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Annotated Bibliography of Selected References on Site Design, Environmental Factors and Regulations, and Land Use Planning in Mined Land Reclamation

by

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INTRODUCTION

The Front Range Infrastructure Resources Project is a five-year effort of the U.S. Geological Survey (USGS) to acquire, interpret, and disseminate information about the location and characteristics of infrastructure resources and potential impacts of their utilization for the urban corridor extending from Cheyenne, Wyoming to Pueblo, Colorado. A need to inventory past and current landscape practices in aggregate resource development was identified. Given the limited resources available to researchers in this field and the lack of a single reference which contains a complete listing on this subject, it was determined to release gathered information in bibliographic form. A final review paper for geologic and environmental factors in reclamation is in preparation.

The purpose of this bibliography is twofold, 1) to provide a basic, first-stop resource on landscape architecture in mining reclamation which the non-specialist (i.e. public, students, geoscientist) can consult and, 2) provide citations to original sources of aggregate resource information for the specialist (including landscape architects, land planners, and mining industry). The bibliography was compiled at the U.S. Geological Survey, Denver, Colorado, under the auspices of the Minerals Research Surveys Program. The bibliography, thus, provides a broad catalog (but not exhaustive) of literature citations for researchers working on the siting and reclaiming of infrastructure resource operations, landscape practices in aggregate resource development, and methods of assessing the human perception, especially visual degradation. Coal mine reclamation was included in situations where the subject matter may be relevant to aggregate reclamation.

Bibliographies of this type are subjective due, in part, to the compiler's own knowledge, professional orientation, and difficulty in locating and reviewing all published work. We began by using the following terms to query data bases: abandoned landscapes, aggregate, mining, pits, quarries, reclamation, rehabilitation, restoration, sand and gravel. Literature references, marked with four asterisks, are housed in the Geologic Division-Mineral Resource Surveys Program office at the following address:

U.S. Geological Survey
Box 25046, Mail Stop 973
Denver Federal Center, CO 80225
303-236-2495

Publications with sufficiently self-explanatory titles and unobtained references lack annotations. Annotations are brief and are not intended to evaluate the reference. The coverage of references includes state and federal publications, articles and abstracts from scientific and trade journals, and some Internet web pages. Newspaper articles are included due to the study emphasis on the State of Colorado. Many reports and Internet home pages are starting points for individuals needing additional information.

References are organized into the following categories:

BIBLIOGRAPHY

Landscape Design, Land Use Planning, and Reclamation

Adams, Carolyn. 1983. "Landscape Design in Mined Land Reclamation." U.S. Department of Agriculture, Soil Conservation Service, Landscape Architecture Note 1, 30 p. **** Principles of design and techniques applicable to the reclamation of mined land and other disturbed land areas. Includes field worksheet.

Ahern, John F. 1981. "Aquaculture in a Quarry." *Landscape Architecture,* v.71, no.4 (July): 475. **** Describes 1980 project, which tied for first place in the National Crushed Stone Association/ASLA Student Competition. Groundwater will fill a limestone quarry near Philadelphia, with future shallow benches managed for fish integrated with solar greenhouses for vegetable crops.

Ahern, John F. 1987. "Planning for the Protection and Use of Sand and Gravel Resources in Urbanizing Areas." *Proceedings, 1987 National Symposium on Mining, Hydrology, Sedimentology, and Reclamation.* Lexington: University of Kentucky, p363-367. **** Relates demand, land use conflict, and resource assessment issues associated with sand and gravel.

Amaral, R.H. and Mulvey, P.J. 1990. "Rehabilitation of Contaminated Sites: A Landscape Architect's Nightmare or Professional Challenge?" *Landscape Australia,* (May): 182-183.

Arnould, Marcel. 1994. "The Impact of Quarries on the Environment - The French Experience." *Aggregates - Raw Materials Giant,* Report on the 2nd International Aggregates Symposium, Erlangen, Germany: October 22-27, 1990. p199-207. **** Includes the definition of mines and quarries, impact studies.

Ashby, W. Clark, ed. 1992. *National Register of Reclamation Research and Demonstration Areas on Mined Land,* Carbondale: Southern Illinois University at Carbondale, American Society for Surface Mining and Reclamation. **** Information concerning important research and demonstration areas on mined mineral lands distributed among 31 states.

Bainbridge, D.A. 1976. "Sand and Gravel Resources and Landuse Planning: A Bibliography." Council of Planning Librarians, 1313 E. 60th Street, Chicago, IL 60637.

Banks, Paul T., Robert E. Nickel, and Donald A. Blome. 1981. "Reclamation and Pollution Control: Planning Guide for Small Sand and Gravel Mines." Washington, D.C.: Bureau of Mines, A Minerals Research Contract Report, January, 143p. **** Field guide includes information on interpreting physical and cultural factors. A summary of state laws and additional readings on the subject in appendices.

Bauer, Anthony M. 1965. "Simultaneous Excavation and Rehabilitation of Sand and Gravel Sites." Silver Spring, Maryland: National Sand and Gravel Association, 60p. **** First research report published by the NSGA at the Department of Urban Planning and Landscape Architecture, University of Illinois. Report objectives include: identify significant site and operation factors of the industry, and to determine appropriate guide lines for planning procedures which will facilitate optimum development. Two case

studies (Lincoln Lakes and Sansabar Estates) illustrate the survey and planning procedures in the report.

Bauer, Anthony M. 1970. "A Guide to Site Development and Rehabilitation of Pits and Quarries." Industrial Mineral Report 33. Toronto, Canada: Ontario Department of Mines, 62p. **** Report suggests methods for site planning, site improvements during operations, and after-uses of depleted sites. Examples of rehabilitated pit and quarry sites are given. 25 figures and 47 photographs.

Bauer, Anthony M. 1991. "Mineral Resources Management Programs and the Construction Aggregate Industry." *Planning and Zoning News,* (April): 5-10. **** Includes transportation costs, citizen perceptions, urban land use, sterilization and depletion of reserves.

Bauer, Anthony M. 1991. "Reclamation Opportunities." *Pit & Quarry,* v.84, no.6 (December): 40-41. **** Seven arguments against the perception that sand, gravel and stone mining destroys land for wildlife and human use.

Baxter, John G. 1969. "Site Planning for Sand and Gravel Operations." Project No.4, Silver Spring, Maryland: National Sand and Gravel Association, 45p. **** Research project of the University of Illinois to alleviate objectionable site conditions and general operating problems. Topics include functional and visual considerations, site planning proposals. Case study area is in the Pleasanton-Livermore Valley, south-east of San Francisco. 85 figures.

Blauch, Brent W. 1978. "Reclamation of Lands Disturbed by Stone Quarries, Sand and Gravel Pits, and Borrow pits." Pages 619-628 in *Reclamation of Drastically Disturbed Lands,* Madison, Wisconsin: American Society of Agronomy. ****

Bourdon, David. 1995. *Designing the Earth/The Human Impulse to Shape Nature,* New York: Harry N. Abrams, Inc. 240p. **** Considers the larger redesign of earth's original surface by humankind, their meaning, use, and similarities. Includes material on mining and land art reclamation. With 179 illustrations.

Bradshaw, A.D. and M.M. Chadwick. 1980. "The Restoration of Land: The ecology and reclamation of derelict and degraded land. Berkely: University of California Press, 317p. **** Shows how theory must be combined with practice to achieve successful land restoration. Chapters on deep mines, strip mines, and quarries. Numerous illustrations and figures.

Breining, Greg. 1996. "Roads and Ridges." *The Minnesota Volunteer,* (January February): 46-51. **** A community forum redefines the potential conflict between protecting native prairie and mining gravel.

Bürgi, Paolo, L. 1994. "Quarry Park 'Motto Grande', Camorino, Switzerland." In *The New European Landscape,* Michael Lancaster. Oxford: Butterworth-Heinemann Ltd. 162 p. **** Brief (p48-49) description of site, for community functions, provided by removal of a portion of glacial moraine from the mountainside. Book is an appraisal of landscape design in Europe. With 215 photographs and drawings from 15 countries.

Burley, Jon Bryan and C. Thomsen. 1987. "Landscape Architecture: Continuing Investigations into Creative Site Design for Surface Mining and Post Mining Land Use." Proceedings of the Twelfth Annual Meeting, *Everything Up to Date in Reclamation,* P.J.

Beckett, ed., Sudbury, Ontario: Canadian Land Reclamation Association, p203-216. **** Stresses the importance of involving landscape architects on interdisciplinary teams for surface mining and post-mining land-use design. Bibliography included.

Buttleman, Cynthia G. 1992. *A Handbook for Reclaiming Sand and Gravel Pits in Minnesota.* Minnesota: Department of Natural Resources, Division of Minerals, 65 p. **** Overview of the environmental regulations, mining plan, general reclamation guidelines, and wildlife habitat concerning sand and gravel pits. Provides technical information to landowners, county officials, and operators in reclaiming pits. Four appendices include sources of maps, photos, soils information, and planting stock.

Callies, D.L. and J.R. Quay. 1970. "Zoning for gravel pits: Simultaneous rehabilitation according to plan." *Land Use Controls Quarterly,* v.4, no.1: 43-48.

Canham, Rod. 1986. "Scuba diving in Pennsylvania quarry." *Skin Diver,* v.35 (March): 88. ****

Carman, John L. 1981. "Strip-Mine Housing: A Reclamation Option." *Landscape Architecture,* v.71, no.4 (July): 474-475. **** Demonstrates use of abandoned surface coal mines in Kentucky to reclaim for community development (new housing) instead of original contour. Bench areas are used for developable land in place of floodplains.

Carter, Russell A. 1989. "Reclamation: A Growing Concern." *Rock Products,* v.92, no. 9 (September): 34-40. **** Looks at the attitudes, issues, and trends that guide the industry's approach to second uses of mined land.

Carter, Russell A. 1989. "Landfills Can Be Profitable." *Rock Products,* v. 92, no. 12 (December): 58-62. **** Examines the viability of landfills for depleted aggregate pits and stone quarries.

Carter, Russell A. 1990. " Planning for Second Uses." *Rock Products,* v. 93, no. 1 (January): 66-71. **** Looks at the importance of maintaining an integrated approach toward mining, reclamation, and second-use land development.

Carter, Russell A. 1990. "Reclamation Grows Overseas." *Rock Products,* v. 93, no. 2 (February): 40-47. **** Examines land reclamation activity in Japan, Europe, Australia, and Brazil.

Clay County Beach Ridges Forum. 1997. "Clay County Beach Ridges Forum for gravel mining and prairie protection--a final report." Minnesota Department of Natural Resources, Bemidji, MN. 54p. ****

Coates, W.E and O.R. Scott. 1979. "A Study of Pit and Quarry Rehabilitation in Southern Ontario." Ontario Geological Survey Miscellaneous Paper 83, Toronto. 67p. **** 31 tables summarize information from site classification, rehabilitation costs, to seeding techniques. Detailed inventory forms for inspection, 2 maps are included.

Coates, William E. 1980. "State Hospital Site, Elgin, Illinois, A Case Study in Rehabilitation Pre-Planning." *1980 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation,* Donald H. Graves, ed. Lexington: University of Kentucky, p199-204. **** Discusses the principle steps in the rehabilitation planning of a large gravel site prior to extraction.

Coates, William E. 1985. "Mining and Park Development Within City Limits." *Landscape Architecture,* v.75, no.3 (May/June): p64-65. **** The City of Elgin, Illinois, is the developer of an extraction strategy and rehabilitation plan for a sand and gravel site.

Collins, B. and T. Dunne. 1990. "Fluvial Geomorphology and River-Gravel Mining: A Guide for Planners, Case Studies Included." Special Publication 98. California Department of Conservation, Division of Mines and Geology. Sacramento, California. 29p.

Constantino, Darren. 1989. "A place to live and work--when the reserves are gone." *Pit & Quarry,* v.82, no.1 (July): 38-43. **** First in a three-part series, examines commercial and residential building on mined-out sites.

Constantino, Darren. 1989. "A place to play--when the reserves are gone." *Pit & Quarry,* v.82, no.2 (August): 40, 42, 44. **** Second in a three-part series, examines recreational end use of mined-out sites.

Constantino, Darren. 1989. "A place for nature--when the reserves are gone." *Pit & Quarry,* v.82, no.4 (October): 48, 50-51, 53. **** Third in a three-part series, examines the return of wildlife to mined-out sites.

Dalton, Deborah W. 1985. "Still Life in Quarry." *Landscape Architecture,* v,75, no.3 (May/June): 66-69. **** Describes the evolution of an abandoned quarry into an artist's vision; "Opus 40" in New York.

Davies, M.C.R., ed. 1991. *Land Reclamation--An End to Dereliction?* London: Elsevier Applied Science. 422p. **** Papers presented at the Third International Conference on Land Reclamation, held at the University of Wales College of Cardiff, UK.

Davis, Susan. 1990. "Natural restoration; when humans walk away." *Whole Earth Review, Special Issue: Environmental Restoration,* no.66 (Spring): 102-106. **** Compares rainforest and temperate forest restoration of disturbed landscapes. Case studies include the Korean demilitarized zone, an abandoned military base in Panama, the Shenandoah National Park, and mined-out gravel pits in Minnesota.

Department of Energy. 1996. "Cleanup of the Weldon Spring quarry." Weldon Spring Site Remedial Action Project. [Online]: *available at* http://www.em.doe.gov/wssrap/quarry **** History of contaminated debris being dumped into a quarry, causing groundwater contamination. Environmental Protection Agency Superfund Program and the State of Missouri are overseeing the cleanup.

Dietrich, Norman L. 1986. "Integrated Sequential Mine and Reclamation Planning for Aggregate Mines." *1986 National Symposium on Mining, Hydrology, Sedimentology, and Reclamation.* Lexington: University of Kentucky, p197-208. **** Differences between a sand and gravel site and a limestone quarry are presented to demonstrate interim plans, visual enhancement, phased mining, and progressive reclamation.

Dietrich, Norman L. 1987. "Construction Aggregate Mine Operation, Mitigation and Concurrent Reclamation Planning." *Proceedings, 1987 National Symposium on Mining, Hydrology, Sedimentology, and Reclamation.* Lexington: University of Kentucky, p369-376. **** Integrated mine planning studies for operating mines are illustrated.

Dietrich, Norman L. 1990. "European Rehabilitation Projects Reflect Cultural and Regional Diversity." *Rock Products,* v.93, no.2 (February): 45-47. **** An analysis of reclamation trends across the Continent.

Editor. 1983. "Reclamation Reading List." *Rock Products,* v.86, no.11 (November): 41-42. **** Itemizes source material for *Rock Products*' 11-part series on the reclamation and rehabilitation of quarries and pits.

Engler, Mira. 1995. "Waste Landscapes: Permissible Metaphors in Landscape Architecture." *Landscape Journal,* v.14, no.1 (Spring): 11-25. **** An analysis of urban waste landscapes, public attitudes, and case studies.

Feldman, Rodney M., Harvey Geizer, and David McCoy. 1980. "A Model of Sequential Land Use Planning of a Sand and Gravel Pit, Portage County, Ohio." *The Compass of Sigma Gamma Epsilon,* v.57, no.3 (Spring): 63-81. **** Presents a systematic approach to developing gravel extraction mines in relation to sequential land use.

Golanda, Nella. 1994. "Aexoni Quarry, Glyfada, Attica, Greece." In *The New European Landscape,* Michael Lancaster. Oxford: Butterworth-Heinemann Ltd. 162 p. **** Brief (p145) description of old quarry rehabilitated for music recitals, theatrical performances and sculpture exhibitions. Book is an appraisal of landscape design in Europe. With 215 photographs and drawings from 15 countries.

Green, Jeffrey E., and others. 1992. "A User Guide to Pit & Quarry Reclamation in Alberta." Edmonton: Alberta Land Conservation and Reclamation Council, Reclamation Research Technical Advisory Committee. 137p. **** Provides information on 1) the basics of material extraction and processing, 2) planning of a pit or quarry operation from start to finish, 3) selecting the best land use for the reclaimed site, 4) introduction to reclamation planning and methods, 5) summary of current regulations for operations on private and public lands. Manual intended for use by a broad audience, includes 33 photographs and 43 illustrations.

Gunn, John, Debra Bailey, and Peter Gagen. 1992. *Landform Replication as a Technique for the Reclamation of Limestone Quarries: A Progress Report.* Department of the Environment, Minerals and Land Reclamation Division, London: HMSO. 45p. **** Report on the concept of landform replication, the construction by restoration blasting of varied slope sequences consisting of rock screes, buttresses and headwalls which can be selectively vegetated to replicate natural limestone valleysides. Information on detonation methods, economics, and vegetation establishment. 16 plates and 15 figures.

Hackett, Brian, ed. 1977. *Landscape Reclamation Practice.* Surrey: IPC Science and Technology Press Limited, 227 p. **** Extensive information ranging from British administrative procedures, design and layout influences, to drainage, and soil fauna populations.

Hartley, Derek and Paul Wright. 1988. "Derelict Land Reclamation in the United Kingdom." *Proceedings from Mine Drainage and Surface Mine Reclamation Conference,* U.S. Bureau of Mines Information Circular 9184, v.II, p200-205. **** Brief history of derelict land in the United Kingdom and description of seven completed reclamation schemes.

Harvey, Sheila. 1995. "Mineral Planning Bibliography." *Landscape Design,* no.238 (March): 30. ****

Hewitt, D.F. and M.A. Vos. 1970. "Urbanization and rehabilitation of pits and quarries." Industrial Mineral Report 34. Toronto, Canada: Ontario Department of Mines.

Illinois Department of Conservation. 1997. "Ancient Art Form Recalled." [Online]: *available at* http://www.iit.edu/~travel/efftxt **** Summarizes "Effigy Tumuli" by Michael Heizer; part of a creative coal mine reclamation project.

Jellicoe, Geoffrey and Susan Jellicoe. 1989. *The Landscape of Man* (Revised and enlarged edition). New York: Thames and Hudson Inc., 400 p. **** Classic text for the philosophy and practice of environmental improvement. With 734 illustrations.

Jensen, David R. 1967. "Selecting Land Use for Sand and Gravel Sites." Silver Spring, Maryland: National Sand and Gravel Association, 66p. **** Third research report based upon the Research Program sponsored by the NSGA at the Department of Landscape Architecture, University of Illinois. Discussion of land use selection and site development, land use potential (including planned residential, commercial, institutional, and industrial development). Case study of Seven Knolls, a dry pit operation in Maryland is included.

Johnson, Craig. 1966. "Practical Operating Procedures for Progressive Rehabilitation of Sand and Gravel Sites." Silver Spring, Maryland: National Sand and Gravel Association, 75p. **** Second research report for landscape architects, land use planners, and others from NSGA and the Department of Landscape Architecture, University of Illinois. General background information on equipment and operations (including stripping, stockpiling, and excavation). Includes case study of the Three Lakes Community, in Littleton, Colorado.

Johnson, Craig W. 1966. "South Santa Fe Exercise." *Landscape Architecture,* v.56, no.2 (January): 141-143. **** Plans illustrating operational pattern for dredging and direction flow for sand waste, design concept, and location diagrams.

Johnson, Wilton and James Paone. 1982. "Land Utilization and Reclamation in the Mining Industry, 1930-80." U.S. Bureau of Mines Information Circular 8862, 22p. **** Report on the mining industry, during a 51-year period, with comparison of major land uses, by state and selected commodity.

Kaliampakos, D. and D. Damigos. 1998. "Quarry rehabilitation in Attica." *Mining Environmental Management,* v.6, no.1 (January): 13-14. **** Paper on the rehabilitation of old quarries in the Attica Basin, outside Athens, Greece. Four abandoned quarries are analyzed.

Keating, R.D. 1988. "Mining and Land Reclamation in New Zealand." *Reclamation, Conservation and the Environment: Proceedings of the 13th CLRA Convention.* Guelph, Ontario: Canadian Land Reclamation Association. p9-17. **** Paper discusses the 1971 New Zealand Mining legislation and three case studies (gold, silver, and mineral sand mines) in rehabilitation to agricultural production.

King County Arts Commission. 1979. *Earthworks: Land Reclamation as Sculpture.* Seattle, WA: Seattle Art Museum. **** Covers artist projects designed for surplus gravel pits, surface mines and land fill sites. Mainly illustrative.

Kirkham, Bettina. 1995. "Raising the profile." *Landscape Design,* no.238 (March): 21-22. **** Demonstrates the landscape architect's role in the development of a local minerals plan, based on identifying preferred areas for future sand and gravel extraction.

Klite, Paul. 1985. *Reclamation Art,* proposal for the Colorado Council on the Arts and Humanities and the Colorado Mined Land Reclamation Division. Denver, CO., 81p. **** Report covers 1) a survey of prior efforts to combine art and mine reclamation, 2) demonstration proposals for Colorado, and 3) recommendations for implementing a reclamation art program. Includes a bibliography and 52 illustrations.

Kondolf, G. Mathias. 1993. "The Reclamation Concept in Regulation of Gravel Mining in California." *Journal of Environmental Planning and Management,* v. 36, no. 3: 395-406. **** Reviews reclamation in terrace and floodplain deposits and questions extending traditional reclamation to instream mining operations.

Kondolf, G. Mathias. 1994. "Geomorphic and environmental effects of instream gravel mining." *Landscape and Urban Planning,* v. 28: 225-243. **** Updates information given in 1993 publications.

Kuennen, Tom. 1982. "Reclamation and rehabilitation: Who wants it? Who needs it?" *Rock Products,* v. 85, no. 6 (June): 33-34, 39-40, 51. **** Looks at the growing pressures concerning the appearance of aggregate operations during and after extraction.

Kuennen, Tom. 1982. "Progressive rehabilitation can be cost-effective." *Rock Products,* v. 85, no. 8 (August): 22-26. **** Examines the efficiencies and economics of progressive reclamation.

Kuennen, Tom. 1982. "Thorough rehabilitation plans ensure successful end uses." *Rock Products,* v. 85, no. 9 (September): 36-40. **** Planning aggregate extraction sites and the sequence of rehabilitation.

Kuennen, Tom. 1982. "Solving the special problems of quarry rehabilitation." *Rock Products,* v. 85, no. 10 (October): 40-41, 50. **** Reclamation problems, including the duration of mining, depth of excavation, and highwalls, are examined.

Kuennen, Tom. 1982. "Landscaping or landfill? Needs differ for urban, rural quarries." *Rock Products,* v. 85, no. 11 (November): 35-38. **** Two sites are discussed; 1) an example of progressive reclamation in an environmentally-sensitive area and 2) landfill of inert material.

Kuennen, Tom. 1982. "Depleted quarries and pits: 'home sweet home' to many." *Rock Products,* v. 85, no. 12 (December): 51-52, 62. **** Describes residential end uses from apartments and condos, to upscale suburban homes, to simple weekend trailers.

Kuennen, Tom. 1983. "Cottages and castles: pits provide valued housing sites." *Rock Products,* v. 82, no. 2 (February): 31-33. **** Examines low-cost and upscale planned communities in Nebraska; and a California trailer court on a former silt pond.

Kuennen, Tom. 1983. "Rocks to riches: reclaimed sites found fine for business." *Rock Products,* v. 86, no. 3 (March): 5 p. **** Advantages of reclaiming aggregate extraction sites to business and commercial end uses.

Kuennen, Tom. 1983. "Former quarries and pits provide play for all ages." *Rock Products,* v. 86, no. 6 (June): 50-53. **** Focuses on recreational end uses.

Kuennen, Tom. 1983. "Farming, wildlife are naturals for mined aggregate sites." *Rock Products,* v. 86, no. 7 (July): 47-51. **** Discusses revegetation, end uses, and the value for wildlife conservation.

Kuennen, Tom. 1983. "Mine aggregate, make methane." *Rock Products,* v. 86, no. 9 (September): 62-64. **** Use of quarries and pits as dump sites and the generation of methane gas from the refuse.

Landerman, Norman J., Stephen Schwartz, and D. Rodney Tapp. 1972. "Community Resource: the development-rehabilitation of sand and gravel lands." Pomona, California: Department of Landscape Architecture, California State Polytechnic University and Southern California Rock Products Association. 63p. **** Examines the environmental parameters associated with mining and reclaiming sand and gravel operations in Southern California. Also explores the problems of zoning, land-use, industrial operation, and economics for the industry. Intended for a broad audience.

Law, D.L. 1984. *Mined-land rehabilitation.* Van Nostrand Reinhold Co. 184p.

Leccese, Michael. 1993. "Shadow Under Red Rock." *Landscape Architecture,* v. 83, no. 10 (October): 90-95. **** A forum of landscape architects land and officials of Boulder, Colorado, discuss ideas to deal with a sandstone quarry, now an eyesore.

Lewis, Leslie R., James R. LaFevers, Allen O. Perry, and William Rice, Jr. 1976. "A Bibliography of Integrated Mined-Area Reclamation and Land Use Planning, with Annotations." *Integrated Mined-Area Reclamation and Land Use Planning,* v.4, 114p. **** Compiled for use by planners for references pertinent to surface mining and reclamation planning.

Lewis, Leslie R., Allen O. Perry, and James R. LaFevers. 1977. "A Case Study of Surface Mining and Reclamation Planning: South Boulder Creek Park Project, Sand and Gravel Operations, Boulder, Colorado." *Integrated Mined-Area Reclamation and Land Use Planning,* v.3A, 90p. **** Allows the planner to gain insight into the procedures, possibilities, and constraints involved in a proposed sand and gravel extraction operation.

Luoma, J.R. 1986. "Going to the Pits." *Audubon,* v.88, no.2: 82-85.

Marsh, William M. 1991. *Landscape Planning: Environmental Applications,* 2nd ed. New York: John Wiley & Sons, Inc., 339p. **** Integrates land planning, land science, and landscape design. Includes case studies and selected references for further readings. With illustrations.

Massie, Sue. 1985. "Timeless Healing at Buffalo Rock." *Landscape Architecture,* v.75, no.3 (May/June): 70-71. **** Brief description of Michael Heizer's design for a site disturbed by surface coal mining.

McHarg, Ian L. 1992. *Design With Nature* (25th anniversary edition). New York: John Wiley & Sons, Inc., 198p. **** Classic text to redefine the fields of landscape architecture, urban and regional planning, and ecological design.

McLellan, A.G., S.E. Yundt, and M.L. Dorfman. 1979. "Abandoned Pits and Quarries in Ontario." Ontario Geological Survey Miscellaneous Paper 79, Toronto. 35p. **** Presents a prototype to indicate the methodology that can be used in examining the rehabilitation of abandoned pits and quarries. Includes map and sample site survey.

Mencacci, Monique C. and Russell A. Carter. 1989. "Mine It--Reclaim It--Bank It." *Rock Products,* v.92, no.11 (November): 47-57. **** Explores the variety of post-mining land uses nationwide.

Meyer, Elizabeth K. 1991. "The Public Park as Avante-Garde (Landscape) Architecture: A Comparative Interpretation of Two Parisian Parks, Parc de la Villette (1983-1990) and Parc des Buttes-Chaumont (1864-1867)." *Landscape Journal,* v.10, no.1 (Spring): 16-26. **** Theoretical essay on what conditions and who determines a work as avant-garde. Note Parc des Buttes-Chaumont was built on an old quarry.

Mills, John, John Box, and Nick Coppin. 1995. "Natural legacies." *Landscape Design,* no.238 (March): 23-25. **** Report on the results of research into the restoration of quarries and nature conservation.

Nelson, Jeff L. and Dennis J. Mersky. 1987. "Improving or Creating New Land Use Possibilities With Abandoned Mined Lands Reclamation." 1987. *Proceedings, 1987 National Symposium on Mining, Hydrology, Sedimentology, and Reclamation.* Lexington: University of Kentucky, p299-300. **** Examples of land use possibilities to improve property image. Recommendations for utilizing site features for historic interpretation of coal mining and surrounding culture.

Nelson, Jeff L. and Jeffrey D. Robertson. 1985. "Abandoned Mines--West Virginia's Reclamation." *Landscape Architecture,* v.75, no.3 (May/June): 50-53. **** Describes some abandoned coal mining operations and regulation.

Niemann, Ronald S. 1985. "Strategies for Second-Mining--An Iowa Reclamation." *Landscape Architecture,* v.75, no.3 (May/June): 54-59. **** Case study integrates landscape architects throughout a coal operation's planning, mining, and reclamation stages.

Nordberg, B., ed. 1955. "Public Relations Stressed by Aggregates Industries." *Rock Products,* v.58, no.3 (March): 43. **** Editor's page recognizes producers responsibility and importance of reclamation.

Nordberg, Bror. 1951. "A Planned Program for Land Rehabilitation." *Rock Products,* v.54, no.1 (January): 110-113. **** American Aggregates Corp. experiences and activities in making recreation areas, homesites, and industrial real estate from worked-out sand and gravel deposits.

Norman, David K. 1992. "Reclamation of Quarries." *Washington Geology,* v.20, no.4 (December): 3-9. **** Discusses some ideas, techniques, and guidelines for reclaiming quarries.

Norman, David K., Peter J. Wampler, Allen H. Throop, E. Frank Schnitzer, and Jaretta M. Roloff. Revised ed.1997. *Best Management Practices for Reclaiming Surface Mines in Washington and Oregon.* Washington State Department of Natural Resources or Oregon Department of Geology and Mineral Industries. 128p. **** Also released as Open File Report 96-2. Information about planning the mine from start-up to final reclamation, water and erosion control, soil salvage, land shaping, and revegetation. Technical information and guidance for land-use planners and mine operators.

Norman, David K. and William S. Lingley, Jr. 1992. "Reclamation of Sand and Gravel Mines." *Washington Geology,* v.20, no.3 (September): 20-31. **** Reports on reclamation strategies, critical elements of topsoil removal, storing, and revegetation.

Priem, Shannon. 1997. "An Artist With a Blade." *Rock Products,* v.100, no.10 (October): 27-29. **** Equipment operator earns Oregon's Reclamationist of the Year title for his work on reclaimed quarries.

Rainey, Reuben M. 1994. "Environmental ethics and park design: a case study of Byxbee Park." *Journal of Garden History,* v.14, no.3 (Autumn): 171-178. **** Examines a recent land reclamation project in Palo Alto, California; a trash dump transformed into works of environmental art and technical engineering.

Rendel, Simon. 1991. "Hope Cement Works 1943-89." *Landscape Research,* v.16, no.1 (Spring): 31-40. **** Evolution of the limestone quarry, shale quarries, and cement plant in the heart of the Peak District, Derbyshire, England. Overview of three development plans dealing with visual impact, landform, and general treatment of quarry faces and planting design.

Richardson, Gordon. 1995. "Selling land by the tonne." *Landscape Design,* no.238, (March): 41-44. **** British consultant discusses coastal superquarries.

Robertson, Joseph L. 1972. "Needed: Pre-planning in reclamation." *Rock Products,* v. 75, no. 1 (January): 100-101, 108. **** Report on the Symposium on Rehabilitation of Drastically Disturbed Surface-Mined Lands (Macon, Georgia) features vegetative covers, environmental protection, and special land uses.

Roehlkepartain, Jolene L. 1986. "Students Create Reclamation Plans for Aggregate Plants." *Rock Products,* v. 89, no. 9 (September): 16-17. **** Brief summary of the Eleventh Annual Landscape Architecture Student Competition sponsored by the American Society of Landscape Architects, National Stone Association, and the National Sand and Gravel Association.

Rukavina, Mitchell. 1986. "Location Key to End Use Plans." *Rock Products,* v. 89, no. 1 (January): 106-109. **** Reclaimed and rehabilitated aggregate properties in San Diego's Mission Valley area.

Rukavina, Mitchell. 1986. "Quarry Goes Underground." *Rock Products,* v. 89, no. 9 (September): 48-70. **** Open quarry switches to underground mining (to increase production and cut costs) with proposed underground storage end use.

Rukavina, Mitchell. 1988. "Quarry Remade Into Golf Course." *Rock Products,* v. 91, no. 6 (August): 44-47. **** Two former limestone quarries in Florida are reclaimed into an 18-hole golf course.

Schaller, Frank W. and Paul Sutton, eds. 1978. *Reclamation of Drastically Disturbed Lands.* Madison, Wisconsin: American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, 742p. **** Proceedings of a symposium held 9-12 August 1976 in Ohio. Includes chapter on the reclamation of lands disturbed by stone quarries, sand and gravel pits, and borrow pits.

Schellie, Kenneth L. 1974. "Influence of geology on pit and quarry reuse planning." *Tenth Forum on Geology of Industrial Minerals Proceedings.* State of Ohio, Department

of Natural Resources: Miscellaneous Report No. 1, 4 p. **** Stresses the significance of accurate and complete geologic data in determining the land forms and use capabilities of the site upon completion of mining.

Schellie, Kenneth L., ed. 1977. "Sand and Gravel Operations: A Transitional Land Use." National Sand and Gravel Association. 900 Spring Street, Silver Spring, Maryland. 212p. **** A compendium of publications by the National Sand and Gravel Association, papers presented at Association meetings, and selected material concerned with land use. Covers broad range of information from planning and the community to the transitional use and development of sand and gravel lands. Detailed discussion of 1) the Colorado Mined Lands Reclamation Act, 2) case study of the Three Lakes Community, Littleton, CO, and 3) White Rocks, Boulder.

Schellie, Kenneth L., and David A. Rogier. 1963 "Site Utilization and Rehabilitation Practices for Sand and Gravel Operations." National Sand and Gravel Association, Silver Spring, Maryland, 80p. **** A background guidebook for pre-planning the adaptation of land after extraction of sand and gravel.

Sheridan, Matthew J. 1967. "Urbanization and Its Impact on the Mineral Aggregate Industry in the Denver, Colo., Area." U.S. Bureau of Mines Information Circular 8320, 53p. **** Summarizes existing conservation practices in sand and gravel operations and the need for planning. Illustrates historic and current land conflicts between the industry and urbanization.

Sieverts, Thomas and Henry Beierlorzer. 1994. "A change of use for a working area." *Topos (European Landscape Magazine),* v.7 (June): 70-76. **** The transformation of the former Prosper mining complex, a colliery, near Bottrop, Germany, into a residential district with park.

Smith, Bonnie. 1997. "Mining operation earns award." *The Sequim Gazette,* July 16. [Online]: *available at* http://www.sequim-gazette.com/miningoperationearnsa970716 ****

Stearn, Enid W. 1964. "Gravel pits go on to greater things." *Rock Products,* v. 67, no. 7 (July): 89-91. **** Describes cooperative investigation between the National Sand & Gravel Association and the University of Illinois Department of City Planning and Landscape Architecture for rehabilitation research.

Stern, Enid W. 1974. "Put your land to work - twice!" *Rock Products,* v. 77, no. 4 (April): 46-49. **** Reports on a multifaceted approach to planning for industrial, residential development beyond reclamation.

Steensen, David L. and Stephen E. Yancho. 1995. "Restoration of the Dorsey and Aral Sites, Sleeping Bear Dunes National Lakeshore, Michigan." U.S. National Park Service, Disturbed Lands Restoration Program (December): 35 p. **** Summarizes the restoration of nine sand and gravel pits within the park. Tables of restoration costs, actual heavy equipment hours, maps and figures included.

Steinitz, Carl. 1995. "Design is a Verb; Design is a Noun." *Landscape Journal,* v.14, no.2 (Fall): 188-200. **** Presents a framework for enabling landscape design to engage with social constructs.

Swann, Peter. 1995. "Planning for the future." *Landscape Design,* no.238 (March): 11-13. **** Reports comprehensive long-term planning is essential with mineral extraction.

Thames, John L., ed. 1977. *Reclamation and Use of Disturbed Land in the Southwest.* Tucson, The University of Arizona Press, 362 p. **** Volume from the symposium, "Disturbed Land Use and Reclamation in the Southwest," at the University of Arizona in January 1975. Provides an overview of the constraints, alternatives, and techniques involved in mining reclamation.

Thieme, W.I. 1969. "The present status of reclamation in the sand and gravel industry." *Proceedings of Mining Environmental Conference,* Rolla, Missouri: p116-125.

Thompson, J. William. 1991. "Students tackle the public scale." *Landscape Architecture,* v.81, no.11 (November): 79-80. **** Briefly reports on the top prizes for the American Society for Landscape Architecture Student Awards in 1991. Includes the reclamation of rock quarries by NSA/ASLA Student Competition.

Thompson, J. William. 1996. "Taming the Tide." *Landscape Architecture,* v.86, no.5 (May): 74-81, 100-102. **** Narrates the transformation of a rock quarry into an intertidal zone.

Toy, Terrence J. and Richard F. Hadley. 1987. *Geomorphology and Reclamation of Disturbed Lands.* Academic Press, Inc., New York. 480p. **** Intended for academic and industrial audience; text deals with basic principles of geomorphology, analysis of land disturbances and geomorphic perspectives for the design and management of disturbed lands. Includes chapters on surface mining of coal, lands disturbed by construction activities, grazing, and recreational use.

Unknown. 1989. "Reclamation: Planning for Success." *Rock Products,* v.92, no.9 (September): 41-46. ****

Unknown. 1997. "Teichert: A Net Gain Company." *Stone Review,* v.13, no.5 (October): 12-14. **** Cover story of aggregate mining company in California. Company works at creek preservation, new park facilities, educational benefits for children, agricultural land reclamation, and wetlands restoration.

Geoffrey Walton and Ruth Allington. 1994. "Landform replication in quarrying." *Transactions of the Institution of Mining and Metallurgy, Section A: Mining industry,* v.103: A55-A66. **** A geotechnical approach to progressive quarry restoration ensuring final quarry landforms are consistent with the local geomorphological and landscape setting.

Wardrop, D.R. and G. Walton. 1996. "Coastal superquarry: design and proposed development of Rodel quarry on south Harris, Outer Hebrides, Scotland." *Transactions of the Institution of Mining and Metallurgy, Section A: Mining industry,* v.105: A81-A92. **** Description of design approach, geological controls, and environmental considerations for a quarry to replicate a corrie and sea loch.

Werth, Joel T. 1993. "Sand and Gravel Resources: Protection, Regulation, and Reclamation." American Planning Association, Report No.347 Planning Advisory Service. 32p. **** Report on resource management for planners.

West, Jim and Gene Block. 1994. "Creating Structural Compatibility, Part I." *Rock*

Products, v. 97, no. 8 (August): 52-57. **** Reviews what quarry, sand and gravel, asphalt, ready-mix concrete, and cement producers are doing to protect the future of their operations in the face of encroaching suburban development. One of four parts.

West, Jim and Gene Block. 1994. "Creating Structural Compatibility, Part II." *Rock Products,* v. 97, no. 9 (September): 26-29, 40. ****

West, Jim and Gene Block. 1994. "Creating Structural Compatibility, Part III." *Rock Products,* v. 97, no. 10 (October): 50-53. ****

West, Jim and Gene Block. 1995. "Creating Social Compatibility, Part IV." *Rock Products,* V.98, no.1 (January): 26-30. **** Examine how producers are using people-buffering strategies and home-owner associations to improve social compatibility.

Withycombe, David. 1995. "Making Amends." *Landscape Design,* no.238 (March): 47-49. **** Examines the history of chalk quarrying around Thameside, UK.

Wolf, Terry. 1997. "Leaving Land Better Than They Found It." *Aggregates Manager,* v.2, no.3 (June): 46-49. **** Examples of California reclamation projects from rocks to resorts.

Yundt, S.E. and D.B. Augaitis. 1992. "From Pits to Playgrounds." Toronto: Ontario Ministry of Natural Resources, 23 p. **** Geological information and aggregate distribution in relation to the history of aggregate mining in metropolitan Toronto. Includes maps and tables of sites.

Yundt, S.E. and G.D. Booth. 1978. "Bibliography: Rehabilitation of Pits, Quarries, and Other Surface Mine Lands." Ontario Geological Survey Miscellaneous Paper 76.

Ziegenbein, Mark. 1997. "Katmai takes on a dirty job and does it right." [Online]: *available at* http://www.aqd.nps.gov/pubs/yr_rvw96/chapter7/katmai **** National Park Service completes a sand, rock, and gravel plan for Katmai National Park and Preserve, Alaska.

Ecological Factors and Environmental Regulations

Alden, Howard R. 1982. "Citizen Involvement in Gravel Pit Reclamation: A Case Study." In Svedarsky and Crawford, eds., *Wildlife Values of Gravel Pits--Symposium Proceedings,* St. Paul, Minnesota: University of Minnesota, p.95-101. **** Coalition of private landowners, City, and community in Fort Collins, Colorado, work to reclaim mined areas; case study is along the Cache la Poudre River.

Associated Press. 1996. "Army Corps reviews dredging applications." *Collegian,* May 10, Student Publications Inc., Kansas State University. [Online]: *available at* http://www.spub.ksu.edu/issues/v100/SP/n150/ap-sanddredgin-9.8 **** Permits are requested to remove sand from the Kansas River between Topeka and Lawrence.

Blake, Peter. 1979. *God's Own Junkyard--The planned deterioration of America's landscape,* New York: Holt, Rinehart and Winston. 160 p. **** Originally published in 1964. One of several provocative books that attempted to make us aware of environmental issues. With 155 illustrations.

Brinkley, John. 1997. "Strip mine oversight neglected, group says." *Rocky Mountain News,* August 7, 31 A. ****

Brown, David S. 1990. "Minerals in the Environmental Decade." *Minerals Today,* (May): 8-12. **** The relative importance of economic growth and using up finite resources.

Brown, William H. 1989. "When Worlds Collide: The Gravel Pit Evaporation Conflict." *The Colorado Lawyer* (February): 237-239. **** Covers two Colorado Supreme Court decisions in who should bear the loss of water which results from certain sand and gravel mining activities.

Caribbean Coastal Studies. 1997. "Beach Mining." The CCS Management (Dr. B.L. Oostdam and Matt Hough), Millersville University. [Online]: *available at* http://marauder.millersv.edu/~ccs/beach **** Adverse effects of mining beach sand.

Carstea, Dumitru, Dominic Motta, and Robert Metzger. 1991. "Sand and Gravel Resources in Prince George's County, M.D.: Planning, Protection, Extraction, and Regulatory Impacts." *1991 National Symposium on Mining,* Donald H. Graves, ed. Lexington: University of Kentucky, p27-36. **** Lists the County guidelines and planning concepts in the use of its sand and gravel resources. Includes criteria for: transportation conditions, noise levels, air quality assessment, surface and ground water, vegetation and wildlife, aesthetic and safety evaluation.

Carter, Russell A. 1989. "Reclamation: A Regulatory View." *Rock Products,* v. 92, no.10 (October): 58-63, 74. **** Examines how local, state, and federal regulations shape operators' reclamation planning.

Coates, W. E. 1970. "Reclamation in Ontario: Legislation & practice." *Rock Products,* v. 73, no. 11 (November): 77-81. **** Proposed provincial legislation includes: site plan requirements, public notice and hearing procedure, performance deposits, technical details of rehabilitation procedure.

Colorado. Senate. 1993. "Colorado Mined Land Reclamation Act 34-32-101 ET SEQ.,

C.R.S. 1973 as amended." Department of Natural Resources, Division of Minerals and Geology, 43 p. ****

Colorado. Senate. 1995. "Colorado Land Reclamation Act for the Extraction of Construction Materials." Senate Bill 95-156, 38 p. ****

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Colorado. 1996. "Construction Material Limited Impact Operation (110) Reclamation Permit Application Package." Department of Natural Resources, Division of Minerals and Geology, 14 p. ****

Council on Environmental Quality. 1981. "Regulation of Surface Mining and Reclamation for Minerals other than Coal: A Report to the President and the Congress, pursuant to Section 709 of the Surface Mining Control and Reclamation Act of 1977." Washington, D.C. 62p. **** Findings and recommendations concerning environmental impacts of surface and open pit mining, and information deficiencies. Focuses on copper, iron ore, phosphate, uranium, and oil shale (rather than sand and gravel, crushed stone) due to their greater environmental effects.

Dramstad, Wenche E., James D. Olson, and Richard T.T. Forman. 1996. *Landscape Ecology Principles in Landscape Architecture and Land-Use Planning.* Washington, DC: Harvard University Graduate School of Design, Island Press, and the American Society of Landscape Architects, 80 p. **** Basic information for scientists, designers, and planners on principles and applications of landscape ecology.

English China Clays International. 1997. "ECCI Environmental Issues." [Online]: *available at* http://www.ecci.co.uk/environ/environ **** Environmental policy on working of clay deposits.

Franke, Tim T. 1996. "Making future landscapes: defining a path to qualified sustainability." *Landscape and Urban Planning,* v.35, no.4 (September): 241-246. **** Discusses the inadequate nature of sustainability in relation to purported goals; and provides an alternative point.

Flynn, Roger. 1991. "Citizen's Handbook on Mining in Colorado--A "How To" Guide Through the Mine Permitting Process." The Land & Water Fund of the Rockies, Boulder. 26p. **** Details the basic structure and process of mine permitting and citizen involvement.

Glanville, Mark. 1995. "Quality Advice." *Landscape Design,* no.238 (March): 18-20. **** How to ensure that applications for mineral extraction and restoration in the County of Kent, England, are of high quality.

Habitat Restoration Group. 1997. "Mining Reclamation Programs and Regulatory Compliance." [Online]: *available at* http://www.cruzio.com/~hrg/mrprc ****

Hole, William E., Jr. 1974. "Conservation and reclamation in the sand and gravel industry." *Tenth Forum on Geology of Industrial Minerals Proceedings.* State of Ohio, Department of Natural Resources: Miscellaneous Report No. 1, 5 p. **** Discusses the affect of regulations on operation waste and legislation requiring the reclamation of worked-out pits.

Imhoff, Edgar A. 1976. "A Review of Selected Laws and Governmental Programs in Colorado, as Related to Mineral Resource Management and Surface Mining." U.S. Geological Survey Open-File Report 76-649. 46p. **** Report directed at land and resource planners; with extensive appendices.

Johnson, Lawrence A. 1987. "Management of Northern Gravel Sites for Successful Reclamation: A Review." *Arctic and Alpine Research,* v.19, no.4 (November): 530-536. **** Reviews current and proposed methods for minimizing environmental impacts of gravel extractions in the Arctic and Subarctic.

Kareiva, Peter and Uno Wennergren. 1995. "Connecting landscape patterns to ecosystem and population processes." *Nature,* v.373, no.6512 (26 Janurary): 299-302. **** Examines two types of spatial ecological models.

Klimstra, W.D. and J.R. Nawrot. 1982. "Water as a Reclamation Alternative: An Assessment of Values." *1982 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation,* Donald H. Graves, ed. Lexington: University of Kentucky, p39-44. **** Evaluates the environmental and economic value of surface mine-related aquatic sites (wetlands).

Kondolf, G. Mathias. 1994. "Environmental planning in regulation and management of instream gravel mining in California." *Landscape and Urban Planning,* v. 29: 185-199. ****

Kwasniak, Arlene J. 1996. "A Framework for How Laws and Legal Policies Shape Landscapes." *Landscape Journal,* v.15, no.2 (Fall): 154-162. **** How public land use and resource laws and policies impact the shaping of North American non-urban landscapes.

Lewis, Kelly. 1995. "Deal with pit owner will prevent loss of significant Huron/Wendat site." *The Barrie Examiner.* May 15. [Online]: *available at* http://www.sfo.com/~denglish/wynaks/barrie ***** Saving a historic native village and missionary site from gravel development.

Minnesota Department of Natural Resources. 1989. "A review of regulations regarding the reclamation of sand and gravel pits in Minnesota: Final report by the task force on sand and gravel pit reclamation to the governor." St. Paul, Minnesota. 72p.

Moore, Brenda M. 1991. "Extraction Operations and the Comprehensive Plan." *Planning & Zoning News,* (April): 7-9. **** Common public concerns associated with sand and gravel operations; identifying and determining relative worth of local deposits; need for policy and regulatory links.

Mutz, Kathryn, Dan Duce, and John Whitehead. 1987. "Prohibition of Mining on Alluvial Valley Floors: Regulations Revisited Ten Years Later." *Proceedings, 1987 National Symposium on Mining, Hydrology, Sedimentology, and Reclamation.* Lexington: University of Kentucky, p347-353. **** Covers Utah and Wyoming policy towards farming versus surface coal mining and the value of alluvial valley floors.

Myers, Norman. 1990. "Miracle in a lifeless pit; quarry restoration in Kenya." *Whole Earth Review, Special Issue: Environmental Restoration,* no.66 (Spring): p98. **** A case study promoting sustainability and agriforestry.

Nassauer, Joan Iverson. 1995. "Messy Ecosystems, Orderly Frames." *Landscape Journal,* v.14, no.2 (Fall): 161-170. **** Examples of cultural language that provide a cultural context for ecological function, and how they can be used in design, are described.

National Academy of Sciences. 1980. "Surface Mining of Non-Coal Minerals. Appendix I: Sand and Gravel Mining, and Quarrying and Blasting for Crushed Stone and Other Construction Minerals." A Working Paper Prepared for the Committee on Surface Mining and Reclamation, Board on Mineral and Energy Resources, Commission on Natural Resources, and National Research Council. Washington, D.C. 91p. **** Study on the mining of construction minerals (sand and gravel, crushed stone, portland cement, lime and limestone, and gypsum). Includes environmental impacts, status of reclamation and control, applicability of Public Law 95-97 to the industry, and alternative regulatory mechanisms.

National Park Service. 1995. "What is a rural historic landscape?" [Online]: *available at* http://www.cr.nps.gov/nr/bulletins/nr30_2 **** Defines how rural landscapes reflect the day-to-day occupational activities of people engaged in traditional work such as mining, fishing, and agriculture.

National Research Council. 1996. "Mineral Resources and Sustainability: Challenges for Earth Scientists." Washington, D.C.: National Academy Press. 26p. **** Examines the concept of sustainability as it pertains to mineral resources, mining, resource depletion, and environmental concerns.

National Stone Association. 1995. *Environmental Management Guide for the Aggregate Industry.* Washington, DC. **** An educational component of the National Stone Association publication program, sharing information about research and technology for aggregate operations.

Oakley, Chris. 1996. "Group forms to stop dredging." Student Publications Inc., Kansas State University, February 16. [Online]: *available at* http://www.spub.ksu.edu/ISSUES/v100/SP/n095/citygov-dredging-oakley ****

Oguri, Hisakazu, Hiroshi Kaburaki, and Kenji Moriyama. 1988. "Environmental Management for Limestone Quarries in Japan." *Proceedings from Mine Drainage and Surface Mine Reclamation Conference,* U.S. Bureau of Mines Information Circular 9184, v.II, p173-178. **** Examples of revegetation, water control, and special measures for environmental management are described.

O'Neill, Donna M. 1997. "Natural Landscapes Are Leaving Lawns Behind." [Online]: *available at* http://www.1earth.com/1e/feature.3-11 ****

Owen, Oliver S. and Daniel D. Chiras. 1995. *Natural Resource Conservation* (6). Englewood Cliffs, NJ: Prentice Hall. 586p. **** Comprehensive examination of the past, present, and future of resource conservation and management. Chapter on minerals, mining, and a sustainable society.

Parkin, James. 1988. "The Proposed Aggregates Act and the Future of Pit and Quarry Rehabilitation in Ontario." *Reclamation, Conservation and the Environment: Proceedings of the 13th CLRA Convention.* Guelph, Ontario: Canadian Land Reclamation Association. p18-25. **** Paper highlights the improvements of the proposed Aggregates Act, which would replace the Pits and Quarries Control Act.

Pugliese, J.M., D.E. Swanson, W.H. Englemann, and T.R. Bur. 1979. "Quarrying Near Urban Areas: An Aid to Premine Planning." U.S. Bureau of Mines Information Circular 8804, 50p. **** Report to help the quarry entrepreneur and/or operator in developing quarries near urban areas. Includes state contacts for information regarding environmental impact assessment and environmental inventory factors.

Sheahan, Mike. 1996. "Making the Business Case for Being a 'Neighbor of Choice'." *Stone Review,* (June): 16-18. **** Two aggregate operations presented as environmentally responsible case studies.

Simpson, John W. 1985. "The Emotional Landscape and Public Law 95-87." *Landscape Architecture,* v.75, no.3 (May/June): 60-63, 108-109, 112-113. **** Explores the strong perceptions of strip mining, emotional origin to the Surface Mining Control and Reclamation Act of 1977 and its future.

Smardon, Richard. 1989. "Human Perception of Utilization of Wetlands for Waste Assimilation, or How Do You Make a Silk Purse Out of a Sow's Ear?" In *Constructed Wetlands for Wastewater Treatment,* Donald A. Hammer, ed., Lewis Publishers, Inc., Michigan: 287-295. **** Volume contains the proceedings from the First International Conference on Constructed Wetlands for Wastewater Treatment on June 13-17, 1988 in Tennessee. Presents general principles of wetlands ecology, hydrology, soil chemistry, vegetation, microbiology, and wildlife. Includes case histories, construction and management guidelines, recent theoretical and empirical results from operating systems and research facilities.

Spainhour, C.J. 1996. "ISO 12000---A Primer for the Aggregates Industry." *Stone Review,* v.12, no.5 (August): 12-14. **** How the international environmental standard series may impact the aggregates industry.

Turley, William. 1995. "Composting Can Be A Profitable Idea." *Rock Products,* v.98, no.6 (June): 22-23. **** Ways sand and gravel plant operators look to diversify their business and increase revenue.

Wongsosentono, Soeharto. 1994. "Environmental Impact caused by Mining of Construction Materials." *Aggregates - Raw Materials Giant.* Report on the 2nd International Aggregates Symposium, Erlangen, Germany, October 22-27, 1990. p189-198. **** View of construction material mining in Indonesia.

Soil Erosion, Air and Water Pollution Control

Branch, William L. 1985. "Design and Construction of Replacement Wetlands on Lands Mined for Sand and Gravel." *Wetlands and Water Management on Mined Lands*, Proceedings of a Conference, The Pennsylvania State University, p.173-179. **** Construction of a non-tidal freshwater wetland on an abandoned sand and gravel mine in Maryland.

Brown, Darrell and others. 1986. *Reclamation and Vegetative Restoration of Problem Soils and Disturbed Lands.* Park Ridge, NJ: Noyes Data Corporation. 560p. **** Presented in two parts which cover the treatment of surface-mined lands and riparian watershed areas. Resource for planners and engineers dealing with soil erosion and problem soil materials.

California. Redwood National Park. 1992. "Watershed Restoration Manual." Watershed Restoration staff, 39p. **** Information addressing erosion problems related to roads in steep, forested terrain.

Dahl, T. E. 1990. *Wetlands Losses in the United States 1780's to 1980's.* U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C., 21 p. **** One of two reports to Congress on the status of wetland resources in the United States. The *Status and Trends of Wetlands and Deepwater Habitats in the Conterminous United States* report will be updated every ten years.

Gozon, Jozsef S., Calvin J. Knoya, Slobodan S. Lukovic, and Robert G. Lundquist. 1982. "Mined Land Reclamation by Biological Reactivation." *1982 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation,* Donald H. Graves, ed. Lexington: University of Kentucky, p19-26. **** Discusses a European mine reclamation technique of restoring land to full production within two years without topsoil replacement. Includes coal mine test results in Hungary and Appalachia.

Gusek, J.J. 1997. "Status of a reclaimed mine site in Colorado after 10 growing seasons." *Society for Mining, Metallurgy, and Exploration, Inc.,* Annual Meeting Denver, Colorado--February 24-27, 1997. 3p. **** Project to stabilize a progressive landslide aggravated by an abandoned coal mine.

Haycocks, Gavin, Yingxin Zhou, and Chris Haycocks. 1991. "Long-Term Stability of Abandoned Quarry Highwalls." *1991 National Symposium on Mining,* Donald H. Graves, ed. Lexington: University of Kentucky, p43-48. **** Proposed guidelines and protocols for the design of quarry highwalls for long-term stability and reevaluation of highwall stability after abandonment.

Lagasse, P.F. B.R. Winkley, and D.B. Simons. 1980. "Impact of Gravel Mining on River System Stability." J. Waterway, Port, Coastal, and Ocean Division. *American Society of Civil Engineering,* v.106: 389-404.

Leccese, Michael. 1996. "Little Marsh on the Prairie." *Landscape Architecture,* v.36, no.7 (July): 50-55. **** Looks at an aquatic and wetland consultant integrating ecological diversity with landscape architecture.

Perkins, Mary P., W.D. Klimstra, and Jack R. Nawrot. 1983. "Potential Hazards and Benefits of Highwalls." *Proceedings, 1983 Symposium on Surface Mining, Hydrology,*

Sedimentology, and Reclamation, Lexington: University of Kentucky, p131-139. **** Study of problems associated with highwalls resulting from coal surface mining in Illinois. Geological characteristics, hydrology, stability index, hazard ranking, and beneficial aspects are evaluated.

Robotham, M.E. H. Wang, and G. Walton. 1995. "Assessment of risk from rockfall from active and abandoned quarry slopes." *Transaction of the Institution of Mining and Metallurgy, Section A: Mining industry,* v.104: A25-A33. **** Account of rockfall modeling and determining coefficients of restitution, critical bounce heights, and roll distances. Intended for technical audience.

Revegetation, Spoil Amendments, and Fertilization

Andreae, Muriel I. and Paul B. Cavers. 1981. "The significance of natural vegetation in abandoned gravel pits." *Revegetation of Pits and Quarries, Working Paper No.13,* Roger Suffling, ed. Papers presented at a Symposium of the Canadian Botanical Assoication. Ontario, Canada: University of Guelph. p1-24. **** Survey of naturally revegetating gravel pit slopes for rehabilitation criteria.

Bonfort, Gretchen A. and W. Clark Ashby. 1984. "Native Prairie Grasses for Reclaiming Ungraded Mine Spoil in Southern Illinois." *1984 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation,* Donald H. Graves, ed. Lexington: University of Kentucky, p19-24. **** Evaluation of warm season tall prairie grasses seeded in coal mined area.

Burley, Jon Bryan, Charles H. Thomsen, and Norm Kenkel. 1989. "Productivity Equation for Reclaiming Surface Mines." *Environmental Management,* v.13, no.5: 631-638. **** Presents a mathematical equation to predict the degree of success for new soil plant growth in Clay County, Minnesota.

Chambers, Jeanne C. 1983. "Measuring Species Diversity on Revegetated Surface Mines: An Evaluation of Techniques. Research Paper INT-322. Ogden, Utah: U.S. Department of Agriculture, Forest Service. 15p. **** Technical report reviews three techniques for measuring species diversity in plant communities: 1) diversity indices, 2) rank correlation tests, and 3) similarity indices.

Conover, Denis G. and Donald R. Geiger. 1989. "Establishment of a Prairie on a Borrow-Pit Site at the Bergamo-Mt. St. John Nature Preserve in Greene County, Ohio." *The Ohio Journal of Science,* v.89, no.3 (June): 42-44. **** Describes the methods used to establish a prairie on a sand and gravel pit and the success of the effort.

Coppin, N.J. and A.D. Bradshaw. 1982. *Quarry Reclamation (The Establishment of Vegetation in Quarries and Open Pit Non-metal Mines).* London: Mining Journal Books. 112p. **** Practical manual gives an account of the range of reclamation techniques available and details of their application.

Dickerson, John, Theodore Kelsey, and Raymond Godfrey. 1988. "The use of warm season grasses for revegetating sands and gravels in New Hampshire, Vermont, and New York." *Proceedings from Mine Drainage and Surface Mine Reclamation Conference,* U.S. Bureau of Mines Information Circular 9184, v.II, p2-8. **** Test results from ten field plantings identifies two species and cultivars worthy of inclusion in warm-season grass mixtures for sand and gravel mine revegetation in the Northeast.

Gaffney, F.B. and J.A. Dickerson. 1987. "Species selection for revegetating sand and gravel mines in the Northeast." *Journal of Soil and Water Conservation,* v.42, no.5 (September-October): 358-361. **** Study of grasses and legumes for revegetation of sand and gravel pits 6-8 years after establishment. Mined sites were located in Pennsylvania, New York, and the New England States.

Gladwin, D.N. and J.E. Roelle. 1997. "Evaluate Habitat Restoration for the WREN Surface Mine near Fort Collins, Colorado." US Geological Survey, Mid-continent Ecological Science Center. [Online]: *available at*

http://www.mesc.nbs.gov/WREN-surface-mine **** Test to restore sand and gravel pit with native riparian vegetation.

Hedin, Robert S. and Elizabeth Ruch Hedin. 1990. "Stimulation of Aspen Establishment on Unreclaimed Coal Spoils in Pennsylvania." *1990 National Symposium on Mining,* Donald H. Graves, ed. Lexington: University of Kentucky, p31-35. **** Effects of surface amendments on the colonization of volunteer trees onto unvegetated coal spoils.

Hellier, Susan. 1997. "Revegetation in site reclamation." *Pit & Quarry,* (March): 48-50. **** Evidence for topsoil enhancing re-establishment of plants.

Hilditch, Tom W., George A. Sinclair, and Christopher P. Hughes. 1988. *Rehabilitation of Pits and Quarries for Forest Production.* Ontario Ministry of Natural Resources, Land Management Branch. 28p. **** Manual is one of a series of handbooks published by OMNR to assist pit and quarry operators in carrying out effective rehabilitation programs. This document guides owners through the forest production cycle, includes a brief summary of field and literature research, economics, tree nurseries, and recommended tree species.

Hodder, Richard L. 1977. "Dry Land Techniques in the Semiarid West." In *Reclamation and Use of Disturbed Land in the Southwest,* edited by John L. Thames. Tucson: The University of Arizona Press. 353p. **** Includes mining reclamation and land use planning, revegetation techniques, and plant species for disturbed lands.

Johnston, Gary. 1997. "The perennial push of exotic plants." National Park Service, Washington, DC. [Online]: *available at* http://www.aqd.nps.gov/pubs/yr_rvw96/chapter1/exotics ****

Kelsey, Theodore. 1991. "Gravel Pit and Other Sandy and Droughty Site Renovation Trials and Experiences in New Hampshire." US Department of Agriculture, Soil Conservation Service, Durham, New Hampshire. Technical Note PM-NH-26, 10p. **** Describes a search for effective herbaceous cover in a soil environment where there is less than 15 percent fines, typical of borrow pits in New Hampshire. Conclusions presented for ten plantings made in six northeast states comparing six cool-season grasses, six warm-season grasses, and four legumes.

Lowe, Sarah B. 1979. "Trees and Shrubs for the Improvement and Rehabilitation of Pits and Quarries in Ontario." Ontario Ministry of Natural Resources, Mineral Resources Branch. 71p. **** Recommends procedures for plantings, after-uses, fifty species of trees and shrubs, description and evaluation of existing plantings.

Lowe, Sarah B. 1983. "Farming After Gravel Extraction: Tender Fruit." *Proceedings of the 8th Annual Meeting of the Canadian Land Reclamation Association,* Kitchner, Ontario. p472-479. **** Describes pilot project in southern Ontario to rehabilitate a sand and gravel pit into fruit tree orchards (apple and cherry).

Million, Jeff B., Richard X. Gonzales, W.D. Carrier, III, and Jerry B. Sartain. 1987. "Production of Vegetables on Mixtures of Sand Tailings and Waste Phosphatic Clay." *Proceedings, 1987 National Symposium on Mining, Hydrology, Sedimentology, and Reclamation.* Lexington: University of Kentucky, p355-362. **** Assesses the agricultural production potential of sand-clay mixes (by-products of the phosphate mining industry).

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Richards, T.W., W.C. McComb, and D.H. Graves. 1983. "Small Mammal Damage in Surface Mine Tree Plantings." *Proceedings, 1983 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation,* Lexington: University of Kentucky, p407-411. **** Predation on revegetation attempts in the mine environment by mice, voles, and rabbits is examined.

Robinson, Peter M. 1988. "The Costs of Restoring to Agriculture." *Reclamation, Conservation and the Environment, Proceedings of the 13th CLRA Convention.* Guelph, Ontario: Canadian Land Reclamation Association. p63-71. **** Considers proper handling of soil materials, establishing grades and crop management after restoration. Two case studies: 1) sour cherry orchard and 2) field crop agriculture of hay, corn, and wheat.

Schiechtl, Hugo. 1980. *Bioengineering for land reclamation and conservation,* Alberta: University of Alberta Press, 404 p. **** Describes the conservation and reclamation methods designed to combine engineering and biological processes compatible with the natural environment. Includes research on plant materials for engineering purposes related to soil erosion, hydrology, general reclamation, and vegetation systems of various ecological zones. Details range from snow and avalanche protection to the most frequent mistakes made in hydro construction. Appendices of commercially available seeds.

Scott, Jock, M. 1995. "Back to the Earth at Mission Valley - Creative Use of Co-Generated Fines." *Stone Review,* v. 11, no. 6 (December): 11-13. **** Use of aggregate fines and silt ponds to reclaim depleted areas for valued real estate property.

Thompson, J. William. 1997. "Farm Futures." *Landscape Architecture,* v.87, no.6 (June): 52-57. **** Describes landscape architects who practice ecological restoration on agricultural lands.

Thompson, Steve. 1997. "The Biosolids Program at the Chambers Creek Wastewater Treatment Plant." [Online]: *available at* http://www.co.pierce.wa.us/abtus/ourorg/pwu/envsvcs/sewer/biosolid **** Conversion of mined-out gravel pit with biosolids and carbon source.

Wiedenbein, Friedrich W. 1994. "Natural Succession in Disused Excavations and its Significance for Nature Conservation." *Aggregates - Raw Materials Giant.* Report on the 2nd International Aggregates Symposium, Erlangen, Germany, October 22-27, 1990. p226-237. **** Looks at abandoned German quarries for secondary biotopes.

Wildlife Habitat

Borovsky, John P. 1980. "Enhancement of Fish and Wildlife Resources in the Reclamation of Hard Rock Mined Lands in the Upper Midwest." U.S. Fish and Wildlife Service FWS/OBS-80/64. 123p. **** Focuses on research efforts to integrate the needs of wildlife with other land uses (metallic mineral mining) in Michigan, Minnesota, and Wisconsin. Reclamation for agriculture, forestry, wildlife habitat, and fisheries are discussed.

Burley, J.B., S. Johnson, P. Larson, and B. Pecka. 1988. "Big Stone Granite Quarry Habitat Design: HSI Reclamation Application." *Proceedings from Mine Drainage and Surface Mine Reclamation Conference,* U.S. Bureau of Mines Information Circular 9184, v.II, p161-166. **** Study of a west-central Minnesota granite quarry utilizing Habitat Suitability Indexes (HSI) and other similar habitat models to generate optimum design forms.

Burley, Jon B. and Rick B. Hopkins. 1984. "Potential for Enhancing Nongame Bird Habitat Values on Abandoned Mine Lands of Western North Dakota." *Proceedings 1984 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation,* Donald H. Graves, ed. Lexington: University of Kentucky, p333-343. **** Seventeen guidelines are presented to preserve avifauna on unreclaimed surface mines.

Kelcey, John G. 1984. "The Design and Development of Gravel Pits for Wildlife in Milton Keynes, England." *Landscape Planning,* v.11, no.1 (April): 19-34. **** Establishment of a wildfowl research project in North Buckinghamshire, England. Habitats created ranged from the construction of an otter holt to the restoration of grassland, incorporating wildflower seed.

Keller, V. 1991. "Optimizing measures for the protection of species during quarrying and recultivation." *Anthos,* v.4: 35-38.

Knox, Robin F. 1982. "Fishery Management in Colorado's Gravel Pit Lakes." In Svedarsky and Crawford, eds., *Wildlife Values of Gravel Pits--Symposium Proceedings,* Miscellaneous Publication 17-1982, St. Paul, Minnesota: University of Minnesota, p. 208-220. **** Describes Colorado Division of Wildlife activities with gravel or borrow pits statewide.

Koopmann, Richard W. 1982. "Pits, Ponds, and People: Reclamation and Public Use." In Svedarsky and Crawford, eds., *Wildlife Values of Gravel Pits--Symposium Proceedings,* Miscellaneous Publication 17-1982, St. Paul, Minnesota: University of Minnesota, p. 127-131. **** Examines Sawhill Ponds and Walden Ponds Wildlife Habitat in the flood plain of Boulder Creek, northeast of Boulder, Colorado.

Lacy, Michael K. 1997. "Reclaiming Surface Mined Land to Waterfowl Habitat." *Stone Review,* v.13, no.1 (February): 22-24. **** Excerpt from March/April 1996 issue of *California Geology.* Proposes solutions to rehabilitating any size mine to habitat for waterfowl.

Manci, Karen M. 1989. *Riparian ecosystem creation and restoration: a literature summary.* Biological Report 89(20). U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., 59 p. **** Provides an overview of the status of riparian

ecosystems in the U.S., a discussion of riparian functions, and a review of techniques used for planning, implementing, monitoring, and measuring project success. Includes case studies.

Matter, William J. and R.William Mannan. 1988. "Sand and Gravel Pits as Fish and Wildlife Habitat in the Southwest." Resource Publication 171, U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 12p. **** Discusses the specific physical and biotic features most amenable to manipulation for creating wetland habitat in flooded gravel pits. Extensive references.

Max McGraw Wildlife Foundation. Unknown date. "Gravel Pit Reclamation: Reclamation, Wildlife, Recreation." *Wildlife Management Note Number 6,* Dundee, Illinois. **** One page pamphlet describing the history of a reclaimed gravel deposit. Project awarded the 1986 national Best Primary Wildlife Use Project joint award of The Wildlife Society and the National Sand and Gravel Association.

Michalski, Michael F.P., Daniel R. Gregory, and Anthony J. Usher. 1987. "Rehabilitation of Pits and Quarries for Fish and Wildlife." Ontario Ministry of Natural Resources, Land Management Branch. 59p. **** Practical guidebook for habitat requirements applicable to Ontario. Seven major fish and wildlife after uses of rehabilitated pits and quarries are covered: waterfowl hunting area, waterfowl protection area, commercial game farm, wildlife hunting area, wildlife protection area, recreational fish pond, and commercial fish pond.

Pope, Stephanie. 1995. "Restoring Unity." *Landscape Design,* no. 238 (March): 45-46. **** Examines a German quarry forestation project to create a species-rich, natural landscape.

Potter, Janit Llewellyn. 1983. "Reclaiming Sand and Gravel Pits for Wildlife. *Proceedings, 1983 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation,* Lexington: University of Kentucky, p315-319. **** Detailed design guidelines for creating wetland habitats from sand and gravel pits. Topics include regulation of water, slope and bank alteration, creating islands, and establishing vegetation.

Roberts, Craig and John Graves. 1978. "Sand and Gravel Mining and Reclamation to Benefit Wildlife." Colorado State University, 34p. **** Graduate paper on wildlife design guidelines with application for the Three Bell Ranch, located along the Cache la Poudre River in north central Colorado.

Starnes, Lynn B. and Don C. Gasper. 1995. "Effects of Surface Mining on Aquatic Resources in North America," in *Fisheries.* [Online]: *available at* http://www.esd.ornl.gov/societies/AFS/ps-mine **** American Fisheries Society Position Statement on the history and impact on aquatic environments by mining operations. Includes research and information needs.

Svedarsky, W. Daniel, and Richard D. Crawford, eds. 1982. *Wildlife Values of Gravel Pits--Symposium Proceedings.* Miscellaneous Publication 17-1982. St. Paul, Minnesota: University of Minnesota, 249p. **** Variety of information helpful to fishery and wildlife biologists, city and regional planners, landscape architects, mining industry and others. Includes selected bibliography.

Swanson, Gustav A. 1982. "Summary of Wildlife Values of Gravel Pits Symposium." In Svedarsky and Crawford, eds., *Wildlife Values of Gravel Pits--Symposium*

Proceedings. Miscellaneous Publication 17-1982, p1-5. **** Brief history, law and regulations, management recommendations for habitat.

Unknown. 1997. "Davison Sand & Gravel Saves the Woodrat." *Stone Review,* v.13, no.1 (February): 24. ****

U.S. Department of the Interior, Fish and Wildlife Service. 1978. "Mined Land Reclamation for Fish and Wildlife in the Eastern United States." Washington, D.C. 13p. **** General brochure for land owners who may be interested in fish and wildlife when working with coal operators.

Mapping, Modeling, and Visual Thinking

American Society of Landscape Architects. No date. *Visual Impact Assessment for Highway Projects,* Contract DOT-FH-11-9694. Department of Transportation, Federal Highway Administration, Washington, DC, 89p. **** Relates esthetics, impact statements, and the highway development process.

Bliss, James D. 1993. "Modeling sand and gravel deposits - initial strategy and preliminary examples." U.S. Geological Survey Open-File Report 93-200, 31 p. **** Models for three variables are given--volume, area, and thickness. Highly specialized.

Bliss, James D. and Norman J. Page. 1994. "Modeling Surficial Sand and Gravel Deposits." *Nonrenewable Resources,* v. 3, no.3, p237-249. ****

Brabyn, Lars. 1996. "Landscape Classification Using GIS and National Digital Databases." *Landscape Research,* v.21, no.3 (November): 277-300. **** A frame of reference for communicating and comparing landscape research. Complex definitions; hierarchical classification based on different levels of generalization enables different levels of perception.

Burley, Jon Bryan. 1985. "Gravel Pit Reclamation for Generating Housing Development Through Pre-Mining Form Iteration Analysis." *Proceedings 1985 Symposium on Mining, Hydrology, Sedimentology, and Reclamation,* Donald H. Graves, ed. Lexington: University of Kentucky, p391-397. **** Study of hydrologic features, spatial patterns, and soil complexes in delineating efficient landform patterns and topographical criteria for housing development from sand and gravel pits.

Burley, Jon Bryan. 1988. "Decision tree analysis for selecting post-mining land uses at the Spillum sand and gravel operation." *1988 Symposium on Mining, Hydrology, Sedimentology, and Reclamation,* Donald H. Graves, ed. Lexington: University of Kentucky, p171-176. **** Examines a research technique for land-use alternatives in post-mining landscape reclamation. A sand and gravel surface mine study in western Minnesota illustrates the projected financial gain for post-mining land-uses,

Chenoweth, Richard E., Wayne G. Tlusty, and Bernard J. Niemann, Jr. 1982. "Public Rights to Scenic Resources: Infringement is Sufficient Cause for Denial of Lowland Sand and Gravel Operations in Wisconsin." In Svedarsky and Crawford, eds., *Wildlife Values of Gravel Pits--Symposium Proceedings,* St. Paul, Minnesota: University of Minnesota, p.73-79. **** According to Wisconsin law, denial of permits to excavate gravel is a legitimate decision where public rights to scenic beauty would be significantly damaged. Case study includes a scenic beauty assessment.

Cole, Norman F., M. Ferraro, R. Mallary, J. Palmer, and E. Zube. 1976. "Visual Design Resources for Surface-Mine Reclamation." IME Publication No. R-76-15. Amherst, MA: University of Massachusetts. 131p. **** Report concerning the impact of surface mining on the environment (specifically coal), improvements in reclamation, and focuses on the neglect of the aesthetic factor in surface-mine reclamation. Discusses the syntax of landform design, landform taxonomy, and the capabilities of ECOSITE--a computer-aided procedure for interactive preplanning.

Dietrich, Norman L. 1986. "Visual Landscape Analysis for Rural Iowa." *New Horizons for Mined Land Reclamation,* Jackson, Mississippi: American Society for Surface Mining and Reclamation. p.1-7. ****

Ellsworth, John C. 1988. "Abstract: Comparison of Landscape Visual Simulation Techniques for Drastically Disturbed Land Rehabilitation." *1988 Symposium on Mining, Hydrology, Sedimentology, and Reclamation,* Donald H. Graves, ed. Lexington: University of Kentucky, p177. **** Brief statement of proposed research. No mention of investigative results.

Hemborg, H. Thomas. 1996. *Active Permitted Mine Operations in Colorado, 1995-96.* Information Series 141. Colorado Geological Survey, Department of Natural Resources, Denver, CO. 50p., 1 pl. in pocket. ****

House, Christine. 1995. "Beauty by extraction." *Landscape Design,* no. 238 (March): 14-16. **** Indicates how the sand and gravel industry can encompass nature conservation and aesthetic improvements.

Fisher, Peter F. 1996. "Extending the Applicability of Viewsheds in Landscape Planning." *Photogrammetric Engineering & Remote Sensing,* v.62, no.11 (November): 1297-1302. **** Describes technical application of alternative viewshed operations, providing more precise and versatile responses to users queries about the landscape.

Fong, Tillie. 1997. "Council approves Vision 2020." *Rocky Mountain News,* March 20, 42A. **** Denver region's long-range plan for dealing with growth and development.

Kent, Martin. 1986. "Visibility analysis of mining and waste tipping sites--a review." *Landscape and Urban Planning,* v.13, no.1 (May): 101-110. **** Manual and computerized approaches; digital terrain modeling, isometric projection, and perspective drawing are reviewed methods for visibility analysis as a sub-area of environmental impact analysis.

Knepper, Daniel H., Jr., William H. Langer, and Susanne Miller. 1995. "A Survey of Natural Aggregate Properties and Characteristics Important in Remote Sensing and Airborne Geophysics." In *Nonrenewable Resources,* v.4, no.1 (Spring): 99-120. ****

Kondolf, G.M. and M.L. Swanson. 1993. "Channel adjustments to reservoir construction and gravel extraction along Stony Creek, California." *Environmental Geology,* 21: 256-269. **** Discusses instream gravel extraction, channel incision, and downstream effects of reservoirs.

Langer, W.H., Arbogast, B.F., Knepper, D.H., Jr., Lindsey, D.A., Nealey, L.D., and Roelle, J.E. 1997. "U.S. Geological Survey Front Range Infrastructure Resources Project". Proceedings, 5th Annual Symposium, International Center for Aggregates Research, University of Texas at Austin, p.E2-1-1-E2-1-8. **** Briefly summarizes project goals, aggregate maps and models production, role of geophysics and remote sensing, environmental and reclamation studies.

Langer, William H. and V.M. Glanzman. 1993. "Natural Aggregate--Building America's Future." U.S. Geological Survey Circular 1110, 39p. **** General overview of geology, supply and demand, planning and regulation of the aggregate industry. Includes aggregate regions of the U.S.

Niran, Rosa. 1985. "Landscape Simulation Techniques for Quarry Design." *Landscape Australia,* v.2 (Winter): 120-122. **** Work with computer site plots, rough perspective sketches, and quick contour models for two quarries.

Paterson, C.J., A. Davis, and C.J. Webb. 1997. "Comprehensive inventory of known abandoned mine lands in the Black Hills, South Dakota." *Society for Mining, Metallurgy, and Exploration, Inc.*, Annual Meeting Denver, Colorado--February 24-27. 3p. **** Focuses on databases available for identifying, examining, and ranking the physical and environmental hazards at inactive and abandoned mine sites in the Black Hills.

Schmidt, Timothy, and R.G. Witt. 1981. "Mapping Sand and Gravel Pits in the Patuxent River Watershed." *1981 Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation,* Donald H. Graves, ed. Lexington: University of Kentucky, p389-393. **** Preliminary results utilizing LANDSAT data for monitoring the reclamation of sand and gravel pits in Maryland.

Schwochow, S. D., Shroba, R. R., and P. C. Wicklein. 1974. "Atlas of Sand, Gravel, and Quarry Aggregate Resources Colorado Front Range Counties." Colorado Geological Survey: Special Publication 5-B. **** Compilation of 212 preliminary 1:75,000-scale reference maps for the geologic community, sand and gravel producers, developers, and government agencies.

Schwochow, Stephen D. 1981. "Inventory of Nonmetallic Mining and Processing Operations in Colorado." Colorado Geological Survey: Map Series 17. **** Shows the distribution and types of construction material and industrial mineral mining operations. Includes seventeen 1:250,000-scale plates.

Verner, Jared, Michael L. Morrison, and C. John Ralph, eds. 1984. *WILDLIFE 2000 Modeling Habitat Relationships of Terrestrial Vertebrates.* Madison, Wisconsin: University of Wisconsin Press, 470p. Based on an International Symposium held at Stanford Sierra Camp, California, 7-11 October 1984.

Weinmayr, V. Michael. 1996. "Big Picture View of State Highway Design." *Landscape Architect & Specifier News,* v.12, no.11 (November): 28. **** Briefly illustrates an overlay program to assist in evaluating previously prepared visual analysis, preliminary planting plans, and construction details.

Zube, Ervin, ed. 1975. *Landscape Assessment: Values, Perceptions, and Resources.* Stroudsburg, PA: Dowden, Hutchinson, and Ross, Inc., 367 p. **** Technical reference book; includes models for assessing landscapes.

Other Reading

Barksdale, Richard D., ed. 1996. *The Aggregate Handbook,* (3rd printing), Washington, D.C.: National Stone Association, 600p. **** Comprehensive reference guide to the crushed stone industry for professionals and students in the field. Additional references at the end of each chapter.

Brinkley, John. 1997. "Is cost of Colorado growth too high?" *Rocky Mountain News,* April 21. ****

Cappa, James A. and Carol M. Tremain. 1995. "Colorado Mineral and Mineral Fuel Activity, 1995." Information Series 40. Colorado Geological Survey, Denver, CO. 23 p. **** Brief summary of economic factors, production, consumption, and reserves.

Daranyi, Tony. 1996. "Public comment on Fall Creek gravel operation ends today--Forest Service wants gravel for road improvements." *Telluride Daily Planet.* [Online]: *available at* http://www.telluridegateway.com/current/reg/reg19960617 ****

Editorials. 1997. "Forest Service rowing against the current on river reclamation." *Telluride Daily Planet.* [Online]: *available at* http://www.telluridegateway.com/current/edi/edi19970304a **** Degradation of the San Miguel River, Colorado, from gravel mining.

Finley, Bruce. 1997. "Broken vow the pits to neighbors of Boulder mine." *The Denver Post,* July 21, 1A. ****

Maw, Clarence. 1951. "Producing Sand and Gravel in England." *Rock Products,* v.54, no.6 (June): 98-102. **** British report on engineering gravel operations while still recovering from the war switchover.

Morson, Berny. 1997. "Poll shows support for growth limits." *Rocky Mountain News,* February 21. ****

National Stone Association. 1997. "Crushed Stone: Our Natural Resource." [Online]: *available at* http://www.aggregates.org/NSA/~Agg%20in%20Amer/crstonbro **** Industry perspective on the role aggregate plays in building America.

Prokopy, Steven. 1995. "Keeping Florida Supplied." *Rock Products,* v. 98, no. 6 (June): 30-33. **** Overview of an aggregate supplier/producer in southeast Florida.

Quinlivan, Larry. 1996. "Capstone Gold Award Winners." *Stone Review,* v.12, no.5 (August): 40-41. **** Briefly describes the 1995 outstanding marketing and market development efforts by National Stone Association members and state association.

Sanko, John. 1997. "Crowd Control." *Rocky Mountain News,* July 7, 4A. ****

Sullivan, James. 1996. "Jumping from Heaven." *Yankee,* v.60, no.7 (July): 32. **** Loss of life in Pennsylvanian water-filled quarries.