

# THE ONTARIO APPROACH TO MINERAL DEVELOPMENT AND REHABILITATION <sup>1</sup>

by Michael Klugman <sup>2</sup>

## ABSTRACT

The new Ontario Mining Act<sup>3</sup> came into effect on June 3, 1991. The new Act introduces a new way of doing business relative to rehabilitation for the mining industry in Ontario.

This was embodied in Part VII of the Mining Act which requires rehabilitation of all disturbed mining lands. For those mines in operation Part VII requires the submission of the closure plan to be submitted as soon as is reasonable. For new mines, it is required that before production starts, a closure plan must be approved. For inactive and abandoned mines, for which a owner can be identified, closure plans are also required. For abandoned mines, which are the property of the Crown (State) or other government agency, the Abandoned Mines Hazards Abatement Program has been developed.

In order to implement the Mining Act, two new classifications of staff were created within the Act. The Mineral Development vested Officer and the Rehabilitation Inspector. These staff are supported and assisted by engineers, life and earth scientists, financial officers and administrative support staff.

The mandate and management of Part VII of the Mining Act is vested in the Mineral Development and Rehabilitation Branch. In combining mineral development with rehabilitation within one Branch, the mission of the Branch as well as of the Ministry, is to encourage and develop the mining industry in Ontario in an environmentally responsible way and to address the many abandoned mine hazards located throughout Ontario.

This presentation is a review of the first two years of this approach to development, rehabilitation and compliance. It will involve the techniques used in remedial measures, the need for attention to ongoing applied research, the handling of financial assurance and the initiative towards a "one window approach" which includes the memoranda of understanding with sister ministries.

**Keywords:** Mineral Development, Rehabilitation, Cooperative Management, Professional Experts, Environmentally Responsible

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<sup>2</sup> Dr. Michael Klugman is the Director of the Mineral Development and Rehabilitation Branch of the Ontario Ministry of Northern Development and Mines, 933 Ramsey Lake Road, Sudbury, Ontario, Canada, P3E 6B5

<sup>3</sup> Mining Act, Revised Statutes of Ontario, Publications Ontario

## INTRODUCTION

If Ontario were an independent country it would rank among the top ten in world mineral production. It is this creation of wealth through the development of mineral resources that is of prime importance to the economy of Ontario. For this reason, sustaining the mineral production of Ontario, in a world that is increasingly aware of the environmental impacts, represents a challenge which is being addressed in the Province of Ontario.

## THE ACT

This new Mineral Development and Rehabilitation Branch is the product of the amended Ontario Mining Act which came into effect in June 3, 1991. Part VII of the Mining Act relates specifically to the obligations and the responsibilities of this branch. In writing the Act, a very conscious effort was made to ensure that the mining industry of Ontario managed mineral development and operations and closure in a responsible way, but would not be inhibited or penalized unnecessarily.

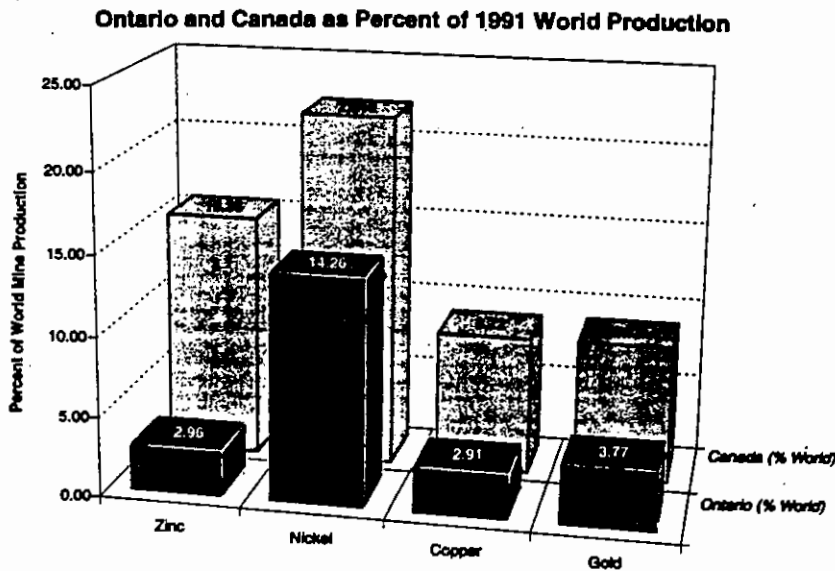


Figure 1. Mineral Production

This paper will present an overview of the approach the Ontario Ministry of Northern Development and Mines has developed in encouraging the continual development and extraction of mineral commodities, while recognizing the environmental impact on the sites and managing the resulting impacts in an environmentally responsible way.

In order to meet this challenge, the mission of the Division of Mines and Minerals of the Ministry of Northern Development and Mines is "To generate new wealth and benefits for the residents of Ontario by stimulating environmentally and economically sustainable use of the province's geological resources". To this end, the Mineral Development and Rehabilitation Branch was created.

In order to address the social values in which we live today, the Mining Act had to be brought up to date. Those of us in the mining industry must admit that mining has a very spotty track record relative to the disturbances left behind after the decommissioning of a mine or during the life of a mine. This is not to say that all mining companies or mine operators are remiss in how they close down a mine as there are some excellent examples going back for many years where eighty year old forests now grow in historic mining areas. Along with our own recognition, as the mining industry, for a need to update the legislation and update the ways of doing business, there was, across society, a demand for change relative to the management of the landscape by all users of that landscape.

As mentioned previously, because the mineral industry is so essential to the economy of Ontario, it was very important in amending the Act that we did not kill the goose that laid the golden egg but that we create a situation in which development could proceed in an environmentally acceptable way. It is also important that those who understand the mining industry and its economics should be the agency to regulate and, where necessary, enforce the amended Act.

There is no question that ensuring that mining properties are rehabilitated in a useful and acceptable way will add to the cost of doing business. Ontario, however, is not the only jurisdiction in which a consensus for responsible environmental management is growing. This is an increasing world wide concern and ultimately all jurisdictions will have to address responsible environmental management and acceptable rehabilitation and the cost of doing business would be reflected world wide in the price of mineral commodities.

### THE BRANCH

As previously mentioned, the name of this branch is Mineral Development and

encourage, in whatever way is possible, the exploration, development and decommissioning of mining properties in an environmentally acceptable way. In meeting the mandate and the obligations of the Act, which includes both the development and the rehabilitation phases, we have, in addition to the encouragement of development, the role of enforcement. In the enforcement aspect of our program, we believe, that persuasion and prevention are the best methods of ensuring that companies and other government agencies comply with the law. This is not to say that the Act contains no teeth, it does, and for those who choose to flaunt the Act it can be a very Draconian exercise. This approach however, was neither our objective nor our preference.

In structuring the branch, there were originally two sections. The Mineral Development Section, which embraces development counselling, assistance in permitting, access to incentive programs where financial incentives were provided to encourage exploration, specific commodity development and technical advice, where requested. The Rehabilitation Section includes approvals and engineering, compliance and inspection, financial assurance, management and the abandoned mine hazards program.

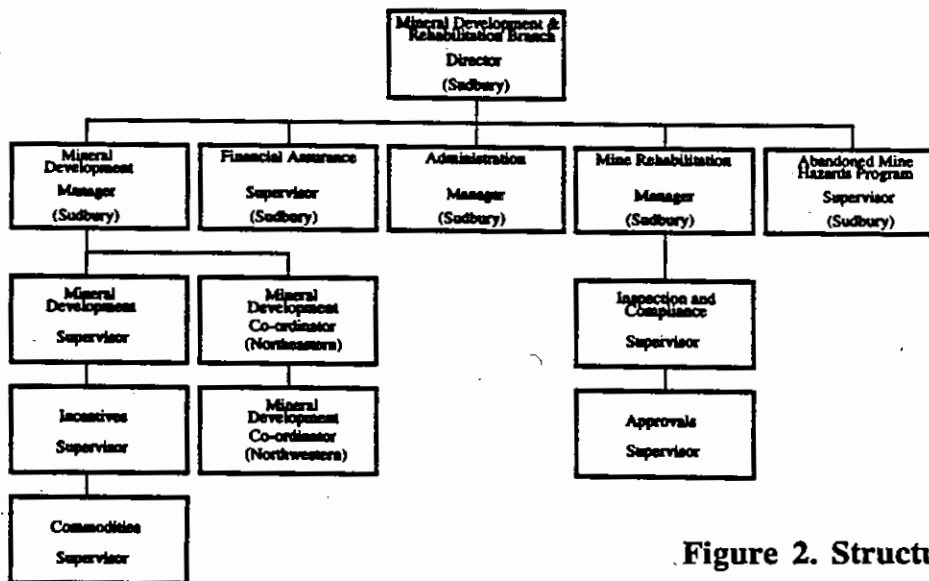


Figure 2. Structure of Branch

Rehabilitation. This is a deliberate choice of name and a deliberate choice of structure. Our mandate and mission is to assist in and

A third section of the branch is in the process of being designed. It will involve and enlarge the management of abandoned

mines and abandoned mines' data and remediation. Emergency response is part of our mandate at this point but will be shifted to this new section once it becomes established. It will also address research coordination, because as you all know, there is considerable data out there but there is a need to draw it together and consolidate it. Besides the research-related activities, we fund research and remedial work in concert with other agencies, both private and public. Finally, a technology transfer and development unit will dispense this information to fellow agencies and to any

The inspectors however, have an interlocking role with the development officers in that they too assist the industry with advice and guidance, where necessary.

In staffing the positions throughout the branch, we not only included mining engineers, metallurgical engineers, geotechnical engineers, geological engineers but also, hydrogeologists, biologists, foresters, planners and technicians who relate to all of the natural science disciplines whether they be earth or life sciences.

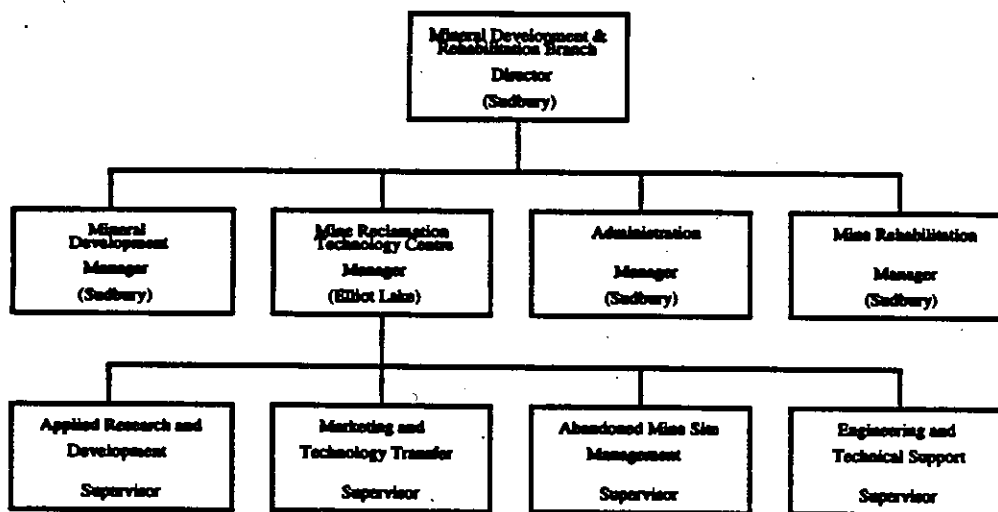


Figure 3. Relationship of Elliot Lake Section

who are interested. In addition, it will provide training for both Canadians and foreign technical people in the management and remediation of disturbed land.

In staffing the Mineral Development and Rehabilitation Sections, two new, and we feel, unique types of positions were created and these positions are enshrined in the Act. The first is a Mineral Development Officer whose role is to assist in the development of any mining exploration or development project and also to give guidance in the permitting and, hopefully take a lead in the creation of a one window approach to mineral development. The other type of officer created was the Rehabilitation Inspector who is responsible for site inspections and ensuring that the design for closure and the management of the environment is followed.

To head up the financial assurance management, a chartered accountant is on staff. In drawing up a closure plan or rehabilitation plan, part of a fundamental segment of that plan is the provision of financial assurance to ensure that should the company renege or default on their rehabilitation plan for whatever reason, that there will be sufficient funds available to do whatever remedial or rehabilitation work is necessary subsequent to the default of the company. This financial assurance is negotiated on an individual site specific basis between ourselves and the individual proponents. It does not necessarily require cash up front, the Director has the discretion to accept cash, letters of credit, bonds or any other asset the Director deems to be acceptable. This provides us with considerable latitude in negotiating the nature

of the financial assurance. This segment of the closure plan is confidential whereas the remainder of the plan becomes a public document, once accepted by the Director.

### **PUBLIC AND PRIVATE INTERFACE**

Much of what we do to meet these challenges is an educational process, both for ourselves, our fellow government agencies and for the private sector. In this, just as in developing the amended Mining Act, there is a continuing interface and discussions with the mining industry and all other interested stakeholders as they relate to management in a landscape. In this process, we are asking for understanding and acceptance from all sectors of the population. To accomplish this, we have developed a number of techniques.

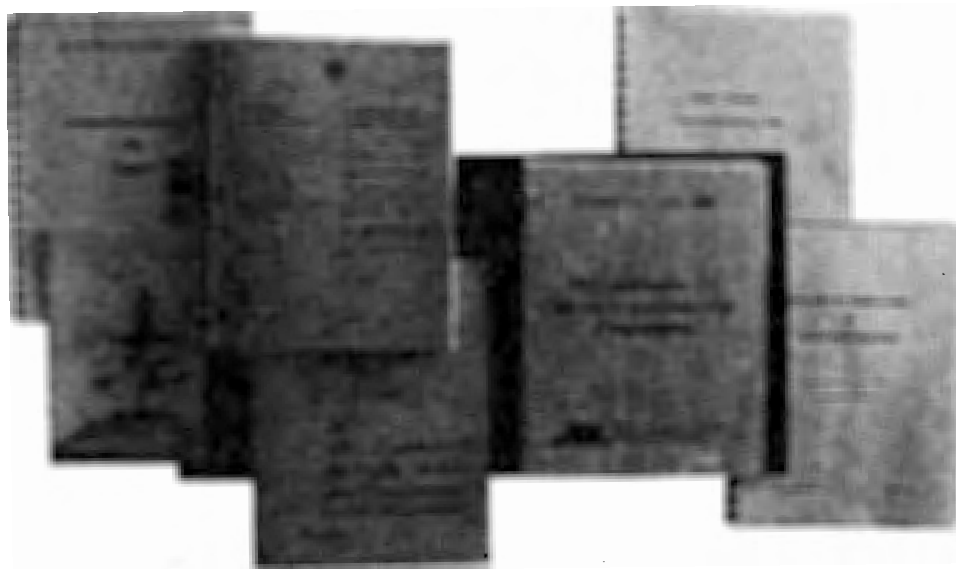
We have put together teams who represent all disciplines related to mining development and rehabilitation. The teams travel and present seminars to all levels of personnel in the mining industry, to the other government agencies, to other stakeholders and interest groups and to the financial community, who ultimately enable us to develop mines.

In addition, we have developed a number of sets of guidelines to assist non-operators

in understanding the mining industry as well as to assist the mining companies themselves in drawing up their closure or rehabilitation plans. The guidelines include a publication on how to hold public information sessions, "Guidelines for Public Notice and Consultation" and a second publication containing information and brief descriptions of techniques available to address certain aspects of remediation and rehabilitation "The Use of Vegetation in Land Reclamation", 1992; "Mine Closure Decommissioning Costs", 1992. These latter, in fact, form part of the appendix to our principle set of guidelines about which I will now speak.

As most are aware, reading legal wording in most legislation can be confusing. In our jurisdiction, besides providing the legislative Bill, regulations are also provided which are principally designed to better explain the legislation and to clarify its implementation. As these documents are very heavy reading, we decided to produce guidelines titled "Rehabilitation of Mines Guidelines for Proponents" to better explain the legislation, the regulations and to provide a "how to" for mining operators in preparing their closure or rehabilitation plans for their property.

This document was designed by engineers and technical staff for engineers and technical people and is designed as a practical work



**Figure 4. Guidelines**

book. Furthermore, it is a dynamic document in the sense that we request suggestions and comments from the guideline users so that we can continue to improve it as we become more comfortable and confident and as rehabilitation becomes a natural exercise in mining. The minor changes to the guidelines, improvements, simplifying of a procedure are accomplished simply by replacing a removable page. In the case of major revisions, we again return to the industry, to the stakeholders and our sister agencies for input and clarification.

As an aid to the companies and the public, a recently completed update of all the legislation that governs mining in Ontario is now available, "Guide to Mining Legislation in Canada, Province of Ontario". These are all the Acts that relate directly or have an effect on the exploration, development and closure of mines in Ontario. The actual closure of a mine is solely the responsibility of the Ministry of Northern Development and Mines through the Mineral Development and Rehabilitation Branch.

In order to further facilitate the development of mines and the preparation of rehabilitation plans, the Ministry has signed Memoranda of Understanding with four of its sister Ministries to clarify the relative jurisdiction which are the responsibilities of the individual Ministries and to avoid overlap. The ultimate objective of these Memoranda of Understanding is to work towards what we are calling a "One Window Approach" in which eventually a company or a proponent would only need to work with the Mineral Development and Rehabilitation Branch to expedite all of the necessary permitting for advanced exploration, development and closure or rehabilitation of a mine. The Mineral Development Officers would be lead people in this exercise and much of their responsibility would be to guide and assist the companies in putting their properties into production and in preparing their closure or rehabilitation plans.

In drawing up a closure plan or rehabilitation plan, part of a fundamental segment of that plan is the provision of financial assurance to ensure that should the

company renege or default on their rehabilitation plan, that there will be sufficient funds available to do whatever remedial or rehabilitation work is necessary subsequent to the default of the company. This financial assurance is negotiated on an individual site specific basis between ourselves and the individual proponents. It does not necessarily require cash up front. The Director has the discretion to accept cash, letter of credits, bonds or any other asset the Director deems to be acceptable. This provides us with considerable latitude in negotiating the nature of the financial assurance. This segment of the closure plan is confidential whereas the remainder of the plan becomes a public document once accepted by the Director.

## CONCLUSIONS

As mentioned earlier, the objective within this branch and within this Government, is to encourage and facilitate the development of the mineral industries in an environmentally acceptable way. We feel that the approach we have adopted takes one large step towards a better understanding and a better method of addressing the environmental concerns. Admittedly there is an increase in the cost of doing business but by addressing them in a manner which is most acceptable to the majority of the population we feel that we can continue to foster a healthy mining industry in Ontario.

In carrying out this program there is a need to educate all sectors of the population. There is a need for cooperation between the various sectors, both within the private sector and within the public sector. There is a need for a better understanding of the importance of mining to the economy of Ontario and Canada.

Our experience thus far has been positive, in spite of some hurdles we have had to leap. Industry, through the individual companies and through the industry associations, other stakeholder associations and groups, have been very understanding and cooperative while providing constructive criticism and suggestions. This is not to say that

everything has been amicably settled at this point, but we have seen major progress in the direction of the understanding and in the direction of cooperation. We still have a significant way to go but feel that by taking the approach of walking gently, cooperating but having a big stick if necessary has been very fruitful thus far. We feel from the approach we have taken, that our staff who have the responsibility of ensuring responsible environmental management and compliance are people who are not simply enforcers, a name we do not like, but are people who understand the industry with whom they are working and ensuring compliance. This we feel is a far better approach than having a single enforcement agency.

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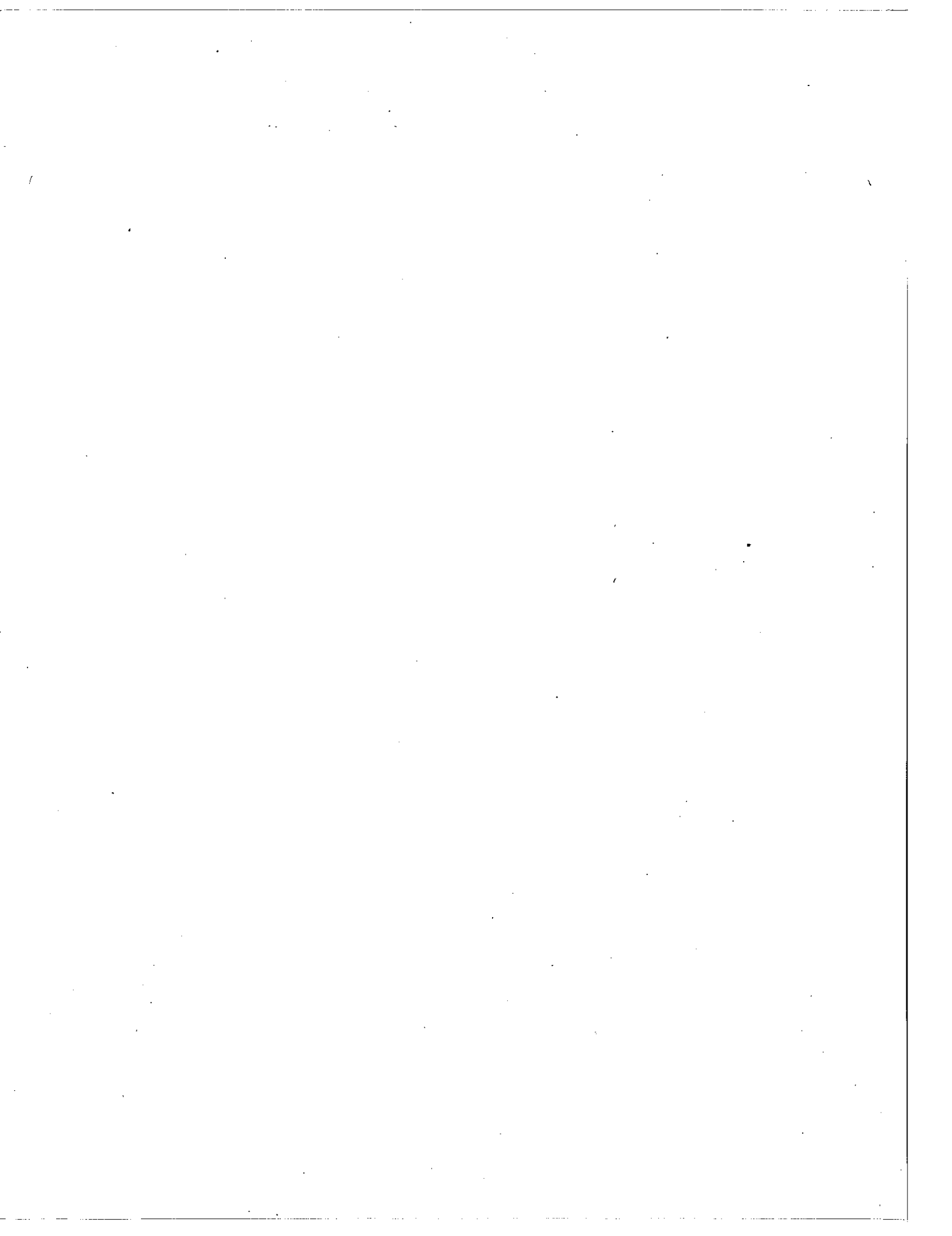
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## **3B. LANDSCAPE ARCHITECTURE**

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### **Interdisciplinary Breakdown in Landscape Restoration**

B. Ryder

### **Site Planning Elements for Aggregate Mining Operations**

A.M. Bauer

### **Visualization of Change from Mining and Land Disturbance Computer-aided Photographic Simulations, Site Selection, Reclamation, Impact Assessment**

M.J. Paulson, R.D. Scott

