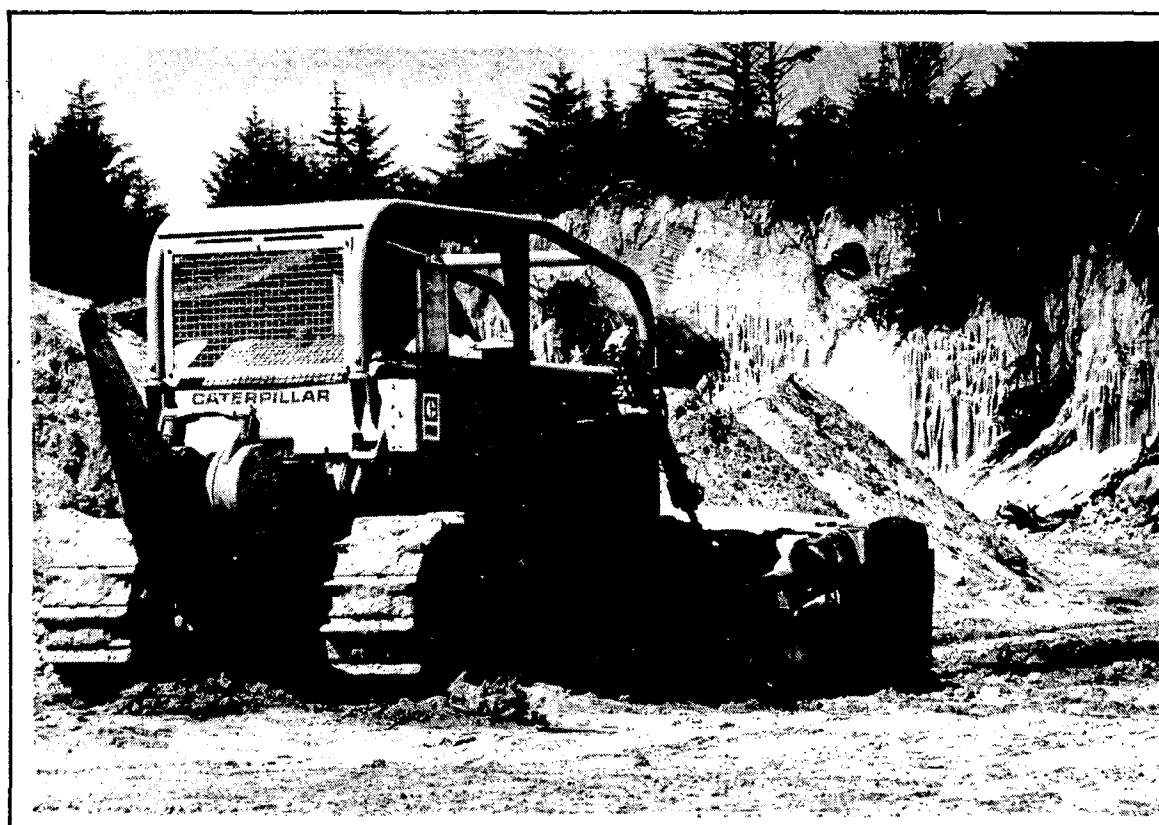


W.P.

Sand Removal
 Planning & Management Considerations
 For The Oregon Coast

Oregon Coastal Zone Management Association.



Oregon Coastal Zone Management Association, Inc.

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This report was prepared as part of a larger document addressing various beach and dune planning and management considerations and techniques. Other segments of the document and additional materials are:

- I. BACKGROUND ON BEACH AND DUNE PLANNING:
 - Background of the Study*
 - An Introduction to Beach and Dune Physical and Biological Processes*
 - Beach and Dune Planning and Management on the Oregon Coast: A Summary of the State-of-the-Arts*
- II. BEACH AND DUNE IDENTIFICATION:
 - A System of Classifying and Identifying Oregon's Coastal Beaches and Dunes*
- III. PHYSICAL AND BIOLOGICAL CONSIDERATIONS:
 - Physical Processes and Geologic Hazards on the Oregon Coast*
 - Critical Species and Habitats of Oregon's Coastal Beaches and Dunes*
- IV. MANAGEMENT CONSIDERATIONS:
 - Dune Groundwater Planning and Management Considerations for the Oregon Coast*
 - Off-road Vehicle Planning and Management on the Oregon Coast*
 - Sand Removal Planning and Management Considerations for the Oregon Coast*
 - Oregon's Coastal Beaches and Dunes: Uses, Impacts and Management Considerations*
 - Dune Stabilization and Restoration: Methods and Criteria*
- V. IMPLEMENTATION TECHNIQUES:
 - Beach and Dune Implementation Techniques: Findings-of-Fact*
 - Beach and Dune Implementation Techniques: Site Investigation Reports*
 - Beach and Dune Implementation Techniques: Model Ordinances**
- VI. ANNOTATED BIBLIOGRAPHY:
 - Beach and Dune Planning and Management: An Annotated Bibliography*
- VII. EDUCATIONAL MATERIALS:
 - Slide show: Managing Oregon's Beaches and Dunes*
 - Brochure: Planning and Managing Oregon's Coastal Beaches and Dunes*

*Prepared under separate contract between Oregon Department of Land Conservation and Development and the Bureau of Governmental Research, Eugene.

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SAND REMOVAL
PLANNING AND MANAGEMENT CONSIDERATIONS
FOR THE OREGON COAST

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by

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Oregon Coastal Zone Management Association

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PREFACE

The following report presents the results of an in-depth analysis of beach and dune sand removal on the Oregon Coast conducted by the Oregon Coastal Zone Management Association, Inc. This report constitutes one element of an overall analysis of planning for and managing beaches and dunes as required by Oregon's Beaches and Dunes Goal.

This report was prepared by Carl Lindberg, OCZMA Beaches and Dunes Project Director, with assistance from other Study Team members composed of Christianna Crook, Research Associate, Wilbur Ternyik, Project Coordinator, Arlys Bernard, Project Secretary, and Kathy Fitzpatrick, Project Administrator.

In addition, valuable review and comments were made by the Beaches and Dunes Steering Committee composed of:

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Peter Bond and John Phillips, Oregon Department of Transportation,
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Additionally, OCZMA extends special appreciation to Peter Bond, Parks Planner, Parks and Recreation Branch of the Oregon Department of Transportation, and Stan Ausmus, Administrator, Mineland Reclamation Division, for their valuable review of and significant contributions to this report.

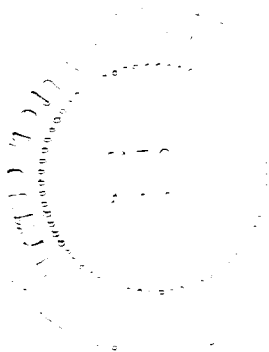


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I. INTRODUCTION

Sand removal as used in this report is a term identifying a wide range of man-made actions including the mining of sand for the extraction of ores and for use in the production of glass, concrete and ceramics, for sand blasting or for fill material. Additionally, sand is oftentimes removed from one location during excavation of a building site, to improve a view, or to protect a natural or man-made environment from inundation by migrating sand dunes.

There exists little in the way of published data on the topic of sand removal from beach and dunes areas, especially within the context of Oregon's Beaches and Dunes Goal. One researcher who has produced several reports over the years on the environmental geology of the Oregon coast has noted that only recent concerns have brought the topic into the fore (Beaulieu, 1979). Only one article was identified that comprehensively addressed sand removal from a beach or dune situation (Magoon, et al., 1972). This article addressed the commercial mining of sand in Northern California and identified two major uses for such sand--aggregate for concrete and fill, and speciality purposes (glassmaking - 65%, sandblasting - 13%, and grinding and polishing - 6%). In their conclusion the authors note two problems associated with the activity of sand removal--a depletion of the sand resource and a conflict with the recreational use of coastal sand areas.

One authority on shoreline processes, while noting that mining activities in shore areas is an important industry in some specific areas, does state a similar observation to that of Komar, (1978); Rea, (1977), and Magoon, et al., (1972), in that:

"Mining of beach and dune sands has further depleted this source, while the entrapment of coastal materials by harbors, groins, and jetties has placed sand in short supply on beaches where it provides an essential element of protection of the coast from the erosive action of waves. Further, sand is a valuable recreational asset that is now in very short supply." (Inman, 1978, p. 2269).

Although little written information on sand removal is available, the issue was brought into focus when it was first mentioned as a concern in beach and dune areas in the January 1975 Progress Report published by the Oregon Coastal Conservation and Development Commission (OCCDC, 1975, p. 53). This same concern was carried over into the first draft of the Coastal Goals proposed by the Oregon Department of Land Conservation and Development which stated that:

- "d. Removal of sand from sand areas should be permitted only when it is necessary to protect private or public property from sand damage or when such removal will not adversely affect the environment or the stability of adjacent areas as determined by a site investigation." (DLCD, 1975, p. 5).

In its final form, the adopted Beaches and Dunes Goal (#18) does not specifically require such a comprehensive examination of sand removal proposals and their impacts, but rather focuses on protection of life and property, which would necessitate a review of sand removal impacts.

II. SAND REMOVAL ON THE OREGON COAST

A. Historical Sand Removal Activities

Along the Oregon coast, sand has typically been removed for four major reasons: industrial purposes, construction activities, site alteration, and protection of structures, property and/or habitats.

1. Industrial processes

The sand or mineral(s) within the sand have been used in some industrial process. Such processes include the extraction of chromite, zircon, platinum, gold, etc. (von Bernewitz, 1930; Dasher, et. al., 1942; Beaulieu and Hughes, 1975), and the use of sand for ceramics, container glass, foundry molding, and sand blasting (Sterrett, 1958; Carter, et. al., 1962 and 1964; Beaulieu and Hughes, 1975; Gray, 1978).

Most of the mineral bearing sands are found in Coos and Curry Counties on Oregon's South Coast. Figure 1 illustrates the general locations of these and other minerals found on the Oregon coast. In these southern counties, beginning with "black sand" mining at Whiskey Run Creek in 1852, a series of surface mining operations was carried out until the end of World War II. These sands were mined generally for their chrome and gold content. Depending on future prices and availabilities, some of these sites may again become viable for production within the future.

2. Construction activities

The sand has been used in construction activities such as fill and concrete (Ketchum, 1972; Beaulieu and Hughes, 1975; Gray, 1978). The removal of sand for construction purposes has occurred at scattered locations up and down the coast as has the ad hoc removal of a bucket

or pickup load of sand. The most publicized removal for this purpose was at School House Creek in the Gleneden Beach area of Lincoln County. This operation did not have its beach sand removal permit renewed when it was found to possibly be related to the coastal erosion immediately to the north at Salishan Spit (Gray, 1978; Komar, 1978). This sand removal project was estimated to have removed between 43% to 75% (112,000 to 196,000 cubic meters) of the new sand being supplied to this area of the beach, (Rea, 1974, p. 74).

OREGON COASTAL RESOURCE ANALYSIS

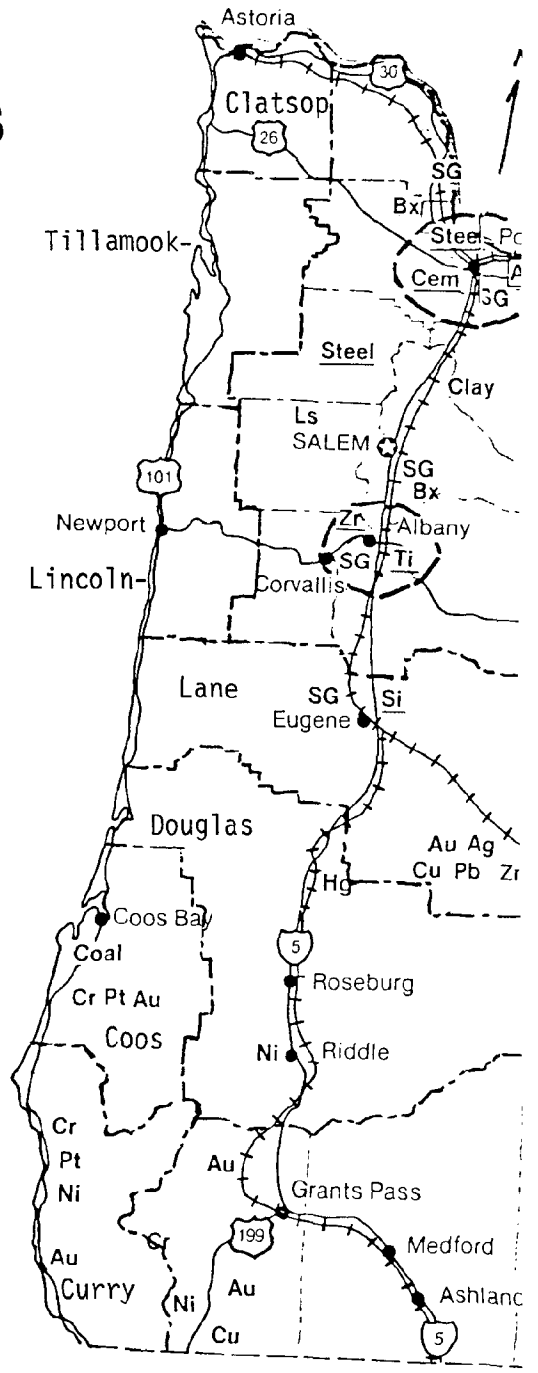
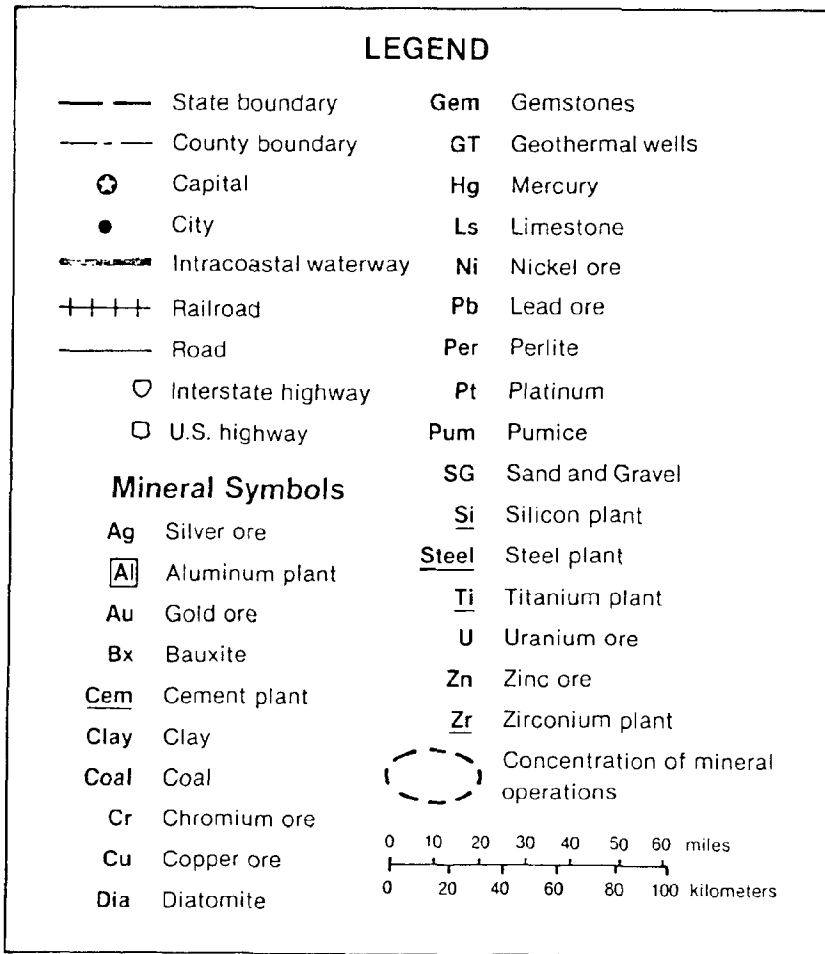


Figure 1. Minerals found on the Oregon coast (from U. S. Bureau of Mines, 1978).

3. Site alteration

Sand has been removed to alter a site prior to construction or to improve a view that is continually blocked by blowing and accumulating sand (Gray, 1978; Ternyik, 1978). This activity of site alteration goes on continually with each new structure erected and later, in some cases, to maintain a view. Removal related to construction should be reviewed in the future to ensure that it meets the goal requirements. Removal related to view protection should be analyzed to determine if such removal is necessary, the degree of hazard involved, and if it can be better treated by a stabilization program.

4. Protection of structures, property and/or habitats

Sand has been removed to protect man-made and natural environments from in-migrating sand (U.S. Soil Conservation Service, 1975; Brown, 1978; Ternyik, 1978). Protecting man-made and natural environments from in-migrating sand has been going on for some time. A massive program, coupled with plantings for stabilization, was carried out in the Clatsop Plains area in the 1930's (see Figure 2). Since then, there have been many cases of sand removal to protect highways and roads (Highway 101



Figure 2. Blowing sand caused problems for Gearhart property owners in 1935 when sand piled up to the second floor of many residences. Removing sand, sometimes several times a year, proved expensive (from Warrenton Dune Soil and Water Conservation District, 1966).

at Humbug Canyon, seven miles south of Port Orford, along Highway 101 between Glenada and Dunes City, about one mile north of Woods, along Highway 101 near Rockaway and Arch Cape, and within Cannon Beach and Seaside), to protect parking lots (Del Ray Beach State Wayside north of Gearhart), to protect buildings (at a dune tour concession in the Oregon Dunes National Recreation Area), and to protect railroad lines (about one mile south of Menasha on the north slough of Coos Bay), (Brown, 1978; Ternyik, 1978), (see Figures 3-5). It is suggested that provisions for such necessary protective actions be included in local plans and ordinances.



Figure 3. Sand being removed just west of Highway 101 between Glenada and Dunes City. Throughout this stretch of Highway 101, migrating dunes are within several hundred feet of the pavement.

Herb Schlicker, an engineering geologist with the State of Oregon's Department of Geology and Mineral Industries notes: "Removal of sand provides only a temporary solution and may have to be repeated frequently at considerable expense" (Schlicker, 1972, p. 68). In areas which are known to experience sand accumulation problems, it might be wiser to either establish a stabilization program or to limit the location of permanent structures and roads.



Figure 4. This migrating sand dune is constantly spilling onto the highway just north of Woods in Tillamook County.



Figure 5. Sand removal activity along the Southern Pacific Railroad Line on the north slough of Coos Bay. Notice the layers of sand and the exposed trees that were buried by this in-migrating dune.

B. Historical Controls on Sand Removal

1. Local controls

Historically, there has been an interest in having some control or standards for sand removal activities on the Oregon coast. For example, in 1910 the coastal City of Newport adopted an ordinance prohibiting the removal of sand and gravel from its ocean beaches. Later in 1928, Newport repealed this ordinance in spite of the following State Attorney General's opinion:

"The City of Newport may by ordinance regulate or forbid the taking of sand and gravel from the ocean beach on the grounds that such taking interferes with the safety, order and general welfare of the inhabitants of the City", (13 OR. Op. A.G. 515 [1928]).

The interest in such standards arose again in 1938 when the City Attorney of Newport was asked for an opinion on the City's ability to adopt a sand removal ordinance. The City Attorney's advice was affirmative, and later that year the editor of The Mineralogist, a national magazine, sent a letter to the City Council with stated concerns about sand and gravel operations on Newport's beaches, (Marsters, 1938; Dake, 1938).

More recently, the City of Florence adopted Ordinance #464 in January of 1968. Section VIII, "Securing Loose, Open or Raw Sand" of that ordinance states:

"No person, firm, or corporation shall make any excavation or remove any natural or planted ground cover, trees and shrubs or grass, or any existing building or structure when any such action will expose loose, open, or raw sand which would be susceptible to movement or displacement onto any public way or public or private land, by the action of wind or running water unless provisions are made to prevent such movement or displacement."

The above ordinance seeks to maintain stability at the site of any activity within a sand area. Similarly, in August of 1978, the City of Seaside authorized their Public Works Department to remove sand that had been accreting on the beach and blowing inland onto yards and public rights-of-way, (The Daily Astorian, 1978).

2. State controls

Generally speaking, sand removal from beaches and dunes is not permitted in most states (The Conservation Foundation, 1975, p. 107; U. S. Army Corps of Engineers, 1975, pp. 1-21). However, on the West Coast, the State of Washington has recognized the importance of commercial sand and gravel mining "as a necessary industry" and calls for careful management (Washington Department of Ecology, 1971, pp. 31-32). Under the general guidelines of the Washington Shoreline Management Act, the state's two southern coastal counties, where a large amount of accretion is taking place, allow the removal of beach sand (to eighteen inches depth in Pacific County and to twelve inches depth in Grays Harbor County), however, much of this removal is related to the local cranberry bog operations (Ruef, 1979).

Within Oregon, three agencies are involved in sand removal activities and issue permits allowing such actions. The Oregon Department of Geology and Mineral Industries under the surface mining regulations of Chapter 517 is given the duty to issue permits for certain surface mining activities and set standards for reclamation. Such activities can take place in sand areas, but require a permit if:

- (1) they remove more than 2500 cubic yards of minerals per year, and/or
- (2) they affect at least one acre of land within a period of twelve consecutive months; and
- (3) the material is not used on-site for construction purposes.

When an applicant applies for the surface mining permit, he must also include a "Reclamation and Development Plan" pursuant to ORS 517.750-517.990. This plan is to include site plans, cross sections, aerial photos, and any other drawing necessary to illustrate the present and proposed final configuration of the site. The Department also requires a performance bond not to exceed \$500.00 per acre, and a permit fee of \$265.00. Copies of Chapter 517.750-.990, Reclamation Plan Guidelines, and the Application for Operating Permits or Grant Exemption under ORS 517 are included in Appendix A. Table 1 lists sites of known sand removal and current permits issued by the Oregon Department of Geology and Mineral Industries.

Another state agency having permit authority over sand removal on the coast is the Parks and Recreation Branch of the Oregon Department of Transportation. Chapter 390 of the Oregon Revised Statutes requires permits for removal of products along the ocean shore (west of the state's surveyed "zone line"). Except for exemptions for fish, wildlife, agates or souvenirs, no other natural mineral or animal product can be taken from the state controlled beach area without the expressed permission of the Department of Transportation. Furthermore, state law (ORS 390.725) requires that such permission be granted only after consultation with the State Fish and Wildlife Commission, the State Department of Geology

and Mineral Industries, and the Division of State Lands. Approval of the permit must contain any necessary provisions to protect the areas from any use, activity or practice adverse to the conservation of natural resources or public recreation. Copies of the most applicable provisions of the state statute and of the Permit Application for Removal of Sand, Rock, Minerals, Marine Growths, or Other Natural Products of the Ocean Shore are included in Appendix B. Table 2 lists those permits issued by the Oregon Parks and Recreation Branch pursuant to ORS 390.

Table 1. Sites registered or under permits issued by the Oregon Department of Geology and Mineral Industries pursuant to ORS 517.750-.990*

Location	Amount	Permittee	Purpose
<u>Clatsop</u>			
Sec 8 T8NR10W	up to 2500/yr	Individual (TE-04-0040)	Construction material**
NW 1/4 Sec 19 T8NR6W	unlimited	Oregon Portland Cement (LE-04-0012)	Sandstone quarry
Sec 3 T7NR10W	unlimited	Individual (SMP-04-0024)	Construction material
<u>Tillamook</u>			
SW 1/4 18 T4SR10W NW 1/4 19	unlimited	Federal Hwy. Adm. (SMP-29-0060)	Construction material
Sec 6 T3NR10W	unlimited	Individual (LE-29-0036)	Sandstone and Rock quarry
Sec 18 T4SR10W	unlimited	Individual (SMP29-0066)	Construction material
<u>Lincoln</u>			
SE 1/4 sec 22 T7SR11W	unlimited	Oceanlake Sand and Gravel Co. (LE-21-0011)	Construction material
Sec 27 T7SR11W	IN VIOLATION	Ford, Frank & Lewis (21-0036)	Construction material
<u>Lane</u>			
Sec 15 T18SR12W	unlimited	Individual (LE-20-0068)	Construction material

Table 1. continued

Location	Amount	Permittee	Purpose
<u>Coos</u>			
Sec 34 T24SR13W	unlimited	CooSand Corp. (SMP-06-0007)	Construction material

*from Ausmus, 1979.

**construction material--includes fill material, concrete, etc.

TE-total exemption--activity does not fall within the permitting purview of DOGAMI (e.g. less than 2,500 cu yd/yr, etc.)

LE-limited exemption--activity initiated prior to reclamation requirement reclamation plan not required.

SMP-surface mining permit--activity falls within DOGAMI's permitting authority; reclamation plan required.

Table 2. Sand removal permits issued by the Oregon Parks and Recreation branch of the Oregon Department of Transportation pursuant to ORS 390.725*

Date	Location	Amount	Permittee	Purpose
1970	Brookings, Curry County	Not stipulated	Individual	Removal for construction and fill purposes
1970	Brookings, Curry County	10,000 cu. yd.	Port of Brookings	Removal of sand to clear channel
1973	Beaver Creek at Ona Beach State Park, Lincoln County	4,800 cu. yd.	Lincoln County	Rechannelization of mouth of Beaver Creek

*from Bond, 1979.

Under ORS 541.605-665, the Oregon Division of State Lands maintains permit authority for fill and removal activities within waters of the state. Pursuant to this statute, the Division coordinates with the Parks and Recreation Branch on removal activities within beach areas. Additionally, the Division of State Lands is charged with administering the transfer of dredge spoils with proceeds from such sales going to the common school fund. Inquiries regarding use of dredge spoils and negotiation of fees, should be directed to the Division (Johnson, 1979).

Local governments should arrange to review and comment on all applications filed under these state programs within, or adjacent to, their jurisdictional boundaries. However, it should be noted that many sand removal activities that should be addressed under the provisions of Goal #18 do not fall under the jurisdictional provisions of these two state agencies. Therefore, local governments should require a site investigation report for most sand removal activities. Those minor activities exempted from the site investigation report requirement could be specifically listed with a blanket finding to support their exemption.

3. Federal controls

The major federally controlled beach and dune area is the forty-one mile long Oregon Dunes National Recreation Area on Oregon's central coast. This sand area of large migrating sand dunes was made a national recreation area by an act of Congress on March 23, 1972. The Siuslaw National Forest of the U.S. Forest Service maintains the administration of this unique area.

According to the Final Environmental Impact Statement concerning the Oregon Dunes National Recreation Area Management Plan (January, 1977), the sand removal policy is:

"J. Minerals

The sand within the Oregon Dunes National Recreation Area is of high enough quality for making some varieties of glass. In recent years, an individual filed thirty-five mining claims covering 4,640 acres of this sand. Of these claims, twenty-five involving 3,160 acres were subsequently declared invalid, since the claimant had not established a market for this sand. Although the claimant had not established a market for the sand on the remaining ten claims prior to the effective date of the NRA Act, the validity proceedings are in progress, but have not been completed at this time. Since then, all lands within the NRA have been withdrawn from entry under both the mining and mineral leasing laws, subject to valid existing rights." (U. S. Forest Service, 1977, pp. 22-23)

The Environmental Impact Statement suggests that although private lands within the NRA have not been withdrawn from mineral entry, this potential activity is not considered a threat. Section 7 of PL 92-260 provides for industrial or commercial purposes that are proposed for private lands after December 31, 1970, to be certified as being compatible with or furthering the purposes of the Act, if the property owner is to retain his protection from condemnation. However, sand mining is incompatible with the purposes of the Act since it would negatively impact one of the elements that makes the Oregon Dunes NRA unique--the sand dunes.

The Impact Statement notes further that while "the NRA Act provides for no consequences should the state or counties decide to allow sand removal for glass manufacturing purposes, a cooperative relationship is expected to prevent this from happening." (U. S. Forest Service, 1977, p. 55).

Within the Oregon Dunes National Recreation Area there exists only one sand removal project. It is a mining operation, removing the sand for glass, foundry molding and traction sand¹. The NRA management position is to use stabilization instead of removal in situations where potential inundation poses hazardous conditions. However, when sand migrates off NRA lands, it is no longer within the jurisdictional realm of the U. S. Forest Service. Thus, future removal or stabilization would be up to adjacent property owners, such as the Oregon Department of Transportation, when removing sand from Highway 101 just north of Siltcoos (Czmerys, 1979).

4. Intergovernmental coordination

The maintenance of open sand by various jurisdictional parties and the public can lead to a variety of planning and management conflicts. It is vital that adjacent property owners participate in the planning and management of dune forms to ensure the compatibility of management approaches and techniques. Local, state and federal jurisdictions would do well indeed to work cooperatively and jointly in coordinating their planning and management of beach and dune areas. A cooperative regional planning approach specific to shoreland areas has been developed by the National Parks Service and is included in Appendix C as an aid to coastal jurisdictions involved in a coordinated approach to beach and dune planning and management. Indeed, the federal consistency provisions of the Coastal Zone Management Act, coupled with Oregon's state coordination program, ensure that local jurisdictions have ample opportunity to coordinate their planning needs and efforts with state and federal agencies.

¹Traction sand - sand placed in front of the driving wheels of railroad locomotives for improved traction.

III. SAND REMOVAL ACTIVITIES AND POTENTIAL IMPACTS

There are six major concerns related to the activity of sand removal in beach and dune areas. These areas of concern are the impact(s) of a proposed sand removal activity on sand flow patterns, sand-formed lakes, groundwater supplies, aesthetics, wildlife habitats and adjacent property and associated structures.

A. Sand Flow Patterns

The removal of sand from the beach and dune area may lead to erosion of neighboring landforms either down the littoral drift system of the beach or in areas leeward of the removal activity. The energy levels and directions of wind, tide and currents are constantly impacting on the beach. A reservoir of sand, especially the beach and foredune, is needed to ensure that a supply of sand is available to maintain a buffer between land and sea (U. S. Army Corps of Engineers, 1975, pp. 5-21).

"The key to the natural protective quality of the beachfront is the sand held in storage and yielded to the storm waves to dissipate the forces of their attack on the beachfront. Whenever the total volume of sand held in storage is reduced, the ability of the beachfront to absorb the energy of the storm waves is reduced. If the forces of a storm exceed the restorative capabilities of the beach, then extensive long-term erosion and alteration of the [beach] profile are likely results." (The Conservation Foundation, 1977, p. 103).

Decision-makers should review the sand budget of an area to determine if an historic surplus of sand exists before permitting sand removal. Removal should be conducted in such a manner as to minimize the interference with the free movement of sand or which would adversely affect the vegetative cover or modify the landscape topography in a manner which promotes erosion, unwanted sand migration, an over-steepened slope situation, alterations in driftwood accumulation patterns, or breaches in the foredune. Such considerations should be addressed within a site investigation report.

B. Sand-formed Lakes

Sand-formed, or dune-dammed lakes as they are sometimes called, are most commonly exposed areas of the water table in dune areas. As such, the main concern to their viability is the encroachment on them by in-migrating dunes. At Cleawox Lake, such migration is so rapid that in a period of several years the lake depth at a narrow section went from

twenty feet to five feet (Ternyik, 1978). The importance of these lakes for wildlife habitat, recreation and aesthetics should mandate protection and restoration measures including sand removal and dune stabilization.

In as much as these lakes are commonly exposed areas of the water table, the considerations mentioned below for the groundwater should also be reviewed when planning and managing such coastal lakes.

C. Groundwater Supplies

Sand removal excavations may intersect the local groundwater table. If a removal project is large enough, it may lower the local water table. Chemicals such as fuel and lubricating oil from heavy equipment may be introduced into the groundwater if the groundwater table is exposed during the removal project.

D. Aesthetics

The major resource study relating to Oregon coastal aesthetics is Visual Resource Analysis of the Oregon Coastal Zone produced by a firm of landscape architects under contract with the Oregon Coastal Conservation and Development Commission in 1974. While this study categorizes typical coastal landscapes as they relate to the land-water interface, it does not provide decision-makers with specific standards in this highly subjective area. "Shoreline Site Planning and Design" by Roy Mann is an excellent source of information on this subject (Clark, 1977).

Relying somewhat on the two sources mentioned above the following factors for the evaluation of a proposed sand removal project from an aesthetic standpoint include:

- (1) the character of the sand features to be altered. (Is it representative of a typical or common landscape, or is it an obviously unique and important feature?);
- (2) the size of the landform. (Would it be possible to remove a portion of the feature without altering its aesthetic value(s)?);
- (3) impact of the removal on the site and the surrounding area. (Would the proposed sand removal be a detrimental, neutral or positive action to the general aesthetic values of the site and surrounding area?); and,
- (4) other land use goals and planning objectives. (Would the removal be consistent with local plans and other land use objectives such as those expressed in Goal #5, Open Space, Scenic and Historic Areas and Natural Resources?).

E. Wildlife Habitats

The beach and dune system provides a living environment for a large number of plants and animals, the sensitivity of which varies under various habitat conditions. The scale and intensity of sand removal envisioned under existing constraints, in comparison with the total sand area, does not appear to pose any significant threat to the general habitat picture. Site investigations should give special attention to identified critical habitat areas and species. In fact, through a program of sound management, such as vegetation, restoration and sand removal (to protect habitats), improvement in the quality of habitat may be realized. In the past, largely due to a lack of beach and dune management on the coast, several wildlife habitats, including lakes and wetlands, have been smothered by migrating dunes such as at Cleawox Lake. Local decision-makers should be aware of local wildlife needs when reviewing proposals for sand removal to ensure that local key areas are not adversely affected, or to direct removal to areas where habitats may be restored.

F. Adjacent Property and Associated Structures

Other than the obvious impacts of noise, dust, fumes and traffic on adjoining properties, the dangers of eliminating lateral support¹ and the inundation of such properties by reactivated sand migrating downwind from the site of the removal project are also present. Local decision-makers should thus ensure that all such problems are considered within the site investigation report.

After a sand removal project has been terminated there are two future alternatives. First is to attempt to return the site to a somewhat natural setting for rural land uses by the re-introduction of native vegetation. The second alternative is the development of the site for other urban land uses. Several helpful studies have been produced by the National Sand and Gravel Association which address reclamation:

- (1) "Site Utilization and Rehabilitation Practices," by Shellie and Rogier;
- (2) "Simultaneous Excavation and Rehabilitation of Sand and Gravel Sites," by Bauer; and
- (3) "Practical Operating Procedures for Progressive Rehabilitation of Sand and Gravel Sites," by Johnson.

¹Lateral support-the general support offered a parcel of ground by that land immediately surrounding it; a very important feature considering the unconsolidated nature of the sand.

IV. PLANNING AND MANAGING SAND REMOVAL ACTIVITIES

The beach and dune system consists of dynamic and fragile landforms in various stages of stability. Because of this variability of stability and the inherent possibility of adverse impact on the beach and dune system by sand removal projects, most sand removal projects should be accompanied by a site investigation report to be evaluated and considered before a final decision is made. This report should clearly identify impacts and suggest techniques and modifications to the original proposal designed to eliminate the adversities as much as possible, or to mitigate the impacts if circumstances warrant.

Site investigation reports for proposed sand removal projects should demonstrate by reliable and probative evidence that:

- (1) the beach and dune system is capable of supporting the proposed removal activity including impacts associated with transportation, noise, site devegetation and disturbance, alteration of groundwater levels, contamination of surface and groundwater, erosion, and destruction of wildlife habitat;
- (2) the proposed sand removal activity is compatible with existing or proposed use of the site or contiguous areas and structures including impacts associated with lateral support, noise, dust, blowing sand, traffic and aesthetic qualities; and,
- (3) the proposed sand removal activity is compatible with all applicable local, state and federal plans, regulations or ordinances, and standards including local comprehensive plans and implementing ordinances.

Additionally, it is suggested that volumes of sand may be redistributed from one area to an adjacent area during the alteration of a particular site with the approval of the local jurisdiction if all of the following conditions are met:

- (1) all involved property owners (those involved with the proposal) are in written agreement;
- (2) the sand mass on one property is so great that existing development is threatened or that construction of future development would be prohibitive without some reduction of the sand mass; and
- (3) the action as proposed would not weaken the overall dune system and that consideration be given to the resulting topography and stabilizing factors.

Finally, restrictions should be developed for excavations in sand areas to prevent:

- (1) moisture loss and root damage to plants in the surrounding area;
- (2) exposing sand areas to prolonged erosion; and
- (3) creating or causing slope instability. (That is, no slope should be left unattended that could fail and cause serious injury or death; all such areas should be posted.)

At the same time, however, local decision-makers should heed and consider the following observation by ensuring the opportunity for future sand removal activities as needs and demands dictate.

"Although the land use planning and coastal zone management programs provide for mineral development, they have been criticized for not stressing adequately the importance of minerals in overall planning for future population growth and as to national interests. The result is that current investigations of mineral deposits are discouraged by doubts about future development and mining restrictions." (U. S. Bureau of Mines, 1978, p. 14).

Given the importance of sand in the natural coastal zone processes, as well as its importance to the developing coastal economy, other sources and approaches to management must be explored by policy makers. The use of dredge spoils for fill material or beach nourishment is one area needing further consideration. Additionally, studies currently under way by the Portland District Corps of Engineers and by the Department of Civil Engineering at Oregon State University, Corvallis, may shed further light on the need and uses for coastal sand including dredge spoils.

V. IDENTIFICATION OF AREAS SUITABLE FOR SAND REMOVAL

It is difficult to comprehensively identify areas suitable for sand removal because the associated impacts are dependent upon the landform type, historic sand supply, recent erosion or accretion patterns, the surrounding natural and man-made environment(s) and the extent of the sand removal operation.

Three general types of circumstances may at times allow or necessitate the removal of sand; they are areas where:

- (1) in-migrating sand is posing a threat to structures, habitat and/or property;
- (2) significant accretion is known to occur (however, due to a possible zero net littoral drift and limited sources of new

sand supplied to Oregon's beaches, removal of sand even from areas of historic accretion is not generally recommended.) and;

- (3) dredge spoils have been deposited or stored.

Jurisdictions should allow sand removal from ocean beach and sand dune areas only when the following factors are addressed by the developer:

- (1) the removal is necessary to protect life or property;
- (2) a site investigation report demonstrates that the removal will have minimal adverse impact on the environment and adjacent land uses, and
- (3) attention is given to anticipated potential impacts and subsequent rehabilitation of the site.

While it is important for jurisdictions to recognize the necessity or importance of sand removal activities for mineral extraction, industrial processes, construction, and protection of property, local plans should not attempt to specifically identify sites having sand removal potential. Rather it is suggested that jurisdictions act upon sand removal applications following a review of all facts included in a site investigation report and rehabilitation program. Following such review, and given local input, sand removal proposals can be modified as necessary to satisfy the objectives of both the developer and local citizenry.

Presently, few coastal jurisdictions are in a position whereby they can affect sand removal proposals, with the exception of those projects requiring state agency permit(s). As a result of Oregon's land use program, state coordination, and the federal consistency provisions of the Coastal Zone Management Act, coastal jurisdictions are now afforded an opportunity to comment on sand removal proposals in their locale. It is strongly recommended, however, that those jurisdictions containing areas of beach and dune landforms adopt ordinances allowing them review authority of sand removal proposals falling outside the realm of state purview.

Because local governments are called upon to fill the void between state regulation of sand removal and areas not covered by state statutes, it is incumbent upon jurisdictions to adopt reasonable standards and policies to ensure that future sand removal activities are designed in a manner which meets local economic, social and environmental demands while complying with the intent of the Beaches and Dunes Goal.

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APPENDIX A

ORS 517.750 - .990
Reclamation of Mining Lands

Application for Operating
Permit or Grant of Exemption

Reclamation Plan Guideline

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means a cessation of surface mining operation that was not set forth in a permittee's plan of operation or similar written notice extending:

(a) For more than 24 consecutive months;
or

(b) For a period of less than 24 consecutive months in length, determined by the department to be sufficient to characterize such cessation of the surface mining operation as an abandonment of surface mining and where the permittee fails to submit sufficient evidence to the department that such operation has not been abandoned within 30 days after his receipt of written notification from the department of its intention to declare the operation abandoned.

(2) "Board" means the governing board of the State Department of Geology and Mineral Industries..

(3) "Completion" means termination of surface mining activities including reclamation of the surface-mined land in accordance with the approved reclamation plan and operating permit.

(4) "Department" means the State Department of Geology and Mineral Industries.

(5) "Landowner" means the person possessing fee title to the natural mineral deposit being surface mined.

(6) "Minerals" includes soil, coal, clay, stone, sand, gravel, metallic ore and any other solid material or substance excavated for commercial, industrial or construction use from natural deposits situated within or upon lands in this state.

(7) "Operator" means any individual, public or private corporation, political subdivision, agency, board or department of this state, any municipality, partnership, association, firm, trust, estate or any other legal entity whatsoever that is engaged in surface mining operations.

(8) "Overburden" means the soil, rock and similar materials that lie above natural deposits of minerals.

(9) "Reclamation" means the employment in a surface mining operation of procedures, reasonably designed to minimize as much as practicable the disruption from the surface mining operation and to provide for the rehabilitation of any such surface resources adversely affected by such surface mining operations through the rehabilitation of plant cover, soil stability, water resources and other measures appropriate to the subsequent

**RECLAMATION OF MINING
LANDS**

517.750 Definitions for ORS 517.750 to 517.900. As used in ORS 517.750 to 517.900 and subsection (4) of 517.990, unless the context requires otherwise:

(1) "Abandonment of surface mining"

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beneficial use of such mined and reclaimed lands.

(10) "Reclamation plan" means a written proposal, submitted to the department as required by ORS 517.750 to 517.900 and subsection (4) of 517.990 and subsequently approved by the department as provided in ORS 517.750 to 517.900 and subsection (4) of 517.990, for the reclamation of the land area adversely affected by a surface mining operation and including, but not limited to the following information:

(a) Proposed measures to be undertaken by the operator in protecting the natural resources of adjacent lands.

(b) Proposed measures for the rehabilitation of the surface-mined lands and the procedures to be applied.

(c) The procedures to be applied in the surface mining operation to control the discharge of contaminants and the disposal of surface mining refuse.

(d) The procedures to be applied in the surface mining operation in the rehabilitation of affected stream channels and stream banks to a condition minimizing erosion, sedimentation and other factors of pollution.

(e) The map required by paragraph (e) of subsection (1) of ORS 517.790 and such other maps and supporting documents as may be requested by the department.

(f) A proposed time schedule for the completion of reclamation operations.

(11) "Spoil bank" means a deposit of excavated overburden or mining refuse.

(12) "Surface mining" includes all or any part of the process of mining minerals by the removal of overburden and the extraction of natural mineral deposits thereby exposed by any method by which more than 2,500 cubic yards of minerals are extracted or by which at least one acre of land is affected within a period of 12 consecutive calendar months, including open-pit mining operations, auger mining operations, production of surface mining refuse, the construction of adjacent or off-site borrow pits (except those constructed for use as access roads), and prospecting and exploration activities coming within the quantity or area specifications set forth herein or when such activities affect more than one acre of land for each eight acres of land prospected or explored; but excluding excavations of sand, gravel, clay, rock or other similar materials conducted by the landowner or tenant for the primary purpose of construc-

tion, reconstruction or maintenance of access roads and excavation or grading operations conducted in the process of farming or cemetery operations, onsite road construction or other onsite construction, or underground mines; and also excluding rock, gravel, sand, silt or other similar substances removed from the beds or banks of any waters of this state pursuant to permit issued under ORS 541.605 to 541.660.

(13) "Surface mining refuse" means all waste materials, soil, rock, mineral, liquid, vegetation and other materials resulting from or displaced by surface mining operations within the operating permit area, including all waste materials deposited in or upon lands within such operating permit area.

[1971 c.719 §2; 1975 c.724 §1; 1977 c.59 §1]

517.755 Mining operations affecting more than five acres. Notwithstanding the yard and acre limitations of subsection (11) of ORS 517.750, as soon as any mining operation begun after July 1, 1975, affects more than five acres of land the provisions of ORS 517.750 to 517.900 and subsection (4) of 517.990 apply to the mining operation.

[1975 c.724 §1a]

Note: 517.755 was enacted into law by the Legislative Assembly but was not added to or made a part of ORS chapter 517 or any series therein by legislative action. See the Preface to Oregon Revised Statutes for further explanation.

517.760 Policy. (1) The Legislative Assembly finds and declares that:

(a) The extraction of minerals by surface mining operations is a basic and essential activity making an important contribution to the economic well-being of the state and nation.

(b) Proper reclamation of surface-mined lands is necessary to prevent undesirable land and water conditions that would be detrimental to the general welfare, health, safety and property rights of the citizens of this state.

(c) Surface mining takes place in diverse areas where the geologic, topographic, climatic, biological and social conditions are significantly different and that reclamation operations and the specifications therefor must vary accordingly.

(d) It is not practical to extract minerals required by our society without disturbing the surface of the earth and producing waste materials and that the very character of many types of surface mining operations precludes complete restoration of the affected lands to their original condition.

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(e) Reclamation of surface-mined lands as provided by ORS 517.750 to 517.900 and subsection (4) of 517.990 will allow the mining of valuable minerals in a manner designed for the protection and subsequent beneficial use of the mined and reclaimed lands.

(2) The Legislative Assembly, therefore, declares that the purposes of ORS 517.750 to 517.900 and subsection (4) of 517.990 are:

(a) To provide that the usefulness, productivity and scenic values of all lands and water resources affected by surface mining operations within this state shall receive the greatest practical degree of protection and reclamation necessary for their intended subsequent use.

(b) To provide for cooperation between private and governmental entities in carrying out the purposes of ORS 517.750 to 517.900 and subsection (4) of 517.990.
[1971 c.719 §1]

517.770 Application of ORS 517.750 to 517.900. (1) Nothing in ORS 517.750 to 517.900 and subsection (4) of 517.990 applies to:

(a) The reclamation of lands within the surfaces and contours of surface mines as of July 1, 1972, or to vertical extensions of those surfaces and contours. The surfaces and contours of surface mines shall not include those areas over which the mining operator merely leveled terrain or cleared vegetative cover.

(b) Dredging operations conducted pursuant to ORS 517.611 to 517.700.

(c) A landowner or operator who, on July 1, 1972, is a party to a valid contract, in existence on January 1, 1971, to surface mine; but this exemption will not apply to existing contracts upon expiration, or in instances where a fiduciary relationship exists between the contracting parties, and in no case will the exemption continue after January 1, 1981.

(2) Notwithstanding paragraph (a) of subsection (1) of this section, if in the judgment of the department meaningful reclamation cannot be accomplished the department may waive the permit and reclamation requirements of ORS 517.750 to 517.900 and subsection (4) of 517.990 even though the mine surfaces and contours as of July 1, 1972, have been extended horizontally.

[1971 c.719 §15; 1973 c.709 §1; 1975 c.724 §2]

517.775 Permit fee for certain landowners and operators. Notwithstanding the provisions of subsections (1) and (3) of

ORS 517.770, any landowner or operator conducting surface mining on July 1, 1972, shall pay the permit fee as provided in ORS 517.800.

[1971 c.719 §17]

517.780 Effect on local zoning laws or ordinances; local reclamation permit and fee in lieu of state permit and fee; certain operations exempt. (1) The provisions of ORS 517.750 to 517.900 and subsection (4) of 517.990 and the rules and regulations adopted thereunder shall not supersede any zoning laws or ordinances in effect on July 1, 1972; however, if such zoning laws or ordinances are repealed on or after July 1, 1972, the provisions of ORS 517.750 to 517.900 and subsection (4) of 517.990 and the rules and regulations adopted thereunder shall be controlling. The department may adopt rules and regulations with respect to matters presently covered by such zoning laws and ordinances.

(2) In lieu of the permit required by ORS 517.790, an operator may conduct surface mining provided such surface mining is done pursuant to a valid permit issued by the appropriate authority of a city or county in which the mining is taking place, if such authority has adopted an ordinance, approved by the department, requiring reclamation of land that has been surface mined.

(3) City or county operated surface mining operations which sell less than 2,500 cubic yards of minerals within a period of 12 consecutive calendar months, are exempt from the provisions of ORS 517.750, 517.755, 517.770, 517.810, 517.830, 517.860, 517.865 and this section provided the city or county adopts an ordinance which shall include a general reclamation scheme for all surface mining within the boundaries of the city or county, which shall provide for the means and methods whereby reclamation is to be achieved.

(4) A city or county may determine and collect fees for any function performed pursuant to subsection (2) of this section. However, no such fee shall exceed the amounts prescribed in ORS 517.800. A city or county shall issue a permit for each regulated surface mining activity within its jurisdiction, and all such permittees are subject to the payment of any fee charged by the city or county. However, those activities described in ORS 517.770 are not required to comply with mined land reclamation plans. City or county fees shall be in lieu of any surface mining permit fees assessed by the department.

[1971 c.719 §16; 1975 c.724 §3; 1977 c.524 §1]

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517.790 Operating permit required for surface mining on certain lands; application for permit; proposed reclamation plans. (1) Except as otherwise provided by subsection (2) of ORS 517.780, after July 1, 1972, no landowner or operator shall permit or engage in surface mining on land not surface mined on July 1, 1972, without having first applied for and received an operating permit from the department for such surface mining operation. A separate permit shall be required for each separate surface mining operation. Prior to receiving an operating permit from the department the landowner or operator must submit an application on a form provided by the department that contains information considered by the department to be pertinent in its review of the application, including but not limited to:

(a) The name and address of the landowner and the operator and the names and addresses of any persons designated by them as their agents for the service of process.

(b) The materials for which the surface mining operation is to be conducted.

(c) The type of surface mining to be employed in such operation.

(d) The proposed date for the initiation of such operation.

(e) The size and legal description of the lands that will be affected by such operation, and, if more than 10 acres of land will be affected by such operation and if the department considers the conditions to warrant it, a map of the lands to be surface mined that shall include the boundaries of the affected lands, topographic details of such lands, the location and names of all streams, roads, railroads and utility facilities within or adjacent to such lands, the location of all proposed access roads to be constructed in conducting such operation and the names and addresses of the owners of all surface and mineral interests of the lands included within the surface mining area.

(f) If economically practicable, a plan for visual screening by vegetation or otherwise that will be established and maintained on the lands within such operation for the purpose of screening such operation from the view of persons using adjacent public highways, public parks and residential areas.

(2) The application referred to in subsection (1) of this section must also contain a proposed reclamation plan that is acceptable to and approved by the department.

[1971 c. 719 §4; 1973 c. 709 §2]

517.800 Fees. (1) Each application for an operating permit under ORS 517.750 to 517.900 and subsection (4) of 517.990 shall be accompanied by a fee of \$265.

(2) Annually on the anniversary date of each such operating permit, each holder of an operating permit shall pay to the department a fee of \$165.

[1971 c. 719 §7; 1973 c. 709 §3; 1977 c. 524 §2]

517.810 Bond or security deposit required of applicant; public and governmental bodies exempt; other security in lieu of bond from landowner. (1) Before issuing or reissuing an operating permit for any surface mining operation, the department shall require that the applicant for such permit file with it a bond or security deposit, conditioned upon the faithful performance of the reclamation plan and of the other requirements of ORS 517.750 to 517.900 and subsection (4) of 517.990 and the rules and regulations adopted thereunder in a sum equal to the estimated cost of the completion of the reclamation work. The applicant may deposit with the department, in lieu of a bond, cash or other security in a sum satisfactory to the department. In no event shall such bond or deposit of cash or security exceed the sum of \$500 per acre of land to be surface mined under the terms of the operating permit therefor. The amount of the bond shall be determined by the department.

(2) Nothing in this section shall apply to any public or governmental agency.

(3) In lieu of the bond or other security required of the applicant in subsection (1) of this section, the department may accept a similar security from the landowner, including a mortgage or trust deed equal to the estimated cost of reclamation as determined by the department, not to exceed \$500 per acre. The cost of title or mortgage insurance, or costs for title searches or examinations necessary to insure the department's security shall be the responsibility of the applicant.

[1971 c. 719 §8; 1975 c. 724 §4]

517.820 Extensions of time for submission of proposed reclamation plans; time limit for reclamation completion; consultation with state agencies. (1) Upon good cause shown, the department may grant reasonable extensions of time for the completion by the landowner or operator and his submission to the department of a proposed reclamation plan required by subsection (2) of ORS 517.790. Each reclamation plan submitted to the department must provide that all

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reclamation activities shall be completed within three years after the termination of mineral extraction from the surface mining operation conducted within each separate area for which an operating permit is requested. Each such reclamation plan shall be approved by the department if it adequately provides for the reclamation of surface-mined lands.

(2) The department, prior to approving a proposed reclamation plan, shall consult with all other interested state agencies and appropriate local planning authorities.

[1971 c.719 §5; 1977 c.59 §2]

517.830 Inspection of operating site; approval of application for operating permit; effect of failure to approve or refusal to approve reclamation plan; appeal from denial of plan; transfer of permittee's interest. (1) Upon receipt of an application for an operating permit, the department shall cause the operating site described therein to be inspected. Within 30 days after the date on which such application is received and upon receipt of the required permit fee, the department shall issue the operating permit applied for or, if it considers such application incomplete, return the application to the applicant for correction of the deficiencies indicated by the department.

(2) Failure by the department to act upon the reclamation plan submitted with an application for an operating permit within the 30-day period referred to in subsection (1) of this section shall not be considered a denial by the department of the operating permit applied for. The department, pending final approval of a reclamation plan, may issue a provisional permit subject to reasonable limitations that may be prescribed by the department and conditioned upon the applicant's compliance with the bond and security requirements established by ORS 517.810. For all operations ongoing as of July 1, 1972, a provisional permit shall be issued except in those instances where there is reason to believe that a reclamation plan will not be approved and the operating permit ultimately denied.

(3) If the department refuses to approve a reclamation plan in the form submitted by the applicant, it shall notify the applicant, in writing, of its reasons for the refusal to approve such reclamation plan, including additional requirements as may be prescribed by the department for inclusion in such reclamation plan. Within 60 days after the receipt of such notice, the applicant shall comply with the additional requirements prescribed by the

department for such reclamation plan or file with the department a notice of appeal from the decision of the department with respect to such reclamation plan. If a notice of appeal is filed with the department by the applicant, the department may issue a provisional permit to such applicant.

(4) An operating permit issued by the department under this section shall be granted for the period required to mine the land described in such permit and shall be valid, subject to payment of the renewal fee, until the surface mining operation described in the operating permit is completed or abandoned. Each such operating permit shall provide that the reclamation plan described therein may be modified upon agreement between the department and the permittee to change the reclamation plan included within the operating permit.

(5) When a person succeeds to the interest of a permittee in any uncompleted surface mining operation by sale, assignment, lease or other means, the department shall release the permittee from the duties imposed upon him under his operating permit if his successor assumes fully the duties of the former permittee with respect to the reclamation of the surface-mined lands. Upon the assumption by such person of the duties of the permittee as provided in this subsection, the department shall transfer the operating permit to the successor upon the approval of such successor's bond or security deposit as required under ORS 517.750 to 517.900 and subsection (4) of 517.990.

[1971 c.719 §6; 1975 c.724 §5]

517.840 Administration and enforcement of ORS 517.750 to 517.900. The board shall administer and enforce the provisions of ORS 517.750 to 517.900 and subsection (4) of 517.990 and may:

(1) Conduct or cause to be conducted investigations, research, experiments and demonstrations and may collect and disseminate information related to surface mining and the reclamation of surface-mined lands.

(2) Cooperate with other governmental and private agencies of this state or of other states and with agencies of the Federal Government, including the reimbursement for any services provided by such agencies to the department at its request.

(3) Apply for, accept and expend public and private funds made available for the reclamation of lands affected by surface mining in accordance with the purposes of

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ORS 517.750 to 517.900 and subsection (4) of 517.990.

(4) In accordance with the applicable provisions of ORS chapter 183, adopt rules and regulations considered by the board to be necessary in carrying out the provisions of ORS 517.750 to 517.900 and subsection (4) of 517.990. However, such rules and regulations shall be subject to existing rights under any permit, license, lease or other valid authorization granted or issued by a governmental entity.

[1971 c.719 §3]

517.850 Inspection of permit area. At such reasonable times as the department may elect, the department, after reasonable advance notice has been given to the permittee, may cause the permit area to be inspected to determine if the permittee has complied with the reclamation plan and the rules and regulations of the department.

[1971 c.719 §9]

517.860 Failure to comply with reclamation plan; notice of noncompliance; performance period; extension; department may perform work and assess costs against permittee or landowner. (1) If from inspections conducted pursuant to ORS 517.850, or from any other source the department shall determine that the permittee has not or is not complying with the reclamation plan or the rules and regulations of the department, it shall give written notice thereof to the permittee, specifically outlining the deficiencies. Within 30 days thereafter, the permittee shall commence action to rectify those deficiencies and diligently shall proceed until they are all corrected. However, the department may extend performance periods for delays occasioned for causes beyond the permittee's control, but only when the permittee is, in the opinion of the department, making a reasonable effort to comply.

(2) (a) If the permittee has not commenced action to rectify the deficiencies within said period of time, and after notification by the department, or

(b) If the permittee has commenced such action and fails to diligently pursue it, or

(c) If reclamation is not properly completed in conformance with the reclamation plan within three years after surface mining on any segment of the permit area has terminated, or

(d) If reclamation is not properly completed in conformance with the reclamation plan upon determination by the department that

abandonment of surface mining has occurred on any segment of the permit area,

the department may perform the reclamation required by the reclamation plan, complete such reclamation and give written notice that the amount of the reasonably necessary costs and expenses so incurred is due and payable to the department by the permittee. In performing the reclamation under this subsection the department shall be limited to expending funds to complete the reclamation plan, but in no event shall the expenditure exceed \$500 per acre. If the amount specified in the notice is not paid within 30 days following such notice the Attorney General, upon request of the department, shall institute proceedings to recover the amount specified in the notice.

(3) If the landowner has given security as provided in subsection (3) of ORS 517.810 and the permittee is in default as specified in subsection (2) of this section, the landowner shall be held responsible for complying with the reclamation plan of the permittee. The department shall furnish written notice of the default to the landowner and require the landowner to complete the reclamation as specified in the permittee's reclamation plan acceptable to the department. If the landowner has not commenced action to rectify the deficiencies within 30 days after receiving notice, or if he fails to diligently pursue reclamation in conformance with the plan, the department may complete the reclamation and otherwise proceed as provided in subsection (2) of this section, or the department may bring suit to compel the landowner to complete the reclamation plan.

[1971 c.719 §10; 1975 c.724 §6; 1977 c.59 §3]

517.865 Failure to faithfully perform reclamation; insufficient bond; lien; notice; priority; foreclosure. (1) If a permittee fails to faithfully perform the reclamation required by his reclamation plan and if the bond or security deposit required by ORS 517.810 is not sufficient to compensate the department for all reasonably necessary costs and expenses incurred by it in performing the reclamation required by the reclamation plan, the amount due, not to exceed \$500 per acre, shall be a lien in favor of the department upon all property, whether real or personal, belonging to the permittee.

(2) The lien shall attach upon the filing of a notice of claim of lien with the county clerk of the county in which the property is located. The notice of lien claim shall contain a true statement of the demand, the insufficiency of the bond or security deposit to compensate the

MINERAL RESOURCES

department and the failure of the permittee to perform the reclamation required.

(3) The lien created by this section is prior to all other liens and encumbrances, except that the lien shall have equal priority with tax liens.

(4) The lien created by this section may be foreclosed by a suit in the circuit court in the manner provided by law for the foreclosure of other liens on real or personal property.

[1975 c.724 §8]

517.870 Adjustment of bond or security deposit of permittee upon satisfactory completion of reclamation work. Upon request of the permittee, and when in the judgment of the department the reclamation has been completed in accordance with the reclamation plan, the permittee shall be notified that the work has been found to be satisfactorily performed and is acceptable and his bond or security deposit shall be adjusted accordingly.

[1971 c.719 §11]

517.880 Order for suspension of surface mining operation operating without required permit; enjoining operation upon failure of operator to comply; completion of reclamation by department.

When the department finds that an operator is conducting a surface mining operation for which an operating permit is required by ORS 517.750 to 517.900 and subsection (4) of 517.990, but has not been issued by the department under the provisions of ORS 517.750 to 517.900 and subsection (4) of 517.990 or by the rules and regulations adopted thereunder, it may order such operator to suspend such operation until an operating permit has been issued by the department for such surface mining operation or until such time as the department is assured that such operator will comply therewith. If the operator fails or refuses to comply with such order, the Attorney General at the request of the department shall initiate any necessary legal proceeding to enjoin such surface mining operation and to

provide for the completion of the reclamation of the lands affected by such operation.

[1971 c.719 §12]

517.890 Appeals. Appeals from determinations made by the department in carrying out the provisions of ORS 517.750 to 517.900 and subsection (4) of 517.990 and the rules and regulations adopted thereunder shall be conducted in the manner provided by the applicable provisions of ORS chapter 183 for appeals from orders in contested cases.

[1971 c.719 §13]

517.900 Information submitted by operators and landowners is confidential. Operators' reports and other information submitted by operators and landowners as required under ORS 517.750 to 517.900 and subsection (4) of 517.990, with the exception of the reclamation plan as approved by the department, shall be confidential.

[1971 c.719 §14]

PENALTIES

517.990 Penalties. (1) A person who violates ORS 517.450 shall be guilty of theft and punished as provided in ORS 164.045 or 164.055.

(2) Violation of any rules, regulations and orders made pursuant to subsection (4) of ORS 517.540 is punishable, upon conviction, by a fine of not less than \$25 nor more than \$250, or by imprisonment in the county jail for not more than 60 days, or both.

(3) Any person conducting a dredging operation in violation of the provisions of ORS 517.611 to 517.700 is guilty of a misdemeanor.

(4) Any landowner or operator who shall conduct a surface mining operation, for which a permit is required by ORS 517.750 to 517.900 and this subsection, without a valid operating permit therefor shall be punished, upon conviction, by a fine of not more than \$1,000.

[Amended by 1953 c.188 §2; subsection (3) enacted as 1957 c.580 §11; 1971 c.743 §398; subsection (4) enacted as 1971 c.719 §18]



**STATE DEPARTMENT OF GEOLOGY
AND MINERAL INDUSTRIES**

1129 SE South Santiam Road
Albany, Oregon 97321
Telephone: 967-2039

Identification No. _____
Office Use Only _____

APPLICATION FOR OPERATING PERMIT OR GRANT OF EXEMPTION UNDER ORS 517.750 - 990

1. Responsible Parties

A. Operator

Name _____
Street or Box No. _____
City _____ State _____
Zip _____ Telephone _____

B. Landowner (if other than operator)

Name _____
Street or Box No. _____
City _____ State _____
Zip _____ Telephone _____

3. MINERAL DEPOSIT CHARACTERISTICS

A. Description

Type of overburden _____
Approximate depth of overburden _____
Approximate depth of mine _____
Primary mineral to be removed _____

* Estimated quantity of mineral (yards) _____

B. Size

Size in acres of any areas presently affected by surface mining _____
How much of the above was affected before 7/1/72 _____
before 7/1/75 _____

Has any of the above area been reclaimed? _____
If yes, how much and when? _____

Approximate acreage to be affected by surface mining during the ensuing 12 months _____

C. Volume

* Total cubic yards excavated 7/1/72 to date _____

* During ensuing permit year, what is the scheduled total cubic yards to be excavated _____

D. Status

Active Date mining began _____
 Inactive Date mining will begin _____
 New _____

2. Identification of Site

A. $\frac{1}{4}$ Sec. Section Township Range County

Distance in miles Direction from Nearest Community

Type of site: 1. Pit 5. Prospect
(Check all that apply) 2. Stockpile 6. Refuse Disposal
 3. Plant 7. Other
 4. Quarry

4. Application is hereby made for: (complete only one - see instructions)

A. Operating permit - operator claims no exemptions

I apply for a surface mining operating permit under ORS 517.790 _____ date _____
(signature) Title _____

B. Grant of limited exemption based on: (check one or both)

Prior mined (ORS 517.770-1a)
 Valid contract (ORS 517.770-1c)

I apply for a grant of limited exemption from the requirement for a reclamation plan and bond, but not the fees. Signature _____ Date _____ Title _____

C. Grant of total exemption.

I apply for a grant of total exemption from the requirements of a reclamation plan, bond, and the fees under ORS 517.750 (12) and 517.770 (2) because:

- 1. All mining activity takes place between the banks of a stream. (The vegetation line defines the bank).
- 2. Access road's borrow pit or quarry.
- 3. On-site construction.
- 4. The site is less than one acre, and
- 5. a total of less than 2,500 cubic yards of material have been, or will be, removed.
- 6. The site is inactive.
- 7. Other

_____ date _____
(signature) Title _____

D. Even though entitled to exemptions as shown above, a reclamation plan is submitted voluntarily.

Yes. No.

NOTICE

If more than 50 cubic yards of material are to be removed or placed in fill within the bed and banks of a natural waterway, a permit from the Division of State Lands, 1445 State Street, Salem, Oregon 97310, telephone: 378-3805, is required.

*INFORMATION TO BE CONSIDERED CONFIDENTIAL (ORS 517.900)

INSTRUCTIONS FOR COMPLETING THIS FORM ARE ON THE REVERSE SIDE

DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
MINED LAND RECLAMATION DIVISIONRECLAMATION PLAN GUIDELINE

- A. NAME, ADDRESS AND TELEPHONE NUMBER OF THE OPERATOR OR HIS AGENT:
- B. NAME AND ADDRESS OF LANDOWNER:
- C. LIST OF KNOWN MATERIALS FOR WHICH THE OPERATION IS TO BE CONDUCTED:
1. PROPOSED STARTING DATE:
 2. PROPOSED ENDING DATE (IF KNOWN):
- D. OPERATIONAL PLAN:
1. METHOD TO BE EMPLOYED:
 - a. SINGLE BENCH
 - b. MULTIPLE BENCH
 - c. DREDGE
 - d. OTHER _____
 2. TYPES OF EQUIPMENT TO BE USED:
 3. DISPOSITION OF OVERBURDEN:
- E. WHAT WILL BE THE PLANNED SUBSEQUENT "BENEFICIAL USE" OF THE PERMIT AREA? THIS CAN INCLUDE, BUT IS NOT LIMITED TO, CONSTRUCTION SITE, SANITARY LAND FILL, PARK, WATER IMPOUNDMENT, AGRICULTURAL USE (BE SPECIFIC, EXAMPLE: GRAZING LAND, CROP TO BE PLANTED, ETC.), FOREST LAND.

- F.1. (a) Reclamation will begin _____ days following completion of mining.
(b) Reclamation will be concurrent with mining. _____ yes _____ no

F. 2. PROVISION FOR RECLAIMING MINED LANDS ON A CONTINUING BASIS WHERE FEASIBLE.

G. RECLAMATION PROCEDURES

1. WHAT WILL YOU DO TO INSURE GROUND STABILITY?

2. PROVISION FOR REVEGETATION. (Minimal survival rate is 75%
uniformly distributed.)

(a) HOW WILL YOU SAVE AND STORE TOPSOIL?

(b) WHAT MEASURES WILL YOU TAKE TO PREVENT EITHER WIND OR WATER
EROSION OF TOPSOIL DURING STORAGE?

(c) WHAT WILL BE THE AVERAGE DEPTH OF TOPSOIL REPLACED ON THE
AREA TO BE RECLAIMED.

(d) HOW WILL YOU PREPARE SEED BED PRIOR TO PLANTING?

(e) WHAT TYPES AND AMOUNTS OF GRASS SEED WILL YOU USE PER ACRE
AND HOW WILL THIS BE PLANTED?

(f) WHAT TYPES AND AMOUNTS OF FERTILIZER, MULCH, AND LIME WILL
YOU USE?

(g) WHAT TYPES AND AMOUNTS OF SEEDLINGS AND SHRUBS WILL YOU PLANT?

(h) WHEN WILL SEEDING AND PLANTING TAKE PLACE? (SEASON OF YEAR)

H. WATER AND DRAINAGE

- (a) WHAT PROVISION WILL YOU TAKE TO INSURE PROPER DRAINAGE?
- (b) WHAT PROVISION HAS BEEN TAKEN FOR SILT CONTROL?
- (c) IF WATER IMPOUNDMENT IS TO BE LEFT, SEE PAGE 6.

I. VISUAL SCREENING

- (a) WILL YOU EMPLOY VISUAL SCREENING? (IF NO, EXPLAIN)
- (b) WHAT TYPES AND AMOUNTS OF PLANTS WILL YOU USE?
- (c) WHAT WILL BE THE SPACING BETWEEN PLANTS?

J. PROVISION FOR REMOVING STRUCTURES, EQUIPMENT, AND REFUSE FROM THE PERMIT AREA IN ACCORDANCE WITH THE RECLAMATION PLAN.

K. MAP OF AERIAL PHOTO REQUIREMENTS

- (a) WILL AREA PHOTO BE SUBMITTED? YES _____ NO _____
SCALE _____
- (b) MAP(S) REQUIREMENTS. THE MAP SHOULD SHOW, BUT IS NOT LIMITED TO:
 - (1) SCALE: (1" = 400' to 600')
 - (2) NORTH SHALL BE INDICATED
 - (3) QUARTER SECTION, SECTION, TOWNSHIP AND RANGE
 - (4) DISTANCE AND DIRECTION TO NEAREST MUNICIPALITY
 - (5) LOCATIONS AND NAMES OF ALL STREAMS, ROADS, RAILROADS, UTILITIES

- (6) LOCATION AND NAMES OF ADJACENT LANDOWNERS
- (7) ALL OCCUPIED HOUSES WITHIN 500 FEET
- (8) LOCATION OF ALL PROPOSED ACCESS ROADS
- (9) LOCATION OF PLANT, OFFICE AND MAINTENANCE FACILITIES
- (10) SHOW BOUNDARIES OF AREA TO BE PERMITTED
- (11) TYPICAL CROSS-SECTION OF PRESENT GROUND LINE AND PROJECTED GROUND LINE AFTER RECLAMATION
- (12) CONTOUR INTERVAL, DATE OF MAP PREPARATION, NAME OF PERSON PREPARING MAP.
- (13) AREA FOR TOPSOIL STORAGE, WASTE DISPOSAL
- (14) A SEPARATE MAP SHOWING GENERAL LOCATION OF THE OPERATING AREA (NOT LARGER THAN 8 1/2" x 11")

(c) A REVISED MAP MAY BE REQUIRED ANNUALLY

L. IF APPLICABLE, WHAT PROVISIONS HAVE BEEN MADE FOR STREAM CHANNEL, BANK STABILIZATION AND REHABILITATION?

M. EVIDENCE, IN WRITTEN FORM, STATING THAT ALL OWNERS OF A LEGAL, EQUITABLE, FIDUCIARY OR POSSESSORY INTEREST IN THE LAND CONCUR WITH THE PROPOSED SUBSEQUENT USE FOR ANY MINING OPERATION COMMENCING SUBSEQUENT TO JULY 1, 1972.

N. OTHER PERMITS IF APPLICABLE:

DIVISION OF STATE LANDS
 DEPARTMENT OF ENVIRONMENTAL QUALITY
 COUNTY USE PERMIT
 OTHER (IDENTIFY)

NO. _____	DATE _____
NO. _____	DATE _____
NO. _____	DATE _____

O. OTHER COMMENTS:

(SIGNATURE OF APPLICANT)

TITLE _____ DATE _____

WATER IMPOUNDMENTS

(1) HOW LARGE WILL THE SURFACE AREA BE, IN ACRES? _____

(2) WHAT PROVISIONS HAVE BEEN MADE FOR PUBLIC SAFETY?

(3) WHAT PROVISIONS HAVE YOU MADE TO PREVENT WATER STAGNATION?

(4) WHAT IS THE WATER SOURCE FOR THE IMPOUNDMENT?

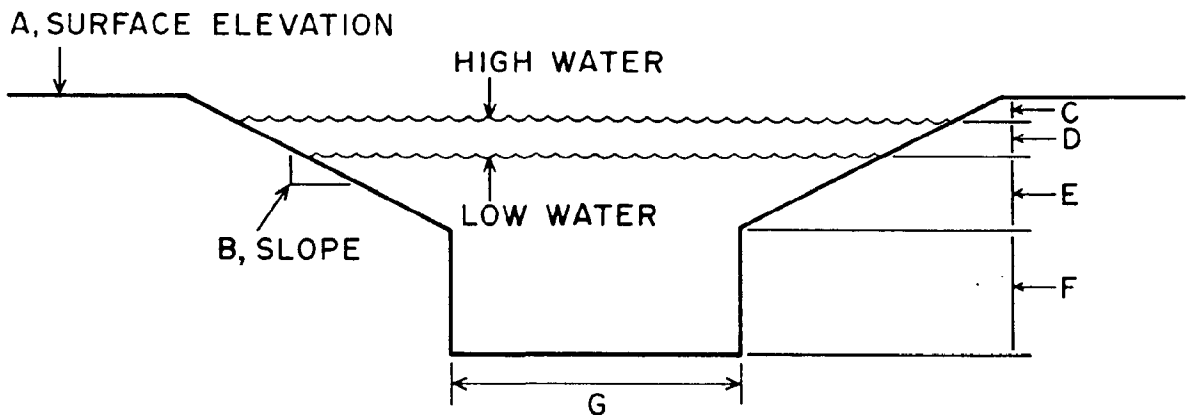
(5) WILL THERE BE PUBLIC ACCESS FOR FISHING?

INSTRUCTIONS FOR CROSS-SECTION

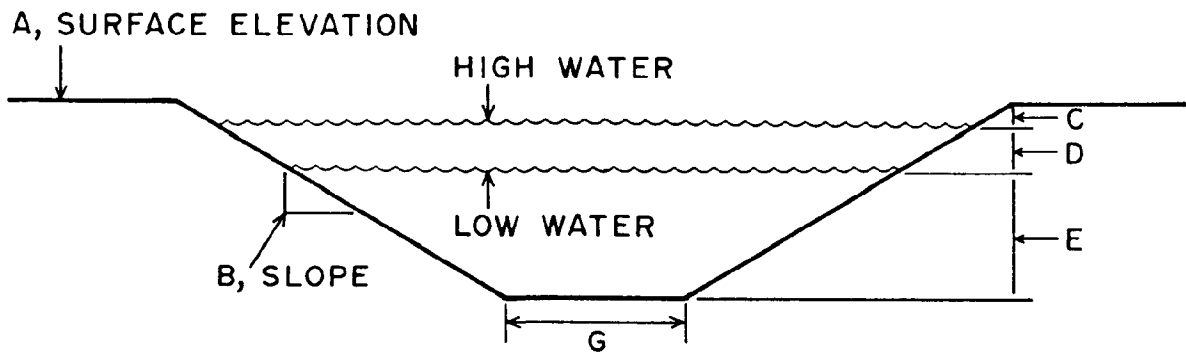
1. THE TWO EXAMPLES SHOWN ARE "TYPICAL" CROSS-SECTIONS OF A WATER IMPOUNDMENT LEFT AFTER EXCAVATION IS COMPLETE.
2. IF ONE OF THE PLANS SHOWN IS TO BE USED, PLEASE INDICATE WHICH ONE AND PROVIDE THE FOLLOWING INFORMATION ON THE PLAN SELECTED. YOU DO NOT HAVE TO RE-DRAW THE CROSS-SECTION.
 - A. SURFACE ELEVATION TO THE NEAREST 5 FEET.
 - B. SLOPE OF THE BANK (MAXIMUM IS 2:1 OR 27°).
 - C - G. THE DIMENSIONS IN FEET.

Typical Cross - Section(s) of Water Impound

TYPE I



TYPE II





APPENDIX B

State Statutes 390.655 and
390.725

Permit Application--Removal,
of Sand, Rock, Minerals,
Marine Growth or Other
Natural Products of the
Oregon Shore

390.655 Standards for improvement permits. The State Highway Engineer shall consider applications and issue permits under ORS 390.650 in accordance with standards designed to promote the public health, safety and welfare and carry out the policy of ORS 390.610, 390.620 to 390.660, 390.680, 390.690, and 390.705 to 390.770. The standards shall be based on the following considerations, among others:

(1) The public need for healthful, safe, esthetic surroundings and conditions; the natural scenic, recreational and other resources of the area; and the present and prospective need for conservation and development of those resources.

(2) The physical characteristics or the changes in the physical characteristics of the area and suitability of the area for particular uses and improvements.

(3) The land uses, including public recreational use if any, and the improvements in the area, the trends in land uses and improvements, the density of development and the property values in the area.

(4) The need for recreation and other facilities and enterprises in the future development of the area and the need for access to particular sites in the area.

[1969 c.601 §11]

390.725 Permits for removal of products along ocean shore. (1) No sand, rock, mineral, marine growth or other natural product of the ocean shore, other than fish or wildlife, agates or souvenirs, shall be taken from the state recreation areas described by ORS 390.635, except in compliance with a rule of or permit from the Department of Transportation as provided by this section. Permits shall provide for the payment of just compensation by the permittee as provided in subsection (5) of this section.

(2) Rules or permits shall be made or granted by the Department of Transportation only after consultation with the State Fish and Wildlife Commission, the State Department of Geology and Mineral Industries and the Division of State Lands. Rules and permits shall contain provisions necessary to protect the areas from any use, activity or practice inimicable to the conservation of natural resources or public recreation.

(3) On request of the governing body of any coastal city or county, the Department of Transportation may grant a permit for the removal of sand or rock from the area at designated locations on the ocean shore to supply the reasonable needs for essential construction uses in such localities if it appears sand and rock for such construction are not otherwise obtainable at reasonable cost, and if such removal will not materially alter the physical characteristics of the area or adjacent areas, nor lead to such changes in subsequent seasons. Before issuing a permit the department shall likewise take into consideration the standards described by ORS 390.655. The department may grant a permit to take and remove sand, rock, mineral or marine growth from the area at designated locations. The department shall also issue permits to coastal cities or counties to remove or authorize removal of sand from the ocean shore, under the standards provided by ORS 390.655, if the city or county determines that the sand accumulation on the ocean shore constitutes a hazard or maintenance problem to the city or county.

(4) The terms, royalty and duration of a permit under this section are at the discretion of the department. A permit is revocable at any time in the discretion of the department without liability to the permittee.

(5) Whenever the issuance of a permit under this section will affect lands owned privately, the Department of Transportation shall withhold the issuance of such permit until such time as the permittee shall have obtained an easement, license or other written authorization from the private owner, which easement, license or other written authority must meet the approval of the department, except as to the compensation to be paid to the private owner.

[1969 c.601 §23]

390.730 [Formerly 274.090; 1969 c.601 §18; renumbered 390.668]

390.735 [1969 c.601 §25; repealed by 1973 c.642 §13]

390.740 [Formerly 274.100; renumbered 390.665]

390.750 [Formerly 274.110; 1969 c.601 §19; renumbered 390.685]

STATE OF OREGON - PERMIT APPLICATION

REMOVAL OF SAND, ROCK, MINERALS, MARINE GROWTH OR OTHER NATURAL PRODUCTS OF THE OCEAN SHORE
Department of Transportation (DOT)

1. _____
Name & Mailing Address of Applicant

2. Location of Material: Section _____ Township _____ Range _____ W.M. _____ Aerial Map Reference _____

3. _____
Description and Amount of Material to be removed

4. Purpose of Removal _____

Any permit application for the removal of sand or rock to be used for construction purposes must be accompanied by a letter from the appropriate unit of local city or county government requesting that a permit be granted and certifying that:

- (a) The sand or rock is essential to meet the reasonable needs for essential construction uses in the area;
- (b) The sand or rock for such construction is not otherwise obtainable at reasonable cost; and
- (c) The removal of the sand or rock will not materially alter the physical characteristics of the area or adjacent area, nor lead to such subsequent changes in subsequent seasons.

5. Method of removal and equipment involved: _____

6. Location of the removal site must be plainly delineated on the ground for inspection. Please give name, address, and telephone number of the person who is to be contacted to give assistance.

Name _____ Address _____ Phone _____

7. Month _____ Year _____; Month _____ Year _____
Estimated date of the starting and completion of project.

8. The following items are to be included with the permit application:

- A. Copy of deeds or other documents showing ownership and legal description or easement, license or other written authorization from owner(s) of lands from which the material is to be removed.
- B. Plot plan showing detailed location of proposed removal site in relation to property boundaries and beach zone line.

Note: Data on beach zone line available in the County Courthouse or from the Region Parks Office. This application will be reviewed for consistency with the Statewide Planning Goals and/or acknowledged local comprehensive plan and also against the Beach Improvement Standards and comments received from DOT notification review.

9. _____
Signature of Applicant _____ Date _____

FOR OFFICE USE

Application Received _____ By: _____
Regional Park Supervisor

Comments:



APPENDIX C

Cooperative Regional
Planning Processes
developed by the
National Parks Service

"COOPERATIVE REGIONAL PLANNING

"The plans of outside agencies and interests affect and are affected by proposed actions within units of the National Park System. Cooperative planning, therefore, is needed to integrate the park into its regional environment and to ensure that potential conflicts between interdependent actions are minimized or eliminated.

"Joint agency planning may be undertaken when a park is adjoined by Indian reservations, other Federal lands, State lands, or lands subject to State, regional or local planning or regulation. Formal written agreements to establish joint planning efforts with planning agencies and other governmental agencies shall be negotiated where appropriate.

"Cooperative planning on specific proposals will be done to ensure that various points of view are considered in formulating proposals and that potential sources of conflict are discovered and, if possible, resolved. Cooperative planning normally will be accomplished utilizing periodic informal workshops in which park planners and representatives of affected interests can frankly discuss matters of mutual concern.

"SHORELINE PROCESSES

"In natural zones, shoreline processes--erosion, deposition, dune formation, inlet formation, etc.--will be allowed to take place naturally, except where control measures, required by law or Service commitment, are necessary to protect life and property in neighboring areas.

"In historic zones, control measures, if necessary, will be predicated on thorough studies taking into account the nature and velocity of the shoreline processes, the threat to the cultural resource, the significance of the cultural resources, and alternatives, including costs, for protecting the cultural resource. Such studies must also determine if and how control measures would impair resources and processes in natural zones, in order that management may make an informed decision on the course of action to be followed.

"In development zones, management should plan to phase out, systematically relocate, or provide alternative developments to facilities located in hazardous areas that cannot be reasonably protected. New developments will not be placed in areas subject to flood or wave erosion or active shoreline processes unless it can be demonstrated that they are essential to meet the park's purpose, that no alternative locations are available, and that the development will be reasonably assured of surviving during its planned lifespan without the need of shoreline control measures. Before development

in such areas is provided the requirement of Executive Order 11968, 'Floodplain Management' must be fulfilled.

"Where erosion control is required by law, or where present developments must be protected to achieve park management objectives, the Service will employ the most natural appearing and effective method feasible.

"Most shoreline areas of the National Park System are part of larger physiographic systems, and the processes of these larger systems directly affect the management of those NPS areas contained therein. Therefore, the Service shall seek to obtain the assistance of appropriate Federal, State and local agencies in carrying out the management objectives of NPS shoreline areas.

"The Service will cooperate with State and other Federal entities to develop strategies for maintaining existing transportation and utility links on barrier islands in the event of storm damage or inlet formation.

"Where these links are interrupted by inlet formation, the Service will recommend, within the limits of practicality, reestablishment in a manner that allows the unimpeded operation of inlet formation and closures.

"Where navigation channels are established in NPS waters, the Service will work with the responsible agency to see that necessary dredging is carefully controlled and that dredged material is disposed of in such a manner as to have the least adverse impact on the aquatic ecosystem and to optimize the value of spoil deposit as wildlife habitat."

U. S. National Park Service, 1978
pp. II-5, IV-22, and IV-23



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