

Client: CWEC  
 Project: BJ Equipment  
 Sampled By:  
 Sample Des: Rock

 Date Received: 7/9/98  
 Date Tested: 7/14/98  
 Ordered By:  
 Date Sampled:

Lab # 1180

### AGGREGATE DURABILITY TESTS

#### LOS ANGELES RATTLER (LAR) ASTM C-131, OSHD TM 211

		PERCENT LOSS	SPEC.
INITIAL WT.	5005.8	18.8%	<30.0 %
FINAL WT.	4066.9		
GRADING	A		

#### OREGON AIR DEGRADATION, OSHD TM 208

Initial Weight	100.4		
Weight Retained On #20	82.5		
Percent Passing #20	17.8%	Specification	<30.0 %
Sediment Height	1.5"	Specification	<3.0"

#### SOUNDNESS ASTM C-88, OSHD TM 206

##### Coarse Fraction

Size	Grading	In. Wt.	Wt. After	Weighted Average Loss
1 1/2-3/4	33.0%	1511.1	1486	0.55%
3/4-3/8	33.0%	1000.8	941.6	1.95%
3/8-#4	33.0%	302.6	273.3	3.20%
<b>Total Coarse Loss</b>				<b>5.7%</b>
Specification				12.0% max

# Operating and Reclamation Plan

For sites in sensitive locations, additional information may be required.  
If more space is needed, attach additional sheets or use the blank sheet provided at the end of this form.

**Oregon Department of Geology and Mineral Industries**  
**Mined Land Reclamation Program**  
1536 Queen Avenue, SE  
Albany OR 97321-6687  
(541) 967-2039  
Fax (541) 967-2075

MUCH OF THE INFORMATION REQUESTED CAN BE EXPLAINED ON THE MINE PLAN MAP. SEE PAGE 7 FOR MAP REQUIREMENTS.

1. PRE-MINE CONDITIONS

- a) Current land use and zoning Forestry F1
- b) Average depth of topsoil 2' 0"-5'
- c) Type and density of vegetation Douglas fir, black berry, asp grass
- d) Are there any springs, seeps, intermittent or perennial streams on or near the site?  yes  no  
If yes, list here and locate on mine plan map.
- e) Has a wetland delineation been completed?  yes  no  
If yes, attach report.
- f) Has a landslide investigation been completed on this property?  yes  no  
If yes, attach report.

2. POST-MINING LAND USE

- a) What is the planned post-mining beneficial use of the permit area?
  - Agriculture
  - Range/Open Space
  - Forestry
  - Housing/Construction
  - Wildlife/Wetland
  - Recreation
  - Other

The post-mining use must be compatible with the local comprehensive plan or have specific land-use approval. For significant aggregate sites, which are zoned for mining, local government must determine the post-mining land use.

3. RECLAMATION TIMING

Oregon law requires reclamation to be completed within 3 years after completion of mining on any segment of the mine area.

- a) How many days after mining is completed will reclamation begin? \_\_\_\_\_

OR

- b) If reclamation will be concurrent with mining, explain the procedure for concurrent reclamation.

As soon as any area is not needed for mining purposes we will recover w/ original topsoil and replant area according to Forest Practices replanting regulations

4. OPERATING PLAN

- a) Mining method(s) to be employed (mark all that apply)
  - single bench  multiple bench  pond excavation
  - placer mine  side hill cut  hill top removal
  - other: \_\_\_\_\_
- b) Equipment to be used for mining: drills, loaders, dozers, excavators, rock crushers.
- c) Will there be on-site processing?  yes  no  
If yes, check type of processing:
  - wash water contained in a closed system source of water: \_\_\_\_\_
  - wash water discharged off site
  - dry processing
  - other: \_\_\_\_\_
- d) Will blasting be employed?  yes  no
- e) Distance to closest structure not owned by permittee. 1.2 miles 2,600'
- f) Disposition of removed vegetation. burn or used as brush sediment barrier
- g) Soil types which will be disturbed by mining, processing reclamation. forest soil
- h) Average soil salvage depth all avel. 0'-
- i) Overburden removal depth 0'-3'
- j) Will soil, overburden, rock waste or crusher reject dump stockpiles be created during mining?  yes  no  
If yes, list the estimated volume of each at the end of this form and locate on a mine plan map.

Additional information may be required for large dumps or those located on steep terrain.

- k) Will this plan require excavating across any property line?  yes  no
- l) How and where will soil or subsoils be stored for reclamation? Locate storage areas on mine plan map. Vegetated berm along permit site
- m) What measures will be taken to reduce compaction and prevent water and wind erosion of the topsoil stockpiles? when will they be implemented? plant w/ annual rye w/ other species as recommended by DOGAMI

n) What will be the minimum property line setback:  
 for the excavation 50'  
 for processing or storage 50'

5. WATER RESOURCE PROTECTION

- a) Will mining occur below groundwater level?  yes  no  
 b) Will mine site dewatering be necessary?  yes  no  
 If yes, explain procedure and estimated depth to which water will be drawn down inside of the mine and where water will be discharged.

A permit may be required from the  
**WRD** Water Resources Department  
 for dewatering activity.

NA

- c) Will process water be contained on site?  yes  no  
 d) Will storm water be contained on site?  yes  no  
 e) Will a pond(s) be used to contain water?  yes  no

Explain containment procedures.

apply appropriate BMP's to control  
trillidity and control erosion to  
contain stormwater on site

If the answer to c) or d) is yes, please explain discharge procedures.

see above explanation.

A permit from the Department of Environmental  
**DEQ** Quality may be required for off-site discharges and is  
 required for any discharge into public waters,  
 wetlands, streams or lakes.

- f) Will any drainages/streams be relocated?  yes  no  
 If yes, complete Section 11.  
 g) What will be the minimum undisturbed setback(s) of the operation from all stream(s) or drainage(s)? min 500'

List the name of stream(s) or drainage(s) and setback from each at the end of this form and locate on a mine plan map.

- h) How will the buffer(s) be identified and protected during mining and reclamation?

leave berms & trees as visual  
screen.

- i) Describe methods employed to control erosion in the permit area. Be specific, i.e., seeding and mulching, sediment basins or ponds, contour ditching, waterbars, etc.

Seeding & mulching any overland  
that has been eroded.  
Any access roads will be ditched  
and drained w/ french drains or water bars.

- j) Will settling ponds/dams be constructed?  yes  no  
 State the number and size of the impoundment(s) and how they will be built. Will the pond be excavated or will berms be constructed? Locate on a mine plan map.

Constructed as needed.

- k) If dams will be constructed, how high will they be and what is the maximum amount of water (in acre feet) to be impounded behind each dam?

N/A

If a dam is higher than 10 feet, and stores more than 9.2 acre feet of water, approval from the Water Resources Dept. is required prior to construction.

**WRD**

N/A

- If berms or a dam will be constructed, describe construction details and attach a sketch showing construction methods.

- m) How deep will impoundment(s) be?  
 n) If the impoundment(s) are to be removed upon completion of mining, how will they be drained and/or filled?

- o) Will settling ponds, wetlands, or a water impoundment be left upon final reclamation?  yes  no

6. GROUNDWATER INFORMATION

- a) Proposed mine depth 120'  
 b) Groundwater depth unknown  
 (Under static (pre-mine) conditions)  
 c) What is groundwater depth estimate based on?  
no estimates  
 d) Flow direction of groundwater, if known. unknown  
 e) Distance to closest well outside the permit boundary,  
approx 2000'

Wells within permit area must be shown on mine plan map. Attach a copy of the well log(s).

**7. VISUAL AND NOISE SCREENING**

Screening can be very effectively employed to isolate sites from public notice and to minimize noise from operations.

- a) Does a natural landform or vegetative screen currently exist along the permit boundary?  yes  no  
If yes, what screen width will be maintained during mining?  
outer edge maintained until quarry floor lowered
- b) Will a berm and/or vegetation be established to develop a visual screen for the operation?  yes  no  
If yes, describe the height and width of the berms and/or the type and density of vegetation; show location on mine map.

(Crushed rock stockpiles, although not permanent, can also be used to reduce noise from the operation.)  
overburden piles will be vegetated along perimeter.

**8. EQUIPMENT AND STRUCTURES REMOVED**

- a) Upon final reclamation, will all structures, visual berms, equipment, and refuse be removed?  yes  no  
If no, explain what will be left.

**9. RECLAMATION TECHNIQUES**

- a) What will be done with oversized rock not used during mining?  
Oversize will be reduced and crushed
- b) What will be the average depth of soil replaced on the area to be reclaimed? 2'

*If less than 12" of topsoil is available, a substitute material may be required.*

- c) Will additional material be utilized as a soil substitute to complete the revegetation?  yes  no  
If yes, specify type(s), amount(s), and source(s).
- d) Will any waste products, such as tailings, crusher rejects, etc., be generated during mining?  yes  no  
If yes, what will be done with them?
- e) How will processing and stockpile sites be reclaimed? If they are to be revegetated, explain procedures which will be employed to decompact areas prior to topsoiling/seeding.  
yes, cover w/ soil where available or shoot floors to improve permeability

**10. REVEGETATION TECHNIQUES**

- a) Species to be seeded/planted by type and amount.  
As recommended by DOBAMI or State Forestry Department
- b) Describe method and time of year for planned planting.  
grass + stabilization - hand broadcast tree reforestation - hand planting
- c) List fertilizers and lime to be used (include amount).  
As recommended by DOBAMI or State Forestry Department
- d) List type and amount of mulch or other erosion control techniques such as erosion netting.  
Mulch as required  
Seed as required

*Vegetative survival comparable to the density of original ground cover will normally be considered acceptable.*

**11. RECLAMATION PROCEDURES - POST-MINE DRAINAGE CONTROL AND RECONSTRUCTION**

- a) During reclamation, will stream channel and/or bank stabilization and rehabilitation be necessary?  yes  no  
If yes, attach plans.  n/a

**DSL** *A Division of State Lands' permit is required for relocation of all perennial and some intermittent water courses.*

- b) How will surface water runoff and erosion be controlled upon completion of mining? Describe and list structures that will be used.  
apply appropriate BMP's to control surface water runoff

**12. RECLAMATION PROCEDURES - IMPOUNDMENTS & POND DECOMMISSIONING**

- a) Will dewatering be required?  yes  no
- b) Will it be necessary to backfill a water filled excavation or pond?  yes  no
- c) How will settling ponds be stabilized and revegetated?  
yes where applicable
- d) How will quality of imported backfill be monitored to protect groundwater quality?  
no back fill needed

*Monitoring may be required to ensure groundwater protection.*

**13. RECLAMATION PROCEDURE  
LAND SHAPING**

Long continuous slopes should be avoided or broken up with surface contours, ditches, or complex slope shape.

- a) What will be the:
  - i) -steepest above-water excavated slopes left after mining? (1½:1 is generally maximum) 1½:1
  - ii) -steepest above-water fill slopes left after mining? (2:1 is generally maximum) 2:1
- b) What will be done to ensure the stability of excavated slopes?  
Seeding and mulching and reforestation
- c) What will be done to ensure the stability of fill slopes?  
Same as above
- d) Will this site be shaped or backfilled to blend in with surrounding topography?  yes  no

**14. POST-MINING WATER IMPOUNDMENT(S)**

- a) Number of impoundment(s) N/A
- b) Use of impoundment(s) N/A
- c) Total surface area in acres N/A
- d) Average depth N/A

e) How much N/A the water level expected to fluctuate annually?

f) What will be the steepest and flattest in-water slopes left after mining? N/A

*Generally 3:1 in-water slopes are the steepest allowable, except off islands. To increase potential for wetland habitat establishment, 5:1 to 20:1 slopes are needed.*

g) Will shallow ponds, shorelines, or other areas conducive to wetland plant development be left?  yes  no

h) What will be the impoundment water source?  
N/A

**WRD** *A water right for the water source may be needed from the Water Resources Department.*

i) What will be done for wildlife & fish enhancement, e.g. fish structures, islands, peninsulas, and irregular shorelines?  
N/A

j) If wetlands are to be constructed, explain the methods and final configuration.  
N/A

**15. OTHER PERMITS**

In order to assist other agencies in the review of this plan and their ability to ascertain compliance with their laws, list all permits by type and number that are held (or applications filed) for this mine site or processing equipment (such as fill/removal permits, water rights, air quality and stormwater or waste water permits).

Agency / Permit Type	Permit Number
Lane County / Conditional Use Permit	

*in process*

**16. LANDOWNER CONSENT**

As surface or mineral rights owner, I concur with the proposed subsequent use for any mining operation and with the operating and reclamation plan as submitted. I also agree to allow access to the State Department of Geology and Mineral Industries or their contractor for reclamation of the mine site if it is declared abandoned by the Department of Geology and Mineral Industries.

*Appropriate signatures are needed for EACH land parcel.*

I CONCUR (Surface Rights)

Name (Please Print or Type) \_\_\_\_\_

Signature \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

I CONCUR (Mineral Rights):

Name (Please Print or Type) \_\_\_\_\_

Signature \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

COPY

**17. APPLICANT'S ACCEPTANCE**

Name (Please Print or Type) Kristofer R. Jenemigh

Signature Kristofer R. Jenemigh

Title Gen. Superintendent

Date February 4, 1998

**18. PREPARED BY (IF OTHER THAN APPLICANT)**

Name (Please Print or Type) \_\_\_\_\_

Signature \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Date \_\_\_\_\_

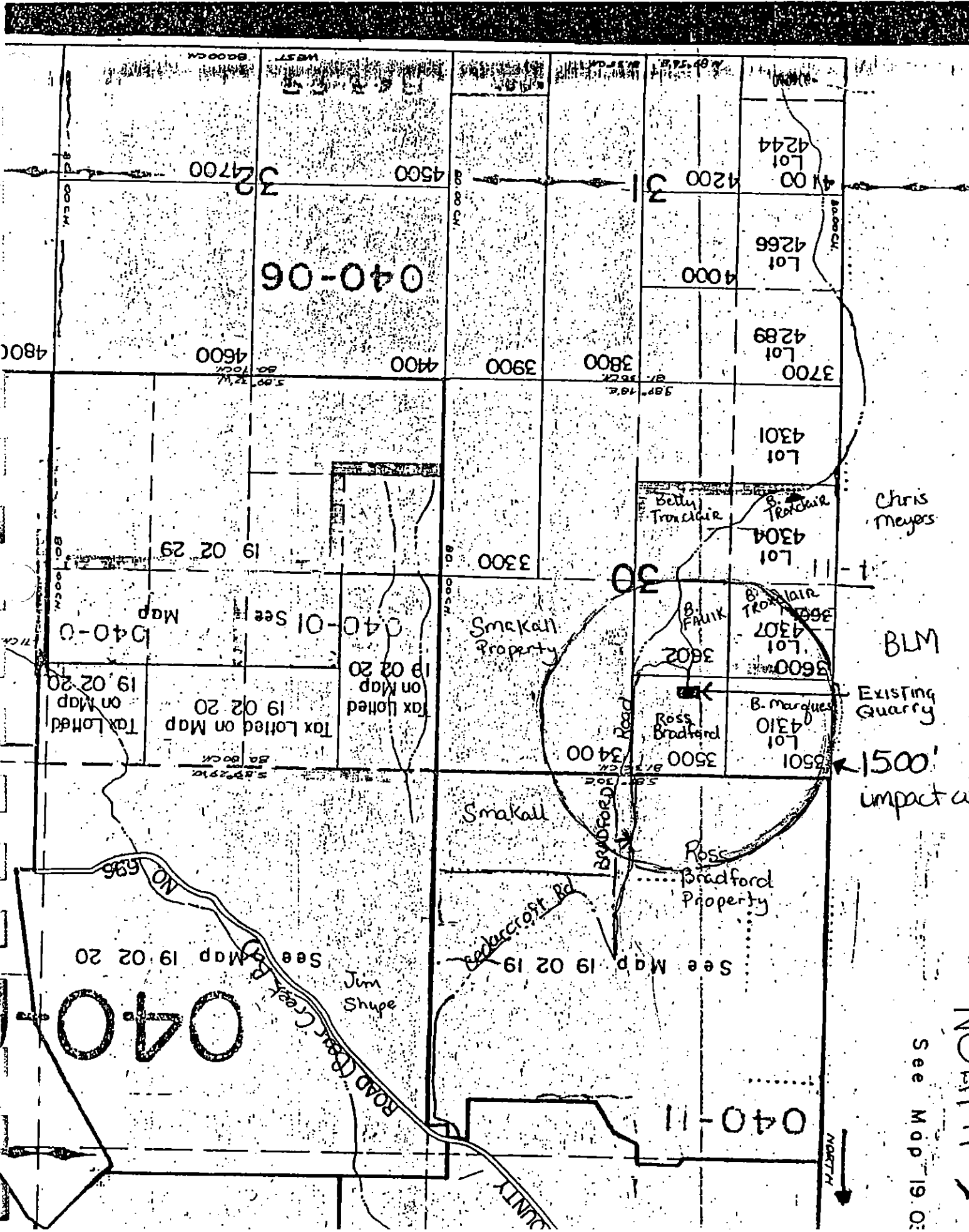
## Properties within 1,500 feet of purposed quarry site:

Tax Lot 3501	Bob Marques / Forest Property borders the west side of Tax Lot 3500
Tax Lot 3400	James Smakall / Forest Property borders the east side of Tax Lot 3500
Tax Lot 3600	Bettie, Robert & Ed Troxclair / Forest Property is located to the southwest of Tax Lot 3500
Tax Lot 3602	Barney Faulk / Forest Property borders the south of Tax Lot 3500

A map showing location of above tax lots and a circle indicating the 1500' impact area is attached hereto.

The tax lots listed above are the only tax lots within the 1500 feet impact area. All of these tax lots are under forest zoning. Ross and Norma Bradford own the property bordering the north side of Tax Lot 3500. As well as tax lot #800 and #100 which encompasses the access to the quarry property off of Cedarcroft Road.





Chris Meyers

BLM

EXISTING Quarry

1500' impact

NORTH →

See Map 19.0:

← NORTH

F

## **BRADFORD PIT SITE PLAN:**

1. See attached Site Plan
2. Dimensions of proposed quarry would encompass approximately 20 acres out of the total 40 acres parcel as shown on the attached site plan. This would include loading areas and stockpiles.
3. Setbacks: 50' from property line on all quarry perimeters.
4. Location: Off of Bear Creek to Cedarcroft to private road owned by Ross and Norma Bradford.
5. Hours of operation: Monday through Saturday, 7:00 a.m to 4:30 p.m. Normally, BJ Equipment Company operates Monday through Friday; however, if a special job was in progress and needed supplies from the quarry a Saturday would be implemented.
6. Blasting Procedures attached.

# BRADFORD QUARRY

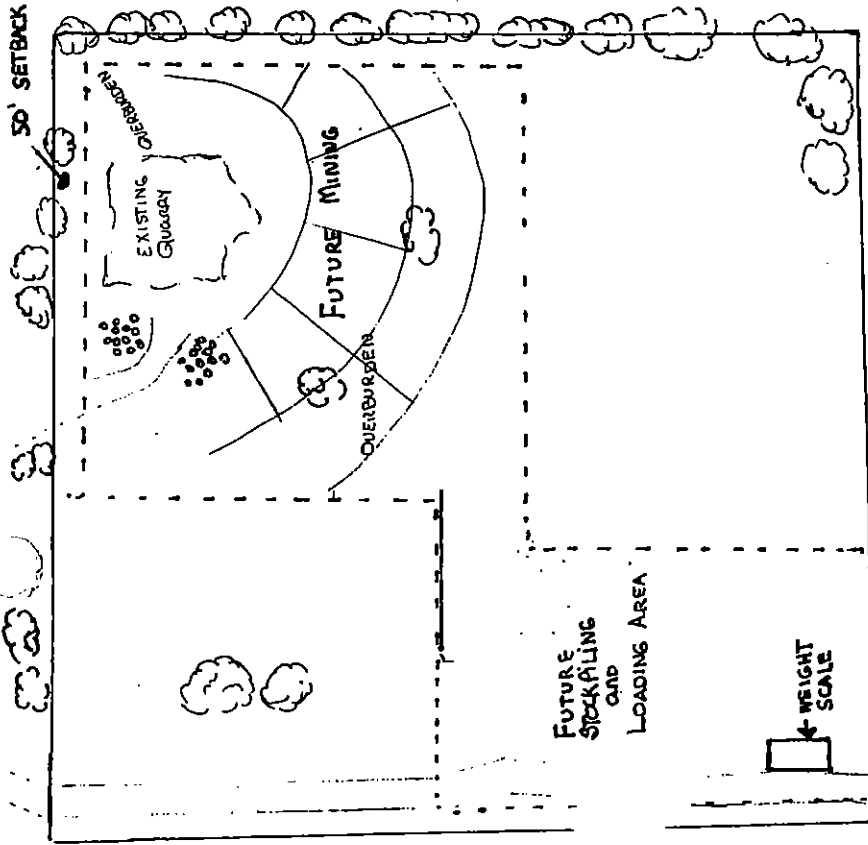
**SITE PLAN**  
 BRADFORD QUARRY  
 PERMIT No. DOGAMI ID #20-0149  
 BJ EQUIPMENT Co  
 PO Box 543 OR  
 Cottage Grove 97124  
 (541) 747-6261

**KEY**

- ~ ~ ~ EXISTING QUARRY
- - - DOGAMI PERMIT BOUNDARY (2000')
- PROPERTY BOUNDARY
- ⊙ STOCK PILE
- · - · - · EXISTING ACCESS
- ⌒ SLOPE

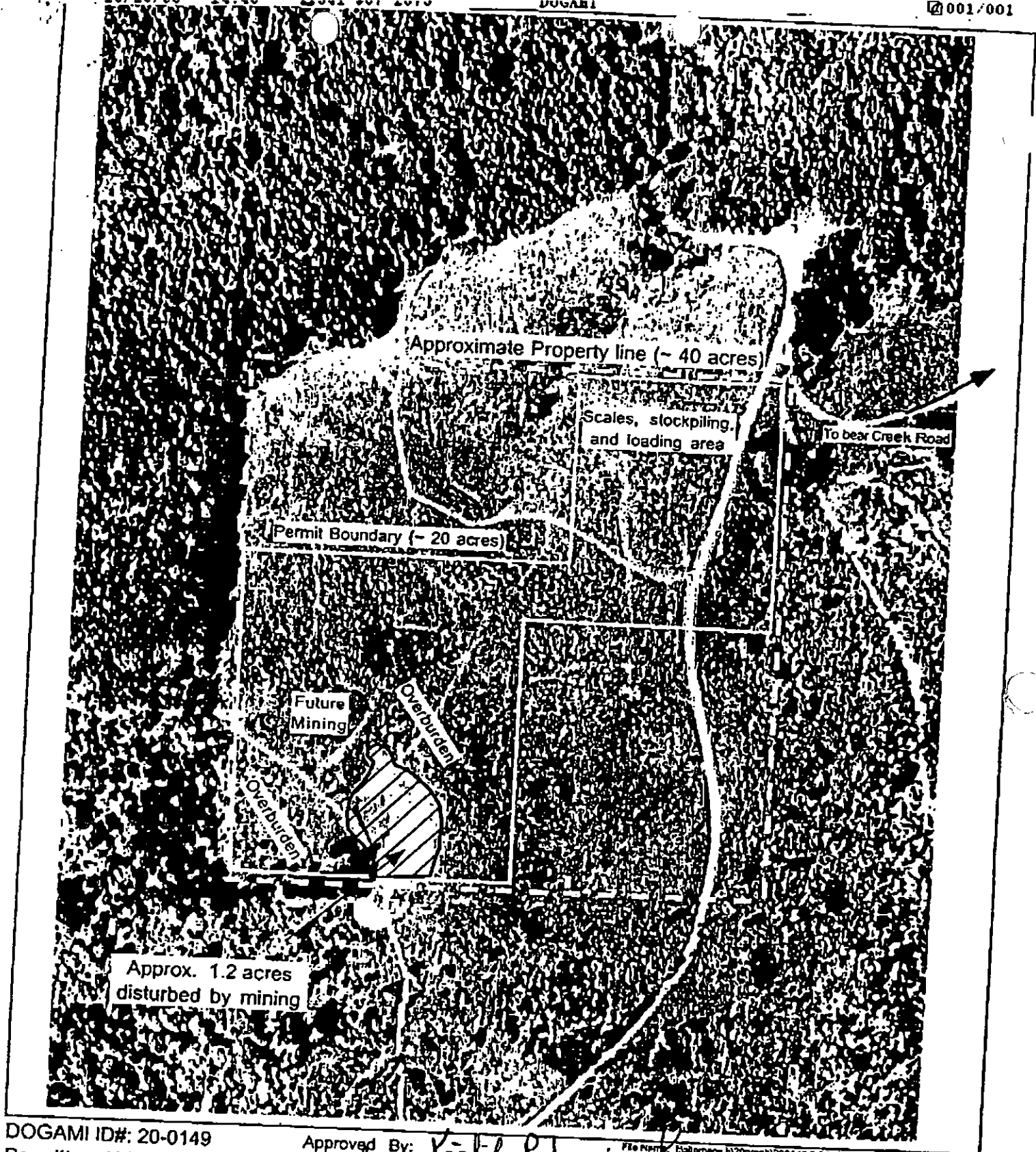
50' SETBACK FROM BOUNDARIES

Scale:  
 1" = 200' ± 20'



TO S. BRADFORD RD.

TO CEDARCROFT RD



DOGAMI ID#: 20-0149  
 Permittee: Kristofer Jeremiah  
 Site Name: Bradford Quarry  
 Photo Source / Date: WAC 5/7/94  
 Prepared By / Date: Peter Wampler 7/30/98

Approved By: *Kristofer Jeremiah*  
 Date: *Aug 28 1998*

File Name: H:\gms\new b\20p\brq\200149 5-94 .CVS

RECEIVED  
 SEP 1 1998

0 300 600 ft  
 Approx. scale 1 in = 300 ft +/- 20 ft  
 Oregon Dept. of Geology and Mineral Industries  
 Mined Land Reclamation Program



MLR

C

## **BRADFORD QUARRY BLASTING PROCEDURES**

Blasting will be performed intermittently Monday through Friday between the hours of 10:00 a.m. and 4:30 p.m.

24 hours notice will be given to any residence who wish to be notified before blasting.

Seismographs will be set at nearest dwellings to monitor all blasting operations.

All blasting procedures will conform with the Office of Surface Mining Recommendations.

All quarry access will be secured during blasting operations.

Blasting operations will be performed to assure the safety of all persons and property in the vicinity.

Blasting will be performed only by Federal and State licensed blasters.

**TRAFFIC IMPACT ANALYSIS  
FOR  
PROPOSED BRADFORD PIT QUARRY**

**June, 1998**

**Prepared for:**

**B.J. EQUIPMENT COMPANY  
P.O. Box 543  
Cottage Grove, OR 97424**

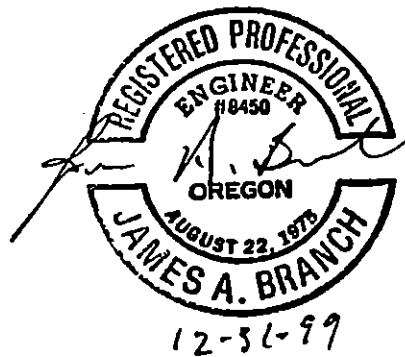
**Prepared by:**

**BRANCH ENGINEERING  
310 Fifth Street  
Springfield, Oregon 97477  
Phone (541) 746-0637  
FAX (541) 746-0389**

**EXHIBIT C**

TRAFFIC IMPACT ANALYSIS  
FOR  
PROPOSED BRADFORD PIT QUARRY

June, 1998



Prepared by:

BRANCH ENGINEERING  
310 Fifth Street  
Springfield, Oregon 97477

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## Appendices

Level of Service Calculations
Core Sample Analysis



## **INTRODUCTION**

The purpose of this report is to document the traffic impact analysis performed for the proposed Bradford Pit Quarry near Creswell, Oregon. The study addresses the existing traffic conditions in the project vicinity and forecasts the operating conditions of the roadway system during operation of the quarry. This report also summarizes results of a structural analysis performed for roadways on the travel route and recommends any improvements necessary to mitigate impacts to the existing transportation system.

Access to the Bradford Pit Quarry is proposed via a private road extending from the end of Cedarcroft Road, east of Creswell, as shown in Figure 1. Proposed development consists of a quarry and rock crushing operation on approximately 40 acres of previously logged and quarry mined land.

The proposed quarry and rock crushing facilities are expected to be complete by 1999 and have a service life of approximately 20 years. Quarry mining and rock crushing operations will be conducted between the hours of 7:00AM and 5:00PM Monday through Friday.

## **EXISTING CONDITIONS**

### **Roadway System**

Cloverdale Road is a county arterial roadway providing connection between Creswell and Pleasant Hill. The roadway is 32 feet wide in the project vicinity and has a posted speed of 55 MPH.

Bear Creek Road is a county roadway extending east from Cloverdale Road. The roadway is 24 feet wide in the project vicinity and has a posted speed of 50 MPH. The roadway has been used by the timber industry as a haul road for many years.

Cedarcroft Road is an rural county roadway extending south from Bear Creek Road. The roadway has a paved width of 24 feet for approximately 750 feet, followed by a 22 foot wide gravel surface. There is currently no traffic control at the intersection of Cedarcroft Road with Bear Creek Road, and no lane striping on the roadway. Cedarcroft Road was originally constructed for the hauling of timber and rock from the area surrounding the project site.

### **Existing Traffic Volumes**

Existing peak hour traffic volumes were determined from a traffic count performed at the intersection of Bear Creek Road with Cloverdale Road. The count was conducted by Branch Engineering in June, 1998 from 4:30 to 5:30 PM. The count hour was selected to analyze the highest Cloverdale Road and Bear Creek Road traffic volumes during the quarry's hours of operation. The 1998 existing traffic volumes are shown in Figure 2.

### **FUTURE TRAFFIC VOLUMES**

Bradford Pit Quarry is projected to generate a maximum of 86 trips per day based on maximum production capacity of the quarry and rock crushing facilities. The trip generation calculations used in this analysis are summarized below:

Maximum rock production: 100,000 cubic yards per year  
100,000 cubic yards per year / 250 work days per year = 400 cubic yards per day  
400 cubic yards per day / 10 cubic yards per truck = 40 trucks  
On-site employees: 3  
Total trips = number of vehicles (43) x (2) = 86 trips per day

Dividing the number of truck trips throughout the 10 hours of operation and adding on-site employees leaving the site equates to eleven trips in the PM peak hour, four entering and seven exiting.

A conservative approach was used in this analysis to project the maximum number of trips generated by the site. The actual number of trips per day is expected to be less than 86, as trucks with haul capacities greater than 10 cubic yards will be used in transporting rock from the quarry.

The site generated trips were distributed equally north and south on Cloverdale Road to estimate future conditions. Actual travel patterns will depend on the locations of construction projects throughout the southern Willamette Valley. The site generated traffic is shown in Figure 3 and the 1998 'Build' traffic (1998 existing traffic plus site generated traffic) is shown in Figure 4.

### **LEVEL OF SERVICE**

Level of service (LOS) describes the quality of traffic flow at an intersection. It can be based on either vehicle delay or the volume to capacity ratio, and is classified by a letter scale from 'A' to 'F'. LOS 'A' represents optimum operating conditions and minimum delay. LOS 'F' indicates over capacity conditions causing unacceptable delay. LOS 'D' is considered the minimum acceptable level of service. Roadway or intersection improvements are often necessary when the level of service is below 'D'. The level of service determined by average delay per vehicle as

established in the Highway Capacity Manual is as follows:

<u>Level of Service</u>	<u>Average Delay per Vehicle</u> <u>Unsignalized Intersections</u>
A	≤ 5 sec
B	> 5 and ≤ 10 sec
C	> 10 and ≤ 20 sec
D	> 20 and ≤ 30 sec
E	> 30 and ≤ 45 sec
F	> 45 sec

A level of service analysis was performed for the PM peak hour at the Bear Creek Road/Cloverdale Road and Cedarcroft Road/Bear Creek Road intersections. Levels of service at these intersections were calculated using the computer program Highway Capacity Software (HCS) developed by McTrans. For unsignalized intersections, a level of service is reported only for movements which have to yield the right-of-way.

The following table indicates the projected levels of service at the studied intersections:

<b>LEVEL OF SERVICE (PM Peak Hour)</b>		
<b>Intersection</b>	<b>1998 Existing</b>	<b>1998 'Build'</b>
Bear Creek Road/Cloverdale Road		
Westbound Left Turn	A	A
Westbound Right Turn	A	A
Southbound Left Turn	A	A
Cedarcroft Road/Bear Creek Road		
Northbound Left Turn	A	A
Northbound Right Turn	A	A
Westbound Left Turn	A	A

The level of service analysis indicates all movements at the studied intersections are projected to operate at LOS 'A' with the proposed development and the additional trips generated by the development are not expected to have significant adverse impact on the roadway system.

## SIGHT DISTANCE EVALUATION

The Bear Creek Road/Cloverdale Road and Cedarcroft Road/Bear Creek Road intersections were evaluated to determine if the existing sight distances are adequate to serve trucks entering the roadways. Site distances measured in the field were compared to the minimum stopping sight distance recommended by the American Association of State Highway and Transportation Official's manual, A Policy on Geometric Design of Highways and Street, 1990. The results of this evaluation are shown in the following table:

<b>STOPPING SIGHT DISTANCE EVALUATION</b>		
<b>Intersection/Movement</b>	<b>Measured Distance</b>	<b>Recommended Distance</b>
Bear Creek Road/Cloverdale Road Westbound Left Turn Westbound Right Turn	940 ft unrestricted	550 ft 550 ft
Cedarcroft Road/Bear Creek Road Northbound Left Turn Northbound Right Turn	580 ft 680 ft	550 ft 550 ft

The site distance evaluation indicates the intersections are expected to operate safely with large trucks entering the existing roadways. Adequate distance is provided for vehicles on Bear Creek Road and Cloverdale Road to slow or stop as necessary allowing trucks to accelerate to travel speeds.

## ROADWAY STRUCTURAL ANALYSIS

The roadway structure on Bear Creek Road and Cedarcroft Road was analyzed to ensure adequate strength is provided to support the number of loaded haul trucks generated by the proposed quarry. Asphalt core samples were taken at four locations along the travel route, two on Bear Creek Road, and two on Cedarcroft Road as shown in Figure 5. Professional Service Industries (PSI) extracted the samples and conducted the core analysis, providing data on thickness, specific gravity, density, and percent compaction of the existing pavement structure. A summary of this data is provided in the table on the following page.

Field tests also included exploration of the base rock beneath the existing asphalt paving. The base rock thickness was determined at each of the core sample locations and is listed in the table below. Base rock at each location was found to be well compacted 1 ½"-0 aggregate.

CORE SAMPLE SUMMARY					
Sample No.	Base Rock Thickness	AC Thickness	Bulk Specific Gravity	Density (PCF)	Percent Compaction
1	16"	2.47"	2.22	138.2	90.3
2	18"	2.02"	2.24	139.4	91.2
3	12"	3.48"	2.23	138.8	90.7
4	14"	2.63"	2.18	135.7	88.4

The pavement surfaces on Bear Creek Road and Cedarcroft Road were examined during field visits to identify any defects in the pavement structure. Both roadways were found to be in good condition and no significant grooves or cracks were noted.

Bear Creek Road and Cedarcroft Road are under Lane County Jurisdiction and inventoried in the County's Pavement Management System. The County will review the core sample data, indicate the extent of impact to the roadway structure, and determine if mitigation of these impacts is necessary.

Scales will be installed at the quarry site to ensure trucks leaving the quarry meet legal weight requirements.

### CONCLUSIONS AND RECOMMENDATIONS

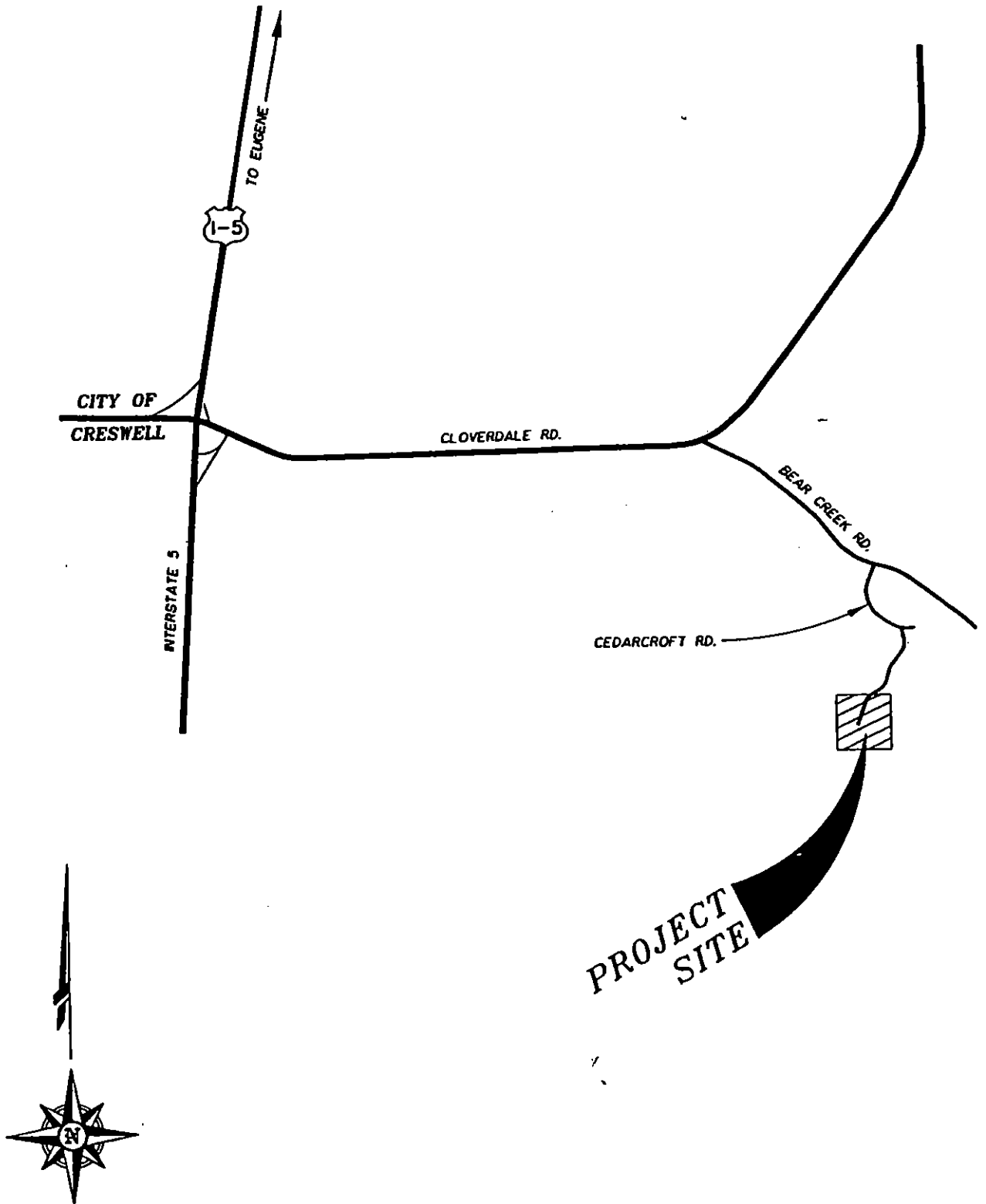
The proposed quarry and rock crushing operation is projected to generate a maximum of 86 trips per day and 11 trips during the PM peak hour. This report indicates the additional trips are not expected to have significant adverse impact on the operating characteristics of existing roadways and intersections. The Bear Creek Road/Cloverdale Road and Cedarcroft Road/Bear Creek Road intersections were found to have adequate sight distance for vehicles to slow or stop as necessary for trucks entering the roadway.

In order to minimize the risk of accidents at the studied intersections, it is recommended a stop sign be placed at the Cedarcroft Road/Bear Creek Road intersection. It is also recommended vegetation along Bear Creek Road, particularly east of the Cedarcroft Road intersection be regularly cut back as far as possible to provide the greatest available sight distance for vehicles approaching from the east.

Bear Creek Road and Cedarcroft Road have been used as timber and rock haul roads for many years. Sight distances, grades, and radii of curvature on these roadways were found to be suitable for large trucks. The proposed project could be beneficial to the overall roadway system as construction projects in the Creswell vicinity are anticipated in the coming years. Availability of rock from a location near future construction projects would reduce the number of miles in the overall roadway system traveled by rock haul vehicles.

# Figures

# VICINITY MAP



FILE NAME: E:\1981\98141\98141.DWG

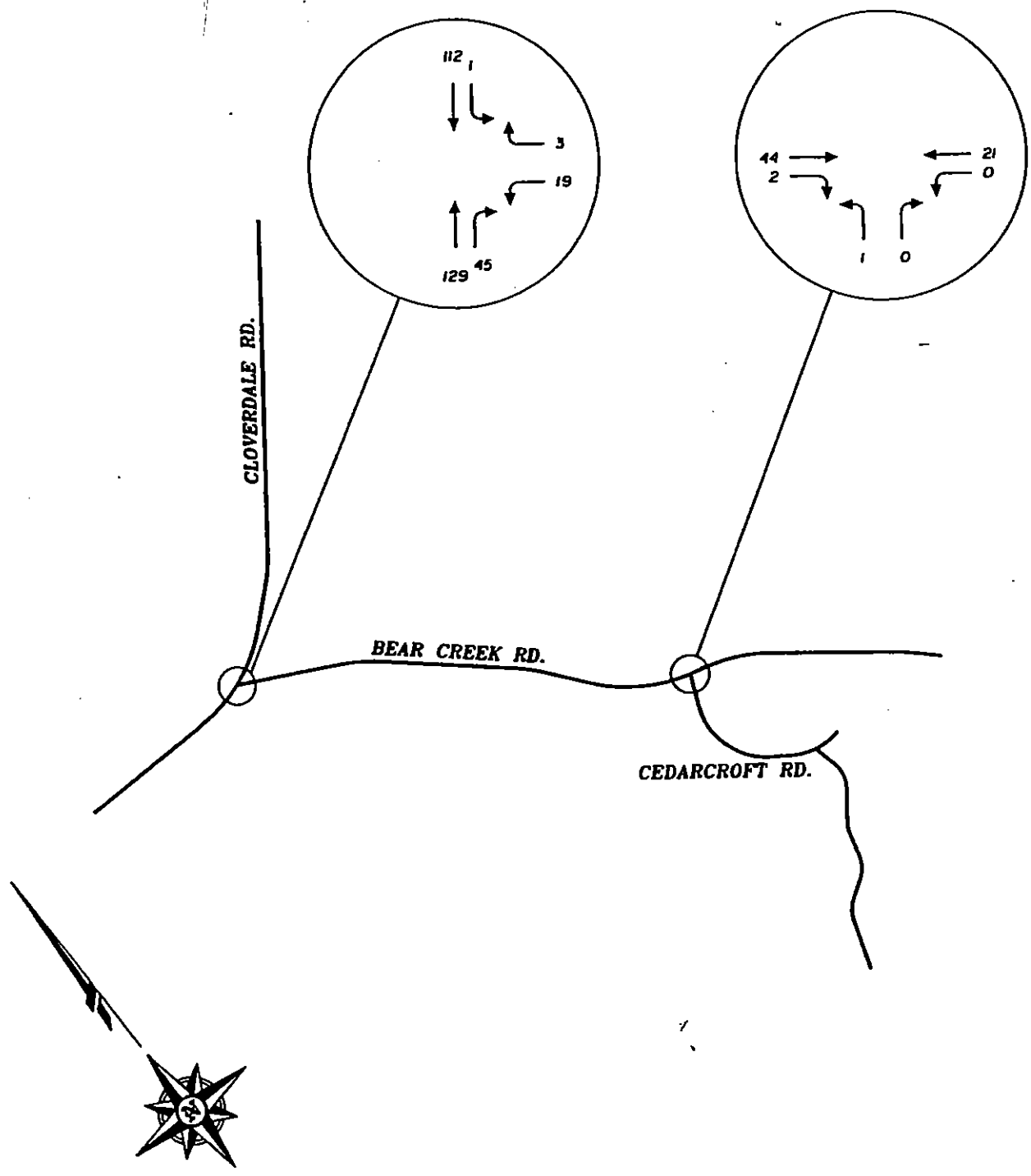
FIGURE 1



Branch Engineering



# 1998 EXISTING TRAFFIC VOLUMES (PM PEAK HOUR)

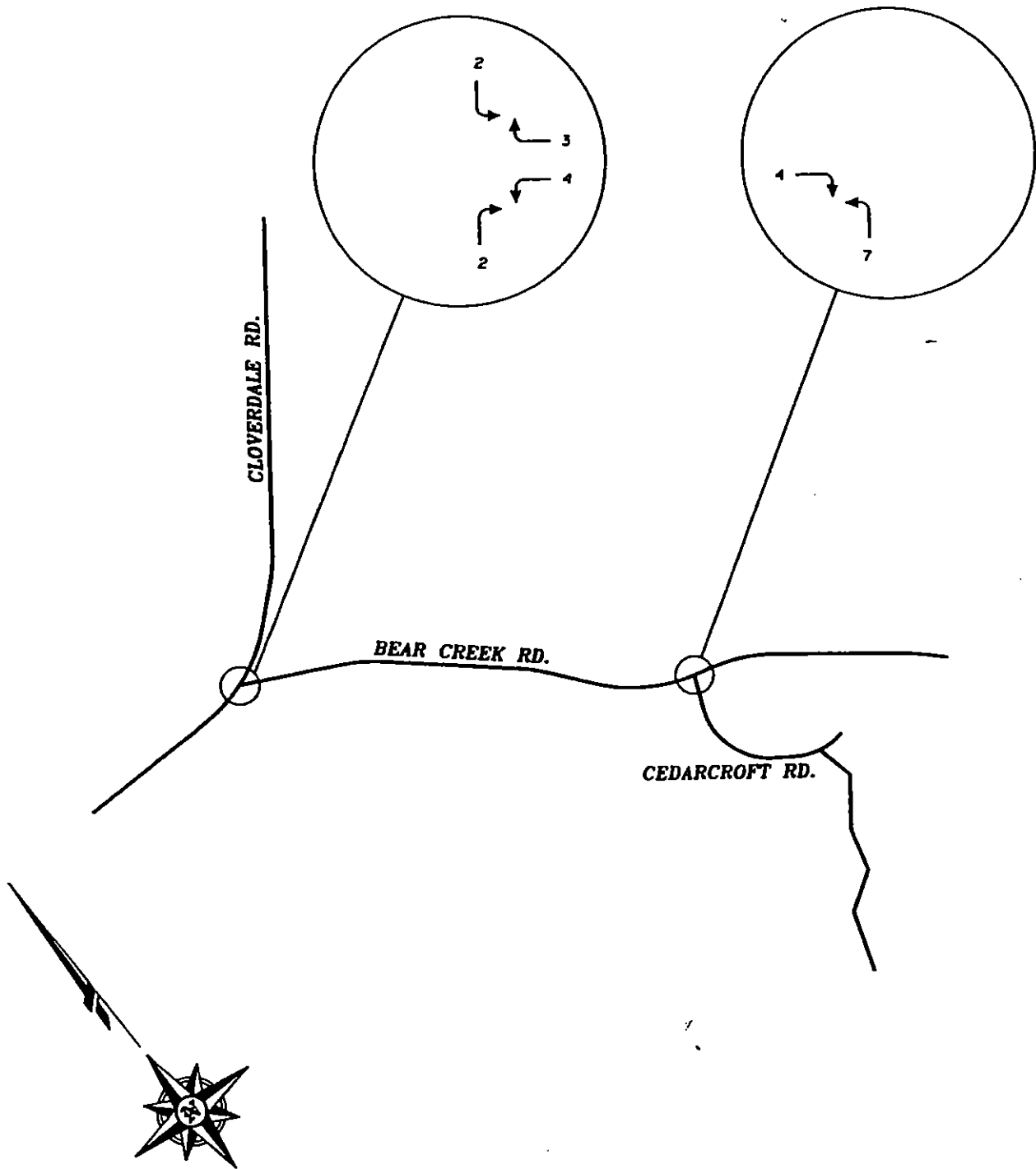


FILE NAME: E:\98\98141\98141.DWG



**FIGURE 2**

# SITE GENERATED TRAFFIC VOLUMES (PM PEAK HOUR)



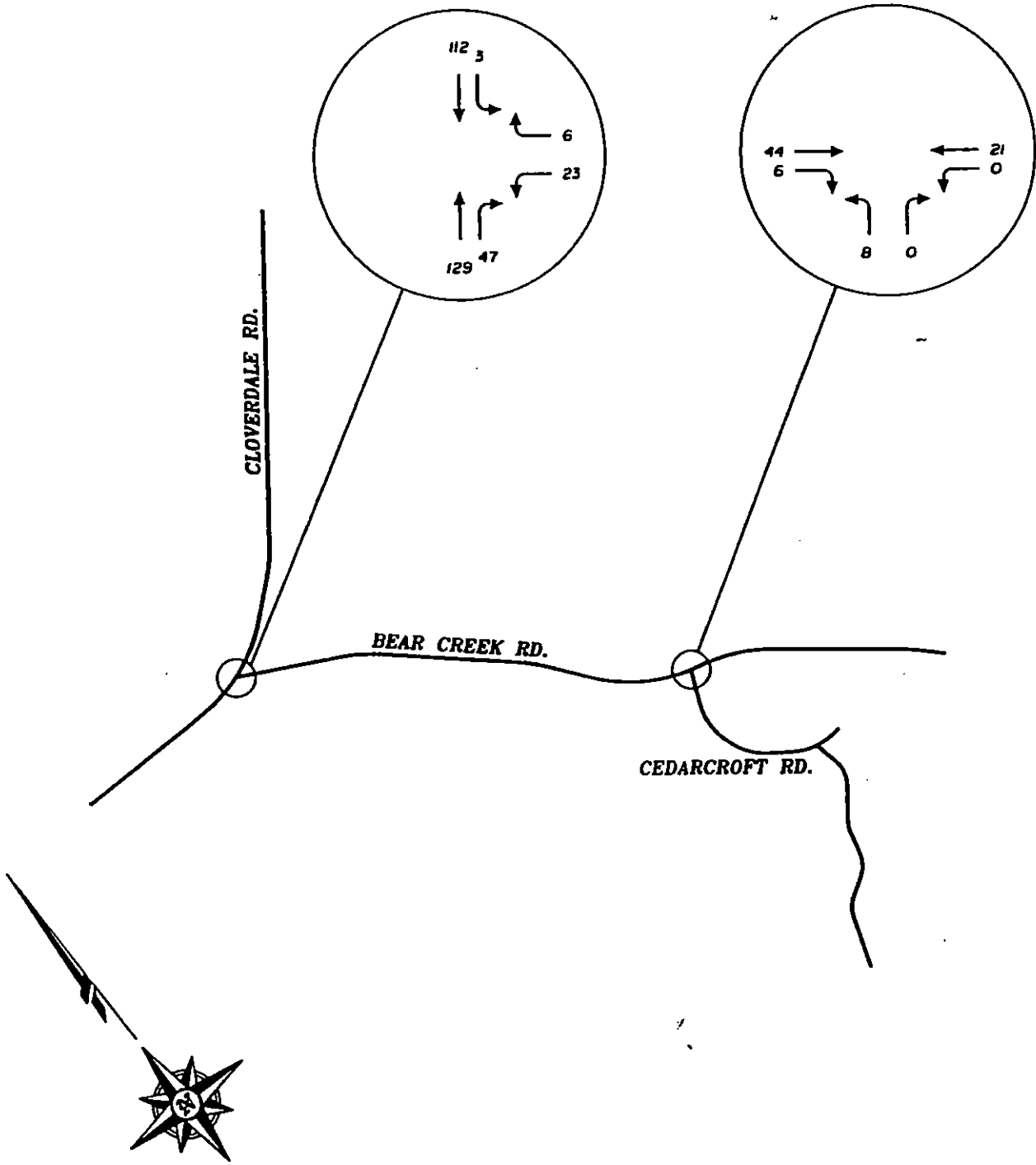
FILE NAME: E:\98\98\4\1\98\4\1.DWG

FIGURE 3



Branch Engineering

# 1998 'BUILD' TRAFFIC VOLUMES (PM PEAK HOUR)



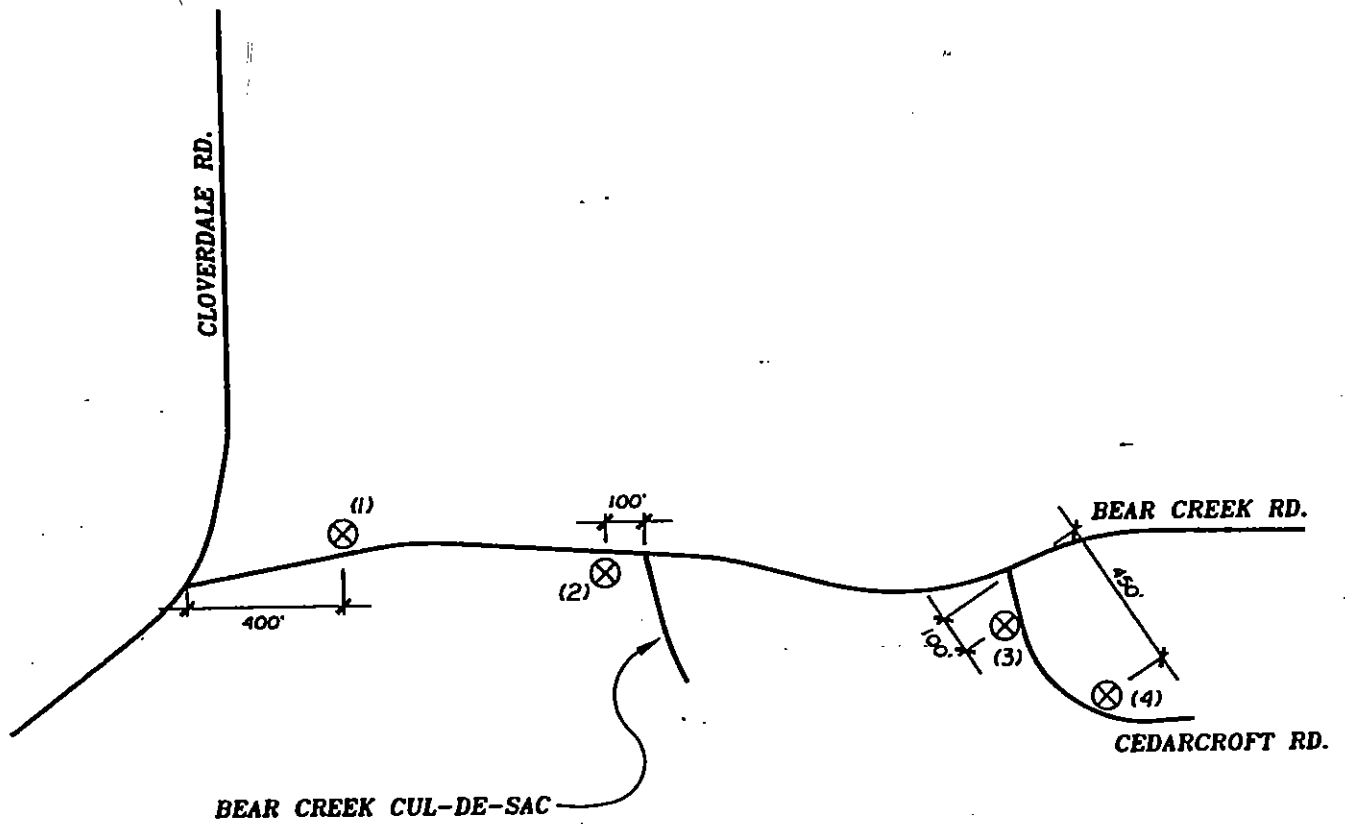
FILE NAME: E:\98\98141\98141.DWG

FIGURE 4

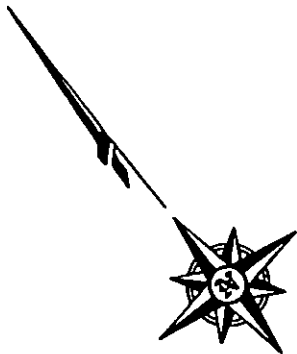


Branch Engineering

# CORE SAMPLE LOCATIONS

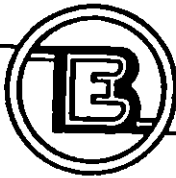


⊗ CORE SAMPLES TAKEN BETWEEN WHEEL TRACKS ON SIDE OF ROADWAY AS SHOWN ABOVE



FILE NAME: E:\98\98141\98141.DWG

FIGURE 5



# Branch Engineering

October 15, 1998

Thom Lanfear  
Lane County Land Management Division  
125 East 8th Avenue  
Eugene, OR 97401

310 5th Street  
Springfield, Oregon 97477  
(541) 746-0637  
Fax (541) 746-0389

Re: Supplement to Traffic Impact Analysis for Proposed Bradford Pit Quarry

Dear Thom,

The Traffic Impact Analysis dated June, 1998 indicated 50 percent of the site generated trips were assigned to and from the north on Cloverdale Road and 50 percent were assigned to and from the south. Per your request, Branch Engineering performed additional analysis at the Cloverdale Road/Bear Creek Road intersection. The Cloverdale Road/Bear Creek Road intersection was evaluated to determine the impact at the intersection if 100 percent of the site generated trips were assigned to and from the north or south. Level of service calculations indicate assigning 100 percent of the site generated trips to and from the south would create the greatest impact. The calculations further indicate all movements at the Cloverdale Road/Bear Creek Road intersection are projected to operate at LOS 'A' in this "worst case scenario". The revised figures and calculations are attached for your use.

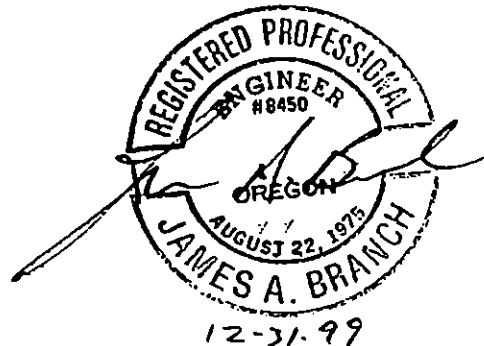
The conclusion of this analysis is the same as that stated in the Traffic Impact Analysis in that the additional trips will not have a significant adverse impact on the operating characteristics of the existing roadways and intersections.

If you have any further questions please do not hesitate to call.

Sincerely,

James A. Branch, P.E.

cc: B.J. Equipment Co.



TRANSPORTATION

CIVIL

SURVEYING

FEB-16-1999 18:20 ACOUSTIC SCIENCES 1541-343-9245 P.01/03

# ACOUSTICAL ENGINEER

Arthur . A. Noxon, PE

FOR ACOUSTICS, NOISE AND VIBRATION CONTROL  
*engineering survey, analysis, design and project management*

February 12, 1999

James Spickerman, Attorney  
Citizen's Bank Building Suite 800  
975 Oak St  
Eugene, OR 97401

RE: Noise Impact Study for the Bradford Quarry

A noise study was commissioned at the Saginaw Quarry. The purpose was to use this site as a reference site in order to project an expected noise for an equivalent setup at the proposed Bradford Quarry site. The result of this testing is that the operation of the Bradford Quarry should not impose any negative noise impacts on the surrounding homes.

## Background

The basis for expanding the noise field was achieved by measuring the process of the Saginaw Quarry at a range of 150'. The quarry was about 100' wide, 80' deep and 300' long. It was open at either end and the long sides of the quarry were shear vertical cliffs of rock. The sound measurement point selected was on the rim of the quarry, midway along one of the long sides. From this vantage point the entire side of the rock crushing line of equipment was in full view. The noise measured included not only the direct sound from the crushing operation but the reflected sounds off the shear vertical walls of the pit. It is difficult to imagine finding a reference point that could be more representative of the most extreme example for measuring the noise output from the rock processing equipment.

## Test and Baseline Result

DEQ requires that the L50, L10 and L1 not be exceeded in the daytime by more than 50, 60 and 75 dB,A respectively at a dwelling. L50 means noise levels exceeded 50% of the time, the L10 and L1 are likewise. For the quarry measurements, the sound was very steady. The L10 was only 1 dB more than the L50 and the L1 registered no more than 2 dB,A more than the L50. Clearly, the L50 is the controlling component of the noise.

3690 County Farm Rd. - Eugene, OR 97408 - Ph: 541-343-9727 - Fax: 541-343-9245

EXHIBIT D

A E

At the rim, the noise from the quarry operation produced an L50 of about 78 dB,A. The rule for expansion of sound is 6 dB reduction for every doubling of distance. This assumes a flat surface with no absorption. Following this rule, the DEQ daytime limit for the L50 of 55 dB,A would be reached at 2100 feet and beyond this, the quarry noise would fall below DEQ limits.

In fact, the surrounding area of the quarry is not flat. Hills block some of the expansion of sound and the ground falls away in many directions due to the elevated location of the quarry relative to the dwellings nearby. Both the hills and the downhill slopes contribute to further weakening the noise beyond that due to natural expansion on the flat. Sloped ground adds around 2 dB per doubling of distance. Hills that block out the view of the noise will easily attenuate an additional 15 dB over that on the flat.

### Projections

The closest dwelling is some 2300' to the south and just outside the DEQ limit line of 2100' but it is also placed well behind a hill and that will easily reduce the quarry noise by an additional 15 dB. The next closest dwelling is 3300' to the north but the ground slopes away and the levels there will be attenuated an additional 9 dB beyond the projected 51 dB,A due to flat expansion. The next set of houses are ranging just over 4000' and are in a variety of directions. Noise levels just over 4000' from the quarry and projected for flat expansion is estimated at about 49 dB,A and the slope effect will reduce this an additional 10 dB. All the nearby houses will be exposed to noise levels well below the daytime DEQ limit of 55 dB,A.

### Discussion

There are additional factors present in the operation of the quarry that were not measured. We have the noise from rocks being dumped into dump trucks and we have drilling and blasting. The dump truck loading is short in duration, less than 15 seconds typically and fairly intermittent depending on the number of trucks out per day. The L1 would be the only measure to apply here and DEQ sets the limit at 75 dB,A. A dump will register around 85 dB,A at 50' but that noise drops to 75 dB well within 200' and by 1600' the noise on the flat will drop an overall 30 dB, down to 55 dB,A. The dumping of rock into trucks will not be a noise problem.

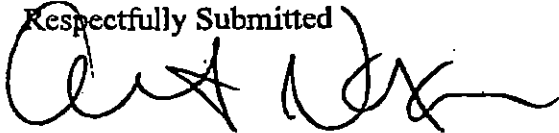
Drilling and blasting is another source. Drilling machines attain up to 105 dB,A at distances of 10' but this expands out and by the distance of 2400' the noise level is reduced some 48 dB on the flat, down to 57 dB,A. Then when the sound shadowing effects of hills and sloping ground is added in, the levels drop an additional 10 to 15 dB and fall well below the DEQ limits, even when added to the quarry noise.

Modern sequence blasting is practically inaudible even at distances of 1/4 mile. DEQ levels allow upwards of 100 dB for blasting and at the distances involved here, the noise levels of sequenced blasting will range near below 50 dB, based on my experience with other quarry blasting measurements.

**Conclusion**

These predictions are based on the quarry noise being directed somewhat like a megaphone towards any one direction and still DEQ compliance is attained for every scenario.

Respectfully Submitted



Arthur Noxon, PE  
Acoustical Engineer





LANE REGIONAL AIR POLLUTION AUTHORITY  
225 N. 5th Street, Suite 501  
Springfield, Oregon 97477  
(503) 728-2514

**AIR CONTAMINANT DISCHARGE PERMIT**

Issued in accordance with provisions of  
Lane Regional Air Pollution Authority Rules, Title 34

**BJ EQUIPMENT COMPANY**  
Pleasant Hill Ranch  
Cottage Grove, Oregon 97424

Mailing Address:  
P.O. Box 543  
Cottage Grove, Oregon 97424

Permit Number: 200583  
Permit Type: Minimal  
Issued: August 12, 1994  
Expires: August 11, 1999

Permitted Sources:  
Portable Rock  
Crusher SIC 3296-42b

Other Sources On Permit:  
None

Specific Emission Sources:  
Portable Rock Crusher  
Ancillary Equipment

By:

Mike Sharpe  
Mike Sharpe, Operations Manager

Date:

August 12, 1994

EXHIBIT E

**BJ Equipment Company  
Permit Number 200563**

### Permitted Activities

Until this permit expires or is revoked, the permittee may discharge air contaminants from its operation in accordance with the requirements, limitations, and conditions of this permit. This specific listing of requirements, limitations, and conditions does not relieve the permittee from complying with all other rules of the Lane Regional Air Pollution Authority (LRAPA).

### Performance Standards and Emission Limits

1. Visible emissions from the crusher and ancillary equipment shall not equal or exceed 20% opacity for a period or periods aggregating more than 3 minutes in any 1 hour.
2. The crusher system shall be equipped with water spray bars which shall be operated as appropriate to minimize emissions.
3. Production shall not exceed 120,000 tons per calendar year.
4. Any changes in operation that may increase the emissions or the PSEL must be approved by LRAPA. Failure to do so will result in enforcement actions being taken by LRAPA.
6. All air pollution control equipment shall be operated and maintained to meet or exceed manufacturer's specifications in order to ensure that emissions are controlled to the greatest extent possible for the type of control equipment used.

### Other Conditions

1. LRAPA representatives shall be permitted access to the plant site at all reasonable times for the purpose of making inspections, surveys, collecting samples, obtaining data, and otherwise conducting necessary functions related to this permit.
2. All plant processes discharging air contaminants and all air contaminant collection and disposal facilities shall be operated and maintained at all times in a manner which shall minimize air contaminant discharges.

**BJ Equipment Company  
Permit Number 200563**

**Page 3**

- 3. No open burning shall be conducted on the plant site.
- 4. No person shall cause or permit particulate matter to be handled, transported, or stored without taking necessary measures to minimize emissions.
- 5. No person shall cause or permit particulate matter to become airborne from open areas or roadways used by vehicles without taking necessary measures such as watering to minimize emissions leaving the plant site.
- 6. Installation or establishment of a new air contaminant source or modification of this permitted source is prohibited without first notifying LRAPA in writing and obtaining approval. If a proposed modification or enlargement of an existing air contaminant source will result in an increase in emissions of air contaminants, a permit modification is also required before the modification occurs.
- 7. Relocation to any other site is prohibited unless 48-hour prior notice is submitted and approval for operation is authorized by LRAPA.

**Monitoring and Reporting**

- 1. Upset conditions or breakdown of equipment or air pollution control equipment which may result in exceeding the emission limitations specified in this permit must be reported to LRAPA as soon as possible in accordance with Title 36 of LRAPA's Rules and Regulations.
- 2. A record of the following data shall be maintained for a period of at least 5 years and made available for LRAPA inspection upon request. In addition, a copy of this information must be reported to LRAPA when applying for renewal of this permit.

<u>Parameter</u>	<u>Minimum Recording Frequency</u>
Quantity of material crushed	Daily

**BJ Equipment Company**  
**Permit Number 200563**

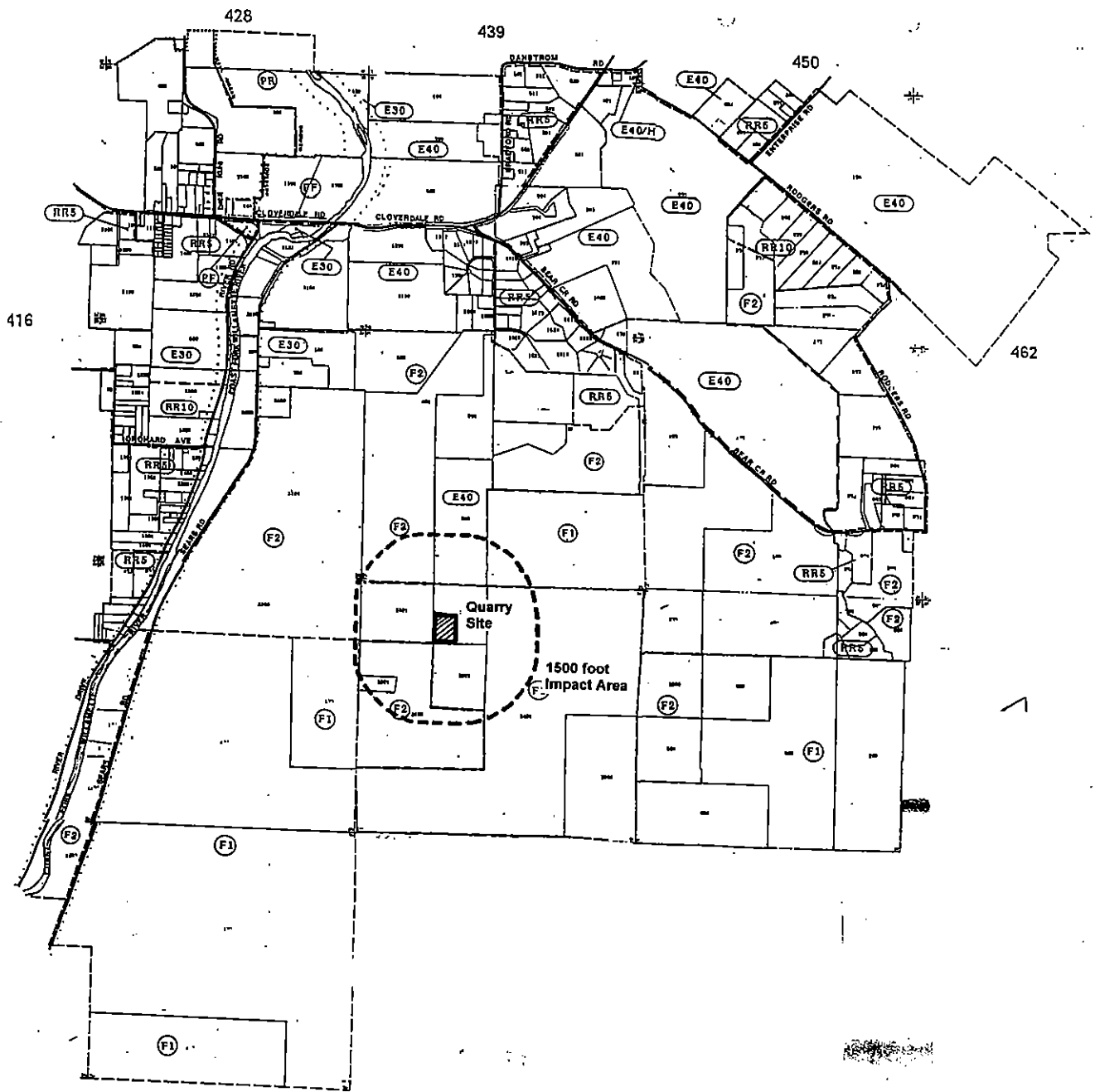
**Page 4**

**Emission Reduction Plan**

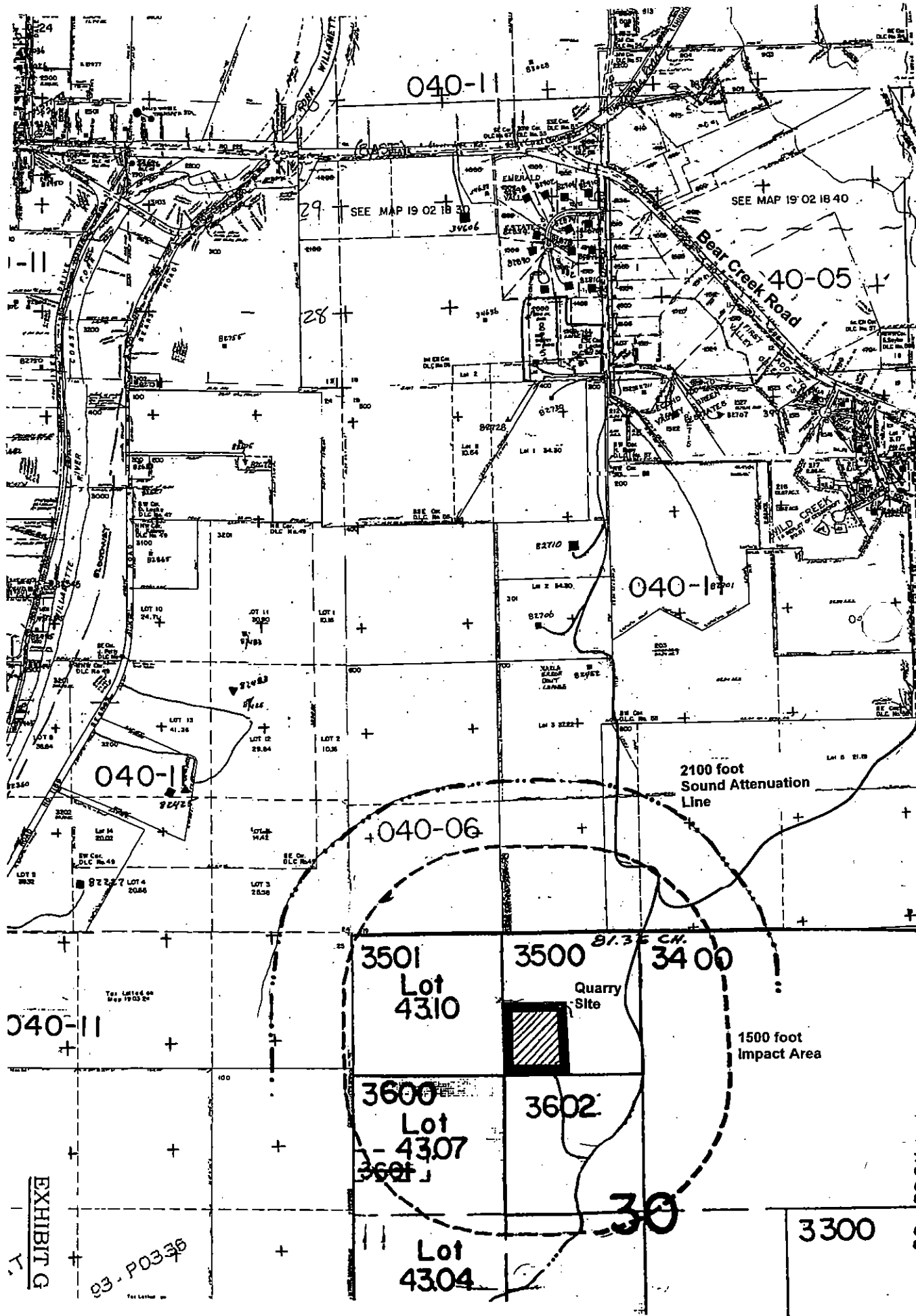
None

**Other**

1. In accordance with adopted regulations, the permittee will be invoiced for permit renewal in the month prior to the expiration of this permit.
2. A copy of the permit application and Air Contaminant Discharge Permit must be available for inspection upon request.



**EXHIBIT F**



040-11

29 SEE MAP 19 02 18 30

SEE MAP 19 02 18 40

28

40-05

040-11

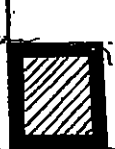
040-11

040-06

2100 foot  
Sound Attenuation  
Line

3501  
Lot  
4310

3500 34 00



Quarry  
Site

1500 foot  
Impact Area

3600  
Lot  
4307

3602

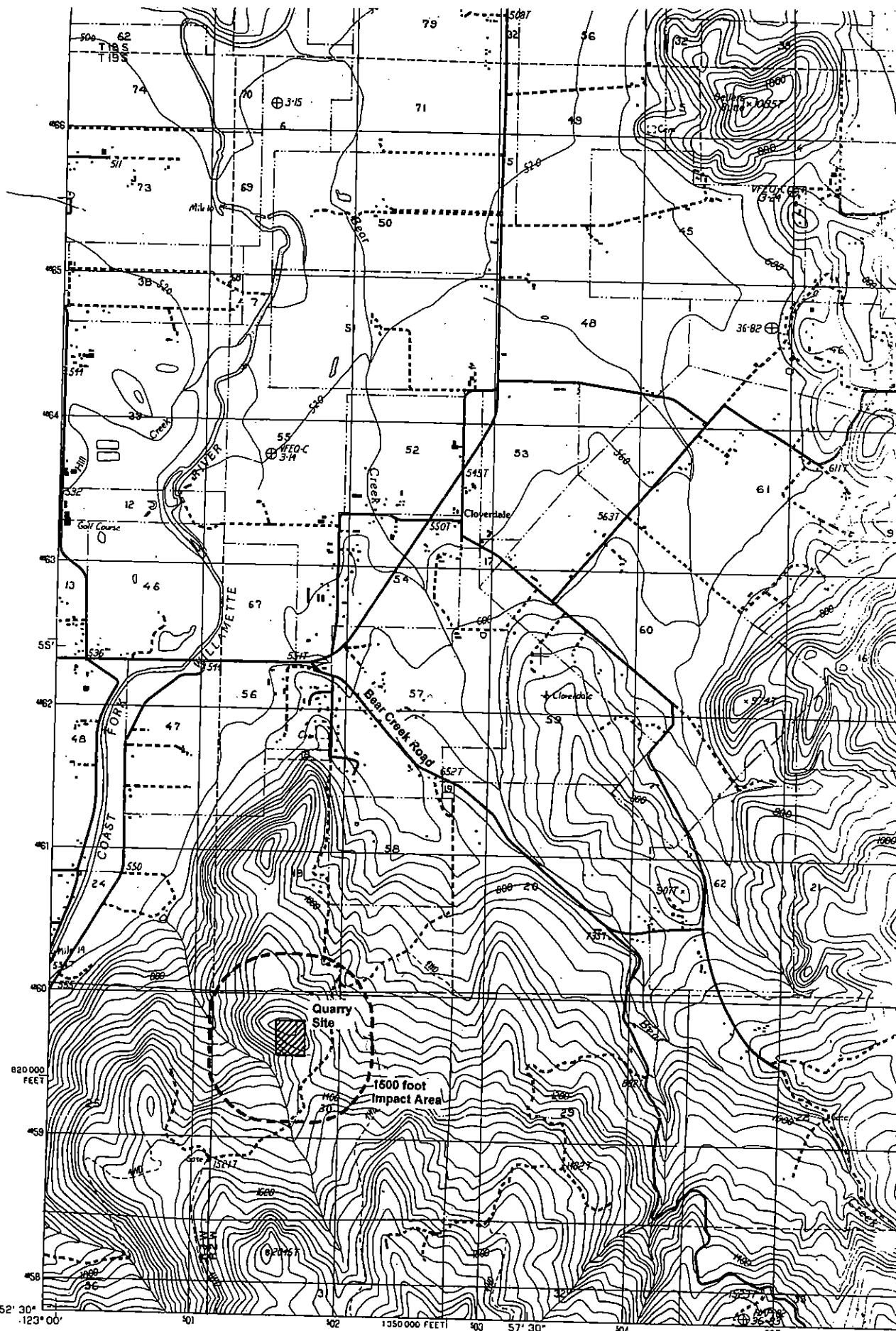
30

3300

Lot  
4304

EXHIBIT G

93-P0336



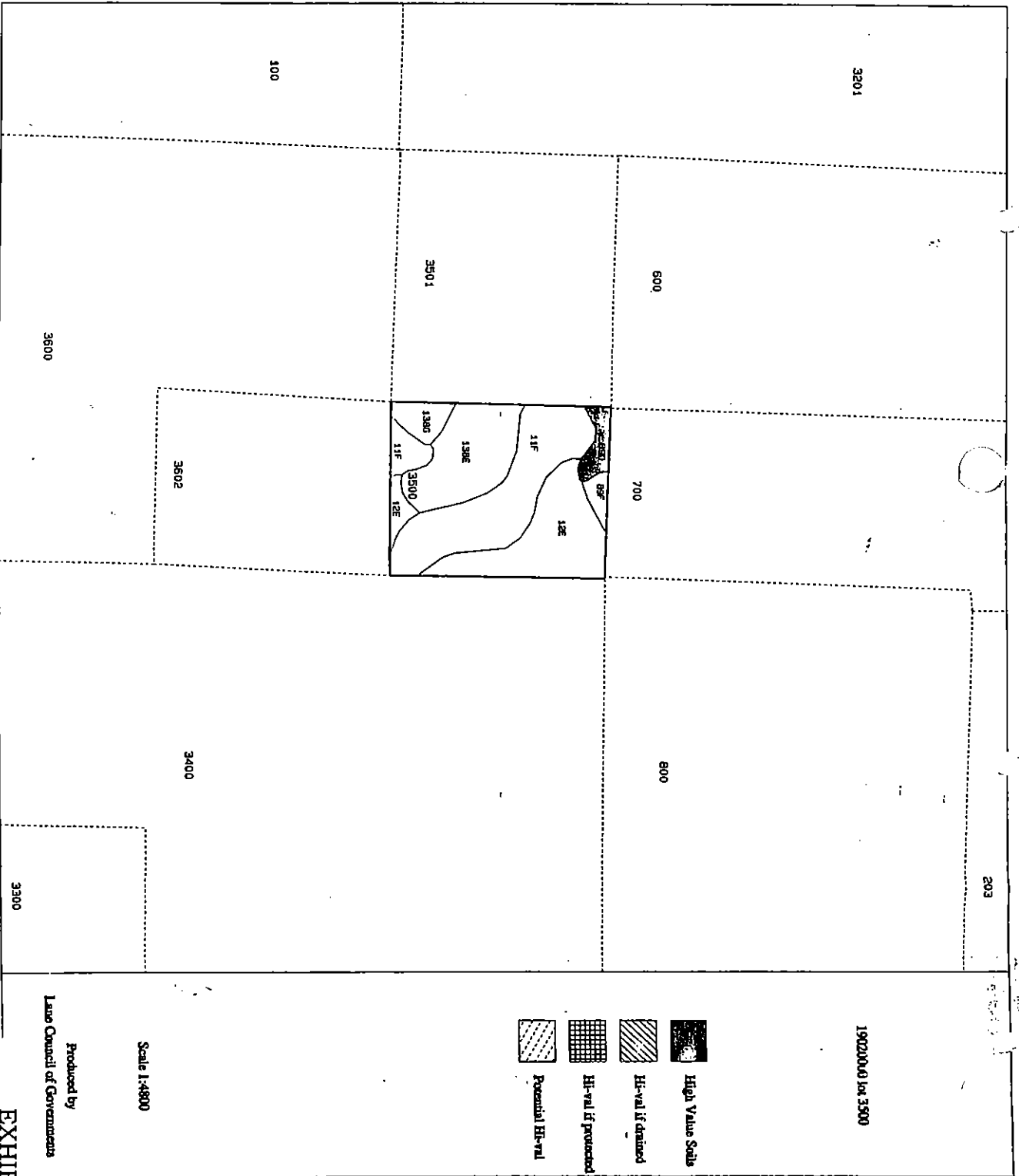
**EXHIBIT H**

PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY  
 CONTROL BY U.S.G.I., NGS/NOAA AND STATE OF OREGON  
 COMPILED FROM AERIAL PHOTOGRAPHS TAKEN ..... 1983  
 FIELD CHECKED ..... 1984. MAP EDITED ..... 1985  
 PROJECTION ..... LAMBERT CONFORMAL CONIC  
 GRID: 1000-METER UNIVERSAL TRANSVERSE MERCATOR ..... ZONE 10  
 1000-FOOT STATE GRID TICKS ..... OREGON, SOUTH ZONE  
 UTM GRID DECLINATION ..... OREGON, SOUTH ZONE  
 1980 MAGNETIC NORTH DECLINATION ..... 0°3' EAST  
 1980 MAGNETIC NORTH DECLINATION ..... 1° EAST  
 HORIZONTAL DATUM ..... NATIONAL GEODETIC VERTICAL DATUM OF 1983  
 HORIZONTAL DATUM ..... 1983 NORTH AMERICAN DATUM  
 To place on the predicted North American Datum of 1983,  
 move the projection lines as shown by dashed lines.

**PROVISIONAL MAP**



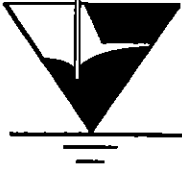
SCALE 1:24 000  
 CONTOUR INTERVAL 40 FEET  
 SUPPLEMENTARY CONTOUR INTERVAL 20 FEET





SOIL TYPE UNITS IN ACRES  
 FOR 1 19020000 LOT 3500

AP NIT TY	AREA IN ACRES	PERCENT	SOIL NAME	COMPONENT NAME	AGRICULTURAL CAPABILITY CLASS
9D	1.126	4.055	NEKIA SILTY CLAY LOAM, 12 TO 20 PERCENT SLOPES	NEKIA	3
9F	0.669	2.407	NEKIA SILTY CLAY LOAM, 30 TO 50 PERCENT SLOPES	NEKIA	6
9E	7.954	28.633	BELLPINE COBBLY SILTY CLAY LOAM, 2 TO 30 PERCENT SLOPES	BELLPINE	4
9F	10.474	37.703	BELLPINE SILTY CLAY LOAM, 30 TO 50 PERCENT SLOPES	BELLPINE	6
8E	6.213	22.364	WITZEL VERY COBBLY LOAM, 3 TO 30 PERCENT SLOPES	WITZEL	6
8G	1.344	4.838	WITZEL VERY COBBLY LOAM, 30 TO 75 PERCENT SLOPES	WITZEL	6



# *EGR & Associates, Inc.*

Engineers, Geologists and Surveyors

2535B Prairie Road  
Eugene, Oregon 97402  
(541) 688-8322  
Fax (541) 688-8087

February 12, 1999

Jim Spickerman, Attorney  
Gleaves, Swearingen, Larsen, Potter, Scott & Smith  
P.O. Box 1147  
Eugene, OR 97440-1147

RE: PA 98-5144, Bradford Quarry Site, T19S R2W Section 30 TL 3500

Dear Mr. Spickerman:

I have reviewed the Application for the Bradford Quarry Site, PA 98-5144, and I have visited the site and toured the area surrounding the existing quarry. As you have requested, this letter offers my observations, conclusions and recommendations based upon the above mentioned review, relative to impacts to surface water and groundwater. Additionally, the issue of blast effects will also come up, if it hasn't already, and I will add my experience regarding that issue as well.

There are two issues of importance for any quarry site of any significant size. Those are any changes in recharge or groundwater flow that either increases or decreases groundwater resources. The other issue is whether the activity significantly or unacceptably will have an impact on water quality.

## SITE DESCRIPTION

The proposed Bradford Quarry Site is located about 1.5 miles south of Cloverdale Road and 1 mile southwest of Bear Creek Road. Access is by way of Cedarcroft and Bradford Roads. The site is a 40 acre parcel in the NW Quarter of Township 19 South, Range 2 West, Section 30. Physically, the site is on the top of a small hillock, or butte, which lies along a ridge coming off of a much larger mountain. The site has already been in use as a quarry site with rock excavated from the hill top and apparently crushed and stockpiled.

EXHIBIT J

## GROUNDWATER IMPACTS

A quarry operation has the potential to increase, or decrease, recharge to the aquifer and thus change surrounding users water supply. A quarry can also open pathways which could increase the potential for groundwater quality impacts.

### *Potential for Changes to Recharge at the Proposed Quarry Site*

A quarry can, if it is constructed into water bearing materials and provides a drainage pathway or is consistently pumped out, cause groundwater to be discharged from the ground. If this condition occurs the groundwater resource will be depleted by the amount of water that otherwise would have stayed in the ground if the quarry were not present. Conversely, a quarry can capture precipitation water and hold it above the water table where, over time, it is recharged down through the rock and actually will increase the quantity of water that recharges the groundwater aquifers below. -Not uncommonly, quarries are situated such that neither groundwater is intercepted in the excavation nor is precipitation held in the quarry and thus the overall net effect is negligible to the groundwater beneath.

In the case of the Bradford Quarry Site the excavation will be in an area where groundwater is being recharged to the aquifer. These areas are identified by: commonly being located in upslope positions (well away from streams), a greater distance to groundwater (relatively speaking only), and higher fluctuations in water levels (also relatively speaking). If the quarry is constructed to generally retain surface water (precipitation) then the net effect will be to increase recharge and additional water will be added to the groundwater aquifer. If the quarry is constructed to drain surface water then the impact on groundwater will be negligible.

Finally, as the quarry progresses deeper into the ground it may encounter naturally occurring groundwater. At these deeper excavation depths the amount of groundwater which will be intercepted by the excavation and discharged to surface water will not have a significant effect on the groundwater supply. This can readily be seen in the topographic expression of the ground. The elevation of the top of the quarry is about 1400 to 1440 feet above mean sea level (MSL). If the quarry were to remove 70 feet of material from the top of the hill the base elevation of the quarry will be at 1330 feet MSL. The nearest dwellings are at least 2,300 feet south and 3,500 feet north and an elevation below 1000 feet MSL (or 280 feet below the bottom of the quarry). The well at that location is no doubt drilled below that 1000 foot level.

It is impossible, hydrologically, for the quarry to lower the groundwater below the quarry floor level, and therefore impossible for the quarry to remove sufficient water for there to be an impact on wells 200 feet away drilled into rock some 300 feet plus below the bottom of the quarry, since groundwater levels will still be at the quarry floor level.

### *Water Quality Concerns*

It is possible, any time a quarry site is in a recharge zone, that contamination could find a pathway to the aquifer through the quarry excavation. This possibility can be readily mitigated against with the implementation of some simple preventive measures. The primary concern is that fuels and lubricants from the mining operation equipment does not infiltrate the ground through the quarry floor. A spill prevention and clean-up plan must be prepared for the site (it is required by law anyway), and the proper spill clean-up materials kept on-site and readily available at all times. The risk from quarries, based upon long term experience, is that quarries present about the same level of risk as a heavily traveled road. Serious leaks from equipment are relatively uncommon one time events which are easily identified, easily cleaned-up, and of limited size. The history has been that quarries cause far fewer groundwater contamination problems than septic tank systems and other such sources that have long standing discharges.

Fuels and oils are most commonly spilled in small quantities, amounting to a few gallons which are then easily adsorbed with the proper clean-up materials and disposed of at a landfill facility. What cannot immediately be picked up biodegrades readily when the contamination is in small amounts and low concentrations. Even today the DEQ allows on-site remediation of hydrocarbon spills much larger than will occur from an isolated equipment failure. The risk is not zero, but it is well within the bounds of commonly accepted practice.

### *Blasting Effects*

The quarry will require periodic blasting to loosen rock for removal by quarry equipment. The operators of the site expect that they might blast approximately 12 times per year. Quarry blasting, as carried out by those trained and certified to use explosives appropriately, is relatively safe. Three main concerns are generally expressed: ground shaking, projectiles, and air blast.

Ground shaking is the most commonly feared and the least likely to cause damage. Both wells and dwellings are only rarely damaged by ground shaking, and then only if they are very close to the blast area. In particular, it can be seen with the example of earthquakes that ground shaking does not damage wells. In earthquake areas, where the ground shaking is sufficient to collapse houses, only rarely are any wells damaged by the earthquake. Energy dissipates rapidly as it moves through the ground.

Of some concern is the possibility that loose rock or unknown fractures can allow for rocks to be thrown by a blast. With any blast of appropriate design no dwelling could possibly be struck from this quarry site. The closest house to the north, which is owned by Mr. Bradford, is approximately 3,500 feet from the quarry site. The closest house to the south is 2,300 away but is behind a hill.

Of most concern to the master blasters is the possibility of "air blast". This shock wave through the air can cause dwellings to shake with the result of cracked plaster and even broken glass. However, blasters carefully control conditions such that such shock waves do not occur. The natural configuration of this site is good for controlling shock wave effects because the dwellings to be protected are far away (>2000 feet), down hill, on the same slope, and there is open space (no nearby reflective hills) in all directions from the site. This configuration strongly dissipates any shock wave before it reaches any dwellings.

#### SUMMARY

The quarry site will not significantly impact the quantity of groundwater in the area. The quarry will not degrade groundwater quality simply by maintaining a spill prevention and clean-up plan, as required by law, and promptly removing any spilled oils or fuels from the quarry area using the appropriate clean-up materials. This is the same kind of effort that logging companies, construction companies, and farm operations use. Blasting will not adversely effect groundwater, wells, or dwellings when it is performed by professionals trained and certified to conduct it properly.

If I can be of any further assistance please let me know.

Sincerely,



Ralph Christensen  
Geologist G-870





# Oregon

John A. Kitzhaber, M.D., Governor

## Department of Geology & Mineral Industries

Mined Land Reclamation  
1536 Queen Avenue SE  
Albany, OR 97321-6687  
(541) 967-2039  
FAX (541) 967-2075

### *Report of Onsite Inspection*

|||||||

Kristofer Jeremiah  
PO Box 543  
Cottage Grove OR 97424

20-0149  
Section 30, Twp 19S, Range 2W  
Bradford Quarry

#### ***Date Of Inspection: July 23, 1998***

Kris Jeremiah accompanied me on this initial inspection of a proposed rock quarry located roughly 4 miles east of Creswell. The application materials are being circulated to other resource agencies at this time for comment. Enclosed is a site map which requires a signature. Please review the map for accuracy then sign and return it as soon as possible.

#### ***Location and Access***

Access to the site is via Highway 58 east out of Eugene for approximately 3 miles to Cloverdale Road, then south on Cloverdale Road to Bear Creek Road. Travel southeast on Bear Creek Road for approximately 1 mile to a Cedarcroft Road. Then travel south on Cedarcroft Road for approximately 1.5 miles to Bradford Road. Continue up the hill on Bradford Road for 0.5 miles to an unmarked gravel road on the right. Take this road north for approximately 600 feet to the site.

#### ***Existing Conditions and Vegetation***

A quarry exists on the property which has been used for forest access and on-site use in the past. Current disturbance is on the order of 2 acres (approximately 1.2 acres were disturbed as of 1994). There is an excavation into the floor which collects rain water and contained several feet of water at the time of this inspection. There are several hundred yards of stockpiled crushed rock near the entrance to the site. Some overburden has been stripped toward the east and west sides of the ridge.

Rock outcrop is exposed in several areas on the ridge to be mined. Overburden varies greatly in depth from no overburden to several feet. The site is currently poorly vegetated due to the lack of topsoil. The entire permit area has been logged and is currently revegetated with scattered Douglas fir, pine, and brush.

The proposed quarry site is located on the relatively flat top of a ridge, however the slopes east and west of the ridge are quite steep. Care will need to be taken when placing overburden on or near these slopes to make sure that unstable overburden piles are not created. A permit condition is being added limiting the volume which can be placed in stockpiles along the slopes.

***Inspected by:***

Peter J. Wampler  
Reclamationist  
Mined Land Reclamation

c: Lane County Planning Department  
DEQ - Salem  
Ross Bradford

PJW/cc:07/31/98, 20-0149 07-23-98ir

**EXHIBIT K**

***Waterways and Storm Water***

The nearest drainage to the site is located down a steep slope to the southwest of the site. This drainage is shown with a solid blue line on the USGS topographic map indicating that it may be perennial. Kris Jeremiah indicated that he plans to divert water to the east and west of the site. No discharge of storm water from the site is permitted without a 1200A storm water permit.

***Mining and Reclamation***

The proposal calls for permitting 20 acres within a larger 40 acre parcel leased for mining. Mining will be a hill top removal with overburden stored on the east and west sides of the extraction area. Product stockpiles and scales are planned for a flatter area northeast of the extraction area (see enclosed map). The rock to be mined is what appears to be an altered Andesite with minor amounts of sulfide present.

The nearest residence is over one mile away from the proposed extraction area. Natural screening by trees should not prevent the quarry from being visible from this residence.

The site will be returned to a forestry post-mining land use. In order to accomplish this post-mining use replacement of topsoil and overburden will be necessary. Permit condition # 3 requires that a minimum of 18" of topsoil or overburden be placed on reclaimed areas.

***Permit Conditions and Bonding***

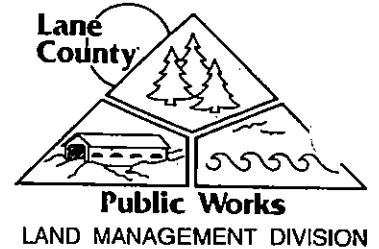
Initial bond for the site will be set at \$7,500 for the first five acres of disturbance. I recommend granting the above Operating Permit with the following conditions;

The Permittee shall:

1. not create stockpiles higher than 15 feet above original ground surface without obtaining approval from DOGAMI.
2. allow no discharge of storm water or process water from the site.
3. respread a minimum of 18" of topsoil or overburden upon final reclamation.
4. seed and mulch all exposed overburden prior to October 1 of each year to prevent erosion.

LANE COUNTY PLANNING COMMISSION

Staff Report



Hearing Date: March 2, 1999

File: PA 98-5144

Report Date: February 22, 1999

I. PROPOSAL

**A. Applicant:** B.J. Equipment Company  
P.O. Box 543  
Cottage Grove, Oregon 97424

**Owner:** Ross Bradford  
82452 Bradford Road  
Creswell, Oregon 97426

**Agent:** James W. Spickerman  
Gleaves Swearingen Larsen Potter Scott & Smith  
P.O. Box 1147  
Eugene, Or. 97440-1147

**B. Proposal:**

Amend the Rural Comprehensive Plan from "Forest" to "Natural Resource" and Rezone that Land from "F-1/Non-Impacted Forest Land" to "QM" ("Quarry and Mine Operations") for 40 acres, pursuant to Lane Code 16.400 and 16.252. Map 19-02-00 (30) Taxlot 3500.

II. PROCEDURE

The Planning Commission may follow these hearing procedures on March 2, 1999:

1. Announce the hearing is de novo and explain the rules of conduct.
2. Disclose any ex parte contacts.
3. Call for abstentions due to ex parte contacts or biases.
4. Request the Director or staff to present an introductory report, explain any graphic or pictorial displays which are a part of the report, read findings and recommendations, if any, and provide such information as may be requested by the Planning Commission ("Commission", hereinafter).
5. Allow the applicant to be heard first, on his own behalf or by representative.
6. Allow persons in favor of the applicant's proposal to be heard next in the same manner as in the case of the applicant.

LCPC  
PA 99-5144

FILE # PA 98-5144  
EXHIBIT # 46



7. Allow other persons to be heard next in the same manner as in the case of the applicant.
8. Upon failure of any party to appear, the Commission may take into consideration written material submitted by such party.
9. Allow the Director to present any further comments or information in response to testimony and evidence offered by any interested persons.
10. Allow the applicant to rebut, on his own behalf or by representative, any testimony previously presented to the Commission.
11. Questions may be asked at any time by the Commission. Questions by the applicant, parties testifying, or County staff may be allowed by the Commission upon request. Upon recognition by the Commission, questions may be submitted directly to the persons being questioned. The persons questioned shall be given a reasonable amount of time to respond solely to the questions.
12. Conclude the hearing of testimony.
13. At the conclusion of the public hearing, the Commission has several options:
  - It can direct any party to prepare an ESEE analysis on unresolved conflicting uses to be completed prior to closing the record;
  - It can move directly to deliberations, make a recommendation based on findings of fact and conclusions in response to the record;
  - It can leave the record open for a specified period for the submittal of written testimony; or
  - It can continue the hearing to a date and time certain for the purposes of hearing additional testimony or commencing with deliberations.
14. With any option, the Commission may assign the drafting of the recommendations and supporting findings of fact and conclusions to the Director or request proposed findings of fact and conclusions from any party to the hearing.
15. Upon adoption of findings, conclusions and recommendations, the Commission shall submit the minutes of the public hearing and the recommendations to Board of Commissioners in compliance with Lane Code 16.400(6)(d).

### **III. SITE AND PLANNING PROFILE**

#### **A. Location**

The subject property is identified as Map 19-02-00 Taxlot 3500 located within Section 30, east of Creswell.. The applicant proposes to use contiguous ownership for access to Cedarcroft Road. These parcels are identified as Map 19-02-19 Taxlots 100, 700, & 800.

## **B. Zoning**

The subject property is zoned Non-Impacted Forest Lands (F-1) within the Rural Comprehensive Plan on Zoning Plot Map #440B. The current Plan Designation for the property is Forest Lands.

## **C. Surrounding Area**

All properties surrounding the subject parcel are zoned as Forest Lands with the exception of the parcel immediately to the north which is zoned Exclusive Farm Use. This parcel is in common ownership as the subject parcel. The access road follows through this resource land until it reaches the end of Cedarcroft Road where there is a Developed and Committed Lands Area containing residentially-zoned properties.

## **D. Services & Resources**

- Fire:** The site is not within a Rural Fire Protection District.
- Sewer:** No sewage disposal systems have been approved on the subject property.
- School District:** The property is located within the Creswell School District #40
- Power:** Electricity is provided in this area by Emerald Peoples Utility District (EPUD)
- Access:** Access is provided to Bear Creek Road (County) by Cedarcroft Road (County). Taxlot 100, an 80 ft. wide access lot, provides frontage onto the end of Cedarcroft Road for the proposed quarry.
- Class I Stream;** No Class I Streams are identified within the Rural Comprehensive Plan on the subject property
- Historical:** No historical resources are identified on the subject property.
- Archaeological:** No archaeological sites are identified near the subject parcel in the Historical Resources Exhibit A of the Lane County General Plan Policies.
- Sensitive Habitat:** The subject property is not located within an area designated as sensitive bird habitat in Lane manual 11.400.
- Water Quantity:** The area is not located within a groundwater limited area identified in Lane Manual 13.010(2).
- Water Quality:** The subject property is not located in an area that has been designated as a water quality limited area in Lane Manual 13.010(1). However, the area is known to contain elevated levels of arsenic in groundwater.
- Wetlands:** There are no wetlands identified on the subject property as identified on the National Wetlands inventory map for Jasper (3). However, there is a wetlands shown on the map south of Cedarcroft Road and the panhandle access crosses over the wetland.

## E. Referral Comments Received

Requests for comments was sent out on November 25, 1998 to all persons owning property within 500 feet of the owner's contiguous property, other persons specifically requesting notice and the following agencies:

1. Oregon Department of Fish & Wildlife (ODFW): No response received.
2. Division Of State Lands (DSL): No response received.
3. Department of Geology and Mineral Industries (DOGAMI): "DOGAMI-MLR has completed the circulation of the Bradford quarry permit application and reclamation plan to other resource agencies. We received comments from Lane County, the landowner, and the Department of Agriculture. The Department of Agriculture comments related to storm water controls for the site. We will be working with the permittee on a continuing basis to insure that the site is in compliance with the NPDES rules. I have enclosed a copy of the site map prepared by DOGAMI for your reference. An operating permit can be issued when the \$7,500 reclamation bond for the site has been submitted."
4. Department of Land Conservation and Development (DLCD): No response received.
5. Lane Regional Air Pollution Authority (LRAPA): No response received.
6. Oregon Department of Forestry (ODOF): No response received.
7. Lane County Transportation Planning: "Comments from the Lane County Transportation Planning Section as follows:

### Cedarcroft Road

This is a paved 24' wide County maintained road functionally classified as a local road in the Lane Coded 15.027. No traffic counts were taken on Cedarcroft Road.

### Bear Creek Road

This is a paved 24' wide County maintained road functionally classified as a minor collector. The average daily traffic ( ADT) just east of Cloverdale Road published in Lane County's 1997 Traffic Volume Tables is listed as 700 vehicle trips per day.

### Bradford Road South

This road is also County maintained road of Bituminous construction. No analysis of the suitability of the this road for this use was made as it was staff understanding this road was not going to be used for access to the proposed site.

### Cloverdale Road

This road is under State Highway jurisdiction at the point of intersection with Bear Creek Road

### Traffic Impact Analysis (TIA)

The TIA was done by Branch Engineering. The study assumes use of Cedarcroft Road and Bear Creek Road to get to Cloverdale Road. No Level of Service capacity problems were identified for the proposed use.

This is to be expected given the low existing traffic volumes and the stated trip generation.

Roadway Structures

County staff felt there was no need for additional structure to be added to Cedarcroft or Bear Creek Road for this use. This was based on the figures supplied by the Loren Chilson of Branch Engineering for removal of 50,000 cu. yds per year in non continuous usage over the projected 20 year life of the site. The analysis was based on an average 13 loaded trucks per day, per year for a 10 year period.

Lane County Facility Permit

A Facility Permit is required for any construction within the right-of-way of road under County jurisdiction. This includes, but is not limited to, such activities as driveway or street approach construction.

Additional response: Based on revised information from Branch Engineering ( 40 loaded dump trucks per day/5days per week/per 20year period) the indication is asphalt overlays on both Cedarcroft and Bear Creek Roads to Cloverdale Road would be needed to support the planned use. The initial indication is a 4.5 inch and 3.5, asphalt overlay would be needed for Cedarcroft and Bear Creek Roads respectively. Lane County Facility Permits are required for any work within the road right-of-ways. A licensed Oregon Civil engineer must prepare the construction plans and provide inspection and testing services. The County may do inspection and testing at its option on a billable basis.

If this use is approved, the County will investigate the need for a Stop sign on Cedarcroft road at the Bear Creek Rd. intersection. County crews will address brush within the right-of-way that may be limiting sight distance. The applicant may need to address brush removal on private property at this intersection if that is an issue.

8. Lane County Surveyors: "Cedarcroft Road was established on March 10, 1982 by Board Order 82-3-10-5. The right-of-way width is variable but never less than 60 feet wide. I will provide you with the Order and a legal description with an accompanying map."
9. School District 40: No response received.
10. Lane County Environmental Health: No response received.

A total of 21 separate responses were received from nearby property owners. These comments are attached to this report and summarized in Step 3: Minimize the Conflicts below.

#### IV. CRITERIA AND ANALYSIS

This staff report is intended as a working document to facilitate the Commission's hearings process and deliberations. The record before the Commission will consist of the applicant's submittal which is attached as Attachment "A", the written comments of public agencies and neighboring landowners included as attachments E 1 - 22 to this report, and the oral testimony of interested parties received during the public hearing. The original submittals are included as background information as Attachments "B" and "C." The information in those two submittals has been superseded and supplemented by Attachment "A".

The applicant's agent has recited all of the relevant criteria from Lane Code and the Oregon Administrative Rules. Those criteria are not repeated here in this report except where staff felt it was necessary to elaborate on a particular issue. In the instances where the record is not sufficiently documented or issues have not been adequately addressed, staff has identified the issues which require additional public testimony or documentation prior to the Commission's deliberations.

##### A. Evaluation

###### 1. Oregon Administrative Rules (OAR)

Statewide Planning Goal 5 was amended on June 14, 1996 and the Amendment became effective September 1, 1996. Accompanying Oregon Administrative Rules 660, Division 23 was amended and became effective on the same date. This application is being reviewed pursuant to the provisions of OAR 660, Division 23 regarding mineral and aggregate resources.

###### A. PROCESS

OAR 660-23-180 is the portion of Administrative Rules 660, Division 23 that applies specifically to mineral and aggregate resources. OAR 660-23-180(2) states:

*"Local governments are not required to amend acknowledged inventories or plans with regard to mineral and aggregate resources except in response to an application for a PAPA, or at periodic review as specified in OAR 660-023-0180(7). The requirements of this rule either modify, supplement, or supersede the requirements of the standard Goal 5 process in OAR 660-023-0030 through 660-023-0050, as follows:*

Lane County is required to amend the acknowledged mineral and aggregate inventory in response to this application for a Post Acknowledgement Plan

Amendment (PAPA). The Rule evaluation criteria for a PAPA are separated into six analytical steps:

- Step 1. Determine if the PAPA information is adequate.
- Step 2. Determine if the resource site is significant.
- Step 3. Determine if conflicts from mining can be minimized.
- Step 4. Weigh the ESEE consequences and determine whether to allow mining.
- Step 5. Determine the ESEE consequences of potential new conflicting uses within the impact area.
- Step 6. Develop a program to allow mining.

Attachment "1" provides a detailed outline of these steps.

## B. DEFINITIONS

The evaluation steps outlined above include several terms or phrases which are defined in OAR 660-23-180(1). Six of the definitions are provided below:

- (b) *"Conflicting use" is a use or activity that is subject to land use regulations and that would interfere with, or be adversely affected by, mining or processing activities at a significant mineral or aggregate resource site (as specified in 660-23-180(5) and OAR 660-23-180(4)(b)(A) through (f)).*
- (e) *"Mining" is the extraction and processing of mineral or aggregate resources, in the manner provided under ORS 215.298(3).*  
ORS 215.298(3) states: "mining includes all or any part of the process of mining by the removal of overburden and the extraction of natural mineral deposits thereby exposed by any method including open-pit mining operations, auger mining operations, processing, surface impacts of underground mining, production of surface mining refuse, and the construction of adjacent or off-site borrow pits except those constructed for use as access roads.
- (f) *"Minimize a conflict" means to reduce an identified conflict to a level that is no longer significant. For those types of conflicts addressed by local, state or federal standards (such as the Department of Environmental Quality standards for noise and dust levels) to "minimize a conflict" means to ensure conformance to the applicable standards.*
- (g) *"Mining area" is the area of a site within which mining is permitted or proposed, excluding undisturbed buffer areas or areas on a parcel where mining is not authorized.*

(h) "Processing" means the activities described in ORS 517.750(11). ORS 517.750(11) "Processing" includes, but is not limited to , crushing, washing, milling and screening as well as the batching and blending of mineral aggregate into asphalt and portland cement concrete located within the operating permit area.

(i) "Protect" means to adopt land use regulations for a significant mineral or aggregate site in order to authorize mining of the site and to limit or prohibit new conflicting uses within the impact area of the site.

### C. GOAL 5 ANALYSIS

Conflicting uses which are identified in the six-step evaluation must be minimized or resolved. The conflicts may be either from the impact area surrounding the proposed aggregate site or from an aspect of the proposed operation on a nearby use. If the Commission finds an existing or potential conflict has been minimized by the proposed operations plan, then the amendment can be allowed outright. If a conflict can not be minimized by the proposed operations plan, then the issues must be resolved by limiting either the aggregate use or an off-site use. This would be done by imposing conditions of approval. If the conflicting uses can not be resolved by conditions, then the proposed use can be prohibited.

#### STEP 1: ADEQUACY OF THE INFORMATION

The applicant has addressed the requirement on Pages 4 through 6 with corresponding Exhibits in the submittal.

#### STEP 2: SIGNIFICANCE OF THE RESOURCE

The applicant has addressed the requirement on Pages 7 through 12 with corresponding Exhibits "A" and "I" in the submittal.

The applicants information contained within Exhibit A" by Century West Engineering Corporation is unclear to staff in regards to the correlation with relevant ODOT specifications for the quality of the resource. OAR 660-023-180(3)(a) states: *A representative set of samples of aggregate material in the deposit on the site meets Oregon Department of Transportation (ODOT) specifications for base rock for air degradation, abrasion, and sodium sulfate soundness...* The analysis contains several acronyms that most likely identify the appropriate ODOT standard. The following acronyms should be explained: ASTM, OAHD, OSHD. It is also not clear that the "Los Angeles Rattler (LAR)" test corresponds with the required test for abrasion.