 5 Refs.
NU - ISSN 0305-9421
CO - QMGPA
LA - English

11 / 18
AN - 2895339
VN - 8309
RE - EIX8309-0139534
TI - PILOT PLANT EVALUATION OF BY-PRODUCT DIBASIC ACIDS AS BUFFER ADDITIVES FOR LIMESTONE FLUE GAS DESULFURIZATION SYSTEMS.
AU - Chang, John C. S.; Dempsey, J. H.
CS - Acurex Corp, Research Triangle Park, NC, USA
PU - Electric Power Research Institute, Coal Combustion Systems Division, (Report) EPRI CS 2897 v 2. Publ by EPRI, Palo Alto, Calif, USA p 714-733.
CF - Proceedings: Symposium on Flue Gas Desulfurization. (May 17 1982 - May 20 1982 : Hollywood, Fla, USA)
? - EPA Industrial Environmental Research Lab, Research Triangle Park, NC, USA
EPRI Coal Combustion Systems Div, Palo Alto, Calif, USA

NU - Conference No: 02643
CO - EPRCD
LA - English

11 / 19
N - 2891922
VN - 8309
RE - EIX8309-0136117; Monthly No: EI8309-073991; Annual No: EI83-037265
TI - BUFFER ADDITIVES FOR LIMESTONE SCRUBBING: A REVIEW OF R&D RESULTS.
AU - Rochelle, Gary T.
CS - Univ of Texas at Austin, Dep of Chemical Engineering, Austin, Tex, US
PU - Electr Power Res Inst Coal Combust Syst Div Rep EPRI CS 2897 v 1, Proc: Symp on Flue Gas Desulfurization, Hollywood, Fla, USA, May 17-20 1982. Publ by EPRI, Palo Alto, Calif, USA, 1983 p 376-399. 50 Refs.
CO - EPRCD
LA - English

11 / 20
AN - 2842289
VN - 8306
RE - EIX8306-0086484
TI - EFFECT OF ENVIRONMENTAL, REGULATORY, TECHNOLOGICAL, AND MARKETING CONSTRAINTS ON THE COST OF PRODUCING GLASS SANDS.
AU - Peddicord, Robert C.; Regis, Andrew J.
CS - Unimin Corp, New Canaan, Conn, USA
PU - Publ by Metal Bulletin, London, Engl p 86-88.
CF - Proceedings of Minerals and Chemicals in Glass and Ceramics - the Next Decade. (October 15 1981 - October 16 1981 : Corning, NY, USA)
NU - ISBN 0-900542-67-5; Conference No: 01850
A - English

11 / 21
AN - 2219586
VN - 8009
RE - EIX8009-0004986; Monthly No: EI8009-069961
TI - REDUIRE LES NUISANCES DUES A L'EMPLOI DES EXPLOSIFS DANS LES CARRIERES. [Reducing the Harmful Effects Due to the Use of Explosives in Quarries] .
AU - Dejean, M.; Tritsch, J. J.
CS - Cent d'Etud et Rech de Charbon de Fr, Verneuil-en-Halatte
PU - Ind Miner v 62 n 2 Feb 1980 p 85-89. 6 Refs.
CO - INMNC

11 / 22
AN - 2005529
VN - 7901
RE - EIX7901-0005543; Monthly No: EI7901-000549
TI - GE TREBULE SA STLE PERSONALUL TEHNIC DESPRE EXPLOZIILE MASIVE DIN CARIERE SL INFLUENTA ACESTORA ASUPRA ZONELOR INCONJURATOARE. [What the Personnel Needs to Known About Massive Quarry Explosions and Their Impact on the Environment] .
AU - Fota, D.
PU - Mine Pet Gaze v 29 n 2 Feb 1978 p 66-77. 27 Refs.
CO - MPGAD
12/
type s11/more/1, 5, 7, 12, 21

11 / 1
AN - 4390859
VN - 8810

RE - EIX8810-0140818; Monthly No: EI8810-099613
TI - ENVIRONMENTAL IMPACT OF QUARRYING.
AU - Holmes, P. J.
CS - Environmental Protection Authority of Western Australia
PU - Quarry Manage v 15 n 4 Apr 1988 p 37-40, 43.
NU - ISSN 0950-9526
CO - QUMAE
LA - English
AB - The environmental programmes needed to ameliorate the impacts of quarrying have an inevitable cost to the operator. Just as inevitably, however, there are costs (to the operator, the broader community and the environment) of not implementing such programmes. The ultimate cost to the operator of non-implementation could be withdrawal of continued approval for the operation. It has to be recognized that the broader community will no longer accept environmentally inadequate activities and that effective environmental programmes are now regarded as a necessary part of quarrying operations. Implementation of these programmes as an ongoing part of the quarrying operation is the most effective and efficient way of achieving the desired outcome.

11 / 5
AN - 4144973
VN - 8709
RE - EIX8709-0144974; Monthly No: EI8709-094208; Annual No: EI87-095647
TI - THRISLINGTON QUARRY - CASE HISTORY OF A COMPROMISE.
AU - Stanyon, R. W.; Park, D. G.
PU - Trans Inst Min Metall Sect A v 96 Apr 1987, Environ Eff of Min and Restor, Manchester, Engl, Sep 23 1986 p 88-90.
NU - ISSN 0371-7844
CO - TIMNA
LA - English
AB - Steetley Refractories Ltd. quarries and calcines high-purity magnesian limestone (dolomite) at two sites - Whitwell, Derbyshire, and Thrislington, Durham. To preserve the long-term future of the works at Thrislington and Hartlepool and safeguard 600 jobs, the company applied for planning permission in 1979 to extend the quarry. The compromise has allowed industry to maintain its supply of raw material while the impact on the local community has been minimized and a nature reserve has not been destroyed.

11 / 7
AN - 4122950
VN - 8708
RE - EIX8708-0122951; Monthly No: EI8708-083673; Annual No: EI87-095646
TI - LES POTENTIALITES ECOLOGIQUES DES CARRIERES.
Ecological Potential of Quarries.
AU - Sionneau, J. -M.
CS - BRGM, Marseille, Fr
PU - Ind Miner Mines Carrieres v 69 Apr 1987 p 224-232. 21 Refs.
CO - IMMCE
LA - French
AB - The author who is in charge of duties on the Management Committee of the parafiscal tax on granular material, presents an investigation made by six university teams on different quarries (about thirty sites) of different types. This investigation is made to complete the already known information in this field, especially by means of certain facts and results, recorded during this enquiry. It should be noted that, in parallel to this investigation, a national enquiry has made it possible to index

the quarries known for their ecological importance. (Edited author abstract). In French.

11 / 12
AN - 3752964
VN - 8601
RE - EIX8601-0002964; Monthly No: EI8601-006472; Annual No: EI86-096601
TI - STREAM RELOCATION.
AU - Rapp, Doug
CS - Vulcan Materials Co, Southeast Div, USA
PU - Pit Quarry v 78 n 3 Sep 1985 p 38-40.
NU - ISSN 0032-0293
CO - PIQUA
LA - English
AB - Vulcan Materials Co. , was able to relocate a 3,900 ft. stream in Atlanta, Ga. The stream drains a watershed approximately 4 miles square. The step-by-step procedure described will enable relocating any stream that inhibits ability to mine a desired deposit.

11 / 21
AN - 2219586
VN - 8009
RE - EIX8009-0004986; Monthly No: EI8009-069961
TI - REDUIRE LES NUISANCES DUES A L'EMPLOI DES EXPLOSIFS DANS LES CARRIERES. [Reducing the Harmful Effects Due to the Use of Explosives in Quarries] .
AU - Dejean, M.; Tritsch, J. J.
CS - Cent d'Etud et Rech de Charbon de Fr, Verneuil-en-Halatte
PU - Ind Miner v 62 n 2 Feb 1980 p 85-89. 6 Refs.
CO - INMNC
AB - The use of explosives in opencast quarries is common today but it does cause a number of inconveniences: falling rock, noise and ground vibrations, all of which can adversely affect or even endanger the population residing in the vicinity. The impact of such harmful effects has considerably increased in recent years, due to rapid urbanization in the proximity of installed or planned quarries and due to the public's growing concern about the quality of the environment. This article shows how such harmful effects as caused by the use of explosives in quarries can be controlled and reduced, mainly by adjusting the blasting pattern and by using a better orientation of the quarry face. Also, much depends on the daily precautions taken by miners. In French.

```
 12/
s benth*
 SET   12: 343      benth* (  9   *--*TERMS )
 13/
s stream
 SET   13: 6482     stream
 14/
s s12 and s13
 SET   14: 20       (12 and 13) ASONE SET
 15/
type s14
ERROR.  Invalid set number (114 ).
4.4a
 15/
type s14
```

14 / 1
AN - 4343941
VN - 8807

RE - EIX8807-0093900; Monthly No: EI8807-069312
TI - EFFECTS OF HIGH LEVELS OF POLYCYCLIC AROMATIC HYDROCARBONS ON
 SEDIMENT PHYSICOCHEMICAL PROPERTIES AND BENTHIC ORGANISMS IN A
 POLLUTED STREAM.
\U - Catallo, William J. III; Gambrell, Robert P.
.S - Virginia Inst of Marine Science, Gloucester Point, VA, USA
PU - Chemosphere v 16 n 5 1987 p 1053-1063. 28 Refs.
NU - ISSN 0045-6535
CO - CMSHA
LA - English

14 / 2
AN - 4114707
VN - 8707
RE - EIX8707-0114708
TI - MODELLING BENTHIC OXYGEN DEMAND IN THE TARAWERA RIVER.
AU - Rutherford, J. C.
CS - Ministry of Works & Development, Hamilton, NZ
PU - Publ by BHRA, Cranfield, Engl p 473-483. 7 Refs.
CF - Papers Presented at the International Conference on Water Quality
 Modelling in the Inland Natural Environment. (June 10 1986 - June
 13 1986 : Bournemouth, Engl)
SP - BHRA, Cranfield, Engl
 Int Assoc for Hydraulic Research, Delft, Neth
 Inst of Water Engineers & Scientists
NU - ISBN 0-947711-16-3; Conference No: 09578
LA - English

14 / 3
AN - 4114704
VN - 8707
RE - EIX8707-0114705
'I - PROCEDURE FOR PREDICTION OF THE FLUX OF SOLUTES ACROSS THE
 SEDIMENT/WATER INTERFACE IN RIVERS.
AU - McBride, G. B.
CS - Ministry of Works & Development, Hamilton, NZ
PU - Publ by BHRA, Cranfield, Engl p 435-447. 14 Refs.
CF - Papers Presented at the International Conference on Water Quality
 Modelling in the Inland Natural Environment. (June 10 1986 - June
 13 1986 : Bournemouth, Engl)
SP - BHRA, Cranfield, Engl
 Int Assoc for Hydraulic Research, Delft, Neth
 Inst of Water Engineers & Scientists
NU - ISBN 0-947711-16-3; Conference No: 09578
LA - English
Do you want to see additional items?
/
n
15/
s benth* analysi*
SET 15: 0 benth* analysi*
16/
s benth* (f) Analys*
343 benth* (9 *--*TERMS)
311269 Analys* (69 *--*TERMS)
SET 16: 7 (benth* (F) Analys*) ASONE SET
17/
type s7

7 / 1
N - 4615002
,N - 8911
RE - EIX8911-0115003; Monthly No: EI8911-117055
TI - Ore accounting in the treatment of the Witwatersrand gold residues.

AU - Roselman, I. C.; Hockly, J. E.
CS - Rand Mines (Mining & Services) Ltd, S Afr
PU - J Inst Mine Surv S Afr v 25 n 1 Mar 1989 p 5-10.
NU - ISSN 0020-2983
CO - JMSVA
LA - English

7 / 2
AN - 4613832
VN - 8911
RE - EIX8911-0113833; Monthly No: EI8911-119183
TI - Environmental procedures and investigations to support mining
consent applications.
AU - Wardle, John
CS - Beca Carter Hollings & Ferner Ltd, NZ
PU - AusIMM Bull Proc v 294 n 1 Feb 1989 p 45-46.
CO - AUBPE
LA - English

7 / 3
AN - 4599601
VN - 8910
RE - EIX8910-0099602; Monthly No: EI8910-098475
TI - Rates of air pollution induced surface recession and material loss
for a cathedral in Belgium.
AU - Roekens, E.; van Grieken, R.
CS - Univ of Antwerp, Antwerp, Belg
PU - Atmos Environ v 23 n 1 1989 p 271-277. 20 Refs.
NU - ISSN 0004-6981
CO - ATENB
LA - English
Do you want to see additional items?
/
n
17/
type s16

16 / 1
AN - 3893640
VN - 8609
RE - EIX8609-0142348; Monthly No: EI8609-091303; Annual No:
EI86-126526
TI - ANALYSIS OF THE EFFICIENCY AND COST EFFECTIVENESS OF BENTHIC
SAMPLERS USED IN MARINE POLLUTION MONITORING.
AU - Kingston, P. F.; Riddle, M. J.
CS - Heriot-Watt Univ, Edinburgh, Scotl
PU - Water Sci Technol v 18 n 4-5 1986, Estuarine and Coastal Pollut:
Detect, Res and Control, Proc of the IAWPRC/NERC Spec Conf,
Plymouth, Engl, Jul 16-19 1985 p 325.
NU - ISSN 0273-1223; ISBN 0-08-033669-8
CO - WSTED
LA - English

16 / 2
AN - 3145381
VN - 8408
RE - EIX8408-0145381
TI - STABLE-ISOTOPE COMPOSITION OF FORAMINIFERS: THE SURFACE AND BOTTOM
WATER RECORD OF COASTAL UPWELLING.
AU - Ganssen, Gerald; Sarnthein, Michael
CS - Christian-Albrechts-Univ, Geologisch-Palaeontologisches Inst,
Kiel, West Ger
PU - NATO Conference Series, (Series) 4: Marine Sciences v 10A. Publ
by Plenum Press, New York, NY, USA and London, Engl p 99-121.

CF - Coastal Upwelling: Its Sediment Record (Proceedings of a NATO
Advanced Research Institute). Part A: Responses of the
Sedimentary Regime to Present Coastal Upwelling. (September 01
1981 - September 04 1981 : Vilamoura, Port)
SP - NATO, Scientific Affairs Div
NU - ISSN 0164-2057; ISBN 0-306-41351-5; Conference No: 04547
CO - NCSFD
LA - English

16 / 3
AN - 3087943
VN - 8405
RE - EIX8405-0087943
TI - GEORGES BANK BENTHIC INFAUNA MONITORING PROGRAM - YEAR 1.
AU - Maciolek-Blake, Nancy; Blake, James A.; Grassle, J. Frederick;
Neff, Jerry M.
CS - Battelle, New England Marine Research Lab, Duxbury, Mass, USA
PU - Oceans (New York) 1983. Publ by IEEE, New York, NY, USA.
Available from IEEE Service Cent (Cat n 83CH1972-9), Piscataway,
NJ, USA and Marine Technology Soc, Washington, DC, USA p 978-982.
CF - Proceedings OCEANS '83: Effective Use of the Sea - An Update.
Volume 2: Technical Papers - Mineral Resources & Energy,
Non-Mineral Resources, Transportation. (August 29 1983 -
September 01 1983 : San Francisco, Calif, USA)
SP - Marine Technology Soc, Washington, DC, USA
IEEE Oceanic Engineering Soc, New York, NY, USA
NU - ISSN 0197-7385; Conference No: 04131
CO - OCNSD
LA - English
Do you want to see additional items?
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Which items?
/
4-7

16 / 4
AN - 2937601
VN - 8312
RE - EIX8312-0181796
TI - USE OF BENTHIC SEDIMENT PROFILE PHOTOGRAPHY IN DREDGING IMPACT
ANALYSIS AND MONITORING.
AU - Bosworth, Weldon S.; Germano, Joseph; Hartzband, David J.;
McCusker, Andrew J.; Rhoads, Donald C.
CS - Normandeau Associates Inc, Bedford, NH, USA
PU - Publ by Symcon Publ Co, Long Beach, Calif, USA p 783-802.
CF - Dredging: Progress in Equipment and Methods, Proceedings of
WODCON IX, 9th World Dredging Conference. (October 29 1980 -
October 31 1980 : Vancouver, BC, Can)
SP - World Dredging Assoc
NU - Conference No: 02611
LA - English

16 / 5
AN - 2796925
VN - 8303
RE - EIX8303-0041120
TI - BENTHIC RESOURCES ASSESSMENT TECHNIQUE, A METHOD FOR QUANTIFYING
THE EFFECTS OF BENTHIC COMMUNITY CHANGES ON FISH RESOURCES.
AU - Lunz, John D.; Kendall, David R.
CS - US Army Eng Waterw Exp Stn, Vicksburg, Miss, USA
PU - Oceans (New York) 82. Publ by IEEE, New York, NY, USA. Available
from IEEE Serv Cent (Cat n 82CH1827-5), Piscataway, NJ, USA p
1021-1027.

CF - Oceans 82 Conference Record: Industry, Government, Education,
Partners in Progress. (September 20 1982 - September 22 1982 :
Washington, DC, USA)
SP - Mar Technol Soc, Washington, DC, USA
IEEE Counc on Oceanic Eng, New York, NY, USA
NU - Conference No: 01718
CO - OCNSD
LA - English

16 / 6
AN - 2577773
VN - 8207
RE - EIX8207-0077766
TI - FATE OF THE ZOE COLOCOTRONI OIL SPILL AND ITS EFFECTS ON INFAUNAL
COMMUNITIES ASSOCIATED WITH MANGROVES.
AU - Gilfillan, Edward S.; Page, David S.; Gerber, Ray P.; Hansen,
Sherry; Cooley, Judy; Hotham, Janet
CS - Bowdoin Coll, Brunswick, Me, USA
PU - Publ by API (Publ n 4334), Washington, DC, USA p 253-360.
CF - Proceedings - 1981 Oil Spill Conference (Prevention, Behavior,
Control, Cleanup). (March 02 1981 - March 05 1981 : Atlanta, Ga,
USA)
SP - API, Washington, DC, USA
EPA, Washington, DC, USA
US Coast Guard, Washington, DC, USA
NU - Conference No: 00294
LA - English

16 / 7
AN - 2089981
VN - 7911
RE - EIX7911-0005972; Monthly No: EI7911-088619
TI - REVIEW OF STATISTICAL ANALYSIS METHODS FOR BENTHIC DATA FROM
MONITORING PROGRAMS AT NUCLEAR POWER PLANTS.
AU - McKenzie, D. H.
CS - Battelle Mem Inst, Richland, Wash
PU - Proc of the Conf on Waste Heat Manage and Util, 2nd, Miami Beach,
Fla, Dec 4-6 1978 Presented by and Available from Univ of Miami,
Mech Eng Dep, Coral Gables, Fla, 1978 Sess 5B p 40-54. 20 Refs.
Do you want to see additional items?
/
n
17/
type s16/more/5

16 / 5
AN - 2796925
VN - 8303
RE - EIX8303-0041120
TI - BENTHIC RESOURCES ASSESSMENT TECHNIQUE, A METHOD FOR QUANTIFYING
THE EFFECTS OF BENTHIC COMMUNITY CHANGES ON FISH RESOURCES.
AU - Lunz, John D.; Kendall, David R.
CS - US Army Eng Waterw Exp Stn, Vicksburg, Miss, USA
PU - Oceans (New York) 82. Publ by IEEE, New York, NY, USA. Available
from IEEE Serv Cent (Cat n 82CH1827-5), Piscataway, NJ, USA p
1021-1027.
CF - Oceans 82 Conference Record: Industry, Government, Education,
Partners in Progress. (September 20 1982 - September 22 1982 :
Washington, DC, USA)
SP - Mar Technol Soc, Washington, DC, USA
IEEE Counc on Oceanic Eng, New York, NY, USA
NU - Conference No: 01718
CO - OCNSD
LA - English

```
 17/
s brook(f) trout
           72      brook
           227     trout
 SET   17: 22      (brook (F) trout) ASONE SET
 18/
s s17 and stream
           6482    stream
 SET   18: 0       (17 and stream) ASONE SET
 19/
s cold(f)water(f)stream
           10841   cold
           115328  water
           6482    stream
 SET   19: 3       (cold (F) water (F) stream) ASONE SET
 20/
s s19 and s3
 SET   20: 0       (19 and 3) ASONE SET
 21/
s acid* and (Limestone or marble)
           28666   acid* (  80  *--*TERMS )
           2034    Limestone
           223     marble
 SET   21: 96      (acid* AND (Limestone or marble)) ASONE SET
 22/
s stream or streams
           6482    stream
           1783    streams
 SET   22: 7859    stream or streams ASONE SET
 23/
s s21 and s22
 SET   23: 2       (21 and 22) ASONE SET
 24/
:ype s23

     23 / 1
AN - 2896353
VN - 8309
RE - EIX8309-0140548
TI - DESIGN OF AN ECONOMIC AND EFFICIENT TREATMENT STATION FOR ACIDIC
     STREAMS.
AU - Gencsoy, H. T.; Pappajohn, J. G.; Clites, G. A.; Zurbuch, P. E.
CS - West Virginia Univ, Mechanical & Aerospace Engineering Dep,
     Morgantown, WVa, USA
PU - Alternative Energy Sources: Proceedings of the Miami
     International Conference on Alternative Energy Sources 5th. Publ
     by Univ of Miami, Clean Energy Research Inst, Coral Gables, Fla,
     USA p 115-117.
CF - Proceedings of Condensed Papers - 5th Miami International
     Conference on Alternative Energy Sources. (December 13 1982 -
     December 15 1982 : Miami Beach, Fla, USA)
SP - Univ of Miami, Clean Energy Research Inst, Coral Gables, Fla, USA
     Defense Advanced Research Projects Agency, Arlington, Va, USA
     Int Assoc for Hydrogen Energy, Coral Gables, Fla, USA
     IAEA, Vienna, Austria
     Int Solar Energy Soc, Parkville, Victoria, Aust
     et al
NU - ISSN 0278-1662; Conference No: 02326
CO - ALESD
LA - English

     23 / 2
AN - 1549541
VN - 7507
```

RE - EIX7507-0007046; Monthly No: EI7507-049367
TI - LIMESTONE BARRIERS TO NEUTRALIZE ACIDIC STREAMS
AU - Pearson, Frank H.; McDonnell, Archie J.
CS - Pa State Univ, University Park
J - ASCE J Environ Eng Div v 101 n 3 Jun 1975 p 425-440. 17 Refs.
O - JEEGA
24/
type s23/more/1-2

23 / 1
AN - 2896353
VN - 8309
RE - EIX8309-0140548
TI - DESIGN OF AN ECONOMIC AND EFFICIENT TREATMENT STATION FOR ACIDIC STREAMS.
AU - Gencsoy, H. T.; Pappajohn, J. G.; Clites, G. A.; Zurbuch, P. E.
CS - West Virginia Univ, Mechanical & Aerospace Engineering Dep, Morgantown, WVa, USA
PU - Alternative Energy Sources: Proceedings of the Miami International Conference on Alternative Energy Sources 5th. Publ by Univ of Miami, Clean Energy Research Inst, Coral Gables, Fla, USA p 115-117.
CF - Proceedings of Condensed Papers - 5th Miami International Conference on Alternative Energy Sources. (December 13 1982 - December 15 1982 : Miami Beach, Fla, USA)
SP - Univ of Miami, Clean Energy Research Inst, Coral Gables, Fla, USA
Defense Advanced Research Projects Agency, Arlington, Va, USA
Int Assoc for Hydrogen Energy, Coral Gables, Fla, USA
IAEA, Vienna, Austria
Int Solar Energy Soc, Parkville, Victoria, Aust
et al
NU - ISSN 0278-1662; Conference No: 02326
O - ALESD
A - English

23 / 2
AN - 1549541
VN - 7507
RE - EIX7507-0007046; Monthly No: EI7507-049367
TI - LIMESTONE BARRIERS TO NEUTRALIZE ACIDIC STREAMS
AU - Pearson, Frank H.; McDonnell, Archie J.
CS - Pa State Univ, University Park
PU - ASCE J Environ Eng Div v 101 n 3 Jun 1975 p 425-440. 17 Refs.
CO - JEEGA
AB - Water samples were taken for analysis and measurements were made to determine the effect of each installation on water quality at four prototype limestone barriers that had been constructed to neutralize acidic streams. The pH of stream water was increased by up to 3 pH units at low streamflow, to pH 7 or above. This demonstrates that limestone barriers are capable of renovating acidic streams to the point that normal aquatic life can be restored, rendering the stream water suitable for a number of uses that are otherwise precluded. A mathematical model of limestone barriers was constructed, based on hydraulic laws and on the chemical kinetics of the rate limiting reactions between crushed limestone and acidic water. Model predictions matched the observed performance of the barriers. A procedure was developed to determine the design of a barrier of crushed limestone to neutralize a given streamflow.

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                    Last Update:
                      94-01-08
  1/
  1/
  1/
execute enviro
  1/ CREATED IN EIPLUS72 ON 94-02-10
  1/ EXECUTING
  1/ REQUEST SENT : "EXECUTES FROM A1"
  1/ S mis mine or mines or mining or marble or limestone or quarr*
         0        mis mine
         745      mines
         4174     mining
         12       marble
         596      limestone
         37       quarr* (  4   *--*TERMS )
 SET    1: 5275   mis mine or mines or mining or marble or limestone
                   or quarr* ASONE SET
  2/ S (environmental AND (study or studies or impact or assessment
     or audit))
         8871     environmental
         4407     study
         2159     studies
         11904    impact
         10855    assessment
         44       audit
 SET    2: 3408   (environmental AND (study or studies or impact or
                   assessment or audit)) ASONE SET
  3/ S (*S1 and *S2 )
 SET    3: 146    (1 and 2 ) ASONE SET
  4/ S coal or tailing* or uranium, or peat or arctic or africa* or
     lead or tin
         6426     coal
         861      tailing* (  3   *--*TERMS )
         0        uranium,
         239      peat
         719      arctic
         1370     africa* (  8   *--*TERMS )
         4496     lead
         253      tin
 SET    4: 13918  coal or tailing* or uranium, or peat or arctic or
                   africa* or lead or tin ASONE SET
  5/ S uranium or ocean* or sea or seas or marine or coast* or
     offshore
         1435     uranium
         3233     ocean* (  17  *--*TERMS )
         2713     sea
         105      seas
         8794     marine
         3904     coast* (  14  *--*TERMS )
         1404     offshore
 SET    5: 15180  uranium or ocean* or sea or seas or marine or
                   coast* or offshore ASONE SET
  6/ S *S4 or *S5
 SET    6: 27790  4 or 5 ASONE SET
  7/ S (*S3 NOT *S6 )
 SET    7: 37     (3 AND NOT 6 ) ASONE SET
  8/ S (*S7 NOT (mine or mines or mining))
         1943     mine
         745      mines
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           4174     mining
  SET    8: 3        (7 AND NOT (mine or mines or mining)) ASONE SET
    9/ S (*S8 NOT (monument* or air))
           69       monument* (  3   *--*TERMS )
           23546    air
  SET    9: 0        (8 AND NOT (monument* or air)) ASONE SET
   10/ S (*S9 NOT gravel)
           179      gravel
  SET   10: 0        (9 AND NOT gravel) ASONE SET
   11/ S (*S10 NOT (structur* or pollution))
           1058     structur* (  7   *--*TERMS )
           29506    pollution
  SET   11: 0        (10 AND NOT (structur* or pollution)) ASONE SET
   12/ S benth*
  SET   12: 1065     benth* (  9   *--*TERMS )
   13/ S stream
  SET   13: 710      stream
   14/ S (*S12 and *S13 )
  SET   14: 70       (12 and 13 ) ASONE SET
   15/ S benth* analysi*
  SET   15: 0        benth* analysi*
   16/ S (benth* (F) Analys*)
           1065     benth* (  9   *--*TERMS )
           24624    Analys* (  17   *--*TERMS )
  SET   16: 1        (benth* (F) Analys*) ASONE SET
   17/ S (brook (F) trout)
           79       brook
           852      trout
  SET   17: 59       (brook (F) trout) ASONE SET
   18/ S (*S17 and stream)
           710      stream
  SET   18: 3        (17 and stream) ASONE SET
   19/ S (cold (F) water (F) stream)
           327      cold
           42931    water
           710      stream
  SET   19: 3        (cold (F) water (F) stream) ASONE SET
   20/ S (*S19 and *S3 )
  SET   20: 0        (19 and 3 ) ASONE SET
   21/ S (acid* AND (Limestone or marble))
           6229     acid* (  17   *--*TERMS )
           596      Limestone
           12       marble
  SET   21: 106      (acid* AND (Limestone or marble)) ASONE SET
   22/ S stream or streams
           710      stream
           1386     streams
  SET   22: 1771     stream or streams ASONE SET
   23/ S (*S21 and *S22 )
  SET   23: 6        (21 and 22 ) ASONE SET
   24/
type s7

     7 / 1
AN - 1611695
VN - 1993
RE - 93-11695
TI - Environmental Legislation, Economic Growth and Risk in Minerals
     Development: the Bolivian Case
AU - Blacutt-Mercado William P., Univ of Arizona, Tucson
JN - Nat Resour Forum, Aug 93, v17, n3, p207(9). (7 graphs, 2
     references, 3 tables)

     7 / 2
```

AN - 1608254
VN - 1993
RE - 93-08254
TI - Environmental Fate of Mercury from Gold Mining in the Brazilian
Amazon
AU - Pfeiffer W. C., Universidade Federal do Rio de Janiero, Brazil;
Lacerda L. D.; Salomons W.; Malm O.
PU - Environ Rev, 1993, v1, n1, p26(12). (6 graphs, 2 maps, 70
references, 6 tables)

7 / 3
AN - 1602886
VN - 1993
RE - 93-02886*
TI - The 1990s: the Environmental Decade
AU - Hobson Simon, Metals & Minerals Research Services, Bath, UK
PU - Eng Mining J, Jan 93, v194, n1, p30(2). (3 photos)
Do you want to see additional items?
/
n
24/
s s7 not s6
SET 24: 37 (7 AND not 6) ASONE SET
25/
s s7 not (mine or mines or mining)
1943 mine
745 mines
4174 mining
SET 25: 3 (7 AND NOT (mine or mines or mining)) ASONE SET
26/
type s25

25 / 1
AN - 1562291
VN - 1992
RE - 92-13491
TI - Environmental Chamber for Study of the Deposition Flux of Gaseous
Pollutants to Material Surfaces
AU - Spiker E. C., USGS, Reston, VA; Hosker R. P.; Comer V. J.; White
J. R.; Werre Jr. R. W.; Harmon F. L.; Gandy G. D.
PU - Atmos Environ, Nov 92, v26A, n16, p2885(8). (2 diagrams, 6 graphs,
22 references)

25 / 2
AN - 1005184
VN - 1981
RE - 81-04943*
TI - A Comparative Assessment of Flue Gas Treatment Processes, Part
II-Environmental and Cost Comparison
AU - Jahnig C.E., Exxon Research & Engineering Co, NJ and Shaw H.
PU - APCA J, May 81, v31, n5, p596(9). (2 graphs, 31 references, 9
tables)

25 / 3
AN - 753531
VN - 1976
RE - 76-03099*
TI - Evaluating Environmental Impacts of Stack Gas Desulfurization
Processes
AU - Yan Chiou-Shuang J., DREXEL Univ
PU - Env Science & Technology, Jan 76, v10, n1, p54(5). (6 tables)
26/
s s7 not gas
6615 gas

SET 26: 35 (7 AND not gas) ASONE SET
27/
type s16

16 / 1
N - 903065
VN - 1979
RE - 79-02783*
TI - A Review of Statistical Analysis Methods for Benthic Data from Monitoring Programs at Nuclear Power Plants
AU - McKenzie D.H., Battelle Pacific Northwest LABs, Wash
PU - Presented at DOE Waste Heat Management & Utilization 2nd Conf, Miami Beach, Dec 4-6, 78, pv-B-40(14). (20 references)
27/
type s18

18 / 1
AN - 1501473
VN - 1991
RE - 91-03112*
TI - Response of a Brook Trout (Salvelinus fontinalis) Population to a Reduction in Stream Benthos Following an Insecticide Treatment
AU - Kreutzweiser D. P., Forestry Canada, Sault Ste Marie, ON
PU - Canadian J Fisheries & Aquatic Sciences, Jul 90, v47, n7, p1387(15). (6 graphs, 1 map, 44 references, 10 tables)

18 / 2
AN - 1250301
VN - 1986
RE - 86-33391*
TI - Encroachment of Exotic Rainbow Trout into Stream Populations of Native Brook Trout in the Southern Appalachian Mountains
U - Larson Gary L., NPS, TN and Moore Stephen E.
U - American Fisheries Society Trans, Mar 85, v114, n2, p195(9). (4 graphs, 1 map, 28 references, 3 tables,)

18 / 3
AN - 1101895
VN - 1983
RE - 83-02391*
TI - First-Year Effects of Salvage Clearcut Logging upon Stream Populations of Wild Brook and Brown Trout in the Northcentral Highlands Region of Pennsylvania
AU - Lacy Gerald F.
PU - Pennsylvania State Univ Report, Mar 82 (38). (1 map, 43 references, 5 tables)
27/
type s23//1-6

23 / 1
AN - 1605558
VN - 1993
RE - 93-05558
TI - Soils of Acid Catchments Before and After Liming
AU - Wilson E. J., Natl Power, Leatherhead, UK; Hudson G.; Smith R. F. L.
PU - Restoring Acid Waters: Loch Fleet 1984-1990 (Elsevier), 1992, p199(30). (2 diagrams, 20 graphs, 33 references, 3 tables)

23 / 2
N - 1605207
N - 1993
RE - 93-05207
TI - Fishery Restoration After Liming

AU - Turnpenny A. W. H., Natl Power, Southampton, UK
PU - Restoring Acid Waters: Loch Fleet 1984-1990 (Elsevier), 1992, p259(29). (16 graphs, 1 photo, 33 references, 9 tables)

23 / 3
AN - 1354319
VN - 1988
RE - 88-01466*
TI - Predicting Baseline Alkalinity as an Index to Episodic Stream Acidification and Fish Presence
AU - DeWalle David R., Pennsylvania State Univ; Dinicola Richard S.; Sharpe William E.
PU - Water Resources B, Feb 87, v23, n1, p29(7). (1 diagram, 2 graphs, 7 references, 4 tables)

23 / 4
AN - 1150672
VN - 1984
RE - 84-00624*
TI - Liming of Acidified Waters: a Review of Methods and Effects on Aquatic Ecosystems
AU - Fraser James E., General Research Corp, VA and Britt Douglas L.
PU - FWS Report Obs-80/40.13, Dec 82, n13, (204). (numerous diagrams, graphs, photos, references, tables)

23 / 5
AN - 708271
VN - 1975
RE - 75-08097*
TI - Limestone Barriers to Neutralize Acidic Streams
AU - Pearson Frank H., Pennsylvania State Univ and McDonnell Archie J.
PU - J Env Engineering Div-ASCE, Jun 75, v101, n3, p425(16). (2 diagrams, 6 graphs, 1 photo, 17 references)

23 / 6
AN - 702736
VN - 1975
RE - 75-02559*
TI - Evaluation of Prototype Crushed Limestone Barriers for the Neutralization of Acidic Streams
AU - Pearson Frank H., Pennsylvania State Univ and McDonnell Archie J.
PU - NTIS Report Pb-234 551/0wp, Jun 74 (104)
27/
type s23/more/2,4,5,6

23 / 2
AN - 1605207
VN - 1993
RE - 93-05207
TI - Fishery Restoration After Liming
AU - Turnpenny A. W. H., Natl Power, Southampton, UK
PU - Restoring Acid Waters: Loch Fleet 1984-1990 (Elsevier), 1992, p259(29). (16 graphs, 1 photo, 33 references, 9 tables)
AB - After liming of the Loch Fleet catchment in Scotland in the spring of 1986, tests were carried out to assess the survival rate of freshly fertilized eggs of brown trout, salmon, and sea trout placed in the Altiwat stream. Results for all species were similar, and survival to hatching improved from about 10% to 64% for brown trout. No mortality of brown trout fry, fingerlings, or adults was found in the postliming assessment, whereas preliming mortality was seen in as many as 50% of fry. In 1987, the loch was restocked with 300 adult brown trout that included a mixture of wild stock from a nearby loch, stock from a nearby hatchery, and stock from the Little Water of Fleet. The same combination

was used in the addition of 220 adults in 1988. Stocking levels were kept low to allow for the recovery of invertebrate food sources. Natural spawning was monitored, and as high as a 70% hatch rate was observed. Fish captured by fly fishing were judged to be in good condition in 1988. The liming project had beneficial effects on the downstream fisheries as well.

23 / 4
AN - 1150672
VN - 1984
RE - 84-00624*
TI - Liming of Acidified Waters: a Review of Methods and Effects on Aquatic Ecosystems
AU - Fraser James E., General Research Corp, VA and Britt Douglas L.
PU - FWS Report Obs-80/40.13, Dec 82, n13, (204). (numerous diagrams, graphs, photos, references, tables)
AB - FWS Report Obs-80/40.13, Dec 82, n13, (204), The impacts of liming acidified water on aquatic habitats are reviewed. Liming involves the addition of a base material to neutralize surface waters, sediments, and soils. Acid sensitive areas and associated fisheries are identified. The impacts of acidification on fish are considered. Preventative and mitigative liming, liming techniques, ecological response to liming of aquatic ecosystems, and data needs are analyzed.

23 / 5
AN - 708271
VN - 1975
RE - 75-08097*
TI - Limestone Barriers to Neutralize Acidic Streams
AU - Pearson Frank H., Pennsylvania State Univ and McDonnell Archie J.
PU - J Env Engineering Div-ASCE, Jun 75, v101, n3, p425(16). (2 diagrams, 6 graphs, 1 photo, 17 references)
AB - Water is sampled at four prototype limestone barriers to determine the effect of each installation on water Quality of acidic streams. Limestone barriers can renovate acidic streams to the point at which normal aquatic life can be restored. A mathematical model of limestone barriers is constructed based on hydraulic laws and on the chemical kinetics of the rate limiting reactions between crushed limestone and acidic water. Model predictions match the observed performance of the barriers.

23 / 6
AN - 702736
VN - 1975
RE - 75-02559*
TI - Evaluation of Prototype Crushed Limestone Barriers for the Neutralization of Acidic Streams
AU - Pearson Frank H., Pennsylvania State Univ and McDonnell Archie J.
PU - NTIS Report Pb-234 551/0wp, Jun 74 (104)
AB - At four prototype limestone barriers that had been constructed to neutralize acidic streams, water samples were taken for analysis and measurements were made to determine the effect of each installation on water Quality. Limestone barriers can renovate acidic streams to the point where normal aquatic life can be restored, rendering the stream water suitable for a number of uses that are otherwise precluded. A mathematical model of limestone barriers was constructed based on hydraulic laws and on the chemical kinetics of the rate-limiting reactions between crushed limestone and acidic water. A simple design procedure was developed to rapidly determine the quantity of crushed limestone required to neutralize a given streamflow to any required degree, the consumption rate of limestone in the acidic water, and the conditions for avoiding either washout of the barrier in floods or clogging of the limestone by sediment.

MINTEC 1973 - June/December 93

Last Update:
93-11-25

```
  1/
  1/
  1/
execute enviro
  1/ CREATED IN EIPLUS72 ON 94-02-10
  1/ EXECUTING
  1/ REQUEST SENT : "EXECUTES FROM A1"
  1/ S mis mine or mines or mining or marble or limestone or quarr*
          0        mis mine
          28974    mines
          29506    mining
          81       marble
          571      limestone
          1349     quarr* (  8   *--*TERMS )
 WORKING  20  seconds
 WORKING  40  seconds
 SET    1: 32108    mis mine or mines or mining or marble or limestone
                     or quarr* ASONE SET
  2/ S (environmental AND (study or studies or impact or assessment
     or audit))
          1727     environmental
          3461     study
          2084     studies
          1296     impact
          1143     assessment
          14       audit
 SET    2: 476      (environmental AND (study or studies or impact or
                     assessment or audit)) ASONE SET
  3/ S (*S1 and *S2 )
 WORKING  20  seconds
 SET    3: 415      (1 and 2 ) ASONE SET
  4/ S coal or tailing* or uranium, or peat or arctic or africa* or
     lead or tin
          13518    coal
          1964     tailing* (  3   *--*TERMS )
          0        uranium,
          71       peat
          388      arctic
          2398     africa* (  7   *--*TERMS )
          1132     lead
          214      tin
 SET    4: 18321    coal or tailing* or uranium, or peat or arctic or
                     africa* or lead or tin ASONE SET
  5/ S uranium or ocean* or sea or seas or marine or coast* or
     offshore
          1685     uranium
          266      ocean* (  11  *--*TERMS )
          327      sea
          10       seas
          520      marine
          163      coast* (  5   *--*TERMS )
          243      offshore
 SET    5: 2609     uranium or ocean* or sea or seas or marine or
                     coast* or offshore ASONE SET
  6/ S *S4 or *S5
 SET    6: 19931    4 or 5 ASONE SET
  7/ S (*S3 NOT *S6 )
 SET    7: 141      (3 AND NOT 6 ) ASONE SET
  8/ S (*S7 NOT (mine or mines or mining))
```

```
          19590    mine
          28974    mines
          29506    mining
WORKING  20  seconds
WORKING  40  seconds
WORKING  60  seconds
WORKING  80  seconds
SET    8: 2         (7 AND NOT (mine or mines or mining)) ASONE SET
  9/ S (*S8 NOT (monument* or air))
          21        monument* (  3   *--*TERMS )
          4072      air
SET    9: 2         (8 AND NOT (monument* or air)) ASONE SET
 10/ S (*S9 NOT gravel)
          318       gravel
SET   10: 2         (9 AND NOT gravel) ASONE SET
 11/ S (*S10 NOT (structur* or pollution))
          2855      structur* (  20  *--*TERMS )
          1884      pollution
SET   11: 1         (10 AND NOT (structur* or pollution)) ASONE SET
 12/ S benth*
SET   12: 16        benth* (  4   *--*TERMS )
 13/ S stream
SET   13: 241       stream
 14/ S (*S12 and *S13 )
SET   14: 1         (12 and 13 ) ASONE SET
 15/ S benth* analysi*
SET   15: 0         benth* analysi*
 16/ S (benth* (F) Analys*)
          16        benth* (  4   *--*TERMS )
          8311      Analys* (  17  *--*TERMS )
SET   16: 2         (benth* (F) Analys*) ASONE SET
 17/ S (brook (F) trout)
          11        brook
          11        trout
SET   17: 0         (brook (F) trout) ASONE SET
 18/ S (*S17 and stream)
          241       stream
SET   18: 0         (17 and stream) ASONE SET
 19/ S (cold (F) water (F) stream)
          395       cold
          6775      water
          241       stream
SET   19: 0         (cold (F) water (F) stream) ASONE SET
 20/ S (*S19 and *S3 )
SET   20: 0         (19 and 3 ) ASONE SET
 21/ S (acid* AND (Limestone or marble))
          817       acid* (  23  *--*TERMS )
          571       Limestone
          81        marble
SET   21: 43        (acid* AND (Limestone or marble)) ASONE SET
 22/ S stream or streams
          241       stream
          80        streams
SET   22: 307       stream or streams ASONE SET
 23/ S (*S21 and *S22 )
SET   23: 6         (21 and 22 ) ASONE SET
 24/
s ((s2 and (quarr* or lime* or marble)) not s6)
          1349      quarr* (  8   *--*TERMS )
          707       lime* (  8   *--*TERMS )
          81        marble
SET   24: 16        (((2 and (quarr* or lime* or marble)) AND NOT 6))
                     ASONE SET
 25/
```

type s24

24 / 1
AN - 41186
'N - 9202
.E - MNG44533
TI - Dust impacts from mineral workings.
(Les impacts de la poussiere des chantiers minerais).
AU - Bate KJ; Coppin NJ
PU - Mine Quarry, v.20, n.3, p.31, 5pp., 3 refs., (in English), Mar. 1991.
LA - English

24 / 2
AN - 36656
VN - 9002
RE - MNG39388
TI - Role de la geologie dans l'elimination des dechets urbains et industriels, quelques exemples.
(The role of geology in the disposal of urban and industrial wastes, a few examples).
AU - Barres M
PU - Ind Minerale Mines Carrieres Tech, v.71, p.51, 5pp., 4 refs., (in French), May 1989.
LA - French

24 / 3
AN - 36563
VN - 9002
RE - MNG39295
TI - Les carrieres et l'environnement.
(Quarries and the environment).
\U - Roulleau JN
'U - Ind Minerale Mines Carrieres Tech, v.71, p.33, 5pp., (in French), May 1989.
LA - French
Do you want to see additional items?
/
y
Which items?
/
4-16

24 / 4
AN - 33190
VN - 8708
RE - MNG35412
TI - Computer graphics for mine planning enquiries.
(L'infographie pour les renseignements en planification des mines).
AU - Hodges DJ; Alderson JS; Johnson SM
PU - Mine Quarry, v.16, n.1/2, p.46, 3pp., 1 ref., Feb. 1987. (In English).

24 / 5
AN - 31237
VN - 8601
RE - MNG30945
TI - Rehabilitation at Stonyfell quarry.
(La rehabilitation a la carriere Stonyfell).
AU - Whiffen P; Walker D
PU - Quarry Manage, v.11, n.5, p.283, 9pp., 5 ref., May 1984. (In English).

24 / 6

AN - 30826
VN - 8602
RE - MNG32501
TI - Geological, geotechnical and mining engineering study at Blue
Circle's Dunbar cement works.
(Une etude geologique, geotechnique et miniere a la cimenterie de
Blue Circle's Dunbar).
AU - Collin GJN; Waring LH
PU - 2nd International Surface Mining and Quarrying Symposium, Oct.
4-6, 1983, Bristol, England, p.337, 12pp., 1983. (In English).

24 / 7
AN - 28338
VN - 8510
RE - MNG30417
TI - Environmental management for pits and quarries: an annotated
bibliography.
(Une gestion environnementale pour les fosses et les carrieres:
une bibliographie annotee).
AU - Moore KE; Curtis FA
PU - Can Min Metall Bull, v.78, n.879, p.78, 5pp., July 1985. (In
English).

24 / 8
AN - 25029
VN - 8401
RE - MNG27081
TI - Environmental and amenity issues: significance and priorities.
(Les questions environnementales et d'amenite: leur signification
et priorites).
AU - Fish BG
PU - Quarry Manage Prod, v.10. n.8, p.487, 6pp., 5 ref., Aug. 1983.
LA - English

24 / 9
AN - 24890
VN - 8301
RE - MNG26942
TI - The environmental aspects of structural response to blasting
overpressure.
(Les aspects environnementaux relies aux effets de pression du au
sautage, sur la structure).
AU - Ancich EJ
PU - Quarry Manage Prod, v.10, n.7, p.420, 5pp., 17 ref., July 1983.
LA - English

24 / 10
AN - 22579
VN - 8210
RE - MNG24629
TI - Case history of a site reevaluation for a plant expansion.
AU - Pursell LA
PU - Min Eng (NY), v. 34, no. 8, Aug 1982, 1241-4.
LA - English

24 / 11
AN - 20915
VN - 8201
RE - MNG22961
TI - Constraints of industrial minerals- the Ontario experience.
AU - Guillet GR
PU - Proceedings 14th Annual Forum on the Geology of Industrial
Minerals, ed J.R. Dunn, New York State Museum, Bulletin No. 436,
State University of New York, Albany, Jan 1980, 21-6, (Ref 6).

LA - English

24 / 12
AN - 18255
VN - 8012
RE - MNG21542
TI - The Case for the Articulated Dumptruck.
AU - Brown DJ
PU - Quarry Manage Prod, Sept 1980, 251-6.
LA - English

24 / 13
AN - 8074
VN - 7711
RE - MNG17177
TI - Land Use and Quarrying.
AU - Wilkinson CM
PU - Quarry Mgrs J., Sept. 1973, 309-21, (Ref 13).
LA - English

24 / 14
AN - 6603
VN - 7706
RE - MNG15305
TI - Noise and Vibrations in Residential Structures from Quarry
Production Blasting.
AU - Siskind DE; Stachura VJ; Radcliffe KS
PU - U.S.B.M., Rep. Invest. 8168, 1976,16p, (Ref 4).
LA - English

24 / 15
AN - 5658
VN - 7610
RE - MNG14754
TI - Environmental Factors Related to Land Use Planning.
AU - Stanley WJ
PU - Pit and Quarry, Sept. 1972, 122-3.
LA - English

24 / 16
AN - 4411
VN - 7606
RE - MNG13495
TI - Ground Vibrations Due to Quarry Blasting and Other Sources - An
Environmental Factor.
AU - Roberts A
PU - 12th. Symp. Dynam. Rock Mech., Misso, Nov. 1970, pap. 22, 427-57,
(Ref 9).
LA - English
Do you want to see additional items?
/
n
25/
type s14

14 / 1
AN - 30443
VN - 8610
RE - MNG33536
TI - Effects of routing a stream through a surface-mine lake.
(Les effets de l'acheminement d'un courant d'eau dans le lac d'une
mine a ciel ouvert).
AU - McElligott MJ
PU - 1985 Symposium on Surface Mining, Hydrology, Sedimentology, and

Reclamation, Dec. 9-13, 1985, Lexington, Kentucky, p.303, 11pp., 13 ref., 1985. (In English).

25/

type s23//1-6

23 / 1

AN - 31814

VN - 8702

RE - MNG34278

TI - The effect of limestone treatments on the rate of acid generation from pyritic mine gangue.
(L'effet des traitements au calcaire sur la vitesses de generation d'acide de gangue pyriteuse de mine).

AU - Burt RA; Caruccio FT

PU - Environmental Geochemistry and Health, v.8, n.3, p.71, 8pp., 14 ref., Sept. 1986. (In English).

23 / 2

AN - 30713

VN - 8602

RE - MNG32139

TI - A low-cost, low-maintenance treatment system for acid mine drainage using sphagnum moss and limestone.
(Un systeme de traitement a faible cout et faible taux d'entretien pour le drainage des mines acides en utilisant la sphaigne et le calcaire).

AU - Kleinmann RLP; Tiernan TO; Solch JG; Harris RL

PU - Proceedings, 1983 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation, Nov. 28- Dec. 2, 1983, Lexington, Kentucky, p.241, 5pp., 14 ref., 1983. (In English).

23 / 3

AN - 17693

VN - 8012

RE - MNG1960

TI - Mine Water Research: Neutralization.

AU - Deul M; Mihok EA

PU - US Bur Mines Rep Invest 6987, 1967, 24p.

LA - English

23 / 4

AN - 12243

VN - 8003

RE - MNG7161

TI - Tailings Disposal, Generation of Acidity from Pyrrhotite and LimeStone Neutralization of Wastewater at Falconbridges Onabing Mines.

AU - Rivett LS; Oko UM

PU - Can Min Metall Bull, Aug. 1971, pp 108-113, (Ref. 12).

LA - English

23 / 5

AN - 12201

VN - 8003

RE - MNG7117

TI - Tailings Disposal, Generation of Acidity from Pyrrhotite and Limestone Neutralization of Waste Water at Falconbridge Onaping Mines.

AU - Rivett LS; Oko UM

PU - Deco Trefoil, Winter Issue, 1971-1972, pp 9-16, (Ref. 12).

LA - English

23 / 6

AN - 9182

VN - 7808
RE - MNG18304
TI - 6th. Symposium on Coal Mine Drainage Research.
AU - Boyer J
PU - N.C.A., B.C.R., Coal Confer. and Expo 3, Louisville Oct. 1976, 290p, (Ref after chs.).
LA - English
25/
type s23/more/5,4,3,2,1

23 / 5
AN - 12201
VN - 8003
RE - MNG7117
TI - Tailings Disposal, Generation of Acidity from Pyrrhotite and Limestone Neutralization of Waste Water at Falconbridge Onaping Mines.
AU - Rivett LS; Oko UM
PU - Deco Trefoil, Winter Issue, 1971-1972, pp 9-16, (Ref. 12).
LA - English
AB - The water pollution problem associated with the mining and treatment of sulphide ores that had to be resolved was that of controlling acid formation. A dam and a spillway were constructed to introduce a continuous stream of finely ground limestone pulp to neutralize the acidity. The limestone neutralization unit was designed to operate continuously and unattended. The system has operated satisfactorily over the past several years producing good quality neutral water at flow rates varying from 6,000-30,000 gpm(spring runoff).

23 / 4
AN - 12243
'N - 8003
:E - MNG7161
TI - Tailings Disposal, Generation of Acidity from Pyrrhotite and LimeStone Neutralization of Wastewater at Falconbridges Onabing Mines.
AU - Rivett LS; Oko UM
PU - Can Min Metall Bull, Aug. 1971, pp 108-113, (Ref. 12).
LA - English
AB - The problem was to neutralize lake water that was to serve a water supply. The solution adopted was to use part of the lake as both a reservoir and an aging or oxidizing basin. A dam and spillway were constructed in order to introduce a continuous stream of finely ground limestone pulp to neutralize the acidity. The limestone neutralization unit was designed to operate continuously and unattended. The system has operated successfully over a period of several years.

23 / 3
AN - 17693
VN - 8012
RE - MNG1960
TI - Mine Water Research: Neutralization.
AU - Deul M; Mihok EA
PU - US Bur Mines Rep Invest 6987, 1967, 24p.
LA - English
AB - A special short-term res. project was initiated to develop plant design parameters for treating mine waters to yield an effluent acceptable for discharge into streams and a sludge amenable to effective and econ. disposal. Neutralization was invest. to provide simple and direct treatment of ferruginous acid waters using lime, coarse limestone, and limestone followed by lime. Limestone treatment was accomplished using a small cement mixer as

simple reactor to provide abrasive agitation of limestone and mine water. Results from tests with 9 mine waters encompassing a wide range of Fe and acid concns showed that coarse limestone, 1 of the cheapest neutralizing agents known, is potentially useful for treating mine water discharges. However, process variables must be defined more completely before the practical applns and limitations of the process can be fully established.

23 / 2

AN - 30713

VN - 8602

RE - MNG32139

TI - A low-cost, low-maintenance treatment system for acid mine drainage using sphagnum moss and limestone.
(Un systeme de traitement a faible cout et faible taux d'entretien pour le drainage des mines acides en utilisant la sphaigne et le calcaire).

AU - Kleinmann RLP; Tiernan TO; Solch JG; Harris RL

PU - Proceedings, 1983 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation, Nov. 28- Dec. 2, 1983, Lexington, Kentucky, p.241, 5pp., 14 ref., 1983. (In English).

AB - A research contract was entered into with Peer Consultants and Wright State University to determine if this natural system could be developed into a practical technique. A portable bog/limestone system was constructed using a multi-sectioned plexiglass chamber mounted on a flat-bed trailer. It was installed near an acid stream in the Zaleski State Forest, in southeastern Ohio. Despite initial start-up and operational problems, the sphagnum moss survived and in combination with limestone, was shown to be effective in treating low flow acid mine drainage. The second phase of tests, now underway, will determine the optimal flow rate for a given bog area and, conversely, the amount of bog needed to treat the flow at a specific site.

23 / 1

AN - 31814

VN - 8702

RE - MNG34278

TI - The effect of limestone treatments on the rate of acid generation from pyritic mine gangue.
(L'effet des traitements au calcaire sur la vitesses de generation d'acide de gangue pyriteuse de mine).

AU - Burt RA; Caruccio FT

PU - Environmental Geochemistry and Health, v.8, n.3, p.71, 8pp., 14 ref., Sept. 1986. (In English).

AB - Surface water enters the Haile gold mine in South Carolina by means of a small stream and is ponded behind a dam and in an abandoned pit. It is affected by acidic drainage, but in spite of the large exposures of potentially acid producing pyritic rock, the flux of acid to the water is relatively low. The resulting pH value of the mine water is low (3.5) due to negligible buffering capacity. Due to the observed low release of acidity, the potential for acid drainage abatement by limestone ameliorants appears feasible. An investigation was made of the effects of limestone treatment on acid generation rates of the Haile mine pyritic rocks through a series of leaching experiments.

Last Update:
94-01-26

```
   1/
execute enviro2
   1/ CREATED IN MINTEC ON 94-02-10
   1/ EXECUTING
   1/ REQUEST SENT : "EXECUTES FROM A1"
   1/ S mis mine or mines or mining or marble or limestone or quarr*
          0        mis mine
          1358     mines
          1590     mining
          9        marble
          34       limestone
          47       quarr* (  4   *--*TERMS )
 SET   1: 2580     mis mine or mines or mining or marble or limestone
                    or quarr* ASONE SET
   2/ S (environmental AND (study or studies or impact or assessment
      or audit))
          4127     environmental
          3825     study
          862      studies
          1093     impact
          2117     assessment
          133      audit
 SET   2: 1346     (environmental AND (study or studies or impact or
                    assessment or audit)) ASONE SET
   3/ S (*S1 and *S2 )
 SET   3: 48       (1 and 2 ) ASONE SET
   4/ S coal or tailing* or uranium, or peat or arctic or africa* or
      lead or tin
          1199     coal
          374      tailing* (  2   *--*TERMS )
          0        uranium,
          115      peat
          656      arctic
          82       africa* (  5   *--*TERMS )
          172      lead
          23       tin
 SET   4: 2613     coal or tailing* or uranium, or peat or arctic or
                    africa* or lead or tin ASONE SET
   5/ S uranium or ocean* or sea or seas or marine or coast* or
      offshore
          612      uranium
          864      ocean* (  12  *--*TERMS )
          526      sea
          9        seas
          946      marine
          835      coast* (  11  *--*TERMS )
          295      offshore
 SET   5: 3420     uranium or ocean* or sea or seas or marine or
                    coast* or offshore ASONE SET
   6/ S *S4 or *S5
 SET   6: 5505     4 or 5 ASONE SET
   7/ S (*S3 NOT *S6 )
 SET   7: 25       (3 AND NOT 6 ) ASONE SET
   8/ S (*S7 NOT (mine or mines or mining))
          843      mine
          1358     mines
          1590     mining
 SET   8: 2        (7 AND NOT (mine or mines or mining)) ASONE SET
   9/ S (*S8 NOT (monument* or air))
```

```
            19        monument* (  2   *--*TERMS )
            1529      air
 SET    9: 2          (8 AND NOT (monument* or air)) ASONE SET
  10/ S (*S9 NOT gravel)
            48        gravel
 SET   10: 2          (9 AND NOT gravel) ASONE SET
  11/ S (*S10 NOT (structur* or pollution))
            654       structur* (  16  *--*TERMS )
            2179      pollution
 SET   11: 2          (10 AND NOT (structur* or pollution)) ASONE SET
  12/ S benth*
 SET   12: 110        benth* (  5   *--*TERMS )
  13/ S stream
 SET   13: 171        stream
  14/ S (*S12 and *S13 )
 SET   14: 2          (12 and 13 ) ASONE SET
  15/ S benth* analysi*
 SET   15: 0          benth* analysi*
  16/ S (benth* (F) Analys*)
            110       benth* (  5   *--*TERMS )
            2719      Analys* (  10  *--*TERMS )
 SET   16: 4          (benth* (F) Analys*) ASONE SET
  17/ S (brook (F) trout)
            50        brook
            177       trout
 SET   17: 13         (brook (F) trout) ASONE SET
  18/ S (*S17 and stream)
            171       stream
 SET   18: 0          (17 and stream) ASONE SET
  19/ S (cold (F) water (F) stream)
            144       cold
            3288      water
            171       stream
 SET   19: 0          (cold (F) water (F) stream) ASONE SET
  20/ S (*S19 and *S3 )
 SET   20: 0          (19 and 3 ) ASONE SET
  21/ S (acid* AND (Limestone or marble))
            767       acid* (  14  *--*TERMS )
            34        Limestone
            9         marble
 SET   21: 2          (acid* AND (Limestone or marble)) ASONE SET
  22/ S stream or streams
            171       stream
            126       streams
 SET   22: 292        stream or streams ASONE SET
  23/ S (*S21 and *S22 )
 SET   23: 1          (21 and 22 ) ASONE SET
  24/ S (((*S2 and (quarr* or lime* or marble)) NOT *S6 ))
            47        quarr* (  4   *--*TERMS )
            69        lime* (  7   *--*TERMS )
            9         marble
 SET   24: 3          ((((2 and (quarr* or lime* or marble)) AND NOT 6
                       ))) ASONE SET
  25/
type s24

     24 / 1
AN - 1288078
RE - 9307130; 0153206
CE - 93-07130/1 fiche (Paper copy avail.)
TI - Environmental assessment report final guidelines for the
     preparation of terms of reference : Kelly Rock Limited, Kelly's
     Mountain Aggregate Quarry
PU - Halifax : Dept. of the Environment, 1991. ii, 15 p. Micromedia
```

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      prices: MFx/PCa
 LA - English

       24 / 2
 AN - 1166721
 RE - 8704131
 CE - 87-04131/1 FICHE (PAPER COPY AVAIL.)
 TI - POST-MINING GROUNDWATER SUPPLY POTENTIAL AT THE HIGHVALE SITE :
      PLAINS HYDROLOGY AND RECLAMATION PROJECT / BY M.R. TRUDELL ; FOR
      RECLAMATION RESEARCH, TECHNICAL ADVISORY COMMITTEE OF THE ALBERTA
      LAND CONSERVATION RECLAMATION COUNCIL.
 AU - TRUDELL, MARK R.
 PU - (EDMONTON) : LAND CONSERVATION AND RECLAMATION COUNCIL,
      RECLAMATION RESEARCH TECHNICAL ADVISORY COMMITTEE, 1986. VIII, 25
      P.
 SE - REPORT / RECLAMATION RESEARCH TECHNICAL ADVISORY COMMITTEE ; RRTAC
      86-7; ALBERTA. RECLAMATION RESEARCH TECHNICAL ADVISORY COMMITTEE.
      REPORT ; RRTAC 86-7.
 NU - 0692
 LA - English

       24 / 3
 AN - 1162193
 RE - 8700087
 CE - 87-00087/3 FICHE (PAPER COPY AVAIL.)
 TI - LIMESTONE GENERATING STATION ENVIRONMENTAL IMPACT STUDY : FINAL
      REPORT / MACLAREN PLANSEARCH INC., INTERGROUP CONSULTANTS LTD.
 CS - MACLAREN PLANSEARCH LIMITED.; INTERGROUP CONSULTANTS LTD.;
      MANITOBA HYDRO.
 PU - (WINNIPEG) : MANITOBA HYDRO, 1986. XXII, 167 P. : MAPS.
 LA - English
  25/
 (s7 and mine) not (aggregate* or generati* or gravel)
          843      mine
          331      aggregate* (  2   *--*TERMS )
          357      generati* (  4   *--*TERMS )
          48       gravel
 SET   25: 6       ((7 and mine) AND NOT (aggregate* or generati* or
                    gravel)) ASONE SET
  26/
 s s7 not (aggregate* or generati* or gravel)
          331      aggregate* (  2   *--*TERMS )
          357      generati* (  4   *--*TERMS )
          48       gravel
 SET   26: 23      (7 AND NOT (aggregate* or generati* or gravel))
                    ASONE SET
  27/
 s mine
 SET   27: 843     mine
  28/
 s s2 and s27
 SET   28: 27      (2 and 27) ASONE SET
  29/
 s s28 or s7
 SET   29: 46      28 or 7 ASONE SET
  30/
 s s29 not (gravel or aggregate* or generati*)
          48       gravel
          331      aggregate* (  2   *--*TERMS )
          357      generati* (  4   *--*TERMS )
 SET   30: 41      (29 AND NOT (gravel or aggregate* or generati*))
                    ASONE SET
  31/
 type s30
```

30 / 1
AN - 1288226
RE - 9306789; 0153354
:E - 93-06789/2 fiche (Paper copy avail.)
:I - Assessment of impacts from the Ruttan Mine site upon downstream waterways
AU - Green, D.J.; Beck, A.E.
PU - Winnipeg : Dept. of Environment, Environmental Management Division, Water Quality Management Section, 1992. ix, 156 p. Micromedia prices: MFx/PCb
SE - Water quality management report / Manitoba. Environmental Management Division. Water Quality Management Section; no. 92-8
LA - English

30 / 2
AN - 1286560
RE - 9305385; 0151688
CE - 93-05385/1 fiche (Paper copy avail.)
TI - Post-project analysis : a case study of the Jolu Gold Mine, northern Saskatchewan
AU - Bres, A.F.
PU - Hull, Que. : Canadian Environmental Assessment Research Council, 1992. 74 p. Micromedia prices: MFx/PCa
SE - Manuscript report / Canadian Environmental Assessment Research Council; MR1-92
LA - English

30 / 3
AN - 1261949
RE - 9201272; 0136219
CE - 92-01272/1 fiche (Paper copy avail.)
'I - Assessment of the potential for new environmental technologies in gold mining
PU - Ottawa : Canada Centre for Mineral and Energy Technology, Mineral Sciences Laboratories, 1991. iii, 77 p. Micromedia prices: MFx/PCa
NU - CANMET contract 23440-0-9213-01-SQ
LA - English
Do you want to see additional items?
/
n
31/
type s23

23 / 1
AN - 1284893
RE - 9304347; 0150021
CE - 93-04347/1 fiche (Paper copy avail.)
TI - The Effects of limestone gravel application to two acidic Nova Scotian streams
AU - Mayhew, H.
PU - S.l. : Canada/Nova Scotia Economic Regional Development Agreement, Fisheries Subagreement, 1989. iv, 52 p. Micromedia prices: MFx/PCa
SE - ERDA report / Canada/Nova Scotia Economic Regional Development Agreement; no. 22
LA - English
31/
type s23/more/1

23 / 1
AN - 1284893
RE - 9304347; 0150021

CE - 93-04347/1 fiche (Paper copy avail.)
TI - The Effects of limestone gravel application to two acidic Nova Scotian streams
AU - Mayhew, H.
'J - S.l. : Canada/Nova Scotia Economic Regional Development Agreement, Fisheries Subagreement, 1989. iv, 52 p. Micromedia prices: MFx/PCa
SE - ERDA report / Canada/Nova Scotia Economic Regional Development Agreement; no. 22
LA - English
AB - A two-year study to determine the cost-effectiveness for acid water mitigation was carried out from June 1987 to December 1988. Two hundred tons of limestone gravel were spread along the substrate at Fifteen-Mile Brook and 75 tons were added to the Wallace Branch stream. Both sites were monitored to detect changes in water chemistry. Salmon and brook trout eggs were planted in treated (limed) and control (unlimed) areas of each brook.

31/
type s16//1-4

16 / 1
AN - 1245254
RE - 9104706; 0130469
CE - 91-04706/1 fiche (Paper copy avail.)
TI - Stomach content analysis of marine benthic fish from Arctic Canada
AU - Atkinson, E.G.; Percy, J.A.
CS - Maurice Lamontagne Institute
PU - Mont-Joli, Que. : Dept. of Fisheries and Oceans, Maurice Lamontagne Institute, 1991. iv, 31 p. Micromedia prices: MFx/PCa
SE - Canadian data report of fisheries and aquatic sciences / Canada. Dept. of Fisheries and Oceans; no. 840 ISSN 0706-6465
 - ISSN 0706-6465; Fs97-13/840E
LA - English

16 / 2
AN - 1242943
RE - 9102642; 0128158
CE - 91-02642/1 fiche (Paper copy avail.)
TI - Analysis of benthic macroinvertebrate samples from St. Marys River sediment cores, 1987
AU - Pope, R.J.
CS - Ontario. Water Resources Branch
PU - Toronto : Ministry of the Environment, Water Resources Branch, 1990. ix, 58 p. Micromedia prices: MFx/PCa
NU - ISBN 0-7729-7362-8; PIBS 1173
LA - English

16 / 3
AN - 1144096
RE - 8603533
CE - 86-03533/3 FICHE (PAPER COPY AVAIL.)
TI - AN ANALYSIS OF BENTHIC INVERTEBRATE AND WATER QUALITY MONITORING DATA FROM THE ATHABASCA RIVER / BY G.L. WALDER, AND D.W. MAYHOOD.
AU - WALDER, G.L.; MAYHOOD, D.W.
CS - ALBERTA. ALBERTA ENVIRONMENT. RESEARCH MANAGEMENT DIVISION.
PU - (EDMONTON) : ALBERTA ENVIRONMENT, ENVIRONMENTAL PROTECTION BRANCH, RESEARCH MANAGEMENT DIVISION, 1985. XXI, 254 P.
SE - RMD REPORT ; L-91
 - 0980
 - English

16 / 4

AN - 1143613
RE - 8603102
CE - 86-03102/10 FICHE (PAPER COPY AVAIL.)
TI - SAMPLING AND ANALYSIS IN THE ARCTIC MARINE BENTHIC ENVIRONMENT / PREPARED FOR ENVIRONMENTAL PROTECTION SERVICE ; BY ARCTIC LABORATORIES LTD.
CS - ARCTIC LABORATORIES LTD.; CANADA. ENVIRONMENTAL PROTECTION SERVICE.
PU - (INUVIK) : ARCTIC LABORATORIES, 1985. 2V.
LA - English

AQUAREF 1970 - December 1992
(CANADIAN WATER RESOURCES REFERENCES)

Last Update:
93-01-12

```
   1/
   1/
   1/
execute enviro2
   1/ CREATED IN MINTEC ON 94-02-10
   1/ EXECUTING
   1/ REQUEST SENT : "EXECUTES FROM A1"
   1/ S mis mine or mines or mining or marble or limestone or quarr*
           0        mis mine
           316      mines
           1190     mining
           3        marble
           106      limestone
           33       quarr* (  6   *--*TERMS )
 SET    1: 1523     mis mine or mines or mining or marble or limestone
                     or quarr* ASONE SET
   2/ S (environmental AND (study or studies or impact or assessment
      or audit))
           8828     environmental
           3673     study
           8546     studies
           3295     impact
           2163     assessment
           24       audit
 SET    2: 3374     (environmental AND (study or studies or impact or
                     assessment or audit)) ASONE SET
   3/ S (*S1 and *S2 )
  ET    3: 174      (1 and 2 ) ASONE SET
   4/ S coal or tailing* or uranium, or peat or arctic or africa* or
      lead or tin
           440      coal
           350      tailing* (  2   *--*TERMS )
           0        uranium,
           324      peat
           3376     arctic
           63       africa* (  3   *--*TERMS )
           789      lead
           32       tin
 SET    4: 5261     coal or tailing* or uranium, or peat or arctic or
                     africa* or lead or tin ASONE SET
   5/ S uranium or ocean* or sea or seas or marine or coast* or
      offshore
           348      uranium
           4898     ocean* (  34  *--*TERMS )
           3474     sea
           137      seas
           3001     marine
           2437     coast* (  10  *--*TERMS )
           1064     offshore
 SET    5: 11470    uranium or ocean* or sea or seas or marine or
                     coast* or offshore ASONE SET
   6/ S *S4 or *S5
 SET    6: 14908    4 or 5 ASONE SET
   7/ S (*S3 NOT *S6 )
 ~ET    7: 58       (3 AND NOT 6 ) ASONE SET
   8/ S (*S7 NOT (mine or mines or mining))
           800      mine
           316      mines
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```
          1190      mining
SET    8: 3         (7 AND NOT (mine or mines or mining)) ASONE SET
  9/ S (*S8 NOT (monument* or air))
          5         monument* (  3   *--*TERMS )
          3364      air
SET    9: 2         (8 AND NOT (monument* or air)) ASONE SET
 10/ S (*S9 NOT gravel)
          244       gravel
SET   10: 2         (9 AND NOT gravel) ASONE SET
 11/ S (*S10 NOT (structur* or pollution))
          2359      structur* (  12  *--*TERMS )
          11966     pollution
SET   11: 2         (10 AND NOT (structur* or pollution)) ASONE SET
 12/ S benth*
SET   12: 1674      benth* (  15   *--*TERMS )
 13/ S stream
SET   13: 1001      stream
 14/ S (*S12 and *S13 )
SET   14: 60        (12 and 13 ) ASONE SET
 15/ S benth* analysi*
SET   15: 0         benth* analysi*
 16/ S (benth* (F) Analys*)
          1674      benth* (  15   *--*TERMS )
          14976     Analys* (  12  *--*TERMS )
SET   16: 14        (benth* (F) Analys*) ASONE SET
 17/ S (brook (F) trout)
          542       brook
          1757      trout
SET   17: 294       (brook (F) trout) ASONE SET
 18/ S (*S17 and stream)
          1001      stream
SET   18: 22        (17 and stream) ASONE SET
 19/ S (cold (F) water (F) stream)
          751       cold
          30385     water
          1001      stream
SET   19: 0         (cold (F) water (F) stream) ASONE SET
 20/ S (*S19 and *S3 )
SET   20: 0         (19 and 3 ) ASONE SET
 21/ S (acid* AND (Limestone or marble))
          3739      acid* (  26  *--*TERMS )
          106       Limestone
          3         marble
SET   21: 24        (acid* AND (Limestone or marble)) ASONE SET
 22/ S stream or streams
          1001      stream
          1633      streams
SET   22: 2293      stream or streams ASONE SET
 23/ S (*S21 and *S22 )
SET   23: 3         (21 and 22 ) ASONE SET
 24/ S (((*S2 and (quarr* or lime* or marble)) NOT *S6 ))
          33        quarr* (  6   *--*TERMS )
          320       lime* (  8   *--*TERMS )
          3         marble
SET   24: 8         ((((2 and (quarr* or lime* or marble)) AND NOT 6
                     ))) ASONE SET
 25/
s s18 and (mine or mines or mining or quarr* or lime* or marble)
          800       mine
          316       mines
          1190      mining
          33        quarr* (  6   *--*TERMS )
          320       lime* (  8   *--*TERMS )
          3         marble
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 SET   25: 0          (18 AND (mine or mines or mining or quarr* or
                       lime* or marble)) ASONE SET
  26/
s acid* and s18
            3739      acid* (  26   *--*TERMS )
 SET   26: 0          (acid* and 18) ASONE SET
  27/
s s17 and (mine or mines or mining or quarr* or lime* or marble)
            800       mine
            316       mines
            1190      mining
            33        quarr* (  6   *--*TERMS )
            320       lime* (  8   *--*TERMS )
            3         marble
 SET   27: 7          (17 AND (mine or mines or mining or quarr* or
                       lime* or marble)) ASONE SET
  28/
type s27

    27 / 1
AN - 1503206
VN - E85(00) : 067784
RE - 84067784
TI - LIMING ACID PONDS IN NEW YORK, CHAPTER 11
AU - BLAKE, L.M.
CS - (NEW YORK STATE DEP ENVIRON CONSERV, 317 WASHINGTON ST, WATERTOWN,
     NY 13601 US)
PU - ANN ARBOR SCI PUBL, 230 COLLINGWOOD, PO BOX 1425, ANN ARBOR, MI
     48106 US
     1982, 251-260, 9 REF, 2 TAB, 1 FIG
CF - ACID PRECIPITATION, EFFECTS ON ECOLOGICAL SYSTEMS, (EAST LANSING,
     MI, US, 1981) / D'ITRI, F.M.
NU - ISBN 0-250-40509-1; SOURCE: 0010501
   - English

    27 / 2
AN - 1308698
VN - E82(00) : 058924
RE - 82058924
TI - EMERGENCE AND SURVIVAL OF LAKE TROUT (SALVELINUS NAMAYCUSH) AND
     BROOK TROUT (S. FONTINALIS) FROM ARTIFICIAL SUBSTRATES IN AN ACID
     LAKE
AU - GUNN, J.M.; KELLER, W.
CS - (ONT MINIST NAT RESOUR, SUDBURY, ONT P3A 4S2)
PU - ONT MINIST NAT RESOUR, FISH BRANCH, TORONTO, ONT
     1981, 12P, 5 TAB, 3 FIG, 35 REF
SE - ONT FISH TECH REP SER NO 1
NU - ISSN 0227-986X; SOURCE: 0011103
LA - English

    27 / 3
AN - 1100105
VN - E80(00) : 043835
RE - 80043835
TI - A PRELIMINARY SURVEY OF MARY GREGG AND TRAPPER CREEKS, 1977
AU - MENTZ, E.
CS - (ALTA FISH AND WILDL)
PU - FISH AND WILDL DIV, ALTA RECREATION, PARKS AND WILDL
     1977, 27P, 4 FIG, 5 TAB, 8 REF, 2 PHOTO, 4 APP
NU - SOURCE: 4030201
LA - English
 you want to see additional items?
  /
y
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Which items?

4-7

27 / 4
AN - 1021601
VN - E92(03) : 038556
RE - 79038556
TI - BIOLOGICAL INVESTIGATIONS ON BROOK TROUT (SALVELINUS FONTINALIS) POPULATIONS IN THE LONG SPRUCE-LIMESTONE AREA FROM 1975 TO 1977 AND IMPLICATIONS OF HYDRO-ELECTRIC DEVELOPMENT OF THE LOWER NELSON RIVER
AU - GABOURY, M.N.
PU - MANITOBA DEPT RENEWABLE RESOURCES AND TRANSP SERV, FISH RES SECT (1978), 146 P
SE - RESEARCH MS REPORT 78-49
NU - Source: 0010102
LA - English

27 / 5
AN - 1018730
VN - E79(A) : 034445
RE - 79034445
TI - BIOACCUMULATION OF LEAD IN ATLANTIC SALMON (SALMO SALAR)
AU - RAY, S.
CS - (DEPT ENVIRONMENT, FMS, RESOURCE BR, BEDFORD INSTITUTE OF OCEANOGRAPHY)
PU - IN: BULLETIN OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY MAY 1978, 019 005 631-636
NU - SOURCE: 0010501
CO - BECTA
LA - English

27 / 6
AN - 1011043
VN - E79(A) : 024013
RE - 79024013
TI - CHRONIC EFFECTS OF REDUCED PH ON BROOK TROUT (SALVELINUS FONTINALIS)
AU - MENENDEZ, R.
CS - (DEPT OF NATURAL RESOURCES, DIV OF WILDLIFE RESOURCES, ELKINS, W VA)
PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA OTTAWA ONTARIO JAN 1976, 033 001 118-123
NU - SOURCE: 0010501
CO - JFRBA
LA - English

27 / 7
AN - 1002416
VN - E79(A) : 009370
RE - 79009370
TI - SOME ASPECTS OF THE CHEMISTRY AND ACUTE TOXICITY OF THE IRON ORE FLOTATION AGENT DIMETHYL AMMONIUM ALKYL HYDROXAMATE AND SOME RELATED COMPOUNDS TO BROOK TROUT
AU - FLETCHER, G.L.; ADDISON, R.F.
CS - (FISHERIES RESEARCH BD CANADA, MARINE ECOLOGY LAB, BEDFORD INST, DARTMOUTH)
PU - IN: BULLETIN OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY SPRINGER-VERLAG NEW YORK INC NEW YORK NY FEB 1972, 007 2/3 147-159
NU - SOURCE: 0010501
CO - BECTA

LA - English
Do you want to see additional items?
/
type s27/more/6,2,1

27 / 6
AN - 1011043
VN - E79(A) : 024013
RE - 79024013
TI - CHRONIC EFFECTS OF REDUCED PH ON BROOK TROUT (SALVELINUS FONTINALIS)
AU - MENENDEZ, R.
CS - (DEPT OF NATURAL RESOURCES, DIV OF WILDLIFE RESOURCES, ELKINS, W VA)
PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA
OTTAWA ONTARIO
JAN 1976, 033 001 118-123
NU - SOURCE: 0010501
CO - JFRBA
LA - English
AB - DURING AN 11-MO PERIOD ALL DEVELOPMENTAL STAGES OF THE BROOK TROUT (SALVELINUS FONTINALIS) WERE CONTINUOUSLY EXPOSED TO PH LEVELS OF 4.5, 5.0, 5.5, 6.0, 6.5, AND THE CONTROL 7.1. THE NUMBER OF VIABLE EGGS WAS REDUCED SIGNIFICANTLY AT PH 5.0 AND TO A LESSER EXTENT AT THE HIGHER PH LEVELS. EMBRYO HATCHABILITY WAS SIGNIFICANTLY LESS AT ALL PH LEVELS BELOW 6.5. GROWTH AND SURVIVAL OF ALEVINS WAS REDUCED AT THE LOWER PH LEVELS. THESE DATA INDICATE THAT CONTINUAL EXPOSURE TO PH VALUES BELOW 6.5 WILL RESULT IN EGG HATCHABILITY AND GROWTH. 14 REF. 1 FIG. 3 TAB.

27 / 2
AN - 1308698
VN - E82(00) : 058924
RE - 82058924
TI - EMERGENCE AND SURVIVAL OF LAKE TROUT (SALVELINUS NAMAYCUSH) AND BROOK TROUT (S. FONTINALIS) FROM ARTIFICIAL SUBSTRATES IN AN ACID LAKE
AU - GUNN, J.M.; KELLER, W.
CS - (ONT MINIST NAT RESOUR, SUDBURY, ONT P3A 4S2)
PU - ONT MINIST NAT RESOUR, FISH BRANCH, TORONTO, ONT
1981, 12P, 5 TAB, 3 FIG, 35 REF
SE - ONT FISH TECH REP SER NO 1
NU - ISSN 0227-986X; SOURCE: 0011103
LA - English
AB - EYED EGGS OF LAKE TROUT (SALVELINUS NAMAYCUSH) AND BROOK TROUT (S. FONTINALIS) WERE INCUBATED OVERWINTER IN CRUSHED LIMESTONE AND MIXED NONCALCAREOUS GRAVEL SUBSTRATES IN THE ACIDIC WATERS (PH APPROXIMATELY 5.2) OF GEORGE LAKE. ALEVIN EMERGENCE FOR BOTH SPECIES (33.6-73.0%) WAS GENERALLY GOOD FROM LIMESTONE SUBSTRATES (INTERSTITIAL WATER PH IS MORE THAN 6) AND ALMOST NONEXISTENT (0.1-1.3%) FROM MIXED GRAVEL SUBSTRATES (INTERSTITIAL WATER PH APPROXIMATELY 5.5). SURVIVAL OF ALEVINS OF BOTH SPECIES HATCHED IN LIMESTONE WAS HIGH DURING 7-D HOLDING PERIODS IN BOTH THE ACIDIC LAKE (70.0-100.0%) AND AT A CONTROL SITE IN THE NEAR-NEUTRAL WATERS OF KILLARNEY BAY (89.5-100%). HIGH ALEVIN MORTALITY OBSERVED AFTER 30 D OF AN EXTENDED (41-D) EXPOSURE IN GEORGE LAKE APPEARED RELATED TO FEEDING AND CONTAINMENT PROBLEMS RATHER THAN PH TOXICITY. THE SUBSTANTIAL ALEVIN EMERGENCE FROM LIMESTONE AND THE HIGH SURVIVAL DURING 7-D AND 30-D HOLDING PERIODS INDICATE THAT SMALL SCALE LIMESTONE APPLICATIONS TO PROVIDE SPAWNING SUBSTRATES WOULD ENHANCE SALMONID RECRUITMENT IN SOME ACIDIC LAKES.

27 / 1

AN - 1503206
VN - E85(00) : 067784
RE - 84067784
TI - LIMING ACID PONDS IN NEW YORK, CHAPTER 11
AU - BLAKE, L.M.
S - (NEW YORK STATE DEP ENVIRON CONSERV, 317 WASHINGTON ST, WATERTOWN, NY 13601 US)
PU - ANN ARBOR SCI PUBL, 230 COLLINGWOOD, PO BOX 1425, ANN ARBOR, MI 48106 US
1982, 251-260, 9 REF, 2 TAB, 1 FIG
CF - ACID PRECIPITATION, EFFECTS ON ECOLOGICAL SYSTEMS, (EAST LANSING, MI, US, 1981) / D'ITRI, F.M.
NU - ISBN 0-250-40509-1; SOURCE: 0010501
LA - English
AB - BROOK TROUT, INDIGENOUS TO ADIRONDACK PONDS, ARE SOMEWHAT TOLERANT OF ACID CONDITIONS, BUT REPRODUCTIVE SUCCESS IS LIMITED WHEN PH DROPS BELOW 5.0-5.5, AND AS ACID CONDITIONS WORSEN, BROOK TROUT AND ASSOCIATED SPECIES NO LONGER SURVIVE. HYDRATED LIME, CA(OH)2, OR AGRICULTURAL LIME, CACO3, CAN BE USED IN POND LIMING. TO BE SELECTED FOR TREATMENT, A POND MUST HAVE AN ACID CONDITION, MUST HAVE A FLUSHING RATE OF MORE THAN ONE YEAR, MUST BE A SUITABLE HABITAT FOR TROUT, AND MUST BE OPEN TO PUBLIC FISHING. THE PAPER DESCRIBES APPLICATION RATES AND METHODS USED. DRY DISPERSAL, AS IN SPREADING FERTILIZER, WAS FOUND TO BE FEASIBLE. OVERALL, 12 PONDS HAVE BEEN TREATED WITH AGRICULTURAL LIMESTONE. ONLY 3 FOLLOW-UP STUDIES HAVE BEEN MADE, BUT ALL DEMONSTRATED IMPROVED PH VALUES AND EXCELLENT TROUT SURVIVAL. COSTS RANGED AS HIGH AS $120/HA, BUT CAN BE SUBSTANTIALLY REDUCED. IT WAS CONCLUDED THAT, FOR BOTH ACCESSIBLE AND REMOTE PONDS, LIMING IS AN EFFECTIVE AND ECONOMICALLY FEASIBLE MANAGEMENT TOOL WHICH CAN BE USED TO COUNTERACT THE ADVERSE IMPACT OF ACID PRECIPITATION AND MAINTAIN SELECTED FISHERIES.

28/
s18 not s27
SET 28: 22 (18 AND not 27) ASONE SET
29/
type s28

28 / 1
AN - 2300523
VN - E92(03) : 092996
RE - 92092996
TI - Response of a brook trout (Salvelinus fontinalis) population to a reduction in stream benthos following an insecticide treatment
AU - KREUTZWEISER, D.P.
CS - (Forestry Canada, Forest Pest Management Institute, Sault Ste Marie, Ont)
PU - In: Canadian journal of fisheries and aquatic sciences
July 1990, 47(7) 1387-1401, 44 ref, 10 tab, 7 fig
NU - ISSN 0706-652X; Source: 0010501
CO - CJFSD
LA - English

28 / 2
AN - 2104409
VN - E90(06) : 087697
RE - 90087697
TI - The role of groundwater in the effect of climatic warming on stream habitat of brook trout
AU - MEISNER, J.D.
CS - (Department of Zoology, University of Toronto)
PU - Department of Geography, University of Waterloo, Waterloo, Ont
1990, 209-215, 17 ref, 2 fig
SE - Department of Geography publication series occasional paper, no 11

CF - Climate change : implications for water and ecological resources : proceedings of an international symposium/workshop held in Waterloo, Ontario, March 15-16, 1990 / WALL, G. (ed); SANDERSON, M. (ed)
NU - ISBN 0-921083-36-X; ISSN 0843-7386; Source: 4100101
LA - English

28 / 3
AN - 1800461
VN - E89(02) : 069763
RE - 87069763
TI - Assessment of aquatic impacts in an area treated with aminocarb at 180 grams per hectare
AU - ERNST, W.R.; CLAIR, T.A.; JULIEN, G.R.J.
CS - (Environment Canada, Environmental Protection Service, Atlantic Region, Dartmouth, NS)
PU - Inland Waters Directorate, Atlantic Region, Water Quality Branch, Environment Canada, Moncton, NB
1985?, vi, 26p, 2 fig, 6 tab, 7 ref, 1 app
SE - IWD-AR-WQB, 85-94
NU - Source: 0010118
LA - English
Do you want to see additional items?
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Which items?
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4-10

28 / 4
AN - 1504393
VN - E84(00) : 065631
RE - 84065631
TI - THE EFFECTS OF SHADE REMOVAL ON STREAM TEMPERATURE IN NOVA SCOTIA
AU - SABEAN, B.
CS - (NS DEP LANDS AND FOR)
PU - NS DEP LANDS AND FOR, HALIFAX, NS
1976, 32P, 14 FIG, 6 TAB, 16 REF
NU - SOURCE: 0011401; PUBLICATION NO: CAT NO 76/118/100
LA - English

28 / 5
AN - 1501661
VN - E92(02) : 065736
RE - 84065736
TI - Our tormented rivers
AU - WAINIO, A.
PU - In: Seasons
Federation of Ontario Naturalists, Don Mills, Ont
Summer 1980, 20(2) 26-31, 49, 5 photogr
NU - Source: 0010501, 0010135
LA - English

28 / 6
AN - 1501337
VN - E84(00) : 065278
RE - 84065278
TI - USE OF THE SIZE-FREQUENCY (HYNES) METHOD TO ESTIMATE ANNUAL PRODUCTION OF A STREAM FISH POPULATION
AU - GARMAN, G.C.; WATERS, T.F.
CS - (MAINE COOPERATIVE FISH RES UNIT, UNIV MAINE, ORONO, ME 04469, US)
J - IN: CAN J FISH AQUAT SCI
NOV 1983, 40(11) 2030-2034, 2 TAB, 25 REF
NU - ISSN 0706-652X; SOURCE: 0011103

CO - CJFSD
LA - English

28 / 7
AN - 1402695
/N - E92(03) : 060550
RE - 83060550
TI - Influence of hatchery experience on growth and behabior of juvenile Atlantic salmon (Salmo salar) within allopatric and sympatric stream populations
AU - DICKSON, T.A.; MACCRIMMON, H.R.
CS - (Environ Manage Assoc, 1510 Tenth Ave, SW, Calgary, Alta T3C 0J5)
PU - In: Can J Fish Aquat Sci
Nov 1982, 39(11) 1453 1458, 4 tab, 20 ref
NU - ISSN 0706-652X; Source: 0011103
CO - CJFSD
LA - English

28 / 8
AN - 1304757
VN - E82(00) : 055810
RE - 82055810
TI - COMPETITION BETWEEN BROOK TROUT (SALVELINUS FONTINALIS) AND BROWN TROUT (SALMO TRUTTA) FOR POSITIONS IN A MICHIGAN STREAM
AU - FAUSCH, K.D.; WHITE, R.J.
CS - (DEP FISH WILDL, MICHIGAN STATE UNIV, EAST LANSING, MI 48824 US)
PU - IN: CAN J FISH AQUAT SCI
1981, 38(10) 1220-1227, 2 TAB, 3 FIG, 43 REF
NU - ISSN 0706-652X; SOURCE: 0011103
CO - CJFSD
LA - English

28 / 9
AN - 1303241
VN - E82(00) : 053886
RE - 82053886
TI - PREDATION ON THE EGGS OF STEELHEAD TROUT BY STREAM SALMONIDS IN A TRIBUTARY OF LAKE ONTARIO
AU - JOHNSON, J.H.
CS - (NEW YORK STATE DEP ENVIRON CONSERV, 50 WOLF ROAD, ALBANY 12233, NY US)
PU - IN: PROG FISH-CULT
JAN 1981, 43(1) 36-37, 1 TAB, 9 REF
NU - ISSN 0033-0779; SOURCE: 0010501
CO - PFCUA
LA - English

28 / 10
AN - 1209903
VN - E81(00) : 053755
RE - 81053755
TI - REPOPULATION OF A COASTAL STREAM BY BROOK TROUT AND RAINBOW TROUT AFTER ENDOSULFAN POISONING
AU - JOHNSTON, C.E.; CHEVERIE, J.C.
CS - (DEP BIOL, UNIV PRINCE EDWARD ISLAND, CHARLOTTETOWN, PEI C1A 4P3)
PU - IN: PROG FISH-CULT
APR 1980, 42(2) 107-110, 1 FIG, 3 TAB, 9 REF
NU - ISSN 0033-0779; SOURCE: 0010502
CO - PFCUA
LA - English
Do you want to see additional items?
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Which items?

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11-22

28 / 11
AN - 1208502
VN - E81(00) : 052153
RE - 81052153
TI - DETERMINANTS OF DIET OF BROOK TROUT (SALVELINUS FONTINALIS) IN A MOUNTAIN STREAM
AU - ALLAN, J.D.
CS - (DEP ZOOL, UNIV MARYLAND, COLLEGE PARK, MD 20742 US)
PU - IN: CAN J FISH AQUAT SCI
1981, 38(2) 184-192, 2 TAB, 9 FIG, 24 REF
NU - ISSN 0706-652X; SOURCE: 0011103
CO - CJFSD
LA - English

28 / 12
AN - 1207868
VN - E81(00) : 051224
RE - 81051224
TI - EFFECTS OF STREAM HABITAT IMPROVEMENTS ON INVERTEBRATES, TROUT POPULATIONS, AND MINK ACTIVITY
AU - BURGESS, S.A.; BIDER, J.R.
CS - (DEP RENEWABLE RESOUR, MACDONALD CAMPUS, MCGILL UNIV, STE ANNE DE BELLEVUE, QUE H9X 1C0)
PU - IN: J WILDL MANAGE
1980, 44(4) 871-880, 23 REF, 2 TAB, 2 FIG
NU - ISSN 0022-541X; SOURCE: 0010501
CO - JWMAA
LA - English

28 / 13
AN - 1026589
VN - E79(A) : 027532
RE - 79027532
TI - TOTAL BODY LIPID AND BRAIN ACETYLCHOLINESTERASE ACTIVITY OF BROOK TROUT EXPOSED TO FENITROTHION
AU - WILDISH, D.J.
CS - (BIOLOGICAL STN, ST ANDREWS, NB)
PU - FISHERIES RESEARCH BOARD OF CANADA
MAY 1974, 25P
SE - MANUSCRIPT REPORT NO 1306
NU - SOURCE: 0011103
LA - English

28 / 14
AN - 1024623
VN - E79(A) : 042198
RE - 79042198
TI - ROLE OF PHOTOPERIOD IN THE ANNUAL GROWTH CYCLE OF THE BROOK TROUT SALVELINUS FONTINALIS
AU - GODDARD, C.I.; TAIT, J.S.
CS - (DEPT BIOLOGY, YORK UNIVERSITY, DOWNSVIEW, ONT)
PU - IN: CANADIAN SOCIETY OF ENVIRONMENTAL BIOLOGISTS NEWSLETTER/BULLETIN
CANADIAN SOCIETY OF ENVIRONMENTAL BIOLOGISTS TORONTO, ONT
JUNE 1978, 035 002 44
NU - SOURCE: 0080101
LA - English

28 / 15
AN - 1021046
VN - E79(A) : 037594

RE - 79037594
TI - FECUNDITY OF BROOK TROUT (SALVELINUS FONTINALIS) FROM A COASTAL
STREAM IN PRINCE EDWARD ISLAND
AU - JOHNSTON, C.E.; MCKENNA, K.
CS - (DEP BIOLOGY, UNIV PRINCE EDWARD ISLAND, CHARLOTTETOWN, PEI)
PU - IN: PROC OF THE NOVA SCOTIA INST OF SCIENCE
1976, 027 3/4 160-170
NU - SOURCE: 0010501
CO - PNSIA
LA - English

28 / 16
AN - 1015484
VN - E79(A) : 030174
RE - 79030174
TI - EFFECTS OF CONTROLLED FLOW REDUCTION ON A TROUT STREAM
AU - KRAFT, M.E.
CS - (MONTANA COOPERATIVE FISHERIES UNIT, MONTANA STATE UNIV, BOZEMAN,
MONTANA)
PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA
OCT 1972, 029 010 1405-1411
NU - SOURCE: 0010501
CO - JFRBA
LA - English

28 / 17
AN - 1013703
VN - E79(A) : 028555
RE - 79028555
TI - BEHAVIOR AND GROWTH OF JUVENILE ATLANTIC SALMON (SALMO SALAR) AND
THREE COMPETITORS AT TWO STREAM VELOCITIES
AU - SYMONS, P.E.K.
CS - (DEPT ENVIRONMENT, FISHERIES AND MARINE SERVICE, ST. ANDREWS, N.B.)
PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA
DEC 1976, 033 012 2766-2773
NU - SOURCE: 0010501
CO - JFRBA
LA - English

28 / 18
AN - 1009812
VN - E79(A) : 022280
RE - 79022280
TI - MOVEMENT, GROWTH, AND SURVIVAL IN A STREAM POPULATION OF WILD
BROOK TROUT (SALVELINUS FONTINALIS) DURING A PERIOD OF REMOVAL OF
NON - TROUT SPECIES
AU - FLICK, W.A.; WEBSTER, D.A.
CS - (DEPT OF NATURAL RESOURCES, CORNELL UNIV, ITHACA, NEW YORK)
PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA
OTTAWA, ONTARIO
AUG 1975, 032 008 1359-1367
NU - SOURCE: 0010501
CO - JFRBA
LA - English

28 / 19
AN - 1006569
VN - E79(A) : 016528
RE - 79016528
TI - MOVEMENTS OF BROOK TROUT IN RELATION TO AN ARTIFICIAL POND ON A
SMALL STREAM
AU - SMITH, M.W.; SAUNDERS, J.W.
CS - (FISHERIES RESEARCH BOARD, BIOLOGICAL STATION, ST ANDREWS, NEW
BRUNSWICK)

PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA
FISHERIES RESEARCH BOARD OF CANADA OTTAWA ONTARIO
AUG 1967, 024 008 1743-61
NU - SOURCE: 0010502
CO - JFRBA
A - English

28 / 20
AN - 1004212
VN - E79(A) : 012487
RE - 79012487
TI - EFFECT OF POND FORMATION ON CATCHES OF BROOK TROUT FROM A COASTAL STREAM SYSTEM
AU - SMITH, M.W.; SAUNDERS, J.W.
CS - (FISHERIES RESEARCH BOARD, BIOLOGICAL STATION, ST ANDREWS, NB)
PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA
FISHERIES RESEARCH BOARD OF CANADA OTTAWA ONT
FEB 1968, 025 002 209-38
NU - SOURCE: 0010501
CO - JFRBA
LA - English

28 / 21
AN - 1003641
VN - E79(A) : 011754
RE - 79011754
TI - MASS MORTALITIES AND BEHAVIOUR OF BROOK TROUT AND JUVENILE ATLANTIC SALMON IN A STREAM POLLUTED BY AGRICULTURAL PESTICIDES
AU - SAUNDERS, J.W.
CS - (FISHERIES RESEARCH BOARD, BIOLOGICAL STATION, ST ANDREW'S, NB)
PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA
FISHERIES RESEARCH BOARD OF CANADA OTTAWA ONT
MAR 1969, 026 003 695-99
J - SOURCE: 0010501
CO - JFRBA
LA - English

28 / 22
AN - 1003535
VN - E79(A) : 011638
RE - 79011638
TI - EXPLOITATION OF SELF-SUSTAINING ONTARIO STREAM POPULATIONS OF BROWN TROUT (SALMO TRUTTA) AND BROOK TROUT(SALVELINUS FONTINALIS)
AU - MARSHALL, T.L.; MACCRIMMON, H.R.
CS - (DEPT ZOOLOGY, UNIV GUELPH, GUELPH, ONT)
PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA
FISHERIES RESEARCH BOARD OF CANADA OTTAWA ONT
JUNE 1970, 027 006 1087-1102
NU - SOURCE: 0010501
CO - JFRBA
LA - English
Do you want to see additional items?
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type s28/more/4,5,16

28 / 4
AN - 1504393
VN - E84(00) : 065631
RE - 84065631
TI - THE EFFECTS OF SHADE REMOVAL ON STREAM TEMPERATURE IN NOVA SCOTIA
AU - SABEAN, B.
S - (NS DEP LANDS AND FOR)
PU - NS DEP LANDS AND FOR, HALIFAX, NS
1976, 32P, 14 FIG, 6 TAB, 16 REF

NU - SOURCE: 0011401; PUBLICATION NO: CAT NO 76/118/100
LA - English
AB - THE SMALL BROOKS AND STREAMS OF THE PROVINCE PROVIDE CRITICAL SPAWNING AND NURSERY AREAS FOR BROOK TROUT AND ATLANTIC SALMON. REMOVAL OF THE FOREST CANOPY FROM SMALL STREAMS RESULTS IN A SUBSTANTIAL INCREASE IN SUMMER WATER TEMPERATURES. TEMPERATURES AT WHICH THESE SPECIES DO BEST ARE IN THE RANGE OF 14-16 C WHILE TEMPERATURES IN EXCESS OF 25 C ARE LETHAL. THIS STUDY REPORTS THE WATER TEMPERATURES IN SEVERAL SMALL STREAMS SCATTERED AROUND NOVA SCOTIA WITH DIFFERENT DEGREES OF PROTECTION FROM DIRECT SOLAR RADIATION. IT WAS FOUND THAT STREAMS WITH GOOD NATURAL CANOPIES HOVER NEAR OPTIMAL TEMPERATURES FOR SALMONIDS. SHADE REMOVAL RESULTS IN A SIGNIFICANT INCREASE AND SOME STREAMS MAY EXCEED 25 C DURING THE WARMEST PART OF THE DAY. RATE OF INCREASE DEPENDS ON THE SIZE OF THE STREAM, SUBSTRATE AND VOLUME OF FLOW. RE-ENTRY INTO A CANOPIED SECTION, RESULTS IN A DECREASE IN TEMPERATURE, BUT AT A SLOWER RATE AND IT MAY NEVER RETURN TO ITS ORIGINAL LEVEL. IN ORDER TO KEEP STREAM TEMPERATURES NEAR OPTIMAL LEVELS, IT IS RECOMMENDED THAT CANOPIES BE MAINTAINED THROUGH THE USE OF GREEN BELTS ALONG THE STREAMS.

28 / 5
AN - 1501661
VN - E92(02) : 065736
RE - 84065736
TI - Our tormented rivers
AU - WAINIO, A.
PU - In: Seasons
Federation of Ontario Naturalists, Don Mills, Ont
Summer 1980, 20(2) 26-31, 49, 5 photogr
NU - Source: 0010501, 0010135
LA - English
AB - Degradation of our waterways began with the pioneers. In Ontario, the first streams to suffer from encroaching settlements were those flowing into Lake Ontario. The Atlantic salmon declined and became extinct from Lake Ontario by the late 19th century. Dams from grist and sawmills on small streams entering Lake Ontario blocked the salmon from reaching the upstream spawning beds. Recovery has occurred in some streams but experimental plantings of Atlantic salmon fry in Duffin Creek east of Toronto in the 1950s, revealed that warm water temperatures and lack of overhanging bushes and trees prevented the salmon from surviving. Logging and pulp mills have also had disastrous effects on fish and other aquatic life. The spread of dams for logging, hydro, irrigation, flood control, or recreation, has played havoc with stream flow and aquatic life. Private landowners may damage the ecosystem by cleaning up a stream on their property,straightening it, cleaning out weeds and rocks, and then erecting a dam. Trout streams are among the most sensitive ecosystems. Large scale irrigation, watering cattle, and other farming practices may also damage streams. Highway spills, such as the 1975 overturning of a tanker truck loaded with styrene on Highway 401 near Massie Creek east of Cobourg, may kill all the life in a stream.

28 / 16
AN - 1015484
VN - E79(A) : 030174
RE - 79030174
TI - EFFECTS OF CONTROLLED FLOW REDUCTION ON A TROUT STREAM
AU - KRAFT, M.E.
CS - (MONTANA COOPERATIVE FISHERIES UNIT, MONTANA STATE UNIV, BOZEMAN, MONTANA)
PU - IN: JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA
OCT 1972, 029 010 1405-1411

NU - SOURCE: 0010501
CO - JFRBA
LA - English
AB - THE TOTAL NUMBER OF BROOK TROUT AGE 1 AND OLDER IN THREE RUNS OF BLACKTAIL CREEK, MONTANA, WAS REDUCED APPROXIMATELY 62 PERCENT WHEN 90 PERCENT OF THE NORMAL FLOW WAS DIVERTED FOR ABOUT 3 MONTHS, IN COMPARISON WITH 20 PERCENT FOR RUNS IN CONTROL SECTIONS. BOTH NUMBER AND WEIGHT OF TROUT IN POOLS OF THE TEST SECTIONS GENERALLY INCREASED, WHEREAS THOSE IN CONTROL POOLS DECREASED. RECAPTURES OF TAGGED TROUT ALSO INDICATED MOVEMENTS FROM RUNS TO POOLS IN THE TEST SECTIONS, BUT NOT IN THE CONTROL SECTIONS. WHEN THE FLOW WAS REDUCED 75 PERCENT OR LESS, THERE WERE NO CONSISTENT CHANGES IN NUMBER OF WEIGHT OF TROUT IN THE TEST RUNS AND POOLS, WHEREAS THOSE IN THE CONTROL SECTIONS WERE MORE MARKED THOUGH ALSO INCONSISTENT. REDUCED FLOWS HAD NO CONSISTENT EFFECT ON THE NUMBER OF UNDERYEARLINGS. THE CHANGES IN MOST PHYSICAL CHARACTERISTICS AFTER 90 PERCENT FLOW REDUCTION WERE CONSIDERABLY LESS THAN THE DEGREE OF REDUCTION, PRESUMABLY BECAUSE THE STREAM FLOWED IN A WELL DEFINED CHANNEL. SURFACE AREA AND AVERAGE DEPTH WERE LEAST AFFECTED (ABOUT 42 PERCENT DECREASE) AND CURRENT VELOCITY (75 PERCENT) THE MOST. FAST WATER PORTIONS (CURRENT VELOCITY OVER 0.30 M PER SEC) COMPRISED OVER 60 PERCENT OF THE SURFACE AREA AT NORMAL FLOWS AND SLOW WATER PORTIONS OVER 85 PERCENT OF THE AREA WHEN THE FLOW WAS REDUCED 90 PERCENT. A MULTIPLE LINEAR REGRESSION WITH THE PHYSICAL CHARACTERISTICS AS INDEPENDENT VARIABLES AND THE NUMBER OF TROUT AS THE DEPENDENT VARIABLE ACCOUNTED FOR OVER 75 PERCENT OF THE VARIATION IN THE NUMBER OF AGE 1 AND OLDER TROUT IN RUNS AND POOLS. 9 REF, 4 TAB, 3 FIG.

29/
type s18

18 / 1
AN - 2300523
VN - E92(03) : 092996
RE - 92092996
TI - Response of a brook trout (Salvelinus fontinalis) population to a reduction in stream benthos following an insecticide treatment
AU - KREUTZWEISER, D.P.
CS - (Forestry Canada, Forest Pest Management Institute, Sault Ste Marie, Ont)
PU - In: Canadian journal of fisheries and aquatic sciences July 1990, 47(7) 1387-1401, 44 ref, 10 tab, 7 fig
NU - ISSN 0706-652X; Source: 0010501
CO - CJFSD
LA - English

18 / 2
AN - 2104409
VN - E90(06) : 087697
RE - 90087697
TI - The role of groundwater in the effect of climatic warming on stream habitat of brook trout
AU - MEISNER, J.D.
CS - (Department of Zoology, University of Toronto)
PU - Department of Geography, University of Waterloo, Waterloo, Ont 1990, 209-215, 17 ref, 2 fig
SE - Department of Geography publication series occasional paper, no 11
CF - Climate change : implications for water and ecological resources : proceedings of an international symposium/workshop held in Waterloo, Ontario, March 15-16, 1990 / WALL, G. (ed); SANDERSON, M. (ed)
NU - ISBN 0-921083-36-X; ISSN 0843-7386; Source: 4100101
LA - English

18 / 3
AN - 1800461
VN - E89(02) : 069763
RE - 87069763
TI - Assessment of aquatic impacts in an area treated with aminocarb
at 180 grams per hectare
AU - ERNST, W.R.; CLAIR, T.A.; JULIEN, G.R.J.
CS - (Environment Canada, Environmental Protection Service, Atlantic
Region, Dartmouth, NS)
PU - Inland Waters Directorate, Atlantic Region, Water Quality Branch,
Environment Canada, Moncton, NB
1985?, vi, 26p, 2 fig, 6 tab, 7 ref, 1 app
SE - IWD-AR-WQB, 85-94
NU - Source: 0010118
LA - English
Do you want to see additional items?
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type s16

16 / 1
AN - 2301907
VN - F92(02) : F16500
RE - 92F16500
TI - Analyse et interpretation d'echantillons de benthos et de
zooplancton recoltes dans divers habitats de la plaine
d'inondation du lac Saint-Pierre : rapport d'etude
CS - Soleco consultants inc
PU - Gouvernement du Quebec, Ministere du Loisir, de la Chasse et de la
Peche
sept 1983, v, 81p, 5 annexes, 7 tabl, 17 fig, 19 ref
NU - Source: 2140101
LA - French

16 / 2
AN - 2300065
VN - E92(01) : 092538
RE - 92092538
TI - Analysis of benthic macroinvertebrate samples from St. Marys
River sediment cores 1987
AU - POPE, R.J.
CS - (Tarandus Associates Limited)
PU - Ontario Ministry of the Environment
Aug 1990, ix, 58p, 15 tab, 6 fig, 33 ref, 3 app
NU - ISBN 0-7729-7362-8; Source: 2060213
LA - English

16 / 3
AN - 2203377
VN - E91(06) : 092070
RE - 91092070
TI - Analysis of benthic macroinvertebrate samples from St. Marys
River sediment cores : 1987
AU - POPE, R.J.
CS - (Tarandus Associates Limited)
PU - Water Resources Branch, Ontario Ministry of the Environment
Aug 1990, ix, 58p, 3 app, 15 tab, 6 fig, numerical data
NU - ISBN 0-7729-7362-8; Source: 2060213
LA - English
Do you want to see additional items?
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Which items?

4-6

16 / 4

AN - 2200013
VN - F92(03) : F15427
RE - 91F15427
TI - Analyse multidimensionnelle appliquee a l'etude de la repartition de l'epifaune benthique de l'estuaire maritime et du golfe du Saint-Laurent
AU - FRADETTE, P.; BOURGET, E.
CS - (GIROQ, Departement de biologie, Universite Laval)
PU - Association canadienne-francaise pour l'avancement des sciences, Montreal, Qc
1980, p231
SE - Annales de l'ACFAS, vol 47, no 1
CF - ACFAS 48e congres : resumes des communications : 14-16 mai 1980, Universite Laval
NU - Source: 0080101
LA - French

16 / 5

AN - 2101664
VN - F90(03) : F15179
RE - 90F15179
TI - Reseau de surveillance ecologique du complexe La Grande : region d'Opinaca : macroinvertebres benthiques : analyse des donnees de 1980
AU - BOUDREAULT, J.
CS - (Societe d'energie de la Baie James, Direction Environnement)
PU - Societe d'energie de la Baie James, Direction Environnement
nov 1981, v, 30p, 15 ref, 11 tabl, 14 fig, 1 annexe
NU - Source: 6200102
LA - French

16 / 6

AN - 2008240
VN - F92(03) : F14777
RE - 89F14777
TI - Contribution de l'analyse multidimensionnelle a l'etude structurale et fonctionnelle des peuplements benthiques d'un ecosysteme aquatique lagunaire
AU - FERRARIS, J.
CS - (Centre de recherche en sciences de l'environnement, Universite du Quebec a Montreal)
PU - Association canadienne-francaise pour l'avancement des sciences, Montreal, Qc
1982, p100
SE - Annales de l'ACFAS, vol 49
CF - ACFAS 50e congres : resumes des communications : 12-14 mai 1982, Universite du Quebec a Montreal
NU - Source: 0040102
LA - French

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execute enviro2
   1/ CREATED IN MINTEC ON 94-02-10
   1/ EXECUTING
   1/ REQUEST SENT : "EXECUTES FROM A1"
   1/ S mis mine or mines or mining or marble or limestone or quarr*
          0        mis mine
          492      mines
          439      mining
          6        marble
          13       limestone
          19       quarr* (  5   *--*TERMS )
 SET    1: 677     mis mine or mines or mining or marble or limestone
                    or quarr* ASONE SET
   2/ S (environmental AND (study or studies or impact or assessment
      or audit))
          9067     environmental
          3564     study
          1465     studies
          1913     impact
          1597     assessment
          44       audit
 SET    2: 2135    (environmental AND (study or studies or impact or
                    assessment or audit)) ASONE SET
   3/ S (*S1 and *S2 )
 SET    3: 63      (1 and 2 ) ASONE SET
   4/ S coal or tailing* or uranium, or peat or arctic or africa* or
      lead or tin
          343      coal
          53       tailing* (  2   *--*TERMS )
          0        uranium,
          74       peat
          1029     arctic
          166      africa* (  5   *--*TERMS )
          160      lead
          23       tin
 SET    4: 1844    coal or tailing* or uranium, or peat or arctic or
                    africa* or lead or tin ASONE SET
   5/ S uranium or ocean* or sea or seas or marine or coast* or
      offshore
          124      uranium
          1993     ocean* (  30  *--*TERMS )
          1171     sea
          47       seas
          1484     marine
          1041     coast* (  9   *--*TERMS )
          280      offshore
 SET    5: 4851    uranium or ocean* or sea or seas or marine or
                    coast* or offshore ASONE SET
   6/ S *S4 or *S5
 SET    6: 6071    4 or 5 ASONE SET
   7/ S (*S3 NOT *S6 )
 SET    7: 31      (3 AND NOT 6 ) ASONE SET
   8/ S (*S7 NOT (mine or mines or mining))
          168      mine
          492      mines
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          439       mining
SET    8: 1         (7 AND NOT (mine or mines or mining)) ASONE SET
  9/ S (*S8 NOT (monument* or air))
          356       monument* (  8   *--*TERMS )
          2441      air
SET    9: 0         (8 AND NOT (monument* or air)) ASONE SET
 10/ S (*S9 NOT gravel)
          19        gravel
SET   10: 0         (9 AND NOT gravel) ASONE SET
 11/ S (*S10 NOT (structur* or pollution))
          720       structur* (  17   *--*TERMS )
          5118      pollution
SET   11: 0         (10 AND NOT (structur* or pollution)) ASONE SET
 12/ S benth*
SET   12: 135       benth* (  5   *--*TERMS )
 13/ S stream
SET   13: 551       stream
 14/ S (*S12 and *S13 )
SET   14: 7         (12 and 13 ) ASONE SET
 15/ S benth* analysi*
SET   15: 0         benth* analysi*
 16/ S (benth* (F) Analys*)
          135       benth* (  5   *--*TERMS )
          3535      Analys* (  10   *--*TERMS )
SET   16: 2         (benth* (F) Analys*) ASONE SET
 17/ S (brook (F) trout)
          53        brook
          112       trout
SET   17: 18        (brook (F) trout) ASONE SET
 18/ S (*S17 and stream)
          551       stream
SET   18: 0         (17 and stream) ASONE SET
 19/ S (cold (F) water (F) stream)
          223       cold
          6308      water
          551       stream
SET   19: 4         (cold (F) water (F) stream) ASONE SET
 20/ S (*S19 and *S3 )
SET   20: 0         (19 and 3 ) ASONE SET
 21/ S (acid* AND (Limestone or marble))
          980       acid* (  14   *--*TERMS )
          13        Limestone
          6         marble
SET   21: 3         (acid* AND (Limestone or marble)) ASONE SET
 22/ S stream or streams
          551       stream
          150       streams
SET   22: 675       stream or streams ASONE SET
 23/ S (*S21 and *S22 )
SET   23: 0         (21 and 22 ) ASONE SET
 24/ S (((*S2 and (quarr* or lime* or marble)) NOT *S6 ))
          19        quarr* (  5   *--*TERMS )
          49        lime* (  8   *--*TERMS )
          6         marble
SET   24: 1         ((((2 and (quarr* or lime* or marble)) AND NOT 6
                     ))) ASONE SET
 25/
type s19

      19 / 1
AN - 1257633
RE - 8949817; EL2061689C
CE - TD899.P3 N37 no. 566: NSDE
     TD899.P3 N37 no. 566: OOFF
```

TI - Effects of biologically treated bleached kraft mill effluent on
cold water stream productivity in experimental stream channels :
fifth progress report.
AU - =>Hall, Timothy J.
CS - National Council of the Paper Industry for Air and Stream
Improvement (U.S.)
PU - New York, N.Y. : National Council of the Paper Industry for Air
and Stream Improvement, [1989] 3, 127, [29] p.
DA - 1989
SE - Technical bulletin / National Council of the Paper Industry for
Air and Stream Improvement ; no. 566
Technical bulletin (National Council of the Paper Industry for
Air and Stream Improvement (U.S.) : 1981) ; no. 566
LA - English
SF - Monograph

19 / 2
AN - 1107308
RE - EL2041926A
CE - TD899.P3 N37 NO. 474 : OOFF
TI - EFFECTS OF BIOLOGICALLY TREATED BLEACHED KRAFT MILL EFFLUENT ON
COLD WATER STREAM PRODUCTIVITY IN EXPERIMENTAL STREAM CHANNELS :
FOURTH PROGRESS REPORT.
CS - ISSN NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM
IMPROVEMENT (U.S.), ISSN COMP.
PU - NEW YORK : NCASI, 1985.
DA - 1985
SE - TECHNICAL BULLETIN / NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR
AIR AND STREAM IMPROVEMENT ; NO. 474. TECHNICAL BULLETIN (NATIONAL
COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM IMPROVEMENT
(U.S.) : 1981) ; NO. 474
LA - English

19 / 3
AN - 1054904
RE - EL2031166H
CE - TD899.P3 N37 NO. 445 : NSDE
TD899.P3 N37 NO. 445 : OOFF
TI - EFFECTS OF BIOLOGICALLY TREATED BLEACHED KRAFT MILL EFFLUENT ON
COLD WATER STREAM PRODUCTIVITY IN EXPERIMENTAL STREAM CHANNELS :
THIRD PROGRESS REPORT.
CS - ISSN NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM
IMPROVEMENT (U.S.)
PU - NEW YORK, N.Y. : NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR
AND STREAM IMPROVEMENT, 1984. 2, 124 P.
DA - 1984
SE - TECHNICAL BULLETIN / NATIONAL COUNCIL OF nTHE PAPER INDUSTRY FOR
AIR AND STREAM IMPROVEMEN
T ; NO. 445. TECHNICAL BULLETIN (NATIONAL
COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM IMPROVEMENT
(U.S.) : 1981) ; NO. 445
LA - English
Do you want to see additional items?
/
25/
type s14

14 / 1
AN - 1262835
RE - EL3007033D
CE - TD226 N87 NO. 90-95: OOFF
TI - Secondary production of benthic stream invertebrates in
agricultural watersheds with different land management practices
AU - Sallenave, Rossana Mary, 1961-; Day, Kristin E. (Kristin

Elizabeth)
CS - Canada Centre For Inland Waters
University Of Guelph. Dept. Of Environmental Biology
National Water Research Institute (Canada). Rivers Research Branch
PU - Burlington, Ont. : Rivers Research Branch, National Water
Research Institute; Guelph, Ont. : Dept. of Environmental Biology,
University of Guelph, 1990. 21, [12] p. : ill., maps; 28 cm.
DA - 1990
LA - English
SF - Monograph

14 / 2
AN - 1253681
RE - 3795777; EL2033591K
CE - TD899.P4 A42 no. 128: AEECW
TD899.P4 A42 no. 128: OOFF
TD899.P4 A42 no. 128: OTM
TD899.P4 A42 no. 128: SSECW
TI - A comparative study of benthic algal primary productivity in the
AOSERP study area
AU - =>Hickman, M.; Charlton, S. E. D.; Jenkerson, C. G.
CS - Alberta Oil Sands Environmental Research Program.
Alberta. Alberta Environment. Research Management Division.
Alberta Oil Sands Environmental Research Program.
PU - Edmonton : Alberta Environment, Research Management Division,
1983. xvi, 139 p.
DA - 1983
Frequency: Annual
SE - Alberta Oil Sands Environmental Research Program. AOSERP report ;
no. 128
NU - LC 84-233497; Canadiana: 840825633
LA - English
SF - Monograph

14 / 3
AN - 1101519
RE - EL7008571H
CE - TD 195.P5 C4513 NO. 4 C.1 : AEEAE
TD 195.P5 C4513 NO. 4 C.1 : AEECW
TD 195.P5 C4513 NO. 4 C.2 : AEECW
TD 195.P5 C4513 NO. 4 C.1 : NWYECW
TD 195.P5 C4513 NO. 4 : OOFF M/FICHE;2 C.
TD 195.P5 C4513 NO. 4 C.1 : SSECW
TI - LIMNOLOGICAL FISHERIES AND STREAM ZOOBENTHIC STUDIES AT
STANWELL-FLETCHER LAKE, A LARGE HIGH ARCTIC LAKE
AU - DE MARCH, L
PU - OTTAWA : MINISTER OF INDIAN AND NORTHERN AFFAIRS, 1978. 84 P.
DA - 1978
SE - CANADA. TASK FORCE ON NORTHERN OIL DEVELOPMENT.
ENVIRONMENTAL-SOCIAL PROGRAM, NORTHERN PIPELINES. ESCOM REPORT AI
; 4
LA - English
Do you want to see additional items?
/
n
25/
type s16

16 / 1
AN - 1152854
RE - EL2044730J
E - TD182.4.A4 R62 NO. L-91 : AEEPS
TD182.4.A4 R62 NO. L-91 : OOFF
TI - AN ANALYSIS OF BENTHIC INVERTEBRATE AND WATER QUALITY MONITORING

DATA FROM THE ATHABASCA RIVER
AU - WALDER, GORDON L
CS - ALBERTA. ALBERTA ENVIRONMENT. RESEARCH MANAGEMENT DIVISION.
PU - (EDMONTON) : ALBERTA ENVIRONMENT, ENVIRONMENTAL PROTECTION
SERVICES, RESEARCH MANAGEMENT DIVISION, 1985. XXI, 254 P.
)A - 1985
SE - RMD REPORT, ISSN 0319-9916 ; L-91
LA - English

16 / 2
AN - 1106537
RE - EL2041497D
CE - GC380.5 S26 : AEECW 1-2
GC380.5 S26 : OOFF 1-2
GC380.5 S26 : OOFF C. 2 1-2
GC380.5 S26 : NSDE DEPT 1-2
TI - SAMPLING AND ANALYSIS IN THE ARCTIC MARINE BENTHIC ENVIRONMENT
CS - CANADA. ENVIRONMENTAL PROTECTION SERVICE.
ARCTIC LABORATORIES LTD.
PU - YELLOWKNIFE, N.W.T. : THE SERVICE, 1985. 2 V. : ILL. ; 28 CM.
DA - 1985
LA - English
25/
type s24

24 / 1
AN - 1102637
RE - EL0026984A
CE - GV 195.C3 C38 C.1 : OOPAC
TI - ENVIRONMENTAL IMPACT STUDIES : MARBLE CANYON AND MCLEOD MEADOWS
CAMPGROUNDS, KOOTENAY NATIONAL PARK
AU - TROTTIER, G. C.
CS - CANADIAN WILDLIFE SERVICE.
PARKS CANADA.
PU - EDMONTON : ENVIRONMENT CANADA, 1977. 84 LEAVES : : ILL.
DA - 1977
LA - English

Last Update:
92-05-20

```
  1/
  1/
  1/
s brook (f) trout
            7        brook
            78       trout
 SET    1: 3         (brook (F) trout) ASONE SET
  2/
type s1

     1 / 1
AN - 1094238
RE - 413402
TI - UPTAKE BY BROOK TROUT OF LEAD AND HYDROCARBONS FROM SNOWMOBILE
     EXHAUST
AU - ADAMS, EVELYN S.
PU - DURHAM, N.H. : UNIVERSITY OF NEW HAMPSHIRE, DEPT. OF ZOOLOGY,
     1974. 1V. (1 REEL), ILL.
SE - UNIVERSITY MICROFILMS ORDER NO. ; 74-21088

     1 / 2
AN - 1011406
RE - 120979
TI - WORLD DISTRIBUTION OF BROOK TROUT, SALVELINUS FONTINALIS : FURTHER
     OBSERVATIONS
AU - MACCRIMMON, HUGH R.; GOTS, BARRA L.; CAMPBELL, J. SCOTT
PU - FISHERIES RESEARCH BOARD OF CANADA JOURNAL, VOL.28,NO.3, 1971,
     P.452-456, MAP, TABLE.

     1 / 3
AN - 1011350
RE - 120413
TI - WORLD DISTRIBUTION OF BROOK TROUT, SALVELINUS FONTINALIS
AU - MACCRIMMON, HUGH R.; CAMPBELL, J. SCOTT
PU - FISHERIES RESEARCH BOARD OF CANADA. JOURNAL, VOL.26,NO.7, JULY
     1969, P.1699-1725, MAPS, TABLES.
  2/
type s1/more/1

     1 / 1
AN - 1094238
RE - 413402
TI - UPTAKE BY BROOK TROUT OF LEAD AND HYDROCARBONS FROM SNOWMOBILE
     EXHAUST
AU - ADAMS, EVELYN S.
PU - DURHAM, N.H. : UNIVERSITY OF NEW HAMPSHIRE, DEPT. OF ZOOLOGY,
     1974. 1V. (1 REEL), ILL.
SE - UNIVERSITY MICROFILMS ORDER NO. ; 74-21088
AB - DOCTORAL THESIS. LEAD AND HYDROCARBONS FROM SNOWMOBILE EXHAUST
     WERE FOUND IN THE WATER AND IN THE FINGERLING BROOK TROUT,
     SALVELINUS FONTINALIS, HELD IN FISH CAGES IN A MAINE POND.
  2/
s lime*
 SET    2: 41        lime* (  3   *--*TERMS )
  3/
s s2 not (flue or gas)
            0        flue
            1234     gas
```

```
 SET    3: 41        (2 AND NOT (flue or gas)) ASONE SET
  4/
s limestone
 SET    4: 30        limestone
  5/
; s3 or s4 (and neutr*)
           806       4
           21        neutr* (  6   *--*TERMS )
 SET    5: 42        3 or 4 (and neutr*) ASONE SET
  6/
s  (s3 or s4) and (stream or streams or quarr*)
           134       stream
           101       streams
           15        quarr* (  4   *--*TERMS )
 SET    6: 1         ((3 or 4) AND (stream or streams or quarr*)) ASONE
                      SET
  7/
s s2 or s3 and (stream or streams or quarr*)
           134       stream
           101       streams
           15        quarr* (  4   *--*TERMS )
 SET    7: 41        2 or (3 AND (stream or streams or quarr*)) ASONE SET
  8/
s s2 or s4 and (stream or streams or quarr*)
           134       stream
           101       streams
           15        quarr* (  4   *--*TERMS )
 SET    8: 41        2 or (4 AND (stream or streams or quarr*)) ASONE SET
  9/
type s8

      8 / 1
AN - 1170505
RE - 472212
TI - Boletus gabretae in Finland
AU - Kallio, Paavo
PU - (S.l. : s.n.), 1984. 2p. : ill. ; 25 cm.

      8 / 2
AN - 1150099
RE - 459801
TI - Soil and bedrock sensitivity to acidic deposition in the Northwest
     Territories (microform).
PU - Yellowknife : Dept. of Renewable Resources, 1986. ii, 30p. (1
     sheet) ; 11 x 15 cm.
SE - Microlog; 90-02655

      8 / 3
AN - 1130598
RE - 456322
TI - Conditions associated with frost action in rocks : a field and
     laboratory investigation
AU - Hare, Michael John
PU - Ottawa : Carleton University, Dept. of Geography, 1985. xi, 168p.
     (2 sheets), ill., maps ; 11 x 15 cm.
SE - Canadian theses on microfiche
NU - ISBN 0-315-22207-7
Do you want to see additional items?
   /
n
  9/
execute enviro2
  9/ CREATED IN MINTEC ON 94-02-10
  9/ EXECUTING
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```
 9/ REQUEST SENT : "EXECUTES FROM A1"
 9/ S mis mine or mines or mining or marble or limestone or quarr*
          0        mis mine
          159      mines
          523      mining
          6        marble
          30       limestone
          15       quarr* (  4   *--*TERMS )
SET    9: 688      mis mine or mines or mining or marble or limestone
                    or quarr* ASONE SET
 10/ S (environmental AND (study or studies or impact or assessment
     or audit))
          1774     environmental
          4646     study
          2360     studies
          992      impact
          972      assessment
          5        audit
SET   10: 1036     (environmental AND (study or studies or impact or
                    assessment or audit)) ASONE SET
 11/ S (*S1 and *S2 )
SET   11: 39       (9 and 10 ) ASONE SET
 12/ S coal or tailing* or uranium, or peat or arctic or africa* or
     lead or tin
          135      coal
          43       tailing* (  2   *--*TERMS )
          0        uranium,
          74       peat
          5356     arctic
          33       africa* (  3   *--*TERMS )
          152      lead
          15       tin
SET   12: 5758     coal or tailing* or uranium, or peat or arctic or
                    africa* or lead or tin ASONE SET
 13/ S uranium or ocean* or sea or seas or marine or coast* or
     offshore
          128      uranium
          1022     ocean* (  18  *--*TERMS )
          2959     sea
          238      seas
          934      marine
          1402     coast* (  8   *--*TERMS )
          484      offshore
SET   13: 5823     uranium or ocean* or sea or seas or marine or
                    coast* or offshore ASONE SET
 14/ S *S4 or *S5
SET   14: 10157    12 or 13 ASONE SET
 15/ S (*S3 NOT *S6 )
SET   15: 19       (11 AND NOT 14 ) ASONE SET
 16/ S (*S7 NOT (mine or mines or mining))
          161      mine
          159      mines
          523      mining
SET   16: 0        (15 AND NOT (mine or mines or mining)) ASONE SET
 17/ S (*S8 NOT (monument* or air))
          37       monument* (  3   *--*TERMS )
          549      air
SET   17: 0        (16 AND NOT (monument* or air)) ASONE SET
 18/ S (*S9 NOT gravel)
          53       gravel
SET   18: 0        (17 AND NOT gravel) ASONE SET
 19/ S (*S10 NOT (structur* or pollution))
          1298     structur* (  10  *--*TERMS )
          207      pollution
```

```
SET   19: 0         (18 AND NOT (structur* or pollution)) ASONE SET
 20/ S benth*
SET   20: 109       benth* (  4   *--*TERMS )
 21/ S stream
SET   21: 134       stream
 22/ S (*S12 and *S13 )
SET   22: 3         (20 and 21 ) ASONE SET
 23/ S benth* analysi*
SET   23: 0         benth* analysi*
 24/ S (benth* (F) Analys*)
         109        benth* (  4   *--*TERMS )
         1994       Analys* (  5   *--*TERMS )
SET   24: 9         (benth* (F) Analys*) ASONE SET
 25/ S (brook (F) trout)
         7          brook
         78         trout
SET   25: 3         (brook (F) trout) ASONE SET
 26/ S (*S17 and stream)
         134        stream
SET   26: 0         (25 and stream) ASONE SET
 27/ S (cold (F) water (F) stream)
         489        cold
         1853       water
         134        stream
SET   27: 0         (cold (F) water (F) stream) ASONE SET
 28/ S (*S19 and *S3 )
SET   28: 0         (27 and 11 ) ASONE SET
 29/ S (acid* AND (Limestone or marble))
         94         acid* (  7   *--*TERMS )
         30         Limestone
         6          marble
SET   29: 2         (acid* AND (Limestone or marble)) ASONE SET
 30/ S stream or streams
         134        stream
         101        streams
SET   30: 223       stream or streams ASONE SET
 31/ S (*S21 and *S22 )
SET   31: 0         (29 and 30 ) ASONE SET
 32/ S (((*S2 and (quarr* or lime* or marble)) NOT *S6 ))
         15         quarr* (  4   *--*TERMS )
         41         lime* (  3   *--*TERMS )
         6          marble
SET   32: 0         ((((10 and (quarr* or lime* or marble)) AND NOT 14
                     ))) ASONE SET
 33/
type s22,s29
ERROR.  Non-numeric value entered for set.
4.3a
 33/
type s22

      22 / 1
AN - 1073671
RE - 365262
TI - EFFECTS OF DISTURBANCE ON THE BENTHIC FAUNA IN SMALL STREAMS IN
     THE VICINITY OF NORMAN WELLS, NWT
AU - MCCART, P.; GRAAF, D. DE
PU - CALGARY : AQUATIC ENVIRONMENTS LIMITED, 1973. 27P. : ILL., MAPS ;
     29 CM.

      22 / 2
AN - 1073054
RE - 359092
TI - INPUT AND STORAGE OF BENTHIC DETRITUS IN AN ALASKAN SUBARCTIC
```

STREAM
AU - COWAN, C.A.; OSWOOD, M.W.
PU - POLAR BIOLOGY, VOL.2,NO.1, 1983, P.35-40, ILL.

22 / 3
.N - 1003265
RE - 38296
TI - BENTHIC INVERTEBRATES IN AN ARCTIC MOUNTAIN STREAM, BROOKS RANGE, ALASKA
AU - SLACK, K.V.; NAUMAN, J.Wt.; TILLEY, L.Jy.
PU p- U.S. GEOLOGICAL SURVeEY. JOURNAL OF RESEARCH, VOL.5,NO.4, JULY-AUGUST, 1977, P.519-27, sILL., MAP.
33/
29

29 / 1
AN - 1150099
RE - 459801
TI - Soil and bedrock sensitivity to acidic deposition in the Northwest Territories (microform).
PU - Yellowknife : Dept. of Renewable Resources, 1986. ii, 30p. (1 sheet) ; 11 x 15 cm.
SE - Microlog; 90-02655

29 / 2
AN - 1019295
RE - 201316
TI - SENSITIVITY OF BEDROCK TO ACID PRECIPITATION : MODIFICATION BY GLACIAL PROCESSES
AU - SHILTS, W.W.
PU - CANADA. GEOLOGICAL SURVEY. PAPER 81-14, 1981, 9P., ILL., 3 MAPS IN POCKET.

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Meyn, H.D. (1970), **GEOLOGY OF HUTTON AND PARKIN TOWNSHIPS,** publ. by Ontario Department of Mines, Geological Report No. 80, Toronto, 1970, 78 pp.

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FOR GENERAL LOCATION MAP (GEOLOGICAL)

Showing the location of all deposits with respect to each other and the Main Claim Package,

PLEASE CONSULT BACK POCKET FOLDER IN APPENDIX G

1177 Lonsdale Avenue
Sudbury, Ontario
Canada P3B 1K3

ONTARIO QUARRIES Inc.

tel.: (705) 688-6600 / 560-4846
fax: (705) 524-9914

Book 2 of 2

FINAL SUBMISSION

O.M.I.P. 1993

- CONTENTS -

Rachel Prudhomme, M.Sc., P.Eng.
President

February 1994

APPENDIX G

GEOLOGICAL REPORT

ON THE

HARAMA MARBLE PROPERTY

MAIN EAST DEPOSIT (ZONE A)

PARKIN TOWNSHIP

DISTRICT OF SUDBURY

ONTARIO

FOR

ONTARIO QUARRIES INC.

E. Sawitzky
Norwin Geological Ltd.
December, 1993

TABLE OF CONTENTS

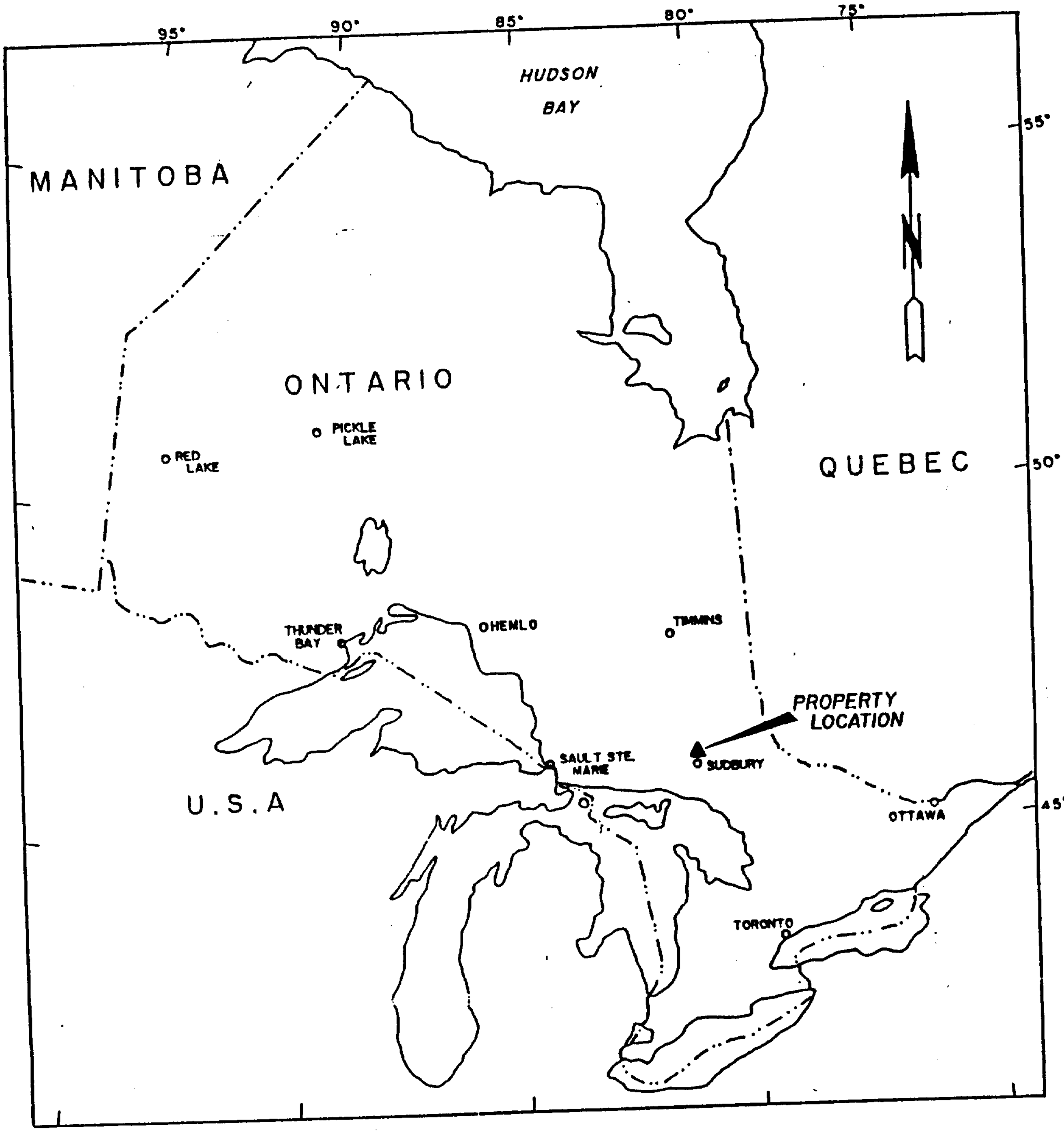

FIGURE I

GENERAL LOCATION MAP

ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONT.

DECEMBER, 1993

1. INTRODUCTION

Ontario Quarries Inc. requested Norwin Geological Ltd. to carry out geological and topographic surveys of the Harama Marble property with the objective of defining geological reserves and geological characteristics of the deposit.

Between October 25, 1993 and November 5, 1993, a program of line-cutting, geological mapping and topographic surveying using rod and stadia was undertaken. The following report is a presentation of the results of the work carried out in evaluating the potential of the property.

2. PROPERTY LOCATION AND ACCESS

The property is located in the west central part of Parkin Township, District of Sudbury, approximately 40 kilometers north of Sudbury, Ontario.

The property can be accessed by the following route from Capreol: fifteen kilometers along Hwy. 545, then a public service road leading northeast to the deposit, a distance of 6 km (Figure 1).

3. CLAIM GROUP AND STATUS

The property occurs on the original nine (9) unpatented contiguous mining claims, in Parkin township, District of Sudbury; claims are listed in Table 1. The claim group is in good standing with respect to the assessment credits required.

TABLE 1

HARAMA MARBLE PROPERTY

PARKIN TOWNSHIP CLAIM DESCRIPTION AND STATUS

Claim Number	Man-Days Credit
865264	200
865265	200
865266	200
865267	200
865269	200
1042298	60
1042299	60
1042300	60
734218	200

4. LINE-CUTTING AND CLAIM POST INSPECTION

Line-cutting consisted of establishing:

a) detailed grids on deposits 1, 2 and 3 for a total of 560 meters,

b) detailed grid on the Main East Deposit for a total of 1,200 meters and,

c) a "control-line" parallel with the Hydro Power Line (total distance 2.2 km)

One and one-half days were spent by the writer searching for claim posts.

5. REGIONAL GEOLOGY

The property lies near the contact between Archean greenstone-granitoid rocks to the west and Proterozoic (Huronian) metasediments to the east; the latter stratigraphy unconformably overlies Archean rocks. The Huronian metasediments have been subdivided into the following litho-stratigraphic formations in this area: Mississagi, Bruce, Espanola, Serpent, Gowganda, and Lorrain (Meyn, 1970, p.ix). The foregoing rocks have been intruded by dikes of Nipissing-type diabase and olivine-diabase.

The property is underlain by the Espanola and Serpent Formations of the Quirke Lake Group. The Espanola Formation in Parkin township consists of two members (Meyn, 1970). The lower member is a limestone interbedded with siltstone and the upper member is a fine-grained siltstone to sandstone. "The total thickness of the Espanola Formation is difficult to determine.... Total thickness is probably between 100 to 200 feet for the limestone...." (Meyn, opt cite, . 17).

6. PROPERTY GEOLOGY AND STRUCTURE

The geology underlying the claim group consists of interbedded limestone and fine grained wackes of the Espanola Formation intruded by mafic intrusive rocks. Stripping and trenching carried out in 1992 on the property revealed two areas underlain by limestone deposits (General Location Map, backpocket). The two areas each contain distinct "types" of limestone: to the north (Zone B) the limestones are predominately brecciated and to the south (Zone A) the rocks are bedded or laminated.

The Main West Deposit (Zone B) which lies to the northwest of the Main East Deposit (Zone A) received further work (stripping, trenching, etc.) this year by Ontario Quarries Inc. This work revealed that geological and structural characteristics specific to this zone, as identified in earlier studies (Sawitzky, 1992) persist in recently cleared areas. Attractive pink-green brecciated limestone with widely spaced fracturing predominates.

In 1993, Ontario Quarries Inc. proceeded with further extensive stripping, exploratory drilling, benching and hydraulic washing in the area of the Main East Deposit (Zone A). The main rationale for this work was to expose not only surface but subsurface deposit material in order to better evaluate the geological and physical characteristics of the limestones present.

6.1 GEOLOGY: MAIN EAST DEPOSIT

The Main East Deposit can be crudely subdivided into eight (8) domains or 'lithological packages'. Herein, a domain refers to a specific area within the deposit that consists of one or more rock types. This method of describing the rocks of the deposit was chosen to simplify the deposit geology. Rock contacts are often difficult to follow and trace. Each domain will be discussed sequentially starting from the north end of the deposit.

Domain 1, north part of the quarry (roughly north of 35N) is underlain by fine grained wackes or siltstones. These rocks are fine grained, equigranular, foliated and crude to well-bedded. They weather a dark grey-green colour and have a blackish-green fresh surface. Sulphide content is variable (<1%). Minor limestone may be intercalated locally e.g. L 1+10, 35N. Outcrops are poorly exposed in this area.

Domain 2, south of domain 1 and between 35N and 25N, is underlain by silty limestones and rare limy siltstone layers. These rocks are fine to medium grained, equigranular and granular in texture. They are massive to crudely bedded and weather a buff-tan

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colour and have a cream; buff-tan, pale green to pinkish fresh surface. Sulphides are absent. Some of the exposed rock in this domain may actually be subcrop and not bedrock.

Domain 3, between 25N and 10N, is a zone of strong deformation and consists of a mixed assemblage of rock types including siltstone, limy siltstone, silty limestone, limestone and undifferentiated rocks. Rocks in this domain are characterized by:

1) a strong penetrative fabric ie. schistosity
2) brecciation, especially between L 0+70 and L 1+10
3) folding (outcrop scale)

Folding, e.g. between L 0+40 and L 0+50, shows the complexity of the geology of this domain (and deposit?). Alteration consisting of hematitization, chloritization, bleaching and secondary calcite occurs mainly between L 0+80 an L 1+10. This alteration is probably due to the diabase intrusion (Domain 8) located between L 1+00 and L 1+10.

Domain 4, contains the limestone which is likely to produce the most consistent and best quality quarry blocks in this portion of the deposit. West of L 0+65 the width of this unit is approximately 30 meters and east of this line the width almost doubles to about 50 to 60 meters. These rocks underlie the full length of the quarry and appear to continue east under overburden cover at L 1+20. West of L 0+65 silty limestone predominates and east of L 0+65 a `core of relatively pure limestone´ bounded by silty limestone predominates.

West of L 0+65 in Domain 4, silty limestone is laminated, brecciated and folded. Brecciated and folded limestone gradually grades into laminated limestone west of about L 0+30. Within the brecciated and folded limestone, numerous inclusions of siltstone occur centered along the baseline between 5N and 5S. These rocks are well exposed along a vertical face developed at L 0+50 by Ontario Quarries Inc. The rocks weather a cream-tan colour and have a cream-tan-green-pink fresh surface colour.

East of L 0+65 in Domain 4, silty limestone and limestone form massive, crudely bedded and well-bedded rocks. South of about 15S very well-laminated limestone predominates and contains about 5% narrow layers of limy siltstone. The core of `pure´ limestone, although relatively massive, in general, varies in texture and structure. Textures and structures displayed include weak laminations, `pebbly´ structures, folding and brecciation across narrow widths. The rocks weather a cream-buff colour and have a pale cream, buff-tan, and occasionally pinkish fresh surface colours.

Domain 5, between roughly 5S and 20S, extends from L 0+00 to L 0+70. The predominant rock type is limy siltstone with lesser siltstone (10% to 15%) and very minor (<5%) bands of silty limestone. Siltstone is most common in the east end of this unit (L 0+60), although small inclusions (<2 feet) occur throughout this unit. These rocks are generally bedded to the west and become brecciated to the east and south. Sections of this sequence are heterogenous and heterolithic. Weathering and fresh surface colours vary, according to the dominant rock type present in any given area.

Domain 6, between 10S and 20S, consists of mainly siltstone, altered siltstone (10%), and to the east end of the unit minor (<5%) limy siltstone. These rocks resemble the siltstone of Domain 1. Brecciation is common in these rock. The diabase intrusion has altered the sediments adjacent to the intrusion especially between L 0+10 and 0+20. Disseminated sulphides are common (0.5%-1%).

Domains 7 and 8 occur at the extreme south end of the quarry and between L 0+90 and L1+30 at 30N respectively. These mafic intrusions are massive, fine to medium grained, equigranular, weakly pyritic and weather a dark grey-black colour. The rocks are generally highly fractured.

6.2a STRUCTURE

The general trend of the package of rocks under consideration i.e. Espanola Formation limestone-wackes is northwest (Meyn, Map 2180). Observed geological contacts of specific rock units in the deposit area trend northwest and foliations trend west to northwest. Meyn, (opt cite) has indicated a major northwest trending fault parallel to Mowat Creek which lies immediately to the west of the property.

Recent mapping in the Main East Deposit confirms the northwest trend of major rock contacts and foliation. Bedding strikes azimuth 285 degrees and dips 70 degrees south.

A prominent northwest shear zone transects the length of the property between about 10N and 20N. Shearing produced a strong penetrative fabric in the rocks. Intense brecciation is associated with this shear and occurs between L 1+10 and L 0+80, 5N to 15N. Alteration of the rocks in Domain 3 is enhanced due to increased permeability developed along the shear. Folding, prevalent in this shear zone, is discussed below. A second shear, 5 m. to 7 m. in width, occurs at the contact between diabase and sediments (L0+60, 25S) at the south end of the quarry. Other less significant and narrow shears occur as indicated on Figure 2. These shears are often parallel to rock contacts.

Faulting is common throughout the deposit and is often indicated by truncated lithological units (Figure 2). Dextral or right-lateral displacement predominates but left-lateral movement was also observed. Faults commonly trend northeast to north. Complex faulting and shearing occurs between L 0+70 and L 0+55, 10S and 25S.

Folds, both 'large' and 'small' scale, occur throughout the deposit. Large scale folds control rock distribution in the deposit and small scale folds help define rock fabric which influences the rock's appearance. Small scale folding occurs prominently between L 0+30 and L 0+50, north and south of the baseline. Large scale folding is common within the aforementioned shear zone (Figure 2). Axial planes trend northwest to west and hinge lines are vertical, subvertical to horizontal. Horizontal bedding (Figure 2) on L 0+50, 20N is produced through folding. Attention should be paid to this style of folding to resolve the structure and geology of the deposit.

6.2b JOINTING AND FRACTURING

The prominent joint\fractures in the Main East Deposit were measured and are shown on Figure 3. A detailed fracture\joint analysis was not carried out. Fracture distribution and density varies across the deposit and is in part controlled by proximity to mafic intrusions, shear zones, folding and faulting. For example there is a marked increase in fracturing associated with the shear zones in Domains 3 and 6. Fractures are short, discontinuous and often infilled with calcite. This is, however, a localized effect only.

Fracturing parallel to contacts or bedding is present but often difficult to discern e.g. L 0+20.

In general, joint\fracture sets developed in this area have similar orientations to those observed in the Main West

Deposit (Sawitzky, 1992). Three (3) fracture\joint orientations predominate and are listed in decreasing order of prominence:

1) azimuth 280 - 295, dipping south 80 degrees, spacing >3 m to locally 0.5 m,
2) azimuth 50 - 60, dipping northeast 85 degrees, spacing 1m to >4m
3) azimuth 355 - 010, dipping northeast 85 degrees, spacing > 2m

Sheeting was observed on three vertical faces and indicates a vertical joint spacing of 0.6m to 1.2m in the upper 20 to 25 feet of the deposit. On the third bench (baseline at L 1+10) which represents the deepest level exposed in the quarry sheeting was absent over a 7-foot vertical section. Sheeting in all faces consisted of both continuous and discontinuous joints. Sheeting is subhorizontal in attitude dipping very gently (5 to 10 degrees) east and west and, locally undulating.

7. TOPOGRAPHIC SURVEY

A topographic map of Zone A is presented in the backpocket of this report. The survey was carried out using a survey level and stadia rod. Survey data consists of readings taken along grid lines spaced generally at 10 meters and station intervals of 5 and 10 meters. Elevations are contoured at a 1 meter interval.

Zone B forms a terraced knoll gently sloping to the east. Three 'benches' or levels were developed by Ontario Quarries Inc. within the main pit area, each bench stepping down to the next bench creating a step-like topography to the east. Naturally occurring ridges with relief ranging from 2.5 meters to 5 meters were extensively drilled and cut to develop vertical faces during the 1993 summer work program. The north end of the quarry consists of undulating topography and an overall increase in elevation.

8. RESERVE ESTIMATE

Preliminary 'reserve estimates' for Zone A have been calculated and presented in an earlier report (Sawitzky, 1992). Since these reserves were calculated, stripping and diamond drilling have shown the deposit to be much larger than first estimated. Revised tonnage estimates will be prepared and presented in a separate report.

9. CONCLUSIONS

In 1993, work carried out by Ontario Quarries Inc. in the Main East Deposit extended substantially the strike length of the deposit. Stripping of the deposit limestone stopped a L 1+10, however, more quarriable limestone exist beneath the overburden to the east. In fact the newly discovered limestone of Deposit #1 may be the eastern extension of the Main East Deposit.

Stripping, drilling, development of vertical (cut) faces greatly enhanced subsurface studies of fracture distribution, patterns and subsurface rock textures, colours etc. Fracture density decreases significantly in the central portion of the deposit, especially in the area of the third bench centered on L 1+00, at the baseline.

The deposit continues to produce highly attractive patterned limestone with three varieties predominating: laminated, brecciated and folded or 'wavy'.

10. BIBLIOGRAPHY

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APPENDIX H

Pre-Operative Environmental Study For The Harama Marble Quarry

ONTARIO QUARRIES Inc. / February 1994

INTRODUCTION

The environmental awareness and assessment work was completed by a combination of several (4) independent consultants and in-house staff. The work has culminated in this report, which is an amalgamation of all work done by individual consultants into one comprehensive package. Individual reports of any or all of the consultants are available for viewing on request.

This report is divided into three main "spheres" of the environment that can be affected by a marble quarry operation, as conceptualized by Law (1984):

1. Cultural or Anthropomorphic Environment
2. Geological Environment
3. Biological Environment

The report contains two additional sections:

4. Rehabilitation
5. Information and Reference Materials on the Environment

Each of the sections is further subdivided into various sub-sections as appropriate. Categorization of environmental factors within the three spheres and the sections on rehabilitation and reference materials represents a logical sequence to environmental issues that are important to the Harama Marble Quarry.

1. CULTURAL OR ANTHROPOMORPHIC ENVIRONMENT

This section is divided into three parts:

- 1.1 Economic Environment
- 1.2 Health and Safety Issues
- 1.3 Aesthetics

1.1 ECONOMIC ENVIRONMENT

The economic success of a quarry operation can have a significant impact on the cultural well-being of a community by raising standards of living and by injecting money back into the community to support community development projects. The quarry will also create employment in the community. It is expected that if the Harama quarry produces its target of 10,000 cubic metres of good quality marble blocks per year, there will be 20 full-time direct jobs created at the quarry. On an annual basis, this will inject about $800,000 in new wages into the community. In addition to the direct jobs, there will also be many spin-off opportunities created as a result of the quarry. Spin-off jobs are expected in the transportation, processing, environmental, sales, marketing and other service sectors.

In addition to the creation of jobs and injection of new wages into the community, a successful quarry will also contribute to the community's economic base through the payment of taxes. The moneys paid in taxes can return to the community through transfer payments. This additional community income can also be used for community improvement or capital works projects. Profits made and wages earned will be spent in the community. The quarry, if successful enough, will invest to expand operations, creating still more jobs and possibly resulting in increased manufacturing activity.

Because the target markets for the products of the quarry are mostly export-based, new money will be injected into the country as a result of the operation. Overseas clients will mean more spin-off activity in the transportation and travel industries. The basic industry will produce goods to fill a need in the domestic market as well. Presently, the need for marble as a building stone or for specialty applications is filled by imports from other countries. The Harama quarry will provide a local domestic source of a world-class marble which is both unique and competent.

1.2 HEALTH AND SAFETY ISSUES

1.2.1 Direct Health and Safety Hazards

Direct hazards are safety issues involving employees, individuals residing near the operations and the general public. Since the Harama quarry is far removed from any residential area, there is no immediate safety hazard to the community. However, there is some amount of recreational traffic in the area in the form of anglers in summer, hunters in fall and snowmobilers in winter who all use the public access road to travel to lakes and wilderness areas to the north of the quarry site.

In order to protect the recreational traffic from the quarry's operations, the existing public access road (which presently intersects the main marble deposit) is being moved off the deposit to the extreme west. The road cannot be moved further west than this extremity of the deposit because of the Mowat Creek system which flows relatively near the quarry area (more on the Mowat Creek system is given in Section 3.5). Moving the access road will isolate recreational traffic from the quarry thereby increasing public safety. However, it should be stressed that the Ministry of Natural Resources (MNR) is not allowing more than one point of access across Mowat Creek. As a result, recreational travellers will have to share the creek crossing (either a single-lane bridge or a roadway over extremely large twin culverts) with large trucks and heavy equipment to be used for quarrying and for the transportation of marble blocks to market. This will be somewhat hazardous for the recreational public, especially if a bridge is installed because the bridge would be single lane only. Ontario Quarries Inc. had hoped to establish two separate crossings for safety reasons (i.e. one for the general public and one gated and locked for quarry traffic only) but MNR would not consider this at all.

It will be possible for us to isolate recreational traffic from trucks and heavy equipment some 300 feet north of the bridge. This is the point at which the private quarry road separates from the public access road. The private quarry road will be gated and locked and will have appropriate signage to prevent entry by the public. Natural vegetation and trees along the public road will act as a buffer and will further isolate the public from the sights, sounds and activities at the quarry.

Hazards due to ground subsidence will be non-existant because there will not be any underground operation at this quarry. There will be no shafts or adits endangering the public. All work will be on surface. There will be no danger posed by explosives such as flyrock, dust or accidental detonations because conventional blasting is prohibited in marble deposits as it can ruin the deposit by over-fracturing the fragile rock formation. There may be some form of "mild" explosives (such as "primacord" or other light, linear charges) on site for rock splitting purposes. These will be kept safely stored in proper storage areas and magazines as per laws and regulations relating to the use and storage of explosives.

1.2.2 Indirect Health and Safety Hazards

Indirect hazards are less easy to detect. These are hazards that can affect the health and safety of the general public if they persist over a period of time. They usually include pollutants that emanate from a mine site. Examples of pollutants that could be hazardous to the public are:

a) organic material (sewage)
b) oils
c) cyanides
d) acids / alkalis
e) base metals
f) fluorides
g) soluble salts
h) processing reagents
i) colour
j) suspended solids
k) turbidity
l) thermal effects
m) radioactivity

The factors that determine the extent of impact of the quarry operation on indirect hazards are the size and location of the operation, the method of quarrying and mineral characteristics. It is expected that the impact of the Harama Marble Quarry will be relatively small as the operation is significantly less in equipment, labour and production than other types of mining operations. Also, locational factors reflect a relatively low hazard except for Mowat Creek which could be a sensitive ecosystem (see section 3.5 on Mowat Creek). The method of quarrying will not involve adding anything to the environment (i.e. only pure water will be used for rock sawing into blocks). All rock saws are electrically operated. Heavy equipment operates with diesel fuel and therefore, precautions will be taken to prevent any spills that could harm the environment, as discussed further in this section. And finally, the mineral being quarried is limestone. This material has been proven to be very beneficial in improving various environmental systems, especially those that are high in acidity (i.e. low pH). More on this aspect of the mineral mined including details of case studies involving limestone beneficiation of the environment is given in Section 3.4. In summary, the potential impact of the Harama Marble Quarry as an indirect hazard is very low when compared to other mining operations and, if managed properly, the operation could have a beneficial long-term effect on the environment and on the Mowat Creek system, as will be seen later.

The importance and control of each of the pollutants identified above as they relate to the Harama marble quarry are discussed below.

A) Organic Material: A septic system will be established on site to handle organic wastes. The system will be constructed to health unit standards and will be kept in good operating condition. This system will not only handle sewage, but also shower water, as showers may be established for employees on site. At all times, all organic wastes will be properly processed to prevent contamination of the ground water and Mowat Creek. Other organic wastes such as leftovers from employees' on-site meals for example should be composted when possible and eventually may form part of the topsoil to be used for rehabilitation purposes. All other garbage should be contained in proper areas with recycling bins available for cans, bottles and other recyclable products.

B) Oils: Heavy equipment operating in the quarry will require periodic maintenance involving the handling of motor oils as well as hydraulic oils. Precautions must be taken at all times to prevent contamination of soils, creek waters and groundwater from spills of oil. As a precaution, oil changes on equipment should be conducted in designated areas only. Such an area could be lined with an impermeable surface to isolate any spills from the soil underneath. Oil cans must be disposed of properly and not strewn about and left to leak their contents into the environment. Ontario Quarries' prime contractor on site is F.H.R. Construction Ltd. This company has an agreement with its oil supplier that ensures that any used oils can be returned for compensation to the supplier who then recycles the oil into marketable products. All used oils on site will be returned to the supplier as per this agreement. It is sometimes impossible to guard against burst hydraulic lines on equipment. This is a sudden happening that cannot usually be prevented. Regular inspection of equipment hoses and pipes can held minimize the risk.

Although most of the diesel fuel needed will be delivered to the site by the dealer and pumped directly into the equipment as needed. There will be very little fuel storage on site. Any fuel stored on site will be in proper fuel containers that can be locked. Fuel containment areas should be lined and banked to prevent any spills from contaminating the environment.

C) Cyanides: Cyanides are not a hazard as they will be neither used nor produced on the quarry site.

D) Acids / Alkalis: There is no potential for acid generation from limestone quarrying. On the contrary, limestone acts as a base that can actually neutralize acids in the soils and creek waters, thereby improving the environment. More on the beneficial nature of limestone on the environment is given in Section 3.4.

E) Base Metals: There will be no base metals produced as a result of the marble quarrying operation. Background pre-operative baseline values for metals (and other contaminants) have been measured in Mowat Creek as a precaution. A report on this is presented in Section 3.5. The tests showed that existing values for base metals such as iron and copper are already high even before our operation has started. However, these values should not worsen as a result of the quarrying operation because there will be no base metals produced and also because of the beneficial effects of limestone on the environment, as discussed in Section 3.4.

F) Fluorides: Fluorides will be neither used nor produced by the operation and hence do not pose any threat to the public or the environment.

G) Soluble Salts: No significant quantities of soluble salts will be used or produced. Calcium chloride for dust suppression on roadways will be minimal as a new material proposed for topping the access road will be relatively dust-free. The pre-operative soluble salts content in Mowat Creek has been established through a conductivity study. Results are presented in Section 3.5 on Mowat Creek.

H) Processing Reagents: There are no processing reagents to be used. The quarry will involve cutting limestone using diamond wire saws. The only substance added to assist the cutting is pure water.

I) Colour: There is no colouring agent to be used other than occasional spray painting to identify locations where the limestone faces are to be cut. This will be done using conventional surveyor's spray-paint in commerically available spray cans. The quantity used will be negligible and the residue from the marked rock faces will be hauled away with the marble blocks for distant processing plants or to export markets. There will be no other changes in colour to the environment as a result of the quarrying operation.

J) Suspended Solids: The total suspended solids in the creek waters as measured this year are provided in Section 3.5 on Mowat Creek. Suspended solids in the air as a result of operations will be minimal - i.e. all drilling is hydraulic with dust-collector bags, all sawcutting is done with water to suppress dust and there will be no heavy blasting. Some dusts will likely become airborne as a result of heavy equipment and truck travel in and around the quarry. Occasional spraying of heavy travel areas with water will keep suspended dust to a minimum. Stockpiles of topsoil and fill should be kept in areas shielded from the elements to prevent erosion through wind, rain or other action.

K) Turbidity: Turbidity in the creek waters can detract from recreational use of the water or could reduce photosynthesis activity in the creek. Creek waters sampled in September 1993 had low turbidity. It is not expected to change as a result of our quarry operation as long as discharge waters are cleared of all suspended solids by settling and filtration before they are returned to the environment and by the use of proper dust suppression. Also, creek crossings through the water should not be permitted. The proper roadway crossing should be used at all times. During the past year in which we have occupied the site for exploration purposes, we have frequently seen recreational travellers crossing through the creek waters rather than using the present bridge access. This is especially true when recreational vehicles such as all-terrain verhicles are used. It would seem that splashing through the shallow waters of Mowat Creek increases the "fun factor" of the ride and hence, recreational riders seldom and almost always never use the bridge. This can increase turbidity downstream by stirring up fine particles on the creek bed and sending them down with the current. It can also spread a thin film or slick of gas, fuel and/or oil on the water's surface. This practice should be discouraged by using signs to prevent the public from crossing through the creek.

L) Thermal Effects: There will be no effect of the operation on thermal conditions of the environment. There will be no trees cut along Mowat Creek and therefore, natural shade effects on water temperature will not be altered.

M) Radioactivity: There will be no radioactive substances used or created by the operation.

1.3 AESTHETICS

The most obvious impact of the quarry will be the surface disturbance created by stripping and quarrying of the limestone deposit. Prior to stripping, clearing and grubbing operations will be conducted only directly in the areas to be quarried. Stripping of earth will only be conducted in areas where actual quarrying is planned or where advanced exploration is needed. In all cases, any suitable topsoil will be stockpiled and protected for use in rehabilitation.

Trees cut will be neatly piled on-site or along the public access road. Timber will not be wasted but it will not be sold for profit. The public will be invited to take as much timber as they would like for their own personal use. Timber will also be saved for use in rehabilitation activities, if needed. Some timbers will be used as "corduroy" to stabilize road bases as needed.

The aspects of quarrying that have considerable visual impact are excavations, waste rock piles, stockpiles of large marble blocks, roads and pipelines. Disturbance to landform and vegetation is unavoidable to a certain extent. At the Harama Marble Quarry, excavations and waste piles cannot be avoided during quarrying operation. However, operators can guard against any excess of such disturbances. Also, rehabilitation of the evnironment will be conducted on an on-going progressive basis as much as possible to minimize the visual impact of the quarry. Section 4 on rehabilitation gives details.

2. GEOLOGICAL IMPACTS OF MINING

This section deals with the strong effects of changes in geology on the fate of living organisms that inhabit the earth's surface. The section identifies the changes that take place in the gological part of the environment as a result of marble quarrying. Section 3 will take a look at how these changes affect the biological world.

There are two categories of geological disturbances: pedological (soils related) and hydrological (water related). Each is discussed in a separate subsection.

2.1 PEDOLIGICAL CHANGES

2.1.1 Erosion

Generally, surface mining or quarrying causes a major impact on soils through erosion. Erosion involves processes that cause wearing away, loosening or dissolving and moving earthy or rock material that forms part of the earth's surface. The mechanisms involved are weathering, solution, corrosion and transportation. The most common eroding agent is water which detaches and transports soil. When soil particles are detached and moved from their resting place, they become sediment. If sediment washes into a neighbouring watercourse, it becomes a resource out-of-place and a pollutant by definition (Law 1984).

Quarrying limestone with diamond wire saws will cause man-made accelerated erosion of the limestone deposit. The natural geological process that normally would take hundreds of throusands of years is greatly accelerated by mechanical stripping of the overburden covering the limestone deposit, by saw-cutting the limestone with the diamond wire and water and finally by the removal of the limestone blocks. There will also be added erosion of soils through the travel of heavy equipment and trucks.

The amount of erosion caused can be limited by ensuring that proper measures are taken. For example, the topsoil removed during stripping of the deposit can be stockpiled separately in an area where it is shielded from wind, rain and drainage courses to prevent the stockpile from being eroded away. Stockpiles of topsoil and earth for future use in rehabilitation can be located on relatively high ground to keep them dry. Spoil piles should never be placed along natural drainageways. Not only can they erode, but contaminants can also leach into the water system. The locations of stockpiles should be chosen in areas that are shielded from the elements by placing near tree lines or other natural protective barriers such as rock faces.

Stockpiles that are mechanically compacted or aggregated will erode less. Because of aggregation, topsoil stockpiles are usually more stable than the spoil material (Law 1984). If earth or topsoil stockpiles are still eroding and especially if they are settling into Mowat Creek, they can be protected with geotextile fabrics for further protection. Furthermore, man-made structures or enclosures can be erected to prevent erosion of stockpiles into the creek. All stockpile slopes created, as well as slopes created in the aggregate (gravel) pit in Hutton Township should be trimmed to a 3:1 angle to prevent sliding.

Other precautionary measures to minimize sediment load is dust control on roadways by using either light calcium chloride or water spraying. The rapid establishment of a protective vegetative cover in work areas that have become inactive will also prevent erosion. Rip-rap with cobble-sized stone or gabions can also be used to protect soil embankments if needed.

Diamond wire sawcutting will not produce any dust because of the use of water. However, this operation does result in the creation of a limestone paste or slurry that must be settled out and filtered to prevent the transportation of suspended solids into Mowat Creek. This can be achieved by a system of settling ponds and natural earth filtration assisted by geotextiles or bales or hay placed in drainage channels as required.

In essence, the control of soil sediments from accelerated erosion is accomplished by preventing the solid fraction of materials moved from draining directly into the off-site drainage system.

2.1.2 Roadways

The access road to the Harama Marble Quarry was an existing public access road which has been widened and upgraded by Ontario Quarries Inc. Because the road has existed for several decades (i.e. it was originally established as a logging route many years ago and was then adopted by Ontario Hydro as a service road for its main powerline through the area), no natural drainage systems have been disrupted by it and no surface runoff had to be diverted, intercepted or concentrated. The old corroded culverts which had been in place for several decades were all replaced with new culverts.

2.1.3 Topsoil Stockpiles

The natural and accelerated erosion of topsoil stockpiles were covered in section 2.1.1 of this Appendix. What was not covered was the fact the such stockpiles can undergo acidification and/or deterioration if left stockpiled for too long or if stored improperly. The deterioration is caused by anaerobic decay of the organic matter in the stockpile and is detailed in Law (1984).

The handling of topsoil is crucial to the future rehabilitation process. Soil piles should be periodically sampled and analyzed chemically for contaminants and to monitor changes in pH and electrical conductivity. The most critical parameter for topsoil is the pH. A soil with pH value below 3.0 or above 8.5 will cause severe problems in revegetation.

Electrical conductivity of soils is also a good test because it is an indicator of saline-sodicity (salt content). Standards for electrical conductivity of soils are given below:

MEASURED CONDUCTIVITY	LEVEL OF SALINITY	EFFECT ON REVEGETATION
0 - 4 millimhos / cm	none to slight	no effect
4 - 8	moderate	many grasses are affected
8 - 16	strong	use only salt-tolerant grasses
> 16	very strong	poor growth

Monitoring of topsoil should focus on soil acidity measurements done periodically during the quarrying season. Any sign of acidification should be counteracted by the addition of pulverized limestone which can be obtained from the diamond wire saw discharge as needed.

2.2 HYDROLOGICAL DISTURBANCES

2.2.1 Groundwater

The general vicinity of the Harama Marble Quarry is underlain with limestone rock or diabase formations. The presence of a high percentage of swamp and bog in the area indicates poor surface drainage characteristics. As this water is relatively poorly draining, it is probable that there will be little effect on groundwater by the quarry operation. The expected outcome, if any, is a rise in pH of the soils and waters so that the acidity is reduced through possible contact with limestone. Because we are not removing the entire limestone bed and we are not significantly altering the topography of the land, we will not significantly disturb the supply of water to natural aquifers in the area.

2.2.2 Surface Water

The Harama Marble Quarry is located in the vicinity of Mowat Creek, which is a perennial stream. The watershed or drainage area into Mowat Creek at this location is extremely large. This drainage area has been calculated through very detailed reviews of maps and aerial photographs of the area by two qualified expert groups: drainage experts at the Ministry of Natural Resources and drainage experts at the Ministry of Transportation. MNR and MTO both estimate the catchment area as 4400 hectares, which is extremely large. The watershed was estimated by MNR at 20 m^3/sec. MTO disagrees strongly with MNR's values and argues that the watershed is 9 m^3/sec. MNR uses a flow velocity of 0.6 m/s. MTO again disagrees, stating that 1 m/s is more realistic. Whatever values are used, one thing is certain: the drainage area into the creek is extremely large.

The above has great significance in determining the impact from the quarry operation on the Mowat Creek system. Relatively speaking, any surface water running through the Harama quarry will be only a "drop in the bucket" when all surface waters running into the creek are taken into consideration. However, this does not mean that effluents or contamination from the quarry (if there is any) would be non-offensive to the environment. Depending on the contaminant and the concentration of that contaminant, there could be some adverse effect on the creek. Therefore, measures for settling, filtration, dust collection and purifying process waters should be taken. It is not anticipated, though, that any chemical contaminants could be produced in the marble quarry that would adversely affect the environment.

The expected low impact of the quarry on the surface water system is not only due to the absence of contaminants. There are several other factors that also lead to the conclusion that the surface water system will not be adversely affected by the quarry. These are:

a) the topography created by the limestone quarry will not create any significant changes in the surface water flow volumes;

b) the water consumption for quarry activities during peak operation is expected to be less than 2000 gallons per day, which is very small;

c) there should be no deterioration of water quality due to the quarry; in fact, there should be a beneficial effect and improvement due to the neutralizing effect of limestone on acidity;

d) if proper settling, filtration and dust suppression measures are established, there should be no increase in sediment yield of the surface water; and,

e) because there are no chemicals or processing agents used in quarrying, there will be no chemical contamination of water.

3. BIOLOGICAL ENVIRONMENT

This section is divided into 5 subsections:

3.1 Biotic Communities and Ecosystems
3.2 Vegetation
3.3 Wildlife
3.4 Research on the Effects of Limestone
3.5 The Mowat Creek System

3.1 BIOTIC COMMUNITIES AND ECOSYSTEMS

A forest fire devastated some areas in the vicinity of the limestone quarry (there are indications that this may have been a "prescribed burn" by MNR). The fire caused very significant and sudden changes in vegetation, soils, hydrology and wildlife. The area has been reforestated by MNR with coniferous trees which are now grown to approximately 1 metre height on average. Areas near the proposed quarry which were not destroyed by fire or are not covered by swamp or bog contain conifereous forests (species identified in section 3.2).

The immediate site of the proposed marble quarry can be labelled a "climax community" (i.e. it seems to have reached a stage of dynamic equilibrium and has a relatively constant species composition and structure). This community should be self-perpetuating and would possess the ability to withstand considerable environmental stress without a dramatic change in floristic composition or community structure. The most sensitive environmental component in the area will be Mowat Creek. The creek is dealt with in detail in Section 3.5. The ecosystem developed in the area is a factor of climate, atmosphere, temperature of soil, water and air, light, soil quality, water quality, humidity, physiography, biotic composition and fire (which is considered a natural phenomenon).

3.2 VEGETATION

The common trees found in the Parkin and Hutton Township areas are listed by Meyn (1970) as: jack pine, white pine, black and white spruce, white birch, poplar, cedar, alder in low-lying and swampy areas and some limited maple, red pine and red oak found on hills.

3.3 WILDLIFE

3.3.1 Aquatic Wildlife

In the general geographical area of Parkin and Hutton Townships, lakes are small and few in number with limited access (Meyn 1970). Lake trout, pickerel, whitefish, bass and perch have been caught in the lakes of Parkin and Hutton, but none of these lakes are known for really fine fishing (Meyn 1970).

Lakes upstream of the access road crossing Mowat Creek will not be affected by the Harama quarry operation. The impact on downstream areas should be minimal when precautions are taken as described throughout this report.

Environmental research and sampling of Mowat Creek which is described in Section 3.5 indicates that the creek is likely not a brook trout habitat. The reasons for this conclusion are many and are presented in Section 3.5. However, MNR has stated that they believe that Mowat Creek is a brook trout habitat. They have no scientific evidence to support this and have never conducted studies of the Mowat Creek fisheries. Ontario Quarries Inc. has hired an experienced, independent environmental consultant to conduct a fisheries habitat assessment. The results show that Mowat Creek has all indications of a warm water fishery which would preclude the presence of brook trout. Sampling of the vegetation and aquatic life in Mowat Creek yielded plants, benthic samples and fish samples that are not cold water indicator species as detailed in section 3.5. There are many other factors as well that indicate that Mowat Creek is not an ideal brook trout habitat, as detailed in section 3.5.

3.3.2 Land-Based Wildlife

Several animals are reported to inhabit the Parkin and Hutton Township areas. These include beaver, muskrat, otter, weasel, mink, rabbit, fox, wolf, deer, duck and ruffed grouse (Meyn 1970). The area is also reported as representing 2 percent of the moose range of the Sudbury District, but it was hunted by only 1 percent of the polled moose hunters. Ontario Quarries personnel are reported to have experienced sightings of black bear, wolf, rabbit, squirrel, beaver and partridge.

The effect of quarry operation on land-based wildlife will be limited to noise and traffic that may cause wildlife to displace. However, it should be noted that one published scientific study showed that wildlife was not significantly affected by permanent camps in the wilds with loud operating generators, incinerators and aircraft traffic. The significant noise was not a deterrent to calving caribou which were seen to calf within 1/2 mile of the noisy installations (Calef & Lortie 1973). Also, caribou were seen to approach inhabited work camps and buildings to within 300 yards even with the noise. More research would be needed to determine the effects of noise and traffic on locational preference of wildlife in the quarry area. The area has always been serviced by a public access road where there has been significant traffic over many years. Therefore, the wildlife in the vicinity has already been subjected to man's activities and motor vehicle traffic in the past.

3.4 RESEARCH ON THE EFFECTS OF LIMESTONE

Several studies have been published which explore the beneficial effects of crushed or pulverized limestone on fisheries and on environments subjected to revegetation. In the Sudbury area, the manual surface application of limestone is known to be an effective trigger-factor in initiating "natural revegetation " (i.e. spontaneous colonization) by a wide variety of species (Winterhalder 1988). When a thin sprinkling of ground limestone is applied to the surface of barren soil, colonization occurs rapidly. Most of the seedlings arise from seeds that are blown in following liming. Manual seeding and fertilizing is not required.

Also, surface application of limestone on soils has a beneficial effect on ground water and stream water quality. An expert on revegetation (Winterhalder 1988) has stated that surface application of limestone in a watershed has raised groundwater and stream pH while it has depressed levels of Cu, Ni and Al in the water.

Limestone application has also been shown to reduce the amount of metal taken up and cycled by any plants that grow in the soil. For example, Cu, Ni and Al levels were reduced in leaves of tufted hairgrass, red pine and jackpine following surface limestone application in the Sudbury area by Winterhalder.

In terms of the effect of limestone on streams, Blake (1982) published a study indicating that the addition of limestone to acidic ponds in the Adirondacks resulted in improved pH and excellent trout habitats. Liming of streams is concluded to be an effective and economical management tool that can be used to counteract the impact of acid rain or acid drainage on trout fisheries.

This conclusion was also reached by Gunn and Keller (1981) who found that trout eggs that were incubated over winter in crushed limestone in an acidic lake yielded a very high survival of hatched alevins. On the other hand, eggs incubated in plain gravel were almost devoid of any alevin emergence.

A similar study by Pearson (1974) showed that limestone barriers can renovate acidic streams to the point where normal aquatic life can be restored. Further monitoring by the same researcher later showed that limestone barriers can increase pH by up to 3 pH units at low stream flows (Pearson 1975).

Another study on the effect of lime on the survival rate of trout was published by Turnpenny (1992). Here, the addition of lime increased survival rate of trout in a previously acidic stream where mortality rates of trout fry used to be about 50 percent. The beneficial effects of the liming were also seen in downstream trout fisheries as well.

Limestone is also often used as a neutralizing agent for acid mine drainage as reported by several authors. Burt & Caruccio (1986), Kleinmann et al (1983), Deul & Mihok (1967) and Rivett & Oko (1971) are just a few.

As a result of the above information, it would appear that any dusting with limestone on soils in the Harama Quarry area will accelerate the colonization of grass mixtures and revegetation. The Mowat Creek area is known to contain high pre-operative concentrations of some base metals and low pH values (see Section 3.5). The presence of ground limestone in the environment may bring these values back to acceptable standards according to the research cited. Also, the base metal levels found in jackpine and red pine may be improved by the presence of limestone.

3.5 THE MOWAT CREEK SYSTEM

3.5.1 Purpose of the Mowat Creek Study

Probably the most environmentally sensitive system in the area of the Harama Marble Quarry is Mowat Creek. For this reason, a study of some detail, including field work, sampling and analysis were conducted on this system. The main goals of the field work were twofold: 1) to take representative pre-operative samples of the water to provide baseline background values of water quality in Mowat Creek prior to the quarry work, and 2) to establish whether Mowat Creek is a warm or cold water fishery so that we can determine if it is a brook trout habitat.

Experienced independent environmental consultants were hired to conduct this work. Consultants included N.A.R. Environmental of Sudbury, Barringer Laboratories of Mississauga and Aquatic Ecostudies Ltd.

3.5.2 Water Quality in Mowat Creek

Water samples were collected in appropriate locations by N.A.R. Environmental. A photograph of the consultant at work is shown below. The water collected was sent to Barringer Laboratories for analysis. Other water quality parameters were measured in the field. Results for water quality and the acceptable standards for each parameter are shown in the table on the next page.

ENVIRONMENTAL CONSULTANT WITH WATER SAMPLE

PRE-OPERATIVE WATER QUALITY FOR MOWAT CREEK

MEASURED PARAMETER	MOWAT CREEK WATER	ACCEPTABLE STANDARD
Total Suspended Solids	0.2 mg / L	N/A
Total Dissolved Solids	61 mg / L	N/A
Total Phosphorous	0.016 mg / L	0.030 mg / L
Total K-Nitrogen	0.66 mg / L	N/A
Copper	0.003 mg / L	0.005 mg / L
Nickel	0.007 mg / L	0.025 mg / L
Iron	0.030 mg / L	0.030 mg / L
pH (measured in field)	6.2	6.8 - 8.5
Dissolved Oxygen	8.0 mg / L	N/A
Conductivity	30 umhos / cm	N/A

The above pre-operative values for water quality in Mowat Creek show high values for phosphorous, total dissolved solids, iron and copper and also show a low pH and relatively high acidity (with respect to pH required for fish habitats).

The high phosphorous count is definitely due to the fact that creek waters flow down from a very swampy upstream reach of river. During its passage through the boggy area, the water has picked up a relatively large quantity of nutrients which translates into the high phosphorous values.

Much of the upstream shoreline areas are boggy and this is reflected also in the total dissolved solids count. This value is high when compared with other creek waters in general. The iron content of the water, which is presently at its maximum permissible limit before the quarry operation begins, is also a result of the bogs upstream. The dangerously high iron content is associated with the dissolution of iron out of peat lands and bogs. This, in turn, results in increased acidity of the waters, as seen in the lower than ideal pH value. It should be cautioned that the pH was measured only once by the consultant. It is felt that this measurement may in fact be higher than expected for this section of Mowat Creek because of the bogs upstream. Peat bogs have a general pH value around 3.5, which is highly acidic. There definitely would be periods of time when the measured pH at this location in Mowat Creek will be lower. The stretch of wetlands, peat bogs and swamp upstream from the bridge crossing will definitely tend to depress the pH of the creek water because of the humic gases produced upstream. This will result in acidic conditions that will have a sure detrimental effect on fish populations.

Other than the above, the water is relatively clear and free of suspended solids. The copper content is relatively high and very near its upper acceptable limit. The nickel content is acceptable. More on pH and base metal content is given further below.

3.5.3 Benthic Analyses

Benthic samples were collected by N.A.R. Environmental staff. Photographs showing the sample collection work are shown on the next page. After collection, the benthic macroinvertebrates were sorted and isolated in 4 separate domains: insects, crustaceans, molluscs and annelids. These were then sent for professional taxonomic identification by Aquatic Ecostudies Ltd. The various species identified are given on page H-21.

It should be stressed that, according to the environmental consultant doing the work, the benthic community present in this section of Mowat Creek is highly representative of a warm water environment.

3.5.4 Aquatic Vegetation

Aquatic macrophytes downstream of the control point include such vegetation as coontail, reeds, rushes, waterlilies and elodea. According to the environmental consultant, these plants are common to warm water fisheries.

3.5.5 Creek-Bed Substrates

The substrates along the creek bed both upstream and downstream of the control point consist of organic detritus. This type of material causes lower pH's and is not indicative of a cold-water fishery. Immediately at the control point (i.e. immediately under the bridge crossing), the creek bed is on a solid rock formation (diabase) with several large cobbles and small boulders strewn about loosely. The rock and boulders extend through a reach of about 40 metres before again running into heavy bog.

ENVIRONMENTAL CONSULTANT SAMPLING MOWAT CREEK

ENVIRONMENTAL CONSULTANT SORTING SAMPLES USING TWEEZERS

Table 1: Benthic Macroinvertebrates Present in Mowat Creek, September 1993

Insects:		
	BEETLES:	
		Elmidae:
		Optioservus
	CADDISFLIES:	
		Polycentropodidae:
		Polycentropus
		Hydropsychidae:
		Cheumatopsyche
		Hydropsyche
	DAMSELFLIES:	
		Protoneuridae:
		Agrion maculatum
	DRAGONFLIES:	
		Aeshnidae:
		Boyeria grafiana
		Gomphidae:
		Ophiogomphus carolus
		Hagenius hivistylus
	MAYFLIES:	
		Heptageniidae:
		Stenacron
		Stenonema vicarium
		Stenonema femoratum
		Oligoneuriidae:
		Isonychia
		Ephemerellidae:
		Eurylophella
	STONEFLIES:	
		Perlidae:
		Acroneuria lycorias
	TRUE FLIES	
		Chironomidae:
		Microtendipes
Crustaceans:		
	AMPHIPODS:	
		Hyalella azteca
	CRAYFISHES:	
		Asteridae:
		Orconectes propinquus
Molluscs:		
	CLAMS:	
		Sphaeridae:
		Musculium securis
Annelids:		
	LEECHES:	
		Erpobdellidae:
		Nephelopsis obscura
	WORMS:	
		Tubificidae

3.5.6 Fish Sampling

Deep organic substrates on the bottom of the creek bed prevented electroshocking or seining for fish species. A seine and dip net were used to sample some sections of the reach upstream of the control point. A number of minnow species (Cyprinidae) and sticklebacks (Culaea inconstans) were captured. According to the consultant, none of the fish caught are coolwater indicator species.

3.5.7 Depth, Canopy and Water Temperatures

The depth of the creek waters varies considerably with the seasons. A water level profile with respect to creek bed over a distance of 65 metres was done on September 15, 1993. Results are shown on page 24.

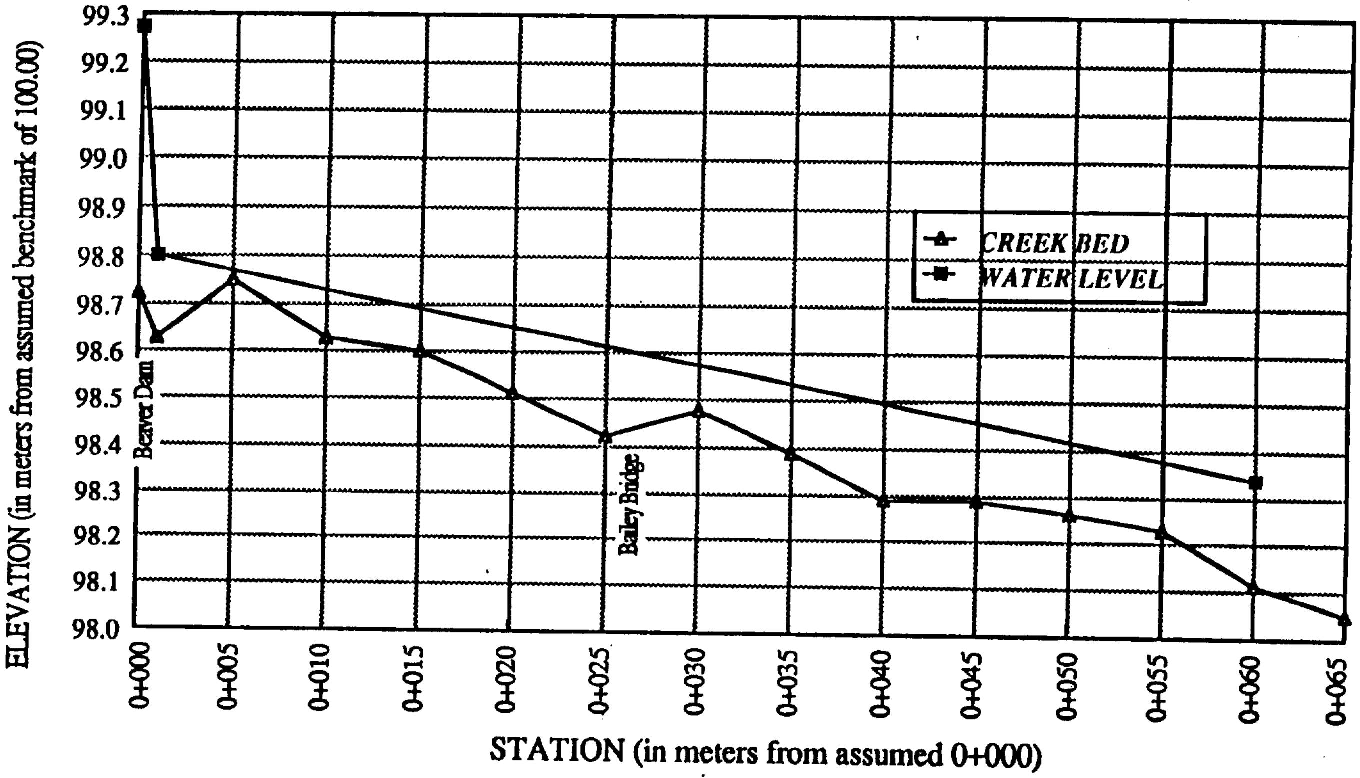
The depth of the creek is seen to average about 0.1 metre (4 inches) throughout the length of the 65 metre reach on the date measured. It is expected that there would be significant variations in the water temperature at any given time. Also, there is very limited canopy cover on the reach upstream of the control point. This indicates that there is very little shade available and that stream temperatures could not easily be maintained in the cool water range. A published study by Sabean (1976) proves this. Sabean states that brook trout prefer temperatures of 14 to 16 degrees Celsius whereas temperatures in excess of 25 degrees are lethal to trout. Sabean's study found that streams with poor canopy cover exceed 25 degrees during the warmest part of the day and that the rate of increase of water temperature depends on the size of the stream, substrate and volume of flow. Re-entry into a canopied reach of stream will decrease the temperature somewhat, but at a slower rate. Therefore, the elevated temperature may never return to its original level.

To verify temperatures in Mowat Creek, temperature was measured in a shaded area of the creek on the afternoon of August 27, 1993. Temperature was found to be 27 degrees Celsius. According to all literature reviewed, any temperature above 25 degrees is lethal for brook trout. Mowat Creek could obviously not then be an environment where brook trout can live.

The temperatures of other creeks in the immediate geographical area relative to Mowat Creek were also measured on the same day and within the same hour-and-a-half period. All temperatures were measured in shaded areas with conditions as consistent as possible. The purpose of this exercise was to determine if other creeks would indicate cold-water temperatures in the same climatic condition and same time. All creeks were within a 15 km radius of Mowat Creek. One creek (rumored to be a brook trout creek by local anglers) showed a temperature of 23 degrees, which is an upper limit for a cold water fishery.

A summary of temperatures measured in various streams with photographs of the sites is given on page 25 to page 31. In that report, culvert sizes were also measured at the various crossing sites for comparison with culverts recommended by MNR at Mowat Creek. The largest culverts found on surrounding creeks were twin 48 inch culverts. The culverts requested by MNR for the Mowat Creek crossing are twin culverts of 13.1 feet in diameter, each measuring over 80 feet long. We found this to be excessive for the existing site conditions and MNR has since changed their design, reducing the diameter several times.

PROFILE OF MOWAT CREEK BED AND WATER LEVEL



NOTES:

1. *Elevations are in meters relative to an assumed benchmark of 100.00 taken as a point on the bedrock at north-east corner of existing bailey bridge foundation where the access road crosses Mowat Creek. The benchmark was permanently marked with survey paint.*

2. *Stations are measured in meters along the centerline of the creek from an assumed 0+000 located at a point immediately west (upstream) of the existing beaver dam which is 26 meters west of the centerline of the existing bailey bridge.*

3. *The vertical scale is greatly exaggerated with respect to the horizontal scale and therefore, the profile will seem steep when viewing the graph. The actual slope of the channel through this section represents a 1.2 percent grade.*

I hereby certify that I personnally conducted all field work leading to the above profile and that the information given above is true and accurate as of September 15, 1993.

Rachel Prudhomme

LICENSED PROFESSIONAL ENGINEER
R. PRUDHOMME
PROVINCE OF ONTARIO

Rachel Prudhomme, M.Sc., P.Eng.

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CULVERT SIZES AND STREAM TEMPERATURES
(for road crossings in the Mowat Creek area)

August 27, 1993

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On Thursday, August 26, 1993, Ontario Quarries Inc. received correspondence from Karen Laws of MNR stating that the crossing at Mowat Creek and the existing hydro access road would require 2 culverts of 13.12 feet (4.0 m) in diameter each and 83.99 feet (25.6 m) long. I have since then received correspondence from MTO (who have conducted very detailed calculations based on several maps and aerial photographs) indicating that 1 culvert of 7.22 feet (2.2 m) or equivalent would be sufficient to handle the flow requirements in this case.

Because of the extreme discrepancy, Ontario Quarries Inc. reviewed existing road/creek crossings in the immediate vicinity to determine the average size of culverts in similar streams and the temperature of those streams. The results are given in this report.

Five culvert crossing sites were encountered in the area. In summary, it was found that the creek crossings along the highway (RR84) and on Portelance Road consist of twin culverts ranging in diameter from 24 inches to 48 inches. The water temperature in all cases was cooler than the Mowat Creek temperature. Mowat Creek was the warmest creek water, having a temperature of 80 degrees Fahrenheit. Similar creeks in the area had temperatures ranging in the mid 70's.

I hereby certify that the information contained in this report is true and accurate as measured by me on August 27, 1993.

Rachel Prudhomme

Rachel Prudhomme M.Sc., P.Eng.

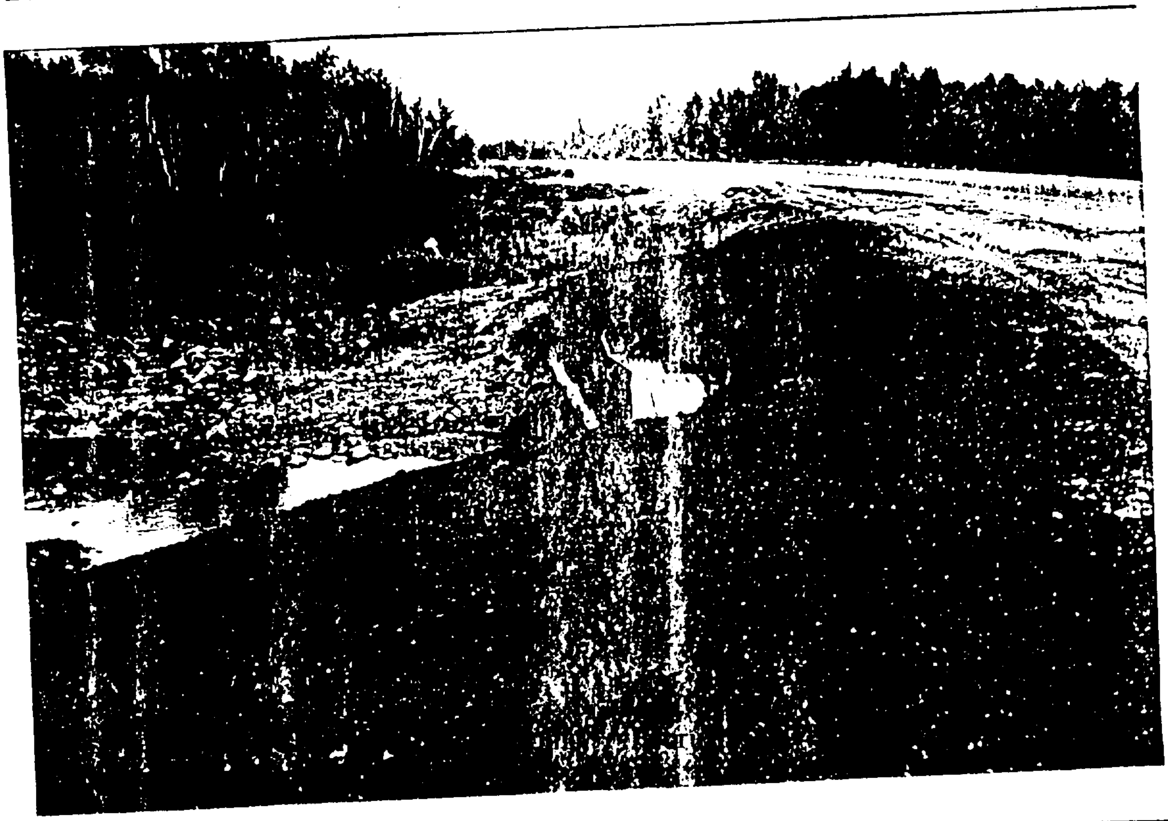
LICENSED PROFESSIONAL ENGINEER
R. PRUDHOMME
PROVINCE OF ONTARIO

SITE 1:

Location: Creek crossing RR84 at a location 0.3 km from the N.W. limit of the Capreol Townsite (Note: this is a new culvert installation; culverts were installed in late August 1993 by Regional Municipality of Sudbury crews).

Installation: 2 parallel culverts, 48"Ø each

Water Temperature: 78° F (= 25.6°C)



SITE 2:

Location: Creek crossing along RR84 at 1 km south of P.I. with Portelance Rd.

Installation: 2 parallel culverts, 36"Ø each

Water Temperature: 75° F (= 23.9 °C)

SITE 3:

Location: Mowat Creek crossing at existing Hydro Access Road in Parkin Twp (Ontario Quarries Inc. Mineral Property)

Installation: Existing "single, single" Bailey Bridge owned and installed by Ontario Hydro Opening under bridge is 63 inches vertically to the bottom of the creek bed and the average effective span is 14 ft.
The existing stream under the bridge has a flow depth of average 5 inches and flow width of 6 feet.

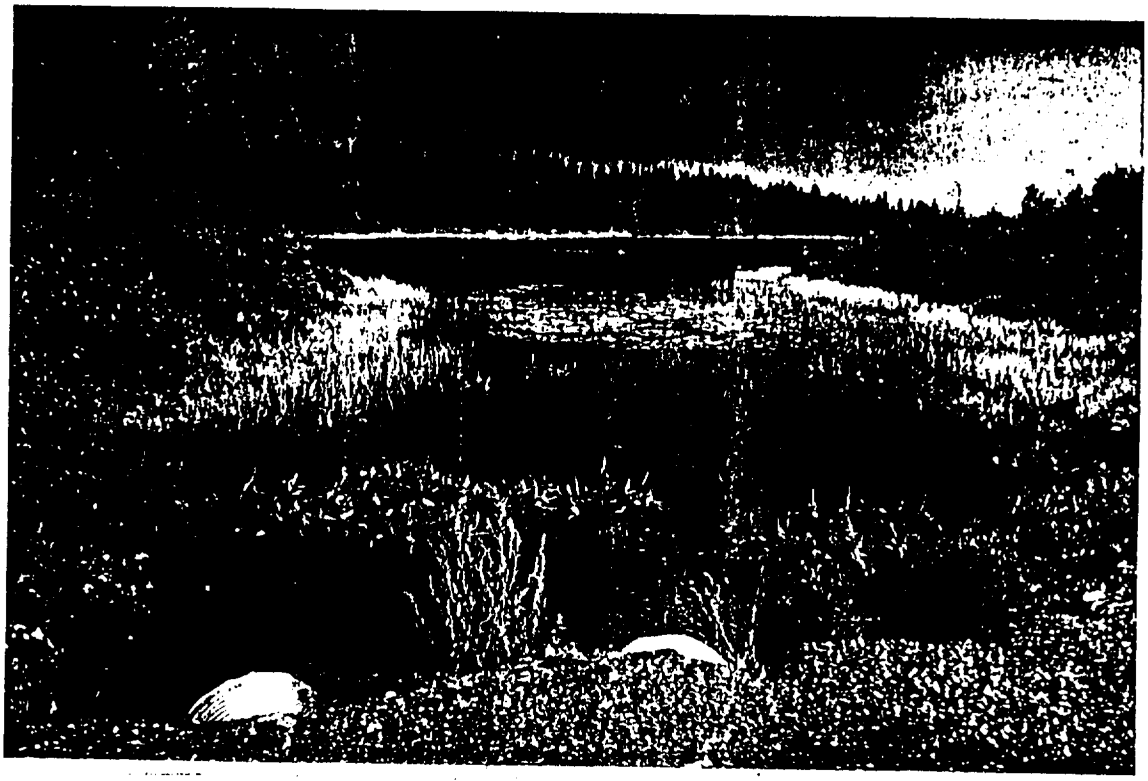
Water Temperature: 80° F
(26.7°C)

SITE 4:

Location: Creek crossing along RR84 at 4.6 km north of P.I. with Portelance Rd.

Installation: 2 parallel culverts, 36"Ø each

Water Temperature: 79° F (= 26.1 °C)

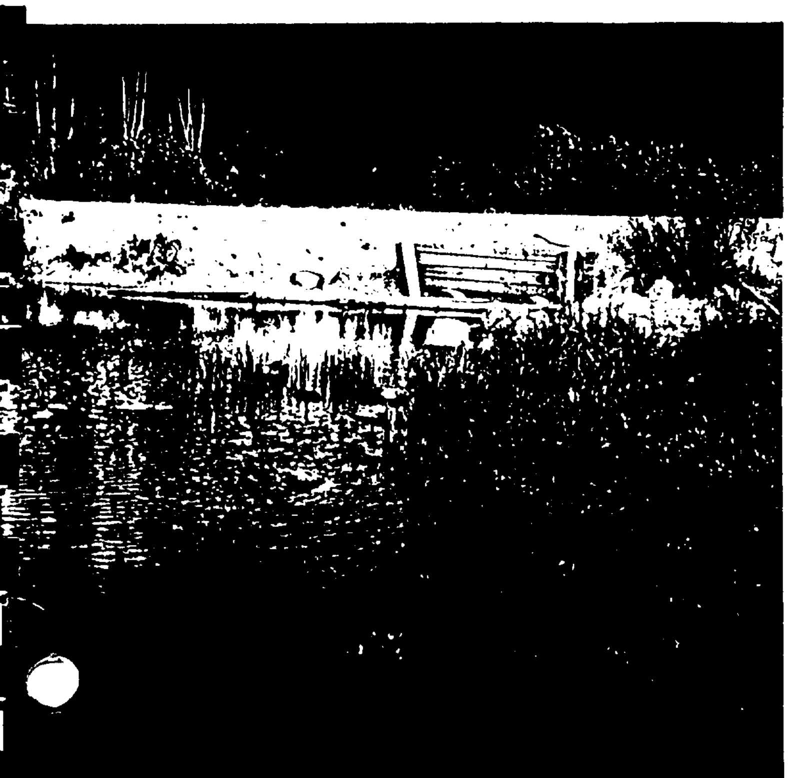


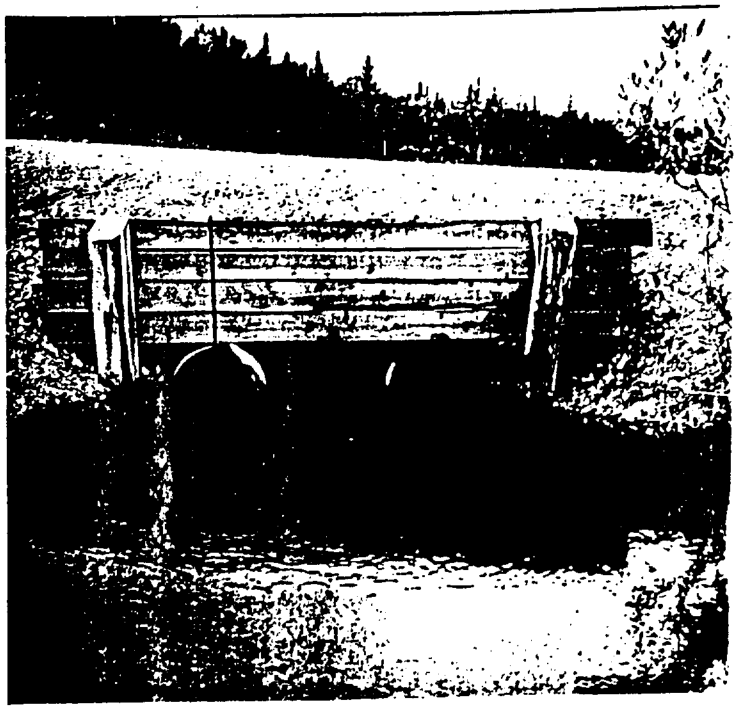
SITE 5:

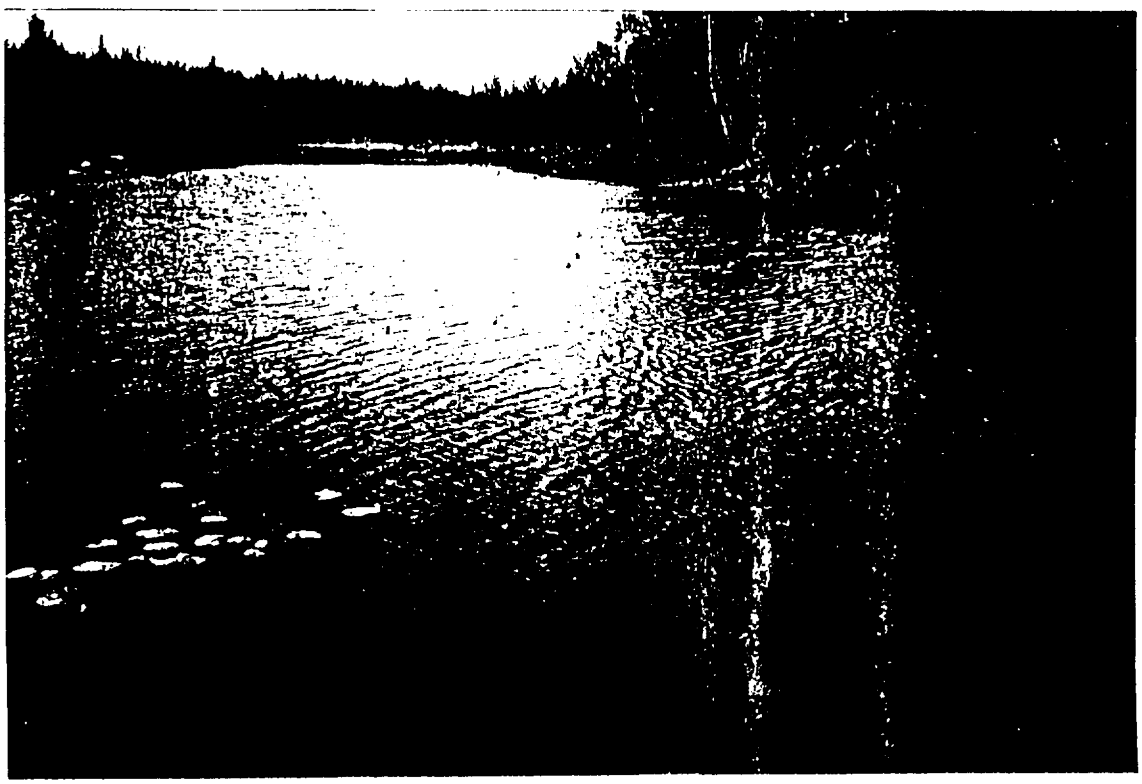
Location: Creek crossing along Portelance Rd at 1.2 km east of its intersection with RR84

Installation: 2 parallel culverts, 24"Ø each

Water Temperature: 74° F (= 23.3 °C)







3.5.7 The Great Debate: Brook Trout or No Brook Trout

In our opinion and in the opinion of the independent environmental specialist who tested the site, there is no debate as to whether Mowat Creek is a trout habitat or not. The answer, based on several scientific factors measured and studied, is that all indications are that this is a warm water environment and it is not compatible with brook trout. MNR claims that Mowat Creek is a brook trout stream and that Ontario Quarries must be charged for compensation for destruction of fish habitat when we upgrade the creek crossing (the existing bridge has been condemned). MNR also wants to prevent Ontario Quarries from conducting any work near the stream from September to June every year in order to protect brook trout spawning, leaving us with a very short window in which the work can be conducted. However, MNR admits that they have absolutely no scientific data to support this claim and they are not about to conduct any studies to prove whether or not their claim is true. They are not interested in reviewing our scientific data and are totally unwilling to compromise on this issue.

The fact that Mowat Creek is a warm water environment and is definitely not a brook trout stream is supported by the following scientific data collected by the independent environmental consultant we hired to conduct a fisheries study of the Creek:

a) pH Values: Acid conditions below a pH value of 5.0 are lethal to brook trout (Blake 1982). In addition, pH values of 6.5 and lower result in significantly less embryo hatchability of brook trout eggs and reduced growth and survival of alevins. Michalski et al (1987) show a preferred pH of 7.5 to 8.0 for brook trout but state that pH's in the 6.5 to 8.6 range are acceptable. The one-time measured pH at one location near the bridge crossing at Mowat Creek was 6.2, which is below the acceptable standard for brook trout. It is strongly felt by the environmental consultant that the measured pH is probably higher than true for that area because of the domination of boggy substrates. Bogs have a general pH of 3.5 and the high predominance of bogs in this reach of Mowat Creek coupled with a very high iron content would normally result in a lower pH than measured. In any case, the high measured value is still low for a brook trout habitat.

b) Water Quality Indices: The measured iron, copper, phosphorous and total dissolved solids content of the water sample sent for analysis were very high. In fact, the pre-operative iron content is at its upper acceptable limit.

c) Depth of Water: Cold water species prefer deeper ponds (depth >3m) where water temperature in mid-summer will remain cool (Michalski et al 1987). Mowat Creek is 4 inches deep (0.1 m) throughout most of the control lengths studied. Deeper reaches upstream and downstream are lined with thick organic detritus and bogs which are not suitable for brook trout.

d) Canopy Cover: Michelski et al (1987) report that the preferred habitat of brook trout has abundant cover from branch overhangs and bogs. This canopy is not available along the length of Mowat Creek studied. Temperatures in the sparse shaded areas were very high (27 degrees Celsius) which is lethal for brook trout. Even if this stream is spring fed, which it possibly is not, water temperatures cannot remain cool enough for brook trout.

e) Bottom Substrates: The organic bottom found in upstream and downstream reaches of Mowat Creek are not suitable for trout. In fact, such bogs will elevate the iron and phosphorous content of the stream waters and will lower pH to the acidic range. All indications are that brook trout cannot survive in such environments. Michelski et al (1987) report that a brook trout habitat must have a sand and gravel bottom with occasional muck, marl and clay. This is definitely not found here. Also, the size and nature of the boulders found along a brief reach of Mowat Creek under the existing Bailey bridge (the only nearby reach of the creek where there are no bogs) is not typical of brook trout habitat.

f) Water Temperature: Michalski et al (1987) show that the preferred temperature of brook trout is 16 to 18 degrees Celcius. All literature indicates that water temperatures above 25 degrees are lethal for brook trout. The measured temperature in a shaded area of Mowat Creek in late August was 27 degrees which is lethal. One reference states that 20 degrees is seen as the upper limit of water temperature for all stages of a brook trout's life history. Midsummer creek temperatures should be at 19 degrees for trout.

The effect of water temperature on trout populations cannot be underestimated. Trout species were found to be the most sensitive fish species to high temperatures. The upper avoidance temperature for trout are much lower than any species of other families (Cairns 1982). The upper avoidance temperature for trout is reported by Cairns as ranging from 13 to 15 degrees Celcius. This is much much cooler than the measured 27 degrees.

g) Actual Fish Captured in the Creek: The environmental consultant captured some fish samples in the creek. Netting found a predominance of minnows (cyprinidae). The presence of this

Rehabilitation requirements have been discussed with MNR and MNDM personnel. We have been instructed to ensure that none of the slopes left in our gravel pit in Hutton Township will be steeper than 3:1. Disturbed areas in the gravel pit should be covered with a fine layer of stockpiled topsoil to permit natural revegetation of the slopes as much as possible.

For the actual quarry site, we were asked to ensure that any steep rock face be cordoned off at the top after closure to prevent wildlife and curious public from walking over the edge of the rocky cliff. We were also asked to stockpile topsoil and to try to only disturb land in the immediate area being quarried. MNR also asked that we consider rehabilitating the land on an on-going progressive basis as much as possible (i.e. as soon as a work area is depleted and will no longer be worked, we should rehabilitate that section, no matter how small, and cover with topsoil to allow natural vegetation to grow in).

Ontario Quarries Inc. intends to comply with all of the above requirements. It is important to note, though, that it is impossible for soils to be reconstructed to their original form once quarrying has been completed (Law 1984). The highest priority is the establishment of plant material and protection of surface and groundwater supply from chemical pollution. Rehabilitation problems occur when the pH of soils is below 3 or above 8.5. The use of crushed or ground limestone available from the quarry operations can couteract acidity and speed up growth if needed.

Problems also exist where there is high conductivity (i.e. high salt content) in the ground. This is not expected at the quarry site. If it does occur, there are salt-resistant grasses that can be planted to overcome this problem.

The use of topsoil in the rehabilitation of quarry sites is most critical, as it can save decades or centuries of work by the biological community (Law 1984). Without topsoil, ecological succession starts with crushed rock which lacks the qualities of soil. The crushed rock will not become soil until it is chemically weathered to free nutrients needed by plants or until humus from plant and animal debris becomes abundant. Because of this, it is very important to stockpile topsoil on site for future use. If topsoil is not stockpiled, it can be imported to the site from other sources.

Natural vegetation consisting of the plant species best adapted to the altered microenvironment will establish itself as the pioneer community in a disturbed area. This natural succession will be accelerated by the use of suitable topsoil and by the addition of limestone to prevent acidity. The dominant pioneer species will decrease as more permanent species reflective of the general undisturbed environment in the area establish themselves. The sequence of revegetation is hence in the following order: 1) topsoil containing an organic fraction and proper pH; 2) grasses; 3) small shrubs; and 4) coniferous evergreens will finally repopulate the area (Winterhalder 1988).

The area to be disturbed by this relatively small quarry is limited. Rehabilitation of lands and waters will be possible to accomplish on an on-going basis. It is expected that no harmful outcome will result from this operation.

5. INFORMATION AND REFERENCE MATERIALS ON THE ENVIRONMENT

A computerized database search of several relevant electronic databases available commercially was effectuated to identify references and sources of information of specific interest to Ontario Quarries Inc. for the Harama Quarry operation. Information was sourced out according to 4 main domains:

a) environmental studies, audits, assessments or impacts relating to mining or quarrying marble or limestone;

b) benthic sampling and analyses

c) brook trout habitats

d) effect of limestone on soils and on water quality in streams

The electronic databases interrogated on-line included the following:

Aquatic Sciences and Fisheries Abstracts
Engineering Index (Compendex Plus) 1990 - 1994
Engineering Index (Compendex Plus) 1972 - 1989
Enviroline
Mintec (EMR Canada)
Micrologic
Canadian Water Resources References (AQUAREF)
Environment Canada Library Network (ELIAS)
The Northern Database (BOREAL)

Bibliographic citations and several abstracts were displayed on-line and stored. The logic, citations and abstracts were printed out and are included on the next several pages. The last page includes additional references consulted as part of the envionmental study which were located through manual sourcing at various local libraries.

Environmental Information and Reference Materials for the Harama Marble Quarry

ONTARIO QUARRIES Inc. / February 1994

ASFA 1978 - January 94
(AQUATIC SCIENCES AND FISHERIES ABSTRACTS)

Last Update:
94-01-29

```
 1/
s mine or mines or mining or quarr* or marble or limestone
            428      mine
            69       mines
            1369     mining
            34       quarr* (  3   *--*TERMS )
            24       marble
            472      limestone
 SET    1: 2154      mine or mines or mining or quarr* or marble or
                      limestone ASONE SET
 2/
s environmental
 SET    2: 24086     environmental
 3/
s study or studies
            13912    study
            17974    studies
 SET    3: 31287     study or studies ASONE SET
 4/
s impact
 SET    4: 7629      impact
 5/
s assessment
 SET    5: 12809     assessment
 6/
s s1 and s2 and s3
 SET    6: 51        (1 and 2 and 3) ASONE SET
 7/
s (s1 and s2 and s4) not s6
 SET    7: 180       ((1 and 2 and 4) AND NOT 6) ASONE SET
 8/
s (s1 and s2 and s5) not (s6 or s7)
 SET    8: 7         ((1 and 2 and 5) AND NOT (6 or 7)) ASONE SET
 9/
s s6 and s7 and s8
 SET    9: 0         (6 and 7 and 8) ASONE SET
 10/
s s6 or s7 or s8
 SET   10: 238       6 or 7 or 8 ASONE SET
 11/
type s10//1-10

      10 / 1
AN - 1803155
VN - N2401: 3-00273
RE - 9432400273
TI - The price of gold. Environmental costs of the new gold rush.
AU - Greer, J.
PU - ECOLOGIST., (1993), vol. 23, no. 3, pp. 91-96.
NU - ISSN 0261-3131
LA - English

      10 / 2
   - 1802344
   - N2311: 1-21744; N2401: 3-00226
RE - 9412321744
TI - Sediment pollution in a gravity irrigation system and its effects
```

on rice production.
AU - Castaneda, A.R.; Bhuiyan, S.I. (Soil and Water Sci. Div., Int. Rice Res. Inst., P.O. Box 933, 1099 Manila, Philippines)
PU - AGRIC., ECOSYST. ENVIRON., (1993), vol. 45, no. 3-4, pp. 195-202.
`U - ISSN 0167-8809
A - English

10 / 3
AN - 1801894
VN - N2310: 1-19076; N2401: 3-00694
RE - 9412319076
TI - The structure of megabenthic assemblages of an abyssal polymetallic nodule province located in the tropical east Pacific Ocean.
La structure des assemblages megabenthiques d'une province a nodules polymetalliques de l'ocean Pacifique tropical Est
AU - Tilot, V.
CS - Bretagne Occidentale Univ., Brest (France)
PU - BREST (FRANCE), UNIV. BRETAGNE OCCIDENTALE, 1992, 380 pp
LA - French

10 / 4
AN - 1782206
VN - N2306: 3-06772
RE - 9332306772
TI - Forum on Science and Resource-Related Issues in Hydroelectric Development. An unpublished report prepared for the Office on Energy Research and Development, Department of Energy, Mines and Resources, Ottawa, Ontario.
AU - Reeves, R.R.; Bunch, J.N. (eds.)
CS - Department of Fisheries and Oceans, Ottawa, ON (Canada). Physical and Chemical Sciences Dir.
"I - 1993, 43 pp
- Presented at: Forum on Science and Resource-Related Issues in Hydroelectric Development, Ottawa, ON (Canada), 7 Jan 1993
LA - English

10 / 5
AN - 1781824
VN - N2306: 3-06180
RE - 9332306180
TI - Use of hyporheic samplers in assessing mine drainage impacts.
AU - Nelson, S.M.; Roline, R.A.; Montano, A.M. (Environ. Sci. Sect., Bur. Reclamation, Denver, CO 80225, USA)
PU - J. FRESHWAT. ECOL., (1993), vol. 8, no. 2, pp. 103-110.
NU - ISSN 0270-5060
LA - English

10 / 6
AN - 1781034
VN - N2310: 2-07971; N2306: 3-06780
RE - 9322307971
TI - The recovery and processing of iron-manganese nodules and the turbidity of the bottom layer of the ocean.
AU - Baturin, G.N.; Demidova, T.A.; Kontar', Y.A.; Kurlayev, N.D. (Shirshov Inst. Oceanol., Acad. Sci., Moscow, Russia)
PU - OCEANOL. ACAD. SCI. USSR., (1991), vol. 31, no. 4, pp. 473-481.
LA - English

10 / 7
- 1776229
- N2305: 3-05484
RE - 9332305484
TI - Workshop to design baseline and monitoring studies for the OCS

Ontario | Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number W9

Assessment Files Research Imaging

41I15SW0227 2.17277 PARKIN 900

2.17277

Person... Mining... Questio... 933 Ra... ons 65(2) and 66(3) of the Mining Act. Under section 8 of the assessment work and correspond with the mining land holder. Ministry of Northern Development and Mines, 6th Floor,

Instru... ...work performed on Crown Lands before recording a claim, use form 0240.
- Please type or print in ink.

RECEIVED MAY 9 1997 MINING LANDS BRANCH

1. Recorded holder(s) (Attach a list if necessary)

Name: ONTARIO QUARRIES INC | Client Number: 223661

Address: MR FRANK VILLANO 1290 BANCROFT DR. P3B 4E1 Sudbury, ONT | Telephone Number: 526 0694 | Fax Number:

Name: Please forward a copy to agent | Client Number:

Address: | Telephone Number: | Fax Number:

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

☑ Geotechnical: prospecting, surveys, assays and work under section 18 (regs)
☑ Physical: drilling, stripping, trenching and associated assays
☐ Rehabilitation

Work Type: Diamond drilling, stripping, trenching
- Geology
- Airtrack drilling, diamond saw cutting - extraction of blocks
- environmental study

Dates Work Performed: From 15 01 93 To 31 12 93 (Day Month Year)

Global Positioning System Data (if available):

Township/Area: PARKIN TWP

M or G-Plan Number: G2915

Office Use	
Commodity	
Total $ Value of Work Claimed	
NTS Reference	
Mining Division	Sudbury
Resident Geologist District	Sudbury

Please remember to:
- obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: R. Prudhomme (OMIP report) | Telephone Number:

Address: 1177 Lonsdale Ave, Sudbury, ONT. P3B 1K3 | Fax Number:

Name: E. Sawitzky (Norwin Geological Ltd) | Telephone Number:

Address: unknown | Fax Number:

Name: John Brady | Telephone Number: 705-5254129

Address: 1227 Holland Rd. Sudbury, ONT. P3A 3R1 | Fax Number:

4. Certification by Recorded Holder or Agent

I, JOHN BRADY (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent: John Brady | Date: April 19/97

Agent's Address: 1227 Holland Rd. Sudbury, ONT. P3A 3R1 | Telephone Number: 705-5254129 | Fax Number:

Deemed - July 31 /97

5. **Work to be recorded and distributed.** Work can only be assigned to claims that are contiguous (adjoining) to the mining land where work was performed, at the time work was performed. A map showing the contiguous link must accompany this form.

	Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.	Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributed at a future date.
eg	TB 7827	16 ha	$26, 825	N/A	$24,000	$2,825
eg	1234567	12	0	$24,000	0	[illegible]
eg	1234568	2	$ 8, 892	$ 4,000	0	[illegible]
1	865266	1	134,000			[illegible]
2	734218	1	100,000			[illegible]
3	865267	1	7500			[illegible]
4	865268	1	7500			[illegible]
5	1042298	1	7809			[illegible]
6	865264	1	7800			[illegible]
7	865265	1	7500			[illegible]
8	865269	1	7500			[illegible]
9	1042300	1	7500			[illegible]
10	1042299	1	7500			[illegible]
11	1118314	1	7500			[illegible]
12	1042297	1	7500			[illegible]
13	1118313	1	7500			7500
14	1042962	1	7500			[illegible]
15	1118312	1	7500			[illegible]
16 ~~15~~	1042961	1	7500			[illegible]
		Column Totals	339607			339607

I, JOHN BRADY (Print Full Name), do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.

Signature of Recorded Holder or Agent Authorized in Writing: John Brady

Date: April 1997

6. **Instructions for cutting back credits that are not approved.**

Some of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to prioritize the deletion of credits:

- ☐ 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- ☐ 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- ☐ 3. Credits are to be cut back equally over all claims listed in this declaration; or
- ☐ 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):
- ☒ 5. cut back on claims 865266, 734218

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only Received Stamp	SUDBURY MINING DIV. RECEIVED MAY 0 2 1997 A.M. 7 8 9 10 11 12 1 2 3 4 5 6 P.M.	Deemed Approved Date	Date Notification Sent
		Date Approved	Total Value of Credit Approved
		Approved for Recording by Mining Recorder (Signature)	

RECEIVED MAY - 9 1997 MINING LANDS BRANCH

Ontario | Ministry of Northern Development and Mines

Statement of Costs for Assessment Credit

Transaction Number (office use) W9770.00156

Personal information collected on this form is obtained under the authority of subsection 6(1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

2.17277

Work Type see p920 of report	Units of Work Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.	Cost Per Unit of work	Total Cost
Labour - Prospecting	202 days	100.00	20200.
Power stripping/block extraction ~~quarry face development~~	contract FHR Const.		389425
Drilling	Contract FHR - LaCharelle		189010.
Environmental	contract		25,000.
Linecutting	contract - Norwin Geological		25,000.
Geological	" " "		20,000.
Associated Costs (e.g. supplies, mobilization and demobilization).			
Transportation Costs			
202 trips @ 108 KM/Round trip = 21,816 KM @ .30		.30	6544.00
Food and Lodging Costs			
Food est. 202 mandays		20.00	4040.00
		Total Value of Assessment Work	~~668,635.~~ 679,219.00

RECEIVED
MAY - 9 1997
MINING LANDS BRANCH

Calculations of Filing Discounts:

1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

TOTAL VALUE OF ASSESSMENT WORK × 0.50 = 339,609. Total $ value of worked claimed.

Note:
- Work older than 5 years is not eligible for credit.
- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

Certification verifying costs:

I, John Brady (please print full name), do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as Agent (recorded holder, agent, or state company position with signing authority) I am authorized to make this certification.

Signature: John Brady | Date: April 19/97

0212 (02/96)

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Ontario

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9846
Fax: (705) 670-5881

February 18, 1998

ONTARIO QUARRIES INC.
1290 Bancroft Drive
SUDBURY, ONTARIO
P3B 4E1

Submission Number: 2.17277

Dear Sir or Madam:

		Status
Subject: Transaction Number(s):	W9770.00156	Approval After Notice

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Lucille Jerome by e-mail at jeromel2@epo.gov.on.ca or by telephone at (705) 670-5858.

Yours sincerely,

ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Correspondence ID: 11429

Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.17277

Date Correspondence Sent: February 18, 1998 **Assessor:** Lucille Jerome

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9770.00156	865266	PARKIN	Approval After Notice	September 02, 1997

Section:
16 Drilling PDRILL
12 Geological GEOL
18 Other ENVIRO
10 Physical PMAN

The 45 days outlined in the Notice dated July 18, 1997, have passed.

Assessment work credit has been approved as outlined on the attached Distribution of Assessment Work Credit sheet.

Correspondence to:
Resident Geologist
Sudbury, ON

Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):
John Brady
SUDBURY, ONTARIO, CANADA

ONTARIO QUARRIES INC.
SUDBURY, ONTARIO

Correspondence ID: 11429

Distribution of Assessment Work Credit

The following credit distribution reflects the value of assessment work performed on the mining land(s).

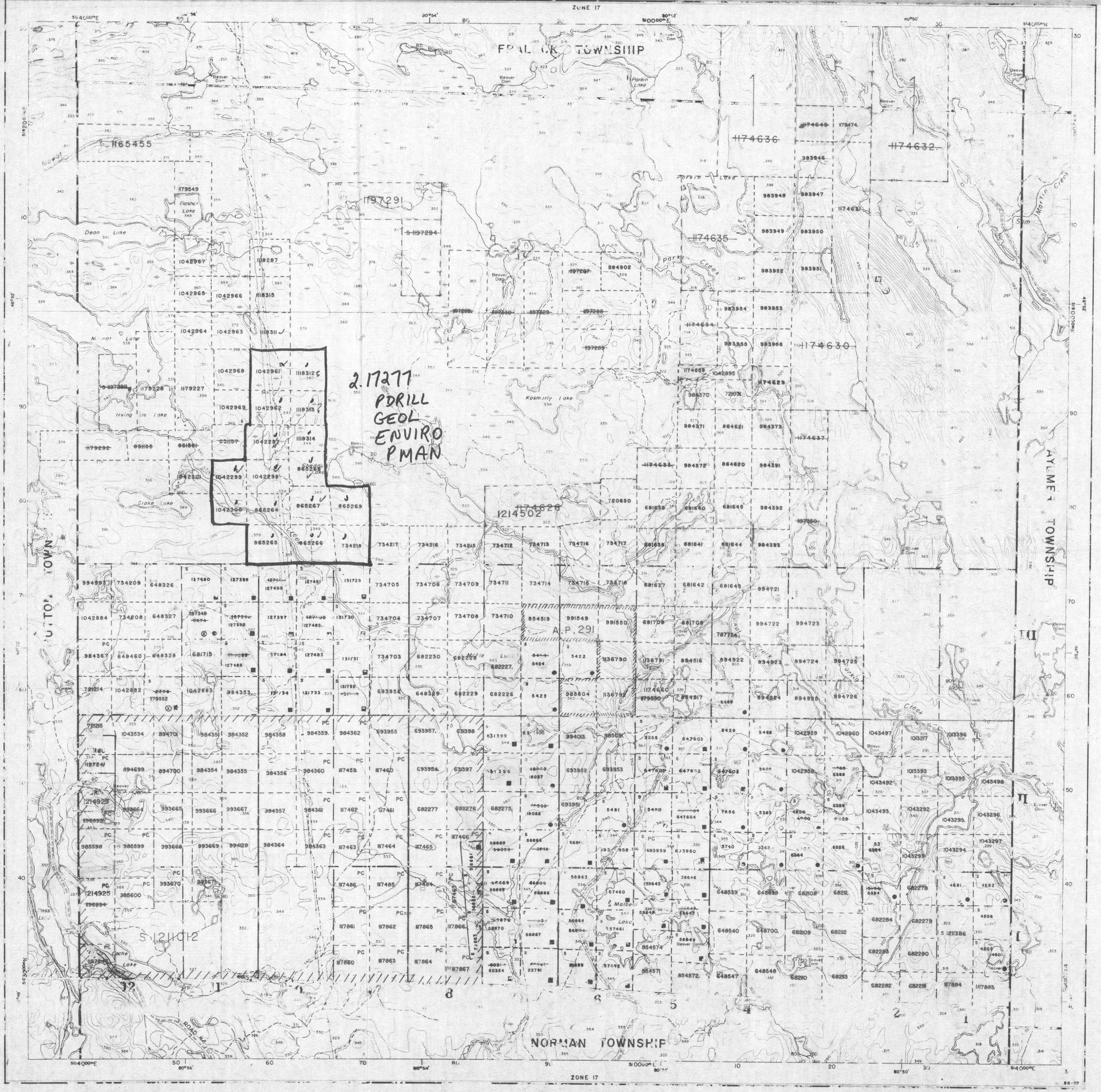
Date: February 18, 1998

Submission Number: 2.17277

Transaction Number: W9770.00156

Claim Number	Value Of Work Performed
1042961	2,700.00
1118312	1,600.00
1042962	2,100.00
1118313	2,100.00
1042297	2,000.00
1118314	1,800.00
865268	2,250.00
865266	95,297.00
1042298	7,500.00
1042299	2,000.00
1042300	1,300.00
865264	4,600.00
865267	2,800.00
865269	2,000.00
865265	1,300.00
734218	9,100.00
Total: $	140,447.00

Correspondence ID: 11429



Ministry of Natural Resources — Ministry of Northern Development and Mines — Ontario

PUT INTO SERVICE MARCH 18, 1994

2.17277

INDEX TO LAND DISPOSITION

PLAN
G-2915

TOWNSHIP
PARKIN

M.N.R. ADMINISTRATIVE DISTRICT
SUDBURY

MINING DIVISION
SUDBURY

LAND TITLES/REGISTRY DIVISION
SUDBURY

Scale 1:20 000

Contour Interval 10 Metres

AREAS WITHDRAWN FROM DISPOSITION

MRO - Mining Rights Only
SRO - Surface Rights Only
M+S - Mining and Surface Rights

Description	Order No.	Date	Disposition	File
SEC. 36/80	W7/83	1/4/83	M + S	188939

SYMBOLS

Boundary
Township, Meridian, Baseline
Road allowance; surveyed
shoreline
Lot/Concession; surveyed
unsurveyed
Parcel; surveyed
unsurveyed
Right-of-way; road
railway
utility
Reservation
Cliff, Pit, Pile
Contour
Interpolated
Approximate
Depression
Control point (horizontal)
Flooded land
Mine head frame
Pipeline
Railway; single track
double track
abandoned
Road; highway, county, township
access
trail, bush
Position of rights
Transmission line
Wooded area

DISPOSITION OF CROWN LANDS

Patent
Surface & Mining Rights
Surface Rights Only
Mining Rights Only
Lease
Surface & Mining Rights
Surface Rights Only
Mining Rights Only
Licence of Occupation
Order-in-Council — OC
Cancelled
Reservation
Sand & Gravel
Placer Claim — PC

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

NOTE: TOWNSHIP SUBDIVISION PARTIALLY ANNULLED
March 8, 1949

IN AREA MARKED THUS ///// STAKING ALLOWED
AS IN UNSUBDIVIDED TOWNSHIP
A.P.291 EXP.SEP.19/2001
///// ~~A.P.11013 EXP.SEP.19/96~~

Map base and land disposition drafting by Surveys and Mapping Branch, Ministry of Natural Resources.

The disposition of land, location of lot fabric and parcel boundaries on this index was compiled for administrative purposes only.

ONTARIO QUARRIES INC.
HARAMA MARBLE PROPERTY
PARKIN TOWNSHIP ONTARIO 2.17217

GENERAL LOCATION MAP

BY: NORWIN GEOLOGICAL LTD.

PREPARED BY: E.S DRAWN BY: E.P.

SCALE: 1 : 2500

DATE: NOV., 1993

ONTARIO QUARRIES INC.

HARAMA MARBLE PROPERTY

PARKIN TOWNSHIP ONTARIO

TOPOGRAPHIC SURVEY

BY : NORWIN GEOLOGICL LTD.
PREPARED BY: E.S. DRAWN BY: E.P.
SCALE: 1 : 2000 NTS:
DATE: NOV. 1993