



Multnomah County Oregon

Board of Commissioners & Agenda

connecting citizens with information and services

BOARD OF COMMISSIONERS

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OCTOBER 5, & 7, 2004

BOARD MEETINGS

FASTLOOK AGENDA ITEMS OF INTEREST

Pg 2	9:30 a.m. Tuesday PDC Briefing on the Proposed Industrial Urban Renewal District
Pg 2	10:15 a.m. Tuesday Facilities Portfolio Consolidation and Disposition Strategy
Pg 3	9:30 a.m. Thursday Opportunity for Public Comment on Non-Agenda Matters
Pg 3	9:30 a.m. Thursday Resolution Approving the Continuation of the Career Pathway Technology Project
Pg 3	9:50 a.m. Thursday Possible Second Reading and Adoption of an Ordinance Amending the Howard Canyon Reconciliation Report
Pg 3	10:00 a.m. Thursday Executive Session

Thursday meetings of the Multnomah County Board of Commissioners are cable-cast live and taped and may be seen by Cable subscribers in Multnomah County at the following times:

Thursday, 9:30 AM, (LIVE) Channel 30

Friday, 11:00 PM, Channel 30

Saturday, 10:00 AM, Channel 30

Sunday, 11:00 AM, Channel 30

Produced through Multnomah Community
Television

(503) 491-7636, ext. 333 for further info

or: <http://www.mctv.org>

Tuesday, October 5, 2004 - 9:30 AM
Multnomah Building, Sixth Floor Commissioners Boardroom 635
501 SE Hawthorne Boulevard, Portland

BOARD BRIEFINGS

- B-1 Portland Development Commission Briefing on the Proposed Industrial Urban Renewal District. Presented by Don Mazziotti and Bob Alexander. 45 MINUTES REQUESTED.
- B-2 Facilities Portfolio Consolidation and Disposition Strategy Briefing. Presented by Doug Butler. 1 HOUR REQUESTED.
-

Thursday, October 7, 2004 - 9:30 AM
Multnomah Building, First Floor Commissioners Boardroom 100
501 SE Hawthorne Boulevard, Portland

REGULAR MEETING

CONSENT CALENDAR - 9:30 AM **NON-DEPARTMENTAL**

- C-1 Appointment of Marneet Lewis to the Multnomah County LIBRARY ADVISORY BOARD

SHERIFF'S OFFICE

- C-2 Government Revenue Contract (190 Agreement) 0310516 with the City of Fairview, Providing Additional Patrols and Records Processing

DEPARTMENT OF BUSINESS AND COMMUNITY SERVICES

- C-3 Amendment 2 to Government Revenue Contract (Non-190 Agreement) 0110972 with the Oregon Department of Transportation, Providing Increase in Funds for the Morrison Bridge Ped/Bike Access Project to Realign the Water Avenue Off-Ramp

REGULAR AGENDA - 9:30 AM **PUBLIC COMMENT - 9:30 AM**

Opportunity for Public Comment on non-agenda matters. Testimony is limited to three minutes per person. Fill out a speaker form available in the Boardroom and turn it into the Board Clerk.

NON-DEPARTMENTAL - 9:30 AM

- R-1 RESOLUTION Approving the Continuation of the Career Pathway Technology Project. Presented by Lisa Goldberg and Paul Molino. 15 MINUTES REQUESTED.

OFFICE OF SCHOOL AND COMMUNITY PARTNERSHIPS - 9:45 AM

- R-2 Budget Modification OSCP_1 Restoring 1.5 FTE in County Business Services to Provide Support to the Office of School and Community Partnerships and to the Commission on Children, Families, and Community

DEPARTMENT OF BUSINESS AND COMMUNITY SERVICES - 9:50 AM

- R-3 Possible Second Reading and Adoption of a Proposed ORDINANCE Amending the Howard Canyon Reconciliation Report of June 1996, a Part of the Comprehensive Framework Plan Findings, by Updating the Chapter Sections on the Aggregate Resource and Making the Decision to "Allow Conflicting Uses Fully" and Prohibit Expansion of Mining
-

Thursday, October 7, 2004 - 10:00 AM
(OR IMMEDIATELY FOLLOWING REGULAR MEETING)
Multnomah Building, First Floor Commissioners Conference Room 112
501 SE Hawthorne Boulevard, Portland

IF NEEDED EXECUTIVE SESSION

- E-1 The Multnomah County Board of Commissioners Will Meet in Executive Session Pursuant to ORS 192.660(1)(h). Only Representatives of the News Media and Designated Staff are allowed to Attend. Representatives of the News Media and All Other Attendees are Specifically Directed Not to Disclose Information that is the Subject of the Executive Session. No Final Decision will be made in the Executive Session. Presented by Agnes Sowle. 30 MINUTES REQUESTED.

AGENDA PLACEMENT REQUEST

BUD MOD #:

Board Clerk Use Only:

Meeting Date: October 7, 2004

Agenda Item #: C-1

Est. Start Time: 9:30 AM

Date Submitted: 09/27/04

Requested Date: 10/7/04

Time Requested: Consent Agenda

Department: Non-Departmental

Division: Chair's Office

Contact/s: Chair Diane Linn

Phone: 53/988-3308

Ext.: 83308

I/O Address: 503/600

Presenters: N/A

Agenda Title: Appointment of Marneet Lewis to the Multnomah County Library Advisory Board.

NOTE: If Ordinance, Resolution, Order or Proclamation, provide exact title.
For all other submissions, provide clearly written title.

-
- 1. What action are you requesting from the Board? What is the department/agency recommendation?** Request the Board approve appointment of Marneet Lewis to the Library Advisory Board.
 - 2. Please provide sufficient background information for the Board and the public to understand this issue.** The Library Advisory Board advises the Board of County Commissioners on matters relating to library services, policies and funding. The Library Advisory Board serves as the Citizen Budget Advisory Committee for the County's Library Department. Library Advisory Board members are appointed to 4-year terms by the County Chair with approval of the Board of County Commissioners.
 - 3. Explain the fiscal impact (current year and ongoing).** No current year and/or ongoing fiscal impact.

NOTE: If a Budget Modification or a Contingency Request attach a Budget Modification Expense & Revenues Worksheet and/or a Budget Modification Personnel Worksheet.

If a budget modification, explain:

- ❖ What revenue is being changed and why?
 - ❖ What budgets are increased/decreased?
 - ❖ What do the changes accomplish?
 - ❖ Do any personnel actions result from this budget modification? Explain.

 - ❖ Is the revenue one-time-only in nature?
 - ❖ If a grant, what period does the grant cover?
 - ❖ When the grant expires, what are funding plans?
- NOTE: Attach Bud Mod spreadsheet (FORM FROM BUDGET)**

If a contingency request, explain:

- ❖ Why was the expenditure not included in the annual budget process?

- ❖ What efforts have been made to identify funds from other sources within the Department/Agency to cover this expenditure?
- ❖ Why are no other department/agency fund sources available?
- ❖ Describe any new revenue this expenditure will produce, any cost savings that will result, and any anticipated payback to the contingency account.

- ❖ Has this request been made before? When? What was the outcome?

If grant application/notice of intent, explain:

- ❖ Who is the granting agency?
- ❖ Specify grant requirements and goals.
- ❖ Explain grant funding detail – is this a one time only or long term commitment?
- ❖ What are the estimated filing timelines?
- ❖ If a grant, what period does the grant cover?
- ❖ When the grant expires, what are funding plans?
- ❖ How will the county indirect and departmental overhead costs be covered?

4. Explain any legal and/or policy issues involved. No legal and/or policy issues involved.

5. Explain any citizen and/or other government participation that has or will take place. NA

Required Signatures:

Department/Agency Director: _____



Date: 9/27/2004

AGENDA PLACEMENT REQUEST

BUD MOD #:

Board Clerk Use Only:

Meeting Date: October 7, 2004

Agenda Item #: C-2

Est. Start Time: 9:30 AM

Date Submitted: 09/28/04

Requested Date: October 7, 2004

Time Requested: N/A

Department: Sheriff's Office

Division: Business Services/Enforcement

Contact/s: Brad Lynch

Phone: 503-988-4336

Ext.: 84336

/O Address: 503/350/Lynch

Presenters: Consent Calendar

Agenda Title: Government Revenue Contract (190 Agreement) 0310516 Between the City of Fairview and the Multnomah County Sheriff's Office for Additional Patrols and Records Processing

**NOTE: If Ordinance, Resolution, Order or Proclamation, provide exact title.
For all other submissions, provide clearly written title.**

-
1. **What action are you requesting from the Board? What is the department/agency recommendation?** Approval of intergovernmental agreement # 0310516.
 2. **Please provide sufficient background information for the Board and the public to understand this issue.** The Sheriff's Office agrees to provide police services within the corporate limits of the city of Fairview. These services include response to emergency situations where life and property are in danger, criminal law enforcement, traffic enforcement and similar law enforcement activities when requested. The Sheriff's Office will also process police records for the City. This agreement will be in effect from July 1, 2004 through July 31, 2005.
 3. **Explain the fiscal impact (current year and ongoing).** The City of Fairview will pay for patrol services at a rate of \$56.47 per hour. As this is service upon request from the City, actual revenues are difficult to forecast. The City shall also pay MCSO \$4,000.00 per

year for the processing of police records. Total contract value is expected to be approximately \$10,000.00 and has been incorporated into the FY05 budget.

NOTE: If a Budget Modification or a Contingency Request attach a Budget Modification Expense & Revenues Worksheet and/or a Budget Modification Personnel Worksheet.

If a budget modification, explain:

- ❖ What revenue is being changed and why?
- ❖ What budgets are increased/decreased?
- ❖ What do the changes accomplish?
- ❖ Do any personnel actions result from this budget modification? Explain.
- ❖ Is the revenue one-time-only in nature?
- ❖ If a grant, what period does the grant cover?
- ❖ When the grant expires, what are funding plans?

NOTE: Attach Bud Mod spreadsheet (FORM FROM BUDGET)

If a contingency request, explain:

- ❖ Why was the expenditure not included in the annual budget process?
- ❖ What efforts have been made to identify funds from other sources within the Department/Agency to cover this expenditure?
- ❖ Why are no other department/agency fund sources available?
- ❖ Describe any new revenue this expenditure will produce, any cost savings that will result, and any anticipated payback to the contingency account.
- ❖ Has this request been made before? When? What was the outcome?

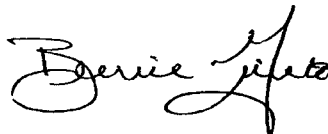
If grant application/notice of intent, explain:

- ❖ Who is the granting agency?
- ❖ Specify grant requirements and goals.
- ❖ Explain grant funding detail – is this a one time only or long term commitment?
- ❖ What are the estimated filing timelines?
- ❖ If a grant, what period does the grant cover?
- ❖ When the grant expires, what are funding plans?
- ❖ How will the county indirect and departmental overhead costs be covered?

4. Explain any legal and/or policy issues. This agreement has been reviewed by the County Attorney's Office.
5. Explain any citizen and/or other government participation that has or will take place. None, other than above.

Required Signatures:

Department/Agency Director:



Date: 09/22/04



MULTNOMAH COUNTY SHERIFF'S OFFICE

501 SE HAWTHORNE BLVD., SUITE 350 • PORTLAND, OR 97214

Exemplary service for a safe, livable community

BERNIE GIUSTO
SHERIFF

(503) 988-4300 PHONE
(503) 988-4500 TTY
www.sheriff-mcso.org

MEMORANDUM

TO: MULTNOMAH COUNTY CHAIR

FROM: Brad Lynch, MCSO Contract Administrator

DATE: September 22, 2004

RE: Retroactive Contract Processing / Contract Number 0310516

As more than 30 days have passed since the initial execution date of the City of Fairview contract (July 1, 2004), this is a request that the contract be considered and processed as retroactive.

The Sheriff's Office did not finalize contract terms with the City until late August.

Therefore, we request that this contract be processed as retroactive.

MULTNOMAH COUNTY CONTRACT APPROVAL FORM

Contract #: 0310516
 Pre-approved Contract Boilerplate (with County Attorney signature) ☐ Attached ☐ Not Attached
 Amendment #: _____

CLASS I	CLASS II	CLASS III A
Contracts \$75,000 and less per 12 month period	Contracts over \$75,000 per 12 month period	<input checked="" type="checkbox"/> Government Contracts (190 Agreement)
<input type="checkbox"/> Professional Services Contracts <input type="checkbox"/> PCRB Contracts <input type="checkbox"/> Maintenance Agreements <input type="checkbox"/> Licensing Agreements <input type="checkbox"/> Public Works Construction Contracts <input type="checkbox"/> Architectural & Engineering Contracts <input type="checkbox"/> Revenue Contracts <input type="checkbox"/> Grant Contracts <input type="checkbox"/> Non-Expenditure Contracts	<input type="checkbox"/> Professional Services Contracts <input type="checkbox"/> PCRB Contracts <input type="checkbox"/> Maintenance Agreements <input type="checkbox"/> Licensing Agreements <input type="checkbox"/> Public Works Construction Contracts <input type="checkbox"/> Architectural & Engineering Contracts <input type="checkbox"/> Revenue Contracts <input type="checkbox"/> Grant Contracts <input type="checkbox"/> Non-Expenditure Contracts	<input type="checkbox"/> Expenditure <input type="checkbox"/> Non-Expenditure <input checked="" type="checkbox"/> Revenue <hr/> <div style="text-align: center;">CLASS III B</div> <input type="checkbox"/> Government Contracts (Non-190 Agreement) <input type="checkbox"/> Expenditure <input type="checkbox"/> Non-Expenditure <input type="checkbox"/> Revenue <hr/> <input type="checkbox"/> Interdepartmental Contracts

Department: Sheriff's Office Division: Business Services/Enforcement Date: 08/24/04
 Originator: Larry Aab/Lee Graham Phone: 503-988-4300 Bldg/Rm: 503/350
 Contact: Brad Lynch Phone: 503-988-4336 Bldg/Rm: 503/350
 Description of Contract: Law enforcement services and City police records processing.

RENEWAL: ☐ PREVIOUS CONTRACT #(S): 0111025, 0111025-1, 0210044, 0210307
 RFP/BID: _____ RFP/BID DATE: _____
 EXEMPTION #: _____ ORS/AR #: _____
 Effective DATE: _____ EXPIRATION DATE: _____
 CONTRACTOR IS: ☐ MBE ☐ WBE ☐ ESB ☐ QRF State Cert# _____ or ☐ Self Cert ☐ Non-Profit ☒ N/A (Check all boxes that apply)

Contractor <u>City of Fairview</u>		Remittance address _____	
Address <u>1300 NE Village St.</u>		(If different) _____	
City/State <u>Fairview OR</u>		Payment Schedule / Terms	
ZIP Code <u>97024</u>		<input type="checkbox"/> Lump Sum \$ _____ <input type="checkbox"/> Due on Receipt <input type="checkbox"/> Monthly \$ _____ <input type="checkbox"/> Net 30 <input type="checkbox"/> Other \$ _____ <input type="checkbox"/> Other	
Phone <u>503-674-6200</u> ATTN: Chief Kenneth Johnson		<input type="checkbox"/> Requirements Funding Info:	
Employer ID# or SS# _____	Contract Effective Date <u>07/01/04</u> Term Date <u>06/30/05</u>	Original Requirements Amount \$ _____	
Amendment Effect Date _____	New Term Date _____	Total Amt of Previous Amendments \$ _____	
Original Contract Amount \$10,000.00 est.		Requirements Amount Amendment: \$ _____	
Total Amt of Previous Amendments \$ _____		Total Amount of Requirements \$ _____	
Amount of Amendment \$ _____			
Total Amount of Agreement \$ \$10,000.00 est.			

REQUIRED SIGNATURES:

Department Manager _____	DATE _____
Purchasing Manager _____	DATE _____
County Attorney <u>S.A.</u>	DATE <u>9-21-04</u>
County Chair <u>Chani Mey</u>	DATE <u>9</u>
Sheriff <u>Bernie Givisto by LAG</u>	DATE <u>9-23-04</u>
Contract Administration _____	DATE _____

COMMENTS:

APPROVED: MULTNOMAH COUNTY
 BOARD OF COMMISSIONERS
 AGENDA # C-2 DATE 10-07-04
 DEBORAH L. BOGSTAD, BOARD CLERK

LYNCH Brad B

From: ASPHAUG Scott E [Scott.E.Asphaug@co.multnomah.or.us]
Sent: Tuesday, September 21, 2004 10:56 AM
To: LYNCH Brad B
Subject: RE: Contract Review Request - City of Fairview

Brad

I've reviewed the IGA contract and approve as to form.

Scott

-----Original Message-----

From: LYNCH Brad B
Sent: Tuesday, September 21, 2004 10:49 AM
To: ASPHAUG Scott E
Cc: DUNAWAY Susan M
Subject: Contract Review Request - City of Fairview

Scott, attached is the CAF, APR, and contract with Fairview for additional patrols and police records processing. This is retroactive to July 1, it took a while to get with Fairview and agree to terms.

<<City of Fairview Agreement #0310516.pdf>> <<Fairview Patrol-Records CAF 2004-2005.doc>>
<<Fairview Patrol Records APR 2004-2005.doc>>

Thank you,

Brad Lynch
Multnomah County Sheriff's Office
Fiscal Unit
501 SE Hawthorne Blvd, STE 350
Portland, OR 97214
Phone (503) 988-4336
Fax (503) 988-4317

email: brad.lynch@mcsso.us

<http://www.co.multnomah.or.us/sheriff/>

GOVERNMENT CONTRACT (190 AGREEMENT)

This is an Agreement between the City of Fairview (CITY) and Multnomah County (County or MCSO), pursuant to authority granted in ORS Chapter 190.

PURPOSE:

The purpose of this agreement is to allow County to provide CITY with additional police enforcement functions and City police records processing.

The parties agree as follows:

1. **TERM** The term of this agreement shall be from July 1, 2004 to June 30, 2005.

2. **RESPONSIBILITIES OF CITY of Fairview.** The CITY agrees to:

The CITY shall pay to the Multnomah County Sheriff's Office (MCSO) for patrol services at a rate of \$56.47 per hour. This rate includes \$43.41 per hour for a patrol officer (based on the salary and benefits for an average Deputy Sheriff in Fiscal year 2004-05). Also included in this rate is the hourly cost of a marked vehicle of \$11.00 per hour, plus indirect costs of \$2.06 per hour (based on an indirect cost rate of 3.79%).

The CITY shall pay MCSO for providing police records processing as outlined below, at the rate of \$4,000.00 for the contract period.

Payment of such services is to be made on a quarterly basis. Payments will be mailed to:

Sharon Lowell
Multnomah County Sheriff's Office
501 SE Hawthorne Blvd., Suite 350
Portland, Oregon 97214

The CITY agrees that all matters incident to the performance of the services provided hereunder, including standards of performance, and supervision and discipline of assigned personnel, shall be and remain the responsibility of the MCSO. The CITY further agrees that the assigned personnel provide hereunder by MCSO shall be and remain employees of the COUNTY. The assigned personnel shall be supervised by MCSO and shall perform their duties in accordance with the administrative and operational procedures of the MCSO.

The CITY agrees to give MCSO as much advance notice of unfilled shifts as is practical.

3. RESPONSIBILITIES OF COUNTY. The County agrees to:

The MCSO agrees to provide police service within the corporate limits of the CITY. The police services shall include the duties and enforcement functions customarily rendered by the MCSO under the statutes of the State of Oregon and the CITY. These services shall include response to emergency situations where life and property are in danger, criminal law enforcement, traffic enforcement, and similar law enforcement activities within the legal authority of the MCSO to provide. The MCSO and CITY agree to meet and discuss which CITY ordinances the MCSO will enforce. The parties agree that ORS 206.345(2), which provides, *"During the existence of the contract, the Sheriff and the deputies of the Sheriff shall exercise such authority as may be vested in them by terms of the contract, including full power and authority to arrest for violation of all duly enacted ordinances of the contracting city"* shall prevail and both parties shall perform accordingly.

The MCSO agrees to provide all necessary labor, supervision, equipment, communication facilities, and supplies necessary to provide the services described herein.

The MCSO shall make available for the performance of the services described herein, properly supervised deputy sheriffs, certified as police officers by the Oregon Board on Police Standards and Training.

The MCSO agrees to respond to calls for service seven days per week, within the CITY limits, during those hours when no Fairview police officer is assigned to patrol duty.

MCSO shall provide for the processing of CITY police records. The processing shall include:

- a. Issuing a file number
- b. Receiving and logging in the report
- c. Reading, copying and distributing the report
- d. Delivering the report to the Multnomah County District Attorney's Office
- e. Entering the report into the Portland Police Data System (PPDS)
- f. Provide Quality Control measures to ensure accuracy of information.

The MCSO shall provide to CITY a monthly report that includes the number of incidents to which MCSO responded, the amount of time spent on incidents, and the assigned incident number. MCSO will use BOEC documents as well as Deputies daily reports to verify hours spent on dispatched calls. MCSO agrees that its personnel will make certain that a copy of all reports written concerning incidents occurring in Fairview will be forward to the Fairview Police Department.

4. TERMINATION This agreement may be terminated by either party upon 90 (ninety) day's written notice.

5. INDEMNIFICATION Subject to the conditions and limitations of the Oregon Constitution and the Oregon Tort Claims Act, ORS 30.260 through 30.300,

County shall indemnify, defend and hold harmless CITY from and against all liability, loss and costs arising out of or resulting from the acts of County, its officers, employees and agents in the performance of this agreement. Subject to the conditions and limitations of the Oregon Constitution and the Oregon Tort Claims Act, ORS 30.260 through 30.300 CITY shall indemnify, defend and hold harmless County from and against all liability, loss and costs arising out of or resulting from the acts of CITY, its officers, employees and agents in the performance of this agreement.

6. **INSURANCE** Each party shall each be responsible for providing worker's compensation insurance as required by law. Neither party shall be required to provide or show proof of any other insurance coverage.

7. **ADHERENCE TO LAW** Each party shall comply with all federal, state and local laws and ordinances applicable to this agreement.

8. **NON-DISCRIMINATION** Each party shall comply with all requirements of federal and state civil rights and rehabilitation statutes and local non-discrimination ordinances.

9. **ACCESS TO RECORDS** Each party shall have access to the books, documents and other records of the other which are related to this agreement for the purpose of examination, copying and audit, unless otherwise limited by law.

10. **SUBCONTRACTS AND ASSIGNMENT** Neither party will subcontract or assign any part of this agreement without the written consent of the other party.

11. **THIS IS THE ENTIRE AGREEMENT** This Agreement constitutes the entire Agreement between the parties. This Agreement may be modified or amended only by the written agreement of the parties.

12. **ADDITIONAL TERMS AND CONDITIONS:**

a. The CITY retains the right to notify BOEC as to the priority number of calls they wish MCSO to respond to.

b. The hourly charge will be based on time spent by the primary MCSO car dispatched. Mutual aid will not be considered chargeable.

c. MCSO can cite Fairview violations occurring in the city limits of Fairview to Municipal Court. Fairview Police Department will provide MCSO with the proper citations form.

d. The Sheriff or his designated representative will represent the MCSO in all matters pertaining to this Agreement.

e. The CITY will designate a person as "Liaison to Law Enforcement" from the City Administrators Office to represent the city.

f. Any notice or notices provided for by this Agreement or by law to be given or served upon the MCSO shall be given or served by letter deposited in the United States mail, postage prepaid, and addressed:

Bernie Giusto, Sheriff
Multnomah County Sheriff's Office
501 SE Hawthorne, Suite 350
Portland, Oregon 97214

Any notice or notices provided for by this agreement or by law to be given or served upon CITY may be given or served by letter deposited in United States mail, postage prepaid and addressed:

Kenneth D. Johnson, Chief of Police
City of Fairview
1300 NE Village Street
Fairview, Oregon 97024

g. The CITY shall designate in writing a representative who shall be authorized to request special emergency patrols or responses from the MCSO.

h. The Sheriff shall designate a representative of the Sheriff's Office to address special requests from the CITY. The name of such representative will be provided to the Police Chief of Fairview.

MULTNOMAH COUNTY, OREGON

By Bernie Giusto by LAG

Title Sheriff

CITY OF FAIRVIEW, OREGON

By 

Title MAYOR

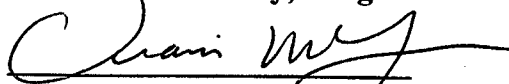
Reviewed:

S.A. 9-21-04
AGNES SOWLE, COUNTY ATTORNEY
FOR MULTNOMAH COUNTY

Approved as to form:

N/A

Multnomah County, Oregon


Diane M. Linn, County Chair

APPROVED : MULTNOMAH COUNTY
BOARD OF COMMISSIONERS
AGENDA # C-2 DATE 10-07-04
DEBORAH L. BOGSTAD, BOARD CLERK

AGENDA PLACEMENT REQUEST

BUD MOD #:

Board Clerk Use Only:

Meeting Date: October 7, 2004

Agenda Item #: C-3

Est. Start Time: 9:30 AM

Date Submitted: 09/14/04

Requested Date: October 7, 2004

Time Requested: Consent Calendar

Department: DBCS

Division: Land Use & Trans Program

Contact/s: Jon Henrichsen, Bridge Program Manager

Phone: (503) 988-3757

Ext.: 228 **I/O Address:** 446

Presenters: Jon Henrichsen

Agenda Title: Amendment 2 to Government Revenue Contract (Non-190 Agreement) 0110972 with the Oregon Department of Transportation, Providing Increase in Funds for the Morrison Bridge Ped/Bike Access Project to Realign the Water Avenue Off-Ramp

(NOTE: If Ordinance, Resolution, Order or Proclamation, provide exact title.
For all other submissions, provide clearly written title.)

- 1. What action are you requesting from the Board? What is the department/agency recommendation?**

The Department recommends approval of the amendment.

- 2. Please provide sufficient background information for the Board and the public to understand this issue.**

The County currently has an agreement with the Oregon Department of Transportation to design and construct improvements to allow better access for bicycles and pedestrians using the Morrison Bridge. During the design process it became apparent that access and safety would be enhanced if the Water Avenue off ramp was realigned to form a 90 degree intersection with Water Avenue. This amendment provides the funding to construct this realignment.

The previous estimated total project cost was \$1,750,000, and federal funding was \$1,405,000. This amendment increases the estimated total project cost to \$2,148,668 and federal funding of \$1,928,000. This amendment also changes the type of federal funds used and increases the federal participation from approximately 80% to 90%.

3. Explain the fiscal impact (current year and ongoing).

This amendment will not impact the current year's budget. The required matching funds have been programmed in the County's Bicycle Capital Improvement Program (CIP).

NOTE: If a Budget Modification or a Contingency Request attach a Budget Modification Expense & Revenues Worksheet and/or a Budget Modification Personnel Worksheet.

If a budget modification, explain:

- ❖ **What revenue is being changed and why?**
- ❖ **What budgets are increased/decreased?**
- ❖ **What do the changes accomplish?**
- ❖ **Do any personnel actions result from this budget modification? Explain.**
- ❖ **Is the revenue one-time-only in nature?**
- ❖ **If a grant, what period does the grant cover?**
- ❖ **When the grant expires, what are funding plans?**

NOTE: Attach Bud Mod spreadsheet (FORM FROM BUDGET)

If a contingency request, explain:

- ❖ **Why was the expenditure not included in the annual budget process?**
- ❖ **What efforts have been made to identify funds from other sources within the Department/Agency to cover this expenditure?**
- ❖ **Why are no other department/agency fund sources available?**
- ❖ **Describe any new revenue this expenditure will produce, any cost savings that will result, and any anticipated payback to the contingency account.**
- ❖ **Has this request been made before? When? What was the outcome?**

If grant application/notice of intent, explain:

- ❖ **Who is the granting agency?**
- ❖ **Specify grant requirements and goals.**
- ❖ **Explain grant funding detail – is this a one time only or long term commitment?**
- ❖ **What are the estimated filing timelines?**
- ❖ **If a grant, what period does the grant cover?**
- ❖ **When the grant expires, what are funding plans?**
- ❖ **How will the county indirect and departmental overhead costs be covered?**

4. Explain any legal and/or policy issues.

It is the County's policy (Comprehensive Plan Policy 33A and 33C) to provide a safe and efficient multi-modal transportation system. This project will continue the County's efforts to achieve this.

5. Explain any citizen and/or other government participation that has or will take place.

The County and City of Portland have partnered on an extensive public involvement and design process that is almost complete.

An extensive public outreach process included individual meetings with over 18 different groups whose input was used to develop a design proposal that was presented at an open house for public input. Some of the stakeholder groups included in the individual meetings were: the Bicycle Transportation Alliance, City of Portland Bicycle CAC, Oregon Trucking Association, Blind Commission, Elders in Action, Independent Living Resources, Northwest Industrial Neighborhood Association, Portland Business Alliance, TriMet, County Bicycle and Pedestrian CAC, City of Portland Parks, Metro, City of Portland Pedestrian CAC, Willamette Pedestrian Coalition, Central Eastside Industrial Committee, and the Port of Portland.

Required Signatures:



Department/Agency Director:

Date: 09/08/04

Budget Analyst

By:

Date:

Dept/Countywide HR

By:

Date:

MULTNOMAH COUNTY CONTRACT APPROVAL FORM

Pre-approved Contract Boilerplate (with County Attorney signature) ☐ Attached ☒ Not Attached Contract #: 0110972
Amendment #: 2

CLASS I	CLASS II	CLASS III A
Contracts \$75,000 and less per 12 month period	Contracts over \$75,000 per 12 month period	<input type="checkbox"/> Government Contracts (190 Agreement)
<input type="checkbox"/> Professional Services Contracts <input type="checkbox"/> PCRB Contracts <input type="checkbox"/> Maintenance Agreements <input type="checkbox"/> Licensing Agreements <input type="checkbox"/> Public Works Construction Contracts <input type="checkbox"/> Architectural & Engineering Contracts <input type="checkbox"/> Revenue Contracts <input type="checkbox"/> Grant Contracts <input type="checkbox"/> Non-Expenditure Contracts	<input type="checkbox"/> Professional Services Contracts <input type="checkbox"/> PCRB Contracts <input type="checkbox"/> Maintenance Agreements <input type="checkbox"/> Licensing Agreements <input type="checkbox"/> Public Works Construction Contracts <input type="checkbox"/> Architectural & Engineering Contracts <input type="checkbox"/> Revenue Contracts <input type="checkbox"/> Grant Contracts <input type="checkbox"/> Non-Expenditure Contracts	<input type="checkbox"/> Expenditure <input type="checkbox"/> Non-Expenditure <input type="checkbox"/> Revenue CLASS III B <input checked="" type="checkbox"/> Government Contracts (Non-190 Agreement) <input type="checkbox"/> Expenditure <input type="checkbox"/> Non-Expenditure <input checked="" type="checkbox"/> Revenue <input type="checkbox"/> Interdepartmental Contracts

Department: Business and Community Services Division: Land Use & Transportation Date: 8/27/04
 Originator: Jon Henrichsen Phone: 83757 ext 228 Bldg/Rm: 446/Bridge
 Contact: Cathey Kramer Phone: Ext 22589 Bldg/Rm: 455/Annex
 Description of Contract: Amendment No. 2 to the Morrison Bridge Bike/Ped Access Project IGA with ODOT - Add Funding for the Water Avenue Offramp Re-alignment

RENEWAL: ☐ PREVIOUS CONTRACT #(S): _____ RFP/BID DATE: _____
 RFP/BID: _____ EXEMPTION #: _____ ORS/AR #: _____
 EFFECTIVE DATE: _____ EXPIRATION DATE: _____
 CONTRACTOR IS: ☐ MBE ☐ WBE ☐ ESB ☐ QRF State Cert# _____ or ☐ Self Cert ☐ Non-Profit ☒ N/A (Check all boxes that apply)

Contractor	<u>Oregon Department of Transportation/Debbie Burgess</u>			Remittance address	_____
Address	<u>123 NW Flanders St.</u>			(If different)	_____
City/State	<u>Portland, OR</u>			Payment Schedule / Terms	_____
ZIP Code	<u>97209-4037</u>			<input type="checkbox"/> Lump Sum \$ _____	<input type="checkbox"/> Due on Receipt
Phone	<u>(503) 731-8276</u>			<input type="checkbox"/> Monthly \$ _____	<input type="checkbox"/> Net 30
Employer ID# or SS#	<u>N/A</u>			<input type="checkbox"/> Other \$ _____	<input type="checkbox"/> Other
Contract Effective Date	<u>5/7/2001</u>	Term Date	<u>9/7/2006</u>	<input type="checkbox"/> Requirements Funding Info:	
Amendment Effect Date	<u>5/7/2001</u>	New Term	<u>9/7/2006</u>	Original Requirements Amount	\$ _____
Original Contract Amount	\$ 100,000			Total Amt of Previous Amendments	\$ _____
Total Amt of Previous Amendments	\$ 1,305,000			Requirements Amount Amendment	\$ _____
Amount of Amendment	\$ 523,000			Total Amount of Requirements	\$ _____
Total Amount of Agreement \$	\$ 1,928,000				

REQUIRED SIGNATURES:

Department Manager	<u>[Signature]</u>	DATE	<u>9/8/04</u>
Purchasing Manager	_____	DATE	_____
County Attorney	<u>[Signature]</u>	DATE	<u>9/14/04</u>
County Chair	<u>[Signature]</u>	DATE	<u>10.7.04</u>
Sheriff	_____	DATE	_____
Contract Administration	_____	DATE	_____

COMMENTS: WBS 6700ET3026D520

APPROVED: MULTNOMAH COUNTY
BOARD OF COMMISSIONERS
AGENDA # C-3 DATE 10.07.04
DEBORAH L. BOGSTAD, BOARD CLERK

AMENDMENT NO. 2
LOCAL AGENCY AGREEMENT
Enhancement Program Project
Morrison Bridge Ped/Bike Access Project

The State of Oregon, acting by and through its Department of Transportation, hereinafter referred to as "State", and MULTNOMAH COUNTY, acting by and through its Elected Officials, hereinafter referred to as "Agency", entered into Local Agency Agreement No.18,641 on May 9, 2001 and Amendment No. 1 on August 19, 2003. Said agreements cover the design of a permanent multi-use bicycle and pedestrian facility on the Morrison Bridge, hereinafter referred to as "Project".

It has now been determined by State and Agency that the agreements referenced above, although remaining in full force and effect, shall be amended by this Agreement to remove the CMAQ funds and increase the Transportation Enhancement fund for the Project, and updating language. This agreement is for all phases of the Project. Therefore the above mentioned Agreements shall be amended as follows:

Original Document, Page No. 1, Recitals, Paragraph 2, which reads:

"2. By the authority granted in ORS 190.110, 366.770 and 366.775, State may enter into cooperative agreements with the counties, cities, and units of local government for the performance of work on certain types of improvement projects with the allocation of costs on terms and conditions mutually agreeable to the contracting parties."

Shall be amended to read:

"2. By the authority granted in ORS 190.110, 366.572 and 366.576, State may enter into cooperative agreements with the counties, cities, and units of local government for the performance of work on certain types of improvement projects with the allocation of costs on terms and conditions mutually agreeable to the contracting parties."

Original Document, Page No. 2, Paragraph 5-d, which reads:

"d. If State fails to receive funding, appropriations, limitations or other expenditure authority at levels sufficient to pay for the work provided in the agreement."

M C & A No. 18,641
MULTNOMAH COUNTY

Shall be amended to read:

"d. If State fails to receive appropriations, limitations or other expenditure authority sufficient to allow State, in the exercise of its reasonable administrative discretion, to continue to make payments for performance of this agreement."

Amendment No. 1, Page No. 1, Paragraph 3, which reads:

"3. The scope of the Project shall be amended to include the construction of the improvements in addition to the design work. A portion of the project shall be conducted as a part of the Transportation Enhancement Program, under Title 23, United States Code. The total Project cost is estimated at \$1,750,000. The federal Transportation Enhancement funds are limited to \$100,000 for the PE.

A portion of the project shall be conducted as a part of the Congestion Mitigation and Air Quality (CMAQ) Program under Title 23, United States Code. The federal CMAQ funds are limited to \$1,305,000 and are for the construction.

The project will be financed at the maximum allowable federal participating amount, with Agency responsible for the match for the federal Enhancement and CMAQ funds and any portion of the project not covered by federal funding. The project estimate is subject to change."

Shall be amended to read:

"3. A portion of the Project shall be conducted as a part of the Transportation Enhancement Program under Title 23, United States Code. The total Project cost is estimated at \$2,148,668. The federal Transportation Enhancement funds are limited to \$1,445,000.

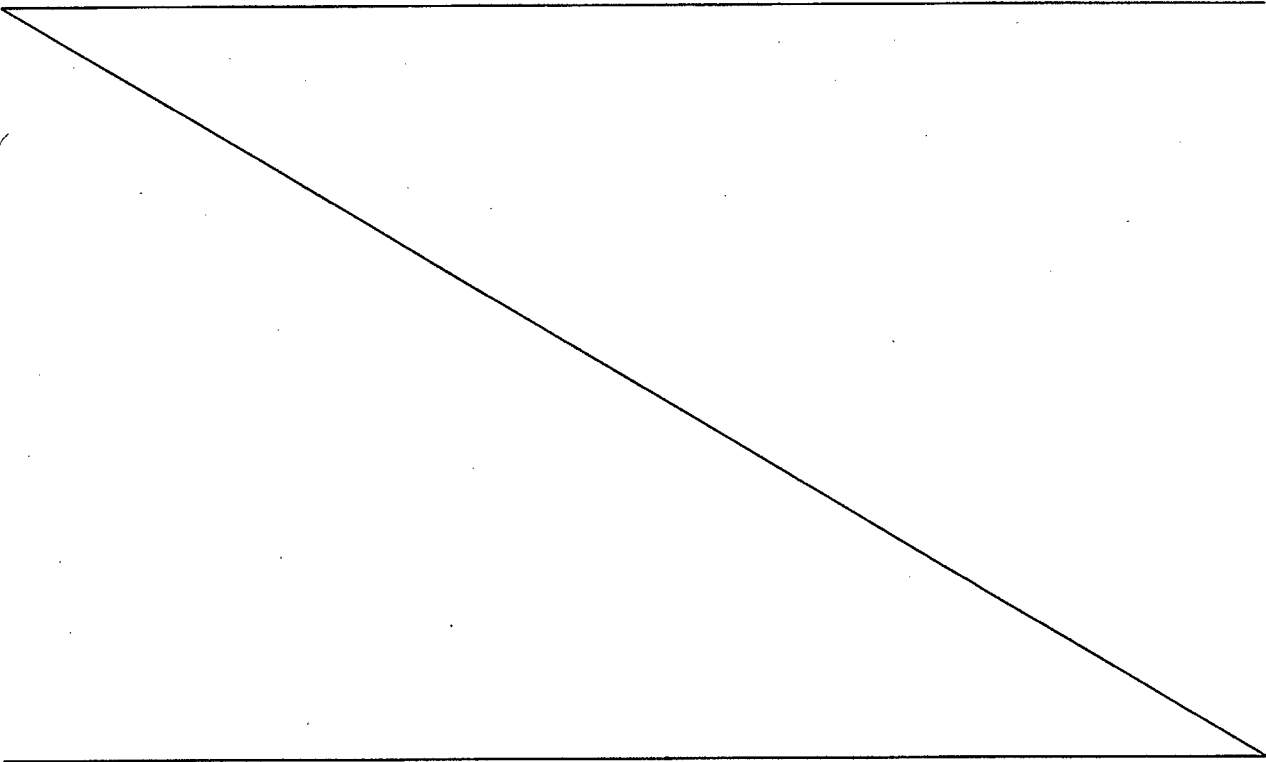
A portion of the Project shall be conducted as a part of the Federal-Aid Surface Transportation Program (STP), Title 23, United States Code. The STP urban funds for this Project are limited to \$483,000 and are for the construction.

The Project will be financed at the maximum allowable federal participating amount, with Agency responsible for the match for the federal Enhancement and Urban STP funds and any portion of the Project not covered by federal funding. The Project estimate is subject to change."

M C & A No. 18,641
MULTNOMAH COUNTY

Amendment No. 1, Page No. 3, Paragraph No. 9 shall be deleted in its entirety.

Amendment No. 1, Attachment No. 3, the CMAQ Annual Reporting document, shall be deleted in its entirety.



IN WITNESS WHEREOF, the parties hereto have set their hand and affixed their seals as of the day and year hereinafter written.

This Project is in the 2004-2007 Statewide Transportation Improvement Program, Page 78, Key #11421, that was approved by the Oregon Transportation Commission on November 17, 2003. The federal funding for this Project is contingent upon approval by the FHWA. Any work performed prior to acceptance by FHWA will be considered nonparticipating and paid for at Agency expense.

The Oregon Transportation Commission on June 18, 2003, approved Delegation Order No. 2, which authorizes the Director to approve and execute agreements for day-to-day operations when the work is related to a project included in the Statewide Transportation Improvement Program or a line item in the biennial budget approved by the Commission.

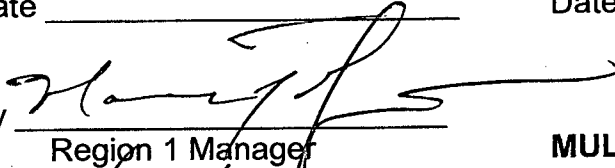
M C & A No. 18,641
MULTNOMAH COUNTY

On September 16, 2002, the Director of the Oregon Department of Transportation approved Subdelegation Order No. 2, in which the Director delegates authority to the Deputy Director for Highways, to approve and execute agreements over \$75,000 when the work is related to a project included in the Statewide Transportation Improvement Program.

APPROVAL RECOMMENDED

By _____
Tech Serv Mgr/Chief Engineer

Date _____

By 
Region 1 Manager

Date 7/21/04

**APPROVED AS TO
LEGAL SUFFICIENCY**

By _____
Assistant Attorney General

Date _____

STATE OF OREGON, by and through
its Department of Transportation

By _____
Deputy Director, Highways Division

Date _____

MULTNOMAH COUNTY, By and through its
designated officials

By 
Chair

Date 10.7.04

REVIEWED BY:

By 
Agency Counsel

Date 9/14/04

APPROVED : MULTNOMAH COUNTY
BOARD OF COMMISSIONERS
AGENDA # C-3 DATE 10.07.04
DEBORAH L. BOGSTAD, BOARD CLERK

AGENDA PLACEMENT REQUEST

BUD MOD #:

Board Clerk Use Only:

Meeting Date: October 7, 2004

Agenda Item #: R-1

Est. Start Time: 9:30 AM

Date Submitted: 09/29/04

Requested Date: 10/7/04

Time Requested: 15 mins.

Department: Non-Departmental

Division: Strategic Investment Program

Contact/s: Lisa Goldberg

Phone: (503) 988-4765

Ext.: 84765

I/O Address: 503/6

Presenters: Lisa Goldberg, Paul Molino (Program Director, Mt. Hood CC)

Agenda Title: RESOLUTION Approving the Continuation of the Career Pathway Technology Project

**NOTE: If Ordinance, Resolution, Order or Proclamation, provide exact title.
For all other submissions, provide clearly written title.**

-
1. **What action are you requesting from the Board? What is the department/agency recommendation?** I recommend that the Board approve the continuation of the Career Pathway Technology Project.
 2. **Please provide sufficient background information for the Board and the public to understand this issue.** The Board originally approved the four-year Career Pathway Technology Project in 2001. The program has been administered by Mt. Hood Community College and has provided classroom instruction, small-group tutoring, and supplies and equipment to support science, math, electronics, and engineering education for students in six East County school districts and Marshall High School. It was developed in response to the requirement in the County's SIP agreement with LSI Logic that the company fund an education and training program in skills useful to the high-tech industry. Working collaboratively, LSI Logic, Mt. Hood Community College, Portland Community College, Multnomah County, and the East Multnomah County school districts developed the project. An ongoing advisory board with representatives from those organizations continues to guide the program. All of the school districts that participate in the program have expressed their support for its continuation. One of the main accomplishments of the program is raising math achievement levels of low-income,

underserved, and English-language learner students. With the dedicated SIP funds remaining, we propose to continue the program for an additional two years.

3. **Explain the fiscal impact (current year and ongoing).** Funding for the project comes from the SIP Education and Training Fund created by contributions from LSI Logic that were required in the SIP agreement with the County. Thus there is no impact on the County's general fund. Currently there is \$284,000 in the fund for education and training purposes. The proposed program budget is for \$123,517 for 2004-2005 and a similar amount for 2005-2006. Beyond 2006 funding for this program is anticipated to come from other sources.

NOTE: If a Budget Modification or a Contingency Request attach a Budget Modification Expense & Revenues Worksheet and/or a Budget Modification Personnel Worksheet.

If a budget modification, explain:

- ❖ **What revenue is being changed and why?**
- ❖ **What budgets are increased/decreased?**
- ❖ **What do the changes accomplish?**
- ❖ **Do any personnel actions result from this budget modification? Explain.**

- ❖ **Is the revenue one-time-only in nature?**
- ❖ **If a grant, what period does the grant cover?**
- ❖ **When the grant expires, what are funding plans?**

NOTE: Attach Bud Mod spreadsheet (FORM FROM BUDGET)

If a contingency request, explain:

- ❖ **Why was the expenditure not included in the annual budget process?**

- ❖ **What efforts have been made to identify funds from other sources within the Department/Agency to cover this expenditure?**
- ❖ **Why are no other department/agency fund sources available?**
- ❖ **Describe any new revenue this expenditure will produce, any cost savings that will result, and any anticipated payback to the contingency account.**

- ❖ **Has this request been made before? When? What was the outcome?**

If grant application/notice of intent, explain:

- ❖ **Who is the granting agency?**
- ❖ **Specify grant requirements and goals.**
- ❖ **Explain grant funding detail – is this a one time only or long term commitment?**
- ❖ **What are the estimated filing timelines?**
- ❖ **If a grant, what period does the grant cover?**
- ❖ **When the grant expires, what are funding plans?**
- ❖ **How will the county indirect and departmental overhead costs be covered?**

4. **Explain any legal and/or policy issues involved.**

5. Explain any citizen and/or other government participation that has or will take place.

Required Signatures:

Department/Agency Director:



Date: 9/29/04

Budget Analyst

By: _____

Date:

Dept/Countywide HR

By: _____

Date:

The Career Pathway Technology Project

For Project Years 1, 2, 3, 4

2000 - 2004

***Technology services to students in East Multnomah
County schools funded by LSI Logic Corporation
through the
Strategic Investment Program (SIP)***

- ❖ Targeted Student Services –
Math and Science
- ❖ Engineering & Microelectronics
- ❖ Electronics

October 7, 2004

Purpose of the Project

The purpose of the Career Pathway Technology Project (CPTP) is to provide students in east Multnomah County with educational opportunities for careers available within high technology, manufacturing, and information technology industries. Employers, college faculty, and K-12 school personnel met and conferred in 1999 and 2000 to determine the most appropriate educational opportunities for students that did not already exist in the East County school districts. The identified classes were and are electronics, engineering and microelectronics delivered within the context of "knowledge-based education" or education that is based on working in teams, while understanding how to access and utilize information with a strong emphasis on communication, mathematics, chemistry, and physics.

Enrollments in Electronics, Engineering and Microelectronics

Student interest in the high schools has been strong and has continued to grow. The engineering and microelectronics curriculum has been delivered at the Center for Advanced Learning (CAL) starting with the 2003-04 school year. The following table shows the grant objective and the actual enrollments through the first four years of the project at various locations in East County.

Location	Schools	Class	Four Year Grant Objective	00-01 Actual	01-02 Actual	02-03 Actual	03-04 Actual	Totals
Barlow	Barlow	Electronics	60	0	59	36	47	142
David Douglas	David Douglas (see note below)	Electronics	7	7	0	0	0	7
Maywood	Parkrose Helensview Madison	Electronics	80	10	19	10	43	82
MHCC	Corbett Gresham Centennial Reynolds	Electronics	80	33	25	26	23	107
MHCC	Gresham, Centennial Reynolds Barlow David Douglas Sandy	Microelectronics	60	16	18	27	0	61
CAL	Gresham, Centennial Reynolds Barlow	Engineering and Microelectronics	20	N/A	N/A	N/A	46	46
Marshall	Marshall	Electronics	60	0	22	23	40	85
		Totals	367	66	143	122	199	530

Note: David Douglas High School (DDHS) consistently enrolls approximately 100 students each year in their own electronics program. The Career Pathway Technology Project supports DDHS through purchases of equipment, software and materials amounting to \$43,000 through Year 4.

High Tech Talent Project (HTTP)

The CPTP also includes High Tech Talent Project (HTTP), a mathematics and science component for middle and high school low income, underrepresented, disabled, and English Language Learner (ELL) students. The goal of the HTTP is to provide math and science opportunities that will assist these students in reaching the intermediate algebra (Math 95) level by their junior year. Math 95 is the level necessary to begin post-secondary professional-technical programs at the community college or four year college or university.

The following table shows the enrollment goals reached during the first four years of the project.

8th, 9th and 10th grade Math Tutoring & ELL Science Projects

High Tech Talent Project (HTTP)	Three year Grant Objective	01-02	02-03	03-04	Totals
David Douglas	24	8	8	11	29
Marshall	24	8	8	8	24
Parkrose	24	8	10	10	18
Reynolds High	24	8	8	48	64
Reynolds Middle	0	0	0	98	98
Totals	96	24	34	175	233

Achievement

- There were 146 students participating in classes specifically designed for ELL students that included either science curriculum (Science for all languages at Reynolds High) or career awareness, employer speakers, and site visits to OHSU, OMSI, Reed College and MHCC).
- Of the 87 students enrolled in math tutoring, 58 students increased math proficiency through increased grades, test scores or readiness to enroll in intermediate algebra or by actually completing intermediate algebra before their junior year.

Graduation Rates

There were sixty-two graduating seniors enrolled in various CPTP classes during the first three years of the project. Forty-one of these students successfully graduated in 2003. Three students left high school for reasons unknown. Five did not graduate and may return in the fall. Marshall High School did not report on their thirteen seniors and CPTP staff does not know if they graduated. The surveys that were mailed to the sixty-two graduating seniors to obtain information on college or university enrollment were not returned. To improve survey results in the future, CPTP staff will work more closely with school counselors in 2004-05 and 2005-06 while the students are still at the high school to obtain this information. Forms will be processed before graduation with parent signatures so that CPTP staff may legally contact colleges and universities for this information.

Post-Secondary Transition

Transitions by CPTP students into post-secondary technical degree programs have not resulted in significant increases at the college or university level. These findings are based on reports to the CPTP advisory committee by staff from surveys mailed to participating students after they graduated from high school. Granted, getting surveys back from students after they graduate is not an easy task. It is safe to say, however, that enrollments at MHCC and PCC's technical degree programs were not substantially increased as a direct result of the CPTP grant.

- This does not mean that students did not benefit from the instruction.
- The sixty-two graduating seniors by the end of Year Three represented a small population of the total number of students participating in the grant.
- Students may return to college at a later time and enroll in this technical area or other programs in the future.
- Expecting a single grant program to effectively increase college enrollment may be asking a great deal from a one project.

Advisory Committee Action:

The advisory committee determined that the electronics coursework in the project was meeting grant outcomes. However, the committee was asked to assist Mt. Hood Community College's efforts in marketing and recruiting to recently graduated high school students.

Actions taken in Year 4

- Starting in October 2003, LSI Logic and Microchip Technology training managers meet each month with the MHCC Dean of Math and Engineering, the coordinator of the Electronics Department, and CPTP staff to plan marketing and recruitment strategies.
- MHCC faculty will increase the number of presentations made to students in high school electronics classes regarding the college's degree programs.
- March 9th College Preview night was attended by LSI and Microchip supporting the MHCC electronics and engineering departments
- March 29, MHCC increases marketing of five \$1,000 LSI Logic scholarships to high school seniors
- April 21st Career Fair at MHCC with be attended by LSI and Microchip supporting the MHCC electronics and engineering departments

BEFORE THE BOARD OF COUNTY COMMISSIONERS
FOR MULTNOMAH COUNTY, OREGON

RESOLUTION NO. _____

Approving the Continuation of the Career Pathway Technology Project

The Multnomah County Board of Commissioners Finds:

- a. Increasing the educational opportunities for students in East Multnomah County, particularly low-income, underrepresented, and English-language learner students, in areas that are relevant to high-technology fields will help them secure living-wage jobs and reduce poverty in the County.
- b. The Career Pathway Technology Project has successfully increased access to math, science, electronics, and engineering education for students in East County high schools and middle schools, by providing instruction, support, and supplies in east Multnomah County schools, including the Center for Advanced Learning and Marshall High School.
- c. Through the Strategic Investment Program agreement with LSI Logic, annual payments provided to the County from 1996-2001 are dedicated to funding a program "to educate and train persons in skills useful to the high-technology industry." Approximately \$284,000 remains in the SIP Education and Training fund for this purpose.
- d. An advisory committee consisting of representatives from LSI Logic, Microchip Technology Inc., Portland Community College, Mt. Hood Community College, the East County school districts, and Multnomah County has provided input and guidance over the first four years of the Career Pathway Technology Project and will continue to do so.
- e. Extensive efforts are currently underway to explore alternative funding sources for continuing this program after this two-year extension is completed.
- f. Based on the success of the Career Pathway Technology Project at expanding opportunities for math, science, and electronics, and engineering education in East Multnomah County, raising the math achievement levels of participating students, and increasing the interest among students in considering high-technology career pathways, it is prudent to build upon the foundations created over the past four years and continue supporting the program for the final two years for which funding is available.

The Multnomah County Board of Commissioners Resolves:

1. The continuation of the Career Pathway Technology Project for two more years, subject to review by County staff after the first year is completed, is hereby approved.

ADOPTED this 7th day of October, 2004.

BOARD OF COUNTY COMMISSIONERS
FOR MULTNOMAH COUNTY, OREGON

Diane M. Linn, Chair

REVIEWED:

AGNES SOWLE, COUNTY ATTORNEY
FOR MULTNOMAH COUNTY, OREGON

By *Sandra N. Duffy*
Sandra N. Duffy, Assistant County Attorney

The Career Pathway Technology Project

Year Five Plan School Year 2004-05

A Future Workforce Partnership

With

LSI Logic Corporation

Microchip Technology Inc

Portland Community College

Multnomah County Strategic Investment Program

Mt. Hood Community College and the

Mt. Hood Regional Education Consortium

and thirteen

East Multnomah County Schools

Centennial High School

The Center for Advanced Learning

Corbett High School

David Douglas High School

Gresham High School

Marshall High School

Parkrose High School

Reynolds High School

Sam Barlow High School

Reynolds Middle School

Clear Creek Middle School

Lane Middle School

Binnsmead Middle School

This is a proposal for \$123, 517 and submitted by Mt. Hood Community College (MHCC) for Year Five of the Career Pathway Technology Project (CPTP). When MHCC was awarded the initial contract, two additional years of funding for 2004-05 and 2005-06 was reserved by the County, pending approval by the SIP coordinator of the first four years of performance. An assessment of the outcomes of the first four years' performance of the CPTP was submitted to the coordinator on April 1, 2004.

The SIP agreement with LSI Logic required the company to fund a project that would provide education and training in skills useful to the high technology industry from LSI Logic's annual payments from 1996-2001 to the County's Education and Training Fund totaling \$600,000. The funds are targeted for use in achieving the goal of strengthening the ability of our local school districts (specifically in east Multnomah County and at Marshall High School) to prepare students for careers in high technology.

During the past four years, the CPTP has encouraged students to make informed choices with regard to careers that provide a living wage. Students have profited from the CPTP by being exposed to career selection opportunities that otherwise would not have been available. Over 2,500 elementary, middle and high school students met with engineers and technicians, visited clean rooms and learned of career opportunities that were new to the students and oftentimes to their teacher. The CPTP delivered and supported professional-technical course work in the form of electronics, engineering and microelectronics that otherwise would not have been provided in the schools. The CPTP places a high priority on the inclusion of young women, students from low-income families, students who may be English Language Learners (ELL), and students with disabilities. The project recognizes that students will choose to enter the workforce at varying stages and for that reason the project includes: 1) students seeking employment directly after graduation, 2) students wanting to enroll in a community college degree program, and/or 3) students seeking to enroll in programs leading to four-year degrees in engineering, science, computer science or mathematics.

The CPTP includes the High Tech Talent Project (HTTP), which delivers math tutoring and or science curriculum to targeted population high school and middle school students. Students receive math tutoring or science coursework that better prepares them for the next level of coursework. The goal of HTTP is to provide assistance that will increase the numbers of students at the intermediate algebra level by their junior year. While not every student has attained that goal, HTTP has increased the numbers of students reaching this important goal. Selected students in HTTP also receive tuition scholarships to encourage high school completion and help pay for their college or university education. A sustainability plan is included in this proposal to ensure that the CPTP continues well beyond the duration of the grant.

Project Objectives Year Five

Tables that identify the measurable objectives by class, school, and student follow the objectives.

Objective 1 Deliver Electronics Classes

Deliver electronics classes to high school students in east Multnomah County and Marshall High School that otherwise would not be provided. Exploratory and/or dual-credit classes will be delivered that support the CIM & CAM choice of students.

Objective 2 Support Existing Technical Programs

David Douglas High School has an existing electronics program that is in need of support to upgrade its labs. The CPTP will purchase materials and supplies to support this program.

Objective 3 Deliver Engineering and Microelectronics Curriculum

Engineering and microelectronics curriculum will be delivered to high school students that otherwise would not be provided. Instruction will be available to students from Corbett, Gresham, Barlow, Reynolds, Centennial, and students who are home-schooled. A partnership was developed with the CAL at Gresham Station where the engineering and microelectronics instruction will be offered as part of an advanced engineering and manufacturing program.

Objective 4 Math and Science Supportive Services

Students from low-income families and students for whom English is a second language will have targeted supportive services made available before, during or after regular school hours for math tutoring and/or science related projects. The High Tech Talent Project (HTTP) will deliver this project to primarily freshmen or sophomore students in high school or to middle school students.

Objective 5 Professional Development

Up-to-date understanding of industry and technology is crucial for ensuring that students receive instruction that is relevant. High school teachers and project adjunct faculty will receive a minimum of one technical workshop from NSF/MATEC or other sources each school year.

Objective 6 Sustainability

CPTP staff will research and secure additional sources of funding that will sustain these projects in East County schools.

New Directions In Year Five

- **The new BizTech High at Marshall High School and the Lents Tech Center**
Staff of the Career Pathway Technology Project (CPTP) has been conferring during the past year with teachers and administrators at Marshall High School and others from worksystems inc., and Portland Community College on strategies to increase student achievement and better utilize the Lents Tech Center. Marshall is now the recipient of a William and Melinda Gates Small Schools grant and the CPTP is a part of this new venture. A new school has been created within Marshall High School called BizTech High School. This school will serve students who are interested in careers within business and manufacturing. As part of BizTech, the electronics classes will be changed to Computer Electronics and continue to be delivered in the electronics lab in the Lents Tech Center that was established and funded by the CPTP in Year One.
- **Summer Youth Electronics Workshops**
The Lents Tech Center and Corbett High School will host two-week electronics workshops for youth in July 2004. The workshops will include electronics safety and fundamentals and career exploration. Youth will learn to solder and to fabricate, measure and test circuits and robots. Certificates of completion will be awarded to those students who successfully complete the thirty-hour workshop.
- **Mini Grants for Targeted Population and/or English Language Learner (ELL) students**
Mini grants averaging \$5,000 were awarded in 2003-04 to schools for projects that served English Language Learner (ELL) students. Reynolds High School delivered the Science For All Languages science project that served forty-eight ELL students. Reynolds Middle School implemented the Multicultural Students in Science and Technology project serving ninety-eight ELL students. These two projects will continue in 2004-05. During Year Five, three more middle schools will participate in mini grants:
 - Clear Creek Middle School in the Gresham-Barlow School District will deliver a video production project for 20 ELL students. Each student will create three minute videos that honor their culture, county of origin, and their lives in east Multnomah County. The purpose of the project is to increase participation and involvement with the school and the families of Hispanic students. This project will partner with the Mt. Hood Community College's TV production technology program.
 - Lane and Binnsmead Middle School students who are in the Portland Public School District will enroll in algebra and geometry classes at Portland State University through PSU's Upward Bound and Talent Search programs. Twelve middle school students will receive high school credit and be better prepared for math classes when they arrive at Marshall High School as freshmen.

- **Parkrose High School Electronics**

Electronics classes for Parkrose High School students have been located at MHCC's Maywood Park campus at NE 102nd and Prescott Ave., one mile from the high school. Beginning in September 2004, the new Computer Electronics class will be located on the campus of Parkrose High School. It is expected that this new location will increase enrollment while eliminating expensive transportation costs incurred by the CPTP and the Parkrose School District.

Technical Course Work and Targeted Services

Year Five School Year 2004-2005

Technical Course Work: Electronics, Engineering and Microelectronics

High Schools	Fall 2004	Spring 2005	Class Location	School year total
BizTech High School	Computer Electronics	Computer Electronics	Marshall	30
Barlow High School	Electronics	Electronics	Barlow	30
Gresham, Reynolds Centennial	Electronics	Electronics	MHCC	20
Gresham, Barlow, Reynolds, Centennial	Engineering & Microelectronics	Engineering & Microelectronics	CAL	60
Parkrose High School	Computer Electronics	Computer Electronics	Parkrose	20
Reynolds High School	Introductory Electronics	Introductory Electronics	Reynolds	45
David Douglas HS	Electronics	Electronics	DDHS	100
Total				305

Targeted Services: High Tech Talent Project (HTTP)

School	Fall 2004	Spring 2005	Location	School Year Total
Lents Tech Center (SE Works Inc.)	Summer Youth Electronics Camp		Marshall High School	20
Corbett High School	Summer Youth Electronics Camp		Corbett High School	15
David Douglas High	Math tutoring	Math tutoring	DDHS	20
Parkrose High School	Math tutoring	Math tutoring	Parkrose	30
Reynolds High School	ELL Science for All Languages	ELL Science for All Languages	Reynolds High School	48
Marshall High School	Algebra and Geometry classes	Algebra and Geometry classes	TRIO/PSU	15
Lane Middle School	Algebra and Geometry classes	Algebra and Geometry classes	TRIO/PSU	6
Binnsmead Middle School	Algebra and Geometry classes	Algebra and Geometry classes	TRIO/PSU	6
Reynolds Middle School	Multicultural ELL Students in Science and Technology	Multicultural ELL Students in Science and Technology	Reynolds Middle School	98
Clear Creek Middle School and Sun Schools	ELL Video Production	ELL video Production	Clear Creek Middle School	20
Total				278

Budget

Year 5 Budget School Year 2004-05

Account Name	Grant Amount	In Kind	Total
Salary & Fringe, Project Management	0	51,386	51,386
Salary & Fringe, Administrator	0	8,682	8,682
Salary & Fringe PT Instruc.	29,284	0	29,284
Evaluation & Reports	5,513	0	5,513
Targeted Salary	16,000	0	16,000
Targeted Materials	7,000	0	7,000
Targeted Scholarships	16,000	0	16,000
Supplies Graphic	2,050	250	2,300
Supplies Instruction	25,290	500	25,790
Supplies Maintenance	2,500	250	2,750
Travel In State	0	250	250
Contract Service Personal	7,500	0	7,500
Contract Service Phone	0	360	360
Repair & Replace	3,675	0	3,675
Indirect 8%	8,705	20,674	29,379
Total	123,517	82,352	205,869

Sustainability

CPTP staff is currently investigating additional funding sources to sustain the grant after 2006. Staff traveled to Spokane, WA May 16-19 and identified three possible TRIO US Department of Education Sources: Talent Search, Upward Bound, and Upward Bound Math and Science.

The CPTP has laid the groundwork for all three TRIO grants in east Multnomah County. Proposals are due in 2005 and 2006. Upward Bound projects typically serve up to ninety low-income high school students who are first generation. That is, the students will be the first in their families to attend college. Talent Search serves typically six hundred students. The CPTP is well prepared to submit proposals based on our past experience and performance with targeted populations. Our knowledge within the local schools is strong and the networks we have developed will serve us well.

Assessment

Assessment and evaluation includes the following:

1. Enrollment and completion per term and year
2. Low income enrollment and completion per term and year
3. ESL enrollment and completion per term and year
4. Outreach to English Language Learner students in high schools and middle schools
5. Academic success levels per term and year
6. Graduation rates
7. Participation in internships or other high-tech industry focused experiential learning
8. Pre-and post evaluation related to the effectiveness of targeted services
9. Partnership expansion: The advisory committee will seek to identify sources of additional funding and industry partners for achieving results in the long-term
10. Sustainability of successful practices and outcomes
11. Professional development for instructors
12. Measurable year-to-year improvements in all of the above
13. The project director will compile annual reports to the Advisory Committee that quantitatively summarize progress made toward meeting each objective.
14. School points of contact will be asked to complete a project evaluation at the completion of each program year. Evaluation results will be used to make program adjustments and improve outcomes
15. The project director will complete a final report to the Multnomah County SIP coordinator

Advisory Committee

- **Lisa Goldberg**, SIP Coordinator, Multnomah County
- **Merced Flores**, Dean, Adult and High School Learning Communities, Mt. Hood Community College
- **John Matthews**, Director, GED/Yes Program, Portland Community College
- **Robert Dunton**, Superintendent, Corbett School District representing six school districts in east Multnomah County,
- **Andrea Sutherland**, Manager, Learning and Development, LSI Logic Corporation
- **Lynn Oetting**, Training and Development, Microchip Technology Inc.
- **Steve Walmer**, Teacher, Marshall High School

High Tech Talent Projects for School Year 2004-05

School	Project	Purpose	Partner	Projected Enrollment
David Douglas High School	Math tutoring	Math tutoring to increase the number of students reaching Math 95 by Junior year	DDHS math dept	12
Marshall High School	Algebra and Geometry classes at PSU	Math classes at PSU to increase the number of students reaching Math 95 by Junior year	TRIO Upward Bound, PSU	8
Parkrose High School	Math tutoring and parental involvement	Math tutoring to increase the number of students reaching Math 95 by Junior year	PHS math and science dept	50
Reynolds High School	ELL Science for All Languages	Continue ELL science unit that has not been provided	RHS science dept	48
Reynolds Middle School	Multicultural Students in Science & Technology	Increase career awareness and achievement of ELL students through field trips, speakers and student-based projects of country of origin	RMS ESL teachers	98
Lane Middle School and Binnsmead Middle School	Algebra and Geometry classes at PSU	Math classes at PSU to increase the number of students reaching Math 95 by Junior year	TRIO Upward Bound, PSU	12
Clear Creek Middle School	Bi-Cultural Student Support & Awareness Project	Increase career awareness and achievement of ELL students by using video technology to connect country of origin with current school expectations	Sun Schools Project	50
Pending	Math tutoring	Partner with the Smile Project in David Douglas SD for sustainability	OSU/Smile Project	12
				290



Dear Multnomah County Commissioner's Office:

The purpose of this letter is to show support for the Career Pathway Technology Project. The Project, serving East Multnomah County students, is worthwhile in helping to build a workforce for high technology industries. The work done in math and science with underrepresented students is also necessary for Oregon as it creates a ready workforce for high technology based jobs. By providing math tutoring and science projects that otherwise would not be available to these students, the Career Pathway Technology Project gets us one step closer to that reality.

Sincerely,

A handwritten signature in cursive script that reads 'Lynn Oetting'.

Lynn Oetting

Chairperson, Semiconductor Workforce Consortium (SWC)

**The Career Pathway Technology Project
Marshall High School High Tech Talent Project (HTTP)**

The benchmark for success in the Career Pathway Technology Project (CPTP) is to have students reach Math 95 (intermediate algebra) by their junior year. Professional-Technical and four year college programs require Math 95 proficiency and beyond for entrance.

CPTP has partnered with PSU's Upward Bound Program to deliver mathematics to Marshall HTTP students as the best method for reaching this benchmark. This partnership bridges similar grant-funded programs to utilize Upward Bound tutors and teachers because we are all serving the same student population.

This leveraging of limited resources has resulted in Marshall High School students receiving critical math support to reach or surpass Math 95 (intermediate algebra) by their junior year. Marshall students may then progress to more advanced math levels and be better prepared for post-secondary education upon graduation. Also, the math classes at PSU cost one-third less than tutoring.

HTTP provides TRI-MET bus tickets, supplies, and instructor salary and fringe based on the number of HTTP students in the class. Math classes taught by certificated teachers at PSU during the summer resulted in Marshall students receiving mathematics instruction they otherwise would not have received. Eight students received math tutoring/mentoring each year. Seven students in 2002-03 completed actual classes at PSU and five students completed classes in 2003-04.

School Year 2002-03

Student	Subject	Grade
Tyson F.	Geometry	A
Lidiya B.	Geometry	A
Roman K.	Geometry	A
Emery F.	Geometry	A-
Andrew B.	Geometry	A
Sergery K.	Algebra 1	B
Andrew B.	Algebra 3,4	C

School Year 2003-04

Student	Subject	Grade
Cesilia A.	Geometry	B
Sarah P.	Geometry	A
Ami H.	Geometry	C+
Eddie J.	Algebra 3	A
Tatyana K.	Pre-Calculus	C+

***Note:** Federal FERPA regulations do not permit the publication of student names and/or grades without the written permission of the student's parent or legal guardian. Distribute only on a need to know basis.*

TRiO Grants coming available

Funding Source: US Department of Education
6/1/04

Grant	Level	Students	Annual funding For Five Years	Proposal Due	Funding
Education Opportunity Centers	Post-secondary	Approx 1000 (Rogue CC)	Approx 250K	Fall 2005	Fall 2006
Talent Search	Grade 6 to grade 12	Approx 600	Approx 250K	Fall 2005	Fall 2006
Upward Bound	High School	Approx 50-90	Approx 250K	Fall 2006	Fall 2007
Upward Bound Math & Science	High School	Approx 50-90	Approx 250K	Fall 2006	Fall 2007



MULTNOMAH COUNTY AGENDA PLACEMENT REQUEST

Form Instructions

- For **HELP** on some of the form fields Press the F1 key.
- Tab from each field for efficiency and to allow automatic formatting.
- To enable Spell Check go to View/Toolbars and select "Spell-Check". A button will appear titled "Spell Check the Form". This will spell check the APR. *Note: Macros must be enabled.*

APPROVED: MULTNOMAH COUNTY
BOARD OF COMMISSIONERS
AGENDA # _____ DATE _____
DEBORAH L. BOGSTAD, BOARD CLERK

Cont to
11/04/04

Board Clerk Use Only

Meeting Date: 10/07/04
Agenda Item #: R-2
Est. Start Time: 9:45 AM
Date Submitted: 09/23/04

BUDGET MODIFICATION: OSCP - 01

Agenda Title: Budget Modification OSCP_1 Restoring 1.5 FTE in County Business Services to Provide Support to the Office of School and Community Partnerships and to the Commission on Children, Families, & Community.

Note: If Ordinance, Resolution, Order or Proclamation, provide exact title. For all other submissions, provide a clearly written title.

Date Requested:	October 7, 2004	Time Requested:	5 minutes
Department:	OSCP and CBS	Division:	
Contact(s):	Kathy Tinkle (OSCP) Dan Kaplan (CBS)		
Phone:	988-3691	Ext.:	26858
		I/O Address:	166-2
Presenter(s):	Kathy Tinkle and Dan Kaplan		

General Information

1. What action are you requesting from the Board?

The Office of School and Community Partnerships requests the approval of Budget Modification OSCP_1. This budget modification restores 1.5 FTE in County Business Services to provide fiscal and technical support to the Office of Schools and Community Partnerships and to the Commission on Children, Families, & Community.

2. Please provide sufficient background information for the Board and the public to understand this issue.

In December 2003, fiscal positions from line departments, including OSCP, were transferred to

County Business Services. In June 2004, the Executive Committee re-examined the implementation plan for the finance operations functions within Business Services and decided that the grant accounting function, originally planned for transfer to the Finance Operations group, should in fact remain in the line departments.

The Executive Committee also decided not to move forward with the establishment of three Finance Operations service centers. In the Finance Operations budget proposal, the service centers were envisioned as a tool for combining the workloads of multiple departments, and accomplishing those workloads with fewer FTE. Without the services centers, it was not possible to generate the full savings.

This decision was made too late in the FY05 budget approval process to be incorporated in the Adopted Budget.

One and a half of the Finance Operations FTEs that were eliminated in the budget making process were positions transferred in from OSCP. This budget modification re-establishes a 1.0 FTE Fiscal Specialist 2 to handle the grant accounting workload for OSCP and MCCF. In addition, it re-establishes a 0.50 FTE Office Assistant Senior, who will provide critical technical fiscal support for the Office of School and Community Partnerships in the area of timekeeping. This function is one that was also decided should stay within program departments.

For FY2005, the positions will remain in the County Business Services budget, but will work at OSCP. For FY 06, these positions will appear in the OSCP budget.

3. Explain the fiscal impact (current year and ongoing).

In the current fiscal year, the cost of these positions is estimated to be \$67,904. They will be funded with \$35,000 from the budget of the MCCF that was earmarked for grants management support and by savings generated by holding open another position in CBS.

4. Explain any legal and/or policy issues involved.

n/a

5. Explain any citizen and/or other government participation that has or will take place.

n/a

ATTACHMENT A

Budget Modification

If the request is a Budget Modification, please answer all of the following in detail:

- What revenue is being changed and why?
There are no revenue changes. In Fiscal Year 05 the cost of these positions is estimated to be \$67,904. They will be funded with \$35,000 from the MCCF budget that was earmarked for grants management support and by saving generated by holding open another position in CBS.
- What budgets are increased/decreased?
The dollars in the FY05 CBS budget are not changed. However, money will shift between two cost centers within the Business Services Fund.
- What do the changes accomplish?
A 1.0 FTE Finance Specialist 2 position will be restored to provide grant accounting support to the Office of School and Community Partnerships and to the Commission on Children, Families and Community. A 0.5 FTE Senior Office Assistant will be restored to provide timekeeping and other technical fiscal support not provided by CBS for the Office of School and Community Partnerships.
- Do any personnel actions result from this budget modification? Explain.
This budget modification requests to restore a 1.0 FTE Finance Specialist 2 position and .5 FTE Office Assistant Senior.
- How will the county indirect, central finance and human resources and departmental overhead costs be covered?
These costs will be covered from the \$35,000 from MCCF and the salary savings in CBS.
- Is the revenue one-time-only in nature?
No.
- If a grant, what period does the grant cover?
n/a
- If a grant, when the grant expires, what are funding plans?
n/a

Contingency Request

If the request is a Contingency Request, please answer all of the following in detail:

- Why was the expenditure not included in the annual budget process?
- What efforts have been made to identify funds from other sources within the Department/Agency to cover this expenditure?
- Why are no other department/agency fund sources available?

- Describe any new revenue this expenditure will produce, any cost savings that will result, and any anticipated payback to the contingency account.
- Has this request been made before? When? What was the outcome?

NOTE: If a Budget Modification or a Contingency Request attach a Budget Modification Expense & Revenues Worksheet and/or a Budget Modification Personnel Worksheet.

Grant Application/Notice of Intent

If the request is a Grant Application or Notice of Intent, please answer all of the following in detail:

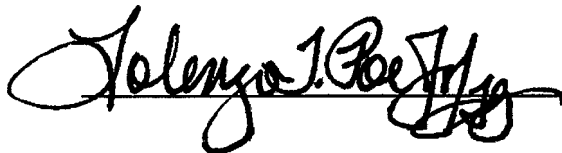
- Who is the granting agency?
- Specify grant requirements and goals.
- Explain grant-funding detail – is this a one time only or long term commitment?
- What are the estimated filing timelines?
- If a grant, what period does the grant cover?
- When the grant expires, what are funding plans?
- How will the county indirect, central finance and human resources and departmental overhead costs be covered?

ATTACHMENT B

BUDGET MODIFICATION: OSCP - 01

Required Signatures

Department/
Agency Director:



Date: 09/22/04



09/23/04

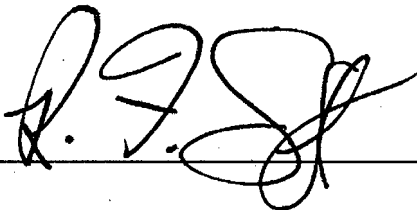
Budget Analyst:



Date:

09/23/04

Department HR:



Date:

09/23/04

Countywide HR:

Date:

Budget Modification or Amendment ID: **OSCP_01****EXPENDITURES & REVENUES**

Please show an increase in revenue as a negative value and a decrease as a positive value for consistency with MERLIN.

Budget/Fiscal Year: **05**

Line No.	Fund Center	Fund Code	Func. Area	Accounting Unit			Cost Element	Current Amount	Revised Amount	Change Increase/ (Decrease)	Subtotal	Description
				Internal Order	Cost Center	WBS Element						
1	71-10	3506	20		711503		60000	127,602	171,024	43,422		Base for 1.5 FTE for 9 months
2	71-10	3506	20		711503		60130	36,663	49,177	12,514		
3	71-10	3506	20		711503		60140	30,774	42,742	11,968		
4	71-00	3506	20		710003		60000	758,310	690,406	(67,904)		Vacancy in SAP salary savings
5	71-20	3500	20		705210		50316		(11,968)	(11,968)		
6	71-20	3500	20		705210		60330		11,968	11,968		
7									0			
8									0			
9									0			
10									0			
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24									0			
25									0			
26									0			
27									0			
28									0			
29									0			
										0	0	Total - Page 1
										0	0	GRAND TOTAL

ANNUALIZED PERSONNEL CHANGE

Change on a full year basis even though this action affects only a part of the fiscal year (FY).

						ANNUALIZED			
Fund	Job #	HR Org Unit	Position Title	Position Number	FTE	BASE PAY	FRINGE	INSUR	TOTAL
3506	6030	64242	Finance Specialist 2	710577	1.00	40,612	11,704	10,549	62,865
3506	6002	64242	Office Assistant Sr	702719	0.50	15,556	4,483	4,867	24,906
									0
									0
									0
									0
									0
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TOTAL ANNUALIZED CHANGES					1.50	56,168	16,187	15,416	87,771

CURRENT YEAR PERSONNEL DOLLAR CHANGE

Calculate costs/savings that will take place in this FY; these should explain the actual dollar amounts being changed by this Bud Mod.

						CURRENT YEAR			
Fund	Job #	HR Org Unit	Position Title	Position Number	FTE	BASE PAY	FRINGE	INSUR	TOTAL
3506	6030	64242	Finance Specialist 2	710577	1.00	30,459	8,778	7,912	47,149
3506	6002	64242	Office Assistant Sr	702719	0.50	12,963	3,736	4,056	20,755
									0
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TOTAL CURRENT FY CHANGES					1.50	43,422	12,514	11,968	67,904

BOGSTAD Deborah L

From: TINKLE Kathy M
Sent: Thursday, September 23, 2004 2:59 PM
To: #AGENDA REVIEW TEAM
Cc: BOGSTAD Deborah L; KAPLAN Daniel; JASPIN Michael D
Subject: FW: Bud Mod
Importance: High

With this email I am requesting that the attached budget modification be scheduled for the October 7th BCC agenda, which would be an exception to the agenda process timeline. The reason for this request is to assist in expediting the hiring process to fill these critical positions, which provide grants management for OSCP and CCFC and other technical fiscal support to OSCP. The decision to keep these functions in the line departments was made too late in the FY05 budget process to allow the OSCP and CBS budgets to be adjusted prior to adoption.

Both OSCP and CBS will present the bud mod request to the BCC when it is scheduled. Please see the attached APR for details or give either Dan Kaplan or myself a call should you have questions.

Thank you for your consideration of this request.

Kathy Tinkle
Operations Manager
Office of School and Community Partnerships
Ext. 26858

-----Original Message-----

From: BOGSTAD Deborah L
Sent: Thursday, September 23, 2004 1:58 PM
To: JASPIN Michael D; TINKLE Kathy M
Subject: RE: Bud Mod
Importance: High

Kathy – here is the APR with the scanned signatures. Mike and Kathy, I have a feeling the Commissioners are going to want to have this on the regular agenda, not the consent calendar in order to have staff explanation and Board questions/discussion . . . at any rate, here is the info on what you have to do to get an expedited Board meeting date:

6. **Requests for exceptions to the agenda submission process and timeline, including emergency requests, must be made by sending a complete agenda packet via email directly to the Agenda Review Team and to the Board Clerk (#Agenda Review Team in the Global Directory). The reason for the exception request must be thoroughly detailed in Item #1 on the Agenda Placement Form (What action are you requesting from the Board? What is the department/agency recommendation?) Only the Agenda Review Team can grant exceptions to the agenda submission process.**
 - a. **Exceptions could include:**
 - ❖ Notice of Intent (NOIS)
 - ❖ Intergovernmental Agreements
 - ❖ Leases
 - ❖ Comp Plan and Zoning Code Amendments

9/23/2004

❖ Land Use Matters Involving Legislative Action

Deb Bogstad, Board Clerk
Multnomah County Commissioners
501 SE Hawthorne Boulevard, Suite 600
Portland, Oregon 97214-3587
(503) 988-3277 phone
(503) 988-3013 fax
deborah.l.bogstad@co.multnomah.or.us
<http://www.co.multnomah.or.us/cc/index.shtml>

-----Original Message-----

From: JASPIN Michael D
Sent: Thursday, September 23, 2004 12:53 PM
To: BOGSTAD Deborah L; TINKLE Kathy M
Cc: KAPLAN Daniel; NEBURKA Julie Z; HAY Ching L
Subject: FW: Bud Mod
Importance: High

Attached is budget modification OSCP 01 for the consent agenda. Signed copies are on their way.
Thanks. -mdj

-----Original Message-----

From: TINKLE Kathy M
Sent: Wednesday, September 22, 2004 12:46 PM
To: JASPIN Michael D
Cc: MCGILLIVARY Heather C; KAPLAN Daniel
Subject: FW: Bud Mod
Importance: High

Mike, attached is the electronic copy of this bud mod. I've printed off a copy so that we can sign and then get it to Dan for the CBS signature. I'll have Heather bring the hard copy to the Multnomah Building this afternoon. Please let me know when this gets sent to the agenda review team so that we can schedule our time to brief board staff (so that we follow the new process). Thanks. KT

AGENDA PLACEMENT REQUEST

BUD MOD #:

Board Clerk Use Only:

Meeting Date: October 7, 2004

Agenda Item #: R-3

Est. Start Time: 9:50 AM

Date Submitted: 07/16/04

Requested Date: October 7, 2004

Time Requested: 30 mins

Department: DBCS

Division: Land Use and Transportation Planning

Contact/s: Kim Peoples

Phone: 503 988-3043

Ext.: 26797

I/O Address: 455/116

Presenters: Kim Peoples & Tom Armstrong, Winterbrook Planning

Agenda Title: Possible Second Reading and Adoption of a Proposed Ordinance Amending the Howard Canyon Reconciliation Report of June 1996, a Part of the Comprehensive Framework Plan Findings, by Updating the Chapter Sections on the Aggregate Resource and Making the Decision to "Allow Conflicting Uses Fully" and Prohibit Expansion of Mining

NOTE: If Ordinance, Resolution, Order or Proclamation, provide exact title.
For all other submissions, provide clearly written title.

1. What action are you requesting from the Board? What is the department/agency recommendation?

Adopt Ordinance. Planning Commission Resolution No. T4-02-001 recommends adoption of Amendments to the Howard Canyon Reconciliation Report a part of the Multnomah County Comprehensive Plan.

2. Please provide sufficient background information for the Board and the public to understand this issue.

The Howard Canyon Quarry is located approximately two miles southeast of Corbett in eastern Multnomah County. It is on top of a ridge with an east-west orientation between Knieriem Creek (on the north) and Howard Creek (on the south).

A quarry has operated on the property since the 1960s, though the size of the quarry has always been relatively small (i.e. less than five acres). The quarry has operated without a state or local permit under a Grant of Total Exemption from the Department of Geology and Mineral Industries (DOGAMI). The exemption allows the extraction of up to 5,000 cubic yards of material or disturbing less than one acre of land within a 12 month period until mining affects five or more acres.

In 1996, Multnomah County completed the Howard Canyon Reconciliation Report (1996 HCRR). The 1996 HCRR determined that the aggregate site was significant, identified conflicting uses, and assessed and evaluated the Economic, Social, Environmental and Energy consequences (ESEE analysis) of a aggregate rock mining operation in the quarry. Based on the best available information at the time, the County's ESEE analysis determined the impacts from such a mining operation and determined that they could be adequately mitigated. As a result, the quarry was designated for "limited protection" as a significant Goal 5 aggregate resource. The 1996 HCRR then became an acknowledged part of Multnomah County's Comprehensive Plan, satisfying Goal 5 requirements under OAR 660, Division 16 (the old Goal 5 rule).

In 1999, a conditional use permit application for mining this resource site was submitted to the County. This application proposed a level of mining activity that was dramatically different from the base assumptions in the HCRR. The conditional use permit application revealed weaknesses or out of date assumptions in the HCRR. Therefore, Multnomah County decided it necessary to revisit the HCRR and re-analyze the impacts of future quarry operations on the site. Subsequently, the conditional use application was withdrawn on other grounds.

In June 2000, the Multnomah Board of Commissioners voted unanimously to postpone further consideration of a zone change to apply the Protected Aggregate and Mineral (PAM) Overlay Subdistrict to the Howard Canyon Protected Mineral and Aggregate Site and its impact area. The Board further directed Planning staff to reexamine issues relating to:

1. Requirements of the federal ESA to protect the Lower Columbia River Steelhead and its critical habitat and the need for improved stream protection;
2. Changes in mining methods and use of rock in the Howard Canyon Quarry;
3. Associated noise and impacts on surrounding farm operations that had not been adequately addressed in the 1996 HCRR; and
4. The apparent lack of evidence for determining the significance of the westerly 1,000-foot extent of the geologic resource area.

Winterbrook Planning, on behalf of the County, conducted field research and analysis addressing these four issues. Their preliminary findings were presented at an Open House in the Corbett Community. Participants provided comment, which were considered and incorporated into the ESEE phase. A preliminary draft of the Howard Canyon Reconciliation Report revision was presented to the Planning Commission at an August 5, 2002 worksession.

In October 2002, the Planning Commission conducted the first public hearing on proposed updates and revisions to the Howard Canyon Reconciliation Report. At that meeting, the Planning Commission heard testimony from the public and then asked the staff to provide some general information about Statewide Planning Goal 5. In November and December 2002, the Planning Commission heard presentations from state Department of Land Conservation and Development staff, consultants and attorneys describing the statutes and rules implementing Goal 5. A second public hearing was held March 2003, at which time additional public testimony was heard as well as a proposal for the formal Goal 5 planning process to be put on hold in order to explore a mediation process between the community opposed to expansion of quarry activities and quarry representatives. For the past year the county provided an opportunity for mediation of the issues relating to the Howard Canyon Quarry. The mediation concluded without advancing any resolution to the outstanding issues.

On May 3, 2004, the Planning Commission held a public hearing in Corbett to review the proposed revisions to the Howard Canyon Reconciliation Report. The County staff recommendation was to protect the resource and limit mining to current levels under the Grant of Total Exemption (5,000 cubic yards per year) with mitigation measures (Appendix H). However, after lengthy public testimony, the Planning Commission reached a different decision recommending to not protect the resource and prohibit mining on the site. The HCRR has been revised to reflect that recommendation.

The Planning Commission's recommendation to no longer provide Goal 5 protection to the quarry, i.e., allow conflicting uses fully, reflects the inability to completely mitigate all impacts of the quarry. Acknowledging the present low level quarry activity and associated conflicts as a baseline, it is determined that there will still be significant negative impacts on surrounding rural residential and farm uses despite efforts to mitigate. These negative impacts include:

- Noise impacts reduce the quality of life to the surrounding area due to continuous operations of the quarry and truck traffic along local roads for a significant distance (3.9 miles) before reaching a major arterial.
- Noise impacts from existing (low levels) of truck traffic create conflicts with livestock that requires significant changes to farming practices and increased costs to farms along the truck route.

Fully prohibiting mining would resolve many of the negative impacts on the surrounding community but impose a significant negative economic impact on the quarry owner. However, under current Comprehensive Framework Plan policies, the quarry could continue to operate under DOGAMI's Grant of Total Exemption (GTE), which will mitigate some of these negative impacts. These impacts are balanced by positive impacts to the surrounding area, in terms of increased property values, improved quality of life and decreased costs to farms

3. **Explain the fiscal impact (current year and ongoing).**
None identified.

NOTE: If a Budget Modification or a Contingency Request attach a Budget Modification Expense & Revenues Worksheet and/or a Budget Modification Personnel Worksheet.

If a budget modification, explain:

- ❖ **What revenue is being changed and why?**
- ❖ **What budgets are increased/decreased?**
- ❖ **What do the changes accomplish?**
- ❖ **Do any personnel actions result from this budget modification? Explain.**
- ❖ **Is the revenue one-time-only in nature?**
- ❖ **If a grant, what period does the grant cover?**
- ❖ **When the grant expires, what are funding plans?**

NOTE: Attach Bud Mod spreadsheet (FORM FROM BUDGET)

If a contingency request, explain:

- ❖ **Why was the expenditure not included in the annual budget process?**
- ❖ **What efforts have been made to identify funds from other sources within the Department/Agency to cover this expenditure?**
- ❖ **Why are no other department/agency fund sources available?**
- ❖ **Describe any new revenue this expenditure will produce, any cost savings that will result, and any anticipated payback to the contingency account.**
- ❖ **Has this request been made before? When? What was the outcome?**

If grant application/notice of intent, explain:

- ❖ **Who is the granting agency?**
- ❖ **Specify grant requirements and goals.**
- ❖ **Explain grant funding detail – is this a one time only or long term commitment?**
- ❖ **What are the estimated filing timelines?**
- ❖ **If a grant, what period does the grant cover?**
- ❖ **When the grant expires, what are funding plans?**
- ❖ **How will the county indirect and departmental overhead costs be covered?**

4. **Explain any legal and/or policy issues.**

The revisions to the Howard Canyon Reconciliation Report have been completed under Division 16 (OAR 660-016-000) of Statewide Planning Goal 5 ("Old" Goal 5). The Department of Land Conservation and Development Commission (DLCD) confirmed that the HCRR could be processed consistent with the "Old" Goal 5 rule due to the County's comprehensive plan policies and land use regulations satisfying the exemption provisions of the "New" Goal 5 rules (OAR 660-023-180(7)). The law firm representing Heritage Rock and Shirlee Lenske, one of the property owners, argues that the county despite the confirmation by DLCD, is misapplying the exemption provisions of Division

23 allowing for the use of the "Old" Goal 5 rule (Division 16) and should either apply the "New" rule or table the proposed amendments altogether.

5. Explain any citizen and/or other government participation that has or will take place.

Over the course of the planning process there have been ample opportunities for public participation. Beginning with an Open house in May 2002 where results of stream, noise and farm and forest impact surveys were presented and public comment recorded. The Planning Commission also held work sessions on Goal 5 which included a representative from DLCD. Additionally, there have been several public hearings before the Planning Commission and substantial public comment has been provided throughout the HCRR revision process.

The Department of Land Conservation and Development, Oregon Department of Fish and Wildlife, Metro, Oregon Department of Transportation provided comment.

Required Signatures:

Department/Agency Director:

Robert A Maestre

Date: 07/13/04

Budget Analyst

By:

Date:

Dept/Countywide HR

By:

Date:

**BEFORE THE PLANNING COMMISSION
FOR MULTNOMAH COUNTY**

RESOLUTION NO. T4-02-001

In the matter of Recommending Amendments to the Howard Canyon Reconciliation Report a part of the Multnomah County Comprehensive Plan.

The Planning Commission Finds:

- a. Multnomah County exercises land use planning and permitting authority over land within the jurisdiction of Multnomah County lying outside the Portland Metropolitan Urban Growth Boundary; and
- b. Multnomah County has adopted and applies its acknowledged land use regulations and Comprehensive Plan to those portions of Multnomah County lying outside the Metro Urban Growth Boundary, and Multnomah County's land use regulations and Comprehensive Plan have been acknowledged by the Department of Land Conservation and Development as being consistent with all of the State-wide Planning Goals, including Goal 5; and,
- c. The Howard Canyon Quarry is located in unincorporated Multnomah County, outside the Portland Metro UGB on rural land and is an active rock quarry, currently producing less than 5,000 cy of rock per year under permit from the Oregon Department of Geology and Mineral Industries; and,
- d. Multnomah County evaluated the Howard Canyon Quarry and in 1994 attempted to designate the Quarry as an aggregate source under Goal 5. In response the Department of Land Conservation and Development directed the County, through a revised Periodic Review Work Program, to reconcile stream, wildlife, scenic view and mineral and aggregate resource issues in separate reconciliation reports for each designated resource site, including the Howard Canyon Quarry; and,
- e. Multnomah County released in 1996 the Howard Canyon Reconciliation Report (HCRR) that addressed the information known at that time about natural resources and residential and farm areas that could be impacted by a mining operation in the Howard Canyon Quarry. The HCRR assessed and evaluated the Economic, Social, Environmental and Energy consequences (ESEE analysis) of a particular type and level of aggregate rock mining operation in the Quarry; and
- f. The particular type of mining operation proposed by the property owner and analyzed by Multnomah County in the HCRR was a construction concrete aggregate operation with a crusher and with a particular mix of machinery which generated a particular level of noise, and based on this noise generation, the surrounding "impact

zone" analyzed in the HCRR was limited to 1,200 feet and did not include any analysis of impacts to recognized farm uses under state law or the county code; and

g. Based on the particular nature of the mining operation proposed by the Quarry owner at that time, the County's ESEE analysis concluded that the impacts from such a mining operation were acceptable and that the Quarry should be designated for resource extraction and protected from near-by conflicting uses and the HCRR became an acknowledged part of Multnomah County's Comprehensive Plan and State-wide Goal 5 compliance; and

h. Despite the specific assumptions and recommendations of the HCRR and DLCD's acknowledgment of the Report, neither the County nor the Quarry owner acted on the HCRR and neither sought to apply the recommended zoning for Protected Aggregate Mineral (PAM) sites as provided by the County's land use regulations, and instead the Quarry retained its Commercial Forest Use (CFU-4) designation, which allows aggregate mining as a conditional use; and

i. In 1998, the National Marine Fisheries Service (NMFS) declared Lower Columbia River Steelhead, which is native to and still survives in east Multnomah County, as threatened under the Federal Endangered Species Act (ESA), and in 1999, NMFS listed 8 additional salmon populations in Oregon as threatened under the ESA; and

j. In February 2000, NMFS designated the critical habitat necessary for the survival of the species previously listed as threatened under the ESA, and declared the 300 feet on either side of the Sandy River and several of its tributaries to be critical habitat for the survival of these species, most notably Steelhead; and

k. The Sandy River lies approximately 1000 feet from the Howard Canyon Quarry property and three tributaries of the Sandy River, *i.e.*, Big Creek, Knieriem Creek and Howard Canyon Creek, either pass through or adjacent to the Howard Canyon Quarry property and stand to be severely impacted by mining operations in the Quarry; and

l. In response to the ESA listings of Lower Columbia River Steelhead and 8 other salmonid species and the designation of critical habitat for these species in east Multnomah County, both Metro and Multnomah County adopted extensive measures to protect these species and their critical habitat from incompatible development; and

m. In 2000, the County, acting on behalf of the Quarry owner, applied to change the zoning of the Howard Canyon Quarry and of the private property surrounding the Howard Canyon Quarry and apply the County's PAM zoning protections designed to protect aggregate and mineral sites and restrict the use of surrounding private property; and

n. On June 13, 2000, the Board of County Commissioners tabled indefinitely that zone change request and directed staff to reopen and revise the HCRR and the County's

Goal 5 process regarding the Howard Canyon Quarry and “focus on several issues that would include the Endangered Species Act and the need for improved stream protections, the change in mining method and use of rock, associated noises and farm impact, and the lack of evidence for westerly one thousand foot extent of the resource;” and

o. On June 7, 2004 the Planning Commission further finds:

- The quarry has a significant negative impact on farms, primarily due to conflicts between truck noise and livestock despite noise mitigation measures and limiting the numbers of trucks including advance notification of blasting which would require change of accepted farming practices; and
- Potential quarry impacts to streams can be mitigated with erosion control and pollution plans so that the quarry is not likely to adversely impact water quality or ESA listed salmonid species in local streams; and
- The quarry will have no or minimal impact on the cost of mineral and aggregate rock products in the region or the county, because it represents less than one percent of the estimated regional demand for aggregate and therefore the quarry is expected to have minimal influence on the regional price of aggregate; and
- The quarry will have minimal impact on the local market area because the demand for aggregate is expected to be low given the surrounding area is rural in character and outside the Urban Growth Boundary with the vast majority of land designated as resource land; and
- The quarry may have an adverse impact on the quarry owners by lost income from future extraction opportunities. However, mitigation costs associated with larger scale extraction would be significant and might not result in a net benefit to the owner. In addition, a County determination to allow conflicting uses fully under Goal 5 does not prevent the quarry from continuing to operate under the terms of the Department of Geologic and Mineral Industries (DOGAMI) Grant of Total Exemption for a small scale quarry; and
- The quarry has been found to have a negative impact on surrounding property values due to noise impacts and application of the Protected Aggregate and Mineral overlay; and
- Truck Traffic from the quarry adversely impacts Springdale, a rural center, where many dwellings are closer to the road and the associated setback used for truck noise calculations causing increased noise levels and adverse noise impacts which in turn can decrease property values and decrease the attractiveness of Springdale for commercial development which may threaten the viability of existing businesses or discourage new businesses from locating in Springdale; and

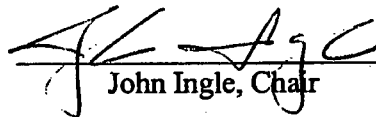
- DEQ noise standards do not fully account for the extended duration and long term effects of the quarry activity and truck traffic despite noise mitigation measures, including speed restrictions, time and days of operation, prohibiting the use of "Jake" brakes, and limits on the number of trucks all designed to meet the DEQ noise standard which is an hourly standard that does not adequately account for the continuous operation and long-term effects of the quarry activity and truck traffic subsequently impacting the quality of life to surrounding property owners; and
 - The Hogback Ridge is comprised of similar aggregate material as that previously found to meet Goal 5 significance yet is relatively small and will have marginal loss of economic value for the region and has the steepest and potentially unstable slopes that make erosion control difficult with increased risk of failure creating environmental impacts that cannot be resolved and is nearest to residences and farm uses and yet the most potential for adverse impacts from noise; and
- p. The Planning Commission therefore finds that by allowing conflicting uses fully and prohibiting mining under Goal 5 would resolve many of the negative impacts on the surrounding community while understanding that the Comprehensive Framework Plan policies will continue to allow the quarry to operate under the DOGAMI Grant of Total Exemption which will mitigate some of the negative impacts to the quarry owner.

The Planning Commission Resolves:

1. Resolution T4-02-001 and the corresponding text and plan amendments to the Howard Canyon Reconciliation Report, May 2004 and referenced amendments to the East of Sandy River Rural Area Plan, 1997 are hereby recommended for approval by the Board of County Commissioners.

ADOPTED this 7th day of June, 2004

PLANNING COMMISSION
FOR MULTNOMAH COUNTY


John Ingle, Chair

BEFORE THE BOARD OF COUNTY COMMISSIONERS
FOR MULTNOMAH COUNTY, OREGON

ORDINANCE NO. _____

Amending the Howard Canyon Reconciliation Report of June 1996, a Part of the Comprehensive Framework Plan Findings, by Updating the Chapter Sections on the Aggregate Resource and Making the Decision to "Allow Conflicting Uses Fully" and Prohibit Expansion of Mining

(Language ~~stricken~~ is deleted; double-underlined language is new.)

The Multnomah County Board of Commissioners Finds:

- a. Multnomah County exercises land use planning and permitting authority over land within the jurisdiction of Multnomah County lying outside the Portland Metropolitan Urban Growth Boundary. The County has adopted Comprehensive Framework Plans, Rural Area Plans, and implementing Codes that have been acknowledged by the State Land Conservation and Development Commission as being consistent with all of the State-wide Planning Goals, including Statewide Planning Goal 5.
- b. The Howard Canyon Quarry site is located in unincorporated Multnomah County and is an active rock quarry that is currently producing less than 5,000 cubic yards of rock per year under a permit from the Oregon Department of Geology and Mineral Industries. While evaluating the Howard Canyon Quarry under the Statewide Planning Goal 5 process in 1994, the Department of Land Conservation and Development directed the County, through a revised Periodic Review Work Program, to reconcile stream, wildlife, scenic view and aggregate resource issues in a "reconciliation report" that reconciled all the different Goal 5 resources and conflicting uses in the area of the Howard Canyon Quarry.
- c. Multnomah County adopted the Howard Canyon Reconciliation Report (HCRR) in 1996 that addressed the information known at that time about natural resources and residential and farm areas that could be impacted by a mining operation in the Howard Canyon Quarry. The HCRR assessed and evaluated the Economic, Social, Environmental and Energy consequences (ESEE analysis) of a particular type and level of aggregate rock mining operation in the Quarry. The particular type of mining operation proposed by the property owner and analyzed by Multnomah County in the HCRR was a construction concrete aggregate operation with a crusher and with a particular mix of machinery which generated a particular level of noise, and based on this noise generation, the surrounding "impact zone" analyzed in the HCRR was limited to 1,200 feet and did not include any analysis of impacts to recognized farm uses under state law or the county code.
- d. Based on the particular nature of the mining operation proposed by the Quarry owner at that time, the County's ESEE analysis concluded that the impacts from such a mining operation were acceptable and that the Quarry should be designated for resource extraction and protected from near-by conflicting uses. The HCRR then became an acknowledged part of Multnomah County's Comprehensive Plan and compliance program for complying with Statewide Planning Goal 5.
- e. Despite the specific assumptions and recommendations of the HCRR and the State's acknowledgment of the Report, neither the County nor the Quarry owner acted on the HCRR and neither sought to

apply the recommended zoning for Protected Aggregate Mineral (PAM) sites as provided by the County's land use regulations.

- f. In 1998, the National Marine Fisheries Service (NMFS) declared Lower Columbia River Steelhead, which is native to and still survives in east Multnomah County, as threatened under the Federal Endangered Species Act (ESA), and in 1999, NMFS listed 8 additional salmon populations in Oregon as threatened under the ESA. In February 2000, NMFS designated the critical habitat necessary for the survival of the species previously listed as threatened under the ESA, and declared the 300 feet on either side of the Sandy River and several of its tributaries to be critical habitat for the survival of these species, most notably Steelhead. The Sandy River lies approximately 1000 feet from the Howard Canyon Quarry property and three tributaries of the Sandy River, *i.e.*, Big Creek, Knieriem Creek and Howard Canyon Creek, either pass through or adjacent to the Howard Canyon Quarry property and stand to be severely impacted by mining operations in the Quarry. In response to the ESA listings of Lower Columbia River Steelhead and 8 other salmonid species and the designation of critical habitat for these species in east Multnomah County, both Metro and Multnomah County adopted extensive measures to protect these species and their critical habitat from incompatible development.
- g. In 2000, the County, acting on behalf of the Quarry owner, applied to change the zoning of the Howard Canyon Quarry and of the private property surrounding the Howard Canyon Quarry and by applying the County's Protected Aggregate Mining (PAM) overlay zoning district that has the purpose to protect aggregate and mineral sites and restrict conflicting uses on surrounding properties.
- h. On June 13, 2000, the Board of County Commissioners tabled indefinitely that zone change request and directed staff to reopen and revise the HCRR and the County's Goal 5 process regarding the Howard Canyon Quarry and "focus on several issues that would include the Endangered Species Act and the need for improved stream protections, the change in mining method and use of rock, associated noises and farm impact, and the lack of evidence for westerly one thousand foot extent of the resource."
- i. On June 7, 2004, the Planning Commission, based upon the following findings, that allowing conflicting uses fully and prohibiting mining under Goal 5 would resolve many of the negative impacts on the surrounding community while understanding that the Comprehensive Framework Plan policies will continue to allow the quarry to operate at existing levels of extraction under their DOGAMI Grant of Total Exemption:
 - The quarry has a significant negative impact on farms, primarily due to conflicts between truck noise and livestock despite noise mitigation measures and limiting the numbers of trucks including advance notification of blasting which would require change of accepted farming practices.
 - Potential quarry impacts to streams can be mitigated with erosion control and pollution plans so that the quarry is not likely to adversely impact water quality or ESA listed salmonid species in local streams.
 - The quarry will have no or minimal impact on the cost of mineral and aggregate rock products in the region or the county, because it represents less than one percent of the estimated regional demand for aggregate and therefore the quarry is expected to have minimal influence on the regional price of aggregate.

- The quarry will have minimal impact on the local market area because the demand for aggregate is expected to be low given the surrounding area is rural in character and outside the Urban Growth Boundary with the vast majority of land designated as resource land.
 - A decision to prohibit larger extraction operations at the quarry may have an adverse impact on the quarry owners by lost income from future extraction opportunities. However, mitigation costs associated with a larger scale extraction operation would be significant and might not result in a net benefit to the owner. In addition, a County determination to allow conflicting uses fully under Goal 5 does not prevent the quarry from continuing to operate under the terms of the Department of Geologic and Mineral Industries (DOGAMI) Grant of Total Exemption for a small scale quarry.
 - The quarry has been found to have a negative impact on surrounding property values due to noise impacts and application of the Protected Aggregate and Mineral overlay zoning.
 - Truck Traffic from the quarry adversely impacts Springdale, a rural center, where many dwellings are closer to the road and the associated setback used for truck noise calculations causes increased noise levels and adverse noise impacts, which in turn can decrease property values and decrease the attractiveness of Springdale for commercial development. A result that may threaten the viability of existing businesses or discourage new businesses from locating in Springdale.
 - DEQ noise standards do not fully account for the extended duration and long term effects of the quarry activity and truck traffic despite noise mitigation measures, including speed restrictions, time and days of operation, prohibiting the use of "Jake" brakes, and limits on the number of trucks, are all designed to meet the DEQ noise standard. That noise standard is an hourly standard that does not adequately account for the continuous operation and long-term effects of the quarry activity and truck traffic which subsequently impacts the quality of life to surrounding property owners.
 - The Hogback Ridge is comprised of similar aggregate material as that previously found to meet Goal 5 significance yet is relatively small and will have marginal loss of economic value for the region. The ridge also has the steepest and potentially unstable slopes that make erosion control difficult and results in increased risk of slope failure that would create environmental impacts that cannot be resolved. The ridge is nearest to residences and farm uses and yet has the most potential for adverse impacts from noise.
- j. The Board of County Commissioners agrees with the findings of the Planning Commission and with the need to amend the June 1996 Howard Canyon Reconciliation Report to "Allowing Conflicting Uses Fully" and prohibit all mining except as permitted under a Department of Geologic and Mineral Industries (DOGAMI) Grant of Total Exemption for a small scale quarry.

Multnomah County Ordains as follows:

Section 1. The Howard Canyon Reconciliation Report, June, 1996, a part of the County Comprehensive Plan Findings, is amended as follows:

- a. On page I-5, after the last paragraph in the Introduction add the following:

In 2004, the Planning Commission and Board of County Commissioners concluded that due to change in circumstances and new information that an amended decision was necessary in regard to the aggregate resource in this report. The decision was made to "Allow Conflicting Uses Fully" and prohibit expansion of mining except as allowed currently under a Department of Geology and Mineral Industries Grant of Total Exemption. See the history and documentation for this 2004 decision in the revised Chapter III of this report.

- b. Chapter III, Howard Canyon Aggregate Resource, Mineral and Aggregate Inventory Site #8, (pages III-1 through III-48), is replaced in its entirety by Exhibit A, Howard Canyon Reconciliation Report, Revised 2004.
- c. Pages IV-17 through IV-28 of Chapter IV, Conflict Resolution and Protection Program for Howard Canyon Area Goal 5 Resources, are deleted and replaced by the following:

2. AGGREGATE RESOURCE

Based upon the findings in Chapter III, particularly the ESEE Consequences parts of the chapter, the decision has been made to not protect the aggregate resource, allow conflicting uses fully (also referred to as a "3B" designation), and prohibit all mining except as permitted under a Department of Geology and Mineral Industries Grant of Total Exemption.

- d. Page IV-29 of Chapter IV is amended to delete paragraphs 3.a. and 3.c. and replace paragraph 3.a. with the following:

3. CONCLUSION

- a. The aggregate resource at the Howard Canyon site is being designated to not be protected, to allow conflicting uses fully (also known as a "3B" designation, and to prohibit all mining that is not done under a Department of Geology and Mineral Industries Grant of Total Exemption with its limitations.

Section 2. The East of Sandy River Rural Area Plan, adopted July 10, 1997, a part of the County Comprehensive Plan, is amended as follows:

- a. Policy 35, page 23 is amended to read:

Mineral and Aggregate Resource Policies

35. ~~Allow~~ Prohibit mining on the Howard Canyon quarry site under the conditions set forth in the Howard Canyon Reconciliation Report, part of the County Comprehensive Plan.

~~STRATEGY: Multnomah County shall implement this policy when reviewing a conditional use permit proposing a quarry at the Howard Canyon mineral and aggregate site.~~

b. The findings on page 19 are amended to read:

"One of the Goal 5 resources ~~to be protected~~ is mineral and aggregate materials. The Howard Canyon quarry is a small operation located between Howard and Knieriem Roads which currently operates under an "exempt" permit. Under state law, any quarry which produces less than 5,000 cubic yards of material and disturbs less than five acres per year is exempt from state and county mining statutes. The owner of the Howard Canyon quarry has applied several times since the 1960's to expand the quarry beyond this level, always unsuccessfully. In 1990, the Multnomah County Board of Commissioners decided not to designate the Howard Canyon quarry site as a significant and protected Goal 5 aggregate resource. However, in 1993, the Oregon Land Conservation and Development Commission remanded this decision back to Multnomah County because the County's rationale for denying protection was not acceptable. In response, the Board of Commissioners granted protection of the aggregate resource for most of the site in 1994, but with significant conditions related to air quality and traffic mitigation (see Howard Canyon Reconciliation Report). The quarry owner objected to these conditions, and in response the matter was once again returned to Multnomah County by the state for more work. In 1995, the Board of Commissioners once again adopted protection for the quarry site, with some modifications in the conditions. On March 7, 1996, the Oregon Land Conservation and Development Commission (LCDC) approved the County's work, but with two exceptions, and ordered the County to make specific changes which would protect all of the site for mineral & aggregate mining and would also not allow the County to independently monitor ongoing air quality issues associated with quarry operations. Multnomah County adopted these changes in June, 1996.

~~The result of this complicated story is that the Howard Canyon quarry is now a protected mineral and aggregate site. In order to actually mine the site further, an applicant must receive approval from Multnomah County of a conditional use permit and receive approval from the Oregon Department of Geology and Mineral Industries for a reclamation plan to be implemented once mining is complete. The conditional use permit must meet all of the requirements set forth in the Howard Canyon Reconciliation Report.~~

In 1999, a conditional use permit application for mining this resource site was submitted to the County. This application proposed a level of mining activity that was dramatically different from the base assumptions in the Howard Canyon Reconciliation Report. Therefore, Multnomah County decided it necessary to revisit the HCRR and re-analyze the impacts of increased production levels and future quarry operations on the site and the surrounding community.

The results of the preliminary impact reports were reviewed in a public meeting on May 16, 2002 at the Corbett School. Based on public comments received at the meeting, the impact reports were finalized and a draft of the updated HCRR was prepared. A draft Howard Canyon Reconciliation Report was reviewed by the Planning Commission in 2002 and early 2003. In March, 2003, all parties agreed to try to resolve the conflicts through mediation. The mediation broke down because agreement between all parties would have required a higher level of trust than was likely to evolve in the requisite time.

In 2004, the Planning Commission held public hearings on proposed revisions to the Howard Canyon Reconciliation Report. The Planning Commission deliberated and recommended to not protect the resource and prohibit mining on the site. The Howard Canyon Reconciliation Report has been revised to reflect that recommendation.

FIRST READING:

September 9, 2004

CONTINUED FIRST READING:

September 30, 2004

SECOND READING:

October 7, 2004

BOARD OF COUNTY COMMISSIONERS
FOR MULTNOMAH COUNTY, OREGON

Diane M. Linn, Chair

REVIEWED:

AGNES SOWLE, COUNTY ATTORNEY
FOR MULTNOMAH COUNTY, OREGON

By _____
Sandra N. Duffy, Assistant County Attorney

Draft

Howard Canyon Reconciliation Report

Planning Commission Recommendation

Revised June 2004

Multnomah County
Department of Business and Community Services
Land Use and Transportation Program

Prepared by:



Winterbrook Planning

With:

Pacific Habitat Services
Al Duble, Acoustical Engineer
Allen Throop, Geologist
Ecotrust

Howard Canyon Reconciliation Report Update June 2004

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Project History

The Howard Canyon Quarry is located approximately two miles southeast of Corbett in eastern Multnomah County. It is on top of a ridge with an east-west orientation between Knieriem Creek (on the north) and Howard Creek (on the south). (See Figure #1)

A quarry has operated on the property since the 1970s, though the size of the quarry has always been relatively small (i.e. less than five acres). The quarry has operated without a state or local permit under a Grant of Total Exemption from the Department of Geology and Mineral Industries (DOGAMI). The exemption allows the extraction of up to 5,000 cubic yards of material or disturbing less than one acre of land within a 12-month period until mining affects five or more acres.

According to Multnomah County records, mining activity on this site began in the early 1970's. In 1971, Multnomah County denied an application for a temporary permit to mine and crush rock (case file BA 78-71). In 1980, a Multnomah County Hearings Officer denied, and the Board of County Commissioners upheld the denial under appeal, of a conditional use application for a gravel mine and crusher. In 1987, Multnomah County again denied a CU for a commercial gravel quarry. These applications were denied based on the conditional use criteria, related to the rural character of the area, impacts to road system, and noise.

In 1987, the Department of Land Conservation and Development (DLCD) notified the county of requirements under state rules to complete work on Statewide Planning Goal 5, and specifically regarding two aggregate sites within the county. In a plan passed by the Board of County Commissioners in 1990 and submitted to DLCD, the Howard Canyon aggregate site was classified "3B, allow conflicting uses", meaning no protection under Goal 5. The "3B" determination was rejected by DLCD in 1993 because the aggregate resource in Howard Canyon was found to be significant. The Board of County Commissioners adopted the Howard Canyon Reconciliation Report (HCRP) in 1995. The 1995 report changed the designation for Howard Canyon from "3B" to "3C, limit conflicting uses", meaning the aggregate resource was protected under Goal 5, and uses which might conflict with the mining operation must be regulated. The property owner appealed the 1995 report to the Land Conservation and Development Commission (LCDC), who directed the county to make some specific changes to the report. The county made the specified changes that included adding the western 1000 feet of the site into the extraction area, eliminating additional noise study requirements, and deleting the provisions allowing the Transportation Division to request additional traffic studies over and above those already required. The Board of County Commissioners finalized the Howard Canyon Reconciliation Report in June, 1996, which became an acknowledged part of Multnomah County's Comprehensive Plan.

In 1999, a conditional use permit application for mining this resource site was submitted to the County. This application proposed a level of mining activity that was dramatically different from the base assumptions in the HCRP. The conditional use permit application

revealed weaknesses or out of date assumptions in the HCRR. Therefore, Multnomah County decided it necessary to revisit the HCRR and re-analyze the impacts of increased production levels and future quarry operations on the site and the surrounding community.

On January 24 and March 6, 2000, the Multnomah County Planning Commission conducted two public hearings on a legislative zone change to place the Protected Aggregate and Mineral (PAM) Overlay Subdistrict onto the zoning map on and around Howard Canyon. This was the final step to implement the program to achieve protection of the resource under the state goal. The Planning Commission recommended on April 3, 2000, that the Board of County Commissioners adopt with conditions the PAM Overlay Subdistrict on properties in and around Howard Canyon quarry. The Board of County Commissioners held a public meeting on June 13, 2000, and agreed with testimony presented that circumstances have changed since the HCRR was originally adopted.

According to the Board's motion, this update to the 1996 HCRR should address:

1. Requirements of the federal ESA to protect the Lower Columbia River Steelhead and its critical habitat and the need for improved stream protection;
2. Changes in mining methods and use of rock in the Howard Canyon Quarry;
3. Associated noise and impacts on surrounding farm operations that had not been adequately addressed in the 1996 HCRR; and
4. The apparent lack of evidence for determining the significance of the westerly 1,000-foot extent of the geologic resource area.

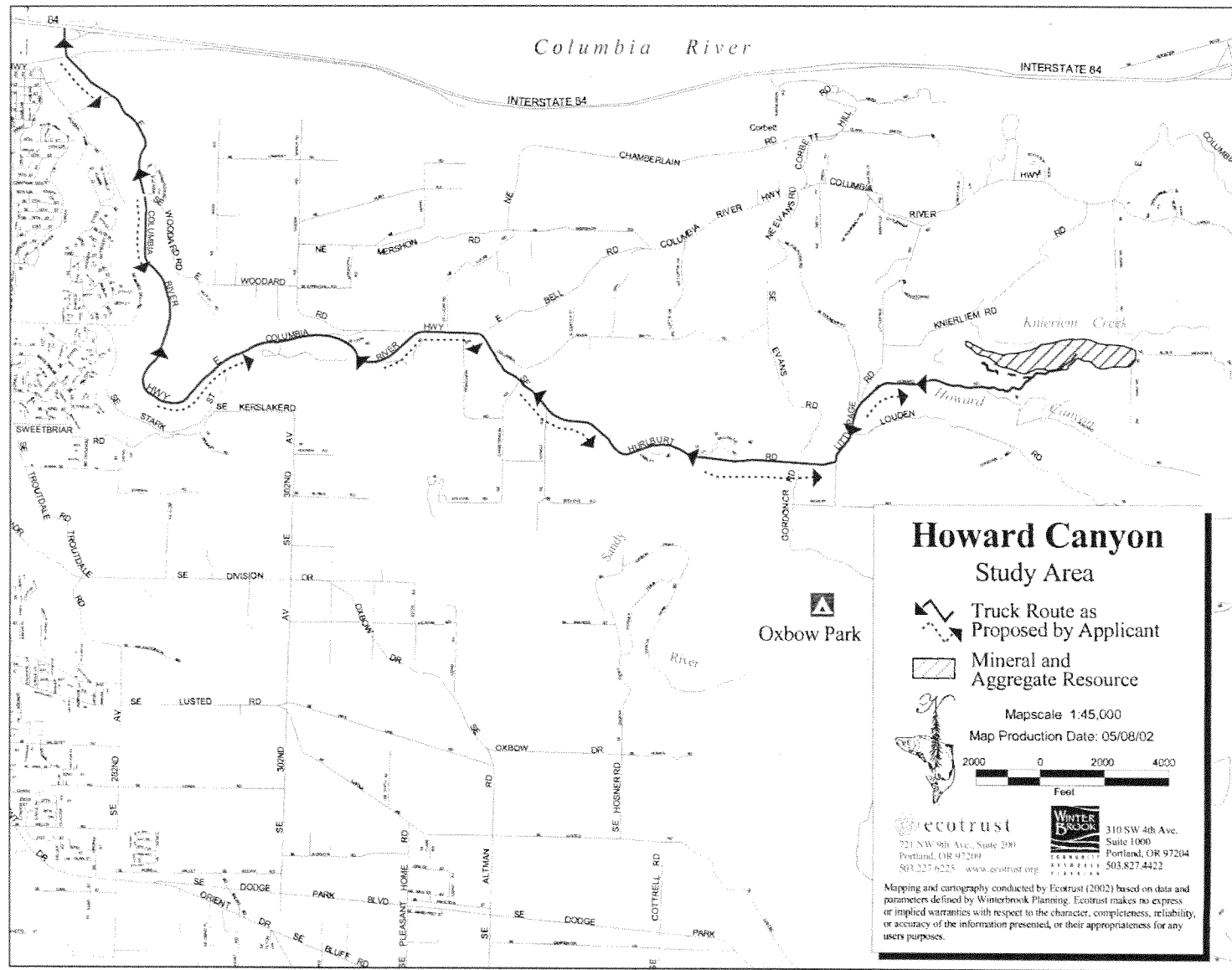
The Board directed staff not to make any revisions to the transportation portion of the HCRR.

In 2001, Multnomah County hired the Winterbrook Planning consultant team to manage the following:

- A geologic assessment of the western 1,000 feet of the resource area.
- A biological assessment of impacts to streams and ESA salmonid habitat.
- A noise impact study.
- A farm and forest impact study.
- An ESEE analysis.
- An update to the 1996 HCRR.

The results of the preliminary impact reports were reviewed in a public meeting on May 16, 2002 at the Corbett School. Based on public comments received at the meeting, the impact reports were finalized and a draft of the updated HCRR was prepared. The July 25, 2002 draft HCRR report was reviewed at a Planning Commission work session on August 5, 2002.

Figure 1. Study Area



Subsequently, the draft report was updated in September 2002 in advance of a Planning Commission public hearing on October 7, 2002. Public testimony from that hearing and subsequent written testimony and evidence submitted to the County was incorporated into the February 2003 draft of the HCRR. Another Planning Commission public hearing was held on March 3, 2003, at which the quarry owners and neighbors agreed to pursue mediation to resolve conflicts.

In March, 2003, Richard Forrester was hired to do an assessment for the mediation and found that the basic requirements for a mediation were in place. As the assessment transitioned to mediation, the neighbors requested another mediator. Carie Fox was hired in June 2003 and met with the key parties individually and in groups, attended a neighbor meeting, and convened an information-sharing meeting with the parties and various experts, including representatives of ODOT and DOGAMI. She also spent considerable time in shuttle negotiations between the parties. The key issues were noise, safety, trust, follow-through, profitability of the operation, the ability to enjoy property rights, and the overlay and its impacts on property values. The mediation broke down because agreement between all parties would have required a higher level of trust than was likely to evolve in the requisite time. On January 5th, 2004, the mediation effort was terminated.

On May 3, 2004, the Planning Commission held a public hearing in Corbett to review the proposed revisions to this report. The County staff recommendation was to protect the resource and limit mining to current levels under the Grant of Total Exemption (5,000 cubic yards per year) with mitigation measures (Appendix H). After lengthy public testimony, the Planning Commission deliberated and reached a tentative decision to recommend to not protect the resource and prohibit mining on the site. The HCRR has been revised to reflect that recommendation.

Overview of the Issues

Streams and ESA Salmonid Habitat

The 1996 HCRR assessed three streams that surround and drain the Howard Canyon Quarry site: Big Creek, Knieriem Creek and Howard Canyon Creek. Knieriem Creek and Howard Canyon are the closest streams to the mine and join to form Big Creek, which flows into the Sandy River. All three streams have been designated by Oregon Department of Fish and Wildlife as Class 1 "significant" streams. Multnomah County has designated these streams as significant Goal 5 resources. The 1996 HCRR concluded that all three streams could be adequately protected from impacts from the proposed quarry operations.

However, in 1998, the National Marine Fisheries Service (NMFS) declared the Lower Columbia River steelhead as a threatened species under the federal Endangered Species Act (ESA). The listing included salmonid populations inhabiting in the Sandy River in east Multnomah County. In 1999, NMFS listed as threatened eight additional salmon populations under the ESA, including fall run chinook salmon, which inhabits east Multnomah County including the Sandy River. Soon thereafter, NMFS identified and officially designated the critical habitat that was required for the long-term survival for

these species. In early 2002, the NMFS withdrew the critical habitat designation for 19 salmon and steelhead populations (including those in the Sandy River) pending a review of the economic impacts on affected businesses, communities, and individuals. However, salmon and steelhead trout habitat remains protected by the essential fish habitat provisions of the Magnusson-Stevens Act. The designation of fish stocks under the ESA and through the Magnusson-Stevens Act gives federal protection to these species and the habitat upon which they depend to live, feed and reproduce. The Sandy River basin, consisting of the Sandy River mainstem and its larger, fish-bearing tributaries, was included in this critical habitat designation for the endangered steelhead and fall chinook salmon.

On June 26, 2002, the US Fish and Wildlife Service determined that the southwestern Washington/Columbia River population of coastal cutthroat trout does not need ESA protection. This determination was based on a review of population data that showed that in a large portion of the southwestern Washington/Columbia River area cutthroat trout populations are relatively robust and the offspring of freshwater populations are likely able to become anadromous. Consequently, the US Fish and Wildlife Service concluded that coastal cutthroat trout in this population segment are not likely to become endangered in the foreseeable future.

This report considers the potential impacts of mining operations on salmonid habitat in Howard Canyon Creek, Knieriem Creek, Big Creek, and the Sandy River.

Noise Impacts

The noise study used in the 1996 HCRR was completed by Daly, Standlee & Associates, Inc. (the Daly, Standlee Report, dated February 19, 1990). It assumed a specific mix of mining equipment for aggregate extraction and the known sound generation of each piece of equipment. Based on this noise analysis, the 1996 HCRR concluded that the noise associated with the assumed aggregate operation would not violate the Oregon Department of Environmental Quality (DEQ) noise standards within a 1,200 foot perimeter. Consequently, the impact area for the Howard Canyon Quarry was determined to be 1,200 feet around the aggregate resource.

The noise study conducted for this report addresses increased level of mining activity and a different mix of equipment.

Farm Impacts

The western portion of the Howard Canyon site and the surrounding area to the west is zoned Exclusive Farm Use (EFU). Multnomah County Framework Plan Policy 16-B, Strategies I and J require an analysis to determine if the proposed mining operation will force a significant change in accepted farm or forest practices or significantly increase costs. In addition, testimony as part of the recent conditional use permit process raised issues related to impacts on surrounding farms, especially livestock.

This report includes a farm and forest impact assessment and considers potential impacts that could significantly change or increase the cost of farming practices.

Geologic Resources

As part of the adoption process of the 1996 HCRR, questions were raised concerning accuracy and reliability of the information related to the location, quality and quantity of the mineral and aggregate resource underlying the western 1,000 feet of the mapped resource area.

This report confirms the location, quantity, and quality of the basalt formation in the western 1,000 feet of the resource site.

Policy Framework

Multnomah County Comprehensive Framework Plan Policy 16-B contains specific criteria for the consideration of post-acknowledgement plan amendments (PAPAs) concerning aggregate resources.¹ Therefore, Policy 16-B is the adopted and acknowledged policy controlling the review of the amendments to the Howard Canyon Reconciliation Report. Policy 16-B, Strategy A specifically states that aggregate resources will be managed consistent with OAR 660, Division 16 (the "old Goal 5 rule").

A key difference in approach between the 1996 HCRR and this report is a consideration that the County take a more proactive role in regulating protected mining operations and mitigating the impacts. This policy interpretation is consistent with Policy 16-B, Strategy M:

M. The County shall impose conditions on surface mining when necessary to lessen conflicts identified as part of a site-specific Goal 5 analysis. Where such conditions conflict with criteria and standards in the Protected Aggregate and Mineral Resources Overlay, the conditions developed through the Goal 5 process shall control.

In the 1996 HCRR, the County deferred to the Oregon Department of Geology and Mining Industries (DOGAMI) and the Oregon Department of Environmental Quality (DEQ) to ensure compliance with noise, air quality, and water quality standards. Multnomah County Commission expressed concern regarding the ability of these agencies to effectively regulate and enforce Oregon State and Multnomah County laws. In light of the continuing controversy over the mining operations and the potential federal Endangered Species Act and quality of life impacts, this update considers the feasibility of the County establishing specific performance standards to mitigate adverse impacts. These standards would serve as approval criteria for a future conditional use permit. In some cases, these performance standards exceed DOGAMI or DEQ requirements.

Goal 5 Rule Requirements

There are two state administrative rules that implement Statewide Planning Goal 5. The "old" Goal 5 rule refers to OAR 660, Division 16. The "new" Goal 5 rule refers to OAR 660, Division 23, which was adopted by LCDC in 1996. The Department of Land

¹ The "new" Goal 5 rule states that these criteria will apply until the regulations are updated to conform to the requirements of OAR 660, Division 23 at the next scheduled periodic review (OAR 660-023-0180 (7)).

Conservation and Development has determined that the old Goal 5 rule is applicable until the County amends the Framework Plan and land use regulations as part of a periodic review work program.²

The Goal 5 process, includes the following steps:

- Inventory – determine the location (map boundary and impact area), quality (compared to other similar resources), and quantity (relative abundance) of each resource site (OAR 660-016-000).
- Determine significance – three options: 1) not significant (no further action), 2) delay Goal 5 process (inadequate information), or 3) significant (continue Goal 5 process) (OAR 660-016-000 (5)).
- Identify conflicting uses – examine uses allowed in zoning districts within impact area to determine if they have a negative impact on the resource site (OAR 660-016-005). For aggregate resources, need to look at impacts resulting from quarry operations as well as impacts on quarry operations from conflicting uses within impact area. Also, look at quarry conflicts with other Goal 5 resources.
- Analyze ESEE consequences of alternative decision options – Both impacts to the resource site and conflicting uses must be considered. ESEE analysis is adequate if it enables a jurisdiction to provide reasons to explain the consequences of decision options for specific sites (OAR 660-16-0005(2)).
- Adopt a protection program. Assuming there is adequate information, OAR 660-16-0010 requires local jurisdictions to “resolve” conflicts by adopting one of the following three decisions options:
 1. Protect the Resource Site: In the case of aggregate and mineral resource sites, this means to fully allow mining and restrict new conflicting uses within the impact area.
 2. Allow Conflicting Uses Fully: In the case of aggregate and mineral sites, this means prohibiting mining because mining conflicts cannot be restricted to acceptable levels.
 3. Limit Conflicting Uses: In the case of aggregate and mineral sites, this means to allow mining on a limited basis with restrictions on the conflicting uses to mitigate conflicts.

The Goal 5 rule does not require that all significant resource sites be protected. Local governments may choose to fully protect the resource site by allowing mining without local restrictions, prohibit mining activity (allow conflicting uses fully) or allow mining and conflicting uses on a limited basis.

² Letter from Gary Fish, DLCD, September 16, 2002

Significant Goal 5 Resource Determination

OAR 660-16-000 directs local governments to determine the location, quality, and quantity of the resource at a particular site. Based on that evidence, the local government must determine the significance of the site.

The 1996 HCRR determined that the Howard Canyon Quarry was a significant mineral and aggregate resource site.³ The underlying reasons were: the aggregate meets the ODOT specifications; the resource size of over 2 million cubic yards, which was more than the Comprehensive Plan criteria in effect at the time of the report; and the site is the only one in unincorporated East Multnomah County with sufficient, known information on the quality of the resources; and uncertainty regarding future production potential from other sites.

The old Goal 5 rule provides little guidance for determining the significance of mineral and aggregate resources. However, the new Goal 5 rule includes criteria for determining the significance of aggregate resources (OAR 660-23-180(3)(a)) that provides some guidance:

- Representative samples of aggregate material meet ODOT specifications for base rock for air degradation, abrasion, and sodium sulfate soundness
- The estimated amount of material is more than 2,000,000 tons in the Willamette Valley

OAR 660-23-180(1)(a) defines "aggregate resources" as naturally occurring concentrations of stone, rock, sand and gravel, decomposed granite, lime, pumice, cinders and other naturally occurring solid materials used in road building. Neither rule defines "mineral resources" nor includes criteria for determining the significance of mineral resource sites.⁴ ORS 517.750(7) defines "Minerals" as 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. The distinction between mineral sites and aggregate sites could be relevant because the resource is a columnar basalt formation that can be used as decorative rock as a building or landscaping material (a mineral resource) or as riprap and crushed rock for road building (an aggregate use).

³ Page III-10, 1996 HCRR

⁴ Proposed Administrative Rule Amendments (May 6, 2004) include the following changes to the definitions in OAR 660-023-0180 (1):

(a) "Aggregate resources" are naturally occurring concentrations of stone, rock, sand, ~~and~~ gravel, decomposed granite, limestone, pumice, cinders, and other naturally occurring solid materials commonly used in road building and other construction.

(f) "Mineral resources" are those materials and substances described in ORS 517.750(7) but excluding materials and substances described as "aggregate resources" under subsection (a) of this section.

Howard Canyon Resource Site

The following analysis provides an overview of the Howard Canyon resource site as whole and summarizes information from the 1996 HCRR. This information is presented for comparison to the geologic assessment conducted on the westernmost 1,000 feet for this report.

The Howard Canyon resource site is a ridge top with an east-west orientation, approximately two miles southeast of Corbett in eastern Multnomah County (Figure 2). The ridge is a Boring Lava formation that runs east-west between Knierjem Creek on the north and Howard Canyon Creek on the south.

The determination of significance in the 1996 HCRR was based on a January, 1989 report by H.G. Schlicker & Associates (the Schlicker report), which is incorporated by reference.⁵

Location

In the 1996 HCRR, the potential resource site was shown on a map submitted by the property owner and confirmed by 31 test pits dug by both the property owner and H.G. Schlicker & Associates (identified on a map in the appendix to the Schlicker report). The westernmost test pit, as shown on the Schlicker report test pit map, is approximately 1,000 feet from the western boundary of the resource site submitted by the property owner. Lacking any conflicting information, this boundary was used for the 1996 HCRR.

As part of this report, the boundary of the westernmost 1,000 feet is assessed and reported below.

Quantity

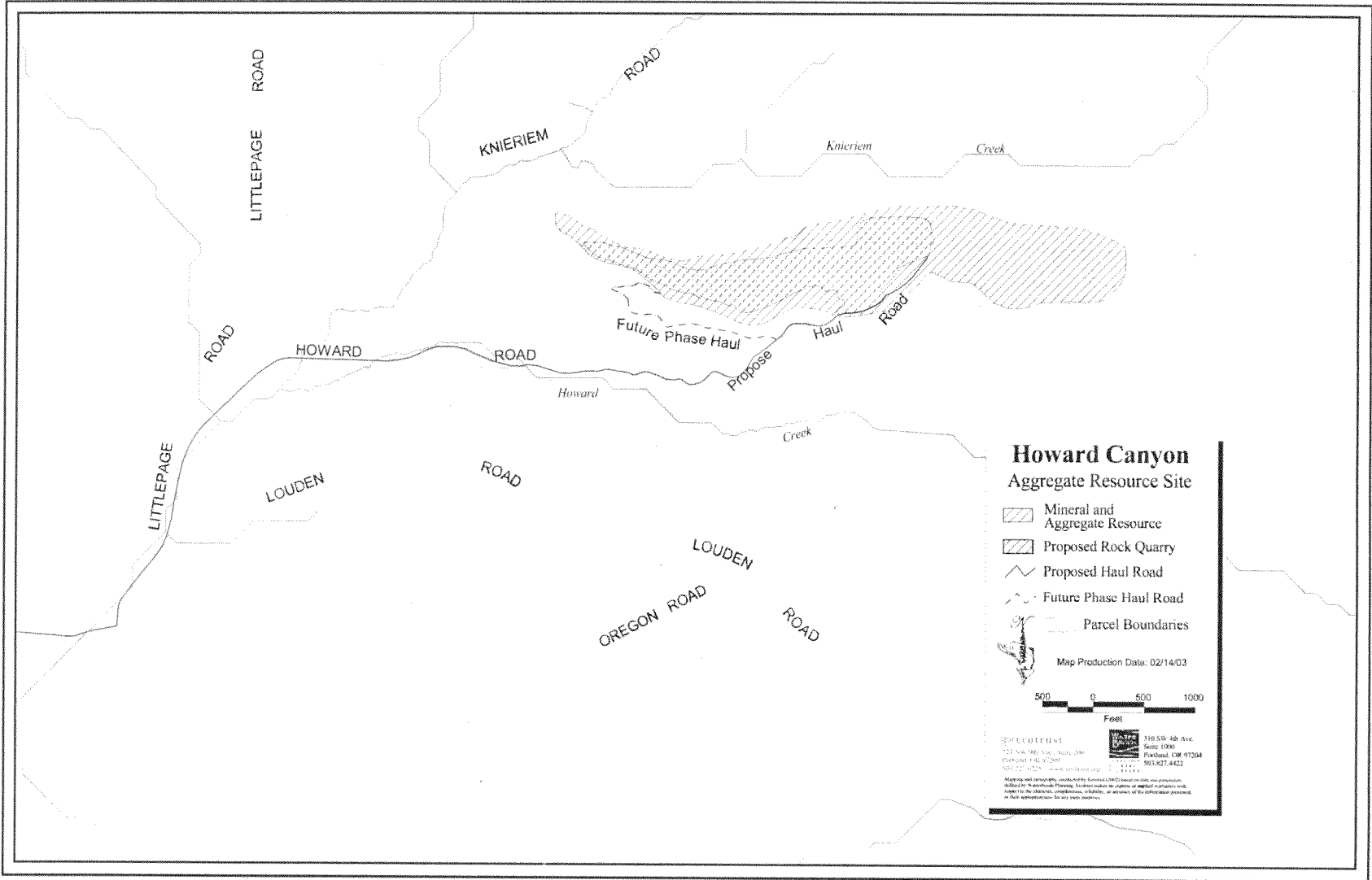
According to the Schlicker report, the basalt occupies the upper 50 feet or more of the ridge crest except for the thin layer overburden (soil, rocks, and boulders). The test pits indicate the overburden is, on average, about seven feet thick. The top two feet of the basalt is highly weathered and is considered to be overburden. For the purposes of calculating the volume of the formation, the overburden is estimated to be ten feet thick.⁶ Therefore, the basalt formation is estimated to be 40 feet thick. The 1996 HCRR cited a 1986 DOGAMI on-site inspection report that indicated the inspector also thought the basalt layer was 40 feet thick.⁷

⁵ Geologic Reconnaissance, Howard Canyon Quarry, East Multnomah County, Oregon, January 9, 1989 by H.G. Schlicker & Associates is included as Appendix 1 to the Throop Geologic Assessment (Appendix B).

⁶ Page 1, Schlicker Report

⁷ Page III-8, 1996 HCRR

Figure 2. Resource Site



The Schlicker report estimates that the ridge rock deposit is more than 4,200 feet long and 350 feet wide. The volume of rock in place is approximately 2.1 million cubic yards. When rock is crushed the volume expands about 25% therefore the deposit will produce more than 2.7 million cubic yards of crushed basalt, or 4.05 million tons.⁸ The Schlicker report also explains the lava formation is believed to occupy a deep "V" shaped valley and the center of the valley should be much deeper. Schlicker's subsequent analysis of drilling results in a revised estimate that the basalt formation has a minimum thickness of 51.5 feet, with a revised estimate of 3.57 million cubic yards or 5.35 million tons.⁹

Schlicker's conversion factor was 1.9 tons per cubic yard. The ODOT test done for the Throop Geologic Assessment found a specific gravity of 2.85, which translates into a conversion factor of 2.4 tons per cubic yard.¹⁰ Calculating the quantity with this conversion rate yields an estimate of 5.04 to 5.76 million tons.

Columnar Basalt

The existing quarry face is columnar basalt, which is a relatively unusual variety of basalt that is particularly well suited to use in landscaping and as building material. To create the columnar formation, the basalt had to solidify and cool quickly to form distinctive formations, which have one long axis and six-sides perpendicular to that axis (columns). Hence, the name columnar basalt. Not all basalt flows have columns. Even where columnar basalt is found, only a portion of the larger basalt formation may have the columnar basalt. The columnar characteristics may not be uniform throughout the entire formation, therefore the actual quantity of columnar basalt is uncertain.

Quality

Aggregate Resource

The 1996 HCRR cites a December 13, 1988 letter from Rittenhouse-Zeman & Associates, Geotechnical & Hydrogeological Consultants, reporting the results of laboratory testing of rock samples from the Howard Canyon Quarry.¹¹ The purpose of the test was to determine the suitability and quality of the rock products for use in construction as defined by the Oregon State Highway Division (OSHD). Attached to the Rittenhouse-Zeman letter was a letter from Northwest Testing Laboratories reporting the results of the American Standard for Materials and Testing (ASTM) test C-535, Resistance to Abrasion of Large Size Course Aggregate by use of Los Angeles Machine, Grading #3. The percent wear of the Howard Canyon sample was 32.7 percent. The OSHD specifications require that the sample can have a maximum of 35 percent wear.

Columnar Basalt

Even where columnar basalt is found, only a portion of the larger basalt formation may have the columnar basalt. Although exposed columnar basalt formations can be found in the Columbia River Gorge, as of July 2002, only three privately owned basalt quarries

⁸ Page 3, Schlicker Report

⁹ Addendum to Schlicker Report, dated March 29, 1989

¹⁰ Page 11, Throop Geologic Assessment (Appendix B)

¹¹ Page III-9, 1996 HCRR

were permitted by DOGAMI in Multnomah County. Another five basalt quarries were permitted in Clackamas County and 13 were permitted in Washington County. A telephone survey of these quarries found that none of the quarries were currently extracting columnar basalt. One local source of columnar basalt was identified in Washougal, Washington, but this quarry reported that its columnar formations were exhausted. Other identified sources include eastern Oregon and the Moses Lake, Washington area.

Confirmation of Western 1,000 feet

The Board of County Commissioners expressed concern about the reliability of the location of the basalt formation in the western 1,000 feet due to the lack of test pits. Multnomah County hired Allen Throop, a registered geologist, to assess the geologic resources of the western 1,000 feet. The Throop report is incorporated by reference as Appendix B to this report and is the basis for the following findings.

Location

Throop conducted a site visit on January 18, 2002 and analyzed stereo-pair aerial photos from 1999 and 2002 to determine the location of the basalt formation. Throop determined that the basalt formation has two distinct areas. The main part of the formation is a broad flat-topped ridge, which extends approximately 125 feet into the western 1,000 foot study area, referred to as Phase 6 on the Olson Mining Plan (Appendix C). West of this flat-topped ridge, the basalt formation becomes a narrow hogback ridge with steep slopes on either side, referred to as Phase 7 on the Olson Mining Plan (Appendix C). It extends approximately 875 feet to the northwest corner of the property. The location of the basalt formation is identified in Figure 2. The Throop report illustrates the different cross-sections for the flat-topped ridge and hogback ridge (see Figure 3).

Quantity

During his site investigation, Throop located the lowest elevation of basalt boulders in a road cut, which he concluded was the bottom of the basalt formation. Using a hand level, he determined that the bottom of the basalt layer was approximately 40 feet below the highest basalt exposed at the upper end of the road.¹²

Throop estimated the hogback ridge (Phase 7) contains a geologic reserve of approximately 140,000 cubic yards of basalt, with a smaller mineable resource.¹³

Quality

A petrographic analysis was conducted to compare rock samples from the existing quarry and the hogback ridge. The petrographer's conclusion is the rocks are from the same formation.¹⁴

¹² Page 5, Throop Geologic Assessment (Appendix B)

¹³ Page 8, Throop Geologic Assessment (Appendix B)

¹⁴ Appendix 5, Throop Geologic Assessment (Appendix B)

Rock samples from the existing quarry and the hogback ridge were sent to the ODOT Materials Laboratory for testing. The test results for the two samples are similar and meet ODOT standards for coarse degradation and abrasion (Table 1).

Table 1. ODOT Rock Quality Test Results

ODOT Standard	Coarse Degradation 30.0% max.	Abrasion 35.0% max.
Hogback Ridge	21.9%	30.2%
Existing Quarry	19.4%	30.4%

The Throop assessment confirms the location of the basalt formation in the western 1,000 feet. Through petrographic analysis, the western 1,000 feet is part of the same formation as the main part of the quarry. Therefore, the western 1,000 feet is part of the Howard Canyon resource site.

Confirmation of Significance Determination

The Howard Canyon site is a significant Goal 5 mineral and aggregate resource, based on the following findings:

- Quantity - The resource site represents a large quantity of basalt material, in excess of 5 million tons.
- Quality - Laboratory testing confirms the basalt meets ODOT standards for air degradation and abrasion and is suitable for aggregate use.
- Quality - The columnar basalt formations are suitable for riprap in road construction as well as decorative rock in landscaping and building construction.

Location – There are a limited number of mineral and aggregate resource sites in east Multnomah County and adjacent portions of Clackamas County. There are no other basalt quarries in the region that actively mine columnar basalt.

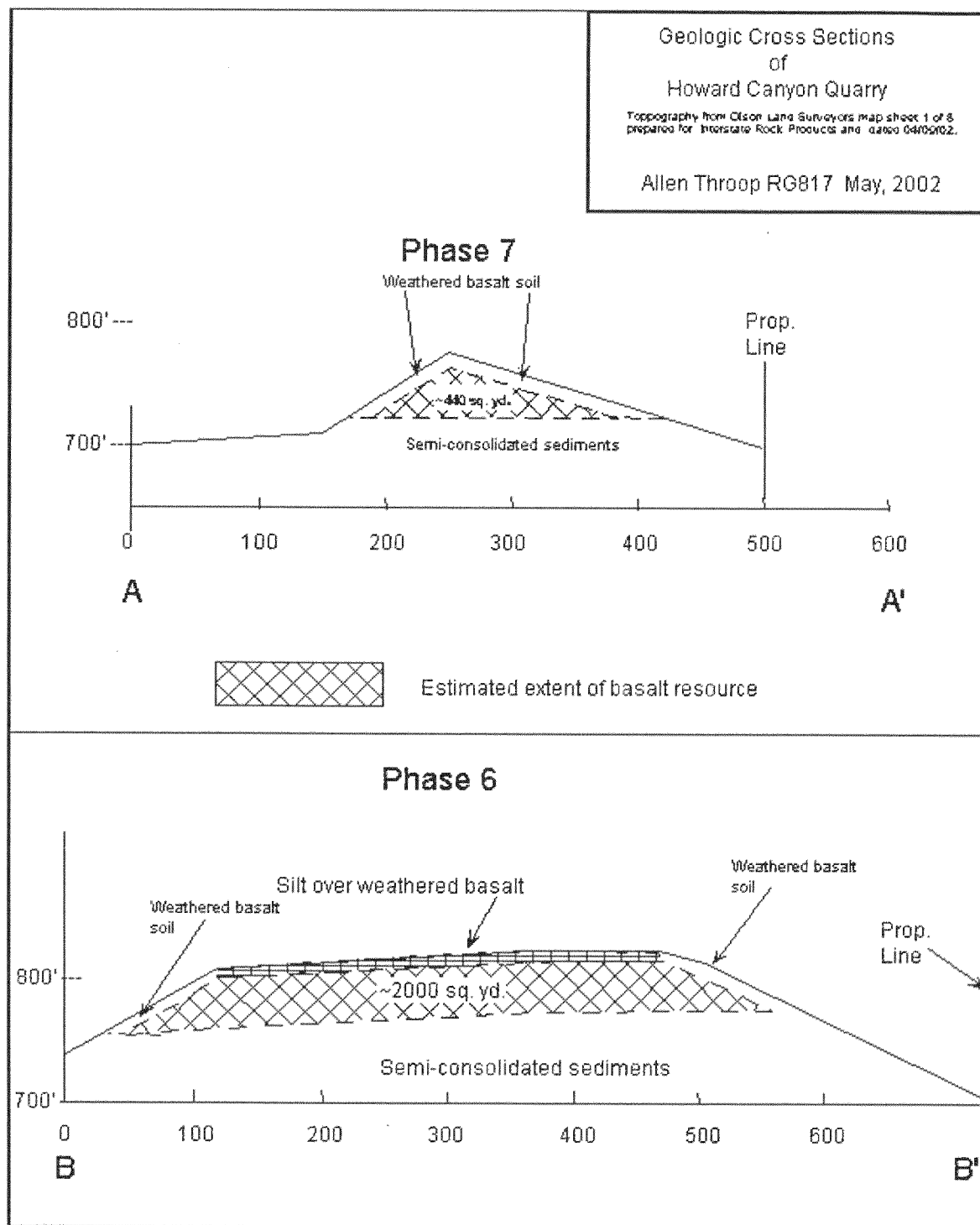


Figure 3. Howard Canyon Cross Sections

Resource Analysis

Proposed Mining Plan

Existing Operations

The existing quarry is currently operating under a small-scale Grant of Total Exemption (GTE) from DOGAMI and does not have a County conditional use permit. DOGAMI has established limits for small-scale mining operations called a Grant of Total Exemption (GTE) (OAR 632-030-0016 (2)). These limits include:

- Mining a quantity of less than 5,000 cubic yards of material or disturbing less than one acre of land within a period of 12 consecutive months; or
- For mining operations begun after July 1, 1975, this exemption terminates as soon as mining operations affect more than five acres of land.¹⁵

The quarry also has a DOGAMI exemption to supply aggregate for forest roads on contiguous parcels. In the past, the owners of the quarry also have supplied aggregate for road building on their substantial forest land holdings in the area that are contiguous to the quarry.

In 1994, when the current Comprehensive Framework Plan policies were adopted, the County included an exemption for Howard Canyon that allows continued lawful mining operations under a DOGAMI GTE without a conditional use permit (Policy 16-B.H.1b). This county exemption allows continued operation of the quarry within the GTE limits. If, and when, DOGAMI finds those limits have been exceeded and the GTE is terminated, then mining operations would be subject to the findings and conclusions in the HCRR.

The columnar basalt is extracted primarily for decorative rock purposes.¹⁶ The mining process begins by loosening the rock with explosives.¹⁷ After blasting, the rock is sorted into three categories: split rock, wall rock, and decorative landscape boulders. The split rock is loaded into a quarry truck and transported to an adjacent pad, where it is manually broken down using an air drill and sledgehammers to split into uniform blocks. The wall rock is processed to size using a hydraulic rock hammer on the arm of an excavator. After stockpiling, the material is loaded into dump trucks for transportation offsite. Approximately 50% of the trucks are loaded with an excavator that lifts the rock into the dump trucks. The remaining 50% of the trucks are loaded with a front-end loader.

¹⁵ It is unclear as to whether the mining operations had to have begun or had to have a GTE certificate, in order to be exempt from this limit.

¹⁶ Verbal communications with Dan Gustafson, Interstate Rock, December 18, 2001

¹⁷ Letter from Olson Engineering, Inc., February 26, 2002 (Appendix C)

Haul trucks enter the quarry via Knieriem Road. After loading, the trucks exit via Howard Road. The number of trucks per day varies depending on orders for the basalt. There is no rock crusher located on site.

Proposed Mining Plan

In 2002, on behalf of the property owners, Interstate Rock Products, Inc. and Olson Engineering prepared a proposed mining plan for an expanded operation that was used as the basis for determining potential conflicts and impacts.

The mining process would be similar to the current operations, but the proposed volumes and levels of activity vary (see Table 2). The total mine area is approximately 31 acres, with about 5 acres impacted at any one time. The amount of material produced for decorative and aggregate purposes would vary, depending on demand. Depending on the level of activity the quarry could supply material over the next 10 to 400 years. The 200,000 cubic yards per year alternative is a demonstration of the level of activity needed to deplete the resource in a relatively short amount of time.

Table 2. Quarry Operations Alternatives

Rate of Extraction	5,000 cy/yr	35,000 cy/yr	75,000 cy/yr	200,000 cy/yr
Percent of Decorative/Aggregate	80/20	60/40	30/70	0/100
Hours of Operation	7am – 5pm	7am – 5pm	7am – 5pm	7am – 5pm
Avg. No. of Trucks Per Day ¹	2 (4 trips)	14 (28 trips)	30 (60 trips)	80 (160 trips)
Number of Blasts per Year L = Low Yield H= High Yield	1H	3L 1H	6L 3H	8L 5H
Drilling per Year	5 days	20 days	40 days	100 days
Splitting per Year	50 days	75 days	75 days	-
Crushing per Year	10 days	30 days	100 days	200 days
Loading	0.5 hrs/day	2.2 hrs/day	3.2 hrs/day	5.0 hrs/day
Hauling	0.3 hrs/day	0.8 hrs/day	1.5 hrs/day	3.0 hrs/day

Source: Olson Engineering, April 4, 2002 (Appendix C)

1. Each truck represents two trips – one inbound (empty) and one outbound (full).

As part of this operation, the haul truck route would use Howard Road to enter and exit the site. Knieriem Road would not be used. The proposed truck route travels along local roads for a significant distance (3.9 miles) before reaching a major arterial. Figure 4 illustrates the proposed truck route. From Howard Road, the trucks would travel down Littlepage Road to Hurlburt Road to the Historic Columbia River Highway to Interstate 84.

Define Impact Areas

OAR 660-16-000(2) requires the identification of an impact area for the resource. The impact area is the area in which specific conflicting uses may adversely affect the resource. However, mineral and aggregate resources are different from other Goal 5 resources. The impact area is defined in terms of: 1) surrounding uses that could

adversely affect the resource; and 2) those land uses that could be adversely affected by the expected mining activities.

The 1996 HCRR established a 1,200-foot impact area, primarily based on a 1990 noise assessment study.¹⁸ Also, the 1996 HCRR limited its analysis along the truck route to impacts to the local transportation system and not to adjoining properties along the route. Public testimony at previous hearings for the conditional use permit and the May 16, 2002 community meeting held as part of the preparation of this report have suggested that the 1996 impact area is inadequate (see Appendix G).

¹⁸ Page III-14, 1996 HCRR

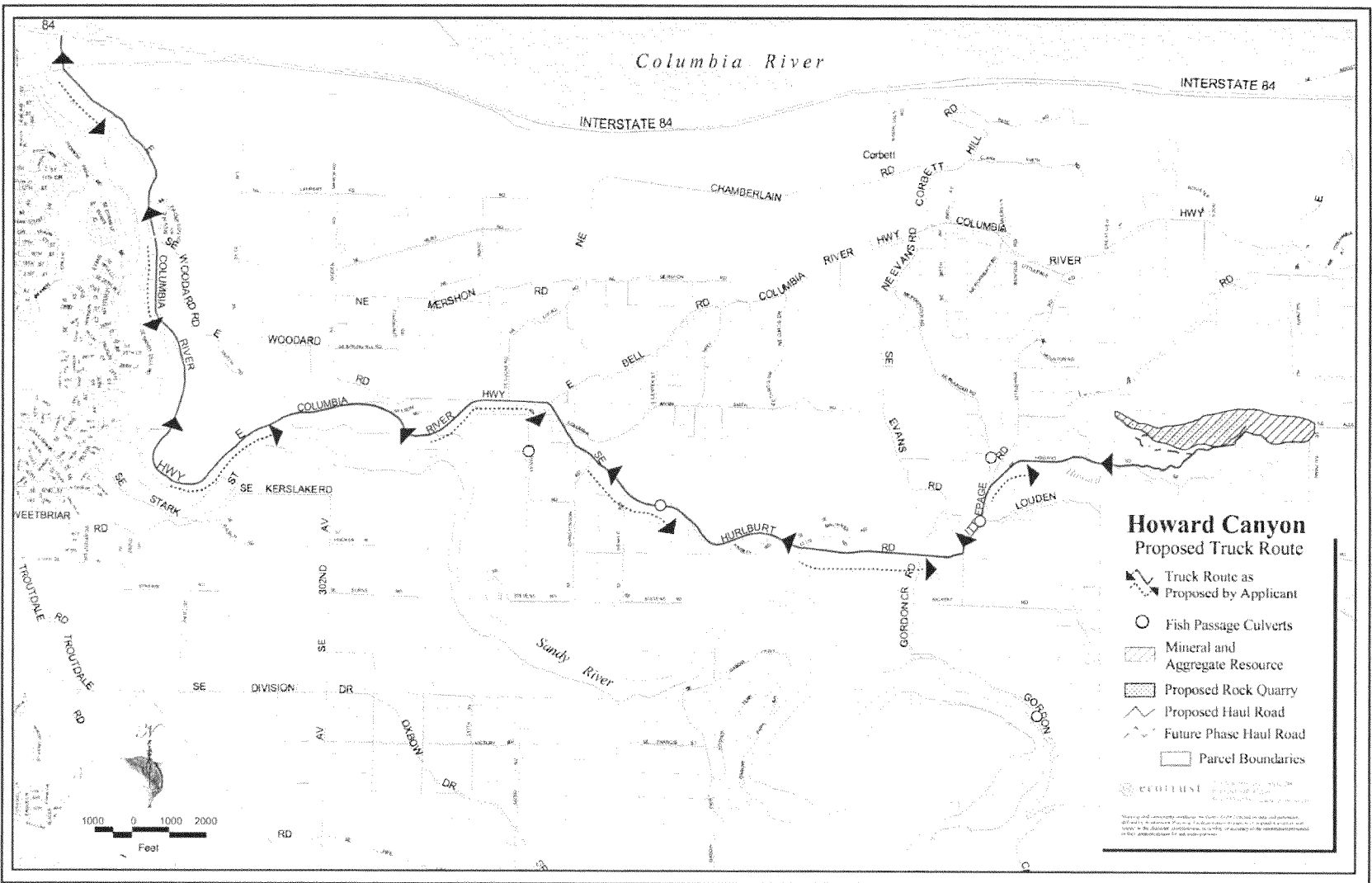


Figure 4. Proposed Truck Route

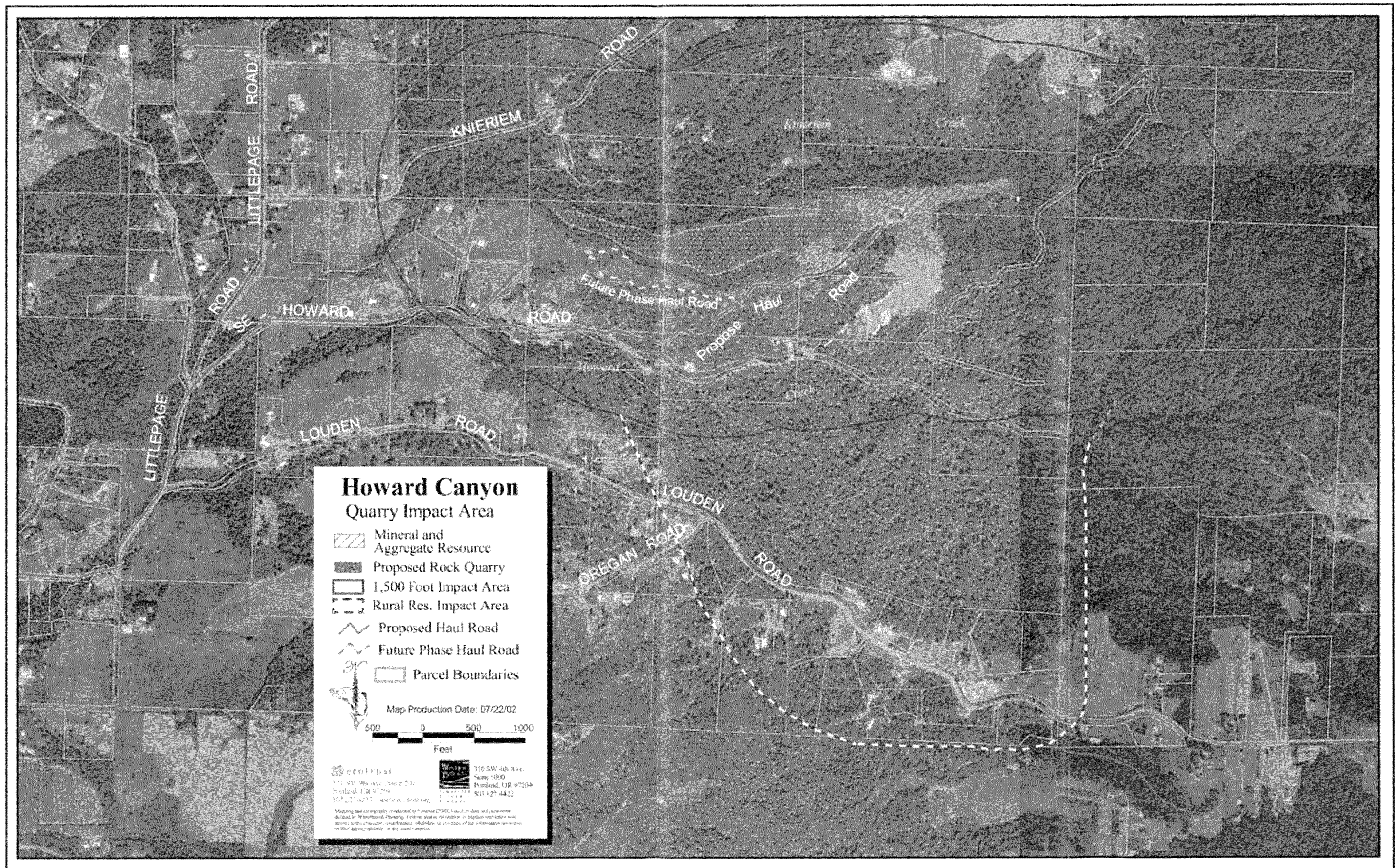


Figure 5. Quarry Impact Area

The impact area in this report has two parts: 1) the impact area surrounding the proposed quarry, and 2) the truck route used to transport the material offsite.

Quarry Impact Area

Establishing an impact area for the quarry operations requires judgment. The larger the impact area, the more properties that may be placed under the restrictions of the Protected Aggregate and Mineral (PAM) Resource Overlay Subdistrict (Appendix A), if the resource is a protected site. Therefore, an impact area that extends farther than actual conflicts may result in unnecessary restriction on future permitted land uses for some property owners.

Noise, dust, and blasting associated with mining activities may adversely affect surrounding land uses. The 1996 HCRR established a 1,200 foot impact area, primarily based on a 1990 noise assessment study.¹⁹ This method was based on noise receptor locations that either met or exceeded the DEQ noise standard without any mitigation. However, this methodology does not adequately address the variations in topography surrounding the site that can impact how noise travels. For example, in the noise study conducted for this update, one site at 770 feet from the extraction area was below the DEQ standard, where as a site that is 1,025 feet from the resource area exceeded the standard and another site 1,565 feet from the resource area met the DEQ standard exactly.²⁰

In general, a 1,500 foot impact area is used for this report. The impact area is measured from the edge of the mineral and aggregate resource area. This impact area is large enough to encompass dwellings and farms that could be adversely impacted by mining activities on the site (Figure 5). The 1,500 foot impact area includes the minor drainages off the ridge down to Knieriem Creek and Howard Canyon Creek, which will address potential impacts to the significant Goal 5 stream resources.

The impact area extends beyond 1,500 feet to the south and southeast of the site to include a pocket of 21 parcels zoned for rural residential uses along Loudon Road. These parcels are 150 feet above the quarry on a ridge that forms the south side of Howard Canyon. The higher elevation and lack of intervening topography create potential noise conflicts. This potential was confirmed by public testimony from residents in this area complaining about noise from the existing quarry operations.²¹

Truck Route Impact Area

The proposed truck route will use Howard Road to enter and exit the site (Figure 4). Knieriem Road will not be used. The proposed truck route travels along local roads for a significant distance (3.9 miles) before reaching a major arterial. From Howard Road, the trucks will travel down Littlepage Road to Hurlburt Road to the Historic Columbia River Highway (HCRH) to Jordan Road to Interstate 84. The proposed truck route is preferred

¹⁹ Page III-14, 1996 HCRR

²⁰ See Doble Noise Report (Appendix D)

²¹ May, 2002 Community Meeting Summary (Appendix G).

to alternate routes via Evans Road or Littlepage Road to the Historic Columbia River Highway to Corbett Hill Road and then to Interstate 84 because it is not as steep or nor will it impact the community of Corbett, including the public schools.

Howard Road and Littlepage Road are classified by Multnomah County as local roads, which are designed to provide access to abutting property, but not to serve through traffic. Hurlburt Road is classified as a rural collector, which serves as a link between local roads and rural arterials. Hurlburt Road intersects with the Historic Columbia River Highway in Springdale, approximately 3.9 miles from the Howard Canyon quarry entrance. All local roads are designed to be two-lane roads, with differing lane widths, roadway geometrics, and shoulder improvements. Hurlburt Road and Littlepage Road, from Knierem Road to Hurlburt Road, are designated as a bikeway routes.

The Historic Columbia River Highway (HCRH) is a state highway and is designated by ODOT as a district highway, which is characterized as a traffic distributor between areas in and outside the County. It is also designated as scenic highway and national historic landmark. There are concerns about the ability of the HCRH to accommodate the increased truck traffic, including the design of the roadway (two-lane section with shoulders), limited bridge crossings, designation on the National Register of Historic Places, and a route through Springdale (a rural center). Therefore, the truck route impact area is extended to include the Historic Columbia River Highway from Hurlburt Road to Interstate 84.

Rural residential dwellings are located along the truck route, with varying setbacks. The minimum front setbacks in the zoning districts range from 30 to 60 feet from the centerline of the road. The Duple Noise Study uses an average building setback of 50 feet to evaluate truck noise impact.²² Differences in actual setbacks, changes in grades or truck speeds could increase the noise levels. Therefore, in order to account for possible increased noise levels, the truck route impact area is defined as 100 feet from centerline on either side of the road.

Identify Conflicting Uses

OAR 660-16-005 requires the identification of conflicting uses.²³ This identification is done by examining the uses allowed in each zoning district within the impact area. A conflicting use is one, which, if allowed, could negatively impact a Goal 5 resource site. For mineral and aggregate resource sites, conflicting uses also include those that would be adversely impacted by mining.

²² Page 8, Duple Noise Study (Appendix D)

²³ The new Goal 5 rule limits the conflicting use identification to existing and approved uses, not just allowed uses (OAR 660-23-180(4)(b)). It also limits the conflicts to discharges (noise, dust, etc.), local roads, other Goal 5 resources, and farm practices.

Allowed Uses

Quarry Impact Area

There are four zoning districts within the impact area: Exclusive Farm Use (EFU), Commercial Forest Use - 4 (CFU-4), Multiple Use Agriculture (MUA-20), and Rural Residential (RR). The majority of acreage is zoned CFU-4, primarily the resource site and north, south, and east of the resource site. EFU zoning applies to one (34 acre) parcel within the resource site and nine parcels located due west of the resource site. There is one parcel zoned MUA-20 located in the northwest corner of the impact area. There are 21 parcels with 16 dwellings in the RR zone within the impact area. The permitted uses for each of these districts are listed in Appendix A.

The permitted uses that have the potential to be impacted by mining activities are:

Residential Dwellings (including mobile homes and caretaker residences) – There are 35 residential dwellings within the quarry impact area, including 16 within the rural residential area. These dwellings are considered conflicting uses. The potential for additional dwellings in the impact area is relatively low. There are 14 vacant parcels in the impact area. Recent changes to Goal 3 (agricultural land) and Goal 4 (forest land) limit the potential for new dwellings. Residential dwellings are noise sensitive and therefore conflict with the quarry operations. The adverse noise impacts (conflicts) are discussed below.

Home Occupations – Type A home occupations are allowed uses in the CFU-4, EFU, MUA-20 and RR districts. Type B home occupations are conditional uses in all four districts. Cottage industries and limited rural commercial uses are conditional uses in the MUA-20 district.²⁴ These uses (and conflicts) involve people in activities that might be sensitive to noise impacts from mining activities. For the purposes of this analysis, these types of uses are potential conflicts that are equivalent to residential dwellings. That is, noise impacts to residential uses are similar in nature to impacts to home occupations.

Community Uses – Uses such as parks, campgrounds, schools, churches, and day care facilities are permitted as allowed, review, or conditional uses in the various zoning districts. None of these types of uses are located within the impact area. The nature of these uses (and conflicts) involves people in activities that might be sensitive to noise impacts from mining activities. For the purposes of this analysis, these types of uses are potential conflicts and are considered to be equivalent to residential dwellings.

²⁴ Cottage Industry is defined as “A processing, assembling, packaging or storage industry, generally employing fewer than 20 persons, conducted wholly within an enclosed building located on a site isolated from other such uses, generating low traffic volumes and with little or no noise, smoke, odor, dust, glare or vibration detectable at any property line.” (MCC 33.0005(A)(8))

Farm Uses – Farm uses are allowed in all four districts. Certain agricultural practices, such as raising livestock, can be sensitive to noise impacts from mining activities. Per the requirements of Multnomah County Framework Plan Policy 16-B, Strategies I and J, farm uses are considered to be conflicting uses and are discussed below.

Truck Route Impact Area

The truck route passes through a mix of EFU, CFU, MUA-20, and Rural Residential zoning districts with a similar set of conflicting uses as described within the impact area.

Rural Center – The truck route passes through Springdale, a rural center. Rural centers have a concentration of rural residential uses with limited commercial facilities, small-scale industrial uses, and public uses. The Springdale rural center currently has 55 existing residences with 12 vacant and developable parcels. The rural center also contains several commercial uses and other community-serving uses, including two churches, a fire station, a County road shop, and until 1995 the Springdale Elementary School (now occupied by a children's theater and museum).²⁵ The rural center represents a concentration of uses that are potentially sensitive to truck traffic from quarry operations. The uses allowed in the Springdale rural center potentially conflict with quarry truck traffic.

Noise

Noise Standards

The DLCD Goal 5 Aggregate Mining Handbook advises (page 24) that local governments consider Department of Environment Quality (DEQ) regulations that regulate water and air pollution, including noise standards.

There are three different DEQ standards that could apply to this situation, depending on whether the quarry is considered to be an existing use or a new use on a previously used site or a new site. Under OAR 340-035-0015(17):

“Existing Industrial or Commercial Noise Source means any industrial or commercial noise source for which installation or construction was commenced prior to January 1, 1975.”

County records indicate mining activity at the Howard Canyon Quarry as far back as the late 1960s and therefore it may be considered an existing industrial or commercial noise source. However, no land use or zoning permit has ever been issued by Multnomah County.

²⁵ East of Sandy River Rural Plan

Under OAR 340-035-0015(33):

"New Industrial or Commercial Noise Source means any industrial or commercial noise source for which installation or construction was commenced after January 1, 1975 on a site not previously occupied by the industrial or commercial noise in question."

Under OAR 340-035-0015(47):

"Previously Unused Industrial or Commercial Site means property which has not been used by any industrial or commercial noise source during the 20 years immediately preceding commencement of construction of a new industrial or commercial source on that property."

The issue then becomes how the terms "site" and "property" are interpreted. The Howard Canyon Quarry is comprised of six discrete parcels, not one encompassing parcel. As such, each parcel is a freely transferable property. The distinction is important in that ORS 92.017 provides that "[a] lot or parcel lawfully created shall remain a discrete lot or parcel, ... as provided by law." Subsequently, each parcel may be sold as an individual property without any required County zoning or land division review. This could result in new and different ownership of the various parcels within the mapped quarry. It follows then, crossing a parcel line into a previously unused industrial or commercial "site" constitutes a previously unused industrial or commercial "property" and would therefore be a new use on that parcel and hence a new noise source.

Alternatively, the term "property" could be interpreted to mean "contiguous parcels under common ownership", in which case the expanded quarry could be considered an existing source.

DEQ Daytime Noise Standards

Type of Source	L50 Hourly Standard
Existing Source	55 dBA
New Source on Previously Used Site	55 dBA
New Source on Previously Unused Site	Ambient plus 10dBA

Source: OAR 340-35-0035

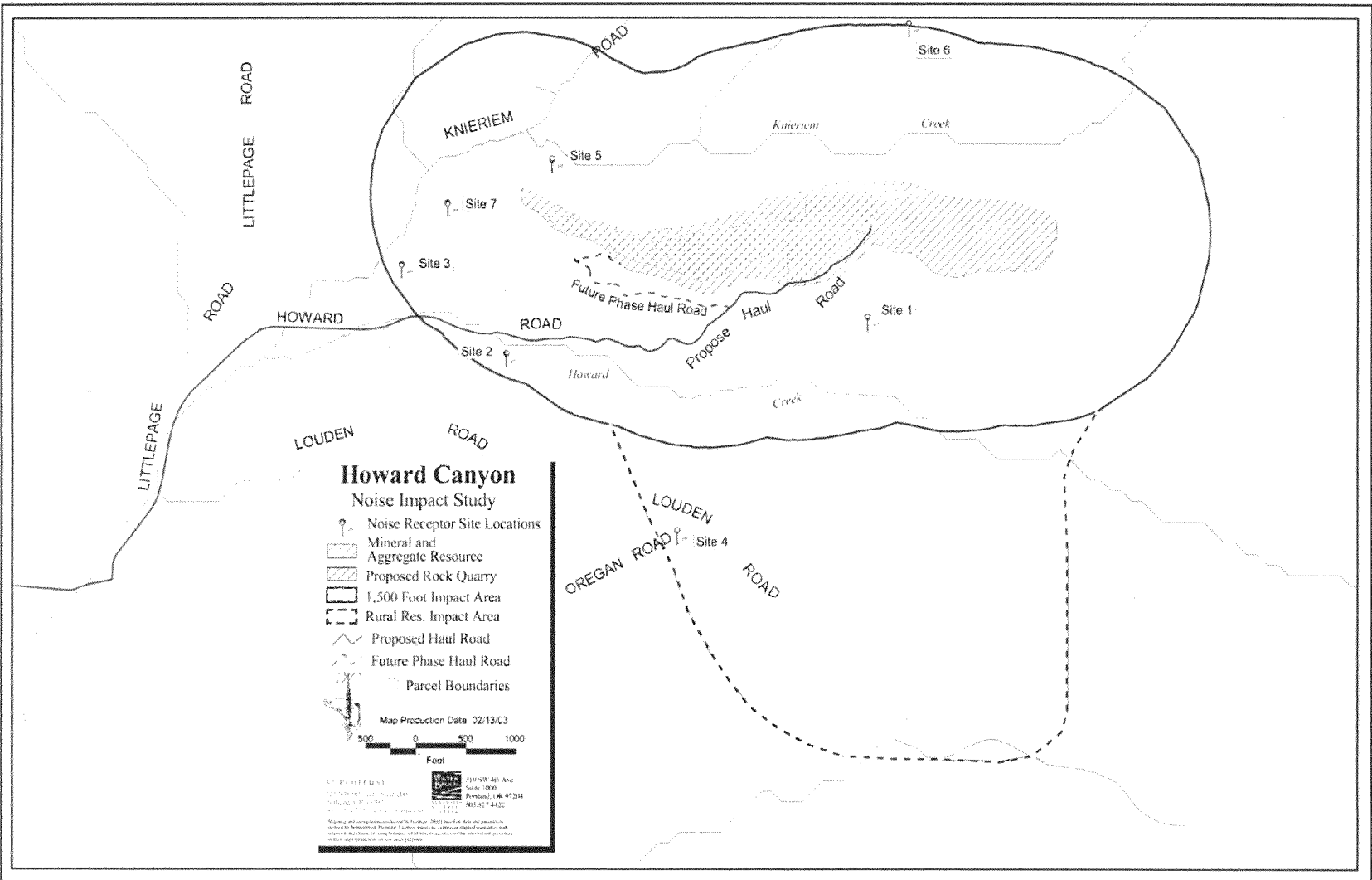


Figure 6. Noise Impact Study

Although the original quarry operations may qualify as an existing source under the DEQ definitions, the quarry has operated under a small-scale Grant of Total Exemption without a permit from the County. Expansion of the quarry will require new permits. The expanded quarry operations also will cross parcel lines onto property that was previously unused. Therefore, for the purposes of evaluating the noise impacts, this analysis will use the stricter standard for New Sources on Previously Unused Sites (Ambient plus 10dBA). Also, per OAR 340-35-0035(1)(b)(ii), the noise analysis will include all noises generated or attributable to the quarry, including the off-site impacts of truck traffic.

Noise Levels

Al Duble, P.E., an acoustical engineer, prepared for Multnomah County a study of the noise impacts of the Howard Canyon Quarry (see Appendix D). Ambient noise was measured at seven residential sites surrounding the resource site in February and March, 2002 (see Figure 6). The noise of rock extraction and processing sources also were measured. Future noise levels were calculated with "Noisecalc", a popular computer sound propagation program.

Table 3. Predicted Noise Levels Compared To Ambient Levels

Site No.	Distance To Future Extraction ¹	Quietest Daytime Hour (Ambient)	Predicted Noise Level	Difference
1 – Howard Rd.	1,025 ft	39dBA	51dBA	+12dBA
2 – Howard Rd.	1,400 ft	62dBA ²	44dBA	-18dBA
3 – Howard Rd.	1,375 ft	37dBA	43dBA	+6dBA
4 – Loudon Rd.	2,750 ft	37dBA	40dBA	+3dBA
5 – Knierem Rd.	400 ft	40dBA	53dBA	+13dBA
6 – Salzman Rd.	1,565 ft	38dBA	48dBA	+10dBA
7 – Howard Rd.	770 ft	38dBA	47dBA	+9dBA

1. Per the Olson Engineering Mining Plan (Appendix C).

2. This site abuts Howard Canyon Creek, which raises the ambient noise level.

Table 4. Predicted Noise Levels Compared To Ambient plus 10 dBA Standard

Site No.	Distance To Future Extraction	DEQ Hourly Standard (Ambient plus 10 dBA)	Predicted Noise Level	Difference
1 – Howard Rd.	1,025 ft	49dBA	51dBA	+2dBA
2 – Howard Rd.	1,400 ft	62dBA	44dBA	-18dBA
3 – Howard Rd.	1,375 ft	47dBA	43dBA	-4dBA
4 – Loudon Rd.	2,750 ft	47dBA	40dBA	-7dBA
5 – Knierem Rd.	400 ft	50dBA	53dBA	+3dBA
6 – Salzman Rd.	1,565 ft	48dBA	48dBA	0
7 – Howard Rd.	770 ft	48dBA	47dBA	-1dBA

Two locations (Sites #1 and 5) are predicted to exceed the more restrictive DEQ Ambient Degradation Standard, and a third location (Site #6) meets the standard exactly. These

predicted noise levels create conflicts that need to be mitigated or addressed through the ESEE analysis.

Blasting Noise

Blasting noise was calculated based on distance to each site and charge weight and compared to the DEQ blast noise standard of 98dBC.

Table 5. Predicted Blast Noise Levels

Site No.	Distance To Future Extraction	Scaled Distance	Calculated Noise Level	DEQ Blast Standard	Difference
1 – Howard Rd.	1,025 ft	47 ft	96 dBC	98 dBC	-2dBC
2 – Howard Rd.	1,400 ft	114 ft	83 dBC	98 dBC	-15dBC
3 – Howard Rd.	1,375 ft	112 ft	82 dBC	98 dBC	-16dBC
4 – Louden Rd.	2,750 ft	224 ft	71 dBC	98 dBC	-27dBC
5 – Knieriem Rd.	400 ft	37 ft	99 dBC	98 dBC	+1dBC
6 – Salzman Rd.	1,565 ft	128 ft	84 dBC	98 dBC	-14dBC
7 – Howard Rd.	770 ft	63 ft	94 dBC	98 dBC	-4dBC

Only one site (site 5) exceeds the DEQ blast noise standard. However, the calculated noise levels exceed ambient levels, so are expected to be audible within the impact area.

Truck Noise

Truck noise was studied based on a maximum hourly volume of five trucks per hour (10 round trips), or 40 trucks per day. This volume exceeds the 30 trucks per day in the most intensive mining scenario at the 75,000 cubic yards per year extraction rate. At five trucks per hour, the calculated truck L10 noise level is 51 dBA. The L10 standard (ambient plus 10dBA) for the seven sites range from 51-63 dBA, with three sites at 51 or 52 dBA. Therefore, the haul trucks (at five trucks per hour) could meet this standard. If the truck volume decreases from five truck per hour to two per hour, the L10 truck noise would decrease to 43 dBA, well within the ambient plus 10dBA L10 standard.

However, the truck noise level is based on a reference point of 50 feet, a reference speed of 35 mph, and a flat grade. Noise levels for houses located closer than 50 feet to the road will be louder.²⁶ If the distance decreases from 50 feet to 25 feet, then the noise is expected to increase 6 dBA.²⁷ Trucks traveling faster than 35 mph will be louder. Trucks accelerating uphill or using their engine “Jake” brakes on a downhill section will be louder. All of these conditions exist along the truck route, and therefore have the potential to create conflicts.

The predicted noise levels for trucks have the potential to create conflicts that need to be mitigated or addressed through the ESEE analysis.

²⁶ The minimum front setback in the Rural Residential and Rural Center zones is 30 feet.

²⁷ Page 8, Dubble Noise Study (Appendix D)

Quality of Life Issues

The DEQ hourly noise standard does not adequately reflect the impact from continuous quarry activities. It does not distinguish between one hour of operation or eight hours of operation. It does not distinguish between one day of operation or eight months of operation. However, there is no objective standard to measure or quantify this impact to the quality of life to the surrounding area.

Therefore, the long-term noise impacts on quality of life are potential conflicts that need to be mitigated or addressed through the ESEE analysis. These impacts will be addressed as a social impact, especially in terms of impacts to the rural quality of life. Noise impacts may be considered an environmental impact, related to air quality, or an economic impact, related to the cost of mitigation measures, such as additional sound insulation. For this study, the impacts are related to the social impacts, in that, mitigation measures to mitigate social impacts will reduce any environmental or economic impact.

Local Transportation Network

The Howard Canyon Quarry is only accessible from local roads and is 3.9 miles from the nearest arterial at the intersection of Hurlburt Road and the Historic Columbia River Highway (HCRH) and another 4.8 miles (a total of 8.7 miles) to Interstate 84. The Corbett area is located between the Sandy and Columbia Rivers with only three access routes across the Sandy River to the Portland metropolitan area – the HCRH, Corbett Hill Road to Interstate 84, and Gordon Creek Road to the south.

Other operating quarries in Multnomah County, such as the Angell Brothers site and the County's 190th Ave site, have direct access to collector, major collector, or arterial streets.

Bridges and Culverts

Water and topography limit the point of ingress and egress to the rural area east of the Sandy River and require all traffic to pass over one of several bridges or viaducts. Bridge Inventory Ratings differ for different truck configurations. The typical aggregate haul truck is a Type 3 truck, which has tandem (double) rear axels and a total maximum weight of 25 tons when fully loaded. The proposed truck route limits the number of bridge or culvert crossings to the following:²⁸

Littlepage Road Culvert over Big Creek: This 12-foot span concrete culvert is about 2,000 feet south of the Howard Road intersection. A 1992 evaluation by the County's Bridge Section listed the culvert as a Type 3 Inventory Rating, which is defined as 25 tons for Type 3 trucks. The Inventory Rating is defined as the load that can safely utilize an existing structure for an indefinite period. The listed Operating Rating for the culvert is 33.3 tons.

²⁸ Multnomah County, Division of Transportation, Bridge Office

Hurlburt Road Culvert (#520-03) over Smith Creek: This culvert is at milepost 0.380 on SE Hurlburt Road. According to the IRIS database, the cast-in place concrete culvert is a 70' long box, with a height of 36" and width of 48". There is a headwall on the inlet. Cover depth is 10' with fall slope of 2% from inlet to outlet. The pipe has a 10 degree skew off of perpendicular of the road. There is only 1 pipe at this crossing. Maintenance crews regularly inspect the culverts, but the original inventory was done at August 1994, and the non-engineering inventory team view the pipe as "Adequate" in meeting the draining needs. The pipe is in Fair condition. This pipe is identified as one of the County's 45 fish passage culverts, but it's rating places it in the lowest third of program priority.

Howard Road Culverts over Howard Canyon Creek: A February 6, 2003 letter by Brian Freeman, P.E., of Group Mackenzie on behalf of the property owner identified four culverts along Howard Road that require improvements to provide adequate cover, structural support, or pipe strength.

Roads

The 1996 HCRR included an assessment of the local road segments nearest the Howard Canyon Quarry.²⁹ This assessment is supplemented by an overlay analysis by Pavement Services, Inc. (PSI) prepared for the quarry owner.³⁰

Howard Road: This road is designated as a local road on the Multnomah County Functional Classification for Trafficways. The distance from the site driveway to the Littlepage Road intersection is 6,300 feet and runs parallel to Howard Canyon Creek and Big Creek with four culvert crossings. The roadway appears to be in fair to good condition with no evident distress. The existing structural section of the road is 2.75 to 4.0 inches of asphalt concrete on a 5 to 13 inch thick aggregate base. The PSI overlay analysis indicates that an overlay of about 0.5 to 2.0 inches (average of 1.3 inches) thick is needed to handle the haul trucks from the quarry.

Littlepage Road: This road is designated as a local road on the Multnomah County Functional Classification for Trafficways. Littlepage Road, from Hurlburt Road to Knieriem Road, is designated as a bikeway, but rural area bikeway standards do not require paved shoulders or a bike lane. The distance from Howard Road to Hurlburt Road is 2,200 feet and runs parallel to Big Creek with one culvert crossing. The roadway appears to be in very good condition with no evident distress. The existing structural section of the road is seven inches of asphalt concrete on a four inch aggregate base. The PSI overlay analysis indicates that, on average, a 1.5 inch overlay is needed north of Loudon Road, but no overlay is required south of Loudon Road to handle the haul trucks from the quarry.

²⁹ Page III-18, 1996 HCRR

³⁰ *Howard Canyon Quarry Haul Route Pavement Evaluation*, December 18, 2001 by Pavement Services, Inc.

Hurlburt Road: This road is designated as a rural collector road on the Multnomah County Functional Classification for Trafficways. The distance from Littlepage Road to the Historic Columbia River Highway is 2.3 miles with one culvert crossing. The roadway surface has been chip sealed and generally appears to be in good condition, with occasional areas of low severity alligator cracking. The roadway has two travel lanes that are 10-feet and wider with varying shoulder widths. The existing structural section of the roadway is 7.0 to 9.75 inches of asphalt concrete on a 5 to 10 inch thick aggregate base. The PSI overlay analysis indicates that no overlay is required except for two isolated locations that require 0.6 inches overlay to handle the haul trucks from the quarry.

Hurlburt Road is a designated bikeway, but rural area bikeway standards do not require paved shoulders or bike lanes. Improving the bikeway along Hurlburt Road is a \$1,000,000 project and is on Multnomah County's Fiscal Year 2003-2007, Transportation Capital Improvement Plan (TCIP), but is not scheduled to be constructed.

Historic Columbia River Highway (HCRH): This road is designated as a district highway in the Oregon Highway Plan (1999). The distance from Hurlburt Road to the Troutdale Bridge across the Sandy River is 4.33 miles and runs parallel to the Sandy River. The highway is a registered national historic landmark starting at the Lewis & Clark State Park through Springdale and Corbett and east into the Columbia River Gorge National Scenic Area. The HCRH has two 12-foot wide travel lanes with varying shoulder widths. Some shoulder widths are paved with the rest gravel. The roadway surface appears to be in good condition except for a very few locations of low severity distress and one location of a small sinkhole failure marked for repair. The existing structural section of the road is 6.0 to 8.5 inches of asphalt concrete on a 4 to 10 inch aggregate base. The PSI overlay analysis indicates that strengthening the roadway is required at approximately 30% of the test locations, with an average overlay of about 0.3 inches to handle the haul trucks from the quarry.

Jordan Road: This road is a short (0.69 mile) connector between the Sandy River bridge and I-84. It is not classified by Multnomah County or ODOT, but is under the jurisdiction of Oregon State Parks with a maintenance agreement with ODOT. Jordan Road has two 12-foot wide travel lanes with varying shoulder widths. The northbound lane width narrows to 10 feet as the road passes under the railroad bridge, with the bridge buttress approximately 2 feet from the edge of the roadway. At this point, the roadway curves and northbound trucks are forced to cross the centerline into the southbound lane. An expansion of the road at this location requires approval by the Union Pacific railroad as well as potential impacts to the Sandy River, a national scenic waterway.

The roadway surface is in fair to good condition except for the area near the I-84 interchange, which is in poor condition. The existing structural section of the road is 4.25 inches of asphalt concrete on a 10 inch aggregate base. The PSI

overlay analysis indicates that strengthening the roadway is required at two locations, with an average overlay of about 0.7 inches to handle the haul trucks from the quarry.

The only planned road maintenance or improvement projects along the route is a shoulder widening project for pedestrian and bicycle use for Hurlburt Road from Littlepage Road to the Historic Columbia River Highway. The project is identified as a Bike Fund project on the 2003-2007 Transportation Capital Improvement Program. The cost is estimated at \$1,000,000. This project ranks 66th out of 75 projects on the list and is not scheduled for construction.

The following conflicts exist on the local transportation network:

- The proposed truck route crosses at least 6 bridges or culverts that may not be able to handle a significant increase in truck traffic over a long term basis.
- The proposed truck route is on local roads that are unable to carry a significant increase in truck traffic over a long term basis.
- Hurlburt Road and Littlepage Road are designated bikeways without bicycle lanes or paved shoulders, which could create conflicts between quarry truck traffic and pedestrians, bicyclists and equestrians.
- The northbound lane of Jordan Road as it passes under the railroad bridge is too narrow, which causes northbound trucks to cross the centerline into the southbound lane.
- The Historic Columbia River Scenic highway is a designated national historic landmark, scenic byway, a primary accessway for the area, and a regional attractor for tourism and recreation.

The potentially significant impacts to local roads are conflicts that need to be mitigated or addressed through the ESEE analysis. Road maintenance and improvement projects will be addressed as an economic impact. Safety issues and conflicts between users, especially pedestrians, bicyclists, and equestrians, will be addressed as a social issue.

No specific road improvement projects have been identified at this time, so the environmental impacts are difficult to determine. However, road improvement projects could involve removal or replacement of culverts that are barriers to fish passage. Therefore, given all road projects are required to comply with federal ESA rules to minimize impacts to salmonids and their habitat, road projects are assumed to have minimal environmental impacts and will not be considered as part of the ESEE analysis.

Other Goal 5 Resources

Multnomah County has conducted four analyses of significant natural resources in the East of the Sandy River Rural Plan area. As part of the initial adoption of the Multnomah County Comprehensive Framework Plan in 1980, the first survey identified several large-scale significant resource sites (or combinations of many significant resources categories), wildlife habitat areas and historic sites. In 1990, a second inventory identified significant wetlands and associated wildlife habitat areas. The third analysis was the 1996 HCRR. The fourth analysis was the *East of Sandy River Wildlife Habitat and Stream Corridor ESEE Report*, completed in 1997. Based on these analyses, the other Goal 5 resources that potentially conflict with the Howard Canyon Quarry, include:

- Significant Streams
- Big Game Wintering Habitat Areas
- Historic Resources

Significant Streams

The 1996 HCRR determined that Howard Canyon Creek, Knieriem Creek, and Big Creek are significant Goal 5 resources.³¹ Howard Canyon Creek and Knieriem Creek are tributaries to Big Creek, which in turn is a tributary of the Sandy River (see Figure 7). The drainage area of all three creeks is approximately 4,134 acres. The Oregon Department of Fish and Wildlife (ODFW) designates all three creeks as Class 1 streams. The Sandy River is designated by the County as a significant Goal 5 resource and as a state scenic waterway and a federal wild and scenic waterway.

Multnomah County has protected all three streams with the SEC (Significant Environmental Concern) overlay zone that applies within 300 feet of the stream centerline. This zoning overlay limits new development within 300 feet of the streams and requires full mitigation of any impacts through proper design and revegetation of disturbed areas. In areas where damage is unavoidable, the development must show other stream enhancements will improve the overall quality of the stream from its previous state. Forestry and agriculture activities are exempt from this ordinance.

For this report, Multnomah County contracted with Pacific Habitat Services, Inc. to prepare a Biological Assessment (BA) to address the potential effects of expanding the existing Howard Canyon Quarry on species currently listed or candidates proposed for listing under the federal Endangered Species Act (ESA) and the State of Oregon's ESA (see PHS Biological Assessment, Appendix E). A list of the species potentially affected by the quarry expansion is included in Table 6.

³¹ Pager II-8, 1996 HCRR

Table 6. Federal ESA Status of Species Found in the Howard Canyon area

Species	Scientific Name	Evolutionary Significant Unit (ESU)	ESA Listing Status	Listing Decision Date
Steelhead Trout**	<i>Oncorhynchus mykiss</i>	Lower Columbia River	Threatened	March 13, 1998
Coastal Cutthroat Trout**	<i>Oncorhynchus clarki clarki</i>	Southwest WA/Columbia River	Proposed as Threatened	Since March 1999
Chinook Salmon**	<i>Oncorhynchus tshawytscha</i>	Lower Columbia River	Threatened	March 16, 1999
Coho Salmon**	<i>Oncorhynchus kisutch</i>	Lower Columbia River/Southwest WA	Candidate to Propose as Threatened	July 1995

* The state of Oregon has classified steelhead trout stocks, coastal cutthroat trout, and lower Columbia River coho salmon as Sensitive Species of Critical Concern under the Oregon ESA.

** Steelhead and coho salmon are under the jurisdiction of the National Marine Fisheries Service (NMFS). Coastal cutthroat trout are under the jurisdiction of the US Fish and Wildlife Service (USFWS).

Salmon and steelhead trout habitat in the Sandy River and its larger fish-bearing tributaries are federally protected by the essential fish habitat provisions of the Magnusson-Stevens Act. The 80-foot high waterfall in Big Creek precludes passage by Chinook salmon and steelhead trout from the Sandy River. As such, these species do not inhabit Big Creek, Howard Canyon Creek or Knieriem Creek. However, these creeks do provide habitat for resident cutthroat trout.

Although the waterfall restricts anadromous fish from entering the three creeks, the quality of water in the creeks still influences the quality of anadromous salmonid habitat in the Sandy River. For example, downstream of the confluence of the Sandy River and Big Creek are spawning gravels. These gravels could be negatively affected by changes in water quality stemming from riparian degradation or in-stream impacts to the three creeks. If the operation of the quarry impacts the spawning gravels, then NMFS could consider it as significantly modifying or impairing essential behavioral patterns (e.g. spawning), which is a "take," as defined within the ESA.

The BA assesses the potential effects of mining within the watersheds. It includes an assessment of the current quality and quantity of riparian habitat along the three creeks and an assessment of the in-stream habitat and fish presence within the three creeks. This information is used to determine the environmental baseline of the watershed. Potential impacts from expanding the proposed quarry are weighed against how the environmental baseline could be affected by the mining operation. Proposed conservation measures to ensure that the environmental baseline is not adversely affected are included.

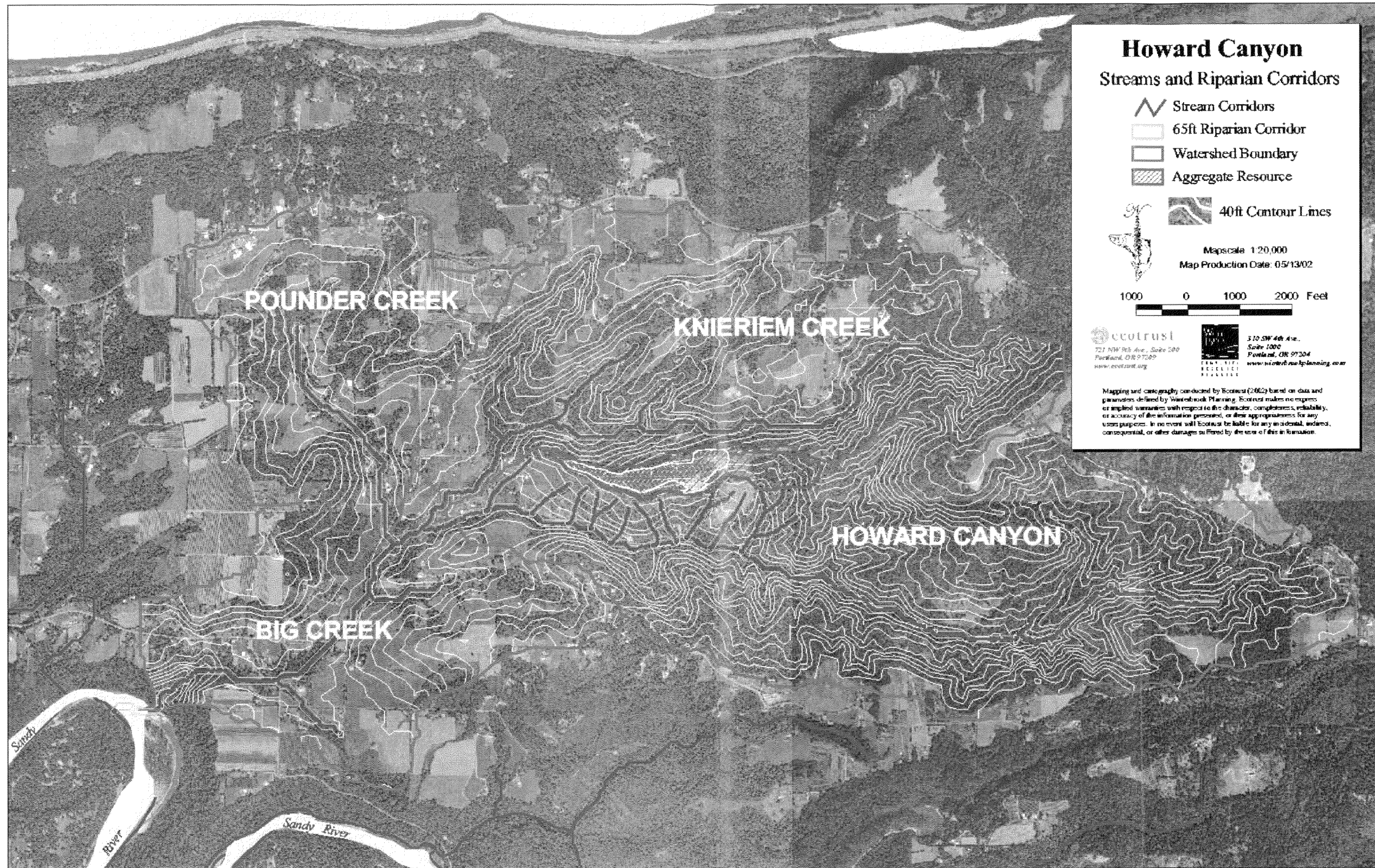


Figure 7. Streams and Riparian Corridors

Stream Characteristics

The northern slope from the quarry area into Knieriem Creek is relatively undissected by drainages; suggesting that most of the surface and ground water from the quarry area goes south to Howard Canyon Creek. Howard Canyon Creek, which lies approximately 1300 feet south of the quarry area, has a gradient of approximately 2%. Tributary drainages to the creek from the quarry area have a variable spacing and strike with an average spacing of 370 feet. The gradient of these small tributary channels varies from 0.15 to 0.25.

A general pattern for the creeks is the change from canopied streams, with better quality riparian habitat, stable banks and better large woody debris (LWD) recruitment in the upper watershed, to less complex, increasingly channelized and exposed streams lower in the watershed. A common feature of the creeks within the vicinity of the quarry is the general lack of complex instream habitat, which primarily stems from the lack of large woody debris (LWD) within the streams. Logging, agricultural activities, and other local land use practices have reduced LWD recruitment in the watersheds. It also appears that several landowners within the area keep their streams and banks "clean".

Water quality was not directly measured during field visits. Therefore, the environmental baseline for water quality can only be indirectly addressed. Upstream of the quarry where human influence is minimal, the water quality of Howard Canyon Creek, Knieriem Creek and its small tributary Ross Creek appeared very good. Canopy cover is good which maintains lower temperatures during the summer. Chemical influences and sedimentation are likely not a problem. Though it was raining during one site visit, all streams ran clear. Downstream, where the streams run through yards and pastures, it is likely that nutrients and fecal coliform from livestock and septic tanks enter the streams. Chemicals leaching into the stream systems likely occurs where there are insufficient buffers from roads (hydrocarbons) and when the creeks flow through yards and pastures or yards (herbicides, fertilizers). Additionally, the streams probably become slightly more turbid due to the unstable and failing banks.

Although the quality of the water degrades in all of the streams lower in the watershed, the quality does not appear to be sufficiently poor to inhibit populations of cutthroat trout from persisting along the entire stream network even during the summer.

The riparian areas of the creeks have been impacted by grazing, agricultural activities, rural road construction, and landscaped areas associated with residential construction. In general, the upper reaches of Howard Canyon Creek and Knieriem Creek both have undisturbed sections of riparian vegetation and human influences are minimal. The lower ends of the drainages have already been altered. There are significant impacts from roads, houses and yards, and livestock with access to the stream. Near the confluence of Knieriem Creek and Big Creek, tree cover is entirely lacking from the riparian areas. In general, Big Creek has been impacted by roads, culverts, clearing and residential development. However, areas below Hurlburt Road appear to have an undisturbed

riparian cover extending through Oxbow Park to the Sandy River. The riparian areas have not been directly impacted by the existing quarry operation.

There is no anadromous fish passage from the Sandy River into Big Creek, Howard Canyon, Creek and Knieriem Creek. A large natural 80 foot waterfall exists on Big Creek just above the confluence with the Sandy River. The cutthroat trout that exist upstream of the barrier are not prevented from traveling downstream and may add to the genetic diversity of cutthroat trout in the Sandy River. Upstream of the waterfall, a number of culverts provide difficult or impossible barriers to upstream migration of juvenile and adult cutthroat on Big Creek, Howard Canyon Creek, and Knieriem Creek. The barriers result from the long length of several culverts, the steep slope of several culverts, and eroded outfalls creating jump barriers greater than 6 inches high.

Where property access was granted, a backpack electroshocker (permit issued by the Oregon Department of Fish and Wildlife) was used to assess the presence of fish in Knieriem Creek, Howard Canyon Creek, and Big Creek. The survey determined that only two fish taxa: cutthroat trout and a sculpin species tentatively identified as the reticulate sculpin (*Cottus perplexus*), reside in the three creeks.³² Only sculpins were found in lower Knieriem Creek. The numbers of fish found through the survey were relatively low. All fish appeared in good health with no obvious anomalies including sores, fin rot, or parasites. Collected fish were revived in buckets, identified and returned to the streams.

Potential Effects from Quarry Operations

The impact of quarry operations is dependent of several parameters of watershed health, including: temperature, turbidity, chemical contaminants/nutrients, physical barriers, substrate, large woody material, percent pool area, pool quality, pool frequency, off-channel habitat, refugia, width/depth ratio, streambank condition, floodplain connectivity, peak/base flows, drainage network increase, road density/location, disturbance history, and riparian reserves.

It is unlikely that the quarry will have direct impact on the creeks or the riparian vegetation along the creeks. However, impacts to water quality can have a detrimental effect on fish populations, even within the Sandy River. Increasing the sediment load decreases the viability of the cutthroat trout populations, many of which are isolated to certain reaches of the creeks by substandard culverts that do not allow fish passage and, therefore, the ability to escape from impaired water quality conditions. A spawning gravel bar in the Sandy River, located just downstream of the mouth of Big Creek, could be detrimentally influenced by an increase in sediment deposition resulting from the proposed quarry expansion.

Stormwater runoff from the quarry could become a very large sediment source, especially if overburden stockpiles are washed down into Howard Canyon Creek. Also, increased truck traffic on adjacent roads also may contribute to sediment entering the creeks from mud, dirt, and dust blowing off the trucks and load. Vehicle refueling and maintenance

³² Page 4, PHS Biological Assessment (Appendix E)

as well as accidental chemical spills could impact water quality. Implementation of strict conservation measures will be needed to reduce adverse impacts to water quality.

Potentially significant impacts to streams and listed salmonid species will be mitigated or addressed as an environmental impact through the ESEE analysis.

Sensitive Big Game Wintering Areas Habitat

The East of Sandy Rural Plan incorporated by reference the finding of *The East of Sandy River Wildlife Habitat and Stream Corridor ESEE Report*, completed in 1997. This report concludes that the Howard Canyon quarry is located near three types of wildlife habitat area – primary, secondary and impacted. Primary wildlife habitat, consisting of large connected blocks of forest land in various successional stages, is located to the east. Secondary wildlife habitat (mixed forest and agriculture areas) and impacted wildlife habitat (rural residential and agricultural areas) areas are located to the west. Primary and secondary wildlife habitat areas were found significant.

In response to the previous conditional use permit application, the Oregon Department of Fish and Wildlife (ODFW) identified Howard Canyon and its environs as winter range for blacktail deer and Roosevelt elk.³³

Impacts to winter range for blacktail deer and Roosevelt elk are addressed as an environmental impact in this ESEE analysis.

Historic Resources

Public comments and testimony have raised the issue of potential impacts to the historic resource qualities of the HCRH. The County's 1980 inventory identified two historical sites within the East of Sandy River rural area outside of the Columbia Gorge National Scenic Area. These are the Mountain View Cemetery, which is county-owned and thus protected, and the Graff house, a Queen Anne-style structure located on Loudon Road, erected in 1885, and privately owned. This house is on the National Register of Historic Places. It also has a Historic Preservation Overlay zone, which requires review of any alterations for their effect on the site's historic nature. There are many County-designated historic sites within the Columbia Gorge National Scenic Area, which are now protected under the National Scenic Area Management Plan. In addition, a 1981 Oregon Department of Transportation (ODOT) study (*the Columbia River Highway Project*) inventoried historic resources along the HCRH. The inventory studied five structures in Springdale which have some historic significance, including the Springdale School Building. The study documented the well-known historic nature of the HCRH itself, which also is on the National Register of Historic Places. ODOT has determined that widening the HCRH to include turn lanes would have an adverse effect on the historic designation.

³³ Email from Gregory Hobart, Habitat Biologist, ODFW to Virginia Bowers, Multnomah County, dated March 29, 2001

Farm and Forest Impact Study

The Board of Commissioners directed County staff to review potential impacts to surrounding farms. Because Multnomah County policies address farm and forest impacts, this study was expanded to include forests as well as farms.

The Farm and Forest Impact Assessment included a windshield survey and a mail survey to determine possible impacts from quarry operations. The windshield survey of the impact area and truck route was conducted to observe and note different farm and forest practices. An impact survey was mailed to all property owners within the impact area and along the truck route to identify potential conflicts between the quarry operations and existing farm and forest practices.³⁴ The summary of survey results is in Appendix F. In addition, a significant number of letters and public testimony has been submitted to document adverse impacts to farms in the surrounding area and along the truck route.

Current Farm and Forest Practices

In general, agricultural practices within the impact area and along the truck routes are a mix of small-scale farms, primarily raising livestock (horses, cattle, sheep, goats, llamas, and alpacas) with pastures for grazing or growing hay. There are a few farms that grow crops (vegetables and berries) or nursery stock.

Commercial forest lands are located primarily to the east of the quarry site. There are few small-scale wood lots located along the truck route.

Potential Changes to Farm and Forest Practices

Many of the survey respondents did not identify any impacts from the existing quarry or potential changes from an expansion.

Some respondents identified negative impacts to livestock related to blasting and truck traffic. These noise impacts scare animals, causing them to panic, breakdown fences and get loose. These respondents indicated a need to be more cautious with handling livestock, such as creating buffer zones and keeping them away from the edge of the road. A few respondents indicated breeding problems such as miscarriages or animals too nervous to breed. One respondent indicated negative impacts, especially from truck traffic, on their show horses. The trucks distract and otherwise make the show horse too nervous to train properly. They said increased operating hours and truck traffic would limit their training time.

One respondent indicated the need to wear masks and other protective measures to mitigate dust impacts while cutting and bailing hay.

A few respondents indicated that it might be necessary to change hauling hours during harvest time to avoid heavy truck traffic.

³⁴ Of 344 surveys mailed to property owners, 48 surveys were returned. Not all survey returns were from farm or forest property owners. Some were from rural residential owners with no farm or forest activity. Some addressed traffic and other quality of life impacts unrelated to farm or forest impacts. The survey results are summarized in Appendix F.

None of the forest property owners indicated a potential impact to their practices from the proposed quarry operations.

Potential Cost Increases to Farm and Forest Practices

A couple of respondents indicated increased feed costs due to the loss of pasture land as they try to create a buffer zone by moving livestock away from the truck traffic. In the case of the show horses, the respondent indicated that there would be additional costs to transport the horses to an alternative training grounds or added lighting costs to be able to train at night.

A few respondents indicated added costs for landscaping or fence improvements including adding additional rails or hot wires.

One respondent indicated they would have increased hauling and handling costs if they changed their harvesting and hauling times to off peak hours to avoid truck traffic.

Additional Public Testimony

Testimony at the public hearings and written testimony submitted to the record confirm the impacts identified in the farm survey with additional detail. Selected excerpts include:

Charles Diebert owns a 120-acre farm on NE Salzman Road, northeast of the resource site. Mr. Diebert has testified about conflicts between his livestock and noise from existing quarry operations and truck traffic (exhaust brakes).³⁵ In particular, his animals have experienced miscarriages and have died as a result of stress from loud noises. He is no longer able to utilize "field breeding" and had to build a breeding place at a significant cost.

Michael Bogden owns a farm on Knieriem Road, where he raises livestock, including horses, goats, and llamas.³⁶ Mr. Bogden describes existing conflicts with respect to training his show horse, breeding his llama, and panicked goats in his pastures, which will require additional fencing.

Sue Clark owns a farm on SE Littlepage Road, where she raises show horses.³⁷ Conflicts with truck traffic limits use of local roads for training, which could require transporting horses to another site for training. Also, noise from truck traffic interrupts the breeding of mares brought to the farm.

Leslie Roach owns R&R New Options Equine, which operates on leased pastures on Littlepage Road.³⁸ The farm rehabilitates sick or injured horses and raises and/or trains horses. The farm also offers riding lessons. Existing truck traffic, especially the exhaust brakes, spooks young and inexperienced horses. One barn

³⁵ Letter from Charles Diebert

³⁶ Letter from Michael Bogden, March 1, 2003

³⁷ Letter from Sue Clark, March 1, 2003

³⁸ Letter from Leslie Roach, March 3, 2003

located near the road is used to house pregnant mares, and there is a concern about the noise impact from quarry truck traffic.

Alan Stokes owns a farm on SE Howard Road, where he raises cattle and grows hay.³⁹ Moving farm equipment along SE Howard Road is difficult due to its narrow width and blind corners. Also, quarry activities, especially blasting, could cause cattle to stampede or miscarriages at calving time. The alternative will be to create buffers in the pastures, which will increase feeding costs.

Adverse Impacts

Potentially significant impacts or increased costs on farm practices are related to noise and truck traffic and are potential conflicts that need to be mitigated or addressed through the ESEE analysis. To extent that mitigation measures reduce noise and truck traffic impacts for other conflicting uses (i.e. residential dwellings), some of the impacts to farms will be reduced. However, as evidenced by the conflicts with the existing small-scale GTE quarry operations, there is an inherent conflict between trucks and livestock.

Farm impacts will be primarily addressed as an economic impact, in terms of added cost of farming practices as a result of the quarry operations.

³⁹ Letter from Alan Stokes

ESEE Consequences

OAR 660-016-005 (2) requires that if conflicting uses to the resource are identified, then the economic, social, environmental and energy (ESEE) consequences of the conflicts must be identified and analyzed. Both the impacts on the resource site and on the conflicting use must be considered. The applicability and requirements of other Statewide Planning Goals, where appropriate, must also be considered. (OAR 660-16-0005)

The ESEE analysis is divided into three major components:

1. The consequences of the main quarry operations as a function of the amount of material extracted.
2. The consequences of mining on the hogback ridge.
3. The consideration of other Statewide Planning Goals.

Overview

The ESEE analysis is based on three basic scenarios outlined in OAR 660-16-010:

Fully Allow Mining (Protect the Resource Site without Local Restrictions)

Allow unlimited extraction of mineral and aggregate material, with minimal mitigation measures to comply with minimum state standards for noise and stormwater impacts. It assumes no additional local requirements or conditions of approval. ESEE consequences are summarized in Table 7. In general, there are no or minimal positive economic benefits in providing a regional and local source of mineral and aggregate material, with negative impacts to the surrounding area, in terms of reduced quality of life, increased costs to farms, increased potential of water quality impacts and sedimentation in the streams, and increased costs related to road maintenance and improvement projects.

Fully Allow Conflicting Uses (Prohibit Mining)

This scenario evaluates the consequences of no quarry activities. It assumes that the conflicts with existing and new residential dwellings and farms effectively prevent extraction of the aggregate and mineral resource. The ESEE Consequences are summarized in Table 7. In general, eliminating a regional and local source of mineral and aggregate material will have no or minimal negative economic impacts to the county and the region. Prohibiting extraction would have a major economic impact to the quarry owner and operator, however, this impact would be mitigated by the continuing operations under the DOGAMI GTE. These impacts are balanced by positive impacts to the surrounding area, in terms of improved quality of life and decreased costs to farms.

Limit Mining and Conflicting Uses

This scenario explores three alternatives of balancing the conflicts between extraction and the surrounding uses. The ESEE Consequences are summarized in Table 7.

1. Base Measures plus Severe Limits on Volume – The scenario includes Base Mitigation Measures for stormwater and noise with strict limits on volume of material

to represent continued operation of the quarry at levels similar to the DOGAMI GTE limits. In general, there will be no economic impacts to the county and the region because there will be a continuation of the supply at historic levels. The quarry owner will continue to realize some economic benefit, but it will be reduced by the added cost of the mitigation measures. The negative impacts to the surrounding area, in terms of impacts to quality of life and to farms, are reduced but still present.

2. Base Measures plus Moderate Limits on Volume of Material – This scenario includes Base Mitigation Measures plus limits extraction to a maximum of 17,500 cubic yards per year. In general, there are no or minimal positive economic benefits in providing a regional and local source of mineral and aggregate material, with increased economic benefits to the quarry owner and operator. These economic benefits are offset by increased costs for mitigation measures, such as additional noise and water quality monitoring or more extensive road improvements. There are increased negative impacts to the surrounding area, in terms of reduced quality of life and increased costs to farms. The negative impacts are related to the overall level of quarry activities (duration of operations) and volume of truck traffic.
3. Base Mitigation Measures – This scenario allows extraction up to 35,000 cubic yards per year. In general, there are no or minimal positive economic benefits in providing a regional and local source of mineral and aggregate material, but greatly increased economic benefits to the quarry owner and operator. These economic benefits are offset by increased costs for mitigation measures, such as additional noise and water quality monitoring and more extensive road improvements. There are increased negative impacts to the surrounding area, in terms of reduced quality of life, increased costs to farms, and increased costs related to road maintenance and improvement projects. The negative impacts are related to the overall level of quarry activities (duration of operations) and volume of truck traffic.

Table 7. Summary of ESEE Consequences

	Fully Allow Mining	Limit Mining and Conflicting Uses	Prohibit Mining
Economic	<ul style="list-style-type: none"> • No or minimal positive effects to the region and east Multnomah County. • Positive economic effects to quarry owner and operator. • Possible negative effects to property values in the area. • Negative effects from increased cost of farm practices. • Negative effects from decreased development in rural center. • Negative effects due to lower water quality and increased treatment costs. • Negative effects due to decreased outdoor recreation opportunities. • Negative impacts due to increased road maintenance costs. • Marginal positive impacts in providing local aggregate source. 	<ul style="list-style-type: none"> • No or minimal positive effects to the region and east Multnomah County. • Decreasing positive economic effects to quarry owner and operator. • Decreasing negative effects to property values in the area. • Decreasing negative effects from increased cost to farms. • Decreasing negative effects from decreased development in rural center. • Decreasing negative effects from improved water quality and lower treatment costs. • Decreasing negative effects due to decreased outdoor recreation opportunities. • Decreasing negative impacts due to increased road maintenance costs. • Marginal positive impacts from a local aggregate source. 	<ul style="list-style-type: none"> • No or minimal negative effects to the region and east Multnomah County. • Negative economic effects to quarry owner and operator. • Possible positive impact on property values for quarry impact area. • Positive economic effects on farm practices due to reduced costs. • Positive effects from increased development in rural center. • Possible positive impacts on water quality and decreased treatment costs. • Positive impacts due to lower road maintenance costs. • Positive effects due to increased outdoor recreation opportunities. • Marginal negative effects from loss of local aggregate supply.
Social	<ul style="list-style-type: none"> • Negative impacts on quality of life due to increased noise levels from the quarry operations and truck traffic. • Negative effects from ped, bike, and equestrian conflicts with truck traffic. • Negative impacts from reduced outdoor recreation opportunities. 	<ul style="list-style-type: none"> • Decreasing negative impacts on quality of life due to lower noise levels from quarry operations and lower truck traffic. • Decreasing negative effects from conflicts with truck traffic. • Decreasing negative impacts on reduced outdoor recreation opportunities. 	<ul style="list-style-type: none"> • Increased quality of life due to elimination of noise impacts. • Positive impacts from eliminating ped, bike, and equestrian conflicts with truck traffic. • Positive impacts from increased outdoor recreation opportunities.
Environmental	<ul style="list-style-type: none"> • Negative effects to streams due to lower water quality and increased potential of sedimentation. • Negative effects on big game wintering habitat due to increased quarry activities and truck traffic. 	<ul style="list-style-type: none"> • Positive effects to streams due measures to protect water quality and decreased sedimentation. • Decreasing negative effects on big game wintering habitat due to mitigation measures on quarry activities and truck traffic. • Positive effects if road projects result in removal of fish barriers. 	<ul style="list-style-type: none"> • Positive effects to streams due decreased sedimentation. • Positive effects on big game wintering habitat. • Possible negative effects if road projects are delayed that would result in removal of fish barriers.
Energy	<ul style="list-style-type: none"> • Positive effects from decreased travel distances for aggregate. 	<ul style="list-style-type: none"> • Positive effects from decreased travel distances for aggregate. 	<ul style="list-style-type: none"> • Negative effects from increased travel distances for aggregate.

ESEE Consequences of Alternatives Scenarios

Fully Protect the Mineral and Aggregate Resource (Allow Mining without Local Restrictions)

This scenario assumes extraction of mineral and aggregate material with no local restrictions. Federal and state (DEQ and DOGAMI) rules that mitigate noise and stormwater impacts apply, but there are no local limitations on the amount of extraction, except for compliance with DEQ standards for truck noise, which may limit truck traffic to 5 trucks per hour, or 40 trucks per day. This scenario assumes the County only imposes limited conditions of approval, even for local roads, and defers to the state agencies for enforcement of noise and stormwater standards.

Economic Consequences

▪ Region and Countywide

Aggregate is an important construction material used in building foundations and roads. The Portland metropolitan region is a net importer of quality aggregate rock.⁴⁰ Multnomah County imports aggregate from Columbia County and Clark County, Washington. Production numbers for Multnomah County are unavailable, but the total production for 2000-01 for Multnomah, Washington, and Clackamas counties was 9.1 million tons.⁴¹ Total demand for aggregate in the three counties was estimated at 15.5 million tons.⁴²

Multnomah County has 11 permitted quarries, including Howard Canyon.⁴³

Extraction at 75,000 cubic yards per year represents less than one percent of the estimated regional demand for aggregate. Therefore, the quarry is expected to have minimal influence on the regional price of aggregate.

The Howard Canyon Quarry will create jobs in terms of quarry operators, truck drivers, and processors. However, the total number of jobs is expected to be negligible in terms of the total employment in the county or the region.

Result: Minimal positive economic impacts for the county and the region.

▪ Local (East of Sandy River)

Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River.⁴⁴

The local market for mineral and aggregate resources has three components:

⁴⁰ Whelan, Robert M., Mineral Economist, DOGAMI, An Economic Analysis of Construction Aggregate Markets and the Results of a Long-Term Forecasting Model for Oregon, DOGAMI Special Paper 27, 1995.

⁴¹ DOGAMI, July 10, 2002

⁴² Whelan, 1995.

⁴³ DOGAMI Database, July 10, 2002

⁴⁴ DOGAMI Database, July 10, 2002

1. Maintenance of existing improvements.
2. New development.
3. Major public (road) projects.

The demand for maintenance of existing improvements and new development is expected to be low given the surrounding area is rural in character and outside the Urban Growth Boundary with the vast majority of land designated as resource land. One current supplier estimated that local demand is approximately 2,000 tons per year.⁴⁵ The demand for major public road projects is variable. All of the local roads will require maintenance at some point, but given the current lack of transportation improvement funding, the timing of such projects is uncertain.

Based on telephone surveys to regional suppliers, the cost of aggregate is relatively inexpensive (\$12-36 per ton).⁴⁶ A local source could reduce transportation costs up to one-third according to public testimony.⁴⁷ Therefore, assuming these transportation cost reductions were passed on to the customer, then a 16-ton load of aggregate could cost \$50 to \$110 less. Assuming the total local demand is 2,000 tons per year and the local cost is \$24,000 to \$72,000 annually, which could be a positive economic benefit of \$8,000 to \$24,000 per year.

Result: Minimal positive economic effects in east Multnomah County by reducing the transportation costs for aggregate.

▪ Quarry Owner and Operator

Full extraction with minimum regulatory standards represents a major economic benefit to the Howard Canyon Quarry owners and operators. Gross revenue of 75,000 cubic yards of material is calculated in Table 8, based on prices quoted in telephone surveys to regional suppliers.⁴⁸

Table 8. Quarry Gross Revenue Projection

Volume (cubic yards)	Weight (tons) (2.4 tons per cy)	Gross Revenue Decorative: \$100/ton Aggregate: \$7.25/ton	Total Gross Revenue
75,000 cy per year			\$6.31 million
Decorative – 30%	54,000 tons	\$5.40 million	
Aggregate – 70%	126,000 tons	\$0.91 million	

Result: Major positive economic effects to quarry owner and operator.

⁴⁵ Public Testimony by Sherwood Davis (local hauler), Planning Commission Public Hearing, October 7, 2002.

⁴⁶ Public Testimony by Peter Finley Fry (dated October 1, 2002) and Robert Grott (October 7, 2002).

⁴⁷ Public Testimony by Sherwood Davis (local hauler), Planning Commission Public Hearing, October 7, 2002.

⁴⁸ Public Testimony by Robert Grott (October 7, 2002).

▪ Residential

Public testimony from several property owners from the surrounding area expressed strong opinions that their property values are reduced due to impacts associated with the current small-scale quarry operations, and that expansion of the quarry would further reduce their property values. Testimony by Bruce Lockwood, a real estate broker, indicated a negative impact to property values due to noise from the quarry activities, truck traffic, and the PAM overlay zone.⁴⁹ Proponents of the quarry have submitted conflicting evidence indicating quarries do not have a negative effect on property values based on photographs, aerial photographs, and tax assessment data for parcels adjacent to operating quarries in Clark County, Washington.⁵⁰ However, this information was not assembled by real estate professionals; is based on sites that are surrounded by urban development; two of the four sites front onto a state highway; and the analysis does not adequately explain the orientation of the quarry which may limit noise or truck impacts.

A protection program to allow full development of the resource may have an economic effect in limiting use or development of property within the impact area through the application of the County's Protected Aggregate and Mineral Resource (PAM) overlay zone. Most of the property within the impact area is zone EFU or CFU, which already carry strict limits on new residential dwelling development. There are 28 vacant parcels within the impact area, 12 of which are in contiguous ownership under the owner of the Howard Canyon Quarry.

Result Negative economic effects to surrounding property owners from decrease in property values due to adverse noise impacts and truck traffic.
Possible negative economic effects to surrounding property owners who would be restricted in future development of their property through the application of the PAM overlay zone.

▪ Farms

The farm impact analysis and public testimony indicates significant economic costs to surrounding farms in the form of increased fencing costs to keep livestock under control when startled by quarry activities or haul trucks; increased feed costs due to the loss of pasture land reserved as a buffer to reduce impacts to livestock; loss of revenue due to adverse impacts to breeding, such as miscarriages; and loss in quality and/or quantity of crop production due to dust impacts.

Farms also require aggregate as part of their on-going operations for driveways and access roads. A local source will reduce transportation costs to deliver aggregate for these uses.

Result: Negative economic effects from increased cost of farm practices.
Minimal positive economic effects from a local source of aggregate for area farms.

⁴⁹ Letter from Bruce Lockwood, Oregon Realty Co., dated August 20, 2003.

⁵⁰ Letter from Tim Ramis, Ramis, Corrigan & Bachrach, dated February 5, 2003.

- **Rural Center**

Springdale is an unincorporated rural community at the junction of Hurlburt Road and the Historic Columbia River Highway along the proposed truck route. There are 16 dwellings with frontage on Hurlburt Road and another 15 dwellings along the Historic Columbia River Highway. Many of these dwellings are closer than the 50-foot setback used in the truck noise calculations. These shorter setback distances increase noise levels and adverse noise impacts, which in turn can decrease property values. In addition, a significant increase in truck traffic could decrease the attractiveness of Springdale for commercial development, which may threaten the viability of existing businesses or discourage new businesses from locating in Springdale.

Any new development will need for aggregate for driveways and access roads. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

Result: Negative economic effects due to possible reduced property values and decreased attractiveness for development in the Springdale rural center.
 Minimal positive economic impacts to new development due to decreased transportation costs for aggregate.

- **Streams**

The negative economic impacts could be lower water quality and increased treatment costs for downstream users due to increased runoff, turbidity, and pollutants. Minimum stormwater controls would be required by state regulations. However, a site visit by County staff and consultants in November, 2001, raised concerns about adequate maintenance of these facilities and the ability of state agencies to enforce even the minimum standards. These shortcomings raise the possibility of increased runoff and sedimentation into the adjacent streams. However, given the distance between the quarry and the streams, the intervening drainages and vegetation reduce the amount of sediment reaching the stream.

The three creeks are part of the Sandy River watershed, which is an important salmon and steelhead fishery. The Sandy River is a popular sport fishing area that attracts visitors who create substantial economic activity for a variety of businesses in the region. Water quality is an important factor in salmon recovery plans. Lower water quality and reductions in the salmon fishery could cause negative economic impacts.

Result: Possible negative economic effects to downstream water users due to lower water quality and increased treatment costs.
Possible negative economic effects to region if lower water quality reduces salmon fishery.

▪ **Big Game Wintering Habitat**

Hunting and outdoor recreation (wildlife watching) have positive economic consequences for local businesses and the travel industry. To the extent that unrestricted mining operations adversely affect the quantity of big game in east Multnomah County, there could be a corresponding adverse impact on the local economy.

Result: Possible negative economic effects to local businesses and the travel industry due to decreased outdoor recreation opportunities.

▪ **Roads**

Fully allowing mining of Howard Canyon will result in a significant increase in truck traffic on local roads and bridges. Some of these roads have the minimum or substandard structural support. The truck traffic will accelerate wear and tear and increase maintenance costs.

However, a local source will reduce transportation costs to deliver aggregate for local maintenance and improvement projects.

Result: Negative economic impacts due to increased road maintenance costs.
Possible positive economic effects from a local source of aggregate for local projects.

Social Consequences

▪ **Residential**

At the public meetings, in the farm survey returns, and in written testimony, several property owners from the surrounding area expressed strong opinions about noise impacts and negative effects on the rural quality of life. Many commented that they choose to live in the area for peace and quiet of a rural area and that the existing small-scale quarry operations were a nuisance.

Under this scenario, the minimum regulatory standard for noise levels would be 55dBA, the DEQ L50 hourly standard for existing uses. The Doble noise study predicted the noise levels from future quarry operations would be below the 55dBA level (see Table 3 above).⁵¹ However, the DEQ standard may not adequately measure the impacts from the duration of the quarry activities. The DEQ standard is an hourly standard and does not adequately account for the continuous operations of the quarry. Unfortunately, there is no objective, measurable standard that distinguishes between one hour of operations and eight hours of operations, or one month of operations or eight months of operations.

⁵¹ Page 9, Doble Noise Study (Appendix D)

Dust is another potential nuisance. Sources include rock crushers and unpaved private access driveways. Rock crushing equipment previously used at the site have obtained DEQ air contaminant discharge permits that require dust control.⁵²

Public comments at the community meeting raised concerns about adequate enforcement of noise and dust standards, and the ability or willingness of the quarry operator to comply with those standards.

Result: Negative social impacts from a perceived reduction in the rural quality of life due to noise and dust impacts from the quarry operations.

- Farms

Possible social effect on farms are addressed either as a noise-related quality of life issue under residential uses (above) or as a safety conflict between trucks and equestrians under roads.

- Rural Center

At the community meeting and in the farm survey returns, several property owners commented about the noise impact of truck traffic traveling through Springdale and a perceived negative impact on the quality of life and Springdale's function as a community center.

Under this scenario, the minimum regulatory standard for truck noise levels would be 60dBA, the DEQ L10 hourly standard for existing uses. The Duble noise study predicted the noise levels from future truck traffic generated by quarry operations would be 51dBA, below the L10 standard.⁵³ The setback of residential dwellings in Springdale is less than the 50 feet used in the noise calculations. If an average setback of 25 feet is used, then the noise level increases to 57dBA, but is still below the DEQ L10 hourly standard. The DEQ standard is an hourly standard and does not adequately account for the continuous operations of the quarry.

Result: Negative social impacts from a reduction in the rural quality of life due to increased truck traffic from the quarry operations.

- Streams

Fishing is enjoyed by many regional residents. To the extent that unrestricted mining operations adversely affect fish in adjacent streams, there could be a corresponding adverse social impact on residents due to reduced fishing opportunities.

Result: Negative social impacts from a reduction in fishing opportunities.

- Big Game Wintering Habitat

Hunting and outdoor recreation (wildlife watching) are enjoyed by many regional residents. To the extent that unrestricted mining operations adversely affect the quantity

⁵² Page III-33, 1996 HCRR

⁵³ Page 8, Duble Noise Study (Appendix D)

of big game in east Multnomah County, there could be a corresponding adverse social impact on residents due to reduced hunting and recreational opportunities.

Result: Negative social impacts from a reduction in hunting and recreational opportunities.

- Roads

At the public meetings, in the farm survey returns, and written testimony, several property owners from the surrounding area expressed concerns about their inability to ride horses on local roads due to conflicts with truck traffic. They indicated that they ride along local roads to access trails along the Sandy River and Oxbow Regional Park. Many of the local roads are narrow and do not have shoulders, which limit the space for trucks to pass and create unsafe conditions for horse riders along the side of the road.

The Historic Columbia River Highway is a popular bicycle route and Littlepage Road and Knieriem Road are designated bicycle routes. There is a planned improvement project to add shoulders to Hurlburt Road for pedestrian, bicycle, and equestrian use, but no specific construction date. Increase truck traffic on these narrow, two-lane roads will increase conflicts with other users, especially on weekends when recreational use is higher.

Result: Negative social impacts from unsafe conditions for pedestrians, bicyclists, and equestrians due to conflicts with truck traffic on narrow local roads.

Environmental Consequences

- Residential

The possible air quality impacts from noise and dust are addressed as a social consequence.

- Farms

Environmental effects on farms, primarily due to dust, are addressed as an economic consequence.

- Rural Center

The possible air quality impacts from noise and dust are addressed as a social consequence.

- Streams

The negative environmental impacts to the streams could be lower water quality due to increased runoff, turbidity, sedimentation and pollutants. Minimum stormwater controls would be required by state regulations. However, a site visit by County staff and consultants in November, 2001, raised concerns about adequate maintenance of these facilities and the ability of state agencies to enforce even the minimum standards. These shortcomings raise the possibility of increased runoff and sedimentation into the adjacent streams.

The three creeks are part of the Sandy River watershed, which is an important salmon and steelhead fishery. Water quality is an important factor in salmon recovery plans. Lower water quality could have negative impacts on the salmon fishery.

Result: Negative environmental effects to adjacent streams and the Sandy River watershed and salmon fishery due to lower water quality and sedimentation.

- Big Game Wintering Habitat

According to ODFW, fully allowing mining of Howard Canyon could disturb deer and elk in the area, especially during the winter.⁵⁴

Result: Negative environmental impacts from quarry operations on big game wintering habitat.

- Roads

Increased truck traffic will increase the need for maintenance and improvement projects on local roads, which could have adverse impacts if not done in an environmentally, fish-friendly manner. Wider roads with shoulders could result in the loss of riparian areas at the stream crossings.

However, road improvement projects represent an opportunity to improve culverts, which will remove barriers to fish passage.

Result: Negative environmental effects to streams and riparian areas due to road maintenance and improvements projects required by increased truck traffic. Positive environmental effects to fish habitat if road improvement projects include culvert replacement and removal of barriers to fish passage.

Energy Consequences

- Residential

Any new residential development in the surrounding area will need for aggregate for driveways and access roads. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

Result: Positive energy effects to new residential development due to decreased travel distances for aggregate.

- Farms

Farms in the area have a need for aggregate for driveways and access roads. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

⁵⁴ Email from Gregory Hobart, Habitat Biologist, ODFW to Virginia Bowers, Multnomah County, dated March 29, 2001

Result: Positive energy effects to farms due to decreased travel distances for aggregate.

- Rural Center

Any new development will need for aggregate for driveways and access roads. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

Result: Positive energy effects to new development due to decreased travel distances for aggregate.

- Streams

There is no identified energy effect on streams.

- Big Game Wintering Habitat

There is no identified energy effect related to big game wintering habitat.

- Roads

Road maintenance and improvement projects need large quantities of aggregate. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

Result: Positive energy effects to road projects due to decreased travel distances for aggregate.

Fully Allow Conflicting Uses (Prohibit Mining)

This scenario evaluates the consequences of prohibiting extraction of the resource. It assumes that the conflicts with existing and new residential dwellings and farms would effectively prevent extraction of the aggregate and mineral resource.

Economic Consequences

- Region and Countywide

If extraction is prohibited, then regional supplies will be slightly reduced and the cost for these products could increase due to scarcity and increased transportation costs to import from outside the region. But given the small potential production volumes and the large regional demand, the impact is expected to be minimal.

Result: No or minimal negative economic impacts in the County and the region due to potential increases in the cost of mineral and aggregate material.

- Local (East of Sandy River)

This scenario reflects the current situation in that all of the local market demand for aggregate is supplied from outside the area. Based on telephone surveys to regional

suppliers, the cost of aggregate delivered to the area is relatively inexpensive (\$12-36 per ton).⁵⁵ Presumably a local source would reduce the transportation costs, which could be up to one-third of the cost. Therefore, assuming these transportation cost increases were passed on to the customer, then a 16-ton load of aggregate could cost \$50 to \$110 more than one coming from a local source. Assuming the total local demand is 2,000 tons per year and the local cost is \$24,000 to \$72,000 annually, then the local market area could save \$8,000 to \$24,000 per year in transportation costs by not having to bring in aggregate from outside the area.

Result: Minor negative economic effects in east Multnomah County by increasing the transportation costs for aggregate.

▪ Quarry Owner and Operator

County prohibition of mining would only prohibit the quarry from obtaining a conditional use permit from the County. It does not prevent the quarry from continuing to operate under the terms of the DOGAMI Grant of Total Exemption for a small-scale quarry. The quarry could continue to operate by limiting the physical extent of the quarry area to five acres and mining down into the formation.⁵⁶ If the quarry operations are found to have begun prior to July 1, 1975, then they can continue in perpetuity provided they meet the annual limits of 5,000 cubic yards of material and one acre of disturbance. In addition, the site qualifies for a different DOGAMI exemption to provide aggregate for roads on contiguous parcels. These exemptions allow for the continued operation of the quarry at historic levels, which will mitigate some of the economic impact of prohibiting the full exploitation of the resource.

Result: Negative economic effects to quarry owner and operator.

▪ Residential

At the public meetings, in the farm survey returns, and written testimony, several property owners from the surrounding area expressed strong opinions that their property values are reduced due to impacts associated with the current small-scale quarry operations. If the quarry operations were to cease and adverse noise impacts and truck traffic were to be eliminated, then property values may increase.

Any new residential development may have added transportation costs to deliver aggregate for foundations and driveways.

Result Possible positive economic effects to surrounding property owners from perceived increase in property values due to the elimination adverse noise impacts and truck traffic.
Marginal negative economic effect to new residential development due to added transportation costs for aggregate.

⁵⁵ Public Testimony by Peter Finley Fry (dated October 1, 2002) and Robert Grott (October 7, 2002).

⁵⁶ DOGAMI, the Schlicker report and the Throop assessment have estimated the formation to be up to 40 feet thick.

- Farms

The farm impact analysis indicates the potential of economic costs to surrounding farms from existing quarry operations in the form of: 1) increased fencing costs to keep livestock under control when startled by quarry activities or haul trucks; 2) increased feed costs due to the loss of pasture land reserved as a buffer to reduce impacts to livestock; 3) loss of revenue due to adverse impacts to breeding, such as miscarriages; and 4) loss in quality and/or quantity of crop production due to dust impacts. If the quarry operations were to cease and adverse noise impacts and truck traffic were to be eliminated, then these economic costs would be eliminated.

Farms also require aggregate as part of their on-going operations for driveways and access roads. Without a local source, transportation costs to deliver aggregate for these uses will increase.

Result: Positive economic effect to farms due to elimination of adverse noise and truck traffic impacts.
Marginal negative economic effect to farms due to added transportation costs for aggregate.

- Rural Center

At the public meetings and in written testimony, several property owners from Springdale testified about the adverse impacts of truck noise through the community. The minimum front setback in the Rural Center zone is 30 feet and many of the dwellings in Springdale are built close to the roadway. If the quarry operations were to cease and truck traffic were to be eliminated, then property values may increase and the attractiveness of Springdale for commercial development may increase.

Any new development will need aggregate for driveways and access roads. Without a local source, transportation costs to deliver aggregate for these uses will increase..

Result: Marginal negative economic effect to new development due to added transportation costs for aggregate.
Positive economic effects on property values and increased attractiveness for development in the Springdale rural center due to the reduction in truck traffic and related noise impacts.

- Streams

Fishing has positive economic consequences for local businesses and the travel industry. To the extent that prohibiting mining operations benefits the streams and fish habitat, there could be a corresponding positive impact on the local economy.

Result: Possible positive economic effects to local businesses and the travel industry due to increased fishing opportunities.

- **Big Game Wintering Habitat**

Hunting and outdoor recreation (wildlife watching) have positive economic consequences for local businesses and the travel industry. To the extent that prohibiting mining operations positively affects the quality of the wintering habitat and the quantity of big game, there could be a corresponding positive impact on the local economy.

Result: Possible positive economic effects to local businesses and the travel industry due to increased hunting opportunities.

- **Roads**

Prohibiting mining of Howard Canyon will reduce truck traffic on local roads and bridges, which could reduce the need for road maintenance and improvement projects.

Result: Positive economic impacts due to reduced road maintenance and improvement costs.

Social Consequences

- **Residential**

At the public meetings, in the farm survey returns, and written testimony, several property owners from the surrounding area expressed strong opinions about noise impacts and negative effects on the rural quality of life of the existing quarry operations. Elimination of these operations would result in improved of the quality of life.

Result: Positive social impacts from an improvement in the rural quality of life due to elimination of noise and dust impacts from the quarry operations.

- **Farms**

Possible social effect on farms are addressed either as a noise-related quality of life issue under residential uses (above) or as a safety conflict between trucks and equestrians under roads.

- **Rural Center**

At the public meetings, in the farm survey returns, and written testimony, several property owners commented about the negative noise impact of truck traffic traveling through Springdale. Elimination of truck traffic from current operations would result in a perceived improvement of the quality of life.

Result: Positive social impacts from a perceived improvement in the rural quality of life due to elimination of truck traffic from existing quarry operations.

- **Streams**

Fishing is enjoyed by many residents. To the extent that prohibiting mining operations benefits the streams and fish habitat, there could be a corresponding positive social impact due to increased fishing opportunities.

Result: Positive social impacts from increased fishing opportunities.

- **Big Game Wintering Habitat**

Hunting and outdoor recreation (wildlife watching) are enjoyed by many regional residents. To the extent that prohibiting mining operations positively affect the quality of the wintering habitat and the quantity of big game in Multnomah County, there could be a corresponding positive impact due to increased hunting opportunities.

Result: Positive social impacts from increased outdoor recreation opportunities.

- **Roads**

At the public meetings, in the farm survey returns, and written testimony, several property owners from the surrounding area expressed concerns about conflicts between truck traffic from the existing quarry operations and pedestrians, bicyclists, and equestrians on the narrow, two-lane local roads. Elimination of truck traffic from the quarry will decrease conflicts with other users.

Result: Positive social impacts from elimination of unsafe conditions for pedestrians, bicyclists, and equestrians due to reduction of truck traffic on narrow local roads.

Environmental Consequences

- **Residential**

There are no environmental effects on residential dwellings.

- **Farms**

Environmental effects on farms, primarily due to dust, are addressed as an economic consequence.

- **Rural Center**

There are no environmental effects on the rural center.

- **Streams**

The eliminating the existing quarry operations could have positive environmental impacts to the streams due to the elimination of potential runoff, turbidity, and pollutants from the site.

Result: Potential positive environmental impacts to adjacent streams and the Sandy River watershed due to eliminating potential major sources of sedimentation.

- **Big Game Wintering Habitat**

Prohibiting mining could lessen disruptions and have a positive impact on the wintering habitat.

Result: Potential positive impacts due to fewer disruptions from quarry activities.

- Roads

Decreased truck traffic will decrease the need for maintenance and improvement projects on local roads, which could minimize adverse impacts to riparian areas at the stream crossings.

However, decreased need for road improvement projects could delay improvements to culverts and removal barriers to fish passage.

Result: Positive environmental impact to streams and riparian areas due to fewer road maintenance and improvements projects.

Negative environmental effects to fish habitat if road improvement projects that include culvert replacement and removal of barriers to fish passage are delayed.

Energy Consequences

- Residential

Prohibiting mining is not expected to increase or decrease energy consumption for existing residential uses. Any new residential development may expend more energy in transporting aggregate from outside of the area.

Result: Negative energy effects to new residential development due to increased transportation distances for aggregate.

- Farms

Farms in the area have a need for aggregate for driveways and access roads. Lack of a local supply will increase travel distances required to deliver aggregate where it is needed.

Result: Negative energy effects to farms due to increased travel distances for aggregate.

- Rural Center

Any new development may expend more energy in transporting aggregate from outside of the area.

Result: Negative energy effects to new development due to increased travel distances for aggregate.

- Streams

There is no identified energy effect on streams.

- Big Game Wintering Habitat

There is no identified energy effect on big game wintering habitat.

- Roads

Road maintenance and improvement projects need large quantities of aggregate. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. Lack of a local supply will increase travel distances required to deliver aggregate where it is needed.

Result: Negative energy effects to road projects due to increased travel distances for aggregate.

Limit Conflicting Uses

Limiting conflicting uses implies more restrictions and mitigations measures on the quarry operations in an attempt to reduce conflicts or impacts on the surrounding area. This scenario assumes a more active role on the part of the County to impose conditions of approval and to monitor and enforce those conditions. It also assumes utilizing higher (or more restrictive) standards, such as DEQ's ambient degradation noise standard. It also assumes a more aggressive monitoring and enforcement role for the County to ensure stormwater runoff does not impact water quality and salmonids in the surrounding streams.

This scenario has three alternatives to explore ways of balancing the conflicts between extraction and the surrounding uses. The variations include mitigation measures that are more restrictive than the minimum state standards and feature decreasing levels of quarry activities, reduced volumes of material and reduced truck traffic. The variations are summarized in Table 9.

1. Base Measures plus Severe Limits on Volume – The scenario includes Base Mitigation Measures for stormwater and noise with strict limits on volume of material to represent continued operation of the quarry at levels similar to the DOGAMI GTE limits.
2. Base Measures plus Limits on Volume of Material – This scenario includes Base Mitigation Measures plus limits extraction to a maximum of 17,500 cubic yards per year.
3. Base Mitigation Measures – This scenario allows extraction up to 35,000 cubic yards per year with the Base Mitigation Measures.

Table 9. Limit Conflicting Uses Variations

	Low Volume	Moderate Volume	Mitigation Measures
Rate of Extraction	5,000 cy/yr	17,500 cy/yr	35,000 cy/yr
Hours of Operation	9am – 4pm	9am – 4pm	9am – 4pm
Max. No. of Trucks Per Day	2	7	14
Number of Blasts per Year L = Low Yield H= High Yield	1H	2L 1H	3L 1H
Drilling per Year	5 days	12 days	20 days
Splitting per Year	50 days	60 days	75 days
Crushing per Year	10 days	20 days	30 days
Loading	0.5 hrs/day	1.5 hrs/day	2.2 hrs/day
Hauling	0.3 hrs/day	0.5 hrs/day	0.8 hrs/day

Note: Estimated extrapolation from Olson Mining Plan (Appendix C).

Mitigation Measures

Noise

Expansion of the quarry will require permits that not been required to date. The expansion will cross parcel lines onto property that was previously unused. Therefore, for the purposes of evaluating the noise impacts, this analysis will use the stricter DEQ standard for New Sources on Previously Unused Sites (Ambient plus 10dBA). Also, the noise impacts include all noises generated or attributable to the quarry, including the off-site impacts of truck traffic.

The Duble Noise Study recommends several modifications to normal quarry operations that could serve to lower noise levels.⁵⁷ The noise study shows that rock drill and excavation noise are the major contributors to the noise levels.⁵⁸ Noise mitigation recommendations include:

- Hydraulic rock drills should be used with a vinyl plastic 1-psf noise barrier, or a straw bale barrier around the rock drill when operating. This barrier should be at least 2 feet higher than the top of the drill.
- Advance notice of blast events should be publicized to the surrounding community. A qualified registered acoustical engineer should monitor noise at several sites during the first blast event. Adjustments to blasting parameters, such as total charge weight, number of holes and stemming, should be made as necessary to meet the DEQ blast noise standard.

⁵⁷ Page 12, Duble Noise Study (Appendix D)

⁵⁸ Page 8, Duble Noise Study (Appendix D)

- A 25 to 30 foot rock wall should be maintained to enclose the processing area on at least three sides. The excavation depth should be maximized as much as possible.⁵⁹
- Overburden should be used to establish a 10 foot high berm at the crest of the ridge at each new excavation location.⁶⁰
- Excavation vehicles, such as front loaders and bulldozers, should be fitted with "residential" quality mufflers. This type of muffler should yield an 8dBA reduction for the low frequency exhaust, which is about 5dBA lower than the typical industrial grade muffler normally supplied with these machines. These mufflers are relatively inexpensive (\$250-500 per vehicle).
- For crushed rock, conveyor belts, instead of haul trucks, should be used to convey excavated rock to the processing area. Transfer points should be enclosed with 20 gauge steel enclosure lined with 1" inch fiberglass panels. Although expensive, use of conveyors belts could reduce overall noise levels by 6dBA.
- Use of engine "jake" brakes should be prohibited along the truck route, except in case of emergency to avoid accidents. If these brakes must be used due the extreme down grade of the haul road, the installation of special mufflers to reduce "jake" brake noise will be required. These mufflers are relatively inexpensive (\$250-500 per vehicle). This measure may be difficult to enforce because not all trucks coming to and from the site will be owned and operated by the quarry operator, some will be independent contractors.
- A qualified registered acoustical engineer should conduct semi-annual noise measurements for the first year at three of the closest residential sites to current quarry operations. After the first year, require annual measurements at the same three sites for a period of three years. The engineers' report should be submitted to Multnomah County.
- If a crusher is used, it should be surrounded with 1-psf vinyl plastic panel barriers supported by a suitable steel framework. Such a barrier should extend at least 2 feet over the highest point of the crusher.
- To reduce quality of life impacts, operating hours should be limited to 9 a.m. to 4 p.m., with no operations on Saturday or Sunday.

Table 10 shows that total noise with these mitigation measures is predicted to be below the stricter DEQ ambient noise standard at all sites. In addition to mitigation measures, the noise levels could be up to 5 dBA less due to ground cover and trees.

⁵⁹ This measure is not possible along the hogback ridge due to steep slopes.

⁶⁰ This measure is not possible along the hogback ridge due to steep slopes.

Table 10. Predicted Mitigated Noise Levels⁶¹

Site No.	DEQ Hourly Standard (Ambient plus 10 dBA)	Predicted Noise Level	Difference
1 – Howard Rd.	49dBA	48dBA	-1dBA
2 – Howard Rd.	62dBA	41dBA	-21dBA
3 – Howard Rd.	47dBA	40dBA	-7dBA
4 – Louden Rd.	47dBA	40dBA	-7dBA
5 – Knieriem Rd.	50dBA	49dBA	-1dBA
6 – Salzman Rd.	48dBA	41dBA	-7dBA
7 – Howard Rd.	48dBA	43dBA	-5dBA

The DEQ hourly noise standard does not adequately address the quality of life or annoyance factor for continuous quarry operations all day, every day. However, there is no objective standard to measure or quantify this impact to the quality of life to the surrounding area. These mitigation measures are designed to help to reduce the annoyance and reduce the impact to the quality of life, primarily by prohibiting quarry operations during times when surrounding residents are most likely to be outside (evenings and weekends).

Public comments raised concerns about adequate enforcement of noise standards, and the ability or willingness of the quarry operator to comply with those standards. These scenarios assume a more active role for the County in monitoring and enforcing compliance with the mitigations measures which would be imposed as conditions of approval for any future conditional use permit.

The truck noise level is based on a reference point of 50 feet, a reference speed of 35 mph, and a flat grade. There are houses located closer than 50 feet along the truck route and trucks will need to accelerate from a stop at four intersections, which will create noise louder than the predicted noise levels. These conditions are amplified in the Springdale rural center, where there is a higher density of houses that are closer to the roadway. These conditions are difficult to mitigate, except in regulating the volume of truck traffic along the truck route.

At five trucks per hour, the calculated truck L10 noise level is 51 dBA. The L10 standard (ambient plus 10dBA) for the seven noise receptor sites range from 51-63 dBA, with three sites at 51 or 52 dBA. If the truck volume decreases from five truck per hour to two per hour, the L10 truck noise would decrease to 43 dBA. Again, the DEQ hourly noise standard does not adequately address the quality of life or annoyance factor for continuous quarry operations all day, every day.

Streams

This scenario includes an aggressive approach to mitigating potential adverse water quality impacts from the quarry. It is imperative that quarry activities do not increase the sediment load in the surrounding creeks. An erosion control plan should include

⁶¹ Page 16, Dubble Noise Study (Appendix D)

measures designed to keep turbidity below ambient plus 10 percent conditions, 100 feet downstream from the quarry during a 10-year storm event. The largest source of sediment could originate from haul roads, processing areas, and overburden stockpiles. An erosion control plan should include the following measures:

- Weed-free straw bales and silt fences at the bottom of newly constructed slopes. Whenever straw bales are used, they should be staked and dug into the ground at least 12 cm (5 in);
- Construction of sediment settling basins, where appropriate. Berms shall be constructed, where appropriate, to divert runoff into these basins;
- Temporary plastic sheeting for immediate protection of open areas (where seeding/ mulching are not appropriate);
- Erosion control blankets or heavy duty matting (e.g., jute) should be used on steep unstable slopes;
- Sills or barriers should be placed in drainage ditches along cut slopes and on steep grades to trap sediment and prevent scouring of the ditches. The barriers should be constructed from rock and straw bales and be regularly maintained. Sills or barriers will be necessary in roadside ditches if water bars or cross-ditches are constructed within the haul roads to intercept and direct runoff from a road;
- On the pit or quarry floor, establish a slope that directs turbid water to flow to a low point where it can be collected in a detention pond;
- Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls should be used on all exposed slopes that could potentially create sediment-laden runoff into the creeks;
- On cut slopes steeper than 1:2 (v:h) where runoff will impact the creeks, a tackified seed mulch should be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch should be applied at 1.5 times the rate;
- No clearing within 100-feet of the creeks should be allowed unless mitigation is provided.
- Overburden should be removed from limited areas; concurrent or segmental reclamation should be encouraged to limit disturbed areas within the quarry.
- Material removed during excavation shall only be placed in locations where it cannot enter the surrounding creeks or their riparian areas;
- Stockpiles of overburden should be completely protected to ensure that sediment-laden runoff does not enter the adjacent creeks;

- Coir mats and coir logs, filter berms, or porous materials, such as sand and gravel that contains no 200-mesh or smaller material, should be used where appropriate to control erosion;
- All creek crossings should be fish passage friendly and constructed with open bottomed arched culverts or bridges with sufficient water passage capacity to withstand 100-year flood events;⁶²
- Excavated areas should be recovered “as you go” so that only 5-10% of the proposed mining area is impacted at any one time.⁶³
- Haul roads should be impervious surfaces with adequate erosion control best management practices to prevent sedimentation into adjacent creeks;⁶⁴
- Erosion control devices that are failing should be immediately repaired to ensure that sediment-laden water does not leave the project site and discharge into the surrounding creeks;
- A permanent truck or wheel wash facility should be constructed to ensure that excess dirt and mud is washed off of all truck tires. The design could incorporate a series of railroad rails spaced approximately 2 to 8 inches apart to shake off the excess dirt while the truck is driving through the wheel wash. All water used to clean the trucks should be treated to remove sediment;
- Regular inspections should be made to inspect all erosion control devices; needed repairs and/or replacement should be identified; quarry staff should be provided with written directives to replace and/or update the devices, as needed; field inspections shall be made to ensure repairs and/or replacement of devices has occurred within specific timelines, and;
- Regular inspections with County staff should be made to review all erosion control devices and identify needed corrections and/or enhancements.

Also, water quality is susceptible to chemical contamination from pollutants such as vehicle fuels and maintenance or accidental chemical spills. A pollution control plan should be prepared to prevent point and non-point source pollution, and include the following measures:

- No pollutants of any kind (petroleum products, fresh concrete, silt, blasting material, etc.) shall come in contact with an active flowing stream or its riparian area;

⁶² Email from Gregory Hobart, Habitat Biologist, ODFW to Virginia Bowers, Multnomah County, dated March 29, 2001

⁶³ Ibid.

⁶⁴ Ibid.

- Vehicle maintenance, refueling of vehicles and storage of fuel shall be conducted at designated refueling areas located at least 150 feet from the creeks. The refueling areas should only be used if they are sufficiently contained and present no possibility for contamination;
- No toxicant (including petroleum products) will be stored within 150 feet of the creeks. Fuel and lubricant storage areas should be regularly monitored for leakage. A spill control kit should be maintained onsite at all times, and;
- Flocculants used to clean stormwater discharges or water recycled from rock-washing operations must be non-toxic and not harmful to fish or aquatic organisms. At least two ponds should be used to remove suspended solids. Settling time should be at least eight hours. The ponds should be easily accessible and maintained on a regular basis. Material removed from the ponds should be disposed of in an upland location.

From October to April, the quarry operator shall submit monthly monitoring reports, which includes water quality samples taken 100-feet downstream from the quarry. With these mitigation measures, the quarry may affect, but is not likely to adversely affect species currently listed or candidates proposed for listing under the federal or state ESA.⁶⁵

Big Game Wintering Habitat

In response to the previous conditional use permit application, ODFW proposed the following conditions to minimize impact to wintering deer and elk:⁶⁶

- Crushing and hauling of rock limited to daylight hours only.
- No crushing of rock from November 1 to March 31.

Farm and Forest

Impacts identified through the farm and forest survey and additional public testimony are primarily related to noise and dust from quarry operations and truck traffic. To a great extent, these impacts are addressed by mitigation measures proposed under the stream assessment (dust/sediment) or noise impact study. For example, measures to limit dust and potential sediment into the streams, such as truck washes, will also reduce dust impacts to adjacent farms.

The noise impact study identifies measures to reduce blasting impacts, such as advanced notification and monitoring to adjust charge weights to comply with DEQ noise standards. Advance notification would allow livestock owners the opportunity to move animals into barns or to other locations or to otherwise prepare for any adverse impacts, although this measure would require a change in accepted farming practices.

⁶⁵ Page 25, PHS Biological Assessment (Appendix E)

⁶⁶ Email from Gregory Hobart, Habitat Biologist, ODFW to Virginia Bowers, Multnomah County, dated March 29, 2001

Truck traffic impacts are more difficult to address. The proposed noise mitigation measures limit the volume of truck traffic and the route. However, there is evidence that the existing level of truck traffic causes conflicts with livestock. Even the lowest extraction levels (5,000 cy/yr) will result in truck traffic that is equivalent to existing conditions and will not mitigate existing impacts along the proposed route.

Transportation

The 1996 HCRR required a traffic management plan as a conditional of approval in recognition of the inadequacy of Howard Road, Littlepage Road, and possibly other nearby roads to handle increased levels of heavy truck traffic.⁶⁷ The traffic management plan should identify improvements to address the following issues:

- Bridge Load Capacities – demonstrate the structural strength of bridge crossings are adequate to handle the expected truck traffic or make structural improvements to bridges and culverts or agree to weight limits for trucks crossing certain bridges.
- Roadway Design – all local roads, rural collectors, and intersections along the truck route between the site and Interstate 84 shall be improved to handle the expected quarry truck traffic. These standards include road width (including shoulders), curve radii, and structural integrity.
- Bikeways – designated bikeway routes along Hurlburt Road and Littlepage Road shall be improved by paving and striping an adequate shoulder area to mitigate the impacts of truck traffic on the bikeway routes.

Based on the results of a traffic management plan, the County Engineer will stipulate a schedule for necessary improvements and/or payments for road improvements.

Economic Consequences

▪ Region and Countywide

Limits on the quantity of rock extracted will have limited impact on the supply of rock available to the regional market. The net effect of the three variations of the limited scenario is increasing cost of quarry operations, which will reduce the competitive advantage of the site and further limit the minimal influence on the cost of rock in the region.

Result: No or minimal positive economic impacts for the County and the region due to the increasing cost of operations and declining volume of material.

▪ Local (East of Sandy River)

Based on previous calculations in the Fully Allow scenario, a local source of aggregate could represent a positive economic benefit of \$8,000 to \$24,000 per year to the local market. The Severely Limit (5,000 cy/yr) alternative assumes that the focus would

⁶⁷ Page IV-25, 1996 HCRR

continue to be on decorative columnar basalt with little or no aggregate material production, which would eliminate the economic benefit to the local area.

Result: Minimal positive economic effects in east Multnomah County by reducing the transportation costs for local aggregate needs.

▪ **Quarry Owner and Operator**

Under this scenario, the mitigation measures will increase production costs of the quarry, which will reduce profit margins. In addition, limits on the total annual volume of material to be extracted will reduce gross revenues, as calculated in Table 11.

Table 11. Gross Revenue from Quarry Operations

Volume (cubic yards)	Weight (tons) (2.4 tons per cy)	Gross Revenue Decorative: \$100/ton Aggregate: \$7.25/ton	Total Gross Revenue
5,000 cy per year			\$1.2 million
Decorative – 100%	12,000 tons	\$1.2 million	
Aggregate – 0%	-	-	
17,500 cy per year			\$3.44 million
Decorative – 80%	33,600 tons	\$3.36 million	
Aggregate – 20%	8,400 tons	\$0.06 million	
35,000 cy per year			\$5.28 million
Decorative – 60%	50,400 tons	\$5.04 million	
Aggregate – 40%	33,600 tons	\$0.24 million	

Result: Reduced, but still positive economic effects to quarry owner and operator.

▪ **Residential**

Public testimony from several property owners from the surrounding area expressed strong opinions that their property values are reduced due to impacts associated with the current small-scale quarry operations, and that expansion of the quarry would further reduce their property values. Testimony by Bruce Lockwood, a real estate broker, indicated a negative impact to property values due to noise from the quarry activities, truck traffic, and the PAM overlay zone.⁶⁸ Proponents of the quarry have submitted conflicting evidence indicating quarries do not have a negative effect on property values based on photographs, aerial photographs, and tax assessment data for parcels adjacent to operating quarries in Clark County, Washington.⁶⁹

Mitigation measures and reduced operating hours with limits on the level of extraction should lessen the adverse impacts on surrounding properties, and could mitigate any additional negative impact on property values from expanded quarry operations. However, even continuation of the small-scale (5,000 cy/yr) operations will have a continuing negative impact on surrounding property values.

⁶⁸ Letter from Bruce Lockwood, Oregon Realty Co., dated August 20, 2003.

⁶⁹ Letter from Tim Ramis, Ramis, Corrigan & Bachrach, dated February 5, 2003.

A protection program to allow full development of the resource may have an economic effect through the application of the County's Protected Aggregate and Mineral Resource (PAM) overlay zone. Application of the PAM overlay zone could limit use or development of property within the impact area, which could have a negative impact on property values. Most of the property within the impact area is zone EFU or CFU, which already carry strict limits on new residential dwelling development. There are 28 vacant parcels within the impact area, 12 of which are in contiguous ownership by the owner of the Howard Canyon Quarry.

Result Decreasing negative economic effects to surrounding property owners as adverse noise impacts and truck traffic are mitigated or reduced.
Possible negative economic effects to surrounding property owners through the application of the PAM overlay zone.

▪ **Farms**

As discussed above, the farm impact analysis and public testimony indicates potential increased costs to surrounding farms. Mitigation measures and reduced operating hours and volume limits could lessen the impact from quarry operations on farm practices. Limits on the number of trucks will not mitigate the existing conflicts between trucks and livestock.

Farms also require aggregate as part of their on-going operations for driveways and access roads. A local source will reduce transportation costs to deliver aggregate for these uses.

Result: Decreasing negative economic effects from increased cost of farm practices.
Decreasing positive economic effects from a local source of aggregate for area farms.

▪ **Rural Center**

Mitigation measures and limits on the quantity of rock extracted or on truck traffic should reduce truck noise levels and adverse noise impacts, which in turn should lessen potential negative impacts on property values. In addition, a reduced increase in truck traffic could lessen any adverse impact on the attractiveness of Springdale for commercial development. However, even continuation of the small-scale (5,000 cy/yr) operations will have a continuing negative impact on surrounding property values.

Any new development will need for aggregate for driveways and access roads. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

Result: Decreasing negative economic effects from possible reduced property values and decreased attractiveness for development due to lower levels of truck traffic.

Decreasing positive economic effects to new development due to increasing costs for aggregate.

- **Streams**

The mitigation measures should decrease the potential for runoff, turbidity, and pollutants from reaching the streams. These measures should reduce negative economic impacts due to possible increased treatment costs for downstream users. They also should improve the fish habitat in the three creeks and the Sandy River watershed, which in turn will have a positive economic impact due to increased fishing opportunities.

Result: Reduced possible negative economic effects to downstream water users due to improved water quality.
Reduced possible negative economic effects to region due to improved water quality and improved fish habitat.

- **Big Game Wintering Habitat**

Hunting and outdoor recreation (wildlife watching) have positive economic consequences for local businesses and the travel industry. To the extent that limited mining operations will have decreasing adverse effects on the wintering habitat, there could be a corresponding lessening of the potential adverse impact on the local economy.

Result: Reduction in possible negative economic effects to local businesses and the travel industry due to decreased adverse impacts to wildlife habitat.

- **Roads**

The mitigation measures include road maintenance and improvement projects, which will mitigate the cost and impact of increased heavy truck traffic. Limits on the quantity of rock extracted or on truck traffic will reduce wear and tear and maintenance costs.

A local source will reduce transportation costs to deliver aggregate for local maintenance and improvement projects.

Result: Decreasing negative economic impacts due to increased road maintenance costs.
Positive economic effects from a local source of aggregate for local projects.

Social Consequences

- **Residential**

At the public meetings, in the farm survey returns, and in written testimony, several property owners from the surrounding area expressed strong opinions about noise impacts and negative effects on the rural quality of life. Many commented that they choose to live in the area for peace and quiet of a rural area and that the existing small-scale quarry operations were a nuisance.

Mitigation measures and reduced operating hours and level of extraction should lessen the noise impact from quarry operations. However, even continuation of the small-scale

(5,000 cy/yr) operations will have a continuing negative impact on surrounding quality of life.

Result: Decreasing negative impacts on quality of life due to a reduction of noise impacts from the quarry operations and decreasing levels of truck traffic.

- Farms

Possible social effects on farms are addressed either as a noise-related quality of life issue under residential uses or as a safety conflict between trucks and equestrians under roads.

- Rural Center

At the community meeting and in the farm survey returns, several property owners commented about the noise impact of truck traffic traveling through Springdale and a perceived negative impact on the quality of life.

With increasing limits on the quantity of rock extracted and a corresponding decrease in truck traffic, the noise impacts decrease, but are not eliminated.

Result: Decreasing negative social impacts from truck traffic noise.

- Streams

Fishing is enjoyed by many residents, therefore fish and stream habitat are important to the environment and the quality of life. To the extent that limited mining operations have decreasing adverse effects on fish in adjacent streams, there could be a corresponding decrease in adverse social impact on residents due to reduced fishing opportunities.

Result: Decreasing negative social impacts from a reduction in fishing opportunities.

- Big Game Wintering Habitat

Hunting and outdoor recreation (wildlife watching) are enjoyed by many local residents. To the extent that limited mining operations have decreasing adverse effects on the quality of wintering habitat and the quantity of big game in east Multnomah County, there could be a corresponding decrease in the adverse social impact on residents due to reduced hunting opportunities.

Result: Decreasing negative social impacts from a reduction in adverse impacts to wildlife habitat.

- Roads

Many of the local roads are narrow and do not have shoulders, which limit the space for trucks to pass and create unsafe conditions for pedestrians, bicycle and equestrians along the side of the road. Road improvements and limits on truck traffic, especially on weekends during the summer months when recreational use is higher will reduce these conflicts.

Result: Decreasing negative social impacts from unsafe conditions for pedestrians, bicyclists, and equestrians due to reduce truck traffic on narrow local roads.

Environmental Consequences

- Residential

The possible air quality impacts from noise and dust are addressed as a social consequence.

- Farms

Environmental effects on farms, primarily due to dust, are addressed as an economic consequence.

- Rural Center

The possible air quality impacts from noise and dust are addressed as a social consequence.

- Streams

Potential negative environmental impacts to the streams related to a decrease in water quality due to increased runoff, turbidity, sedimentation and pollutants. This scenario includes a more aggressive approach to mitigating potential adverse water quality impacts from the quarry. With proper implementation, the potential adverse water quality impacts should be reduced. Given the mitigation measures are part of all three variations, the consequences are expected to be the same.

Result: Reduced potential negative environmental effects to Sandy River watershed and salmon fishery due measures to protect water quality and reduce sedimentation.

- Big Game Wintering Habitat

Provided that ODFW conditions are implemented, limited mining of Howard Canyon will result in an a marginal increase in quarry activities and truck traffic during the winter, which could limit disturbance to deer and elk in the area.

Result: Reduced possible negative environmental impacts on big game wintering habitat.

- Roads

Decreased truck traffic will reduce the need for maintenance and improvement projects on local roads, which could limit adverse impacts.

However, decreasing truck traffic could reduce need for road improvement projects and delay opportunities to improve culverts, which will remove barriers to fish passage.

Result: Reduced possible negative environmental effects to streams and riparian areas due to decreased need for road maintenance and improvements projects required by decreasing truck traffic.

Reduced possible positive environmental effects to fish habitat if road improvement projects that include culvert replacement and removal of barriers to fish passage are delayed.

Energy Consequences

▪ Residential

Any new residential development will need for aggregate for driveways and access roads. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

Result: Positive energy effects to new residential development due to decreased travel distances for aggregate.

▪ Farms

Farms in the area have a need for aggregate for driveways and access roads. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

Result: Positive energy effects to farms due to decreased travel distances for aggregate.

▪ Rural Center

Any new development will need for aggregate for driveways and access roads. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

Result: Positive energy effects to new development due to decreased travel distances for aggregate.

▪ Streams

There is no identified energy effect on streams.

▪ Big Game Wintering Habitat

There is no identified energy effect on big game wintering habitat.

▪ Roads

Road maintenance and improvement projects need large quantities of aggregate. Howard Canyon Quarry is the only known source of quality aggregate material east of the Sandy River. A local supply will reduce travel distances required to deliver aggregate where it is needed.

Result: Positive energy effects to road projects due to decreased travel distances for aggregate.

Hogback Ridge ESEE Consequences

The hogback ridge that makes up the bulk of the western 1,000 feet of the resource site is distinctly different in character than the rest of the resource site. A separate ESEE analysis is conducted to highlight these conditions and consider the unique impacts related to mining this portion of the resource.

In the western 1,000 feet of the resource area, the basalt formation becomes a narrow hogback ridge with steep slopes on either side. This narrow ridge extends approximately 875 feet to the northwest corner of the property. The location of the basalt formation is identified in Figure 2. The Throop report illustrates the different cross-sections for the flat-topped ridge and hogback ridge (see Figure 3). Also, most of the hogback ridge is forested, whereas the flat-topped ridge has been used as pasture land.

The Olson Engineering mining plans show that the hogback ridge will be mined using a completely separate infrastructure of roads and stormwater control systems from those used to mine the main quarry area along the flat-topped ridge.

A mining plan for the hogback ridge would be subject to DOGAMI's steep-slope review. Removal of a thick layer of overburden that consists of soil and large boulders mixed with tree stumps will be difficult to complete without negative off-site environmental impacts such as rolling boulders and turbid stormwater.⁷⁰ While topsoil removal is difficult but possible, stockpiling the removed overburden on steep slopes as shown on the Olson Engineering mining plan is not recommended. A letter from Landslides Technology to Interstate Rock, dated January 25, 2001, recommends no construction of such stockpiles on ground steeper than 2:1.⁷¹ In addition, more overburden will be removed from the hogback ridge than could be stored in the locations identified in the mining plan.

The access road and a major stormwater retention pond are located on the south side of the ridge. The Landslides Technology letter mentions that these south slopes are probably old landslide areas, and should require additional geotechnical mapping before any construction.

The hogback ridge has an estimated geologic reserve of 160,000 tons. This amount is a small fraction of the overall reserve of the main flat-topped ridge, which is in excess of 5 million tons. The narrowness of the hogback ridge is such that excavation is only expected to produce about 210 cubic yards of rock for each yard the quarry excavates along the ridge.⁷² This level is about ten percent of the yield of the main quarry area.

Excavation of the hogback ridge brings the quarry operations closer to the surrounding dwellings and farms. At its furthest extent, the quarry operation would be within 400 feet

⁷⁰ Page 11, Throop Geologic Assessment (Appendix B)

⁷¹ Letter is attached as Appendix 5 to Throop Geologic Assessment (Appendix B)

⁷² Page 12, Throop Geologic Assessment (Appendix B)

and 770 feet of adjacent dwellings. This extension could severely increase noise impacts on adjacent dwellings

Economic Consequences

- **Regional, Countywide, and Local Markets**

The hogback ridge has an estimated geologic reserve of 160,000 tons. This amount is a small fraction of the overall reserve of the main flat-topped ridge, which is in excess of 5 million tons. The relatively small amount of material will have no impact on the regional or local market for aggregate.

Result: No economic effects on the cost of mineral and aggregate material.

- **Quarry Owner and Operator**

The hogback ridge has an estimated geologic reserve of 160,000 tons. This amount is a small fraction of the overall reserve of the main flat-topped ridge, which is in excess of 5 million tons. Extraction would require a new haul road and other mitigation measures that will increase costs.

Result: Marginal negative economic effect from forgone revenue due to leaving resource in place.

- **Residential**

The hogback ridge is the closest portion of the resource site to adjacent residential uses. As such, mining the ridge could increase the negative impacts on property values.

Result: Increased negative economic effects from decreases in property values as quarry operations move closer to surrounding properties.

- **Farms**

The hogback ridge sits above pasture land on the south side. Quarry operations could have adverse impacts on livestock.

Result: Possible increased negative economic effects as quarry operations move closer to surrounding farms.

- **Rural Center**

Mining the hogback ridge is expected to yield a marginal amount of rock compared to the main quarry. Therefore, it is not expected to have any additional economic impacts.

- **Streams**

Overburden stockpiles and stormwater detention facilities will need to be placed on the side of steep and potentially unstable slopes. Failure of these facilities could lead to a major sediment load into adjacent streams. This increased turbidity could lower water quality and could increase treatment costs for downstream users.

Result: Possible negative economic effects to downstream water users due to lower water quality and increased treatment costs.

- **Big Game Wintering Habitat**

Allowing mining of hogback ridge will increase in quarry activities and truck traffic, which could disturb deer and elk in the area, especially during the winter and reduce hunting opportunities.

Result: Possible negative economic impacts due to reduced hunting opportunities.

- **Roads**

Mining the hogback ridge is expected to yield a marginal amount of rock compared to the main quarry. Therefore, it is not expected to require additional road improvement projects and is not expected to have any additional economic impacts.

Social Consequences

- **Residential**

The hogback ridge is the closest portion of the resource site to adjacent residential uses. The Dubble Noise Study assumed mining of the ridge in predicting future noise levels. Therefore, it should be possible to mitigate noise impacts to comply with DEQ hourly standards. However, mining the ridge could increase the negative impact on quality of life because the quarry operations would move closer to existing residential uses.

Result: Increased negative social effects from perceived reduction in the rural quality of life as quarry operations move closer to surrounding properties.

- **Farms**

Possible social effect on farms are addressed either as a noise-related quality of life issue under residential uses.

- **Rural Center**

Mining the hogback ridge is expected to yield a marginal amount of rock compared to the main quarry. Therefore, it is not expected to have any additional social impacts.

- **Streams**

Fishing is enjoyed by many regional residents. To the extent that mining the hogback ridge will have an adverse effect on water quality and fish habitat, there could be a corresponding adverse social impact on residents due to reduced fishing opportunities.

Result: Negative social impacts from a reduction in fishing opportunities.

- **Big Game Wintering Habitat**

Hunting and outdoor recreation (wildlife watching) are enjoyed by many local residents. To the extent that mining the hogback ridge will have an adverse effect on the quality of wintering habitat and the quantity of big game in east Multnomah County, there could be a corresponding adverse social impact on residents due to reduced hunting opportunities.

Result: Negative social impacts from a reduction in outdoor recreation opportunities.

- Roads

Mining the hogback ridge is expected to yield a marginal amount of rock compared to the main quarry. Therefore, it is not expected to have any additional social impacts.

Environmental Consequences

- Residential

Mining the hogback ridge is expected to yield a marginal amount of rock compared to the main quarry. Therefore, it is not expected to have any additional environmental impacts related to noise and dust.

- Farms

Environmental effects on farms, primarily due to dust, are addressed as an economic consequence.

- Rural Center

There are no environmental effects on the rural center.

- Streams

Overburden stockpiles and stormwater detention facilities will need to be placed on the side of steep and potentially unstable slopes. Failure of these facilities could lead to a major sediment load into adjacent streams. This increased turbidity could lower water quality and could negatively impact fish habitat.

Result: Possible negative environmental effects to the Sandy River watershed and fish habitat due to lower water quality and increased turbidity.

- Big Game Wintering Habitat

Allowing mining of hogback ridge will increase in quarry activities and truck traffic, which could disturb deer and elk in the area, especially during the winter.

Result: Possible negative environmental impacts on big game wintering habitat.

- Roads

Mining the hogback ridge is expected to yield a marginal amount of rock compared to the main quarry. Therefore, it is not expected to require additional road improvement projects. Therefore, it is not expected to have any additional environmental impacts.

Energy Consequences

Mining the hogback ridge is expected to yield a marginal amount of rock compared to the main quarry. Therefore, it is not expected to significantly impact travel distances to supply aggregate and is not expected to have any additional energy impacts.

Other Applicable Statewide Planning Goals

OAR 660-16-0005(2) requires the ESEE consequences analysis to consider the applicability and requirements of other Statewide Planning Goals, where appropriate.

Goal 2

Goal 3 – Agricultural Lands

Counties may authorize nonfarm uses on agricultural lands that will not have significant adverse effects on accepted farm or forest practices. Multnomah County has incorporated these requirements into Framework Plan Policy 16 – B (Mineral and Aggregate Resources), Strategy I:

- I. To approve a surface mining at a site zone Exclusive Farm Use (EFU) the County shall find, as part of the conditional use approval criteria, that the proposed activity:*
- 1. Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and*
 - 2. Will not significantly increase the cost of accepted farm or forest practices on lands devoted to farm or forest use.*

Public testimony and survey returns from the farm and forest impact assessment indicate that result in changes to farm practices and increased costs to surrounding farms. These changes include increased fencing costs to keep livestock under control when startled by quarry activities or haul trucks; increased feed costs due to the loss of pasture land reserved as a buffer to reduce impacts to livestock; and loss of revenue due to adverse impacts to breeding, such as miscarriages.

The proposed noise mitigation measures reduce potential noise impacts from the quarry operations and limit the volume of truck traffic and the route. However, even the lowest extraction levels (5,000 cy/yr) will result in truck traffic that is equivalent to existing conditions and will not mitigate existing impacts along the route.

Goal 4 – Forest Land

The goal and administrative rule designate mining and processing of mineral and aggregate resources as locationally dependent uses. Such uses may be allowed when it is found that:

- The proposed use will not force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agriculture or forest land.
- The proposed use will not significantly increase fire hazard or significantly increase fire suppression costs or significantly increase risks to fire suppression personnel.

There is no indication that mining activities would force a significant change in, or significantly increase the cost of forest practices on surrounding forest lands. As part of the DOGAMI Grant of Total Exemption, a portion of the existing quarry area has been used for supplying aggregate for forest roads on contiguous parcels. Most of the surrounding properties to the south and east of the quarry have been used for forest resource production without adverse impact. An expanded operation should similarly have no impact. The results of the survey conducted as part of the Farm and Forest

Impact Analysis also did not identify significant impacts to forest practices on forest resource land. Also, most of the quarry operations take place within the confines of the quarry, which limits the potential for an increase fire hazard or the costs and risks associated with fire suppression.

Goal 5 – Open Spaces, Scenic and Historic Areas, and Natural Resources

The ESEE analysis has included impacts to Howard Canyon Creek, Knieriem Creek, and Big Creek, and big game wintering habitat, which have been designated as significant Goal 5 resources. A significant increase in truck traffic could have an adverse impact on the historical character of the Historic Columbia River Scenic Highway, but a more definitive assessment must be made as part of a future conditional use permit application.

Goal 6 – Air, Water and Land Resources

Goal 6 requires “All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules, or standards.”

With mitigation measures, the quarry operations could meet minimum DEQ standards for noise and stormwater runoff. In the past, DEQ air quality permits were obtained to operate a rock crusher on the site.

Goal 7 – Areas Subject to Natural Disasters and Hazards

Goal 7 requires “Developments subject to damage or that could result in loss of life shall not be planned or located in known areas of natural disasters and hazards without appropriate safeguards.”

Steep slopes and potential soil instability on the southern slope, especially along the hogback ridge, are designated as potential development hazard areas on the County’s “Slope Hazard Map”. A letter from Landslides Technology indicates that the south slopes are probably old landslide areas, and should require additional geotechnical mapping before any construction.

Goal 12 – Transportation

The purpose of Goal 12 is to provide and encourage a safe, convenient and economic transportation system.

Public comments consistently raised the issue of the inadequate existing rural road system to handle the existing truck traffic, nor is it designed to handle an increase in the volume of traffic associated with a significant expansion of the quarry.

The proposed truck route includes local roads that are inadequate to handle increased levels of heavy truck traffic. In order to review specific road impacts, additional information is needed. As part of a conditional use permit, a traffic management plan should demonstrate the adequacy of the existing roads or identify improvements to address the following issues:

- **Bridge Load Capacities** – demonstrate the structural strength of bridge crossings are adequate to handle the expected truck traffic or make structural improvements to bridges and culverts or agree to weight limits for trucks crossing certain bridges.
- **Roadway Design** –the truck route between the site and the Historic Columbia River Highway should meet minimum County roads standards, in terms of road width (including shoulders), curve radii, and structural integrity.
- **Bikeways** – designated bikeway routes along Littlepage Road and Hurlburt Road may need additional shoulder areas to mitigate the impacts of truck traffic on the bikeway routes.

Goal 5 Decision

Decision Framework

The ESEE consequences analysis provides reasons to explain the Goal 5 program decisions for specific resource sites. A jurisdiction is expected to “resolve” conflicts between the resource and any conflicting uses. OAR 660-016-0010 provides three options to resolve the identified conflicts:

1. **Protect the Resource Site.** For mineral and aggregate resources, this option fully allows mining of the resource with the prohibition of conflicting uses. It means that the resource site is of such importance, relative to conflicting uses, and the ESEE consequences of allowing conflicting uses are so great that the resource site should be protected and all conflicting use prohibited on the site and possibly within the identified impact area.

In order to adopt this option, the County would have to narrowly determine the impacts of the quarry operations in terms of mitigation to meet minimum state standards. For example, noise impacts need only be mitigated to meet DEQ standards of existing noise sources. The County also would have to limit potential conflicting uses through a broad application of the PAM Overlay.

2. **Allow Conflicting Uses Fully.** For mineral and aggregate resources, this option fully allows conflicting uses (e.g. rural residential dwellings) and, essentially, prohibits mining because the impacts to surrounding uses are too great. It means that the conflicting uses are of such importance that they should be allowed fully, notwithstanding the possible impacts on the resource site.

In order to adopt this option, the County would have to determine impacts on surrounding uses cannot be mitigated to minimize adverse impacts. For example, noise impacts on the rural quality of life cannot be mitigated to an acceptable level or the farm impacts will cause a significant change in farm practices or a significant increase in farm costs. Under this option, the quarry would continue to operate under the DOGAMI GTE until the 5-acre disturbance area limit is exceeded.

3. **Limit Conflicting Uses.** For mineral and aggregate resources, this option allows both the mining use and the conflicting uses. It means that both the resource site and the conflicting uses are important relative to each other, and that the ESEE consequences should be “balanced” so as to allow the conflicting use but in a limited way so as to protect the resource site to some desired extent.

As part of “balancing” the ESEE consequences, the County would limit quarry operations to minimize adverse impacts. This report presents three options to limit the conflicts between the quarry and the surrounding uses.

1. Base Measures plus Severe Limits on Volume – The scenario includes Base Mitigation Measures for stormwater and noise with strict limits on volume of material to represent continued operation of the quarry at levels similar to the DOGAMI GTE limits.
2. Base Measures plus Limits on Volume of Material – This scenario includes Base Mitigation Measures plus limits extraction to a maximum of 17,500 cubic yards per year.
3. Base Mitigation Measures – This scenario allows extraction up to 35,000 cubic yards per year with the Base Mitigation Measures.

Conflict Resolution

Balancing ESEE Consequences

Economic:

- The quarry will have no or minimal impact on the cost of mineral and aggregate rock products in the region or the county, because it represents less than one percent of the estimated regional demand for aggregate. Therefore, the quarry is expected to have minimal influence on the regional price of aggregate.
- The quarry will have minimal impact on the local market area because the demand for aggregate is expected to be low given the surrounding area is rural in character and outside the Urban Growth Boundary with the vast majority of land designated as resource land. One current supplier estimated that local demand is approximately 2,000 tons per year.⁷³ The potential benefit of a local source of aggregate is reduced transportation costs, however with low volumes and relatively low costs, these savings only amount to an estimated \$8,000 to \$24,000 per year.
- The quarry may have an adverse impact on the quarry owners by lost income from future extraction opportunities. However, mitigation costs associated with larger scale extraction would be significant and might not result in a net benefit to the owner. In addition, a County determination to allow conflicting uses fully under Goal 5 does not prevent the quarry from continuing to operate under the

⁷³ Public Testimony by Sherwood Davis (local hauler), Planning Commission Public Hearing, October 7, 2002.

terms of the Department of Geologic and Mineral Industries (DOGAMI) Grant of Total Exemption for a small scale quarry. The quarry could continue to operate by limiting the physical extent of the quarry area to five acres and mining down into the formation.⁷⁴ If the quarry operations are found to have begun prior to July 1, 1975, then they can continue in perpetuity provided they meet the annual limits of 5,000 cubic yards of material and one acre of disturbance. These exemptions allow for the continued operation of the quarry at historic levels, which will mitigate some of the economic impact of prohibiting the full exploitation of the resource.

- The quarry has a negative impact on property values. There is conflicting evidence in the record on this issue. Testimony from neighbors and a real estate broker indicate a loss in property value due to noise impacts and application of the PAM overlay zone.⁷⁵ The quarry owners have submitted evidence that, in general, quarries have little or no impact on surrounding property values. However, this information is insufficient because:
 1. It was not assembled by real estate professionals;
 2. Is based on sites surrounded by urban levels of development;
 3. Two of the four sites front onto a state highway, which minimizes the impact of truck traffic; and
 4. The analysis does not adequately explain the orientation of the quarry, which may limit noise or truck impacts.

Having considered the conflicting evidence, the Planning Commission finds that even with mitigation measures, the quarry negatively impacts property values in the surrounding area.

- The quarry has a significant negative impact on farms, primarily due to conflicts between truck noise and livestock. Noise mitigation measures and limits on the number of trucks will reduce these impacts. However, some measures, such as advance notification of blasting, would require a change in accepted farming practices. In addition, public testimony indicates that there are conflicts with the current operations such that even limiting truck volumes to the current GTE extraction levels (5,000 cubic yards per year), would still have a negative impact on surrounding farms along the truck route.
- Truck traffic from the quarry adversely impacts Springdale, a rural center. There are 16 dwellings with frontage on Hurlburt Road and another 15 dwellings along the Historic Columbia River Highway. Many of these dwellings are closer than the 50-foot setback used in the truck noise calculations. These shorter setback distances increase noise levels and adverse noise impacts, which in turn can decrease property values. In addition, a significant increase in truck traffic could decrease the attractiveness of Springdale for commercial development, which may

⁷⁴ DOGAMI, the Schlicker report and the Throop assessment have estimated the formation to be up to 40 feet thick.

⁷⁵ Letter from Bruce Lockwood, Oregon Realty Company, dated August 20, 2003

threaten the viability of existing businesses or discourage new businesses from locating in Springdale. Noise mitigation measures, including speed restrictions and prohibiting the use of engine "Jake" brakes, and limits on the number of trucks could reduce these impacts to meet DEQ standards. However, the DEQ standard is an hourly standard and does not adequately account for the continuous operations of the quarry. Even continuation of the small-scale (5,000 cy/yr) operations will have a continuing negative impact on surrounding property values.

- Economic impacts to streams and big game habitat, such as lower water quality and increased treatment costs for downstream users due to increased runoff, turbidity, and pollutants, can be mitigated.
- The Hogback Ridge is relatively small and not extracting aggregate from that area will have marginal loss of economic value for the region, countywide, the local market area, and the quarry owner and operator.

Social:

- Quarry activities can be mitigated to comply with DEQ noise standards.
- Quarry truck traffic can be mitigated to comply with DEQ noise standards.
- DEQ noise standards do not fully account for the extended duration and long-term effects of the quarry activity and truck traffic. These impacts can be reduced during peak periods of outdoor use (evenings and weekends) with measures such as annual limits on the total volume of material to be extracted, limits on the number of trucks (per day or per hour) going to and from the quarry, and limits on the operating hours and days. However, the truck traffic associated with the continuation of the small-scale (5,000 cy/yr) operations will have a continuing negative impact on the quality of life for the surrounding area.
- Potential dust impacts will be mitigated by the terms and conditions of the required DEQ permits and sedimentation control measures (truck wash) required to protect area streams.
- Quarry truck traffic can create conflicts with pedestrians, bicyclists, and equestrians. These conflicts might be mitigated to some extent through road improvements (widen roads and shoulders) and operating restrictions (hours and days) that prohibit truck traffic during peak periods of use (evenings and weekends).
- The Hogback Ridge is the portion of the resource site nearest to residences and farm uses with only a minor amount of aggregate resource and yet the most potential for adverse impacts from noise.

Environmental:

- Potential quarry impacts to streams can be mitigated with erosion control and pollution control plans so that the quarry is not likely to adversely impact water quality or ESA listed salmonid species in local streams.
- Impacts to big game habitat can be minimized.
- The Hogback Ridge has the steepest and potentially unstable slopes that make erosion control measure difficult with increased risk of failure. Therefore, mining of the Hogback Ridge has environmental impacts that cannot be resolved.

Energy:

- The quarry could have a positive impact in supplying a local source of aggregate, which will reduce travel distances and fuel consumption.

Conclusion

The 1996 HCRR ESEE Analysis indicated the consequences of fully protecting the resource (fully allowing extraction without local mitigation measures) and fully allowing the conflicting uses (prohibiting extraction) were too extreme and that an appropriate course of action was to limit the conflicting uses and find an appropriate set of mitigation measures to allow the quarry operations.

This update of the HCRR reaches a different conclusion.

Fully allowing mining with minimal mitigation measures would impose significant negative impacts on the surrounding community, in terms of quality of life, public safety, condition of local roads, streams, and big game habitat.

Allowing mining on a limited basis, with mitigation measures and a more active role for the County in terms of monitoring and enforcement, offers the opportunity to mitigate some of the identified negative impacts. However, as evidenced by the conflicts with the current low level of mining, there will still be significant negative impacts on surrounding rural residential and farm uses. These negative impacts include:

- Noise impacts reduce the quality of life to the surrounding area due to continuous operations of the quarry and truck traffic along local roads for a significant distance (3.9 miles) before reaching a major arterial.
- Noise impacts from existing (low levels) of truck traffic create conflicts with livestock that requires significant changes to farming practices and increased costs to farms along the truck route.

Fully prohibiting mining would resolve many of the negative impacts on the surrounding community but impose a significant negative economic impact on the quarry owner. However, under current Comprehensive Framework Plan policies, the quarry could continue to operate under DOGAMI's Grant of Total Exemption (GTE), which will

mitigate some of these negative impacts.⁷⁶ These impacts are balanced by positive impacts to the surrounding area, in terms of increased property values, improved quality of life and decreased costs to farms.

Therefore, the Planning Commission recommendation is to prohibit mining and not protect the Goal 5 resource so as to reduce adverse impacts on the surrounding area and along the truck route.

Program To Achieve Goal Recommendations

The Howard Canyon site is a significant site, but will not be protected and will no longer be included on Multnomah County's list of *Protected Sites* as provided for under the provisions of OAR 660-16-010(2), Allow Conflicting Uses Fully (also referred to a 3B designation).

Determination of Significance

The Howard Canyon site is a significant Goal 5 mineral and aggregate resource, based on the following findings:

- Quantity - The resource site represents a large quantity of basalt material, in excess of 5 million tons.
- Quality - Laboratory testing confirms the basalt meets ODOT standards for air degradation and abrasion and is suitable for aggregate use. In addition, the columnar basalt formations in Howard Canyon are suitable for riprap in road construction as well as decorative rock in landscaping and building construction.
- Location - There are a limited number of mineral and aggregate resource sites in east Multnomah County and adjacent portions of Clackamas County. There are no other known basalt quarries in the region that actively mine columnar basalt.

Level of Protection

The Planning Commission recommendation is to Allow Conflicting Uses Fully and prohibit mining under the provisions of OAR 660-16-010(2) (also referred to a 3B designation).

The Howard Canyon site will be removed from Multnomah County's list of *Protected Sites*.

Implementation Actions

- Adopt the Howard Canyon Reconciliation Report, a site-specific Goal 5 analysis for a significant aggregate resource site.
- Amend references to Howard Canyon in the "East of the Sandy River Rural Area Plan, July 1997":

⁷⁶ The DOGAMI limits for a Grant of Total Exemption are: less 5,000 cubic yards of material or disturbing less than one acre of land within a period of 12 consecutive months until mining affects five or more acres.

"One of the Goal 5 resources ~~to be protected~~ is mineral and aggregate materials. The Howard Canyon quarry is a small operation located between Howard and Knieriem Roads which currently operates under an "exempt" permit. Under state law, any quarry which produces less than 5,000 cubic yards of material and disturbs less than five acres per year is exempt from state and county mining statutes. The owner of the Howard Canyon quarry has applied several times since the 1960's to expand the quarry beyond this level, always unsuccessfully. In 1990, the Multnomah County Board of Commissioners decided not to designate the Howard Canyon quarry site as a significant and protected Goal 5 aggregate resource. However, in 1993, the Oregon Land Conservation and Development Commission remanded this decision back to Multnomah County because the County's rationale for denying protection was not acceptable. In response, the Board of Commissioners granted protection of the aggregate resource for most of the site in 1994, but with significant conditions related to air quality and traffic mitigation (see Howard Canyon Reconciliation Report). The quarry owner objected to these conditions, and in response the matter was once again returned to Multnomah County by the state for more work. In 1995, the Board of Commissioners once again adopted protection for the quarry site, with some modifications in the conditions. On March 7, 1996, the Oregon Land Conservation and Development Commission(LCDC) approved the County's work, but with two exceptions, and ordered the County to make specific changes which would protect all of the site for mineral & aggregate mining and would also not allow the County to independently monitor on-going air quality issues associated with quarry operations. Multnomah County adopted these changes in June, 1996.

~~The result of this complicated story is that the Howard Canyon quarry is now a protected mineral and aggregate site. In order to actually mine the site further, an applicant must receive approval from Multnomah County of a conditional use permit and receive approval from the Oregon Department of Geology and Mineral Industries for a reclamation plan to be implemented once mining is complete. The conditional use permit must meet all of the requirements set forth in the Howard Canyon Reconciliation Report.~~

In 1999, a conditional use permit application for mining this resource site was submitted to the County. This application proposed a level of mining activity that was dramatically different from the base assumptions in the Howard Canyon Reconciliation Report. Therefore, Multnomah County decided it necessary to revisit the HCRR and re-analyze the impacts of increased production levels and future quarry operations on the site and the surrounding community.

The results of the preliminary impact reports were reviewed in a public meeting on May 16, 2002 at the Corbett School. Based on public comments

received at the meeting, the impact reports were finalized and a draft of the updated HCRR was prepared. A draft Howard Canyon Reconciliation Report was reviewed by the Planning Commission in 2002 and early 2003. In March, 2003, all parties agreed to try to resolve the conflicts through mediation. The mediation broke down because agreement between all parties would have required a higher level of trust than was likely to evolve in the requisite time.

In 2004, the Planning Commission held public hearings proposed revisions to the Howard Canyon Reconciliation Report. The Planning Commission deliberated and recommended to not protect the resource and prohibit mining on the site. The Howard Canyon Reconciliation Report has been revised to reflect that recommendation.

Mineral and Aggregate Resource Policies

35. ~~Allow~~ Prohibit mining on the Howard Canyon quarry site under the conditions set forth in the Howard Canyon Reconciliation Report, part of the Multnomah County Comprehensive Framework Plan.

- Amend the County's Aggregate Inventory Map to delete the Howard Canyon site.

Howard Canyon Reconciliation Report

May 2004

Multnomah County
Department of Business and Community Services
Land Use and Transportation Program

Appendices

- Appendix A Applicable Rules, Policies and Codes
- Appendix B Geologic Assessment
- Appendix C Olson Engineering Mining Plans
- Appendix D Dubble Noise Study
- Appendix E PHS Biological Assessment
- Appendix F Farm and Forest Impact Assessment
- Appendix G Public Comments, May 16, 2002 Open House
- Appendix H County Staff Recommendation (April 2004)

Prepared by:



Winterbrook Planning

With:

Pacific Habitat Services
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Ecotrust

Appendix A

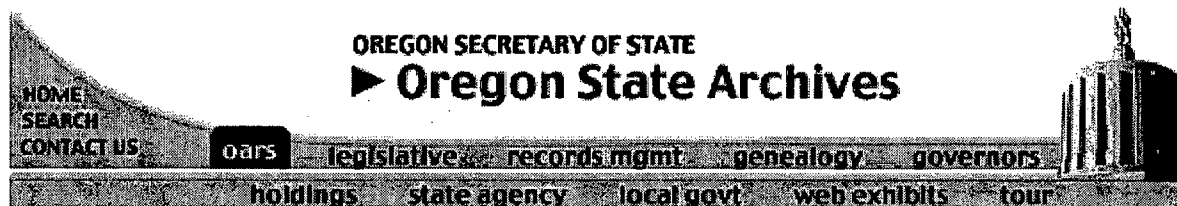
Applicable Rules, Policies and Codes

Oregon Administrative Rule Chapter 660, Division 16

Oregon Administrative Rule Chapter 660, Division 23

Multnomah County Comprehensive Framework Plan Policy #16-B

**Multnomah County Code Chapter 35 – East of Sandy River Rural Plan
Area (Excerpted)**



The Oregon Administrative Rules contain OARs filed through August 15, 2002

LAND CONSERVATION AND DEVELOPMENT DEPARTMENT

DIVISION 16

REQUIREMENTS AND APPLICATION PROCEDURES FOR COMPLYING WITH STATEWIDE GOAL 5

660-016-0000

Inventory Goal 5 Resources

(1) The inventory process for Statewide Planning Goal 5 begins with the collection of available data from as many sources as possible including experts in the field, local citizens and landowners. The local government then analyzes and refines the data and determines whether there is sufficient information on the location, quality and quantity of each resource site to properly complete the Goal 5 process. This analysis also includes whether a particular natural area is "ecologically and scientifically significant", or an open space area is "needed", or a scenic area is "outstanding", as outlined in the Goal. Based on the evidence and local government's analysis of those data, the local government then determines which resource sites are of significance and includes those sites on the final plan inventory.

(2) A "valid" inventory of a Goal 5 resource under subsection (5)(c) of this rule must include a determination of the location, quality, and quantity of each of the resource sites. Some Goal 5 resources (e.g., natural areas, historic sites, mineral and aggregate sites, scenic waterways) are more site-specific than others (e.g., groundwater, energy sources). For site-specific resources, determination of *location* must include a description or map of the boundaries of the resource site and of the impact area to be affected, if different. For non-site-specific resources, determination must be as specific as possible.

(3) The determination of *quality* requires some consideration of the resource site's relative value, as compared to other examples of the same resource in at least the jurisdiction itself. A determination of *quantity* requires consideration of the relative abundance of the resource (of any given quality). The level of detail that is provided will depend on how much information is available or "obtainable".

(4) The inventory completed at the local level, including options in subsections (5)(a), (b), and (c) of this rule, will be adequate for Goal compliance unless it can be shown to be based on inaccurate data, or does not adequately address location, quality or quantity. The issue of adequacy may be raised by the

Department or objectors, but final determination is made by the Commission or the Land Use Board of Appeals as provided by law.

(5) Based on data collected, analyzed and refined by the local government, as outlined above, a jurisdiction has three basic options:

(a) Do Not Include on Inventory: Based on information that is available on location, quality and quantity, the local government might determine that a particular resource site is not important enough to warrant inclusion on the plan inventory, or is not required to be included in the inventory based on the specific Goal standards. No further action need be taken with regard to these sites. The local government is not required to justify in its comprehensive plan a decision not to include a particular site in the plan inventory unless challenged by the Department, objectors or the Commission based upon contradictory information;

(b) Delay Goal 5 Process: When some information is available, indicating the possible existence of a resource site, but that information is not adequate to identify with particularity the location, quality and quantity of the resource site, the local government should only include the site on the comprehensive plan inventory as a special category. The local government must express its intent relative to the resource site through a plan policy to address that resource site and proceed through the Goal 5 process in the future. The plan should include a time-frame for this review. Special implementing measures are not appropriate or required for Goal 5 compliance purposes until adequate information is available to enable further review and adoption of such measures. The statement in the plan commits the local government to address the resource site through the Goal 5 process in the post-acknowledgment period. Such future actions could require a plan amendment;

(c) Include on Plan Inventory: When information is available on location, quality and quantity, and the local government has determined a site to be significant or important as a result of the data collection and analysis process, the local government must include the site on its plan inventory and indicate the location, quality and quantity of the resource site (see above). Items included on this inventory must proceed through the remainder of the Goal 5 process.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040

Hist.: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef. 6-29-81; LCDC 3-1990, f. & cert. ef. 6-90

660-016-0005

Identify Conflicting Uses

It is the responsibility of local government to identify conflicts with inventoried Goal 5 resource sites. This is done primarily by examining the uses allowed in broad zoning districts established by the jurisdiction (e.g., forest and agricultural zones). A conflicting use is one which, if allowed, could negatively impact a Goal 5 resource site. Where conflicting uses have been identified, Goal 5 resource sites may impact those uses. These impacts must be considered in analyzing the economic, social, environmental and energy (ESEE) consequences:

(1) Preserve the Resource Site: If there are no conflicting uses for an identified resource site, the jurisdiction must adopt policies and ordinance provisions, as appropriate, which insure preservation of the resource site.

(2) Determine the Economic, Social, Environmental, and Energy Consequences: If conflicting uses are identified, the economic, social, environmental and energy consequences of the conflicting uses must be determined. Both the impacts on the resource site and on the conflicting use must be considered in analyzing the ESEE consequences. The applicability and requirements of other Statewide Planning Goals must also be considered, where appropriate, at this stage of the process. A determination of the ESEE consequences of identified conflicting uses is adequate if it enables a jurisdiction to provide reasons to explain why decisions are made for specific sites.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040

Hist.: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef. 6-29-81

660-016-0010

Develop Program to Achieve the Goal

Based on the determination of the economic, social, environmental and energy consequences, a jurisdiction must "develop a program to achieve the Goal". Assuming there is adequate information on the location, quality, and quantity of the resource site as well as on the nature of the conflicting use and ESEE consequences, a jurisdiction is expected to "resolve" conflicts with specific sites in any of the following three ways listed below. Compliance with Goal 5 shall also be based on the plan's overall ability to protect and conserve each Goal 5 resource. The issue of adequacy of the overall program adopted or of decisions made under sections (1), (2) and (3) of this rule may be raised by the Department or objectors, but final determination is made by the Commission, pursuant to usual procedures:

(1) Protect the Resource Site: Based on the analysis of the ESEE consequences, a jurisdiction may determine that the resource site is of such importance, relative to the conflicting uses, and the ESEE consequences of allowing conflicting uses are so great that the resource site should be protected and all conflicting uses prohibited on the site and possibly within the impact area identified in OAR 660-016-0000(5)(c). Reasons which support this decision must be presented in the comprehensive plan, and plan and zone designations must be consistent with this decision.

(2) Allow Conflicting Uses Fully: Based on the analysis of ESEE consequences and other Statewide Goals, a jurisdiction may determine that the conflicting use should be allowed fully, notwithstanding the possible impacts on the resource site. This approach may be used when the conflicting use for a particular site is of sufficient importance, relative to the resource site. Reasons which support this decision must be presented in the comprehensive plan, and plan and zone designations must be consistent with this decision.

(3) Limit Conflicting Uses: Based on the analysis of ESEE consequences, a jurisdiction may determine that both the resource site and the conflicting use are important relative to each other, and that the ESEE consequences should be balanced so as to allow the conflicting use but in a limited way so as to protect the resource site to some desired extent. To implement this decision, the jurisdiction must designate with certainty what uses and activities are allowed fully, what uses and activities are not allowed at all and which uses are allowed conditionally, and what specific standards or limitations are placed on the permitted and conditional uses and activities for each resource site. Whatever mechanisms are used, they must be specific enough so that affected property owners are able to determine what uses and activities are allowed, not allowed, or allowed conditionally and under what clear and objective conditions or standards. Reasons which support this decision must be presented in the comprehensive plan, and plan and zone designations must be consistent with this decision.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040

Hist.: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef. 6-29-81

660-016-0015

Post-Acknowledgment Period

(1) All data, findings, and decisions made by a local government prior to acknowledgment may be reviewed by that local government in its periodic update process. This includes decisions made as a result of OAR 660-016-0000(5)(a), 660-016-0005(1), and 660-016-0010. Any changes, additions, or deletions would be made as a plan amendment, again following all Goal 5 steps.

(2) If the local government has included in its plan items under OAR 660-016-0000(5)(b), the local government has committed itself to take certain actions within a certain time frame in the post-acknowledgment period. Within those stated time frames, the local government must address the issue as stated in its plan, and treat the action as a plan amendment.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040

Hist.: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef. 6-29-81

660-016-0020

Landowner Involvement

(1) The development of inventory data, identification of conflicting uses and adoption of implementing measures must, under Statewide Planning Goals 1 and 2, provide opportunities for citizen involvement and agency coordination. In addition, the adoption of regulations or plan provisions carries with it basic legal notice requirements. (County or city legal counsel can advise the planning department and governing body of these requirements.) Depending upon the type of action involved, the form and method of landowner notification will vary. State statutes and local charter provisions contain basic notice requirements. Because of the nature of the Goal 5 process as outlined in this paper it is important to provide for notification and involvement of landowners, including public agencies, at the earliest possible opportunity. This will likely avoid problems or disagreements later in the process and improve the local decision-making process in the development of the plan and implementing measures.

(2) As the Goal 5 process progresses and more specificity about the nature of resources, identified conflicting uses, ESEE consequences and implementing measures is known, notice and involvement of affected parties will become more meaningful. Such notice and landowner involvement, although not identified as a Goal 5 requirement is in the opinion of the Commission, imperative.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040

Hist.: LCD 5-1981(Temp), f. & ef. 5-8-81; LCD 7-1981, f. & ef. 6-29-81

660-016-0030**Mineral and Aggregate Resources**

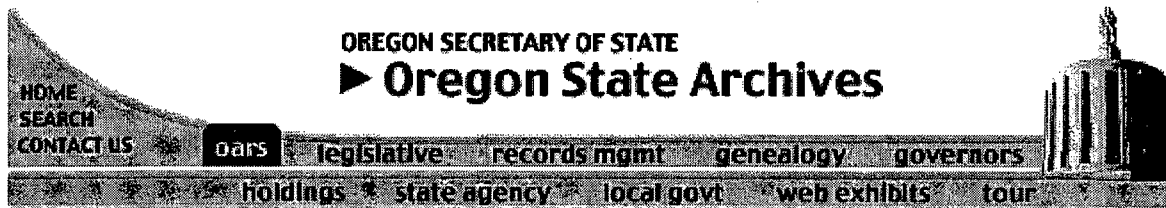
- (1) When planning for and regulating the development of aggregate resources, local governments shall address ORS 517.750 to 517.900 and OAR Chapter 632, Divisions 1 and 30.
- (2) Local governments shall coordinate with the State Department of Geology and Mineral Industries to ensure that requirements for the reclamation of surface mines are incorporated into programs to achieve the Goal developed in accordance with OAR 660-016-0010.
- (3) Local governments shall establish procedures designed to ensure that comprehensive plan provisions, land use regulations, and land use permits necessary to authorize mineral and aggregate development are coordinated with the State Department of Geology and Mineral Industries. Local governments shall amend comprehensive plans and land use regulations, as necessary, no later than January 1, 1993.
- (4) The provisions of this rule shall be effective immediately.

Stat. Auth.: ORS 183 & ORS 197Stats. Implemented: ORS 197.040

Hist.: LCDC 3-1992, f. & cert. ef. 6-10-92

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LAND CONSERVATION AND DEVELOPMENT DEPARTMENT

DIVISION 23

PROCEDURES AND REQUIREMENTS FOR COMPLYING WITH GOAL 5

660-023-0000

Purpose and Intent

This division establishes procedures and criteria for inventorying and evaluating Goal 5 resources and for developing land use programs to conserve and protect significant Goal 5 resources. This division explains how local governments apply Goal 5 when conducting periodic review and when amending acknowledged comprehensive plans and land use regulations.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0010

Definitions

As used in this division, unless the context requires otherwise:

(1) "Conflicting use" is a land use, or other activity reasonably and customarily subject to land use regulations, that could adversely affect a significant Goal 5 resource (except as provided in OAR 660-023-0180(1)(b)). Local governments are not required to regard agricultural practices as conflicting uses.

(2) "ESEE consequences" are the positive and negative economic, social, environmental, and energy

(ESEE) consequences that could result from a decision to allow, limit, or prohibit a conflicting use.

(3) "Impact area" is a geographic area within which conflicting uses could adversely affect a significant Goal 5 resource.

(4) "Inventory" is a survey, map, or description of one or more resource sites that is prepared by a local government, state or federal agency, private citizen, or other organization and that includes information about the resource values and features associated with such sites. As a verb, "inventory" means to collect, prepare, compile, or refine information about one or more resource sites. (See resource list.)

(5) "PAPA" is a "post-acknowledgment plan amendment." The term encompasses actions taken in accordance with ORS 197.610 through 197.625, including amendments to an acknowledged comprehensive plan or land use regulation and the adoption of any new plan or land use regulation. The term does not include periodic review actions taken in accordance with ORS 197.628 through 197.650.

(6) "Program" or "program to achieve the goal" is a plan or course of proceedings and action either to prohibit, limit, or allow uses that conflict with significant Goal 5 resources, adopted as part of the comprehensive plan and land use regulations (e.g., zoning standards, easements, cluster developments, preferential assessments, or acquisition of land or development rights).

(7) "Protect," when applied to an individual resource site, means to limit or prohibit uses that conflict with a significant resource site (except as provided in OAR 660-023-0140, 660-023-0180, and 660-023-0190). When applied to a resource category, "protect" means to develop a program consistent with this division.

(8) "Resource category" is any one of the cultural or natural resource groups listed in Goal 5.

(9) "Resource list" includes the description, maps, and other information about significant Goal 5 resource sites within a jurisdiction, adopted by a local government as a part of the comprehensive plan or as a land use regulation. A "plan inventory" adopted under OAR 660-016-0000(5)(c) shall be considered to be a resource list.

(10) "Resource site" or "site" is a particular area where resources are located. A site may consist of a parcel or lot or portion thereof or may include an area consisting of two or more contiguous lots or parcels.

(11) "Safe harbor" has the meaning given to it in OAR 660-023-0020(2).

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & 197.225 - 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0020

Standard and Specific Rules and Safe Harbors

(1) The standard Goal 5 process, OAR 660-023-0030 through 660-023-0050, consists of procedures and requirements to guide local planning for all Goal 5 resource categories. This division also provides

specific rules for each of the fifteen Goal 5 resource categories (see OAR 660-023-0090 through 660-023-0230). In some cases this division indicates that both the standard and the specific rules apply to Goal 5 decisions. In other cases, this division indicates that the specific rules supersede parts or all of the standard process rules (i.e., local governments must follow the specific rules rather than the standard Goal 5 process). In case of conflict, the resource-specific rules set forth in OAR 660-023-0090 through 660-023-0230 shall supersede the standard provisions in OAR 660-023-0030 through 660-023-0050.

(2) A "safe harbor" consists of an optional course of action that satisfies certain requirements under the standard process. Local governments may follow safe harbor requirements rather than addressing certain requirements in the standard Goal 5 process. For example, a jurisdiction may choose to identify "significant" riparian corridors using the safe harbor criteria under OAR 660-023-0090(5) rather than follow the general requirements for determining "significance" in the standard Goal 5 process under OAR 660-023-0030(4). Similarly, a jurisdiction may adopt a wetlands ordinance that meets the requirements of OAR 660-023-0100(4)(b) in lieu of following the ESEE decision process in OAR 660-023-0040.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0030

Inventory Process

(1) Inventories provide the information necessary to locate and evaluate resources and develop programs to protect such resources. The purpose of the inventory process is to compile or update a list of significant Goal 5 resources in a jurisdiction. This rule divides the inventory process into four steps. However, all four steps are not necessarily applicable, depending on the type of Goal 5 resource and the scope of a particular PAPA or periodic review work task. For example, when proceeding under a quasi-judicial PAPA for a particular site, the initial inventory step in section (2) of this rule is not applicable in that a local government may rely on information submitted by applicants and other participants in the local process. The inventory process may be followed for a single site, for sites in a particular geographical area, or for the entire jurisdiction or urban growth boundary (UGB), and a single inventory process may be followed for multiple resource categories that are being considered simultaneously. The standard Goal 5 inventory process consists of the following steps, which are set out in detail in sections (2) through (5) of this rule and further explained in sections (6) and (7) of this rule:

- (a) Collect information about Goal 5 resource sites;
- (b) Determine the adequacy of the information;
- (c) Determine the significance of resource sites; and
- (d) Adopt a list of significant resource sites.

(2) Collect information about Goal 5 resource sites: The inventory process begins with the collection of existing and available information, including inventories, surveys, and other applicable data about potential Goal 5 resource sites. If a PAPA or periodic review work task pertains to certain specified

sites, the local government is not required to collect information regarding other resource sites in the jurisdiction. When collecting information about potential Goal 5 sites, local governments shall, at a minimum:

- (a) Notify state and federal resource management agencies and request current resource information; and
- (b) Consider other information submitted in the local process.

(3) Determine the adequacy of the information: In order to conduct the Goal 5 process, information about each potential site must be adequate. A local government may determine that the information about a site is inadequate to complete the Goal 5 process based on the criteria in this section. This determination shall be clearly indicated in the record of proceedings. The issue of adequacy may be raised by the department or objectors, but final determination is made by the commission or the Land Use Board of Appeals, as provided by law. When local governments determine that information about a site is inadequate, they shall not proceed with the Goal 5 process for such sites unless adequate information is obtained, and they shall not regulate land uses in order to protect such sites. The information about a particular Goal 5 resource site shall be deemed adequate if it provides the location, quality and quantity of the resource, as follows:

(a) Information about location shall include a description or map of the resource area for each site. The information must be sufficient to determine whether a resource exists on a particular site. However, a precise location of the resource for a particular site, such as would be required for building permits, is not necessary at this stage in the process.

(b) Information on quality shall indicate a resource site's value relative to other known examples of the same resource. While a regional comparison is recommended, a comparison with resource sites within the jurisdiction itself is sufficient unless there are no other local examples of the resource. Local governments shall consider any determinations about resource quality provided in available state or federal inventories.

(c) Information on quantity shall include an estimate of the relative abundance or scarcity of the resource.

(4) Determine the significance of resource sites: For sites where information is adequate, local governments shall determine whether the site is significant. This determination shall be adequate if based on the criteria in subsections (a) through (c) of this section, unless challenged by the department, objectors, or the commission based upon contradictory information. The determination of significance shall be based on:

(a) The quality, quantity, and location information;

(b) Supplemental or superseding significance criteria set out in OAR 660-023-0090 through 660-023-0230; and

(c) Any additional criteria adopted by the local government, provided these criteria do not conflict with the requirements of OAR 660-023-0090 through 660-023-0230.

(5) Adopt a list of significant resource sites: When a local government determines that a particular resource site is significant, the local government shall include the site on a list of significant Goal 5 resources adopted as a part of the comprehensive plan or as a land use regulation. Local governments

shall complete the Goal 5 process for all sites included on the resource list except as provided in OAR 660-023-0200(7) for historic resources, and OAR 660-023-0220(3) for open space acquisition areas.

(6) Local governments may determine that a particular resource site is not significant, provided they maintain a record of that determination. Local governments shall not proceed with the Goal 5 process for such sites and shall not regulate land uses in order to protect such sites under Goal 5.

(7) Local governments may adopt limited interim protection measures for those sites that are determined to be significant, provided:

(a) The measures are determined to be necessary because existing development regulations are inadequate to prevent irrevocable harm to the resources on the site during the time necessary to complete the ESEE process and adopt a permanent program to achieve Goal 5; and

(b) The measures shall remain effective only for 120 days from the date they are adopted, or until adoption of a program to achieve Goal 5, whichever occurs first.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0040

ESEE Decision Process

(1) Local governments shall develop a program to achieve Goal 5 for all significant resource sites based on an analysis of the economic, social, environmental, and energy (ESEE) consequences that could result from a decision to allow, limit, or prohibit a conflicting use. This rule describes four steps to be followed in conducting an ESEE analysis, as set out in detail in sections (2) through (5) of this rule. Local governments are not required to follow these steps sequentially, and some steps anticipate a return to a previous step. However, findings shall demonstrate that requirements under each of the steps have been met, regardless of the sequence followed by the local government. The ESEE analysis need not be lengthy or complex, but should enable reviewers to gain a clear understanding of the conflicts and the consequences to be expected. The steps in the standard ESEE process are as follows:

(a) Identify conflicting uses;

(b) Determine the impact area;

(c) Analyze the ESEE consequences; and

(d) Develop a program to achieve Goal 5.

(2) Identify conflicting uses. Local governments shall identify conflicting uses that exist, or could occur, with regard to significant Goal 5 resource sites. To identify these uses, local governments shall examine land uses allowed outright or conditionally within the zones applied to the resource site and in its impact area. Local governments are not required to consider allowed uses that would be unlikely to occur in the impact area because existing permanent uses occupy the site. The following shall also apply in the

identification of conflicting uses:

(a) If no uses conflict with a significant resource site, acknowledged policies and land use regulations may be considered sufficient to protect the resource site. The determination that there are no conflicting uses must be based on the applicable zoning rather than ownership of the site. (Therefore, public ownership of a site does not by itself support a conclusion that there are no conflicting uses.)

(b) A local government may determine that one or more significant Goal 5 resource sites are conflicting uses with another significant resource site. The local government shall determine the level of protection for each significant site using the ESEE process and/or the requirements in OAR 660-023-0090 through 660-023-0230 (see OAR 660-023-0020(1)).

(3) Determine the impact area. Local governments shall determine an impact area for each significant resource site. The impact area shall be drawn to include only the area in which allowed uses could adversely affect the identified resource. The impact area defines the geographic limits within which to conduct an ESEE analysis for the identified significant resource site.

(4) Analyze the ESEE consequences. Local governments shall analyze the ESEE consequences that could result from decisions to allow, limit, or prohibit a conflicting use. The analysis may address each of the identified conflicting uses, or it may address a group of similar conflicting uses. A local government may conduct a single analysis for two or more resource sites that are within the same area or that are similarly situated and subject to the same zoning. The local government may establish a matrix of commonly occurring conflicting uses and apply the matrix to particular resource sites in order to facilitate the analysis. A local government may conduct a single analysis for a site containing more than one significant Goal 5 resource. The ESEE analysis must consider any applicable statewide goal or acknowledged plan requirements, including the requirements of Goal 5. The analyses of the ESEE consequences shall be adopted either as part of the plan or as a land use regulation.

(5) Develop a program to achieve Goal 5. Local governments shall determine whether to allow, limit, or prohibit identified conflicting uses for significant resource sites. This decision shall be based upon and supported by the ESEE analysis. A decision to prohibit or limit conflicting uses protects a resource site. A decision to allow some or all conflicting uses for a particular site may also be consistent with Goal 5, provided it is supported by the ESEE analysis. One of the following determinations shall be reached with regard to conflicting uses for a significant resource site:

(a) A local government may decide that a significant resource site is of such importance compared to the conflicting uses, and the ESEE consequences of allowing the conflicting uses are so detrimental to the resource, that the conflicting uses should be prohibited.

(b) A local government may decide that both the resource site and the conflicting uses are important compared to each other, and, based on the ESEE analysis, the conflicting uses should be allowed in a limited way that protects the resource site to a desired extent.

(c) A local government may decide that the conflicting use should be allowed fully, notwithstanding the possible impacts on the resource site. The ESEE analysis must demonstrate that the conflicting use is of sufficient importance relative to the resource site, and must indicate why measures to protect the resource to some extent should not be provided, as per subsection (b) of this section.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0050

Programs to Achieve Goal 5

(1) For each resource site, local governments shall adopt comprehensive plan provisions and land use regulations to implement the decisions made pursuant to OAR 660-023-0040(5). The plan shall describe the degree of protection intended for each significant resource site. The plan and implementing ordinances shall clearly identify those conflicting uses that are allowed and the specific standards or limitations that apply to the allowed uses. A program to achieve Goal 5 may include zoning measures that partially or fully allow conflicting uses (see OAR 660-023-0040(5)(b) and (c)).

(2) When a local government has decided to protect a resource site under OAR 660-023-0040(5)(b), implementing measures applied to conflicting uses on the resource site and within its impact area shall contain clear and objective standards. For purposes of this division, a standard shall be considered clear and objective if it meets any one of the following criteria:

(a) It is a fixed numerical standard, such as a height limitation of 35 feet or a setback of 50 feet;

(b) It is a nondiscretionary requirement, such as a requirement that grading not occur beneath the dripline of a protected tree; or

(c) It is a performance standard that describes the outcome to be achieved by the design, siting, construction, or operation of the conflicting use, and specifies the objective criteria to be used in evaluating outcome or performance. Different performance standards may be needed for different resource sites. If performance standards are adopted, the local government shall at the same time adopt a process for their application (such as a conditional use, or design review ordinance provision).

(3) In addition to the clear and objective regulations required by section (2) of this rule, except for aggregate resources, local governments may adopt an alternative approval process that includes land use regulations that are not clear and objective (such as a planned unit development ordinance with discretionary performance standards), provided such regulations:

(a) Specify that landowners have the choice of proceeding under either the clear and objective approval process or the alternative regulations; and

(b) Require a level of protection for the resource that meets or exceeds the intended level determined under OAR 660-023-0040(5) and 660-023-0050(1).

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0060

Notice and Land Owner Involvement

Local governments shall provide timely notice to landowners and opportunities for citizen involvement during the inventory and ESEE process. Notification and involvement of landowners, citizens, and public agencies should occur at the earliest possible opportunity whenever a Goal 5 task is undertaken in the periodic review or plan amendment process. A local government shall comply with its acknowledged citizen involvement program, with statewide goal requirements for citizen involvement and coordination, and with other applicable procedures in statutes, rules, or local ordinances.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0070

Buildable Lands Affected by Goal 5 Measures

(1) If measures to protect significant resource sites inside urban growth boundaries affect the inventory of buildable lands in acknowledged plans required by Goals 9, 10 and 14, a local government outside of the Metro UGB, and Metro inside the Metro UGB, prior to or at the next periodic review, shall:

(a) Amend its urban growth boundary to provide additional buildable lands sufficient to compensate for the loss of buildable lands caused by the application of Goal 5;

(b) Redesignate other land to replace identified land needs under Goals 9, 10, and 14 provided such action does not take the plan out of compliance with other statewide goals; or

(c) Adopt a combination of the actions described in subsections (a) and (b) of this section.

(2) If a local government redesignates land for higher density under subsections (1)(b) or (c) of this rule in order to meet identified housing needs, the local government shall ensure that the redesignated land is in locations appropriate for the housing types, and is zoned at density ranges that are likely to be achieved by the housing market.

(3) Where applicable, the requirements of ORS 197.296 shall supersede the requirements of sections (1) and (2) of this rule.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0080

Metro Regional Resources

(1) For purposes of this rule, the following definitions apply:

(a) "Metro" is the Metropolitan Service District organized under ORS Chapter 268, and operating under

the 1992 Metro Charter, for 24 cities and certain urban portions of Multnomah, Clackamas, and Washington counties.

(b) "Regional resource" is a site containing a significant Goal 5 resource, including but not limited to a riparian corridor, wetland, or open space area, which is identified as a regional resource on a map adopted by Metro ordinance.

(2) Local governments shall complete the Goal 5 process in this division for all regional resources prior to or during the first periodic review following Metro's adoption of a regional resources map, unless Metro adopts a regional functional plan by ordinance to establish a uniform time for all local governments to complete the Goal 5 process for particular regional resource sites.

(3) Metro may adopt one or more regional functional plans to address all applicable requirements of Goal 5 and this division for one or more resource categories and to provide time limits for local governments to implement the plan. Such functional plans shall be submitted for acknowledgment under the provisions of ORS 197.251 and 197.274. Upon acknowledgment of Metro's regional resource functional plan, local governments within Metro's jurisdiction shall apply the requirements of the functional plan for regional resources rather than the requirements of this division.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0090

Riparian Corridors

(1) For the purposes of this rule, the following definitions apply:

(a) "Fish habitat" means those areas upon which fish depend in order to meet their requirements for spawning, rearing, food supply, and migration.

(b) "Riparian area" is the area adjacent to a river, lake, or stream, consisting of the area of transition from an aquatic ecosystem to a terrestrial ecosystem.

(c) "Riparian corridor" is a Goal 5 resource that includes the water areas, fish habitat, adjacent riparian areas, and wetlands within the riparian area boundary.

(d) "Riparian corridor boundary" is an imaginary line that is a certain distance upland from the top bank, for example, as specified in section (5) of this rule.

(e) "Stream" is a channel such as a river or creek that carries flowing surface water, including perennial streams and intermittent streams with defined channels, and excluding man-made irrigation and drainage channels.

(f) "Structure" is a building or other major improvement that is built, constructed, or installed, not including minor improvements, such as fences, utility poles, flagpoles, or irrigation system components, that are not customarily regulated through zoning ordinances.

- (g) "Top of bank" shall have the same meaning as "bankfull stage" defined in OAR 141-085-0010(2).
- (h) "Water area" is the area between the banks of a lake, pond, river, perennial or fish-bearing intermittent stream, excluding man-made farm ponds.
- (2) Local governments shall amend acknowledged plans in order to inventory riparian corridors and provide programs to achieve Goal 5 prior to or at the first periodic review following the effective date of this rule, except as provided in OAR 660-023-0250(5).
- (3) Local governments shall inventory and determine significant riparian corridors by following either the safe harbor methodology described in section (5) of this rule or the standard inventory process described in OAR 660-023-0030 as modified by the requirements in section (4) of this rule. The local government may divide the riparian corridor into a series of stream sections (or reaches) and regard these as individual resource sites.
- (4) When following the standard inventory process in OAR 660-023-0030, local governments shall collect information regarding all water areas, fish habitat, riparian areas, and wetlands within riparian corridors. Local governments may postpone determination of the precise location of the riparian area on lands designated for farm or forest use until receipt of applications for local permits for uses that would conflict with these resources. Local governments are encouraged, but not required, to conduct field investigations to verify the location, quality, and quantity of resources within the riparian corridor. At a minimum, local governments shall consult the following sources, where available, in order to inventory riparian corridors along rivers, lakes, and streams within the jurisdiction:
- (a) Oregon Department of Forestry stream classification maps;
 - (b) United States Geological Service (USGS) 7.5 minute quadrangle maps;
 - (c) National Wetlands Inventory maps;
 - (d) Oregon Department of Fish and Wildlife (ODFW) maps indicating fish habitat;
 - (e) Federal Emergency Management Agency (FEMA) flood maps; and
 - (f) Aerial photographs.
- (5) As a safe harbor in order to address the requirements under OAR 660-023-0030, a local government may determine the boundaries of significant riparian corridors within its jurisdiction using a standard setback distance from all fish-bearing lakes and streams shown on the documents listed in subsections (a) through (f) of section (4) of this rule, as follows:
- (a) Along all streams with average annual stream flow greater than 1,000 cubic feet per second (cfs) the riparian corridor boundary shall be 75 feet upland from the top of each bank.
 - (b) Along all lakes, and fish-bearing streams with average annual stream flow less than 1,000 cfs, the riparian corridor boundary shall be 50 feet from the top of bank.
 - (c) Where the riparian corridor includes all or portions of a significant wetland as set out in OAR 660-023-0100, the standard distance to the riparian corridor boundary shall be measured from, and include, the upland edge of the wetland.

(d) In areas where the top of each bank is not clearly defined, or where the predominant terrain consists of steep cliffs, local governments shall apply OAR 660-023-0030 rather than apply the safe harbor provisions of this section.

(6) Local governments shall develop a program to achieve Goal 5 using either the safe harbor described in section (8) of this rule or the standard Goal 5 ESEE process in OAR 660-023-0040 and 660-023-0050 as modified by section (7) of this rule.

(7) When following the standard ESEE process in OAR 660-023-0040 and 660-023-0050, a local government shall comply with Goal 5 if it identifies at least the following activities as conflicting uses in riparian corridors:

(a) The permanent alteration of the riparian corridor by placement of structures or impervious surfaces, except for:

(A) Water-dependent or water-related uses; and

(B) Replacement of existing structures with structures in the same location that do not disturb additional riparian surface area; and

(b) Removal of vegetation in the riparian area, except:

(A) As necessary for restoration activities, such as replacement of vegetation with native riparian species;

(B) As necessary for the development of water-related or water-dependent uses; and

(C) On lands designated for agricultural or forest use outside UGBs.

(8) As a safe harbor in lieu of following the ESEE process requirements of OAR 660-023-0040 and 660-023-0050, a local government may adopt an ordinance to protect a significant riparian corridor as follows:

(a) The ordinance shall prevent permanent alteration of the riparian area by grading or by the placement of structures or impervious surfaces, except for the following uses, provided they are designed and constructed to minimize intrusion into the riparian area:

(A) Streets, roads, and paths;

(B) Drainage facilities, utilities, and irrigation pumps;

(C) Water-related and water-dependent uses; and

(D) Replacement of existing structures with structures in the same location that do not disturb additional riparian surface area.

(b) The ordinance shall contain provisions to control the removal of riparian vegetation, except that the ordinance shall allow:

(A) Removal of non-native vegetation and replacement with native plant species; and

- (B) Removal of vegetation necessary for the development of water-related or water-dependent uses;
- (c) Notwithstanding subsection (b) of this section, the ordinance need not regulate the removal of vegetation in areas zoned for farm or forest uses pursuant to statewide Goals 3 or 4;
- (d) The ordinance shall include a procedure to consider hardship variances, claims of map error, and reduction or removal of the restrictions under subsections (a) and (b) of this section for any existing lot or parcel demonstrated to have been rendered not buildable by application of the ordinance; and
- (e) The ordinance may authorize the permanent alteration of the riparian area by placement of structures or impervious surfaces within the riparian corridor boundary established under subsection (5)(a) of this rule upon a demonstration that equal or better protection for identified resources will be ensured through restoration of riparian areas, enhanced buffer treatment, or similar measures. In no case shall such alterations occupy more than 50 percent of the width of the riparian area measured from the upland edge of the corridor.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0100

Wetlands

- (1) For purposes of this rule, a "wetland" is an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
- (2) Local governments shall amend acknowledged plans and land use regulations prior to or at periodic review to address the requirements of this division, as set out in OAR 660-023-0250(5) through (7). The standard inventory process requirements in OAR 660-023-0030 do not apply to wetlands. Instead, local governments shall follow the requirements of section (3) of this rule in order to inventory and determine significant wetlands.
- (3) For areas inside urban growth boundaries (UGBs) and urban unincorporated communities (UUCs), local governments shall:
 - (a) Conduct a local wetlands inventory (LWI) using the standards and procedures of OAR 141-086-0110 through 141-086-0240 and adopt the LWI as part of the comprehensive plan or as a land use regulation; and
 - (b) Determine which wetlands on the LWI are "significant wetlands" using the criteria adopted by the Division of State Lands (DSL) pursuant to ORS 197.279(3)(b) and adopt the list of significant wetlands as part of the comprehensive plan or as a land use regulation.
- (4) For significant wetlands inside UGBs and UUCs, a local government shall:
 - (a) Complete the Goal 5 process and adopt a program to achieve the goal following the requirements of

OAR 660-023-0040 and 660-023-0050; or

(b) Adopt a safe harbor ordinance to protect significant wetlands consistent with this subsection, as follows:

(A) The protection ordinance shall place restrictions on grading, excavation, placement of fill, and vegetation removal other than perimeter mowing and other cutting necessary for hazard prevention; and

(B) The ordinance shall include a variance procedure to consider hardship variances, claims of map error verified by DSL, and reduction or removal of the restrictions under paragraph (A) of this subsection for any lands demonstrated to have been rendered not buildable by application of the ordinance.

(5) For areas outside UGBs and UUCs, local governments shall either adopt the statewide wetland inventory (SWI; see ORS 196.674) as part of the local comprehensive plan or as a land use regulation, or shall use a current version for the purpose of section (7) of this rule.

(6) For areas outside UGBs and UUCs, local governments are not required to amend acknowledged plans and land use regulations in order to determine significant wetlands and complete the Goal 5 process. Local governments that choose to amend acknowledged plans for areas outside UGBs and UUCs in order to inventory and protect significant wetlands shall follow the requirements of sections (3) and (4) of this rule.

(7) All local governments shall adopt land use regulations that require notification of DSL concerning applications for development permits or other land use decisions affecting wetlands on the inventory, as per ORS 227.350 and 215.418, or on the SWI as provided in section (5) of this rule.

(8) All jurisdictions may inventory and protect wetlands under the procedures and requirements for wetland conservation plans adopted pursuant to ORS 196.668 et seq. A wetlands conservation plan approved by the director of DSL shall be deemed to comply with Goal 5 (ORS 197.279(1)).

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0110

Wildlife Habitat

(1) For purposes of this rule, the following definitions apply:

(a) "Documented" means that an area is shown on a map published or issued by a state or federal agency or by a professional with demonstrated expertise in habitat identification.

(b) "Wildlife habitat" is an area upon which wildlife depend in order to meet their requirements for food, water, shelter, and reproduction. Examples include wildlife migration corridors, big game winter range, and nesting and roosting sites.

(2) Local governments shall conduct the inventory process and determine significant wildlife habitat as

set forth in OAR 660-023-0250(5) by following either the safe harbor methodology described in section (4) of this rule or the standard inventory process described in OAR 660-023-0030.

(3) When gathering information regarding wildlife habitat under the standard inventory process in OAR 660-023-0030(2), local governments shall obtain current habitat inventory information from the Oregon Department of Fish and Wildlife (ODFW), and other state and federal agencies. These inventories shall include at least the following:

(a) Threatened, endangered, and sensitive wildlife species habitat information;

(b) Sensitive bird site inventories; and

(c) Wildlife species of concern and/or habitats of concern identified and mapped by ODFW (e.g., big game winter range and migration corridors, golden eagle and prairie falcon nest sites, and pigeon springs).

(4) Local governments may determine wildlife habitat significance under OAR 660-023-0040 or apply the safe harbor criteria in this section. Under the safe harbor, local governments may determine that "wildlife" does not include fish, and that significant wildlife habitat is only those sites where one or more of the following conditions exist:

(a) The habitat has been documented to perform a life support function for a wildlife species listed by the federal government as a threatened or endangered species or by the state of Oregon as a threatened, endangered, or sensitive species;

(b) The habitat has documented occurrences of more than incidental use by a species described in subsection (a) of this section;

(c) The habitat has been documented as a sensitive bird nesting, roosting, or watering resource site for osprey or great blue herons pursuant to ORS 527.710 (Oregon Forest Practices Act) and OAR 629-024-0700 (Forest Practices Rules);

(d) The habitat has been documented to be essential to achieving policies or population objectives specified in a wildlife species management plan adopted by the Oregon Fish and Wildlife Commission pursuant to ORS Chapter 496; or

(e) The area is identified and mapped by ODFW as habitat for a wildlife species of concern and/or as a habitat of concern (e.g., big game winter range and migration corridors, golden eagle and prairie falcon nest sites, or pigeon springs).

(5) For certain threatened or endangered species sites, publication of location information may increase the threat of habitat or species loss. Pursuant to ORS 192.501(13), local governments may limit publication, display, and availability of location information for such sites. Local governments may adopt inventory maps of these areas, with procedures to allow limited availability to property owners or other specified parties.

(6) As set out in OAR 660-023-0250(5), local governments shall develop programs to protect wildlife habitat following the standard procedures and requirements of OAR 660-023-0040 and 660-023-0050. Local governments shall coordinate with appropriate state and federal agencies when adopting programs intended to protect threatened, endangered, or sensitive species habitat areas.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 297.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0120

Federal Wild and Scenic Rivers

(1) At each periodic review, local governments shall amend acknowledged plans and land use regulations to address any federal Wild and Scenic River (WSR) and associated corridor established by the federal government that is not addressed by the acknowledged plan. The standards and procedures of OAR 660-023-0030 through 660-023-0050 apply to WSRs, except as provided in this rule.

(2) Local governments shall not inventory WSRs using the standard process under OAR 660-023-0030, except that local governments shall follow the requirements of OAR 660-023-0030(5) by designating all WSRs as significant Goal 5 resources.

(3) A local government may delay completion of OAR 660-023-0040 and 660-023-0050 for a WSR until the federal government adopts a management plan for the WSR. Prior to the federal government adoption of a management plan, the local government shall notify the federal government of proposed development and changes of land use within the interim WSR corridor.

(4) Prior to or at the first periodic review following adoption of a management plan by the federal government for an established WSR, the local government shall adopt a program to protect the WSR and associated corridor by following the ESEE standards and procedures of OAR 660-023-0040 and 660-023-0050. The impact area determined under OAR 660-023-0040(3) shall be the WSR corridor that is established by the federal government. Notwithstanding the provisions of OAR 660-023-0040(5), the local program shall be consistent with the federal management plan.

(5) For any lands in a designated WSR corridor that are also within the impact area of a designated Oregon Scenic Waterway, the local government may apply the requirements of OAR 660-023-0130 rather than the applicable requirements of this rule in order to develop a program to achieve Goal 5.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0130

Oregon Scenic Waterways

(1) At each periodic review, local governments shall amend acknowledged plans and land use regulations to address any Oregon Scenic Waterway (OSW) and associated corridor that is not addressed by the acknowledged plan. The standards and procedures of OAR 660-023-0030 through 660-023-0050 apply to OSWs, except as provided in this rule.

(2) Local governments shall not inventory OSWs following all the steps of the standard inventory process under OAR 660-023-0030. Instead, local governments shall follow only the requirements of OAR 660-023-0030(5) by designating OSWs as significant Goal 5 resources.

(3) A local government may delay completion of the Goal 5 process (OAR 660-023-0040 and 660-023-0050) for an OSW until the Oregon Parks and Recreation Commission (OPRC) adopts a management plan for the OSW. Prior to the OPRC adoption of a management plan for the OSW, the local government shall:

(a) Notify the Oregon Parks and Recreation Department (OPRD) of proposed developments and changes of land use on land within the interim OSW corridor; and

(b) Inform landowners who apply to the local government for development approval or changes of land use within the OSW corridor of their notice obligations under ORS 390.845.

(4) Prior to or at the first periodic review following adoption of a management plan by the OPRC for an established OSW, the local government shall adopt a Goal 5 program for the OSW and associated corridor by following either the ESEE standards and procedures of OAR 660-023-0040 and 660-023-0050 or the safe harbor provisions in section (5) of this rule. The impact area determined under OAR 660-023-0040(3) shall be the scenic waterway and adjacent lands as set forth in ORS 390.805(2) and (3). Notwithstanding the provisions of OAR 660-023-0040(5), the local program for the OSW shall be consistent with the management plan adopted by OPRC.

(5) As a safe harbor, a local government may adopt only those plan and implementing ordinance provisions necessary to carry out the management plan adopted by OPRC rather than follow the ESEE standards and procedures of OAR 660-023-0040 and 660-023-0050.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0140

Groundwater Resources

(1) For purposes of this rule, the following definitions apply:

(a) "Delineation" is a determination that has been certified by the Oregon Health Division pursuant to OAR 333-061-0057, regarding the extent, orientation, and boundary of a wellhead protection area, considering such factors as geology, aquifer characteristics, well pumping rates, and time of travel.

(b) "Groundwater" is any water, except capillary moisture, beneath the land surface or beneath the bed of any stream, lake, reservoir, or other body of surface water.

(c) "Protect significant groundwater resources" means to adopt land use programs to help ensure that reliable groundwater is available to areas planned for development and to provide a reasonable level of certainty that the carrying capacity of groundwater resources will not be exceeded.

(d) "Public water system" is a system supplying water for human consumption that has four or more service connections, or a system supplying water to a public or commercial establishment that operates a total of at least 60 days per year and that is used by 10 or more individuals per day.

(e) "Wellhead protection area" is the surface and subsurface area surrounding a water well, spring, or wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach that water well, spring, or wellfield.

(2) Local governments shall amend acknowledged plans prior to or at each periodic review in order to inventory and protect significant groundwater resources under Goal 5 only as provided in sections (3) through (5) of this rule. Goal 5 does not apply to other groundwater areas, although other statewide Goals, especially Goals 2, 6, and 11, apply to land use decisions concerning such groundwater areas. Significant groundwater resources are limited to:

(a) Critical groundwater areas and ground-water-limited areas designated by the Oregon Water Resources Commission (OWRC), subject to the requirements in section (3) of this rule applied in conjunction with the requirements of OAR 660-023-0030 through 660-023-0050; and

(b) Wellhead protection areas, subject to the requirements in sections (4) and (5) of this rule instead of the requirements in OAR 660-023-0030 through 660-023-0050.

(3) Critical groundwater areas and groundwater-limited areas designated by order of the OWRC pursuant to ORS 537.505 et seq. are significant groundwater resources. Following designation by OWRC, and in coordination with the Oregon Water Resources Department (WRD), local plans shall declare such areas as significant groundwater resources as per OAR 660-022-0030(5). Following the requirements of OAR 660-023-0040 and 660-023-0050 and this rule, local governments shall develop programs to protect these significant groundwater resources.

(4) A local government or water provider may delineate a wellhead protection area for wells or wellfields that serve lands within its jurisdiction. For the delineation of wellhead protection areas, the standards and procedures in OAR Chapter 333, Division 61 (Oregon Health Division rules) shall apply rather than the standards and procedures of OAR 660-023-0030.

(5) A wellhead protection area is a significant groundwater resource only if the area has been so delineated and either:

(a) The public water system served by the wellhead area has a service population greater than 10,000 or has more than 3,000 service connections and relies on groundwater from the wellhead area as the primary or secondary source of drinking water; or

(b) The wellhead protection area is determined to be significant under criteria established by a local government, for the portion of the wellhead protection area within the jurisdiction of the local government.

(6) Local governments shall develop programs to resolve conflicts with wellhead protection areas described under section (5) of this rule. In order to resolve conflicts with wellhead protection areas, local governments shall adopt comprehensive plan provisions and land use regulations, consistent with all applicable statewide goals, that:

(a) Reduce the risk of contamination of groundwater, following the standards and requirements of OAR

Chapter 340, Division 40; and

(b) Implement wellhead protection plans certified by the Oregon Department of Environmental Quality (DEQ) under OAR 340-040-0180.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0150

Approved Oregon Recreation Trails

(1) For purposes of this rule, "recreation trail" means an Oregon Recreation Trail designated by rule adopted by the Oregon Parks and Recreation Commission (OPRC).

(2) Recreation trails are designated by OPRC in cooperation with local governments and private land owners. Local governments are not required to inventory recreation trails under OAR 660-023-0030. Instead, local governments shall designate all recreation trails designated by OPRC as significant Goal 5 resources. At each periodic review, local governments shall amend acknowledged plans to recognize any recreation trail designated by OPRC subsequent to acknowledgment or a previous periodic review.

(3) Local governments are not required to amend acknowledged plans or land use regulations in order to supplement OPRC protection of recreation trails. If a local government chooses to supplement OPRC protection, it shall follow the requirements of OAR 660-023-0040 and 660-023-0050.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0160

Natural Areas

(1) For purposes of this rule, "natural areas" are areas listed in the Oregon State Register of Natural Heritage Resources.

(2) At periodic review, local governments shall consider information about natural areas not addressed at acknowledgment or in previous periodic reviews. Local governments shall inventory such areas as significant and develop a program to achieve the goal following the standard Goal 5 process in OAR 660-023-0040 and 660-023-0050.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0170**Wilderness Areas**

- (1) For purposes of this rule, "wilderness areas" are those areas designated as wilderness by the federal government.
- (2) Local governments are not required to inventory wilderness areas using the procedures of OAR 660-023-0030, except that local governments shall list all federally designated wilderness areas as significant Goal 5 resources as provided under OAR 660-023-0030(5).
- (3) At periodic review, local governments shall amend acknowledged plans to recognize any wilderness areas designated after the last periodic review or acknowledgment.
- (4) A local government need not complete the Goal 5 process in OAR 660-023-0040 and 660-023-0050 for wilderness areas unless it chooses to provide additional protection for the wilderness area, such as the regulation of conflicting uses in an impact area adjacent to the wilderness area.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0180**Mineral and Aggregate Resources**

- (1) For purposes of this rule, the following definitions apply:
 - (a) "Aggregate resources" are naturally occurring concentrations of stone, rock, sand and gravel, decomposed granite, lime, pumice, cinders, and other naturally occurring solid materials used in road building.
 - (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 sections 4(b) and (5) of this rule).
 - (c) "Existing site" is a significant aggregate site that is lawfully operating, or is included on an inventory in an acknowledged plan, on the applicable date of this rule.
 - (d) "Expansion area" is an aggregate mining area contiguous to an existing site.
 - (e) "Mining" is the extraction and processing of mineral or aggregate resources, in the manner provided under ORS 215.298(3).
 - (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 standard.

(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).

(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.

(j) "Width of aggregate layer" means the depth of the water-lain deposit of sand, stones, and pebbles of sand-sized fraction or larger, minus the depth of the topsoil and nonaggregate overburden.

(k) "Willamette Valley" means Benton, Clackamas, Columbia, Linn, Marion, Multnomah, Polk, Washington, and Yamhill counties and the portion of Lane County east of the summit of the Coast Range.

(2) 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:

(a) A local government may inventory mineral and aggregate resources throughout its jurisdiction, or in a portion of its jurisdiction. When a local government conducts an inventory of mineral and aggregate sites in all or a portion of its jurisdiction, it shall follow the requirements of OAR 660-023-0030 as modified by subsection (b) of this section. When a local government is following the inventory process for a mineral or aggregate resource site filed under a PAPA, it shall follow only the applicable requirements of OAR 660-023-0030, except as provided in sections (3) and (6) of this rule;

(b) Local governments shall apply the criteria in section (3) of this rule rather than OAR 660-023-0030 (4) in determining whether an aggregate resource site is significant;

(c) Local governments shall follow the requirements of section (4) of this rule in deciding whether to authorize the mining of a significant mineral or aggregate resource site; and

(d) For significant mineral and aggregate sites where mining is allowed, local governments shall decide on a program to protect the site from new off-site conflicting uses by following the standard ESEE process in OAR 660-023-0040 and 660-023-0050 with regard to such uses.

(3) An aggregate resource site shall be considered significant if adequate information regarding the quantity, quality, and location of the resource demonstrates that the site meets any one of the criteria in subsections (a) through (c) of this section, except as provided in subsection (d) of this section:

(a) 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, and the estimated amount of material is more than 2,000,000 tons in the Willamette Valley, or 100,000 tons outside the Willamette Valley;

(b) The material meets local government standards establishing a lower threshold for significance than subsection (a) of this section; or

(c) The aggregate site is on an inventory of significant aggregate sites in an acknowledged plan on the applicable date of this rule.

(d) Notwithstanding subsections (a) through (c) of this section, except for an expansion area of an existing site if the operator of the existing site on March 1, 1996 had an enforceable property interest in the expansion area on that date, an aggregate site is not significant if the criteria in either paragraphs (A) or (B) of this subsection apply:

(A) More than 35 percent of the proposed mining area consists of soil classified as Class I on Natural Resource and Conservation Service (NRCS) maps on the date of this rule; or

(B) More than 35 percent of the proposed mining area consists of soil classified as Class II, or of a combination of Class II and Class I or Unique soil on NRCS maps available on the date of this rule, unless the average width of the aggregate layer within the mining area exceeds:

(i) 60 feet in Washington, Multnomah, Marion, Columbia, and Lane counties;

(ii) 25 feet in Polk, Yamhill, and Clackamas counties; or

(iii) 17 feet in Linn and Benton counties.

(4) For significant mineral and aggregate sites, local governments shall decide whether mining is permitted. For a PAPA application involving a significant aggregate site, the process for this decision is set out in subsections (a) through (g) of this section. For a PAPA involving a significant aggregate site, a local government must complete the process within 180 days after receipt of a complete application that is consistent with section (6) of this rule, or by the earliest date after 180 days allowed by local charter. The process for reaching decisions about aggregate mining is as follows:

(a) The local government shall determine an impact area for the purpose of identifying conflicts with proposed mining and processing activities. The impact area shall be large enough to include uses listed in subsection (b) of this section and shall be limited to 1,500 feet from the boundaries of the mining area, except where factual information indicates significant potential conflicts beyond this distance. For a proposed expansion of an existing aggregate site, the impact area shall be measured from the perimeter of the proposed expansion area rather than the boundaries of the existing aggregate site and shall not include the existing aggregate site.

(b) The local government shall determine existing or approved land uses within the impact area that will be adversely affected by proposed mining operations and shall specify the predicted conflicts. For purposes of this section, "approved land uses" are dwellings allowed by a residential zone on existing platted lots and other uses for which conditional or final approvals have been granted by the local government. For determination of conflicts from proposed mining of a significant aggregate site, the local government shall limit its consideration to the following:

(A) Conflicts due to noise, dust, or other discharges with regard to those existing and approved uses and associated activities (e.g., houses and schools) that are sensitive to such discharges;

(B) Potential conflicts to local roads used for access and egress to the mining site within one mile of the entrance to the mining site unless a greater distance is necessary in order to include the intersection with the nearest arterial identified in the local transportation plan. Conflicts shall be determined based on clear and objective standards regarding sight distances, road capacity, cross section elements, horizontal

and vertical alignment, and similar items in the transportation plan and implementing ordinances. Such standards for trucks associated with the mining operation shall be equivalent to standards for other trucks of equivalent size, weight, and capacity that haul other materials;

(C) Safety conflicts with existing public airports due to bird attractants, i.e., open water impoundments. This paragraph shall not apply after the effective date of commission rules adopted pursuant to Chapter 285, Oregon Laws 1995;

(D) Conflicts with other Goal 5 resource sites within the impact area that are shown on an acknowledged list of significant resources and for which the requirements of Goal 5 have been completed at the time the PAPA is initiated;

(E) Conflicts with agricultural practices; and

(F) Other conflicts for which consideration is necessary in order to carry out ordinances that supersede Oregon Department of Geology and Mineral Industries (DOGAMI) regulations pursuant to ORS 517.780;

(c) The local government shall determine reasonable and practicable measures that would minimize the conflicts identified under subsection (b) of this section. To determine whether proposed measures would minimize conflicts to agricultural practices, the requirements of ORS 215.296 shall be followed rather than the requirements of this section. If reasonable and practicable measures are identified to minimize all identified conflicts, mining shall be allowed at the site and subsection (d) of this section is not applicable. If identified conflicts cannot be minimized, subsection (d) of this section applies.

(d) The local government shall determine any significant conflicts identified under the requirements of subsection (c) of this section that cannot be minimized. Based on these conflicts only, local government shall determine the ESEE consequences of either allowing, limiting, or not allowing mining at the site. Local governments shall reach this decision by weighing these ESEE consequences, with consideration of the following:

(A) The degree of adverse effect on existing land uses within the impact area;

(B) Reasonable and practicable measures that could be taken to reduce the identified adverse effects; and

(C) The probable duration of the mining operation and the proposed post-mining use of the site.

(e) Where mining is allowed, the plan and implementing ordinances shall be amended to allow such mining. Any required measures to minimize conflicts, including special conditions and procedures regulating mining, shall be clear and objective. Additional land use review (e.g., site plan review), if required by the local government, shall not exceed the minimum review necessary to assure compliance with these requirements and shall not provide opportunities to deny mining for reasons unrelated to these requirements, or to attach additional approval requirements, except with regard to mining or processing activities:

(A) For which the PAPA application does not provide information sufficient to determine clear and objective measures to resolve identified conflicts;

(B) Not requested in the PAPA application; or

(C) For which a significant change to the type, location, or duration of the activity shown on the PAPA application is proposed by the operator.

(f) Where mining is allowed, the local government shall determine the post-mining use and provide for this use in the comprehensive plan and land use regulations. For significant aggregate sites on Class I, II and Unique farmland, local governments shall adopt plan and land use regulations to limit post-mining use to farm uses under ORS 215.203, uses listed under ORS 215.213(1) or 215.283(1), and fish and wildlife habitat uses, including wetland mitigation banking. Local governments shall coordinate with DOGAMI regarding the regulation and reclamation of mineral and aggregate sites, except where exempt under ORS 517.780.

(g) Local governments shall allow a currently approved aggregate processing operation at an existing site to process material from a new or expansion site without requiring a reauthorization of the existing processing operation unless limits on such processing were established at the time it was approved by the local government.

(5) Local governments shall follow the standard ESEE process in OAR 660-023-0040 and 660-023-0050 to determine whether to allow, limit, or prevent new conflicting uses within the impact area of a significant mineral and aggregate site. (This requirement does not apply if, under section (4) of this rule, the local government decides that mining will not be authorized at the site.)

(6) In order to determine whether information in a PAPA submittal concerning an aggregate site is adequate, local government shall follow the requirements of this section rather than OAR 660-023-0030

(3). An application for a PAPA concerning a significant aggregate site shall be adequate if it includes:

(a) Information regarding quantity, quality, and location sufficient to determine whether the standards and conditions in section (3) of this rule are satisfied;

(b) A conceptual site reclamation plan;

(NOTE: Final approval of reclamation plans resides with DOGAMI rather than local governments, except as provided in ORS 517.780)

(c) A traffic impact assessment within one mile of the entrance to the mining area pursuant to section (4)(b)(B) of this rule;

(d) Proposals to minimize any conflicts with existing uses preliminarily identified by the applicant within a 1,500 foot impact area; and

(e) A site plan indicating the location, hours of operation, and other pertinent information for all proposed mining and associated uses.

(7) Local governments shall amend the comprehensive plan and land use regulations to include procedures and requirements consistent with this rule for the consideration of PAPAs concerning aggregate resources. Until such local regulations are adopted, the procedures and requirements of this rule shall be directly applied to local government consideration of a PAPA concerning mining authorization, unless the local plan contains specific criteria regarding the consideration of a PAPA proposing to add a site to the list of significant aggregate sites, provided:

(a) Such regulations were acknowledged subsequent to 1989; and

(b) Such regulations shall be amended to conform to the requirements of this rule at the next scheduled periodic review, except as provided under OAR 660-023-0250(7).

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0190

Energy Sources

(1) For purposes of this rule,

(a) "Energy source" includes naturally occurring locations, accumulations, or deposits of one or more of the following resources used for the generation of energy: natural gas, surface water (i.e., dam sites), geothermal, solar, and wind areas. Energy sources applied for or approved through the Oregon Energy Facility Siting Council (EFSC) or the Federal Energy Regulatory Commission (FERC) shall be deemed significant energy sources for purposes of Goal 5.

(b) "Protect," for energy sources, means to adopt plan and land use regulations for a significant energy source that limit new conflicting uses within the impact area of the site and authorize the present or future development or use of the energy source at the site.

(2) In accordance with OAR 660-023-0250(5), local governments shall amend their acknowledged comprehensive plans to address energy sources using the standards and procedures in OAR 660-023-0030 through 660-023-0050. Where EFSC or FERC regulate a local site or an energy facility that relies on a site specific energy source, that source shall be considered a significant energy source under OAR 660-023-0030. Alternatively, local governments may adopt a program to evaluate conflicts and develop a protection program on a case-by-case basis, i.e., upon application to develop an individual energy source, as follows:

(a) For proposals involving energy sources under the jurisdiction of EFSC or FERC, the local government shall comply with Goal 5 by amending its comprehensive plan and land use regulations to implement the EFSC or FERC decision on the proposal as per ORS 469.503; and

(b) For proposals involving energy sources not under the jurisdiction of EFSC or FERC, the local government shall follow the standards and procedures of OAR 660-023-0030 through 660-023-0050.

(3) Local governments shall coordinate planning activities for energy sources with the Oregon Department of Energy.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0200

Historic Resources

(1) For purposes of this rule, the following definitions apply:

- (a) "Designation" is a decision by a local government declaring that a historic resource is "significant" and including the resource on the list of significant historic resources.
- (b) "Historic areas" are lands with buildings, structures, objects, sites, or districts that have local, regional, statewide, or national historic significance.
- (c) "Historic resources" are those buildings, structures, objects, sites, or districts that have a relationship to events or conditions of the human past.
- (d) "Historic resources of statewide significance" are buildings, structures, objects, sites, or districts listed in the National Register of Historic Places, and within approved national register historic districts pursuant to the National Historic Preservation Act of 1966 (PL 89-665; 16 U.S.C. 470).
- (e) "Protect" means to require local government review of applications for demolition, removal, or major exterior alteration of a historic resource.

(2) Local governments are not required to amend acknowledged plans or land use regulations in order to provide new or amended inventories or programs regarding historic resources, except as specified in this rule. The requirements of the standard Goal 5 process (see OAR 660-023-0030 through 660-023-0050) in conjunction with the requirements of this rule apply when local governments choose to amend acknowledged historic preservation plans and regulations. However, the sequence of steps in the standard process is not recommended, as per section (3) of this rule. The provisions in section (3) of this rule are advisory only. Sections (4) through (9) of this rule are mandatory for all local governments, except where the rule provides recommended or optional criteria.

(3) Local comprehensive plans should foster and encourage the preservation, management, and enhancement of structures, resources, and objects of historic significance within the jurisdiction in a manner conforming with, but not limited by, the provisions of ORS 358.605. In developing local historic preservation programs, local governments should follow the recommendations in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. Where possible, local governments should develop a local historic context statement and adopt a historic preservation plan and a historic preservation ordinance before commencement of local historic inventories.

(4) Local governments shall provide broad public notice prior to the collection of information about historic resources. Local governments shall notify landowners about opportunities to participate in the inventory process. Local governments may delegate the determination of significant historic sites to a local planning commission or historic resources commission. The determination of significance should be based on the National Register Criteria for Evaluation or the Secretary of the Interior's Standards for Evaluation.

(5) Local governments shall adopt or amend the list of significant historic resource sites (i.e., "designate" such sites) as a land use regulation. Local governments shall allow owners of inventoried historic resources to refuse historic resource designation at any time prior to adoption of the designation and shall not include a site on a list of significant historic resources if the owner of the property objects to its designation.

(6) The local government shall allow a property owner to remove from the property a historic property designation that was imposed on the property by the local government.

(7) Local governments are not required to apply the ESEE process in order to determine a program to protect historic resources. Rather, local governments are encouraged to adopt historic preservation regulations regarding the demolition, removal, or major exterior alteration of all designated historic resources. Historic protection ordinances should be consistent with standards and guidelines recommended in the Standards and Guidelines for Archeology and Historic Preservation published by the U.S. Secretary of the Interior.

(8) Local governments shall protect all historic resources of statewide significance through local historic protection regulations, regardless of whether these resources are "designated" in the local plan.

(9) A local government shall not issue a permit for demolition or modification of a historic resource described under subsection (6) of this rule for at least 120 days from the date a property owner requests removal of historic resource designation from the property.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0220

Open Space

(1) For purposes of this rule, "open space" includes parks, forests, wildlife preserves, nature reservations or sanctuaries, and public or private golf courses.

(2) Local governments are not required to amend acknowledged comprehensive plans in order to identify new open space resources. If local governments decide to amend acknowledged plans in order to provide or amend open space inventories, the requirements of OAR 660-023-0030 through 660-023-0050 shall apply, except as set forth in section (3) of this rule.

(3) Local governments may adopt a list of significant open space resource sites as an open space acquisition program. Local governments are not required to apply the requirements of OAR 660-023-0030 through 660-023-0050 to such sites unless land use regulations are adopted to protect such sites prior to acquisition.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0230

Scenic Views and Sites

(1) For purposes of this rule, "scenic views and sites" are lands that are valued for their aesthetic appearance.

(2) Local governments are not required to amend acknowledged comprehensive plans in order to identify scenic views and sites. If local governments decide to amend acknowledged plans in order to provide or amend inventories of scenic resources, the requirements of OAR 660-023-0030 through 660-023-0050 shall apply.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0240

Relationship of Goal 5 to Other Goals

(1) The requirements of Goal 5 do not apply to the adoption of measures required by Goals 6 and 7. However, to the extent that such measures exceed the requirements of Goals 6 or 7 and affect a Goal 5 resource site, the local government shall follow all applicable steps of the Goal 5 process.

(2) The requirements of Goals 15, 16, 17, and 19 shall supersede requirements of this division for natural resources that are also subject to and regulated under one or more of those goals. However, local governments may rely on a Goal 5 inventory produced under OAR 660-023-0030 and other applicable inventory requirements of this division to satisfy the inventory requirements under Goal 17 for resource sites subject to Goal 17.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

Hist.: LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0250

Applicability

(1) This division replaces OAR 660, Division 16, except with regard to cultural resources, and certain PAPAs and periodic review work tasks described in sections (2) and (4) of this rule. Local governments shall follow the procedures and requirements of this division or OAR 660, Division 16, whichever is applicable, in the adoption or amendment of all plan or land use regulations pertaining to Goal 5 resources. The requirements of Goal 5 do not apply to land use decisions made pursuant to acknowledged comprehensive plans and land use regulations.

(2) The requirements of this division are applicable to PAPAs initiated on or after September 1, 1996. OAR 660, Division 16 applies to PAPAs initiated prior to September 1, 1996. For purposes of this section "initiated" means that the local government has deemed the PAPA application to be complete.

(3) Local governments are not required to apply Goal 5 in consideration of a PAPA unless the PAPA affects a Goal 5 resource. For purposes of this section, a PAPA would affect a Goal 5 resource only if:

(a) The PAPA creates or amends a resource list or a portion of an acknowledged plan or land use regulation adopted in order to protect a significant Goal 5 resource or to address specific requirements of Goal 5;

(b) The PAPA allows new uses that could be conflicting uses with a particular significant Goal 5 resource site on an acknowledged resource list; or

- (c) The PAPA amends an acknowledged UGB and factual information is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area.
- (4) Consideration of a PAPA regarding a specific resource site, or regarding a specific provision of a Goal 5 implementing measure, does not require a local government to revise acknowledged inventories or other implementing measures, for the resource site or for other Goal 5 sites, that are not affected by the PAPA, regardless of whether such inventories or provisions were acknowledged under this rule or under OAR 660, Division 16.
- (5) Local governments are required to amend acknowledged plan or land use regulations at periodic review to address Goal 5 and the requirements of this division only if one or more of the following conditions apply, unless exempted by the director under section (7) of this rule:
- (a) The plan was acknowledged to comply with Goal 5 prior to the applicability of OAR 660, Division 16, and has not subsequently been amended in order to comply with that division;
- (b) The jurisdiction includes riparian corridors, wetlands, or wildlife habitat as provided under OAR 660-023-0090 through 660-023-0110, or aggregate resources as provided under OAR 660-023-0180; or
- (c) New information is submitted at the time of periodic review concerning resource sites not addressed by the plan at the time of acknowledgement or in previous periodic reviews, except for historic, open space, or scenic resources.
- (6) If a local government undertakes a Goal 5 periodic review task that concerns specific resource sites or specific Goal 5 plan or implementing measures, this action shall not by itself require a local government to conduct a new inventory of the affected Goal 5 resource category, or revise acknowledged plans or implementing measures for resource categories or sites that are not affected by the work task.
- (7) The director may exempt a local government from a work task for a resource category required under section (5) of this rule. The director shall consider the following factors in this decision:
- (a) Whether the plan and implementing ordinances for the resource category substantially comply with the requirements of this division; and
- (b) The resources of the local government or state agencies available for periodic review, as set forth in ORS 197.633(3)(g).
- (8) Local governments shall apply the requirements of this division to work tasks in periodic review work programs approved or amended under ORS 197.633(3)(g) after September 1, 1996. Local governments shall apply OAR 660, Division 16, to work tasks in periodic review work programs approved before September 1, 1996, unless the local government chooses to apply this division to one or more resource categories, and provided:
- (a) The same division is applied to all work tasks concerning any particular resource category;
- (b) All the participating local governments agree to apply this division for work tasks under the jurisdiction of more than one local government; and
- (c) The local government provides written notice to the department. If application of this division will

extend the time necessary to complete a work task, the director or the commission may consider extending the time for completing the work task as provided in OAR 660-025-0170.

Stat. Auth.: ORS 183 & ORS 197

Stats. Implemented: ORS 197.040 & ORS 197.225 - ORS 197.245

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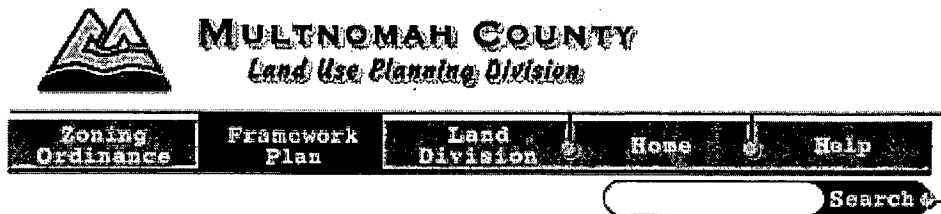
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NATURAL ENVIRONMENT POLICIES TOC • CFP INDEX

POLICY 16-B: Mineral And Aggregate Resources

It is the County's policy to protect and ensure appropriate use of mineral and aggregate resources of the County, and minimize conflict between surface mining activities and surrounding land uses.

Strategies

- A. The County shall protect significant gravel and mineral resources consistent with Statewide Planning Goal 5 and Oregon Administrative Rules Chapter 660, Division 16.
- B. As a part of the ongoing planning program the County will maintain an inventory of mineral and aggregate resource sites within the County. The comprehensive plan inventory is to include four classifications of sites:
 1. "Potential sites" are sites for which information about the location, quality, and quantity of a resource site is not adequate to allow a determination of significance (Goal 5 Process Flow Chart designation of "1B");
 2. "Not significant sites" are sites for which information about the location, quality, and quantity of a resource site shows that the site is not a significant resource (Goal 5 Process Flow Chart designation of "1A");
 3. "Protected sites" are significant resource sites which are identified through the Goal 5 process as resources that the County will protect from conflicting uses (Goal 5 Process Flow Chart designations "2A," "3A," and "3C"); and
 4. "Not protected sites" are significant resource sites for which the decision of the ESEE analysis is to not protect the resource from conflicting uses (Goal 5 Process Flow Chart designation of "3B").
- C. A resource site may include all or portions of a parcel, and may include contiguous parcels in different ownerships.
- D. For sites on the "potential sites" inventory, the County shall review available information about aggregate and mineral resources, and if the information on location, quantity, and quality is adequate, determine if the site is significant. Initiation of this process shall occur either:
 1. As part of the next scheduled periodic review; or
 2. When a record owner or the authorized agent of the record owner submits information concerning the significance of a resource site and applies for a comprehensive plan amendment.
- E. The County will judge the significance of mineral and aggregate resources on a case by case basis, under the standards and procedures in LCD's Goal 5 interpretive rules.
- F. For each site determined to be significant, the County shall complete the remainder of the Goal 5 process of identifying conflicting uses, analyzing the Economic, Social, Environmental, and Energy (ESEE) consequences of the conflicting use(s), and designating a level of protection from conflicting uses. If the final decision concerning the site is to preserve fully or partially protect the resource from conflicting uses, the County shall zone the site and the designated ESEE impact area with the Protected Aggregate and Mineral Resources Overlay Zoning Subdistrict (PAM).
- G. Mining and the associated processing of aggregate and mineral materials, in excess of the limited exemptions in Subsection H below, may only be allowed at sites included on the "protected sites" inventory. Approval of a mining operation at a "protected site" shall be reviewed as a conditional use. The general conditional use provisions regarding time limits, conditions, restrictions, and approval criteria, (MCC .7110(C), .7110(E), .7115, .7120, .7122, and .7125, October, 1994), shall not apply.
- H. Exemptions
 1. The following activities are exempt from the approval requirements and development standards of this policy:
 - a. Mining auxiliary to forest practices.

- b. Lawful mining operating under a DOGAMI "Grant of Total Exemption" on (the effective date of the Ordinance) on property owned or controlled by the operator. Abandonment, restoration, or alteration of this use shall be in compliance with the non-conforming use provisions of MCC .8805 and .8810.
- 2. Mining less than 1,000 cubic yards of material in conjunction with mining an area of less than one acre is exempt from the approval requirements and development standards of this policy. However, the mining activity shall require approval of a Hillside and Erosion Control permit and any other permits as may be required in any overlay subdistrict.
- 3. Mining a quantity and area in excess of 2 above, but less than 5,000 cubic yards of material or disturbing less than one acre of land within a period of 12 consecutive months until mining affects five or more acres is exempt from the approval requirements and development standards of this policy which require review by and issuance of an operating permit from DOGAMI. However, mining at this level of activity shall:
 - a. Be on a "protected site" as determined by, and subject to restrictions warranted by, the Goal 5 process;
 - b. Be approved as a mining conditional use; and
 - c. Obtain approval of a Hillside and Erosion Control Permit in conjunction with the mining conditional use approval. The Hillside and Erosion Control permit shall be required in place of all references in the plan and code to obtaining a DOGAMI operating permit in recognition that this level of mining activity is exempted by DOGAMI rules for such a permit.
- I. To approve surface mining at a site zoned Exclusive Farm Use (EFU) the County shall find, as part of the conditional use approval criteria, that the proposed activity:
 - 1. Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and
 - 2. Will not significantly increase the cost of accepted farm or forest practices on lands devoted to farm or forest use.
- J. To approve surface mining at a site zoned Commercial Forest Use (CFU), the County shall find, as part of the conditional use approval criteria, that:
 - 1. The proposed mining will not force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agriculture or forest lands;
 - 2. The proposed mining will not significantly increase fire hazard or significantly increase fire suppression costs or significantly increase risks to fire suppression personnel; and
 - 3. A written statement recognizing the rights of adjacent and nearby property owners to conduct accepted forest practices has been recorded with the property deed in accordance with OAR 660-06-025 (1994).
- K. The County shall not independently apply the Protected Aggregate and Mineral Resources Overlay Subdistrict (PAM) to land within another County, or within a city or its urban growth boundary. The County shall encourage protection of significant sites through cooperative agreements with another County or a city where the resource or its impact area extends across jurisdictional boundaries.
- L. The County shall require increased setbacks, insulation, screening, or similar measures as conditions of approval for any new conflicting use within an impact area surrounding an aggregate or mineral resource site when such measures are necessary to resolve conflicts identified in a site-specific Goal 5 analysis.
- M. The County shall impose conditions on surface mining when necessary to lessen conflicts identified as part of a site-specific Goal 5 analysis. Where such conditions conflict with criteria and standards in the Protected Aggregate and Mineral Resources Overlay, the conditions developed through the Goal 5 process shall control.
- N. Based upon the Goal 5 ESEE analysis and the existing base zoning district, the County shall determine the appropriate post-mining use of the site.
- O. The County recognizes the jurisdiction of the Department of Geology and Mineral Industries (DOGAMI) over mined land reclamation pursuant to ORS 517.750 to 517.900 (1994) and the rules adopted thereunder.
- P. Unless specifically determined on a case by case basis, it shall be the policy of the County, that DOGAMI delay its final decision on approval of a reclamation plan and issuance of an operating permit until the County decides all comprehensive plan amendments and/or conditional use approvals. It is also the policy of Multnomah County to participate in and
- Q. cooperate with DOGAMI in their review of a permit application to that agency.
- R. No surface mining or processing activity, as defined by the zoning ordinance, shall begin without land use approval from the County, and approval of a reclamation plan and issuance of an operating permit by DOGAMI and Department of Environmental Quality.
- S. When the aggregate or mineral site has been reclaimed, the County may rezone land to remove the Protected Aggregate and Mineral Resources Overlay Subdistrict (PAM) without revising the ESEE Analysis for the site. Rezoning shall not relieve requirements on the part of the owner or operator to reclaim the site in accordance with ORS 517.750 through 517.900 and the rules adopted thereunder.

COMMERCIAL FOREST USE (CFU-4) (MCC 35.2200)

§ 35.2215 Uses

No building, structure or land shall be used and no building or structure shall be hereafter erected, altered or enlarged in this district except for the uses listed in MCC 35.2220 through 35.2240 when found to comply with MCC 35.2245 through 35.2310.

(Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.2220 Allowed Uses

- (A) The following uses pursuant to the Forest Practices Act and Statewide Planning Goal 4:
- (1) Forest operations or forest practices including, but not limited to, reforestation of forest land, road construction and maintenance, harvesting of a forest tree species, application of chemicals, and disposal of slash;
 - (2) Temporary on site structures which are auxiliary to and used during the term of a particular forest operation; or
 - (3) Physical alterations to the land auxiliary to forest practices including, but not limited to, those for purposes of exploration, mining, commercial gravel extraction and processing, landfills, dams, reservoirs, road construction or recreational facilities;
- (B) A temporary portable facility for the primary processing of forest products;
- (C) Farm use, as defined in ORS 215.203;
- (D) Alteration, maintenance, or expansion of an existing lawfully established habitable dwelling subject to the following:
- (1) The dimensional standards of MCC 35.2260 are satisfied; and
 - (2) The development standards of MCC 35.2305(A)(5) and (B) are satisfied if the expansion exceeds 400 square feet of ground coverage.
- (E) Replacement of an existing lawfully established habitable dwelling on the same lot, subject to the following:
- (1) The replacement dwelling will be located within 200 feet of the existing dwelling; and
 - (2) The existing dwelling is removed, demolished or converted to an allowable nonresidential use within three months of the completion of the replacement dwelling; and
 - (3) The replacement dwelling shall satisfy the dimensional standards of MCC 35.2260 and the development standards of MCC 35.2305.
- (F) Uses to conserve soil, air and water quality and to provide for wildlife and fisheries resources, including a public or private wildlife and fisheries resources conservation area;
- (G) An uninhabitable structure accessory to fish and wildlife enhancement;
- (H) A caretaker residence for a public park or a fish hatchery;

- (I) Local distribution lines (e.g., electric, telephone, natural gas, etc.) and accessory equipment (e.g., electric distribution transformers, poles, meter cabinets, terminal boxes, pedestals), or equipment which provides service hookups, including water service hookups;
- (J) Climbing and passing lanes within the right of way existing as of July 1, 1987;
- (K) Reconstruction or modification of public roads and highways, not including the addition of vehicular travel lanes, where no removal or displacement of buildings will occur, or no new land parcels result;
- (L) Temporary public road and highway detours that will be abandoned and restored to original condition or use at such time as no longer needed;
- (M) Minor betterment of existing public roads and highway related facilities such as maintenance yards, weigh stations and rest areas, within a right-of-way existing as of July 1, 1987, and contiguous public-owned property utilized to support the operation and maintenance of public roads and highways;
- (N) A lookout tower for forest fire protection;
- (O) A water intake facility, canal and distribution lines for farm irrigation and ponds;
- (P) A temporary forest labor camp;
- (Q) Exploration for mineral and aggregate resources as defined in ORS Chapter 517;
- (R) Exploration for geothermal resources;
- (S) A site for the disposal of solid waste that has been ordered to be established by the Environmental Quality Commission under ORS 459.049, together with equipment, facilities or buildings necessary for its operation.
- (T) Type A home occupations pursuant to the definition and restrictions of MCC 35.0005 (H) (6) (a) and 35.2045. Home occupations as defined by MCC 35.0005 (H) (6) (a) do not allow the level of activity defined in ORS 215.448.
- (U) Other structures or uses determined by the Planning Director to be customarily accessory or incidental to any use permitted or approved in this district.
- (V) Actions taken in response to an emergency/disaster event as defined in MCC 35.0005 pursuant to the provisions of MCC 35.0535.

(Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.2225 Review Uses

- (A) Replacement of an existing lawfully established habitable dwelling on the same lot more than 200 feet from the existing dwelling, subject to the following:
 - (1) The existing dwelling is removed, demolished or converted to an allowable nonresidential use within three months of the completion of the replacement dwelling; and
 - (2) The location of the replacement dwelling shall satisfy the dimensional standards of MCC 35.2260 and the development standards of MCC 35.2305.

- (B) Restoration or replacement of a lawfully established habitable dwelling on the same lot when the restoration or replacement is made necessary by fire, other casualty or natural disaster, subject to the following:
 - (1) Restoration or replacement shall be commenced within one year from the occurrence of the fire, casualty or natural disaster; and
 - (2) A replacement dwelling located more than 200 feet from the prior dwelling location shall satisfy the dimensional standards of MCC 35.2260 and the development standards of MCC 35.2305.
- (C) A mobile home, in conjunction with an existing dwelling, upon obtaining an annual Temporary Health Hardship Permit pursuant to MCC 35.0515 and 35.2245.
- (D) An asphalt and concrete batch plant accessory to a specific highway project pursuant to 35.2245.
- (E) A mobile home for a period not to exceed two years when in conjunction with the construction or reconstruction of a residence allowed under MCC 35.2220(D) or (E), 35.2225(B), or 35.2230(A), (B) or (C) provided that the mobile home is removed, demolished or converted to an allowable nonresidential use which satisfies all applicable dimensional and locational standards within three months of the completion of the dwelling.
- (F) Signs, pursuant to the provisions of MCC 35.7400 through 35.7505.
- (G) Off-street parking and loading as required by MCC 35.4100 through 35.4220.
- (H) Lot Line Adjustment pursuant to the provisions of MCC 35.2270.
- (I) Placement of structures necessary for continued public safety, or the protection of essential public services or protection of private or public existing structures, utility facilities, roadways, driveways, accessory uses and exterior improvements damaged during an emergency/disaster event. This includes replacement of temporary structures erected during such events with permanent structures performing an identical or related function. Land use proposals for such structures shall be submitted within 12 months following an emergency/disaster event. Applicants are responsible for all other applicable local, state and federal permitting requirements.
- (J) Wireless communications facilities when found to satisfy the requirements of MCC 35.6175 through 35.6188.

(Ord. 982, Amended, 05/16/2002; Ord. 958, Amended, 02/15/2001; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.2230 Conditional Uses

The following uses may be permitted when found by the approval authority to satisfy the applicable standards of this Chapter:

- (A) A Large Acreage Dwelling pursuant to the provisions of MCC 35.2235, 35.2245(B) and 35.2305.
- (B) A Template Dwelling pursuant to the provisions of MCC 35.2240(A), 35.2245(B) and 35.2305.
- (C) A Heritage Tract Dwelling pursuant to the provisions of MCC 35.2240(B), 35.2245(B) and 35.2305.
- (D) The following Community Service Uses pursuant to the provisions of MCC 35.2245, 35.2305, 35.6000 through 35.6010, and 35.6100 through 35.6230.

- (1) Campground.
- (2) Cemetery.
- (3) Fire station for rural and forest fire protection.
- (4) Aid to navigation and aviation.
- (5) Water intake facility, related treatment facility, pumping station, and distribution line.
- (6) Reservoir and water impoundment.
- (7) New distribution line (e.g., gas, oil, geothermal) with a right-of-way 50 feet or less in width or new electric transmission line with a right-of-way width of up to 100 feet as specified in ORS 772.210.
- (8) Forest management research and experimentation facility as defined by ORS 526.215.
- (9) Park, including a public or private wildlife and fisheries resources conservation area with accessory structures for educational or instructional use.
- (10) Utility facility for the purpose of generating power provided the facility not preclude more than 10 acres from use as a commercial forest operation unless an exception is taken pursuant to OAR 660, Division 4.
- (11) Radio and television transmission towers subject to the definitions, restrictions and standards CFU-3 and CFU-4: 35.6015(A)(15) and 35.6100 through 35.6130, and wireless communications facilities when found to satisfy the requirements of 35.6175 through 35.6188.
- (12) Refuse dump or sanitary landfill for which the Department of Environmental Quality has granted a permit under ORS 459.245, together with equipment, facilities or buildings necessary for its operation.
- (13) Regional Sanitary Landfill for which the Department of Environmental Quality has granted a permit under ORS 459.245, together with equipment, facilities or buildings necessary for its operation subject to the definitions, restrictions and standards in MCC 35.6200 through 35.6230.
- (14) Private hunting and fishing operation without any lodging accommodations.
- (15) Private seasonal accommodations for a fee hunting operation or fishing, provided:
 - (a) Accommodations are limited to no more than 15 guest rooms as that term is defined in the Oregon Structural Specialty Code;
 - (b) Only minor incidental and accessory retail sales are permitted;
 - (c) Accommodations are occupied temporarily for the purpose of hunting during game bird and big game hunting seasons or fishing during fishing seasons authorized by the Oregon Fish and Wildlife Commission; and
 - (d) Accommodations for fishing must be located within 1/4 mile of fish bearing Class I waters.

- (16) Mining, processing and production of geothermal resources.
- (E) The following uses pursuant to the provisions of MCC 35.2245, 35.2305, 35.6300 through 35.6315, 35.6325 through 35.6340, and 35.6500 through 35.6535.
 - (1) Mining and processing of aggregate and other mineral or subsurface resources as defined in ORS Chapter 517;
 - (2) Permanent facility for the primary processing of forest products;
 - (3) Permanent logging equipment repair and storage;
 - (4) Log scaling and weigh stations;
 - (5) Construction of additional passing and travel lanes requiring the acquisition of right of way but not resulting in the creation of new land parcels;
 - (6) Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of new land parcels;
 - (7) Improvement of public roads and highway related facilities, such as maintenance yards, weigh stations and rest areas, where additional property or right of way is required but not resulting in the creation of new land parcels; and
 - (8) Expansion of aircraft landing areas auxiliary to forestry practices, notwithstanding the provisions of MCC 35.4010 through 35.4040.
- (F) Type B home occupation pursuant to MCC 35.6650 through 35.6660 and provided:
 - (1) That no sale of merchandise is made from the premise; and
 - (2) That noise, odor, smoke, gases, fallout, vibration, heat or glare resulting from the activity is not detectable at any property line.
- (G) Lots of Exception pursuant to the provisions of MCC 35.2265.

(Ord. 958, Amended, 02/15/2001; Ord. 953 §2, Reorg&Renum, 11/30/2000)

EXCLUSIVE FARM USE (EFU) (MCC 35.2600)

§ 35.2620 Allowed Uses

- (A) Farm use, as defined in ORS 215.203.
- (B) Buildings other than dwellings customarily provided in conjunction with farm use.
- (C) The propagation or harvesting of forest products.
- (D) Operations for the exploration for and production of geothermal resources as defined by ORS 522.005 and oil and gas as defined by ORS 520.005, including the placement and operation of compressors, separators and other customary production equipment for an individual well adjacent to the wellhead. Any activities or construction relating to such operations shall not be a basis for an exception under ORS 197.732 (1)(a) or (b).

- (E) Operations for the exploration for minerals as defined by ORS 517.750. Any activities or construction relating to such operations shall not be the basis for an exception under ORS 197.732 (1)(a) or (b).
- (F) Climbing and passing lanes within the right of way existing as of July 1, 1987.
- (G) Reconstruction or modification of public roads and highways, including the placement of utility facilities overhead and subsurface of public roads and highways along the public right-of-way, but not including the addition of travel lanes, where no removal or displacement of buildings will occur, or no new land parcels result.
- (H) Temporary public road and highway detours that will be abandoned and restored to original condition or use at such time as no longer needed.
- (I) Minor betterment of existing public roads and highway related facilities such as maintenance yards, weigh stations and rest areas within right of way existing as of July 1, 1987, and contiguous public-owned property utilized to support the operation and maintenance of public roads and highways.
- (J) A replacement dwelling to be used in conjunction with farm use if the existing dwelling has been listed in a historic property inventory as defined in ORS 358.480 and listed on the National Register of Historic Places.
- (K) Creation of, restoration of or enhancement of wetlands.
- (L) Alteration, restoration or replacement of a lawfully established habitable dwelling. In the case of a replacement dwelling, the existing dwelling must be removed, demolished or converted to an allowable nonresidential use within three months of the completion of the replacement dwelling.
- (M) Replacement of an existing lawfully established single family dwelling on the same lot not more than 200 feet from the original building site when the dwelling was unintentionally destroyed by fire, other casualty or natural disaster. The dwelling may be reestablished only to its previous nature and extent, and the reestablishment shall meet all other building, plumbing, sanitation and other codes, ordinances and permit requirements. A building permit must be obtained within one year from the date of the event that destroyed the dwelling.
- (N) Public or private schools, including all buildings essential to the operation of a school wholly within an EFU district may be maintained, enhanced or expanded:
 - (1) Except that no new use may be authorized within three miles of an urban growth boundary, unless an exception is approved pursuant to ORS 197.732 and OAR 660, Division 4; and
 - (2) No new use may be authorized on high value farmland; and
 - (3) Must satisfy the requirements of MCC 35.4100 through MCC 35.4220, MCC 35.6020(A), MCC 35.7000 through MCC 35.7070 and MCC 35.7450.
 - (4) The maintenance, enhancement or expansion shall not adversely impact the right to farm on surrounding EFU lands.
- (O) Churches and cemeteries in conjunction with churches wholly within an EFU district may be maintained, enhanced or expanded:
 - (1) Except that no new use may be authorized within three miles of an urban growth boundary, unless an exception is approved pursuant to ORS 197.732 and OAR 660, Division 4; and
 - (2) No new use may be authorized on high value farmland; and

- (3) Must satisfy the requirements of MCC 35.4100 through MCC 35.4220, MCC 35.6020(A), MCC 35.7000 through MCC 35.7070 and MCC 35.7450.
- (4) The maintenance, enhancement or expansion shall not adversely impact the right to farm on surrounding EFU lands.
- (P) Structures such as garages, carports, studios, pergolas, private workshops, barns, loafing sheds, storage buildings, greenhouses or similar structures, whether attached or detached, when in accordance with the yard requirements of this district;
- (Q) Structures or fenced runs for the shelter or confinement of poultry or livestock;
- (R) Type A home occupation pursuant to the definition and restrictions of MCC 35.0005(H)(6)(a). Home occupations as defined by MCC 35.0005(H)(6)(a) do not allow the level of activity defined in ORS 215.448.
- (S) Actions taken in response to an emergency/disaster event as defined in MCC 35.0005 pursuant to the provisions of MCC 35.0535.
- (T) Wildlife Habitat Conservation and Management Plan pursuant to ORS 215.800 to 215.802 and ORS 215.806 to 215.808. (Note: A proposed single-family residential dwelling in conjunction with a wildlife habitat conservation and management plan is not authorized by this section.)

(Ord. 982, Amended, 05/16/2002; Ord. 977, Amended, 02/07/2002, eff. 3/9/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.2625 Review Uses

- (A) Utility facilities necessary for public service, but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height as follows:
 - (1) Radio and television towers 200 feet and under when found to satisfy the requirements of ORS 215.275 "Utility facilities necessary for public service; criteria; mitigating impact of facility" and MCC 35.6100 through 35.6130.
 - (2) Wireless communications facilities 200 feet and under when found to satisfy the requirements of MCC 35.6175 through 35.6188.
 - (3) All other utility facilities and transmission towers 200 feet and under in height subject to the following.
 - (a) The facility satisfies the requirements of ORS 215.275, "Utility facilities necessary for public service; criteria; mitigating impact of facility"; and
 - (b) The facility satisfies the requirements of MCC 35.4100 through 35.4220; 35.6020(A); 35.7000 through 35.7070 and 35.7450.
- (B) Deleted 2001, Ord. 958 § 1.
- (C) A farm help dwelling for a relative on real property used for farm use if the dwelling is:
 - (1) Located on the same lot or parcel as the dwelling of the farm operator; and is

- (2) Occupied by a grandparent, grandchild, parent, child, brother or sister of the farm operator or the farm operator's spouse, and whose assistance in the management of the farm use is or will be required by the farm operator.
- (D) A dwelling, including a mobile or modular home, customarily provided in conjunction with a farm use:
- (1) On lands identified as high-value farmland, a dwelling may be considered customarily provided in conjunction with farm use if:
 - (a) The subject tract is currently employed for the farm use, as defined in ORS 215.203, that produced at least \$80,000 (1994 dollars) in gross annual income from the sale of farm products in the last two years or three of the last five years; and
 - (b) Except as permitted in ORS 215.283 (1) (p) (i.e. seasonal farmworker housing), there is no other dwelling on the subject tract; and
 - (c) The dwelling will be occupied by a person or persons who produced the commodities which grossed the income in subsection (a) of this subsection;
 - (d) In determining the gross income required by subsection (a) of this subsection, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract.
 - (2) On land not identified as high-value farmland a dwelling may be considered customarily provided in conjunction with farm use if:
 - (a) The parcel on which the dwelling will be located is at least 160 acres; and
 - (b) The subject tract is currently employed for farm use, as defined in ORS 215.203; and
 - (c) The dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land, such as planting, harvesting, marketing or caring for livestock, at a commercial scale; and
 - (d) Except as permitted in ORS 215.283 (1) (p) (i.e. seasonal farm worker housing), there is no other dwelling on the subject tract; or
 - (3) On land not identified as high-value farmland a dwelling may be considered customarily provided in conjunction with farm use if:
 - (a) The subject tract is at least as large as the median size of those commercial farm or ranch tracts capable of generating at least \$10,000 in annual gross sales that are located within a study area which includes all tracts wholly or partially within one mile from the perimeter of the subject tract [the median size of commercial farm and ranch tracts shall be determined pursuant to OAR 660-33-135(3)]; and
 - (b) The subject tract is capable of producing at least the median level of annual gross sales of county indicator crops as the same commercial farm or ranch tracts used to calculate the tract size in subsection (a) of this section; and
 - (c) The subject tract is currently employed for a farm use, as defined in ORS 215.203, at a level capable of producing the annual gross sales required in subsection (b) of this section; and
 - (d) The subject lot or parcel on which the dwelling is proposed is not less than ten acres; and

- (e) Except as permitted in ORS 215.283 (1) (p) (i.e. seasonal farmworker housing), there is no other dwelling on the subject tract; and
 - (f) If no farm use has been established at the time of application, land use approval shall be subject to a condition that no building permit may be issued prior to the establishment of the farm use required by subsection (c) of this section; or
- (4) On land not identified as high-value farmland a dwelling may be considered customarily provided in conjunction with farm use if:
 - (a) The subject tract is currently employed for the farm use, as defined in ORS 215.203, that produced in the last two years or three of the last five years the lower of the following:
 - 1. At least \$40,000 (1994 dollars) in gross annual income from the sale of farm products; or
 - 2. Gross annual income of at least the midpoint of the median income range of gross annual sales for farms in the county with gross annual sales of \$10,000 or more according to the 1992 Census of Agriculture, Oregon; and
 - (b) Except as permitted in ORS 215.283(1)(p) (i.e. seasonal farmworker housing), there is no other dwelling on the subject tract; and
 - (c) The dwelling will be occupied by a person or persons who produced the commodities which grossed the income in subsection (a) of this subsection;
 - (d) In determining the gross income required by subsection (a) of this subsection, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract.
- (E) An accessory farm help dwelling, including a mobile or modular home customarily provided in conjunction with farm use if:
 - (1) The accessory farm help dwelling will be occupied by a person or persons who will be principally engaged in the farm use of the land and whose assistance in the management of the farm use is or will be required by the farm operator; and
 - (2) The accessory help dwelling shall be located:
 - (a) On the same lot or parcel as the dwelling of the principal farm dwelling; or
 - (b) On the same tract as the principal farm dwelling when the lot or parcel on which the accessory dwelling will be sited is consolidated into a single parcel with all other contiguous lots and parcels in the tract; or
 - (c) On a lot or parcel on which the principal farm dwelling is not located, when:
 - 1. The accessory farm dwelling is a manufactured dwelling; and
 - 2. A deed restriction is filed with the county clerk. The deed restriction shall require the manufactured dwelling to be removed when the lot or parcel is conveyed to another party.
 - (d) An accessory farm dwelling approved pursuant to this rule may not be occupied by a person or persons who will not be principally engaged in the farm use of the land and whose assistance in the management of the farm use is not or will not be required by the farm operator. The manufactured dwelling may remain if it is reapproved; and

- (3) There is no other dwelling on the lands designated for exclusive farm use owned by the farm operator that is vacant or currently occupied by persons not working on the subject farm or ranch and that could reasonably be used as an accessory farm dwelling; and
- (4) The principal farm dwelling to which the proposed dwelling would be accessory, meets one of the following:
 - (a) On land not identified as high-value farmland, the principal farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203, and produced in the last two years or three of the last five years the lower of the following:
 - 1. At least \$40,000 (1994 dollars) in gross annual income from the sale of farm products. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract; or
 - 2. Gross annual income of at least the midpoint of the median income range of gross annual sales for farms in the county with the gross annual sales of \$10,000 or more according to the 1992 Census of Agriculture, Oregon. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract; or
 - (b) On land identified as high-value farmland, the principal farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203, and produced at least \$80,000 (1994 dollars) in gross annual income from the sale of farm products in the last two years or three of the last five years. In determining the gross income, the cost of purchased livestock shall be deducted from the total gross income attributed to the tract.

The approval authority shall not approve any proposed division of a lot or parcel for an accessory farm dwelling approved pursuant to this section. If it is determined that an accessory farm dwelling satisfies the requirements of MCC 35.2625(D), a parcel may be created consistent with the minimum parcel size requirements in MCC 35.2660.

- (F) Notwithstanding the same ownership grouping requirements of the Lot of Record section, a single family heritage tract dwelling may be allowed on land not identified as high-value farmland when:
 - (1) The lot or parcel meets the following requirements:
 - (a) A deed or other instrument creating the lot or parcel was recorded with the Department of General Services, or was in recordable form prior to January 1, 1985; and
 - (b) The lot or parcel satisfies all applicable laws when the lot or parcel was created; and
 - (c) The lot or parcel is held under the same ownership and which was acquired by the present owner prior to January 1, 1985; and
 - (2) The tract on which the dwelling will be sited does not include a dwelling; and
 - (3) The proposed dwelling is not prohibited by, and will comply with, the requirements of the Comprehensive Plan, land use regulations, and other provisions of law; and
 - (4) The lot or parcel on which the dwelling will be sited does not lie within an area designated by the Comprehensive Plan as a Big Game habitat area; and

- (5) The lot or parcel on which the dwelling will be sited is part of a tract, the remaining portions of the tract shall be consolidated into a single parcel when the dwelling is allowed; and
- (6) The County Assessor shall be notified when the permit is approved.
- (7) Approval of the dwelling would not:
 - (a) Exceed the facilities and service capabilities of the area; and
 - (b) Materially alter the stability of the overall land use pattern of the area; and
 - (c) Create conditions or circumstances that are found to be contrary to the purpose or intent of the Comprehensive Plan or MCC Chapter 35.
- (8) For purposes of this subsection, and of dwellings considered under MCC 35.2630(O) and (P), the following definitions apply:
 - (a) Owner includes a person who acquired the lot or parcel by devise or intestate succession from a person who acquired the lot or parcel prior to January 1, 1985.
 - (b) Date of Creation and Existence. When a lot, parcel or tract is reconfigured pursuant to applicable law after November 4, 1993, the effect of which is to qualify a lot, parcel or tract for the siting of a dwelling, the date of the reconfiguration is the date of creation or existence. Reconfigured means any change in the boundary of the lot, parcel or tract.
- (G) Seasonal farmworker housing as defined in ORS 197.675 when found to meet the following requirements:
 - (1) The housing will be occupied by a person or persons who will be principally engaged in the farm use of the land and whose assistance in the management of the farm use is or will be required by the farm operator; and
 - (2) The seasonal farmworker housing is located on the same parcel, lot or tract as the principal farm dwelling which houses the farm operator; and
 - (3) The principal farm dwelling is located on a farm or ranch operation that is currently employed for farm use, as defined in ORS 215.203, and produced at least \$80,000 (1994 dollars) in gross annual income from the sale of farm products in the last two years or three of the last five years; and
 - (4) The seasonal farmworker housing can only be occupied for 273 days per calendar year.
- (H) Facilities wholly within an EFU district used for the breeding, kenneling and training of greyhounds for racing may be maintained, enhanced or expanded except no new facilities may be authorized on high value farmland and provided that the following requirements are satisfied:
 - (1) MCC 35.6420 (A) and (B); and
 - (2) MCC 35.7450; and
 - (3) MCC 35.7000 through MCC 35.7070; and
 - (4) Minimum Dimensional standards:
 - (a) Area: Two acres.

- (b) Width: Two hundred fifty feet.
- (c) Depth: Two hundred fifty feet.
- (d) Setback from all lot lines: One hundred feet.

(I) Farm Stands when found that:

- (1) The structures are designed and used for the sale of farm crops and livestock grown on farms in the local agricultural area, including the sale of retail incidental items, if the sales of the incidental items make up no more than 25 percent of the total sales of the farm stand; and
- (2) The farm stand does not include structures designed for occupancy as a residence or for activities other than the sale of farm crops and livestock and does not include structures for banquets, public gatherings or public entertainment.

- (J) On-site filming and activities accessory to on-site filming if the activity would involve no more than 45 days on any site within any one-year period or does not involve erection of sets that would remain in place for longer than any 45-day period. On-site filming and activities accessory to on-site filming may be considered to include office administrative functions such as payroll and scheduling, and the use of campers, truck trailers or similar temporary facilities.

Temporary facilities may be used as temporary housing for security personnel.

"On-site filming and activities accessory to on-site filming" includes: filming and site preparation, construction of sets, staging, makeup and support services customarily provided for on-site filming and production of advertisements, documentaries, feature film, television services and other film productions that rely on the rural qualities of an exclusive farm use zone in more than an incidental way. On-site filming and activities accessory to on-site filming" does not include: facilities for marketing, editing and other such activities that are allowed only as a home occupation or construction of new structures that requires a building permit.

- (K) A winery, as described in ORS 215.452.
- (L) Signs, pursuant to the provisions of MCC 35.7400 through 35.7505.
- (M) Off-street parking and loading pursuant to MCC 35.4100 through 35.4220.
- (N) Lot Line Adjustment pursuant to the provisions of MCC 35.2670.
- (O) Placement of Structures necessary for continued public safety, or the protection of essential public services or protection of private or public existing structures, utility facilities, roadways, driveways, accessory uses and exterior improvements damaged during an emergency/disaster event. This includes replacement of temporary structures erected during such events with permanent structures performing an identical or related function. Land use proposals for such structures shall be submitted within 12 months following an emergency/disaster event. Applicants are responsible for all other applicable local, state and federal permitting requirements.

(Ord. 982, Amended, 05/16/2002; Ord. 958, Amended, 02/15/2001; Ord. 953 §2, Reorg&Renun, 11/30/2000)

§ 35.2630 Conditional Uses

The following uses may be permitted when approved by the Hearings Officer pursuant to the provisions of MCC 35.6300 to 35.6335:

- (A) Commercial activities that are in conjunction with a farm use.
- (B) Operations conducted for:
 - (1) Mining and processing of geothermal resources as defined by ORS 522.005 and oil and gas as defined by ORS 520.005 not otherwise permitted under this section; and
 - (2) Mining, crushing or stockpiling of aggregate and other mineral and other subsurface resources subject to ORS 215.298.
- (C) Residential home as defined in ORS 197.660, in existing dwellings.
- (D) Private parks, playgrounds, hunting and fishing preserves, campgrounds and, parks, playgrounds or community centers owned and operated by a nonprofit community organization. Existing facilities wholly within an EFU district may be maintained, enhanced or expanded. New facilities may be allowed but not on high value lands. Campgrounds authorized by this provision shall not include intensively developed recreational uses such as swimming pools, tennis courts, retail stores or gas stations.
- (E) Parks, playgrounds or community centers owned and operated by a governmental agency.
- (F) Type B home occupation as provided for in MCC 35.6650 and provided:
 - (1) That no sale of merchandise is made from the premise; and
 - (2) That noise, odor, smoke, gases, fallout, vibration, heat or glare resulting from the activity is not detectable at any property line.

A home occupation located on high-value farmland may employ only residents of the home.

- (G) A facility for the primary processing of forest products, provided that such facility and is compatible with farm uses described in ORS 215.203 (2). Such a facility may be approved for a one-year period which is renewable. These facilities are intended to be only portable or temporary in nature.

The primary processing of a forest product, as used in this section, means the use of a portable chipper or stud mill or other similar methods of initial treatment of a forest product in order to enable its shipment to market.

Forest products, as used in this section, means timber grown upon a parcel of land or contiguous land where the primary processing facility is located.

- (H) One manufactured dwelling in conjunction with an existing dwelling as a temporary use for the term of a hardship suffered by the existing resident or a relative of the resident. A manufactured dwelling allowed under this provision is a temporary use for the term of the hardship suffered by the existing resident or relative as defined in ORS Chapter 215. The manufactured dwelling shall use the same subsurface sewage disposal system used by the existing dwelling, if that disposal system is adequate to accommodate the additional dwelling. If the manufactured home will use a public sanitary sewer system, such condition will not be required. The Planning Director shall review the permit authorizing such manufactured homes every two years. When the hardships end, the Planning Director shall require the removal of such manufactured homes. Oregon Department of Environmental Quality review and removal requirements also apply. As used in this subsection "hardship" means a medical hardship or hardship for the care of an aged or infirm person or persons.
- (I) Transmission towers over 200 feet in height, except as follows: .

- (1) Radio and television towers if found to satisfy the requirements of MCC 35.6100 through 35.6130; and
- (2) Wireless communications facilities 200 feet and over are not allowed.
- (J) Dog kennels not described in section MCC 35.2625 (H). Existing facilities wholly within an EFU district may be maintained, enhanced or expanded, subject to other requirements of law. New facilities may be allowed only on non-high-value lands.
- (K) The propagation, cultivation, maintenance and harvesting of aquatic species.
- (L) Reconstruction or modification of public roads and highways involving the removal or displacement of buildings but not resulting in the creation of new land parcels.
- (M) Improvement of public road and highway related facilities, such as maintenance yards, weigh stations and rest areas, where additional property or right of way is required but not resulting in the creation of new land parcels.
- (N) Parking of seven or fewer log trucks.
- (O) Notwithstanding the same ownership grouping requirements of the Lot of Record section, a single family heritage tract dwelling may be allowed on land identified as high-value farmland when:

(Note: MCC 35.6315 Conditional Use Approval Criteria does not apply)

- (1) The lot or parcel meets the requirements of MCC 35.2625 (F) (1) through (8); and
- (2) The lot or parcel cannot practicably be managed for farm use by itself or in conjunction with other land due to extraordinary circumstances inherent in the land or its physical setting that do not apply generally to other land in the vicinity; and
- (3) The dwelling will not:
 - (a) Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest; or
 - (b) Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use; and
- (4) The dwelling will not materially alter the stability of the overall land use pattern of the area.
- (P) Notwithstanding the same ownership grouping requirements of the Lot of Record section, a single family heritage tract dwelling may be allowed on land identified as high-value farmland when:

(Note: 35.6315 Conditional Use Approval Criteria does not apply)

- (1) The lot or parcel meets the requirements of 35.2625 (F) (1) through (8); and
- (2) The tract on which the dwelling will be sited is:
 - (a) Not composed predominately of irrigated or non-irrigated soils classified prime, unique, Class I or Class II; and
 - (b) Less than twenty-one acres in size; and

- (c) Is bordered on at least 67% of its perimeter by tracts that are smaller than 21 acres, and at least two such tracts had dwellings on January 1, 1993; or
- (d) Is bordered on at least 25% of its perimeter by tracts that are smaller than 21 acres, and at least four dwellings existed on January 1, 1993, within one-quarter mile of the center of the subject tract. Up to two of the four dwellings may lie within an urban growth boundary, but only if the subject tract abuts an urban growth boundary.

(Ord. 982, Amended, 05/16/2002; Ord. 958, Amended, 02/15/2001; Ord. 953 §2, Reorg&Renum, 11/30/2000)

MULTIPLE USE AGRICULTURE (MUA-20) (MCC 35.2800)

§ 35.2820 Allowed Uses

- (A) Farm uses, as defined in ORS 215.203 (2) (a) for the following purposes only:
 - (1) Raising and harvesting of crops;
 - (2) Raising of livestock and honeybees; or,
 - (3) Any other agricultural or horticultural purpose or animal husbandry purpose or combination thereof, except as provided in MCC 35.2830 (B);
- (B) The propagation or harvesting of forest products;
- (C) Residential use consisting of a single family dwelling constructed on a Lot of Record;
- (D) Public and private conservation areas and structures for the protection of water, soil, open space, forest and wildlife resources;
- (E) Type A home occupations pursuant to the definition and restrictions of MCC 35.0005(H)(6)(a);
- (F) Other structures or uses customarily accessory or incidental to any use permitted or approved in this district;
- (G) Family Day Care;
- (H) Actions taken in response to an emergency/disaster event as defined in MCC 35.0005 pursuant to the provisions of MCC 35.0535.

(Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.2825 Review Uses

- (A) Residential use, consisting of a single family dwelling constructed off-site, including a mobile or modular home placed on a Lot of Record, subject to the following conditions:
 - (1) Construction shall comply with the standards of the Building Code or as prescribed in ORS 446.002 through 446.200, relating to mobile homes.
 - (2) The dwelling shall be attached to a foundation for which a building permit has been obtained.
 - (3) The dwelling shall have a minimum floor area of 600 square feet.

- (B) Temporary uses when approved pursuant to MCC 35.0510 and 35.0515.
- (C) Wholesale or retail sales of farm or forest products raised or grown on the premises or in the immediate vicinity, subject to the following condition:

The location and design of any building, stand or sign in conjunction with wholesale or retail sales shall be subject to approval of the Planning Director on a finding that the location and design are compatible with the character of the area; provided that the decision of the Planning Director may be appealed to the approval authority, pursuant to MCC 35.0785 and 35.0790.
- (D) Signs, pursuant to the provisions of MCC 35.7400 through 35.7505.
- (E) Off-street parking and loading.
- (F) Property Line Adjustment pursuant to the provisions of MCC 35.2860.
- (G) Placement of structures necessary for continued public safety, or the protection of essential public services or protection of private or public existing structures, utility facilities, roadways, driveways, accessory uses and exterior improvements damaged during an emergency/disaster event. This includes replacement of temporary structures erected during such events with permanent structures performing an identical or related function. Land use proposals for such structures shall be submitted within 12 months following an emergency/disaster event. Applicants are responsible for all other applicable local, state and federal permitting requirements.

(Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.2830 Conditional Uses

The following uses may be permitted when found by the approval authority to satisfy the applicable ordinance standards:

- (A) Community Service Uses pursuant to the provisions of MCC 35.6000 through 35.6230;
- (B) The following Conditional Uses pursuant to the provisions of MCC 35.6300 through 35.6660:
 - (1) Operations conducted for the mining and processing of geothermal resources as defined by ORS 522.005; or exploration, mining and processing of aggregate and other mineral or subsurface resources;
 - (2) Commercial processing of agricultural products primarily raised or grown in the region;
 - (3) Raising any type of fowl or processing the by-products thereof for sale at wholesale or retail;
 - (4) Feed lots;
 - (5) Raising of four or more swine over four months of age;
 - (6) Raising of fur bearing animals for sale at wholesale or retail;
 - (7) Commercial dog kennels; and
 - (8) Commercial processing of forest products primarily grown in the region.

(C) The following Conditional Uses may be permitted on lands not predominantly of Agricultural Capability Class I, II, or III soils:

(1) Planned Development for single family residences, as provided in MCC 35.4300 through 35.4360 and the applicable current "planned unit developments" standards within the Oregon Administrative Rules Chapter 660, Division 004;

(2) Pursuant to the provisions of MCC 35.6300 through 35.6350:

(a) Cottage industries,

(b) Limited rural service commercial uses such as local stores, shops, offices, repair services and similar uses, and

(c) Tourist commercial uses such as restaurants, gas stations, motels, guest ranches and similar uses.

(D) Type B home occupation as provided for in MCC 35.6650 through 35.6660.

(E) Large Fills as provided for in MCC 35.6700 through 35.6720.

(F) Lots of Exception pursuant to the provisions of MCC 35.2860.

(Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

RURAL RESIDENTIAL (RR) (MCC 35.3100)

§ 35.3120 Allowed Uses

(A) Farm use, as defined in ORS 215.203 (2) (a) for the following purposes only:

(1) Raising and harvesting of crops;

(2) Raising of livestock and honeybees; or

(3) Any other agricultural or horticultural purpose or animal husbandry purpose or combination thereof, except as provided in MCC 35.3130 (B).

(B) The propagation or harvesting of forest products;

(C) Residential use consisting of a single family dwelling constructed on a Lot of Record;

(D) Public and private conservation areas and structures for the protection of water, soil, open space, forest and wildlife resources;

(E) Type A home occupations pursuant to the definition and restrictions of MCC 35.0005(H)(6)(a);

(F) Other structures or uses customarily accessory or incidental to any use permitted or approved in this district;

(G) Family Day Care;

(H) Actions taken in response to an emergency/disaster event as defined in MCC 35.0005 pursuant to the provisions of MCC 35.0535.

(Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.3125 Review Uses

- (A) Residential use, consisting of a single family dwelling constructed off-site, including a mobile or modular home placed on a Lot of Record, subject to the following conditions:
 - (1) Construction shall comply with the standards of the Building Code or as prescribed in ORS 446.002 through 446.200, relating to mobile homes.
 - (2) The dwelling shall be attached to a foundation for which a building permit has been obtained.
 - (3) The dwelling shall have a minimum floor area of 600 square feet.
- (B) Temporary uses when approved pursuant to MCC 35.0510 and 35.0515.
- (C) Wholesale or retail sales, limited to those products raised or grown on the premises, subject to the following condition:

The location and design of any building, stand or sign in conjunction with wholesale or retail sales shall be subject to approval of the Planning Director on a finding that the location and design are compatible with the character of the area; provided that the decision of the Director may be appealed to the Hearings Officer pursuant to MCC 35.0785 and 35.0790.
- (D) Signs, pursuant to the provisions of MCC 35.7400 through 35.7505.
- (E) Off-street parking and loading.
- (F) Property Line Adjustment pursuant to the provisions of MCC 35.3160.
- (G) Placement of Structures necessary for continued public safety, or the protection of essential public services or protection of private or public existing structures, utility facilities, roadways, driveways, accessory uses and exterior improvements damaged during an emergency/disaster event. This includes replacement of temporary structures erected during such events with permanent structures performing an identical or related function. Land use proposals for such structures shall be submitted within 12 months following an emergency/disaster event. Applicants are responsible for all other applicable local, state and federal permitting requirements.

(Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.3130 Conditional Uses

The following uses may be permitted when found by the Hearings Officer to satisfy the applicable Ordinance standards:

- (A) Community Service Uses under the provisions of MCC 35.6000 through 35.6230;
- (B) The following Conditional Uses under the provisions of MCC 35.6300 through 35.6660:
 - (1) Operations conducted for the mining and processing of geothermal resources as defined by ORS 522.005 or exploration, mining and processing of aggregate and other mineral or subsurface resources;
 - (2) Commercial processing of agricultural products, primarily raised or grown in the region;
 - (3) Raising of any type of fowl, or processing the by-products thereof, for sale at wholesale or retail;
 - (4) Feed lots;

- (5) Raising of four or more swine more than four months of age;
 - (6) Raising of fur-bearing animals for sale at wholesale or retail;
 - (7) Commercial dog kennels;
 - (8) Planned Development for single family residences as provided in MCC 35.4300 through 35.44360 and the applicable current "planned unit developments" standards within the Oregon Administrative Rules Chapter 660, Division 004;
 - (9) Cottage industries, under the provisions of MCC 35.6300 through 35.6350.
 - (10) Limited rural service commercial uses, such as local stores, shops, offices, repair services and similar uses.
- (C) Type B home occupation as provided for in MCC 35.6650 through 35.6660.
- (D) Large Fills as provided for in MCC 35.6700 through 35.6720.
- (E) Lots of Exception pursuant to the provisions of MCC 35.3160.
- (Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

RURAL CENTER (RC) (MCC § 35.3300)

§ 35.3320 Allowed Uses

- (A) Farm use, as defined in ORS 215.203(2)(a), for the following purposes only:
- (1) Raising and harvesting of crops;
 - (2) Raising of livestock and honeybees; or
 - (3) Any other agricultural or horticultural purpose or animal husbandry purpose or combination thereof, except as provided in MCC 35.3330. This subsection does not permit the raising of fowl or fur-bearing animals for sale, the keeping of swine, or a feed lot.
- (B) The propagation or harvesting of forest products.
- (C) Residential use consisting of a single family dwelling constructed on a Lot of Record.
- (D) Public and private conservation areas and structures for the protection of water, soil, open space, forest and wildlife resources.
- (E) Type A home occupations pursuant to the definition and restrictions of MCC 35.0005(H)(6)(a).
- (F) Other structures or uses customarily accessory or incidental to any use permitted or approved in this district.
- (G) Family Day Care.
- (H) Actions taken in response to an emergency/disaster event as defined in MCC 35.0005 pursuant to the provisions of MCC 35.0535.

(Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.3325 Review Uses

- (A) Residential use, consisting of a single family dwelling constructed off-site, including a mobile or modular home placed on a Lot of Record, subject to the following conditions:
 - (1) Construction shall comply with the standards of the Building Code or as prescribed in ORS 446.002 through 446.200, relating to mobile homes.
 - (2) The dwelling shall be attached to a foundation for which a building permit has been obtained.
 - (3) The dwelling shall have a minimum floor area of 600 square feet.
- (B) Temporary uses when approved pursuant to MCC 35.0510 and 35.0515.
- (C) Wholesale or retail sales, limited to those products raised or grown on the premises, subject to the following condition:

The location and design of any building, stand, or sign in conjunction with wholesale or retail sales shall be subject to approval of the Planning Director on a finding that the location and design are compatible with the character of the area; provided that the decision of the Planning Director may be appealed to the approval authority pursuant to MCC 35.0785 and 35.0790.
- (D) Signs pursuant to the provisions of MCC 35.7400 through 35.7505;
- (E) Off-street parking and loading;
- (F) Property Line Adjustment pursuant to the provisions of MCC 35.3360.
- (G) Placement of Structures necessary for continued public safety, or the protection of essential public services or protection of private or public existing structures, utility facilities, roadways, driveways, accessory uses and exterior improvements damaged during an emergency/disaster event. This includes replacement of temporary structures erected during such events with permanent structures performing an identical or related function. Land use proposals for such structures shall be submitted within 12 months following an emergency/disaster event. Applicants are responsible for all other applicable local, state and federal permitting requirements.

(Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

§ 35.3330 Conditional Uses

The following uses may be permitted when found by the approval authority to satisfy the applicable ordinance standards:

- (A) Community Service Uses pursuant to the provisions of MCC 35.6000 through 35.6230.
- (B) The following Conditional Uses pursuant to the provisions of MCC 35.6300 through 35.6660:
 - (1) Limited rural service commercial uses such as local stores, shops, offices, repair shops, and similar uses;
 - (2) Tourist commercial uses such as restaurants, taverns, gas stations, motels, guest ranches, and similar uses;
 - (3) The following Light Manufacturing Uses conducted within an enclosed building which require the daily employment of twenty or fewer persons;

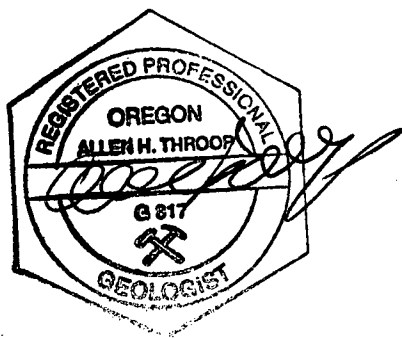
- (a) The manufacture, compounding, processing, packaging, treatment, storage or wholesale distribution of such products as bakery goods, fruits, vegetables, sea foods, dairy products, candy, confections, beverages including brewing and bottling, miscellaneous food products, ice and cold storage plant, drugs, pharmaceuticals, perfumes, toilet soaps, toiletries, barber and beauty supplies, and similar items, but not sauerkraut, vinegar or pickles manufacture;
- (b) The manufacture, compounding, assembling, treatment, storage or wholesale distribution of articles or merchandise from previously prepared materials such as bone, cellophane, canvas, cloth, cork, feathers, felt, fur, glass, hair, foam, lacquer, leather (but not tanning), paper or paperboard, plastics, precious or semi-precious metals or stones, shell, textiles, tobacco, wood (except as provided in the GM and HM districts), yarns and paints;
- (c) The manufacture, assembly, packaging, repair, storage or wholesale distribution of articles such as electrical appliances, lighting and communication equipment, electronic, radio or television equipment, parts or accessories, professional, scientific, optical, photographic or controlling instruments, amusement devices, small parts assembly, jewelry, musical instruments, toys, sporting goods, novelties, rubber or metal stamps;
- (d) The manufacture, finishing, refinishing, repair, storage or wholesale distribution of furniture, office or store fixtures, small boats, upholstery, cabinets, office, computing or accounting machines, electric and neon signs, billboards and other signs;
- (e) Business, professional, executive, administrative, wholesale, contractor or similar office, clinic, service or studio, trade, business or commercial school, research, experimental or testing laboratory;
- (f) Printing, publishing, bookbinding, graphic or photographic reproduction, blueprinting, or photo processing;
- (g) Building, building maintenance, plumbing, electrical, heating, roofing, glass, landscaping, painting or similar contractor's office, shop, warehouse, equipment sales or maintenance;
- (h) Retail or wholesale lumber, building materials, garden supplies sales and tools, or small equipment sales, rental, repair or servicing;
- (i) Laundry for carpets, uniforms, linens, rags, rugs and similar items, dyeing plant, dry cleaning not using explosive or inflammable materials;
- (j) Automobile, light truck, motorcycle and recreational vehicle repair or maintenance, body and fender work, painting, parts and glass replacement, upholstery, engine, radiator or battery rebuilding, tire recapping, commercial, industrial or fleet vehicle parking and auto detailing;
- (k) Metal or sheet metal shop, ornamental iron works, welding, blacksmithing, electroplating, tool and hardware manufacture, machine shop not using a drop hammer or large capacity punch press;
- (l) Warehouse, furniture and household goods storage, moving equipment rental, distribution plant, parcel delivery, wholesaling of durable and non-durable goods, light and heavy equipment sales, rental or repair, fuel and ice distribution;
- (m) Manufacture of non-structural clay products, ornamental clay, concrete, plaster or plastics casting, stone and purchased-glass products cutting, polishing or installation; and

- (n) Collection, recycling, sorting, baling or processing of previously used materials such as rags, paper, metals, glass or plastics;
 - (4) Commercial processing of agricultural or forestry products primarily grown in the vicinity.
 - (C) Planned Development pursuant to the provisions of MCC 35.4300 through 35.4360. If the property is outside of an "acknowledged unincorporated community", then the applicable current "planned unit developments" standards within the Oregon Administrative Rules Chapter 660, Division 004 shall also be satisfied.
 - (D) Existing light industrial uses permitted by MCC 35.3330 (B) (3) may be expanded up to a daily total of 40 employees, based on findings that:
 - (1) The proposed expansion is a result of normal growth of the existing use and not required as a result of diversification of the business;
 - (2) The use provides a public benefit to the rural center by employing primarily persons who reside within the rural center or surrounding rural area, and this same employment pattern will continue with the proposed expansion;
 - (3) The proposed expansion satisfies the applicable elements of Comprehensive Framework Plan Policies:
 - (a) No. 20 – Arrangement of Land Uses;
 - (b) No.30 – Industrial Location (Isolated Light Industrial);
 - (c) No. 36 – Transportation System Development Requirements;
 - (d) No. 37 – Utilities; and
 - (e) No. 38 – Facilities.
 - (4) The proposed expansion satisfies the Design Review provisions of MCC 35.7000 through 35.7070.
 - (E) Type B home occupation as provided for in MCC 35.6650.
 - (F) Large Fills as provided for in MCC 35.6700. through 35.6720.
 - (G) Lots of Exception pursuant to the provisions of MCC 35.3360.
- (Ord. 982, Amended, 05/16/2002; Ord. 953 §2, Reorg&Renum, 11/30/2000)

Appendix B
Throop Geologic Assessment

A Geologic Assessment of the Rock Resources of
the western portion of Interstate Rock's
Howard Canyon Quarry
Multnomah County, Oregon

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May 31, 2002



Summary

This report was prepared at the request of Multnomah County to determine the location, quality, and quantity of any rock resource in the western portion of the Howard Canyon Quarry property, which is currently being mined by Interstate Rock Products, Inc. The aggregate resource site is located in eastern Multnomah County, approximately 2 miles southeast of Corbett school as shown on figure 1. Specifically, the study is focused on the westerly 1,000 feet of the N1/2, Sec.1, T1S, R4E (figure 2). The basalt in the study area is an extension of the rock to the east but the shape of the resource in the two areas are distinctly different.

The rock underlying the prominent ridge through the study area is expected to be of a quality similar to that of the area to the east. Due to changes in the shape of basalt resource, mining in the study area is expected to yield for each yard that the quarry face is advanced approximately $1/8^{\text{th}}$ of the material that will be produced per yard of advance of the quarry east of the study area.

The conceptual mine plan reviewed for this report contains numerous environmental concerns.

Scope of work and background

The purpose of this study is to evaluate the location, quality and quantity of the aggregate resources and to review the potential environmental impacts of the proposed mining in the western 1,000 feet of the designated aggregate resource area.

In 1989, H. G. Schlicker and Associates completed a geological assessment of the Howard Canyon Quarry (Appendix 1). The Schlicker report was used as a basis for a finding by Multnomah County that the site should be designated as a significant aggregate resource under Oregon's Statewide Planning Goal 5. The Schlicker report did not define the extent of the resource but test pits were dug on a grassy flat-topped ridge that is mostly east of the 1000-foot study area (figure 2). The focus of this assessment is the prominent tree-covered sharp, steep-sided hogback ridge shown in figure 2 and figure 5. The transition from the hog-backed ridge to the flat-topped ridge is about 840 feet east of the western boundary of the property.

Multnomah County has accepted the entire site, including the area covered by the Schlicker report and the present study area, as a significant aggregate resource. Multnomah County's acknowledged comprehensive plan references Oregon Administrative Rule (OAR) 660-016 for determining the significance of an aggregate site. This rule contains no set standards for the quality or quantity of rock needed to make a determination of site significance. The Oregon Department of Land Conservation and Development (DLCD) has adopted more stringent requirements for significance (OAR 660-023-180 (3)) but they are not applicable in Multnomah County.

Methodology and background data available

The estimated extent, quantity and quality of the basalt resource shown in this report was determined after:

- a site visit on January 18, 2002,
- a review of the Schlicker report (Appendix 1),
- examination of stereo-pair aerial photos of the site taken by Spencer B Gross Inc. taken in 1999 and by WAC Corp taken in 2000 (Appendix 2),
- review of two rock quality test results run by ODOT (Appendix 3) on samples collected during the site visit,
- examination of the 1983 Multnomah County soil survey by the US Soil Conservation Service (SCS),
- evaluation of a petrographic study by Dick M. Glasheen on samples collected during the site visit. (Appendix 4) and
- review of a 2001 letter from Landslide Technologies to Interstate Rock Products, Inc. (appendix 5).
- Review of sheets 1 through 8 of a quarry development plan drawn by Olson Land Surveyors and Engineers for Interstate Rock Products and dated April 9, 2002.

A portion of sheet 3 of 8 of the 2002 Olson plan is used as a base map for figures 2 and 3 to make clear the relationship between the areas referred to in this report and those used by Interstate Rock Products. The areas of phases 6 and 7, which are referred to throughout this report, are the last two areas scheduled for mining on the Olson sheets. The area of phase 7 approximates the outline of the rock resource within the study area

According to the Schlicker report, the basalt is approximately 40 feet thick in the area of the two existing quarries, which are about 1,500 to 2,000 feet east of the study area. Additional information about rock thickness under the flat-topped ridge may have been collected during exploratory drilling done after completion of the Schlicker report. The drilling program is mentioned in the Schlicker report and was mentioned by a landowner during the visit but no information from that drilling program has been made available for this report.

According to the Schlicker report, the rock that is the focus of this study is a basalt flow that filled a valley cut into unconsolidated or semi-consolidated sediments. Since the basalt filled the valley, erosion has removed the hills of sediments that once existed to the north and south of the now buried canyon. Now, Knieriem Creek flows to the north of the ridge and Howard Creek to the south (figure 1). According to the Schlicker report, the basalt is Boring Lava and the underlying sediments are in the Troutdale formation.

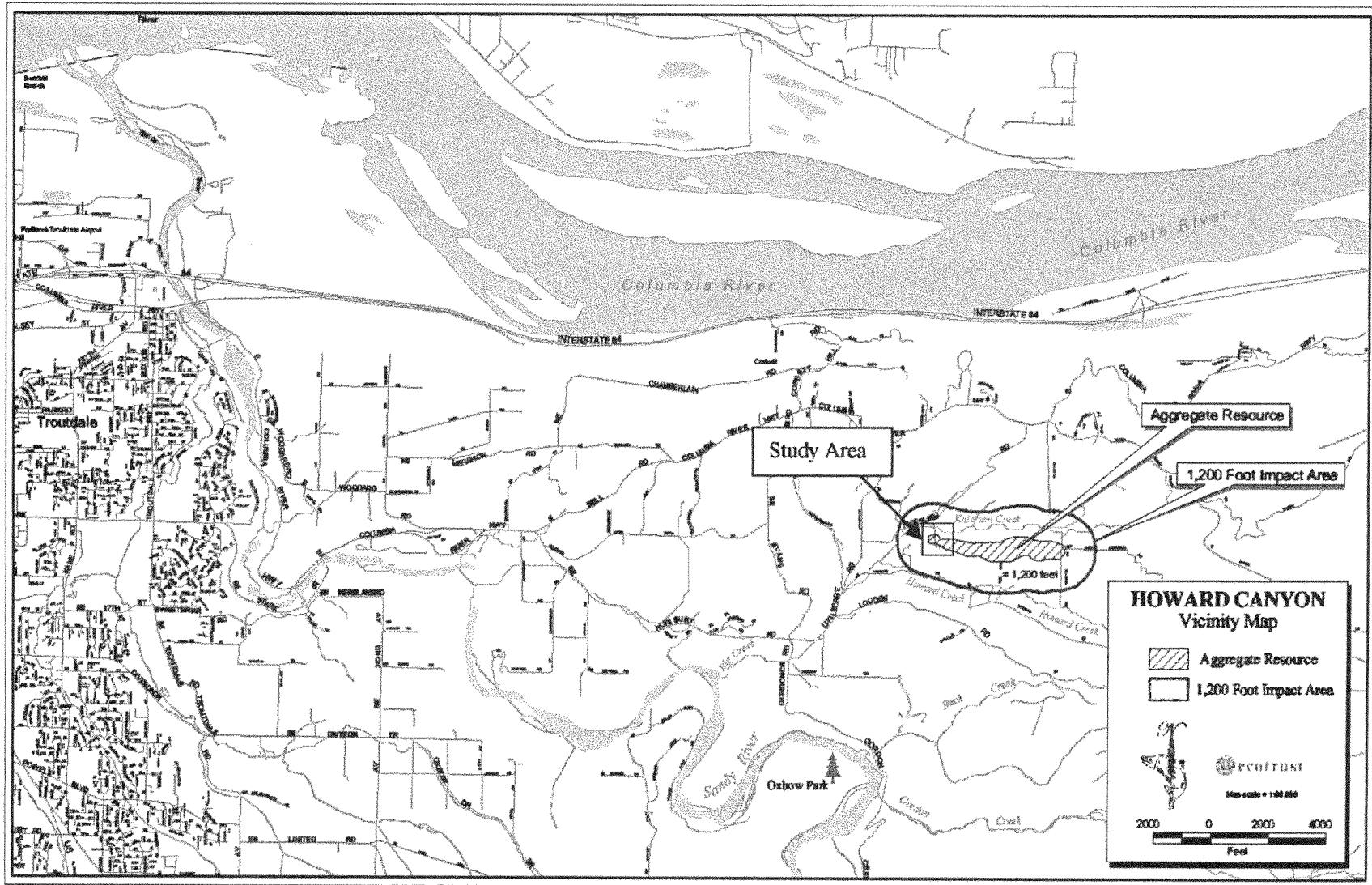


Figure 1

Site Investigations

A site visit was conducted on January 18, 2002. I was accompanied on the visit by Glenna McLucas, a geologist representing Interstate Rock Products, Inc.; Leroy Smith and Raymond Smith (in part), landowners; Kim Peoples and Adam Barber, Multnomah County Planning Department; and two laborers from Interstate Rock.

During the visit, we inspected the existing quarries and walked or drove over most of the flat-topped ridge east of the study area, walked down the farm road that goes down the south side of the ridge in the phase 6 area and walked along the top of the hog-backed ridge of phase 7. One bulk sample for rock quality testing was collected from the two existing quarries. A second sample was collected from the unweathered rocks mixed in the soil along the hog-backed ridge and along the farm road south of phase 6. The sample collection traverses are shown on figure 2. McLucas collected the four samples that are described in the petrographic analysis by Glasheen

(Appendix 4). Sample 1 west and Sample 2 west were collected during the traverse.

The nearest place to phase 7 where the thickness of the basalt could be determined was in the cutbank of the farm road south of phase 6. The road was cut across the side of the slope south of the phase 6 to allow the landowner easy access from the grazing areas above and below the slope. The road cut is approximately 5 feet high. Large basalt boulders, mixed with soil, are abundant in the cutbank near the top of the ridge. There is no evidence that solid rock was encountered as the road was constructed. McLucas, Barber and I agreed upon the location that seemed to be lowest elevation where basalt boulders were abundant in the road cut. This elevation was assumed to represent the bottom of the basalt. I saw no definite outcrop but the concentration of basalt below that point was distinctly lower.

Using a hand level, Barber and I determined that the bottom of the basalt was approximately 40 feet below the highest basalt exposed at the upper end of the farm road. The Schlicker report states that the basalt is also about 40 feet thick in the existing quarries to the east.

After walking over the flat upland portion of the site, I have little doubt that basalt underlies the fields of phase 6. A layer of silt (loess according to Schlicker report) underlies the fields of phase 6 and therefore overlies the basalt. In a few areas of phase 6, basalt outcrops along the break in slope at the edge of the field. A few basalt boulders are on the surface near the edges of the field. The Schlicker report contains results of backhoe tests over the entire flat-topped area, which confirm the existence basalt under the silt. Schlicker's backhoe test holes 7 and 8, which were in the western-most pits hit "medium hard rock" at 4 and 5.5 feet below ground level, respectively. The approximate locations of these two holes, which are within the study area, are shown in figure 2.

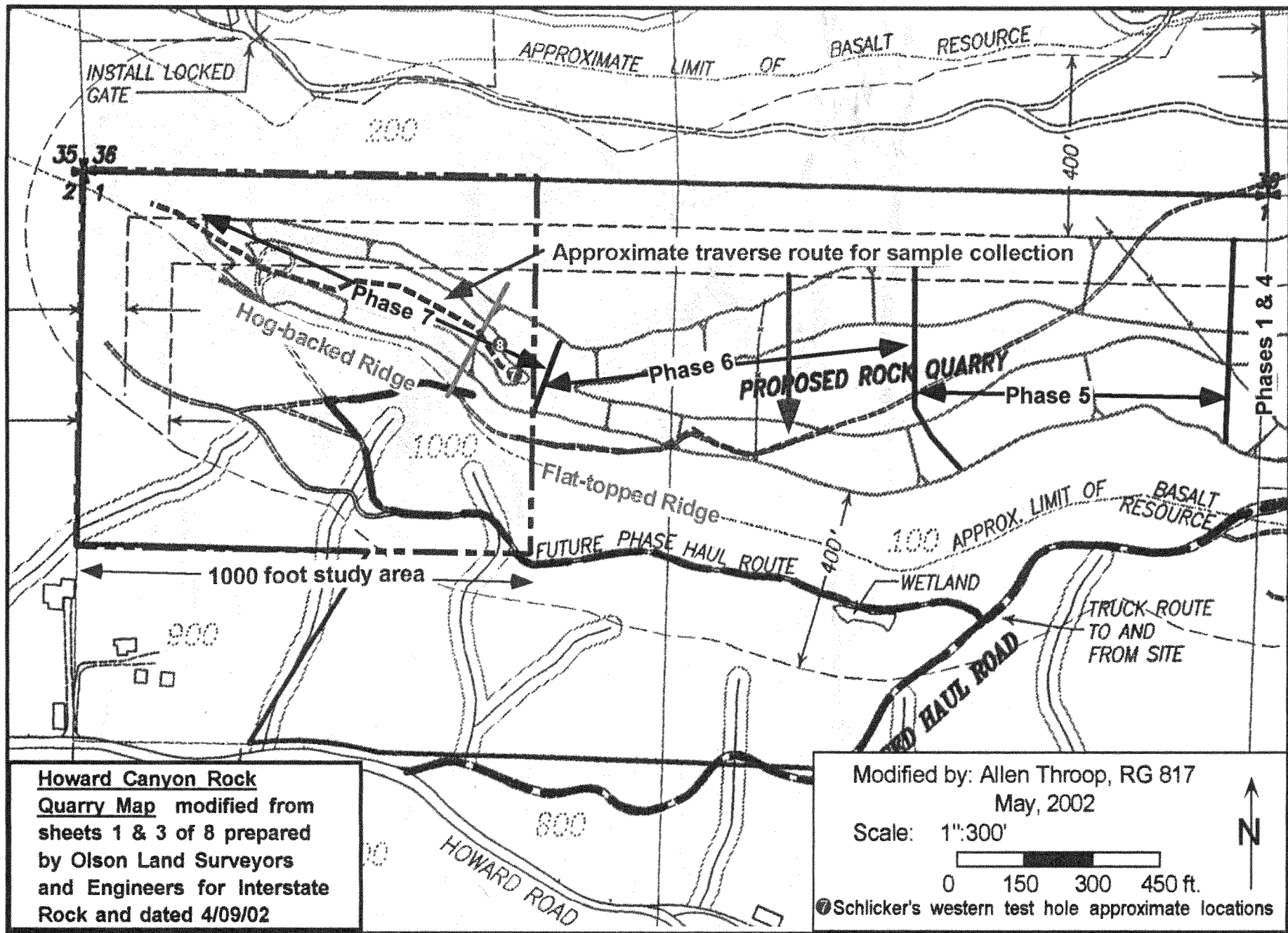


Figure 2 Study Area Detail Map

26-0065 Howard Canyon - Olson site map

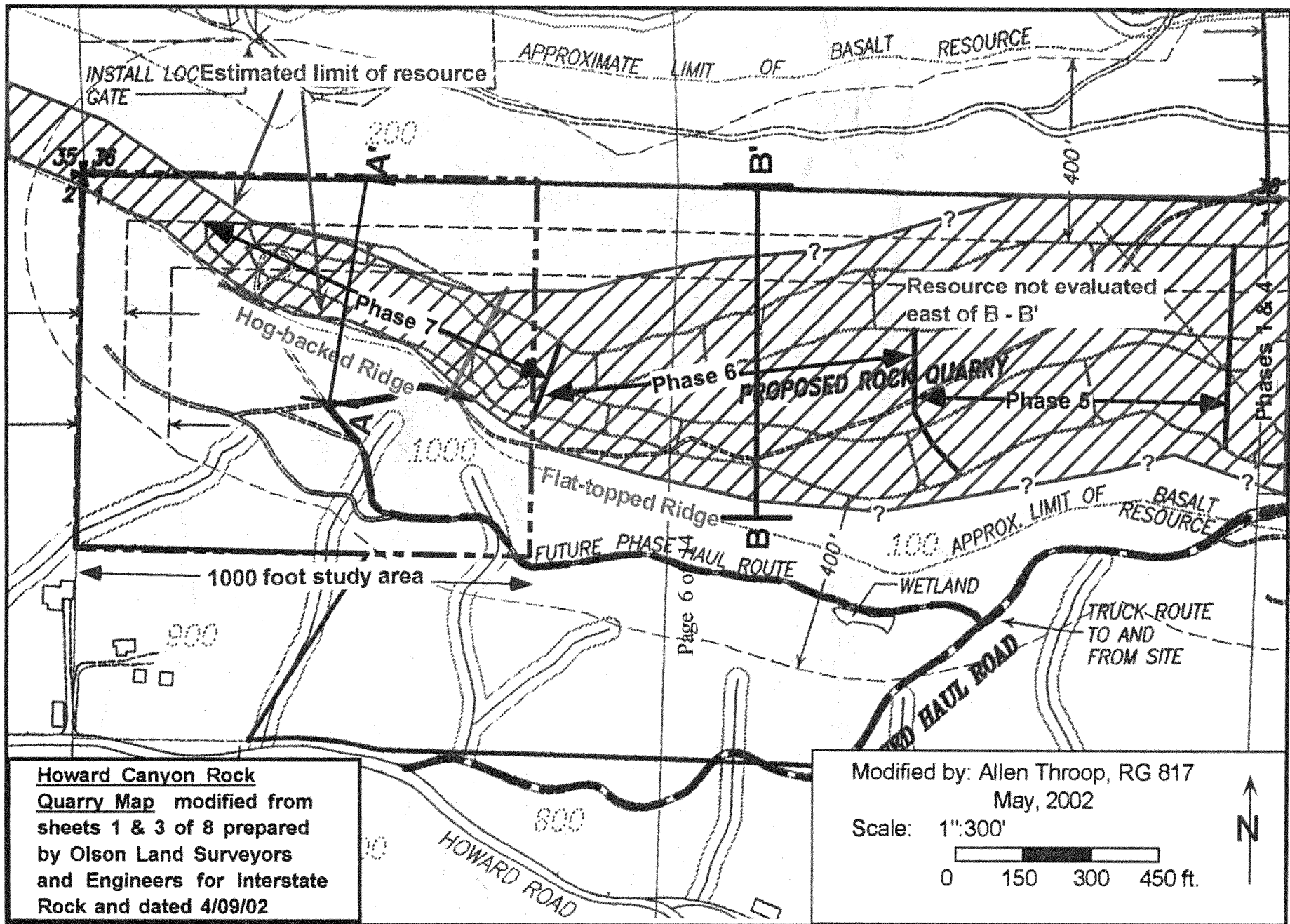


Figure 3 Resource outline within study area

Aerial photography and the existing soil survey of the area were also used to attempt to define the bottom of the basalt flow. Stereo pair photos by Spencer B. Gross taken in 1999 and by WAC Corp. taken in 2000 (Appendix 2) both show very well the break in slope between the flat-topped ridge and the slopes to the north and south and break in slope at the bottom of the ridges. I have seen no evidence to suggest that the change in rock type can be identified, to the accuracy required for rock reserve delineation, via aerial photo interpretation.

A petrographic analysis by Dick M. Glasheen (appendix 5) compares two rock samples from the study area with another two from the active quarries. The petrographer's conclusion is that the rocks are from the same unit. This conclusion strengthens the argument that a good quality basalt unit underlies the phase 7 area.

A review of the Multnomah County Soil Survey (1983) produced by the Soil Conservation Service (now the Natural Resources Conservation Service) shows that the soil units in the area are defined by slope steepness. Therefore the soil survey is not useful in defining the extent of the basalt.

As mentioned previously, Multnomah County does not require the rock from significant sites to meet any specific quality or quantity standards. The basalt at this site does meet DLCD's quality and quantity standards as defined in OAR 660-023. To meet DLCD's current standards for a significant aggregate site the rock must meet ODOT's degradation and abrasion standards for base rock and the site must contain at least 2 million tons of rock. The figures in Table 1 indicate that the rock quality of this site meets the quality standards. The Schlicker calculation of more than 2 million yards of basalt on the entire property means that the rock resource defined in that report could qualify as a significant resource under OAR 660-023.

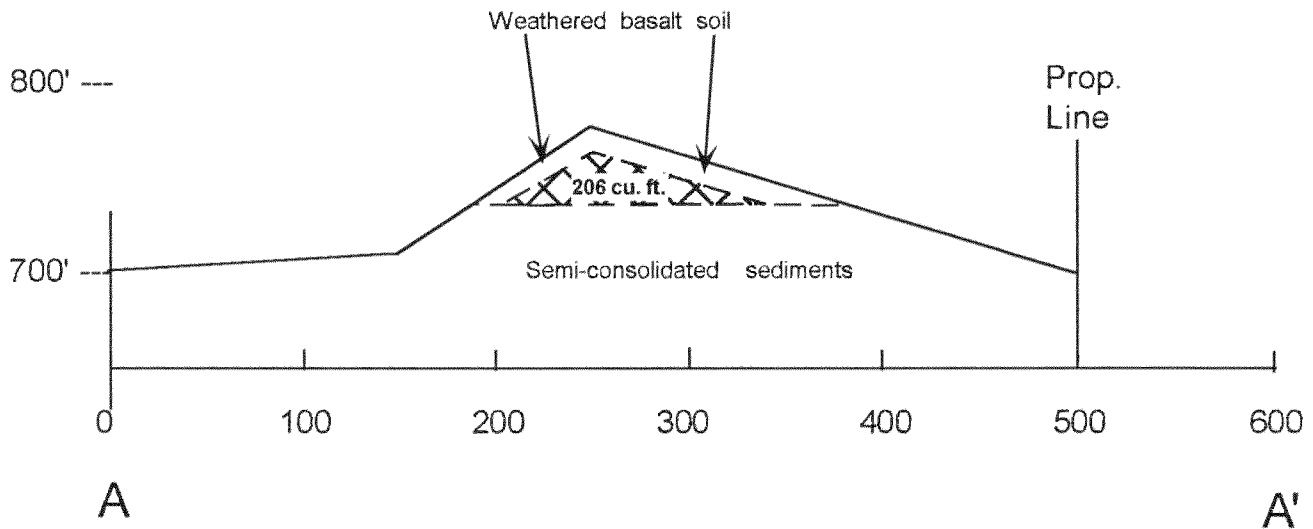
Based on the field review, the petrographic comparisons, the ODOT analytical work and the Olson topographic map (sheet 3), I conclude that the phase 7 area contains a geologic resource of approximately 140,000 cubic yards or more of basalt. The geologic reserve goes to the property line; the mineable resource will be smaller. My estimate of the aerial extent of the basalt is shown on figure 3. The resource volume is based on the conservative assumptions that the basalt was 40 feet thick in the phase 7 area as it is to the east and that the top 10 feet have weathered into the mixture of basalt boulders and soil that now overlies the solid rock (figure 4). The 10 feet of overburden that forms the top and sides of the phase 7 area would need to be stripped and stockpiled. Volume calculations are shown in table 2. For comparison purposes, I have made a similar calculation of the geologic resource of the Olson phase 6 area. The important item to note from the comparison is that for each average yard along the length of phase 6, about 2000 cubic yards of resource would be found. In the phase 7 area, each yard along the axis of the deposit contains only about 210 cubic yards of resource. Therefore each yard of advance in the phase 6 area yields at least 8 times as much rock as would a similar advance in the phase 7 area.

Geologic Cross Sections of Howard Canyon Quarry

Toppography from Olson Land Surveyors map sheet 1 of 8
prepared for Interstate Rock Products and dated 04/09/02.

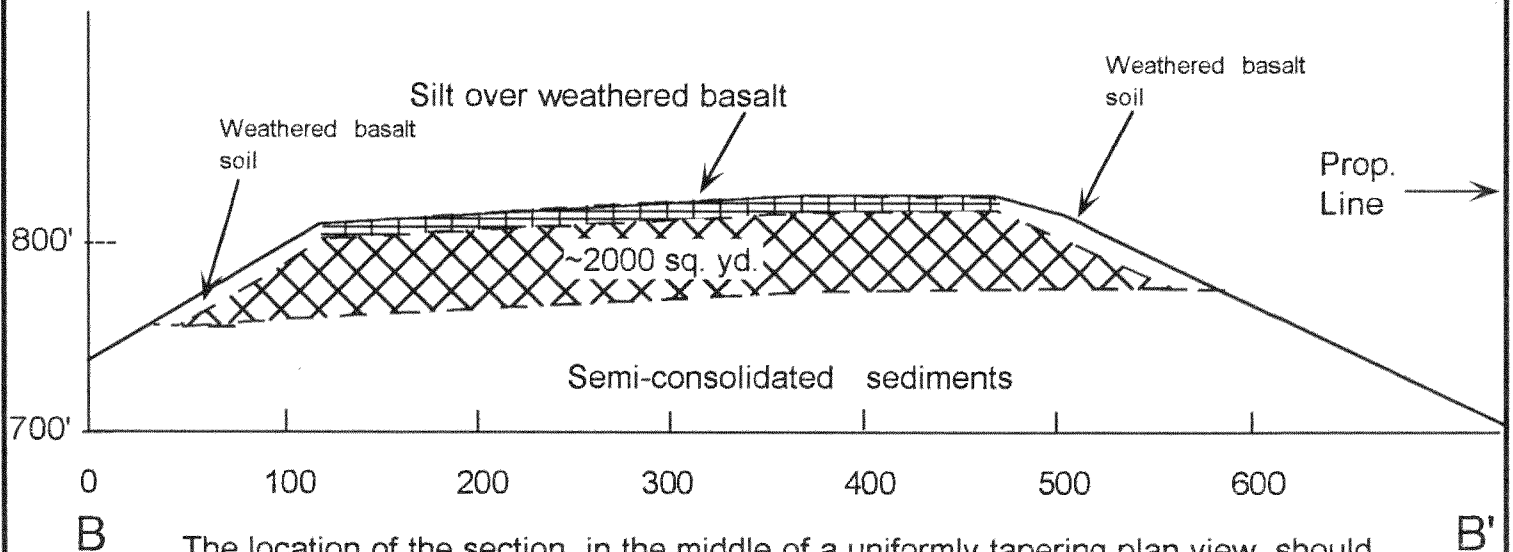
Allen Throop RG817 May, 2002

Hog-backed Ridge - most of Phase 7



Estimated extent of basalt resource

Flat-Topped Ridge - Phase 6



The location of the section, in the middle of a uniformly tapering plan view, should represent an average width.

Figure 4 - Cross sections

TABLE 1 ODOT Rock Quality test results

Lab No. & source	Test date	Coarse degradation		Abrasion	Apparent gravity
		850 sieve	Sediment height		
	<u>Standards:</u>	<u>30.0% max.</u>	<u>75 mm max.</u>	<u>Maximum: 35.0%</u>	<u>No standard</u>
02-000145 Study area	01-29-02	21.9%	15 mm	30.2%	2.857
02-000188 Existing quarries	01-31-02	19.4%	12 mm	30.4%	2.832

Mine Plan Review

The Olson mining plans show that the hogback ridge (phase 7) will be mined using a completely separate infrastructure of roads and stormwater control systems from that used in phases 1 through 6 to the east. This is appropriate considering the differences between the topography, overburden, and vegetation in the two areas. The mining plans in the Olson report for phase 7 raise numerous environmental issues that will be discussed next and are summarize in table 3.

If more detailed geological information was used in the formation of the Olson sheets than what is presented in the preceding section, that information was not submitted for this review. The geological information is adequate to determine if a resource is present or not but it is not adequate for detailed mining plans. On the other hand, phase 7 mining is not scheduled for 40 years. As mining approaches the phase 7 area, information gathered from the advancing quarry face will be greatly superior to what would be gathered now with a few drill holes or seismic lines. Furthermore, mining equipment and practices can be expected to change considerably in the intervening years. Neither detailed mining reserve calculations nor detailed mining plans are appropriate for phase 7 at this time.

The issues discussed are meant to address the concepts presented in the phase 7 mining plan rather than addressing details that surely will change. Therefore the design details of sediment collection basin and other data included in some of the Olson sheets are not included in this review.

All mine plan that affect steep slopes such as those of phase 7 are subject to the Department of Geology and Mineral Industries (DOGAMI) steep-slope review. Removal of a thick overburden

from a long steep slope that consists of soil and large boulders mixed with tree stumps will be very difficult to complete without negative off-site environmental impacts such as rolling boulders and turbid stormwater. This should not be done without very detailed planning scheduling and execution.

While topsoil removal is difficult but possible, stockpiling the removed overburden on steep slopes as shown on figure 2. is an approach that should not be approved by DOGAMI. A letter from Landslides Technology to Interstate Rock dated January 25, 2001 (Appendix 5) recommends no construction of such stockpiles on ground steeper than 2H:1V.

Table 2 Howard Canyon Rock Resource Calculations

		Phase 6	Phase 7
		Geological reserve	Geological reserve
Cross section area	sq. ft.	17627	1859
Cross section area – rounded	sq. yd.	2000	210
Length of area	ft.	830	1000
Length of area	yd.	280	330
Vol. Formula		$V = (X.\text{Sec. Area}) * \text{length}$	$V = (X.\text{Sec. Area}) * \text{length}$
Vol. Calc.	Cu. Yd.	560,000	69,000
Weight of rock	Tons	1,312,416	161,708
Weight of rock – rounded	Tons	1,300,000	160,000
Ratio rock per yd along the axis - phase 6:phase 7			8:1

Constants used:

Specific Gravity	2.8 from ODOT test
Weight of a cubic yard of water	1674 pounds

More overburden will be removed from the phase 7 area than could be stored in the locations shown on the Olson plans (figure 2). The phase 7 mining area is roughly 800 feet long and roughly 180 feet wide. Assuming a flat surface and only 6 feet of overburden, phase 7 will have 860,000 cubic feet or 32,000 cubic yards of overburden, without applying any expansion factor. The two overburden storage areas shown for phase 7 on figure 5 total about 700 feet in length with a width of perhaps 35 feet. Such storage, if built on a flat area with the piles constructed with 1:1 slopes would have a height of 18 feet and therefore a volume of 220,000 cubic feet or 8,000 cubic yards. (Stockpile slopes of 3:1 are generally required by DOGAMI.) Obviously more stockpile room is necessary.

Access and stormwater control of phase 7 mining requires entirely different facilities from those of phases 1 through 6. The location of the road and a major retention pond are shown on Olson map 3 south of phase 6 and 7. The proposed dam for stormwater retention is located south of

phase 7 at an elevation of approximately 650. The road is located between 650 and 700 feet. The letter from Landslide Technology (appendix 5) mentions that the benched south slopes between 625 and 725 feet are probably old landslide areas. Very specific geotechnical mapping should be done before construction of a road and especially a water retention structure south of the ridge.

Table 3 Comparisons of the physical settings of the flat-topped ridge and hog-backed ridge areas

Item	Flat-topped Ridge	Hog-backed Ridge
Overburden	Mapped as clayey silt in the 1989 Slicker report. Material removal with scrapers should be routine. Material depth well documented in the Schlicker report.	Mixture of deeply weathered basalt soils (clay and silt) and large boulders (up to six feet in diameter) on a 1 ¼ (H):1 (v) slope. Material removal will be extremely difficult. Overburden depth unknown. The nearest analogous site (the farm road cuts south of phase 6) suggests a minimum of 10 feet.
Vegetation	The flat surface is in pasture. Soil layers can easily be segregated for optimum revegetation.	The steep hillsides are covered with trees and blackberries. Trees would need to be cut and removed. Stumps would need to be segregated from the soil and the large rocks for proper disposal. Again this is on a steep hillside.
Overburden storage	Overburden can be easily stored, as shown, within the cell being currently mined or in a previous one.	Overburden cannot be accommodated in the areas shown on the 2002 Olson sheets since the hillsides are too steep and the volume of material produced could not be accommodated in the areas shown even if it was on flat ground.
Crusher location	One location for phases 1 through 6.	A new, unspecified location is required
Access	Phases 1 through 6 all use the same access.	An entirely new access road is needed. The route shown on the 2002 Olson sheets traverses unstable areas defined in the 2001 Landslide Technology letter.
Storm water control	Water from Phases 1 through 6 will exit via the one storm water control system.	An entirely new storm water control system for the access road and for the phase 7 quarry must be established. The retention pond location shown on the 2002 Olson sheets is within the unstable area defined in the 2001 Landslide Technology letter.
Rock resource	All indications point towards a resource of quality rock that should yield .2000 cubic yards or more of rock for each yard that the face progresses.	The same basalt unit underlies the hogback that underlies the flat-topped ridge. Indications are that a quarry in the phase 7 area would produce only about 210 cubic yards of rock for each yard the face progresses..

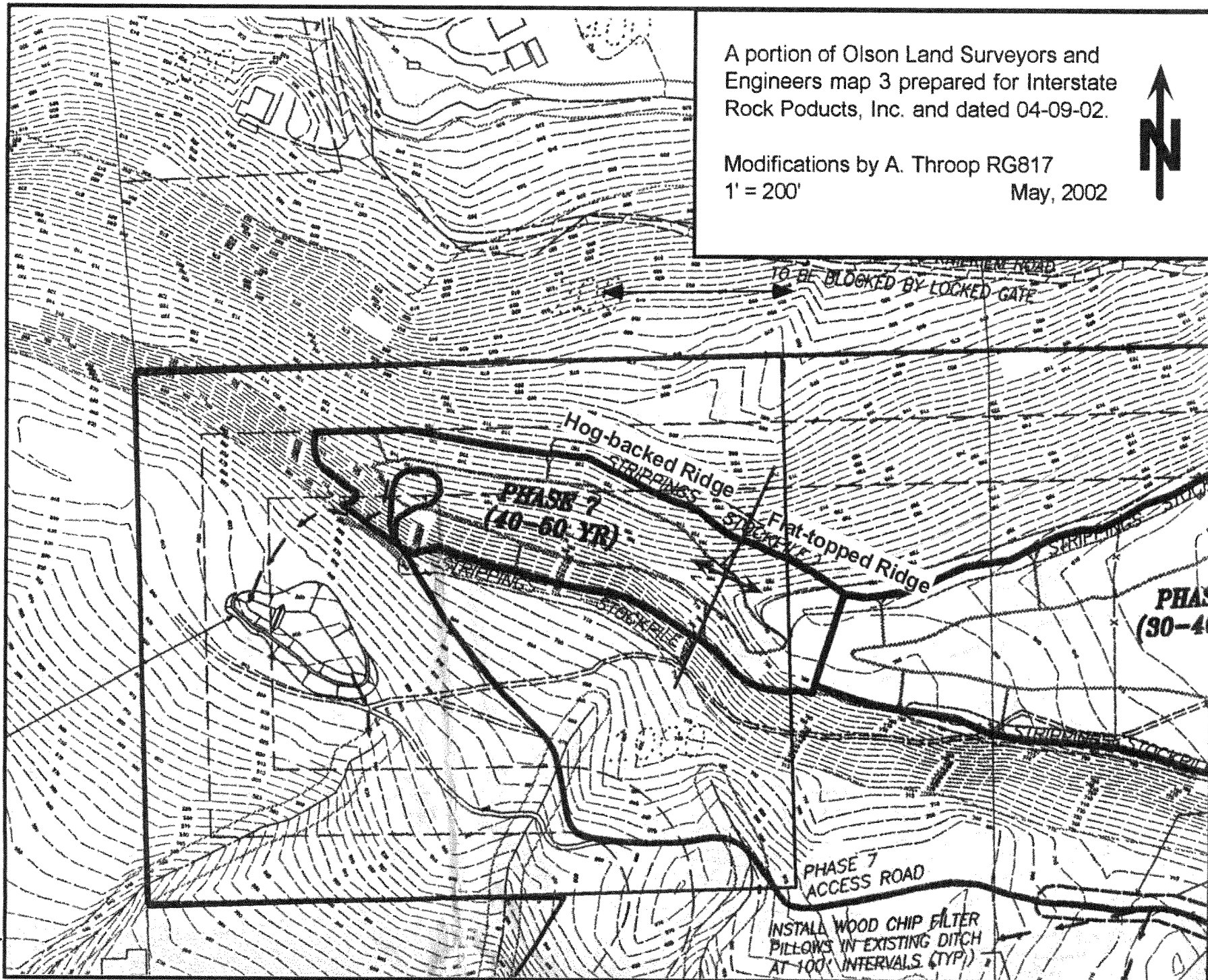


Figure 5

List of Appendixes:

1. H.G. Schlicker & Associates report of project #88-416 dated January 9, 1989
2. Aerial photograph references
3. Oregon Department of Transportation materials laboratory reports 02-000145 and 02-000188
4. Petrographic report by Dick Glasheen
5. Howard Canyon Quarry Geologic Hazard Assessment by Landslide Technology dated January 25, 2001.
6. Resume for Allen H. Throop, Geologist

GEOLOGIC RECONNAISSANCE
HOWARD CANYON QUARRY
EAST MULTNOMAH COUNTY, OREGON

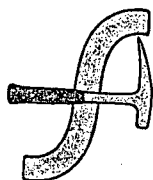
for

Mr. Raymond Smith
P.O. Box 183
Corbett, OR 97019

Project #88-416

January 9, 1989

H.G. Schlicker & Associates, Inc.



H.G. Schlicker & Associates, Inc.

235 N.E. 122nd Avenue, Suite 315 • Portland, Oregon 97230
(503) 257-9666

Geologists • Engineers

Project #88-416

January 9, 1989

Mr. Raymond Smith
P.O. Box 183
Corbett, OR 97019

Dear Mr. Smith:

We are pleased to present this geologic reconnaissance of the Howard Canyon Quarry and a rock resource evaluation of East Multnomah County. Thank you for the opportunity of assisting you regarding the Howard Canyon quarry.

We will provide the additional drilling information as an addendum when it becomes available. Please contact us if you have any questions concerning this report.

Sincerely,

H.G. SCHLICKER AND ASSOCIATES, INC.

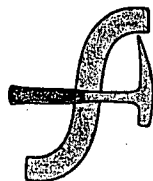
Herbert G. Schlicker, P.G., C.E.G.
President

HGS:kh

Herbert G. Schlicker, P.G., C.E.G., President
John A. Talbott, P.E., Vice President
Mark E. Shaffer, P.E., P.G.
J. Douglas Gless, P.G., C.E.G.
Russell J. Ralls, P.G.

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Geologists • Engineers

Project #88-416

January 9, 1989

Mr. Raymond Smith
P.O. Box 183
Corbett, OR 97019

Subject: Expansion - Howard Canyon Quarry

Location: SE 1/4 Section 36, T. 1N., R. 4E, WM &
N 1/2 Section 1, T. 1S., R. 4E, WM

Dear Mr. Smith:

This report presents our geologic study of the rock resource at the location described above.

INTRODUCTION

The site was investigated using a backhoe to excavate 31 testpits to determine the thickness of the overburden. Fourteen testpits were done for this study and 17 were previously done by Mr. Raymond Smith. The overburden averaged 7.2 feet in the 14 recently dug test pits located west of the 1/4 section line. About 1 to 2 feet of weathered rock appeared to be present. East of the 1/4 section line 17 previously dug test pits indicated similar conditions.

Local commercial rock is scarce or not available. As a consequence the price of rock delivered to the local area is excessive due to the long haul costs. Mr. Smith desires to produce rock at the Howard Canyon site for the commercial sector.

SITE CONDITIONS

The site is located on a broad ridge which runs along the entire section line between section 36 and section 1. The ridge is more than 500 feet wide and is entirely underlain by basalt lava. The ground surface is nearly level with gentle rolling topography and ranges between 780 and 860 feet elevation.

Access is available from both Howard Canyon on the south and Big Creek Canyon on the north. The site is about 3 miles by road to Highway 30 and less than 5 miles to interstate 84.

Herbert G. Schlicker, P.G., C.E.G., President

John A. Tolbort, P.E., Vice President

Mark E. Shaffer, P.E., P.G.

J. Douglas Gless, P.G., C.E.G.

Russell J. Rolls, P.G.

GEOLOGY

General

The site is located in the western foothills of the Cascade Range 18 miles east of Portland and less than 2 miles by direct line south of the Columbia River. The quarry produces rock from the Boring Lava Formation which caps the ridge between the canyon of Big Creek on the north and Howard Canyon on the south. The basalt overlies the Troutdale Formation which is exposed in the canyon walls beneath the Boring Lava.

Troutdale Formation

The Troutdale Formation is composed mainly of sandstone and conglomerate and was named for exposures in cliffs along the Sandy River near Troutdale. The Formation is wide spread in occurrence and was deposited as a great piedmont from the west flank of the Cascade mountains. The underlying Columbia River Basalt Formation which underlies the Troutdale elsewhere is not exposed locally.

Boring Lava Formation

Boring Lava overlies the Troutdale Formation. About 2 million years ago Boring vents in the Portland area erupted both basalt lava and pyroclastics. The Boring Lava typically flowed into existing stream valleys.

The occurrence of the Boring Lava along the ridge tops in this area was brought about by a sequence of geologic events. First, streams carved canyons in the existing Troutdale terrain. Secondly, the canyons were filled by basalt lava which erupted from the Boring vents. Thirdly, streams cut new channels in the softer Troutdale sediments that was left exposed between the lava filled canyons. This resulted in inverted topography with the former basalt filled canyons now the basalt crested ridge tops.

The Boring Lava is composed of a light gray olivine basalt with expanded texture. The pyroclastics known as the Boring Agglomerate consists of fragments and boulders of lava mixed with ash. The ash is often weathered to a red clay soil. The agglomerate is not used for rock sources. For this reason only select areas mapped as the Boring Formation can be used for crushed rock. The Howard Canyon quarry is the only site known to be available to produce rock in the area east of the Sandy River.

The Boring basalt is frequently massively jointed and oversize material can occur from blasting operations. Large rock has use for rip-rap and building stone described later under "Rock Resource".

Loess

The thin Loess, or sandy silt soil which caps the ridges south of the Columbia River in this region, is a deposit carried by the wind from the Columbia River floodplain sometime during final stages of the glacial period. It is composed of minor sand and glacial silt originally deposited over a broad Columbia River floodplain. Strong winds blowing south from the ice sheet somewhere south of the Tacoma Washington area carried the sediments south from the Columbia River. At the site these soils average about 6 feet thick.

ROCK RESOURCE

Quantity

The basalt occupies the upper 50 feet or more of the ridgecrest except for the thin Loess overburden. The ridge rock deposit is more than 4200 feet long and 350 feet wide and contains at least 33 acres of ground. The volume of rock in place is then $(4200' \times 350' \times 40')/27 = 2,177,778$ cu yards. When rock is crushed it expands about 25% therefore the deposit will produce more than 2.7 million tons of crushed basalt.

Because the lava is believed to occupy an old stream valley and the center of the valley should be much deeper, the deposit should be thicker than it appears and an estimate of an additional 30% of rock is not unreasonable. This additional rock would bring the total to 3.5 million tons. Drilling is underway to determine the actual thickness of the deposit and the results will be presented as an addendum to this report.

Quality

Exposures in the existing quarry face show the basalt to be columnar jointed and thinly weathered. Beneath the thin weathering scale the rock is hard and fresh. The top 2 feet of the basalt appears to be highly weathered and is considered as overburden in this report. Tests show the partially weathered rock to make satisfactory base rock. The harder fresh rock can be used for oil and topping.

The overburden is conservatively assumed to be about 10 feet thick and includes about 2 feet of weathered basalt. This overburden is easily mined and requires no processing and it is a marketable commodity.

Overburden can be used for fill and topsoil and both are in demand.

In addition to crushed rock, the site can produce high quality rip-rap. This material is scarce and after major floods is in short demand.

Mr. Smith has had preliminary conversation concerning possible use of the quarry rock for building stone. Many of the historic building in the area were built from Boring Basalt.

ROCK RESOURCES IN EAST MULTNOMAH COUNTY

East Multnomah County area includes all of Multnomah County east of Troutdale to the crest of the Cascade Range. Our records show that this area contains 22 quarries and/or gravel pits. At the present time none of these sites is available for commercial use. Four are owned by the Oregon Highway Division, fourteen by the United States Forest Service and four are privately owned. Eleven of the Forest Service quarries are located within the Bull Run watershed, four Highway Division sites and three of the four privately owned sites have been eliminated because they are within the Columbia River Scenic area. Only one site, the Howard Canyon quarry is available for use as a commercial rock source. No other sites which could produce commercial rock are known within the area.

ROAD CONDITIONS

We understand that the county has shown concern regarding the haul roads within Howard Canyon beginning at its junction with Littlepage Road. The concerns are restricted sight distance at 2 curves and ability of the road to hold up under truck traffic.

It is reported that the road contains 9 inches of rock and capped by 2 inches of built up asphalt. Logging trucks have been using this road without difficulty and with no apparent unusual road damage. Rock trucks are not likely to cause greater stress than logging trucks.

There are two areas along Littlepage Road that may have marginal sight distance. These two areas have roadcuts at the inside of the turn along the south side of the road.

The site distance could be improved by cutting away several feet of bank near the center of the curves, an estimated 5 feet or so. If necessary the speeds could be specified through the curve areas.

Troutdale sandstone is of sufficient strength to stand vertically and could be easily dressed back to provide more sight distance. The excavation will not cause any instability of the slopes.

CONCLUSIONS AND RECOMMENDATIONS

At the present time, there are no commercial quarries located in East Multnomah County. Unless rock from the Howard Canyon quarry is made commercially available there will be a continuing hardship to any potential users of rock, both government and private.

We recommend that the Howard Canyon Quarry owned by Mr. Raymond Smith be granted the privilege of selling rock commercially.

LIMITATIONS

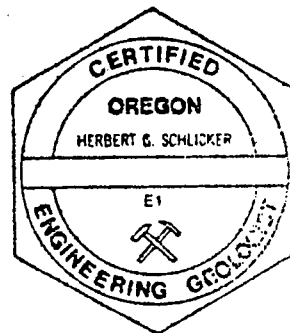
Our investigation was based on geological reconnaissance and available published information. The data and recommendations presented in this report are believed to be representative. The conclusions and recommendations herein are professional opinions derived in accordance with current standards of professional practice and no warranty is expressed or implied. It has been our pleasure to serve you. If you have any questions concerning this report of the site, please contact us.

Respectfully submitted,

H.G. SCHLICKER AND ASSOCIATES, INC.



Herbert G. Schlicker, P.G., C.E.G.
President



HGS:kh

APPENDIX

ROCK MATERIALS OF MULTNOMAH COUNTY, OREGON
Plate 3, Special Paper 3, Oregon Dept. of Geology

Quarry No.	Ownership	Location	Past Prod.	Rock	Reserves Thousand cy
27	C.T. Howell	NW 1/4 Sec 31, 1N,4E	100	Boring Lava	150
28	Hershel McGriff	NW 1/4 Sec 22, 1N,5E	50	Columbia River Basalt	100
29	OSHD	SW 1/4 Sec 14, 1N,5E	500	Columbia River Basalt	3
30	Raymond Smith	NE 1/4 Sec 27, 1N,5E	75	Boring	25
31	OSHD	SE 1/4 Sec 7, 1N,5E	50	Columbia River	200
32	OSHD	NW 1/4 Sec 1, 1N,6E	0	Columbia River Basalt	5000
33	USFS	SW 1/4 Sec 33; 1N,6E	2	?	?
4a	OSHD	NE 1/4 Sec 3; 2N,7E	225	Columbia River Basalt	2000
34	USFS	SE 1/4 Sec 24; 1N,6E	5	?	?
35	USFS	Sec 20; 1N,7E	3	?	?
45	USFS	SE 1/4; 1S,5E	2	?	?
46	USFS	SW 1/4 Sec 1; 1S,6E	3	?	?
47	USFS	SE 1/4 Sec 10; 1S,6E	17	?	?
48	USFS	NE Sec 10; 1S,6E	6	?	?
49	USFS	SW Sec 11; 1S,6E	2	?	?
50	USFS	NW Sec 21; 1S,6E	8	?	?
51	USFS	Sec 3; 1S,7E	5	?	?

Rock Materials of Multnomah County, Oregon (continued)

Quarry No.	Ownership	Location	Past Prod.	Rock	Reserves Thousand cy
52	USFS	SW Sec 22; 1S,7E	1	?	?
53	USFS	NW Sec 24; 1S,7E	3	?	?
54	USFS	SE Sec 19; 1S,8E	2	?	?
55	USFS	SW Sec 20; 1S,8E	1	?	?

See map for locations.

TEST PIT LOGS

TP-2 0 - 6" Topsoil
 6"-10' Clayey Silt
 10'-11' Weathered
 Rock

TP-3 0 - 6" Topsoil
 6"- 5' Clayey Silt
 5'-6.5' Weathered
 Rock
 6.5'- Medium Hard
 Rock

TP-5 0 - 6" Topsoil
 6"-4.5' Clayey Silt
 4.5'- Medium Hard
 Rock

TP-7 0 - 6" Topsoil
 6"-5.5' Clayey Silt
 5.5'- 6' Medium Hard
 Rock

TP-9 0 - 6" Topsoil
 6"-6.5' Soft Rock
 6.5'-7' Medium Hard
 Rock

TP-11 0 - 6" Topsoil
 6"- 7' Clayey Silt
 7'-8.5' Soft Rock

TP-2 0 - 6" Topsoil
 6"- 5' Brown Silty Clay
 5'- 7' Gray Clayey Silt
 7'-11' Red Brown Clayey
 Silt
 11'-12' Weathered Rock

TP-4 0 - 6" Topsoil
 6"- 7' Clayey Silt
 7'- 9' Weathered Rock
 9'-10' Medium Hard Rock

TP-6 0 - 6" Topsoil
 6"- 7' Clayey Silt
 7'-7.5' Weathered Rock

TP-8 0 - 4' Fill
 4'- Medium Hard Rock

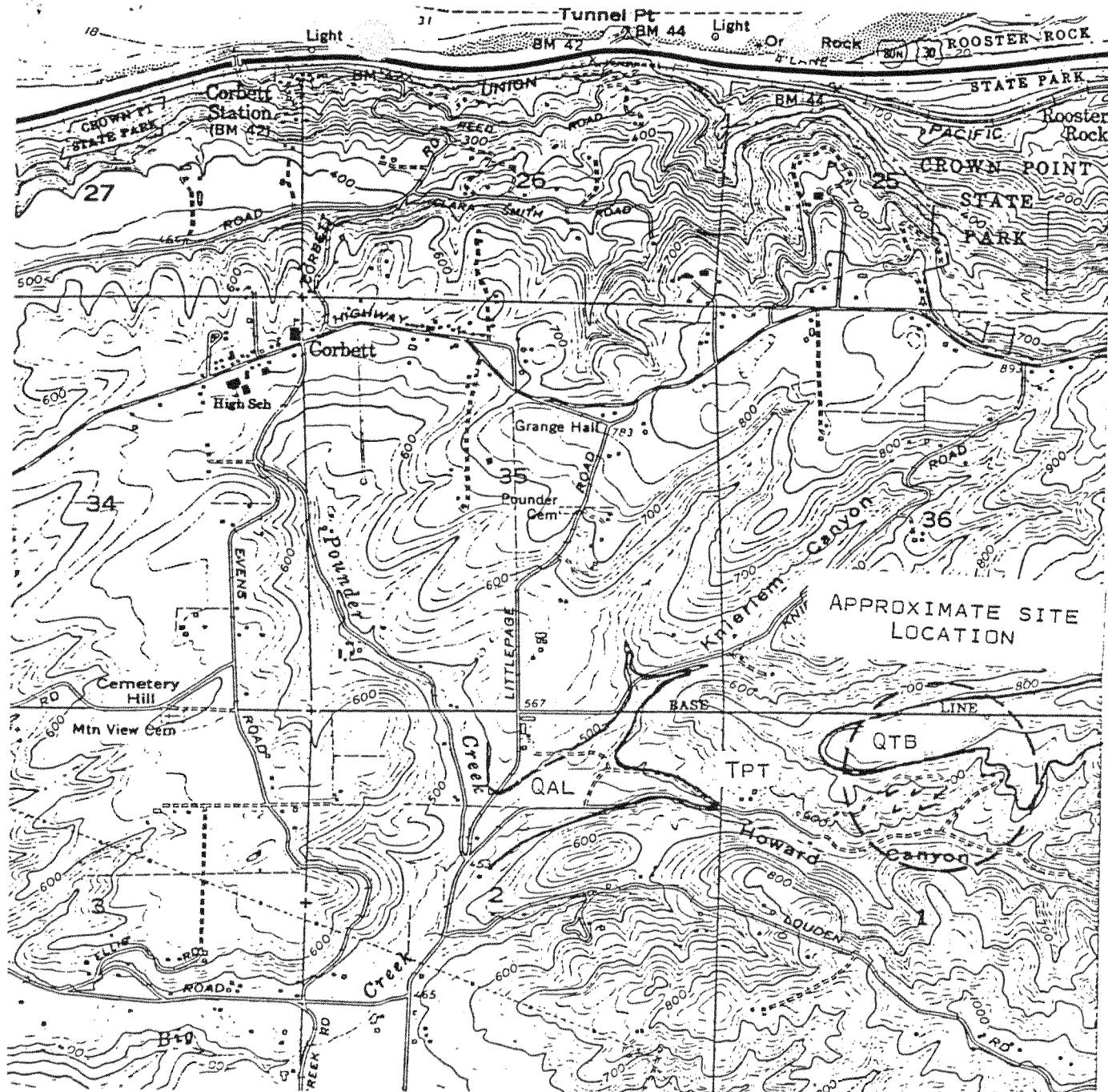
TP-10 0 - 6" Topsoil
 6"- 7' Clayey Silt
 7'-7.5' Soft Rock

TP-12 0 - 6" Topsoil
 6"- 7' Clayey Silt
 7'- 8' Soft Rock

Test Pit Logs (continued)

TP-13 0 - 6" Topsoil
 6"- 2' Brown Clayey
 Silt
 2'-7.5' Light Brown
 Clayey Silt
 7.5'-8' Soft Rock

TP-14 0 - 6" Topsoil
 6"- 9' Clayey Silt
 9'-10' Soft Rock



SITE GEOLOGIC MAP

PROPOSED HOWARD CANYON QUARRY SITE
MULTNOMAH COUNTY OREGON

- QAL QUATERNARY ALLUVIUM, RECENT STREAM SEDIMENTS
- QTB COLUMNAR BASALT, WITH BISCUIT WEATHERING ON OUTCROP
- TPT TROUTDALE FORMATION, SANDY GRAVEL AND SILTY SAND BEDS
- ✓✓ SLOPE MOVEMENT

BASE: A portion of Washougal, Wash.-Oreg.
U.S.G.S. 7½ min. Quad Sheet
Photo revised 1970 Scale 1"=2000'

TEST PIT LOCATIONS

○ TP-1 Test pits

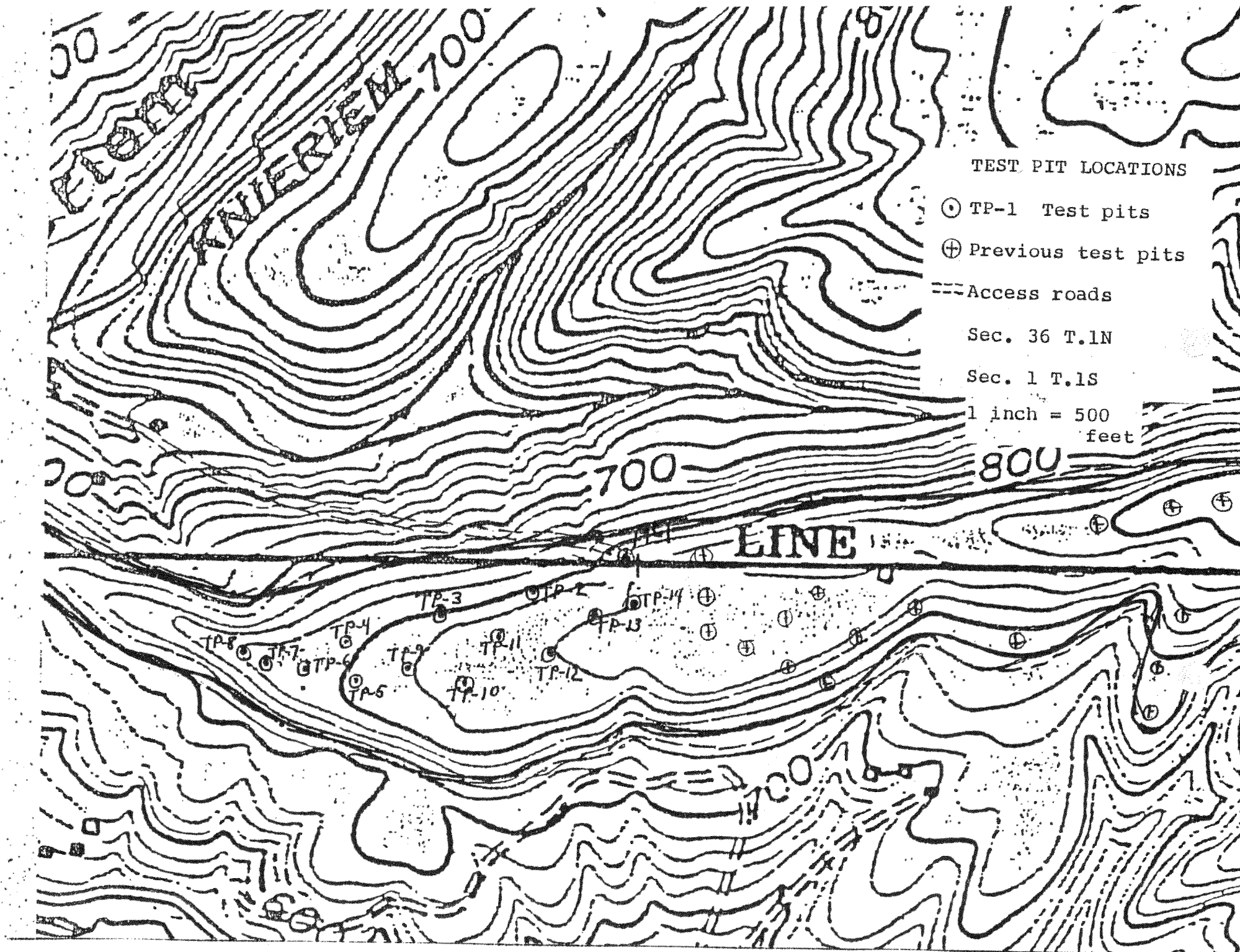
⊕ Previous test pits

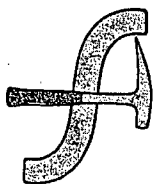
== Access roads

Sec. 36 T.1N

Sec. 1 T.1S

1 inch = 500 feet





H.G. Schlicker & Associates, Inc.

235 N.E. 122nd Avenue, Suite 315 • Portland, Oregon 97230

(503) 257-9666

Geologists • Engineers

HERBERT G. SCHLICKER
President, H. G. SCHLICKER & ASSOCIATES
Principal Geologist

EDUCATION

B.S. 1950. Geology, Oregon State University
M.S. 1953. Stratigraphy, Oregon State University

REGISTRATION

Engineering Geologist, Oregon, License No. E-1 and Idaho, No. 491
Certified Professional Geologist, American Institute of
Professional Geologists, CPG-392

SUMMARY OF EXPERIENCE

Mr. Schlicker has more than 30 years of experience in Geology. He has worked as a subsurface geologist in Louisiana for a major oil company, and for 24 years as an engineering geologist for the Oregon Department of Geology and Mineral Industries. He is principal author of numerous geologic publications. Presently, he is a consulting geologist specializing in engineering geology, mineral and oil and gas and expert witness.

1980 - present	President, H. G. Schlicker & Associates, Consulting Geologists and Engineers
1955 - 1980	Geologist, State of Oregon, Department of Geology & Mineral Industries, Project Manager for geologic mapping projects and rock materials resource studies resulting in major publications. Engineering geologic consultant for state agencies.
(1974 - 1979)	Professor of Geology, Oregon State University, Corvallis, Oregon, courtesy appointment.
1953 - 1955	Subsurface Geologist, The Texas Company, New Orleans, Louisiana
1952 - 1953	Assistant Soils Engineer, Oregon Highway Department, Salem, Oregon

Herbert G. Schlicker, P.G., C.E.G., President
John A. Talbott, P.E., Vice President
Mark E. Shaffer, P.E., P.G.
J. Douglas Gless, P.G., C.E.G.
Russell J. Ralls, P.G.

SUMMARY OF EXPERIENCE, continued

1946 - 1952 Oregon State University, Bachelors and Masters programs

AFFILIATIONS

Oregon Academy of Science
American Institute of professional Geologists, CPG 392
Association of Engineering Geologists

OFFICES HELD

Chairman, Geology Section, Oregon Academy of Science
Chairman, Engineering Geologists of Oregon
Chairman and Treasurer, Oregon Section AIPG
Chairman, Board of Geologist Examiners, Oregon
Member of Advisory Committee AEG
Member of Hazards Committee AIPG

LIST OF PUBLICATIONS
Herbert G. Schlicker

PRINCIPAL AUTHORSHIP

1. Schlicker, H. G. and Finlayson, C. T. Engineering Geology and Hazards of Northwestern Clackamas County, Oregon: Oregon Department of Geol. and Mineral Indus., Bulletin 99, 1979.
2. Schlicker, H. G. Preliminary Geologic Hazards Report for Yoncalla, Sutherlin, Winston and Canyonville, Douglas County, Oregon, 1978.
3. Schlicker, H. G., Gray, J. J., and Bela, J. L. Rock Mineral Resources of Benton County, Oregon. Short Paper #27, Dept. of Geol. and Mineral Indus., 49 pp., maps, 1978.
4. Schlicker, H. G. Geologic Restraints to Development in Selected Areas of Marion County, Oregon. Open file report 0-77-4, 59 pp., 27 maps, Dept. of Geol. and Mineral Indust., 1977.
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10. Schlicker, H. G., Deacon, R. J., Olcott, G. W., and Beaulieu, J. D. Environmental geology of Lincoln County, Oregon: Oregon Department Geol. and Mineral Indus., Bulletin 81, 171 pp., 1973.
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14. Schlicker, H. G. Sand and gravel, in Mineral and Water Resources of Oregon: Oregon Dept. Geol. and Mineral Indus., Bulletin 64, in cooperation with U.S. Geol. Survey, pp. 233-237, 3 figs., 1969.
15. Schlicker, H. G. and Deacon, Robert J. Preliminary engineering geology studies of Marion County, Oregon, in comprehensive water, sewerage, and resource development plan, Marion County, Oregon, 1969: Mid-Willamette Valley Council of Governments, Clark & Groff Eng., Oregon Dept. Geol. & Min. Indus., p. A (1-21), 2 figs., 1969.
16. Schlicker, H. G. and Deacon, Robert J. Preliminary engineering geology studies of Marion County, Oregon: Oregon Dept. Geol. and Mineral Indus., misc. study, 35 pp., 4 figs., geologic map, 1968.
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26. Schlicker, H. G. Landslides: The Ore Bin, v. 18, no. 5, pp. 39043, May 1956.
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CO-AUTHOR

1. Wilkinson, W. D. and Schlicker, H. G. Corvallis to Prineville via Bend and Newberry Crater, Field Trip No. 3 in Wilkinson, W. D. (Ed.), Field guidebook, June 1959; Oregon Dept. of Geol. and Mineral Industries, Bulletin 50, pp. 32-72, illus. incl. geol. maps, 1959.
2. Peck, Dallas L., Griggs, A. B., Schlicker, H. G., Wells, F. G., and Dole, H. M. Geology of the central and northern parts of the Western Cascade Range in Oregon: U.S. Geol. Survey Prof. Paper 599, 56 pp., 36 figs., 9 tables, geologic map, 1964.
3. Ramp, Len, Schlicker, H. G., and Gray, J. G. Geology, mineral resources, and rock material and Curry County, Oregon: Oregon Department of Geology and Mineral Industries, Bulletin 93, 79 pp., incl. geol. mineral location and rock source map, 1977.
4. Brownfield, Michael E., and Schlicker, H. G. Preliminary Geologic Map of the Amity and Mission Bottom Quadrangles, Oregon: Oregon Dept. of Geology and Mineral Industries Map 0-81-5, 1981.

5. Brownfield, Michael E. and Schlicker, H. G. Preliminary Geologic Map of the McMinnville and Dayton Quadrangle, Oregon. Oregon Dept. of Geology and Mineral Industries, Map 0-81-6, 1981.
6. Rosenfeld, C. L. and Schlicker, H. G. Significance of Increased Fumeroic Activity at Mt. Baker, Washington. The Ore Bin, v. 38, no. 2, pp. 23-35, February 1976.

Appendix 2 - Aerial photograph references

From Spencer B. Gross, Inc. Portland, OR

Photographs taken on 2-03-99

SBG-M99_004 1-1

SBG-M99_004 1-2

SBG-M99_004 1-3

From WAC Corp., Eugene, OR

Photographs taken 6-27-00

WAC-OO-WV 8-98

WAC-OO-WV 8-99

**** COPY ** OREGON DEPARTMENT OF TRANSPORTATION ** COPY **** Page 1 of 1
MATERIALS LABORATORY
 800 AIRPORT RD. SE SALEM, OR 97301-4798 (503)986-3100
 FAX(503)986-3096

Contract No.: EA No.: MCLUCAS & ASSOC. Lab No.: 02-000188
 Project: PRIVATE TESTING - MCLUCAS & ASSOC - CORBETT QUARRY
 Highway: County: Data Sheet No.: None
 Contractor: Org Unit: FA No.:
 Project Manager: Bid Item No.: NA
 Submitted By: GLENDA MCLUCAS Org Unit: Sample No.: 2002-2
 Material Source: CORBETT Qty Represented: SOURCE QUALITY
 Sampled At: EAST END OF QUARRY Sampled By: Witnessed By:
 DATE-Sampled: Received: 02/ 1/24 Tested: 02/ 1/31 Date Reported:
 Class/Type: COMPLIANCE Use: QUARRY ROCK

Q or G: QUARRY		AGGREGATE LABORATORY REPORT - QUARRY		Size: QUARRY CHUNK	
Sieve	% Passing		Mfg.	As Rec'd	
100 mm		TM 101 Sand Equivalent			
90		TM 102 Liquid Limit			
75		TM 103 Plastic Index			
63		TM 202 Fine Bulk Gravity			
50		S.S.D.			
37.5		Apparent			
25.0		Absorption (%)			
19.0		TM 203 Coarse Bulk Gravity	2.632		
16.0		S.S.D.	2.703		
12.5		Apparent	2.832		
9.5		Absorption (%)	2.68 %		
6.3		TM 208a Coarse Degrade Ht	12 mm		
4.75		P20	19.4 %		
2.00		TM 208b Fine Degrade Ht			
425 µm		P20			
150		TM 221 Friables			
75		Weighted Avg.:			
		37.5 - 19.0:			
		19.0 - 9.5:			
		9.5 - 4.75:			
		4.75 - 1.18:			
		TM 222 Lightweight Pcs			
		Coarse: Fine:			
		TM 211 Abrasion			
		Type A	30.4 %		
		TM 225 Woodwaste:			
		TM 226 Dust/Clay:			
		TM 227 Cleanness:			
		TM 229 Elong Pcs:			

TM 206 Sodium Sulfate Loss
 37.5 - 19.0: 3.3 %
 19.0 - 9.5: 2.9 %
 9.5 - 4.75: 3.5 % CA: 3.0 %
 4.75 - 2.36: 7.4 %
 2.36 - 1.18: 8.5 %
 1.18 - 600 µm: 9.4 %
 600 - 300 µm: 9.7 % FA: 9.0 %

1 @ 203 = \$ 45.00
 7 @ 206 = 29.00
 1 @ 208A = 74.00
 1 @ 211 = 97.00

NSM = Not Sufficient Material
 REMARKS:
 INFORMATIONAL

TOTAL CHARGES: \$ 419.00

NOTE HIGH ABRASION LOSS.

REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL OF THIS LABORATORY.

C: FILES ; GLENDA MCLUCAS - MCLUCAS & ASSOCIATES ; RAMIR, CREW, CORRIGAN & BACHRACH

OREGON DEPARTMENT OF TRANSPORTATION

MATERIALS LABORATORY

800 AIRPORT RD, SE SALEM, OR 97301-4798

Page 1 of 1

(503)986-3100

FAX(503)986-3096

Contract No.: EA No.: MCLUCAS & ASSOC. Lab No.: 02-000145
 Project: PRIVATE TESTING - MCLUCAS & ASSOC - CORBETT QUARRY
 Highway: County: Data Sheet No.: None
 Contractor: FA No.:
 Project Manager: Org Unit: Bid Item No.: NA
 Submitted By: GLENDA MCLUCAS Org Unit: Sample No.: 2002-1
 Material Source: CORBETT Qty Represented: SOURCE QUALITY
 Sampled At: WESTERN 1000' OF QUARRY Sampled By: Witnessed By:
 DATE-Sampled: Received: 02/ 1/22 Tested: 02/ 1/29 Date Reported: JAN 30 2002
 Class/Type: COMPLIANCE Use: QUARRY ROCK

Q or G: QUARRY
 Sieve

AGGREGATE LABORATORY REPORT - QUARAG

Size: QUARRY CHUNK

% Passing

Mfg.

As Rec'd

100 mm
90
75
63
50
37.5
25.0
19.0
16.0
12.5
9.5
6.3
4.75
2.00
425 µm
150
75

TM 101 Sand Equivalent
 TM 102 Liquid Limit
 TM 103 Plastic Index

TM 202 Fine Bulk Gravity
 S.S.D.
 Apparent
 Absorption (%)

TM 203 Coarse Bulk Gravity
 S.S.D.
 Apparent
 Absorption (%)

TM 208a Coarse Degrade Ht
 P20

TM 208b Fine Degrade Ht
 P20

2.624
 2.705
 2.857
 3.11 %

15 mm
 21.9 %

TM 206 Sodium Sulfate Loss
 37.5 - 19.0: 3.4 %
 19.0 - 9.5: 3.5 %
 9.5 - 4.75: 5.8 % CA: 4.0 %
 4.75 - 2.36: 12.1 %
 2.36 - 1.18: 18.3 %
 1.18 - 600 µm: 19.8 %
 600 - 300 µm: 19.5 % FA: 17.0 %

TM 221 Friables
 Weighted Avg.:
 37.5 - 19.0:
 19.0 - 9.5:
 9.5 - 4.75:
 4.75 - 1.18:
 TM 222 Lightweight Pcs
 Coarse: Fine:

TM 211 Abrasion
 Type A 30.2 %

TM 225 Woodwaste:
 TM 226 Dust/Clay:
 TM 227 Cleanness:
 TM 229 Elong Pcs:

This lab report is not a billing. It is for your information only. An invoice will be mailed to you. If you are not already in the ODOT financial system, you will be called for your FID number so that an invoice can be created for you.

1 @ 203 = \$ 45.00
 7 @ 206 = 29.00
 1 @ 208A = 74.00
 1 @ 211 = 97.00

NSM = Not Sufficient Material
 REMARKS:
 INFORMATIONAL

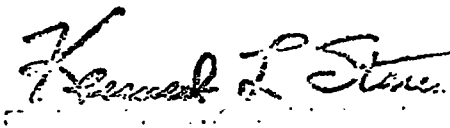
TOTAL CHARGES: \$ 419.00

NOTE HIGH LOSSES ON THE FINE SULFATES AND LAR ABRASION.

REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL OF THIS LABORATORY.

C: FILES ; GLENDA MCLUCAS - MCLUCAS & ASSOCIATES ; RANIS, CREW, CORRIGAN & BACHRACH

Appendix 3 - page 2





February 7, 2002

Mr. Timothy V. Ramis
Ramis Crew Corrigan & Bachrach LLP
1727 N.W. Hoyt Street
Portland, OR 97209

Re: Petrographic Examination of Rocks - ASTM C295

**Project: Corbett Quarry
Corbett, Oregon**

Dear Mr. Ramis:

Enclosed is our Petrographic Services Report which contains results of our examination of the rock samples we received from McLucas and Associates on January 24, 2002.

All samples are saved for three months than discarded unless prior arrangements have been made. Prepared sections become a permanent part of our research library and are available for additional examination at any time.

Please call or E-mail us if you have any questions concerning this report.

Regards,

Dick M. Glasheen

Dick M. Glasheen, R.P.G.
Consulting Petrographer

DMG/ng
DL #681

Enclosure: Petrographic Services Report

Appendix 4

PETROGRAPHIC SERVICES REPORT

Client: Ramis Crew Corrigan & Bachrach
Client W.O. No.: 1/21/02 Letter
D.L. W.O. No.: 681
Petrographer: D. Glasheen

Date: February 7, 2002
Purpose: Classification/Characterization
Location: Corbett Quarry
Corbett, Oregon

PETROGRAPHIC EXAMINATION OF ROCKS

Background

McLucas and Associates, Inc collected samples of rocks from a site in Howard Canyon southeast of Corbett, Oregon as part of a possible county permit extension request. Mrs. Glennnda McLucas, R.P.G., requested the samples be classified based on mineralogy and texture (Tables 1 & 2). In addition, Mrs. McLucas also requested the rocks be characterized with respect to certain petrographical features affecting standard engineering tests (Table 3).

We understand that the pieces identified as "West 1000 feet" were collected from float (loose surface material) and the sample identified as "East 1000 feet" is shotrock. ODOT Materials Laboratory test results (summary in Table 4), sample photographs, and a copy of the Colorado School of Mines Classification System for igneous rocks are included in the Appendix.

Petrographic Methods

The rock samples were prepared and examined in general accordance with ASTM C295 (Standard Guide for Petrographic Examination of Aggregates for Concrete – Section 11 Ledge Rock). Longitudinal slabs were sawn and studied using a 10X hand-lens and stereo-zoom microscope (16-80X) to note overall rock fabric, weathering, and generally mineralogy. Thin-sections were prepared from representative parts of the slabs and used to perform point-counts and confirm mineralogy with a polarizing microscope at 100 magnification. Volume percentage of minerals obtained through point-counts (300 points) and rock texture were used to classify the samples following the Colorado School of Mines System (Appendix).

Summary of Rock Classification

Table No. 1

Location and Sample Type	Classification
#1 West 1000 feet (float)	Light-gray, fine-grained, pilotaxitic, olivine basalt porphyry
#2 West 1000 feet (float)	Gray, fine-grained, pilo-diktytaxitic olivine basalt porphyry
#1 East 1000 feet (shotrock)	Gray, fine-grained, diktytaxitic olivine basalt porphyry
#2 East 1000 feet (shotrock)	Light-gray, fine-grained, diktytaxitic olivine basalt porphyry

Description of Rocks Examined

West 1000 feet Samples

The two float pieces examined are light-gray to gray, fine-grained, olivine basalt porphyries with textures ranging from pilotaxitic to diktytaxitic. Phenocrysts consist of partially iddingsitized olivine typically ranging from 0.3mm to 0.5mm in length with a few reaching 1mm in dimension. The groundmass is predominantly plagioclase feldspar microlites ranging in composition from bytownite to labradorite. Intergranular pyroxene and iron ore grains are randomly distributed throughout the groundmass. Phenocrysts are generally euhedral and plagioclase microlites range from euhedral to subhedral.

East 1000 Feet Samples

The two shotrock pieces analyzed are light-gray to gray, fine-grained, olivine basalt porphyries with dominantly diktytaxitic texture. Phenocrysts consist of partially iddingsitized olivine typically 0.2mm to 0.3mm in length with a few reaching 0.5mm in dimension. The groundmass is predominantly plagioclase feldspar microlites ranging in composition from bytownite to labradorite. Pyroxene and iron ore grains are randomly distributed throughout the groundmass. Phenocrysts are generally euhedral and laths of plagioclase range from euhedral to subhedral.

Petrographic Comparison of Samples

All the samples are relatively similar in mineralogy, texture, and observed physical properties. Olivine phenocrysts in the West 1000 feet rock may be slightly more weathered overall than in the East 1000 feet rock. This difference in degree of weathering may be due to the type of available sample: float rock versus shotrock. The East 1000 feet rock generally shows more of an open-grained texture (diktytaxitic) than the westerly samples.

Petrographic Observations and ODOT Test Results

Scratch testing using minerals from Mohs Scale showed relative hardness (4½-5) to be similar in all the rock samples. This appears to correlate well with the narrow range of LAR and OAD test results (Table 4). A diktytaxitic texture of plagioclase microlites around irregular-shaped gas voids looks like a microscopic "log jam" (Fig. 8). Abrasion, impact, and grinding during testing might "collapse" some of the "bridged" crystals into the gas voids producing overall smaller pieces without true attrition. It should be noted that fresh plagioclase feldspar and olivine have a hardness of 6-6½ and 6½-7, respectively (Mohs Scale).

The sodium sulfate test attempts to simulate freeze/thaw action. High losses in the fine aggregate size might be due in part to the relatively abundant microscopic voids (diktytaxitic texture) that could hasten ingress of fluids. Capillary testing showed some areas within the rocks to be highly absorptive of water drops and most fresh surfaces to be at least moderately absorptive. In addition, slight to moderately weathered crystals in these rocks provide less resistance to tensile stresses than rocks containing fresh crystals.

DOMINION LABS
PETROGRAPHY FOR CONCRETE PRODUCTS & EARTH MATERIALS

Table No. 2 – Rock Classification (after Colorado School of Mines)

Rock Name (Location)	Primary Minerals			Secondary Minerals	
	Essential Minerals (%)	Characterizing (%)	Minor (%)	Altered Primary &	
				Post-solidification Minerals (%)	Glass & Voids (%)
Light Gray Olivine Basalt (#1 West 1000 ft)	Plagioclase (calcic) = 55 Plagioclase (sodic) = 4 Potash Feldspar = 2 Feldspathoids = tr Quartz = tr	Olivine = 15 Pyroxene = 5	Iron Ore = 3	Uralite = 1 Sericite = 1 Iddingsite = 4 Clay = 1	Glass = 0 Voids = 9
Light Gray Olivine Basalt (#2 West 1000 ft)	Plagioclase (calcic) = 57 Plagioclase (sodic) = 4 Potash Feldspar = 1 Feldspathoids = tr Quartz = tr	Olivine = 13 Pyroxene = 6	Iron Ore = 4	Uralite = tr Sericite = 1 Iddingsite = 5 Clay = 1	Glass = tr Voids = 8
Light Gray Olivine Basalt (#1 East 1000 ft)	Plagioclase (calcic) = 58 Plagioclase (sodic) = 3 Potash Feldspar = 1 Feldspathoids = tr Quartz = tr	Olivine = 14 Pyroxene = 4	Iron Ore = 5	Uralite = tr Sericite = 1 Iddingsite = 3 Clay = 1	Glass = 0 Voids = 10
Light Gray Olivine Basalt (#2 East 1000 ft)	Plagioclase (calcic) = 62 Plagioclase (sodic) = 4 Potash Feldspar = 1 Feldspathoids = 1 Quartz = 0	Olivine = 10 Pyroxene = 4	Iron Ore = 4	Uralite = tr Sericite = tr Iddingsite = 2 Clay = tr	Glass = tr Voids = 12

DOMINION LABS
PETROGRAPHY FOR CONCRETE PRODUCTS & EARTH MATERIALS

Table No. 3 – Petrographic Characterization of Rocks

Sampling Location	Rock Name	Scratch Hardness	Relative Hardness	Capillarity (water drop)	Texture ¹	Shape ²	Secondary Minerals ³	Micro-cracks ⁴	Grain Size	Porosity/Packing
#1 West 1000 ft	Olivine Basalt	4½ -5 (Mohs)	R2-R3 (ODOT)	Rapid absorption	Rough	Angular	7%	Trace	Fine grained Small phenocrysts	Mostly Pilotaxitic
#2 West 1000 ft	Olivine Basalt	5 (Mohs)	R3 (ODOT)	Rapid-Mod. absorption	Rough	Angular	7%	Trace	Fine grained Small phenocrysts	Mixed Pilo-Diktytaxitic
#1 East 1000 ft	Olivine Basalt	5 (Mohs)	R3 (ODOT)	Moderate absorption	Rough	Angular	5%	Trace	Fine grained Small phenocrysts	Diktytaxitic
#2 East 1000 ft	Olivine Basalt	4½ -5 (Mohs)	R2-R3 (ODOT)	Moderate absorption	Rough	Angular	2%	Trace	Fine grained Small phenocrysts	Diktytaxitic

1-Texture refers to smoothness of a freshly broken surface. 2-Shape of a freshly broken piece. 3-Secondary Minerals include altered primary minerals and natural glass content. 4-Includes microcracks and joints. Some cracks may be due to hammer impact or blasting.

Table No. 4 – Summary of ODOT Soundness and Durability Testing

Sampling Location	Sample Size	Degradation ¹ by abrasion, impact, grinding (LAR-TM 211)	Degradation ² by abrasion (OAD-TM208a)	Porosity (Absorption-TM 203)	Soundness ³ by simulation of freeze/thaw action (Na ₂ SO ₄ -TM 206)
West 1000 ft	Quarry Chunk	30.2%	21.9% Ht = 15mm Coarse	3.11% Coarse	4.0% CA 17.0% FA
East 1000 ft	Quarry Chunk	30.4%	19.4% Ht = 12mm Coarse	2.68% Coarse	3.0% CA 9.0% FA

1-LAR maximum loss is 30.0%. 2-OAD maximum loss is 30.0% and maximum sediment height is 75mm. 3-Soundness maximum loss for CA is 12% and FA is 10%.

The above observations specifically apply to the samples as received for examination and analysis. This report may be copied only in its entirety without prior written approval from this office.

May 07 02 03:06p

Mult. Co. Land Use Plan

503-988-3389

p.2

01/26/01 FRI 15:08 FAX 503 452 1528

CORNFORTH CONSULTANTS

0002



11250 S.W. Greenwood Road, Suite 111
Portland, Oregon 97223
Phone 503/452-1200 Fax 503/452-1528

01 JAN 29 PM 2:31

CLATSOP COUNTY
PLANNING SECTION

Interstate Rock Products, Inc.
10019 NE 72nd Avenue
Vancouver, WA 98686

1339

January 25, 2001

Attn: Mr. Jerry Cates

Howard Canyon Quarry
Geologic Hazard Assessment
Corbett, Oregon

Dear Mr. Cates:

Following the request of Mike Pauletto, we have completed a geologic hazard assessment for the Howard Canyon Quarry. This letter-report is a summary of our assessment.

Background

The site is currently being operated as a quarry that produces decorative rock and building stone. The site is located on a broad ridge approximately three miles southeast of Corbett, Oregon. We understand that Interstate Rock Products, Inc., is considering expansion of the quarry operation.

Prior to the site visit, published topographic and geologic maps and available reports were reviewed for information on the project area. The available reports and maps included the following:

- Final Reclamation Map for Interstate Rock Corbett Quarry (Olson Engineering, sheets 1 through 5)
- Geologic Reconnaissance, Howard Canyon Quarry (H.G. Schlicker & Associates, January 9, 1989, letter to Raymond Smith)
- USGS Washougal, WA-OR and Bridal Veil, OR-WA 7.5 min. Quadrangle Maps
- Geologic and Engineering Slope-Hazard Studies, Unincorporated Multnomah County, Oregon (Shannon and Wilson, 1978)
- Landslide Locations and Zones of High Landslide Potential in the Portland

Appendix 5

1339

Site Visit

An engineering geologist from our firm performed a brief site visit on January 24, 2001, accompanied by Mr. Michael Cates. The haul roads located on the north and south sides of the project site were traversed and the quarry operations area was observed. The top of the ridge, excluding the quarry operation area, is nearly flat with gentle rolling topography that is currently being utilized as pasture. The flanks of the ridge consist of steep slopes (approximately 25° to 45°) covered with deciduous trees, scattered fir trees and moderate to heavy undergrowth. Less steeply sloping benches are located approximately half way down the south side of the ridge. The two haul roads appear to have been constructed using cut and cast methods.

Geologic Conditions

The top of the ridge is capped by basalt rock from the Boring Lava Formation. This is the material that is being mined. A relatively thin layer of sandy silt with trace clay soil, or loess, overlies the Boring Lava. At the base of the Boring Lava is the Troutdale Formation. This unit consists of silty sand and gravelly sand. Clayey zones were observed in the upper portion of this unit. These clayey layers, similar to others found in the Troutdale Formation throughout the region, are susceptible to sliding. Where present, this material significantly reduces the strength and stability of the unit. The benched slopes, located between elevations 725 and 625 feet on the south side of the ridge, have a general appearance that, in our opinion, is due to ancient slope movement. These features are common throughout the surrounding area, which have similar slope steepness and subsurface geologic conditions. Also, a large landslide occurring in the same geologic material has previously been mapped about ½-mile to the east of the quarry on the north side of the ridge.

Geologic Hazards

No active slope movement was observed within the quarry or along the haul roads. Minor slumping was observed along the road running parallel to Howard Canyon Creek, south of the project site. Hummocky and irregular topography, observed at the project site, is indicative of ancient landslide activity. As stated above, these features are common throughout the surrounding area where slopes have similar steepness and subsurface geologic conditions.

Based on our reconnaissance, no slumping or sliding is anticipated in the quarry rock that is being mined. Fill, overburden and rock stockpiles should not be

1339

located on or near slopes that are steeper than 2H to 1V. We recommend that placement of these materials should be confined to the quarry rock floor as much as possible. When quarry operations are expanded, concentrated runoff is expected to increase. Increased concentration and quantity of water flowing onto the slopes below the quarry and natural drainage swales could cause erosion and possible saturation or undercutting of local slopes, and have a negative impact on local slope stability. Storm runoff retention ponds can locally increase groundwater levels, which would also have a negative impact on slope stability.


Conclusion

No active slope movement was observed within the Howard Canyon Quarry or along the haul roads. Suspect ancient landslide terrain that is associated with specific geologic conditions common throughout the region is present in the project area. Based on the occurrence of these geologic conditions, the development of stockpiles adjacent to steep slopes, and retention ponds and concentrated runoff on the slopes below the ridges basalt cap, should be evaluated for their impact on slope stability on a site-specific basis.

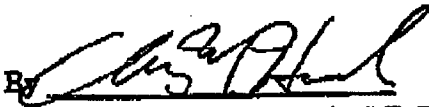
We trust this letter-report is sufficient for your requirements. Please call if you have any questions or concerns.

Sincerely,

LANDSLIDE TECHNOLOGY

By 
Brent A. Black, C.E.G.
Project Geologist



By 
Charles M. Hammond, C.E.G.
Senior Associate Geologist



Allen H. Throop

Geologist

Allen H. Throop
2340 NW Arthur Ave.
Corvallis, OR 97330

541 753-1804
e-mail: throopa@peak.org

Professional employment

1996 – Present Adjunct Professor – Linfield College – various geology related subjects
1999 – Present Consultant in mined land reclamation, storm water control and geology
Clients include: US Forest Service, Mid-Valley Gravel, S2F Corporation and the Oregon Department of Geology and Mineral Industries
1980 – 1999 Oregon Department of Geology and Mineral Industries (DOGAMI), Mined Land Reclamation Program – reclamationist and geologist
1995 – Present Linn Benton Community College – Benton Center – part-time instructor
1977 – 1979 Otisca Limited - manager of an experimental coal cleaning facility
1970 – 1976 Electrolytic Zinc Company of Australasia Ltd – exploration and mining geologist
1968 – 1970 Inspiration Consolidated Copper Company – mine and exploration geologist
1969 – 1970 Pinal Junior College, Miami, AZ – part-time instructor of geology

Education

1976 Diploma of Education – State College of Victoria at Hawthorn, Australia.
This was a one-year graduate level program similar to the MAT programs in this country.
1970 Master of Science in geology – Arizona State University, Tempe, AZ
1966 Bachelor of Arts in geology – Colby College, Waterville, ME

Professional qualifications

Registered geologist in Oregon

Relevant publications

1991 Should the Pits be Filled? *Geotimes*, v. 38, no.11, pgs. 20-22.
1989 Cyanide in Mining, *Oregon Geology*, v.1, no. 1, pg. 9-11
1981 The Rock Material Resources of Polk, Yamhill, Marion, and Linn counties, Oregon, Dept. of Geology and Mineral Industries, open files report O-81-7.
Numerous papers and talks to professional and non-professional groups on mining and reclamation.

During my years with DOGAMI, I helped write numerous revisions to the rules relating to mined land reclamation. My main assignment while with DOGAMI was implementation of those rules. One of my last assignments was overseeing DOGAMI's takeover of DEQ's storm water requirements at aggregate mine sites throughout Oregon.

Appendix C

Olson Engineering Mining Plans

1111 Broadway
Vancouver, WA 98660
FAX (360) 695-1385
PHONE (360) 695-1385

LETTER OF TRANSMITTAL

TO: Winterbrook Planning
310 SW Fourth Ave., Suite 1000
Portland, OR 97204

DATE 4/9/02 JOB NO.: 6521.00.01
RE: Interstate Rock Corbett Quarry

ATTN: Tom Armstrong

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items.

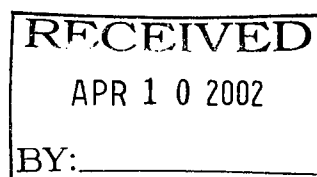
☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change Order ☒ federal express

COPIES	DATE	NO.	DESCRIPTION
1	4/9/02		Signed Eng plans, sheets 1-8
1	4/4/02		Rock Pit Alternatives

THESE ARE TRANSMITTED as checked below:

- ☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS: Attached are the plans you requested. Please do not hesitate to call with any questions.



COPY TO:

SIGNED Todd Johnson

Corbett Rock Pit Alternatives

		Extraction Per Year (cy)					
		0	5000	35000	50000	75000	200000
A. IMPACT AREA / TRANSPORTATION							
1. Overall Mine Impact Area	-	24AC	24AC	24AC	24AC	24AC	24AC
2. Total area impacted at any time	-	5AC	5AC	5AC	5AC	5AC	5-10AC
3. Total available cubic yards of rock	-	2M	2M	2M	2M	2M	2M
4. Decorative / Crushed Rock Split		80/20	60/40	40/60	30/70	0/100	
5. Total Extraction Period	-	400 Yrs	60 Yrs	40 yrs	30 yrs	10 yrs	
6. Amount of Rock to I-84	-	← Up to extr. Amount specified for total yrs. →					
7. Truck Route	-	none defined	Howard Canyon - Littlepage- Hurlburt- Columbia River Hwy I-84				
8. Av. No. Trucks/Day to Pit	-	2	14	20	30	80	
B. MINE PROCESS							
1. Blasting Per Year L=Low H=High Yield	-	1H	3L 1H	4L 1H	6L 3H	8L 5H	
2. Drilling	-	1 wk	4 wks	5 wks	8 wks	20wks	
3. Rock Splitting	-	50 days	75 days	75 days	75 days	-	
4. Rock Crushing	-	10 days	30 days	60 days	100 days	200 days	
5. Rock Loading	-	0.5 hr/day	2.2 hr/day	2.6 hr/day	3.2 hr/day	5.0 hr/day	
6. Rock Hauling	-	0.3 hr/day	0.8 hr/day	1.2 hr/day	1.5 hr/day	3 hr/day	
7. Hours of Operation	-	7am - 5pm	7am - 5pm	7am - 5pm	7am - 5pm	7am - 5pm	
C. IMPACT MITIGATION							
1. STORMWATER							
a) Buffers	-	No	Yes	Yes	Yes	Yes	
b) Sediment Control	-	Yes	Yes	Yes	Yes	Yes	
c) Truck Washdown	-	No	Yes	Yes	Yes	Yes	
d) Quantity Control	-	No	Yes	Yes	Yes	Yes	
e) Maintain Creek Flows	-	No	Yes	Yes	Yes	Yes	
f) E. C. Disturbed Area	-	Yes	Yes	Yes	Yes	Yes	
2. SOUND							
a) Berms	-	Natural Berms Provide all req. mitigation after "x" years					
b) Sound Walls	-	← Only needed for first "x" years →					
- period of "x" years	-	5	1	1	1	1	
3. TRAFFIC							
a) Maint. Fund (\$/cy. Extracted)	-	None	(35000 x)\$	(50000 x)\$	(75000 x)\$	(200000 x)\$	
D. WESTERLY 1000'							
1. Addtl area to be added to overall impact area	-	7.0 AC	7.0 AC	7.0 AC	7.0 AC	7.0 AC	
2. Total extra yds. Available	-	400,000	400,000	400,000	400,000	400,000	
3. Total extra years of extraction	-	80	12	8	6	2	
4. Extra sound mitigation	-	Minimal natural berms so sound walls would be needed					
5. Watershed impacts	-	Impacts to knieriem creek watershed - req. extra mitigation					
6. Access / Haul roads	-	Probably need haul/access roads external of pit					

Corbett Rock Pit Alternatives

Equipment:

Excavators - 42,000 - 74,000 Pound Machines / On the average a 48,000 - 54,000 Pound Machine will be used.

Loaders - 16,000 - 105,900 Pound Machines / On the average a 35,000 - 45,000 Pound Machine will be used.

Forklift - 6,000 - 15,000 Pound Machines / Average 6,000 -8,000 Pound Machine will be used.

Dozers - 40,000 - 100,000 Pound Machines / Average 100,000 Pound D8 will be used to clear out mine.

Blasting:

Under .25 (1.4 pound) pounds of powder will be used per yard.

A seismograph will be used.

The shot will not exceed 1.2 on the seismograph 100 foot away from the shot.

SCALE 1" = 40'

CLIENT:
INTERSTATE ROCK
PRODUCT, INC.
SECTION 1, T15, 64E, W. 1/4,
MULTNOMAH COUNTY, OREGON
P.O. BOX 3938
VANCOUVER, WA 98682

INTERSTATE ROCK CORBETT QUARRY

LAND SURVEYORS
OLSON ENGINEERS
ENGINEERING INC. 1117 BROADWAY, VANCOUVER, WA 98660

PHASE 1-4 STORM SYSTEM PLAN FOR:



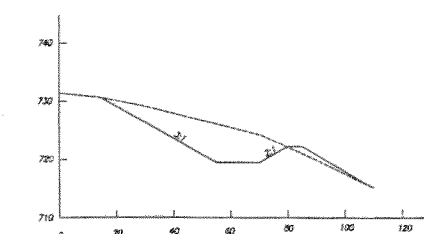
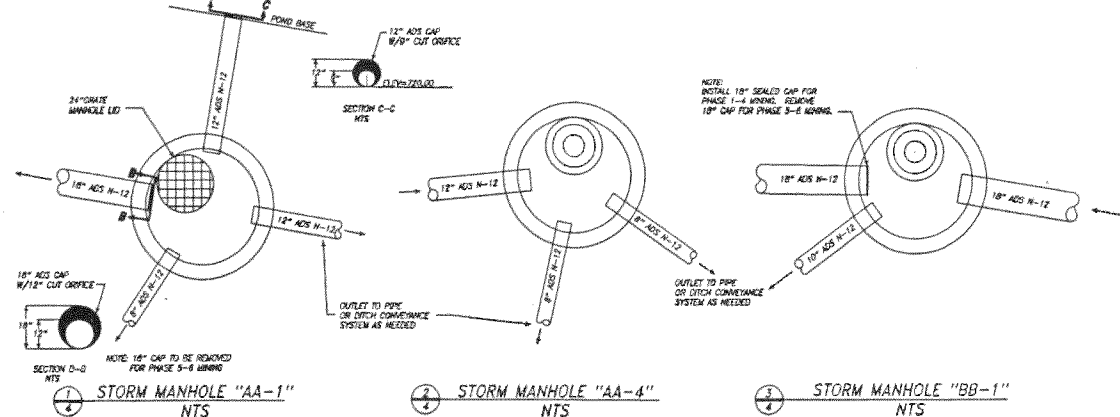
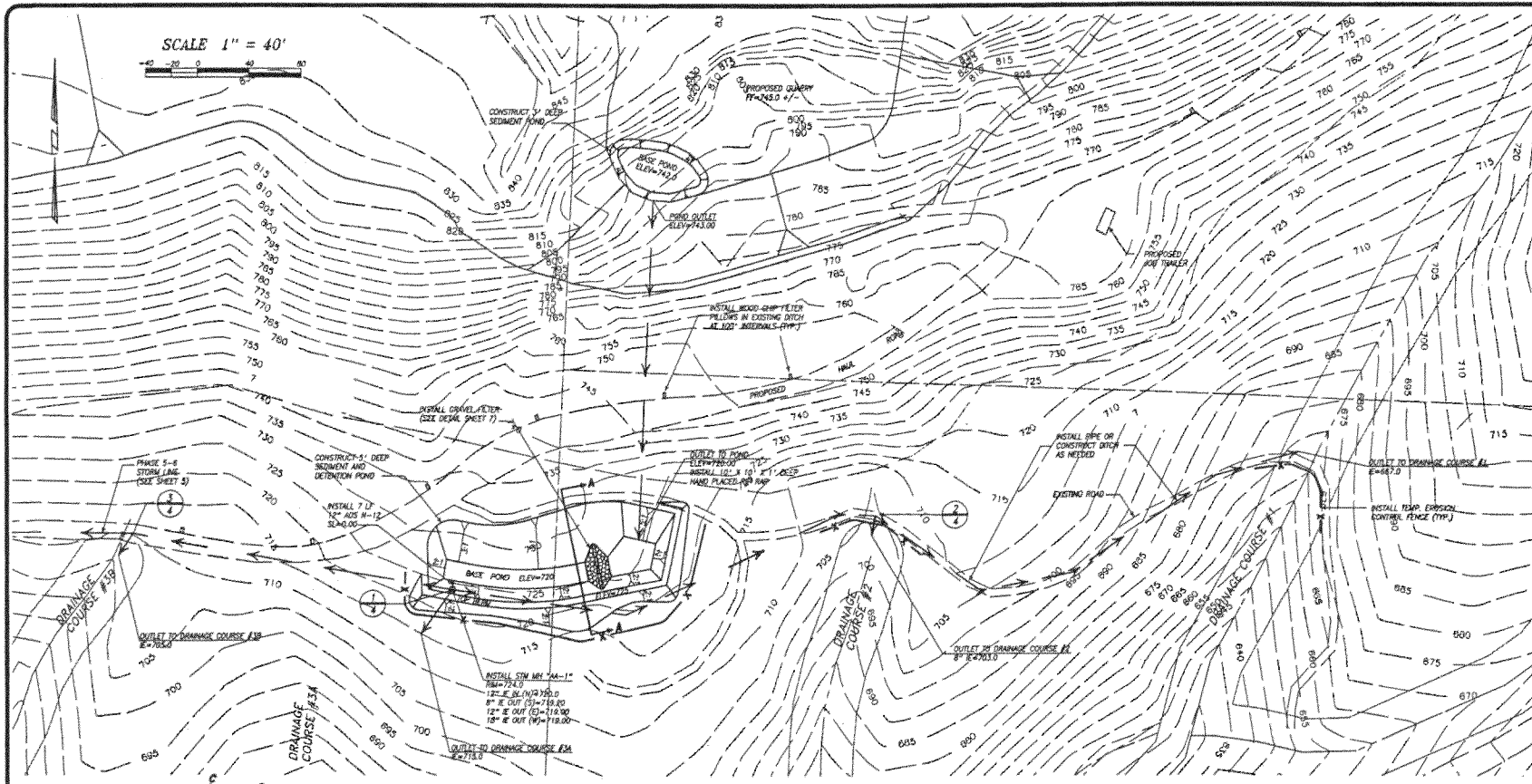
CHANGES / REVISIONS

NO.	DESCRIPTION	DATE

DESIGNED: MDC
DRAWN: GKF
CHECKED: PAT
DATE: FEBRUARY 2002
SCALE: 1" = 40'
COPING: 200L OLSON ENGINEERING, INC.
INTERSTATE ROCK CORBETT QUARRY
JOB NO. 0521-01-01

SHEET

4 of 8



SECTION A-A
SEDIMENT/DETENTION POND

SCALE: 1" = 20'
1" = 10'

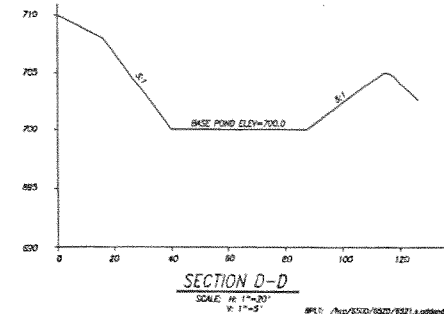
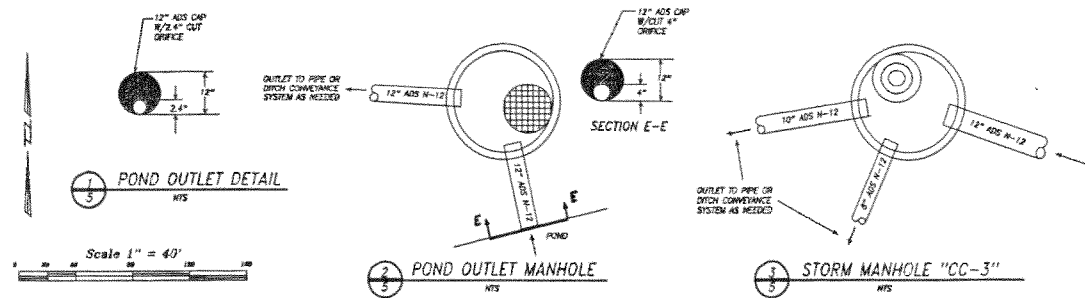
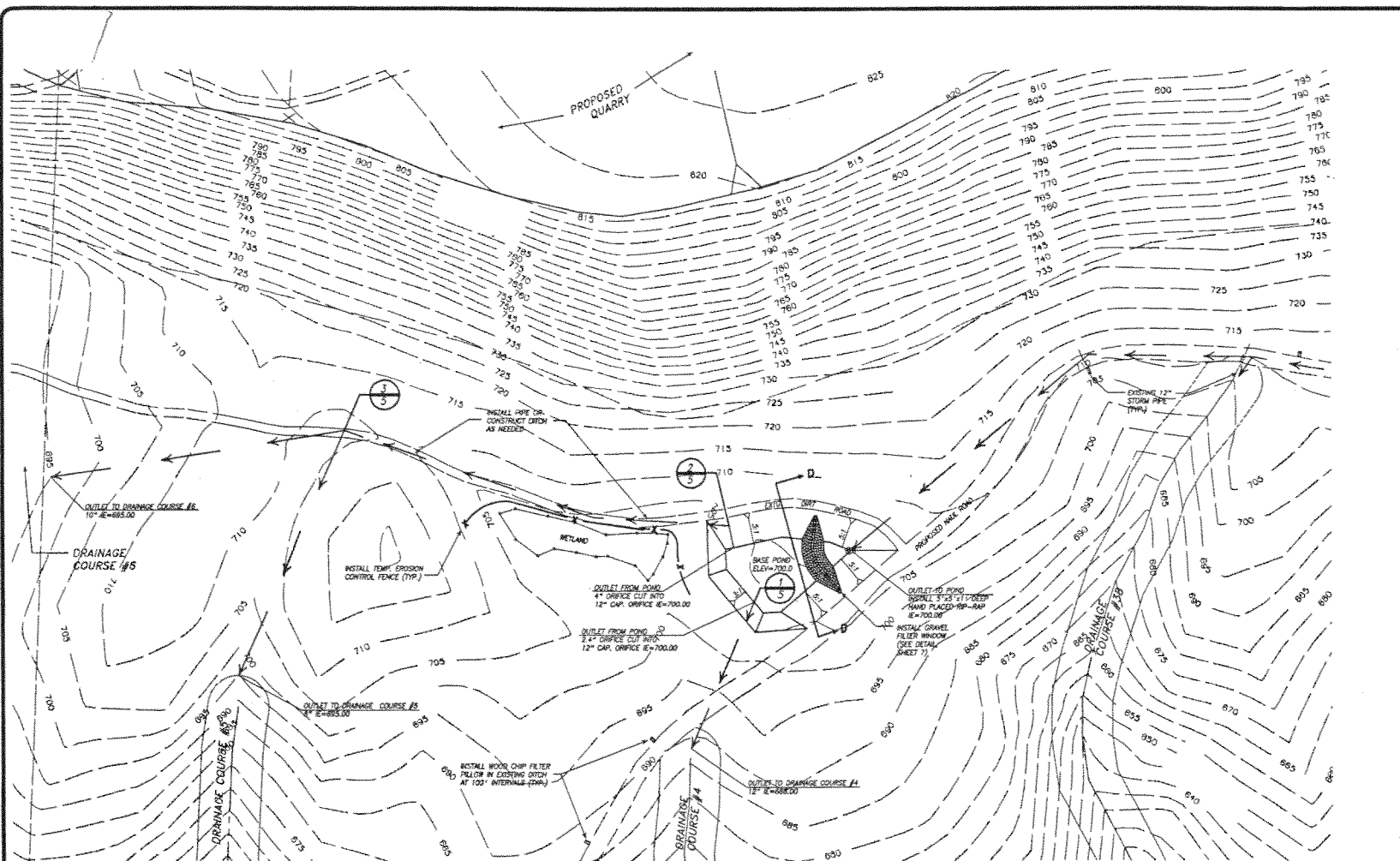
PHASE 5-6 STORM SYSTEM PLAN FOR:
INTERSTATE ROCK CORBETT QUARRY

OLSON LAND SURVEYORS
ENGINEERS
ENGINEERING INC.
1111 BROADWAY, VANCOUVER, WA 98660
360-443-1400
360-581-4400

[illegible]

SHEET

5 of 8





CHANGES / REVISIONS	
REVISION NUMBER	DATE

DESIGNED: MOC

DIAGNOSIS: GKS

CHECKED: PAT

DATE: FEBRUARY 2002

SCALE: H. 1" = 40'

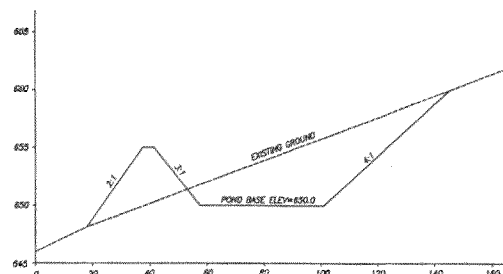
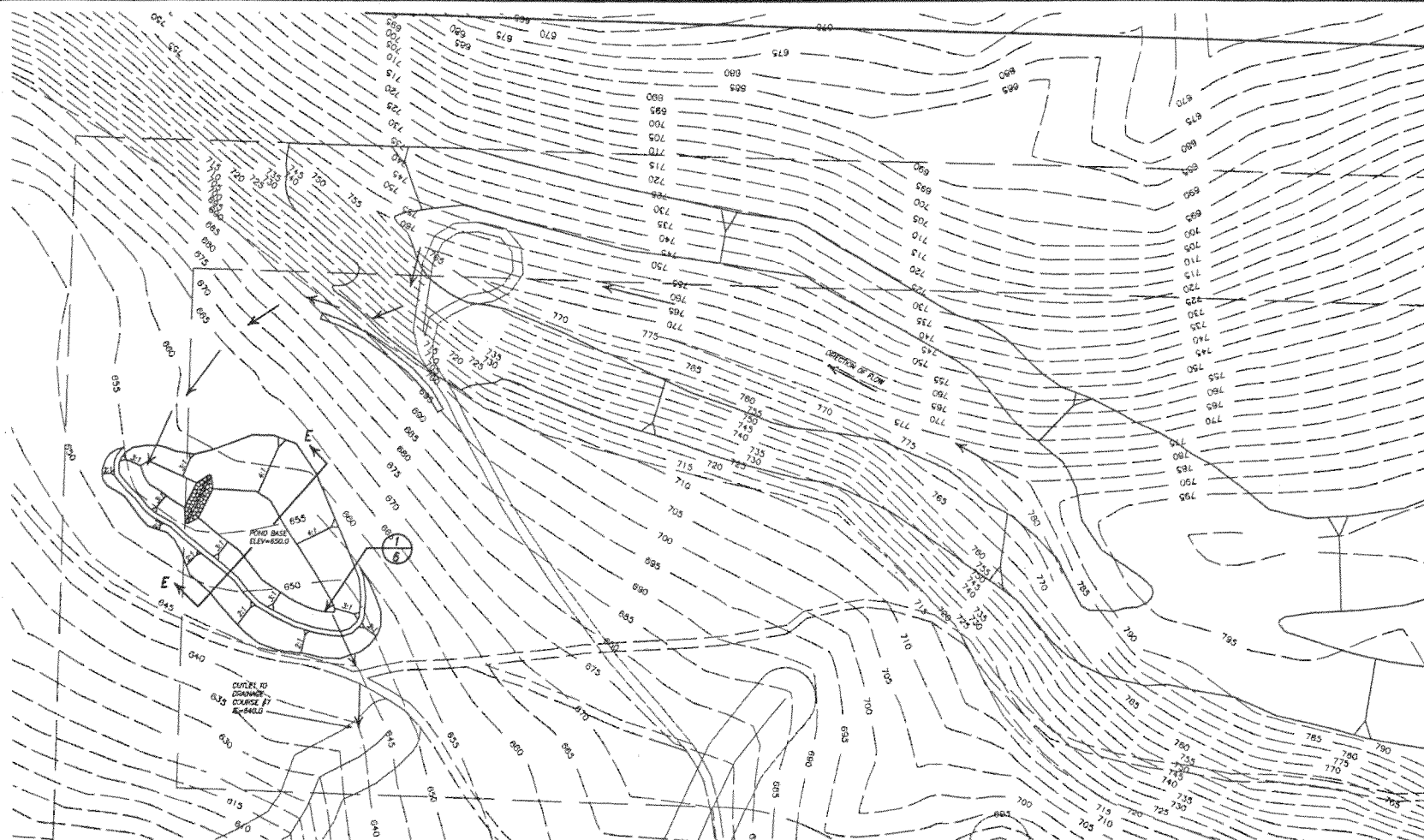
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INTERSTATE ROCK CORSETT QUARRY

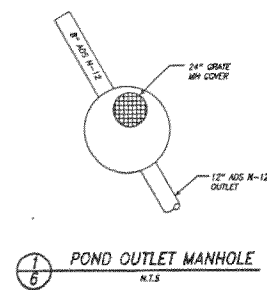
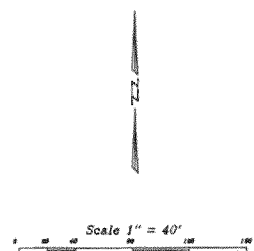
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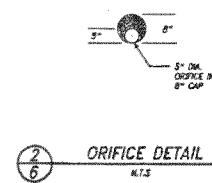
6 of 8



SECTION E - E
SCALE: H: 1"=20'
V: 1"=3'



① POND OUTLET MANHOLE
6 N.T.S.

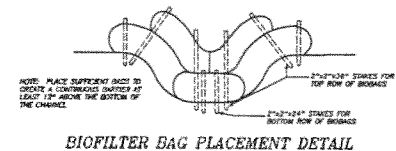
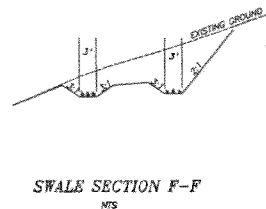
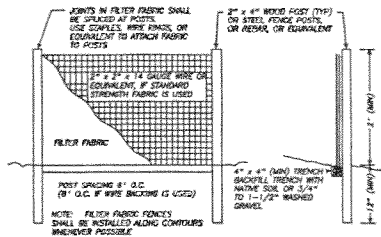
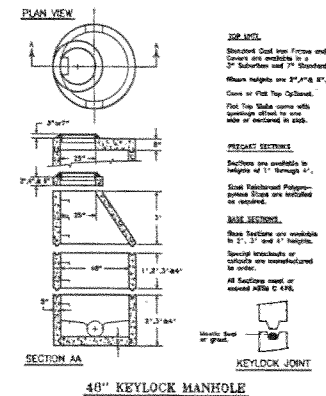
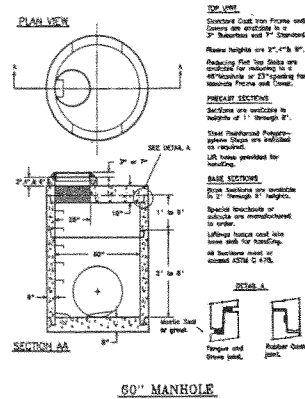
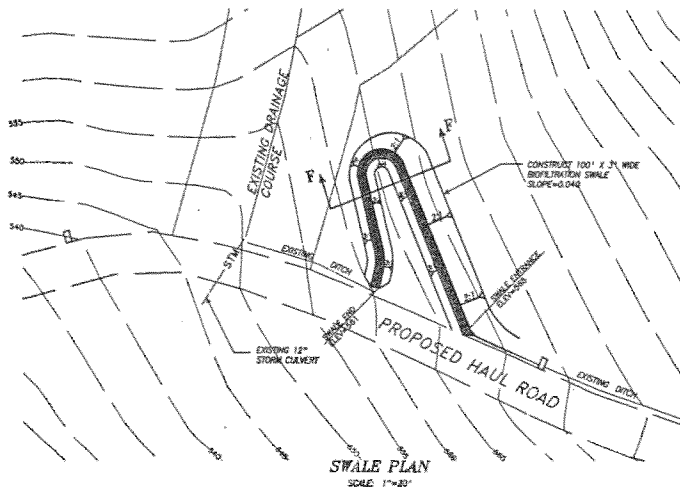
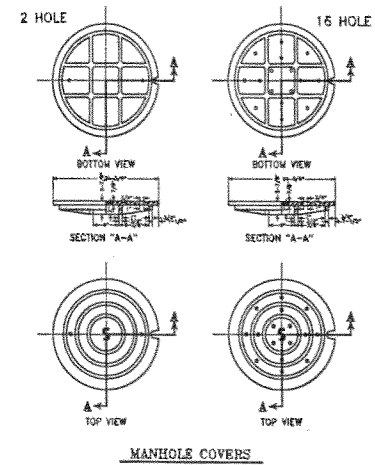
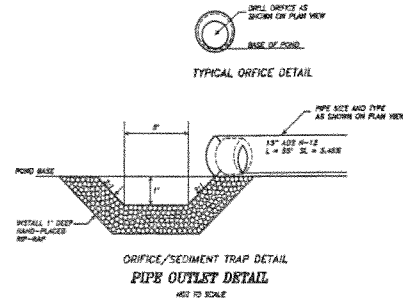
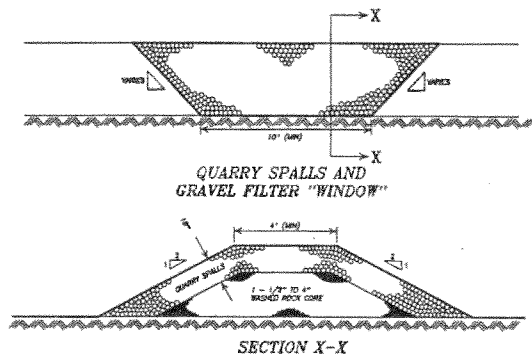


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ORIFICE DETAIL

6.7.3

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CLIENT:
INTERSTATE ROCK
PRODUCT, INC.
SECTION 1, T1S, R4E, W4M,
MULTNOMAH COUNTY, OREGON
P.O. BOX 3938
VANCOUVER, WA 98662

SHEET FOR:
INTERSTATE ROCK CORBETT QUARRY

LAND SURVEYORS
OLSON ENGINEERS
ENGINEERING INC. 1111 BROADWAY, VANCOUVER, WA 98660



CHANGES / REVISIONS	DATE
DESCRIPTION	
DESIGNED: MDC	
DRAWN: MDC	
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DATE: FEBRUARY 2002	
SCALE: 16' = 20'	
COPYRIGHT 2002, OLSON ENGINEERING, INC.	
INTERSTATE ROCK CORBETT QUARRY	
JOB NO. 8521.01.01	
SHEET	

8 of 8

WPD: / Proj: 8520/8521/8521.a and documents that it includes.

February 26, 2002

Mr. Timothy V. Ramis
Ramis Crew Corrigan & Bachrach, LLP
1727 N.W. Hoyt Street
Portland, OR 97209

WBSB

Re: Interstate Rock Corbett Quarry
OE #6521

Dear Mr. Ramis:

As requested, Olson Engineering Inc. (OEI) has prepared the following summaries:

1. Mining process and equipment used to extract rock from the Corbett Quarry.
2. Stormwater and erosion control methods used to protect the environment.

The following information was compiled through discussions with the mine operator, acoustic consultant, various site visits and internal calculations and design.

1. Mining Process and Equipment:

The mining process begins by loosening the raw product from the working face using explosives. The blast is intended to lightly loosen the raw material without damaging or spreading the rock. Once loosened, the rock is sorted by quality into three categories including split rock, wall rock, and decorative landscape boulders.

The split rock is loaded into a quarry truck and transported to an adjacent pad to be broken down by a manual splitting process. Splitting is accomplished by using a 30lb air drill to bore 7/8" holes in a row across the grain of the rock. Steel feathers and wedges are then pounded into the holes using 12 lb sledgehammers until the rock is split into a uniform block. This block is then "trimmed" using a smaller 3 lb hammer to remove any rough edges and create a final product.

Wall rock is processed to size using a hydraulic rock hammer mounted on the arm of an excavator. The wall rock is processed into high quality block wall rock (Louie Rock), standard wall rock, and class 100 riprap. Each product is then transported to its respective stockpile by a front-end loader.

After stockpiling, the material is loaded into dump trucks for transportation offsite. Approximately 1 truck per hour is loaded for transportation offsite, and 1 truck per

hour is loaded to move material within the pit boundary. This internal truck transportation is used when material is moved a reasonable distance, however, the majority of internal transportation is moved over a short distance and is accomplished using a dozer and/or a front end loader. Approximately 50% of the trucks are loaded with an excavator that sets delicate rock into the dump trucks. The remaining 50% of the trucks are loaded with a front-end loader.

The equipment used during the mining process includes: dozer, front-end loader, excavator, hydraulic rock hammer, jackhammers, portable crushing and screening plant, diesel generator set, pneumatic rock drill, and haul trucks. All equipment is typical of what would be used for general rock mining.

2. Stormwater and Erosion Control Methods:

As with all land disturbing activity, stormwater runoff and its potentially negative impact to the surrounding environment is paramount importance. As part of the plan to mine rock from this Quarry, OEI has studied each aspect of the stormwater runoff and designed a system to minimize the potential for erosion and overall negative environmental impact.

A. Quantity Control. Impacted areas within the mine will create a concentration and increase in runoff from the site. To mitigate for this, the runoff will be collected and routed to a stormwater detention pond(s), where the flows will be reduced to match the historic levels of the 25-year storm and significantly reduce flows in all other storm events. In addition, the discharges from the pond will be split, and the correct flows routed to the individual watercourses so as to maintain their historic flows. Therefore, there will be no increase in the potential impact to the environment by the mining operation due to storm flow.

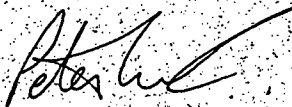
B. Erosion Control. A major concern with any land disturbance is the potential it causes for erosion. To reduce this potential, the following mitigation methods and practices have been included in the mining plan:

1. Sedimentation Ponds. All runoff from disturbed areas will be collected and routed to a system of sedimentation ponds. The system has been designed using a combination of ponds and gravel filters to remove any sediment picked up in the stormwater runoff and, therefore, discharge clean water to the streams.
2. Wash Down Areas. Vehicle traffic leaving construction sites is another area with a potential to introduce sediment to the environment. To mitigate this, a dry weather and wet weather wash down is proposed as part of the mining plan. This will consist of a rock exit constructed of 4" quarry spalls to dislodge any material on truck tires for dry weather and a shallow concrete drive-through basin to wash tires during wet weather.

3. Reduction in Disturbed Areas. One of the best and cheapest ways to reduce the potential for erosion is to minimize the total area impacted at any one time. Therefore as part of the mining plan, only 5 acres of area is proposed to be impacted at any time with previously impacted areas being reclaimed as the mining is completed.
4. Disturbed Area Stabilization. Overburden stockpiles and other non rock slopes have a greater potential for producing sediment-laden runoff, therefore, these areas will be stabilized with either geo-textiles mulch, plastic, or vegetation depending on the period of time they are likely to remain disturbed. In addition to stabilizing the ground, silt fence will be used where it is deemed necessary further reducing any erosion potential.
5. Buffers. All sensitive areas will be clearly delineated and protected by vegetated buffers and silt fence.
6. Dust. Dust will be controlled from leaving the site by chip-sealing the access road to the mining area. In addition, a water truck will be used on site during the summer to reduce the development of dust.
7. Existing & Proposed Slopes. As can be seen from the tops, the existing site has a large amount of steep slopes. Runoff from these areas have the potential for high velocities and erosion. However, with the development, the vertical drop will be within the project boundary and the storm and erosion control system located prior to discharge. This reduces velocities and the erosive potential. Therefore, the historic runoff is likely to have a considerably higher erosive potential than in the developed state.

We trust the above summaries meet your requirements. If you should have any questions or comments, please feel free to contact me at 695-1385.

Sincerely,



Peter A. Tuck, P.E.

Corbett Rock Pit Alternatives**OE Job #6521**

January 11, 2002

Descriptions

A2) Total area impacted at any time - *The working area of the operation will cover a 5-acre area. As the operation disturbs new area, completed mine area will be reclaimed resulting in approximately 5 acres of disturbed area at any time.*

A4) *The split given is based on the need for 20,000 CY of decorative rock per year. At 5,000 CY, it was assumed that 20% of the rock would be unsuitable for decorative rock and crushed for gravel. For 200,000 CY, only crushed rock will be processed as this is the base amount of removal to make a viable project. The 200,000 CY/YR alternative has been proposed as this is the base amount of crushed rock removal to make a viable project with no decorative rock.*

B1) Blasting - *Blasts per year based on approximately 10,000 CY of material per blast. For decorative rock, a low-yield blast is used resulting in larger fractured rock. Conversely for rock to be crushed, a high-yield blast is used resulting in smaller fractured rock.*

B2) Drilling - *On average, approximately one week of drilling is required per blast.*

B3) Rock Splitting - *Most rock splitting is done by hand, however, large rocks are split using a hydro hammer. This is only done when a sufficient quantity of large rock has been stockpiled. For the 5,000 CY/YR scenario, the small size of the operation creates an inefficiency of scale. Therefore, on the larger scale operations, the use of the hydro hammer only increases by about 50%.*

B4) Rock Crushing - *Crushing time will be related to area available to stock pile rock. This time will reduce as the available area increases. For this purpose, it assumes 2 acres available for crusher operation.*

On average, portable crushers have capacity to crush up to 1500 tons of rock per day. For this analysis, a crusher rate of 1200 tons/day was used. This equates to approximately 500 CY of in-place rock per day based on 2.4 tons per CY in-place rock. For 200,000 CY/YR, a crusher rate of 1000 CY of in-place rock per day is assumed.

B5) Rock Loading - Loading times for the different types of rock are as follows:

Decorative Rock - 10 to 25 minutes per truck

Crushed Rock- 5 minutes per truck

B6) Rock Hauling - Rock hauling from the working face to stockpile areas will be done using front end loaders and dozers. The distance between these 2 areas is small and, therefore, trucks will not generally be used.

C1a) Buffer - No impact areas adjacent to streams on site will be determined.

C1b) Sediment Control - Multi stage sediment pond system designed to remove all sediment from storm runoff.

C1c) Truck Washdown - Wash pond installed to enable truck wheels to be washed prior to leaving site. This would only be used during wet weather.

C1d) Quantity Control and C1e) Maintain Creek Flows - Detention pond designed to reduce runoff flows to historic rates. Release from pond routed to existing drainage ways split to match historic flows.

C1f) Erosion Control - Erosion control system designed using Best Management Practices (BMPs) to reduce potential of any erosion to acceptable level.

C2b) Sound Walls - Designed to reduce sound levels to below required limits.

C3a) Maintenance Fund - Propose a monetary donation for road maintenance based on a dollar amount per CY of rock removed.

D1-3) Extraction area determined by extending limit of rock based on bore locations from Schlicker report. Depth of rock assumed to be 70 feet. Area currently being evaluated by geologists. Extraction area and volume will be refined after report received from geologists.

D4) Extra Sound Mitigation - As the operation extends to the West, the natural berm diminishes until the use of sound walls in addition to the berm will be required to meet sound standards.

D5) Watershed Impacts - As the operation extends to the West, runoff will begin to be routed to Knieriem Creek. This runoff will be treated with same mitigation as the flow to Howard Creek.

D6) Access Haul Roads - *New haul road for westerly end would probably use existing onsite road to this area. Offsite haul route would stay same as for previous phases.*

These alternatives were developed over a short period of time. Due to the short time period available to prepare these documents, we were not able to perform extensive research and had to use existing information to develop some criteria contained in the alternatives. Further research may cause some revisions.

Tom Armstrong

From: Todd Johnson [todd@olsonengr.com]
Sent: Tuesday, April 16, 2002 5:15 PM
To: Tom Armstrong
Subject: Re: Howard Canyon mining methods

Tom:

1. Truck route - Just to clarify, the plan is to use Howard Road for ingress and egress, and not to use Knierem Road for access. Are you going to use the same route (Howard - Littlepage - Hurlburt - Columbia River Hwy) for ingress(empty trucks)? Or, will empty trucks use I-84 to Corbett Hill Road to Columbia River Hwy to Littlepage?

The proposed haul route will be used for ingress and egress. Knierem Road will not be used for access. The same route will be used for empty trucks.

2. Eastern portion of resource site - Are there any plans to mine tax lots 500 or 100 (east of the existing haul road)?

The current proposal includes portions of tax lots 100 and 500. The extent of mining is shown on the plans we sent. Mining is not proposed east of the existing haul road on tax lot 100. mining is proposed north of the existing haul road on tax lot 500.

I hope this helps. Please do not hesitate to call with any further questions.

Todd Johnson
 Olson Engineering Inc.

----- Original Message -----

From: Tom Armstrong
To: Todd Johnson
Cc: Kim Peoples ; Greg Winterowd ; Tim Ramis
Sent: Monday, April 15, 2002 10:24 AM
Subject: Howard Canyon mining methods

A couple of follow-up questions:

1. Truck route - Just to clarify, the plan is to use Howard Road for ingress and egress, and not to use Knierem Road for access. Are you going to use the same route (Howard - Littlepage - Hurlburt - Columbia River Hwy) for ingress(empty trucks)? Or, will empty trucks use I-84 to Corbett Hill Road to Columbia River Hwy to Littlepage?

2. Eastern portion of resource site - Are there any plans to mine tax lots 500 or 100 (east of the existing haul road)?

Tom Armstrong, AICP
 Senior Planner
 Winterbrook Planning
 310 SW Fourth Avenue, Suite 1000
 Portland, OR 97204
 (503) 827-4422, ext. 106
 (503) 827-4350 - fax

-----Original Message-----

7/9/02

From: Todd Johnson [mailto:todd@olsonengr.com]
Sent: Tuesday, April 09, 2002 3:30 PM
To: tom@winterbrookplanning.com
Subject: Re: Howard Canyon mining methods
Importance: High

Tom:

I am sending you copies of revised plans with the added information you requested. Also below is a summary of how the items have been addressed. Please feel free to call with any questions.

1. Please send me the electronic file of your original extraction alternatives table.

Attached is a current copy of the extraction alternatives table in Microsoft Excel format.

2. I have a copy of the site plans for the CUP applications. The aggregate resource area appears to extend east of the existing haul road. Under your alternatives, will you be extracting this area? If so, can you define the quarry area, specifically so we can identify loading and crushing areas and evaluate potential stormwater/stream impacts. Is this eastern area included in your volume estimates?

The existing haul road to the east is not proposed to be utilized as a haul road and will be removed as shown on the mining plans. All mining will be on the south side of the ridge. Stormwater in this area will be routed to the facility as is shown on the mining plans. No stream impacts are proposed for this area. This area was included in our volume estimates.

3. What are your assumptions regarding the westerly 1,000 feet (the narrow ridge) extending from the previously proposed quarry area? What will be the extraction methods?

The western 1000 feet will be mined as shown on the revised mining plans. Extraction methods will be similar to what is proposed for other portions of the quarry.

4. We need more specific information on the blasting. The previous table referred to high and low yield blasts. For the noise analysis, we need information on charge weights. Also, for the higher volumes, do you know how many blasts of each type? For example, under the 35,000cy per year alternative, you indicate 4 blasts. Are blasts 2 high and 2 low? Or, 3 and 1?

The attached Extraction Alternatives Table has been updated to address this question.

5. It would be helpful to have more specific information on the equipment, especially in terms of makes and models. Al Duble has taken actual measurements on the existing hammers and loaders. Without the specific information, we will have to use averages for the other equipment. Our intent is coming out of this process is to create performance standards or thresholds that will become approval criteria for the conditional use permit. So the more information we have, the more accurate we can be.

We have included this additional information on the Extraction Alternatives Table.

6. The stormwater methods still need more detail, especially in terms of operating and maintenance procedures. However, this information can wait until later in our process when we discuss mitigation measures.

This will be provided at a later date. If you could provide specific questions you would like to see addressed, it would aid us in providing this information.

Appendix D
Duble Noise Study

NOISE IMPACT STUDY
HOWARD CANYON QUARRY
MULTNOMAH COUNTY
OREGON

FOR
WINTER BROOK PLANNING
AND
MULTNOMAH COUNTY LAND USE
PLANNING DIVISION

JULY 16, 2002

By

Albert G. Duble, P.E. Inc.
Newberg, Oregon 97132

NOISE IMPACT STUDY

JULY 2002

HOWARD CANYON ROCK QUARRY **MULTNOMAH COUNTY, OREGON**

INTRODUCTION

In February and March, 2002, a study of the noise impacts of a proposed expansion of the Howard Canyon Rock Quarry, owned by Interstate Rock Products of Washougal, Washington, was completed. Ambient noise was measured at seven residential sites near the existing and proposed expansion areas. The noise of rock extraction and processing sources were also measured. Estimated future noise of these sources was calculated with the aid of a computer propagation program, and the results were compared to ambient noise and the State DEQ noise standard. Finally, noise impacts were described based on the DEQ standard, and on a livability standard based on increases of proposed quarry activities above ambient noise.

EXECUTIVE SUMMARY

Oregon Department of Environmental Quality (DEQ) noise standards (OAR 340, Division 35) are used as the baseline standards for this analysis. The stricter ambient degradation standard (ambient plus 10 dBA) is used because the Howard canyon Quarry does not have an operating permit so it could be considered a "new use" and Multnomah County has the flexibility under OAR 660, Division 16 to apply a stricter standard to address concerns raised by residents in the surrounding area.

Ambient noise levels were measured at seven residential sites surrounding the proposed quarry. Noise sources from quarry activities were measured or estimated using file data. Future noise levels are predicted and four out of seven sites meet the DEQ L50 hourly standard without mitigation measures. Proposed mitigation measures are predicted to bring noise levels below the DEQ standard for all seven sites. Truck noise is predicted to meet the DEQ L10 hourly standard for five trucks per hour or 10 round trips. Blasting noise was estimated using the Kamperman method. Only one site is predicted to exceed the standard, but it is probable that berms, barriers or a reduction in charge weight will lower noise levels below the DEQ blast noise standard of 98 dBC slow meter response time.

The DEQ hourly standards may not adequately address long-term impacts of continuous quarry activities. There is no objective livability noise standard to evaluate the nuisance factor for the surrounding residents. However, restricting operating hours may alleviate some of the nuisance factor.

Noise impacts of the proposed quarry expansion meet the State DEQ standards at 4 out of 7 sites. It may be possible to meet the standards at the other 3 sites if some advanced noise controls are designed and used. Livability at residential sites around the quarry may be affected if increases above ambient noise cannot be.

AMBIENT NOISE MEASUREMENTS

Ambient noise was measured over the operating hours of the proposed quarry expansion project at the residential sites listed below, and shown by Figure 1 attached. Also attached are Figure 2, a general area map and Figure 3 with the proposed haul truck routes.

Site-1 Residence at 39203 Howard Canyon Road, located at the end the road, south east of and within sight of the existing rock extraction site at a distance of 750 feet. Overall L50 noise level here was 40 dBA. The lowest L50 hourly noise was 39 dBA.

Site-2 Residence at 38100 Howard Canyon Road, south of the road and the proposed extraction area at a distance of 1400 feet to the proposed future rock extraction boundary. This site has a running creek along the south side of Howard Canyon Road. The microphone was placed on the uphill side of the property, near the garage, as far away from the creek as possible to limit noise from the creek. Overall L50 noise level was 64 dBA. The lowest L50 hourly noise level was 62 dBA. This site has access to Howard Canyon Creek.

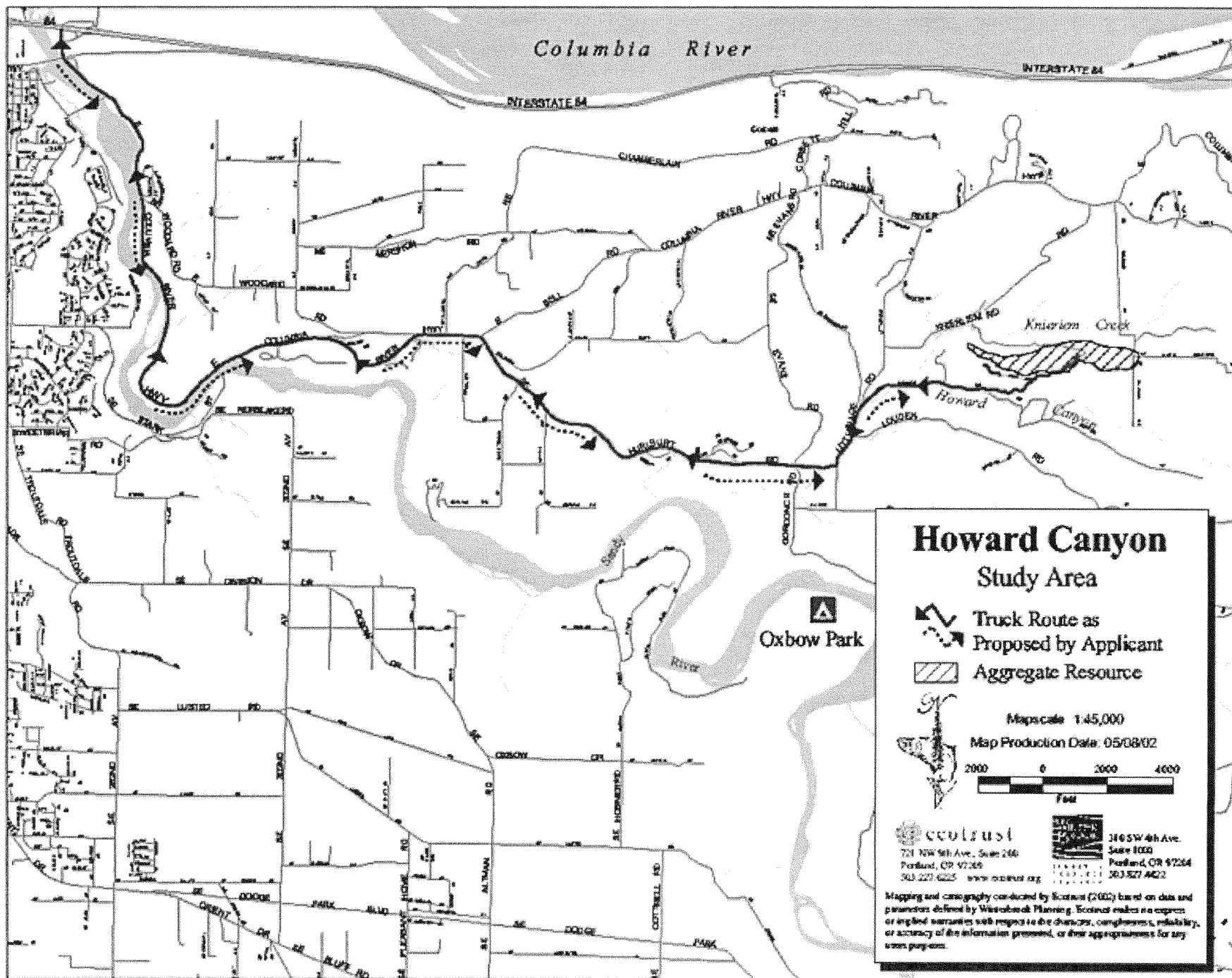
Site-3 Dawes residence at 37737 Howard Canyon Road, southwest of the proposed expansion area and below it at an approximate elevation of 500 feet, on the north side of the road. Overall L50 noise level at this site was 38 dBA and the lowest L50 was 37 dBA in the 2 PM hour.

Site-4 Residence at 38800 SE O'Regan Road, near the intersection of Loudon and O'Regan Roads, southwest of the existing extraction area and within 2750 feet of the proposed rock extraction area. This location has the highest elevation, slightly above the existing extraction area at 800 feet. The overall L50 noise level was 38 dBA and the lowest L50 noise was 36 dBA in the 1 PM hour.

Site-5 Kribbs residence, a manufactured home at 210 East Knieriem Road, approximately 125 feet west of the north side rock haul road, at the foot of the hill which rises steeply to the proposed mining expansion area above. Overall noise was 40 dBA here and the lowest L50 noise level was also 40 dBA in the 2 PM hour.

Site-6 Diebert residence at 201 N.E. Salzman Road, at approximately the same elevation as the existing rock processing area, and within line-of-sight of the north side rock haul road. Overall L50 noise level was 38 dBA and the lowest L50 was also 38 dBA in the 2 PM hour.

Site-7 The Anderson residence at 37935 Howard Canyon Road, near the Site 3 residence but higher at an approximate elevation of 520 feet. This site is located at the foot of the hill leading up to the west end of the proposed rock extraction and expansion area. Overall L50 noise level was 38 at this site



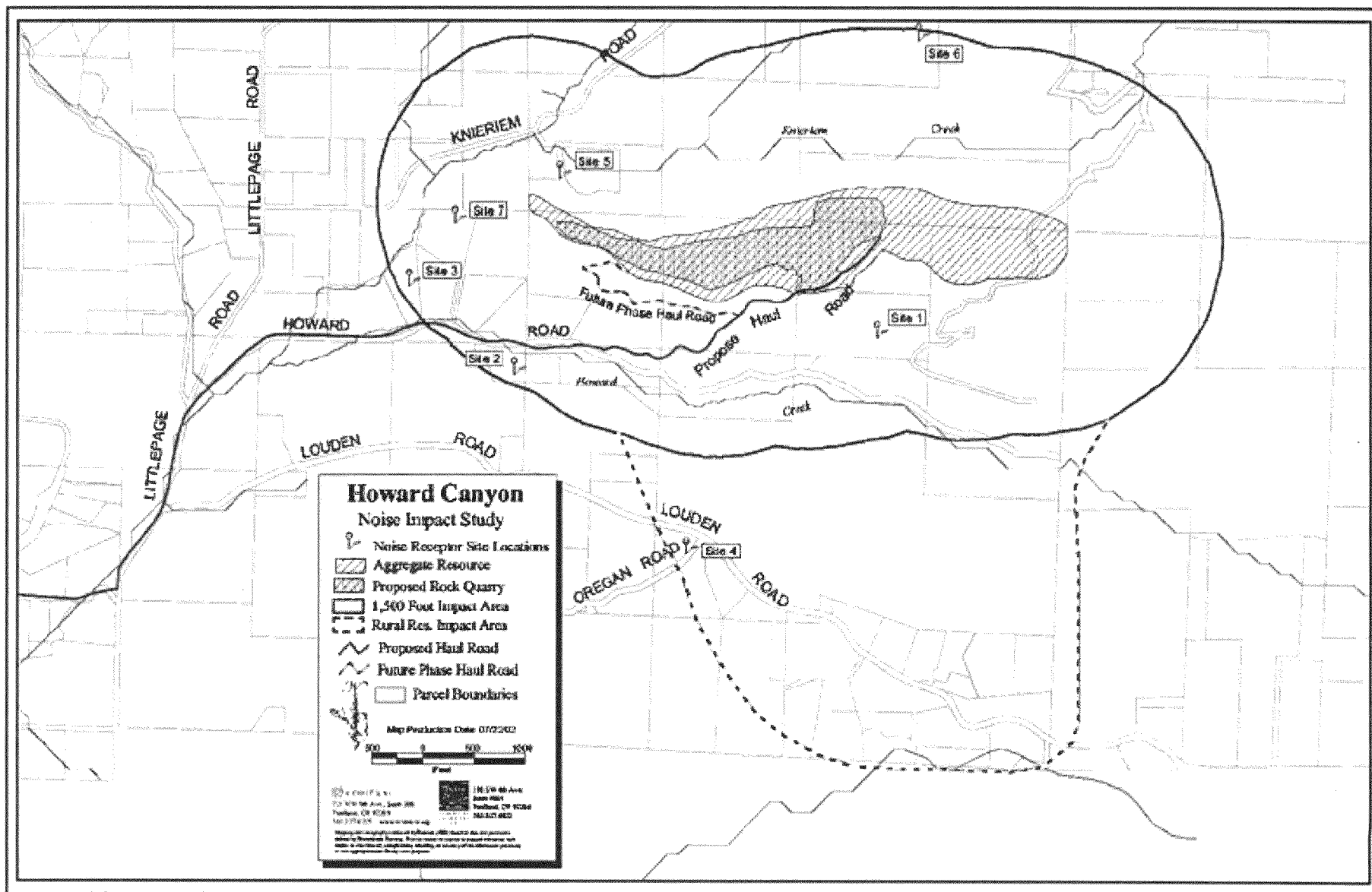


Table 1 below shows the A-weighted residential site noise levels for the quietest hours of the proposed quarry expansion operating daytime hours of 7 a.m. to 5 p.m. The State DEQ daytime L50 ambient degradation noise standard is shown for comparison. This represents the lowest hourly L50 plus 10 dBA for the proposed operating hours.

Table 1

SITE NO.	QUIETEST HOUR L50, dBA	STATE DEQ AMBIENT NOISE CRITERIA
1	39	49
2	62	62
3	37	47
4	37	47
5	40	50
6	38	48
7	38	48

Table 1 shows that all Sites except Site 2 are below the State DEQ L50, daytime 55 dBA noise standard. Noise at Site 2 was evidently influenced by the creek near the residence. Ambient noise at the other Sites was mainly due to distant traffic, aircraft, and bird and animal noise.

There are many domestic livestock animals in this area, but they are not a serious noise source. The Interstate Rock Howard Canyon Quarry production facilities were not operating during the ambient noise measurements.

On March 28, a small contractors dump truck was seen entering the upper quarry area about 11 a.m. and it is apparent some hand loading of rock took place. This intrusion was unknown to the Interstate Rock Products dispatcher who stated that the truck should not have been there. However, examination of the ambient noise data at Site 6, showed no unusual noise excursions in the L50 and L10 noise data between 11 a.m. and 1 p.m. The peak levels were high between 10 a.m. and 12 p.m., but these short-term signals do not affect the L50 data, and they could have been farm animals. The lowest level however was chosen, and this occurred in the 2 p.m. hour when other parameters were normal.

SOURCE NOISE LEVELS

Noise sources, both existing and future were measured at the existing extraction and processing areas at the Howard Canyon Quarry. The only sources that could not be measured were jaw crusher and blasting noise. These will be estimated using consultants file data and well-known references on blasting noise. Noise sources were as follows;

1. Extraction: Samsung Model MX292/LC front loader with a 2 yard bucket loading rock into a 10 yard dump truck; measured on-site March 2, 2002; (data sheet attached).
2. Extraction: The same front loader with a hydraulic hammer attached to the front of the machine. (Same March 2, 2002 measurements; data attached).
3. Processing: Hand-operated pneumatic hammers at both the Washugal and the Howard Canyon Quarry sites, breaking rock into smaller pieces. Same March 2, 2002 measurements – data used was the sum of both hammers - attached).
4. Jaw type rock crusher breaking large rock into 3 inch minus rock; this data is an octave-band average of five jaw crushers recorded between 1988 and 1997 in the State of Oregon. Sources and noise levels listed in attached appendix A-1.
5. Rock drill used to drill holes for blasting. This data was taken from site measurements by two professional acoustical engineers and was in octave-bands. Measurements taken Feb. 17, 1998. Source levels are listed in attached appendix).
6. Haul/Dump Truck – hand measured at two main sites in the State of Oregon over the last ten years, at Pacific Rock Products, Canby, OR., and Winco Food Products Warehouse, Salem, OR. Source levels listed in appendix.

Noise sources were measured using a precision Type 1 sound level meter driving a computer based octave-band analysis program. This was done to provide octave band frequency data which will be used to predict future noise levels at the residential sites listed above. Handheld noise data was also recorded using a Bruel & Kjaer Model 2231

Type 1 precision sound level meter. Statistical levels in dBA were also recorded for some sources using a Larson Davis-Labs Model 700 noise analyzer. The acoustic measurement system was calibrated using a Bruel & Kjaer Model 4230, 94 decibel, 1000 Hz field calibrator attached to the microphone of the sound level meters.

The computer generated data sheets are attached in the appendix, and the A-weighted data is listed below for each source at a distance of 50 feet;

<u>Source</u>	<u>Noise Level, dBA</u>
Front Loader & Truck	96 dBA at 50 Feet, L1
Mobile Hydraulic Hammer	89 dBA at 50 Feet, L10
Hand Hydraulic Hammers	86 dBA at 50 Feet
Jaw Crusher	87 dBA at 50 Feet
Rock Drill	91 dBA at 50 Feet
Haul/Dump Truck	82 dBA at 50 feet at 35 mph

Octave-band noise levels for all of the above sources except haul trucks were used to generate future equipment operating noise levels at all sites.

NOISE STANDARDS AND CRITERIA

The noise standard that applies to this project is the State Department of Environmental Quality noise standard OAR 340-35. Noise levels for this standard are listed below in Table 2. They are never to be exceeded.

Table 2

<u>DEQ Noise Standards, dBA</u>			
<u>Time</u>	<u>L1</u>	<u>L10</u>	<u>L50</u>
0700 to 2200 (Daytime)	75	60	55
2200 to 0700 (Nighttime)	60	55	50

Table 3 below compares the allowable daytime DEQ L10 and L50 noise standards, with the ambient-plus-10 dBA ambient degradation standards. Whenever the ambient-+-10 dBA level exceeds the maximum allowable L10 and L50 DEQ level, it must be dropped back to that level. The only exception is when the ambient noise is already above the DEQ daytime standard such as at Site 2.

Table 3
DEQ Daytime Noise Standards at Sites

Site	L10 Std	L10 Amb+10	L50 Std	L50 Amb+10
1	60	56	55	49
2	60	73(63)	55	72(62)
3	60	55	55	47
4	60	56	55	47
5	60	52	55	50
6	60	52	55	48
7	60	51	55	48

Note: Ambient noise at Site 2 is 63 L10 and 62 L50 noise level.

These are called the statistical noise levels, are related to time in that the number after the letter refers to percent of a standard measurement hour. The L1 refers to 1 percent of a standard measurement hour or 36 seconds; the L10 refers to 10 percent or 6 minutes of any measurement hour; and the L50 refers to 50 percent or 30 minutes of an hour.

The noise levels in the hour are cumulative in that they do not have to occur together. The standard is an hourly standard, and the ambient noise data attached is recorded in hourly increments. The L1 is heavily influenced by very short time events (impact sounds) such as car door slams or bird calls, and is therefore not used for normal environmental noise.

The L50 is the lowest level standard, and if it can be met, the L10 is also normally met. The L10 level would be influenced by low volume truck traffic on rural roads such as Howard Canyon Road. The L50 would be influenced by longer term noises such as processing noise at a rock quarry.

For this project and its expansion into an unused area for more rock production, another DEQ standard applies. This is called the "ambient degradation clause" of the standard. This clause states that the lowest hourly existing ambient noise cannot be exceeded by more than 10 dBA.

Thus, the ambient levels listed in Tables 1 above are increased by 10 dBA for future rock processing and extraction activities. This would include truck traffic on the haul roads out of the quarry area.

FUTURE NOISE LEVELS

Future processing and extraction noise levels were predicted using a popular computer sound propagation program called "Noisecalc" also known as the "New York Program" developed by the State of New York Department of the Environment. The program takes into account source octave-band levels, inverse square law spreading, atmospheric attenuation, distance between sources and receivers, and the elevation of each. Calibration of the program has shown that it is accurate within 2 dBA of actual noise levels.

The site map shown by Figure 1 (attached) shows the ambient noise measurement sites which are also the sites for future noise prediction. Table 4 below shows the noise sites with the distances to the closest future rock extraction and processing locations. It is assumed that rock extraction activities such as overburden removal, blasting and rock extraction will take place at a setback distance of 50 feet from the property line shown in yellow. Future rock processing activities such as crushing are assumed to take place where they do now, in the sheltered area at the top of the eastern section of activity. This area is protected by a rock wall 25 to 30 feet high around three sides of the area. The processing area does not however have this high barrier protection to the northeast. This will be discussed more under the "recommendations" section ahead in this report.

Processing in this area in the future would require that either long rock conveyors or haul trucks would be used to bring pit-run rock to the processing area.

Table 4
Processing and Extraction Distances

Site	Processing Distance	Future Extraction Distance
1	1025	1025
2	3625	1400
3	4600	1375
4	3550	2750
5	3100	400
6	2075	1565
7	4065	770

Truck Noise

Truck noise was calculated by hand using the dBA level because there are reliable octave-band levels for these heavy vehicles when moving at a speed of 35 mph, 50 feet from a residence. A simple equation shown below for each hourly truck volume was used;

$$DL = \frac{(60 \text{ minutes} \times (\text{Percentile}) \times S}{T \times C}$$

$T \times C$

Where DL = the distance to the moving truck where noise is just equal to the percentile (L10, L50 etc); percentile is in the decimal form of percent (L10 = 0.1); and T = hourly feet per minute. The DL distance is then related to the **reference truck noise level of 82 dBA at 35 mph at 50 feet** using the inverse square law of acoustics, or $dBA = 20 \text{ Log (base 10) } \times \text{ratio of the distances}$. * The DL distance is good for any site location as long as the site has a clear view of the truck in both directions and there are no unusual conditions such as a background noise higher than the truck statistical noise level.

According to the project traffic engineer, the maximum hourly truck volume that can be expected with the higher cubic yard rock production in a future year is 40 trucks per day or approximately 5 trucks per hour. This is the truck volume T used in the noise equation above. It can be assumed that truck noise level is approximately the same coming or going, or within 2 dBA, and the statistical nature of traffic noise tends to even out these differences. Calculated truck L10 noise level is 48 dBA for each site and is compared with the State DEQ L10 ambient degradation noise level for each site in Table 5 below;

The DL distance for the L10 level is 1848 feet, and the adjusted noise level is 51 dBA.

If trucks travel faster than 35 mph, or are closer than 50 feet from the roadway, noise will increase. The calculation assumes a level grade, and a rising grade will increase noise. If the distance decreases from 50 feet to 25 feet, noise would increase 6 dBA.

- Footnote: Calculated from Federal Highway Program Manual PPM 7-7-3, August 1982, Transmittal 348; $dBA = 24.6 \text{ Log Speed (km/hr)} + 38.5$. This formula was checked and found to be in close agreement with actual truck noise measurements made by this author.

Table 5
L10 Truck Noise vs DEQ Standard

Site	L10 Truck Noise dBA	DEQ L10 Standard dBA
1	51	56
2	51	63
3	51	55
4	51	56
5	51	52
6	51	52
7	51	51

The truck noise data in Table 5 above meets the State DEQ L10 noise standard for five trucks per hour or 10 round trips. The L10 noise standard at each site is the measured ambient L10 level plus 10 dBA. At Site 2, the standard is the actual measured L10 level because it is higher than the State DEQ standard daytime L10 of 60 dBA. If the truck volume decreases from 5 trucks per hour to 2 per hour, L10 truck noise would decrease to 43 dBA for a reduction of 8 dBA.

The use of Jacobs (Jake) engine brakes on trucks can lead to noise levels 20 dBA over normal transmission brake-down on down-hill runs. Using the new engine mufflers specifically designed for Jacobs brake operation can reduce this increase to 10 dBA. Down-hill runs with loaded trucks may therefore increase noise for short periods of time, usually less than 20 seconds, by 10 to 20 dBA at some sites nearest the haul roads.

Table 5 below shows predicted noise levels for the six sites for both processing and extraction noise. Noise data for a hydraulic rock drill was used to predict rock drill noise. This unit is quieter than pneumatic types. The L1 statistical noise level of 89 dBA was used for rock drill noise calculation as a worse case condition. (Since the rock drill runs for more than 30 minutes at a time, use of the L50 drill noise level of 87 dBA would result in a drill noise level 2 dBA less than that shown in Table 6 below). Even though excavation noise is almost as high as rock drill noise, drill noise could last from one to three days depending on the blast conditions. Therefore the rock drill becomes important as a semi-continuous noise source for which there are mitigation measures.

Table 6

Predicted L50 Noise Levels For Sources Compared to DEQ Standard

SITE	HAMMER NOISE	EXCAVATION NOISE	JAW CRUSHER	ROCK DRILL	TOTAL NOISE	DEQ AMB STANDARD
1	34	47	42	48	51	49
2	20	40	31	42	44	62
3	17	39	28	41	43	47
4	21	39	32	23	40	47
5	21	49	32	50	53	50
6	26	18	39	47	48	48
7	17	42	29	43	47	48

Total noise meets the State DEQ ambient degradation noise standard at all Sites except Sites 1 and 5. Noise at Site 6 equals the noise standard. Barriers were located 50 feet from the equipment which is a common measurement distance.

Because rock drill noise is relatively short term (two to 3 days twice a year, when compared to the daily rock processing, it is interesting to compare total noise without the rock drill. Table 7 below does this.

Table 7

Predicted L50 Noise Levels For Sources Compared to DEQ Standard

Without Rock Drill Noise

SITE	HAMMER NOISE	EXCAVATION NOISE	JAW CRUSHER	TOTAL NOISE	DEQ AMB STANDARD
1	34	47	42	48	49
2	20	40	31	41	62
3	17	39	28	39	47
4	21	39	32	40	47
5	21	49	32	49	50
6	26	18	39	39	48
7	17	42	29	42	48

Table 7 above shows that normal processing and excavation noise without the rock drill decreases noise by a considerable amount at all sites except Site 4 where noise does not change. At the other sites, noise decreases between 3 and 9 dBA which is a significant change. Total future noise in this case still meets the DEQ standard.

Equipment elevations used for noise calculations were 4 feet above grade for the hand-held pneumatic hammers, and 8 feet for the loader-mounted front excavator. The jaw crusher height was assumed to be 6 feet above grade. For excavation, the nearest point to a site 50 feet inside the yellow mining line shown on the map of Figure 2 was used. (The applicant proposes a 100 foot setback distance, but the 50 feet used in this report is conservative). It was also assumed that a D8 Caterpillar bulldozer with ripper attached would be used to remove overburden and push it up to build a berm 10 feet high all around the yellow mining line at the crest of the hill. This berm building operation is exempted from the State DEQ noise standard, and not calculations were done for this machine. It should however be fitted with a "residential" quality muffler, and its operation should be limited to the daytime hours between 7 a.m. and 5 p.m. (See section on Mitigation Measures).

For Sites 1, 5 and 6 where predicted future noise lies over or at the standard, it is probable that operating distances could be increased or that berm elevations could be increased enough to place the site into compliance with the controlling source. Other suggested controls are listed ahead in this report.

Excavator noise caused by the dumping of large rock into dump trucks is a difficult source to control because of the equipment height. This as measured with a noise analyzer to be 89 dBA at 50 feet. Other than those comments listed in item 8 under Noise Mitigation ahead, there are no feasible noise controls available in this writer's experience.

Blasting Noise Impacts

Blasting noise was estimated using George W. Kampermans' study of 1980 called "Human Response to Blasting Noise and Vibration" presented at InterNoise 80 in Miami, Florida in December 1980. This method is widely accepted by acoustical engineers as a very good noise predictor, and it can be used also for sonic booms, showing that it correlates well with the low frequency "boom" sounds of blasting. The method calculates the scaled distance which is the distance in feet to the receiver, divided by the square root of the average explosive charge weight per delay, or per hole. The charge weight per delay is the total charge weight divided by the number of holes. For blasting in rock quarries in Oregon, an average charge weight of 150 pounds per hole of ANFO fertilizer explosive is used for blast areas near residences. Using this charge weight and the distances between each site and the extraction area with a minimum 50 feet setback from the yellow mining line of Figure 2, the values of scaled distance were calculated and the noise level in dBC (decibels "C" weighting network") was read from Kampermans' graph. A copy of this graph is included in the appendix of this report. Table 8 below shows the data and the dBC noise level compared to the State DEQ blast noise standard;

Table 8
Blasting Estimates Per Kamperman

SITE NO.	DISTANCE FEET	SCALED DISTANCE	dBC	STATE DEQ BLAST STANDARD dBC
1	575	47	96	98
2	1400	114	83	98
3	1375	112	82	98
4	2750	224	71	98
5	450	37	99	98
6	1565	128	84	98
7	770	63	94	98

The dBC blast noise level is different (usually higher) than the environmental dBA levels described throughout this report, and cannot be compared or converted directly without knowing the frequency spectrum of each noise. This is why blast noise cannot be compared with "a"-weighted ambient noise directly.

Table 8 above shows that only one site (Site 5) lies over the State DEQ blast noise standard of 98 dBC. These estimates are for straight line-of-sight between the blast center and the receiver. It is probable that berms or barriers, or a reduction in charge weight might lower radiated blast noise levels. Increasing the number of holes while maintaining the total charge weight of explosive would also lower noise by decreasing the charge weight per hole. The U.S. Bureau of Mines has determined that a time delay between holes of approximately 17 milliseconds is ideal for most noise sensitive cases.

Livability Noise Criteria

There are no livability noise criteria in existence in our country today. It is this consultants belief that livability in relation to the noise environment should be tied to increases above ambient noise.

NOISE IMPACT CLASSIFICATION

Decibel Increase	Probable Impact
0	None
1 to 5	Minimal - Few Complaints
5 to 10	Moderate – Some Complaints
10 to 15	Major – Threats of Legal Action

Table 9 below compares the lowest L50 ambient noise during proposed quarry operating hours with the predicted levels of total noise. Truck noise is listed separately in Table 9 because it is an L10 noise level;

Table 9

Lowest Ambient Noise Compared to Total Quarry Noise

SITE NO.	QUIETEST HOUR L50, dBA	TOTAL QUARRY NOISE	INCREASE	NOISE IMPACT
1	39	51	12	MAJOR
2	62	44	0	NONE
3	37	43	6	MODERATE
4	37	40	3	MINIMAL
5	40	53	13	MAJOR
6	38	48	10	MODERATE
7	38	47	9	MODERATE

Table 9 above shows serious noise impacts at Sites 1 and 5, with moderate impacts at Sites 3, 6 and 7. These classifications are based on increases above existing ambient noise and not on the DEQ standards. The State DEQ determined, when they wrote their noise standard, that they would allow an increase of 10 dBA above ambient noise for properties to be developed that had not been used before for the particular land use. Some persons feel that the 10 dBA increase is too high, while others do not.

The DEQ staff at the time explained the allowable increase was to protect the environment adequately while not stifling development altogether. They believed that most people could tolerate an increase of 10 dBA, at least during daytime hours, as most noisy businesses do not operate at night. For those that do operate at night, it is necessary to get them to shut down long enough to measure the absolute background noise at the receiver locations.

It should be noted here that just because a noise meets the DEQ standard does not necessarily mean that a resident will not hear the noise. Audibility depends on background noise conditions, wind velocity and direction. Wind in the trees can tend to mask downwind sound reinforcement to lessen its effect. Examination of the statistical wind data from the NOAA at the Portland airport shows a mean annual wind speed and direction of about 8 mph from the southwest. The meteorological data for 2001 (data sheets attached) show that an easterly wind shows up in November through March, and shifts to the south-west for the months of April through October. The 2 minute data shows approximately the same wind directions at higher wind speeds.

It is probable that at some time, quarry activities and wind direction will coincide and cause some downwind sound reinforcement. However, this is highly variable, and noise standards cannot be written to include wind effects. They definitely can affect livability however.

The existing State DEQ hourly noise standard may not adequately predict resident's annoyance for continuous quarry production activities spread out over a ten-hour day. While there is no subjective-to-objective way to predict annoyance based on hourly L50 predicted noise levels, one can look at the hourly Leq levels. (The Leq is used by the FAA and USHUD to calculate the 24 hour Ldn or DNL level to regulate noise for airports and HUD sponsored living units. This unit however tends to smooth over the hourly variations frequently seen near these sites). The measured ambient lowest hourly L50 levels at the seven sites are lower than the hourly Leq energy average levels except at Site 2 where they are equal. However, adding 10 dBA to the lowest L50 levels per the DEQ ambient degradation standard brings the L50 levels above each hourly Leq. The writer believes that the hourly L50 level is the better method to compare predicted future noise with ambient noise as explained above.

NOISE MITIGATION METHODS

It is possible that modifications to normal quarry excavation and blasting conditions could serve to lower radiated noise. Table 6 above shows that the rock drill controls the noise environment at Sites 1, 5 and 6 when it is in use for a possible two to three days of drilling. (A hydraulic operated rock drill with an integral power supply was used for the noise source within 50 feet of the berm at the crest of the hill). Hydraulic rock drill data is included in the noise source section of the attached appendix. Recommendations for noise mitigation for this project are summarized below;

1. Require blasters and drillers to use hydraulic rock drills. Install a vinyl plastic 1-psf noise barrier, or a straw bale barrier around the rock drill when operating near Sites 1, 5 and 6. This barrier should be at least 2 feet higher than the top of the drill.
2. Require blasters to monitor noise at several sites during the first blast events. Make adjustments to blasting parameters such as total charge weight, number of holes and stemming as necessary to meet the DEQ blast noise standard or reduce annoyance. Advance notice of blast events should be publicized to the surrounding community.
3. Require applicant to maintain a 25 to 30 foot rock wall enclosing the processing area on three sides.
4. Require applicant to push up overburden to establish a 10 foot high berm at the crest of the hill at each new excavation location. (Machine noise due to building of berms is excluded from the DEQ noise standards). It should also be short term noise.
5. Require applicant to use conveyor belts to convey excavated rock to the present easterly processing area if the excavation process for crushed rock becomes continuous on a daily 8 to 10 hour basis. (instead of noisier haul trucks - noise reduction in the L10 could be 6 dBA quieter using conveyors). Conveyors will not be required for excavation of the larger decorative boulders used at this quarry. If conveyors are used, enclose conveyor elevation change-over transfer points with 20 gauge steel enclosure lined with 1" inch fiberglass panels.
6. Prohibit the use of engine "jake" brakes at any point on the haul roads except in the case of dire emergency to avoid accidents. If these brakes must be used due the extreme down grade of the haul road, require the installation of the special silencer called the "Donaldson Silent Partner" developed for "jake" brake noise reduction. See cut sheet attached. (Air Flow Systems Inc. of Milwaukie, OR., see item 9 below).

7. Require the applicant to hire a qualified registered acoustical engineer to conduct semi-annual noise measurements for the first year, at three of the closest sites after startup of the properly permitted quarry operation. After the first year, require annual measurements at the same three sites for a period of three years. The engineers' report should be presented to the Multnomah County Planning Department for approval.
8. There are no simple noise reduction techniques for the hand-held pneumatic hammers presently being used to break rock, or for the hydraulic hammer mounted at the front of the excavator. The 25 to 30 foot high rock walls around the processing area should serve to reduce hand-operated processing a significant amount, to the levels shown in Table 6. The hydraulic excavator bucket mounted at the front of the large excavator machine is more difficult to control. Berms and barriers can be effective however the required height may make them infeasible. If jaw crusher noise is annoying at Sites 1 and 6, it should be feasible to surround the crusher with 1-psf vinyl plastic panel barriers supported by a suitable steel framework. Such a barrier should extend at least 2 feet over the highest point of the crusher.
9. The Caterpillar dozer used for pushing up berms and removing overburden should be fitted with a "residential" quality exhaust muffler available from Air Flow Systems Inc. of Milwaukie, OR at 503-659-9120. This muffler should yield about 8 decibels more reduction for the low frequency exhaust component, and about 5 dBA noise reduction over the typical industrial grade muffler normally supplied with these diesel machines. These mufflers are relatively inexpensive.
10. To improve livability, operating hours should be limited to 8 a.m. to 5 p.m., with no operation between May and October on Saturdays or Sundays.

NOISE WITH ROCK DRILL MITIGATION

Total noise with use of a straw bale temporary noise barrier shows a minimum reduction of 10 dBA for the rock drill. The results of this reduction are shown below in Table 10;

Table 10

Predicted L50 Noise Levels For Sources Compared to DEQ Standard **With Hydraulic Rock Drill & Close Barrier**

SITE	HAMMER NOISE	EXCAVATION NOISE	JAW CRUSHER	ROCK DRILL	TOTAL NOISE	DEQ AMB STANDARD
1	34	47	42	38	48	49
2	20	40	31	32	41	62
3	17	39	28	31	40	47
4	21	39	32	13	40	47
5	21	49	32	40	49	50
6	26	18	39	37	41	48
7	17	42	29	33	43	48

Table 10 shows that total noise now meets the DEQ ambient noise standard at all Sites. Since no excess attenuation due to ground cover or forest land, where available was used in the future noise calculations, it is likely that total noise will be about 5 dBA less at some sites depending on the distance between the sources and receivers. Ground cover was not used in order to be conservative in noise estimates. Table 11 below shows total quarry noise with the quieter hydraulic rock drill compared to the quietest hour background during daylight operating hours for a new assessment of livability;

Table 11
Lowest Ambient Noise Compared to Total Quarry Noise
With Hydraulic Rock Drill

SITE NO.	QUIETEST HOUR L50, dBA	TOTAL QUARRY NOISE	INCREASE	NOISE IMPACT
1	39	48	9	MODERATE
2	62	41	0	NONE
3	37	40	3	MINIMAL
4	37	40	3	MINIMAL
5	40	49	9	MODERATE
6	38	41	3	MINIMAL
7	38	43	5	MINIMAL

The table above shows changes in the expected annoyance from Major to moderate at Sites 1 and 5; and to Minimal at Sites 3, 6 and 7, with no Major impacts at any Site. This is a major improvement and should help to limit annoyance.

Respectively Submitted April 8, 2002

Albert G. Duble

Albert G. Duble, P.E.
 Acoustical Engineer
 Mem. INCE



SPL Measurement Data

Subject: L₀₁ - Dump truck being loaded at Corbett Quarry - 1st dump

Project: 134011

Date Measured: Oct-25-2001

WAV File: 130011-1.WAV

Msmt.Distance: 50 ft to center of excavator/rock hammer head

Description: Dump truck being loaded with rock from side by front end loader at Corbett Quarry. Measured at 50 ft to side of line between loader and truck. This spectrum represents the first load when the truck is empty
Derived from measured WAV file and scaled to L₀₁ SPL

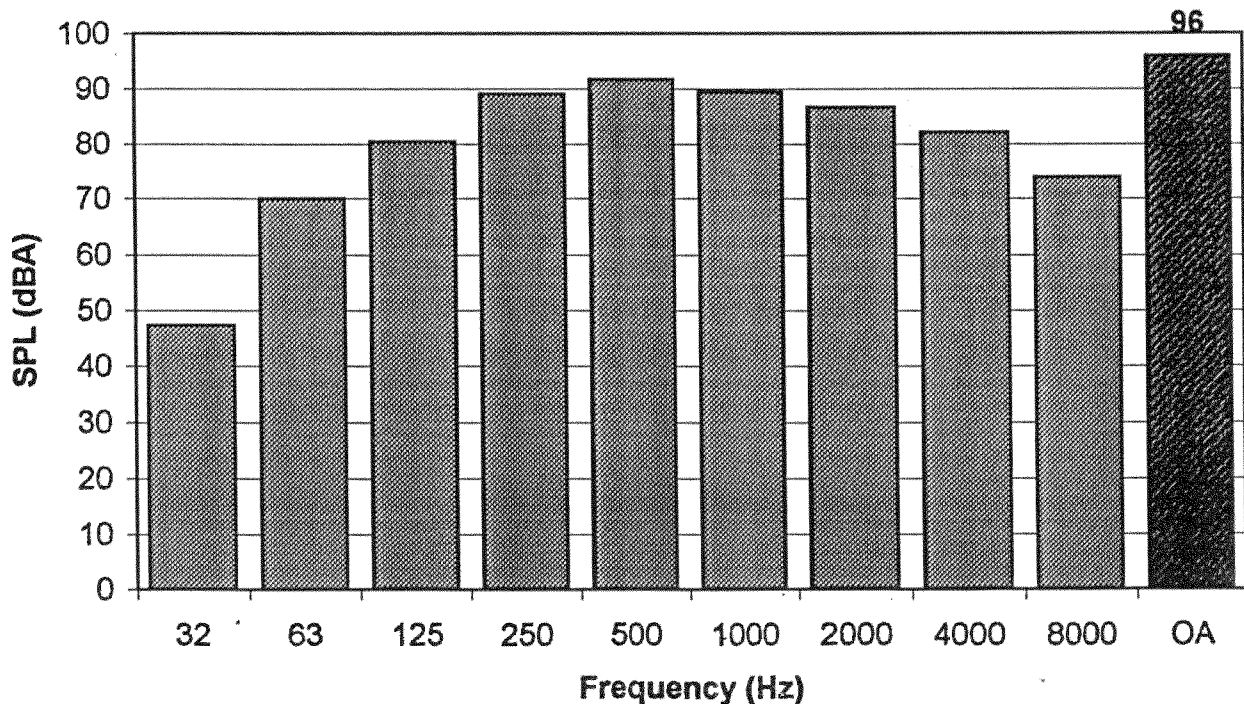
Averaging Type: Linear

Freq. Weighting: A

Octave Band SPL Data

Frequency (Hz)	32	63	125	250	500	1000	2000	4000	8000	OA
SPL @ 50 ft (dBA)	47.3	70.0	80.4	89.2	91.8	89.4	86.7	82.1	73.9	96.0
SPL @ 50 ft (dB-Lin)	86.7	96.2	96.5	97.8	95.0	89.4	85.5	81.1	75.0	102.9

SPL Spectrum at 50 ft



SPL Measurement Data

Subject: L₁₀ - Rock Breaker Rammer 10X on Samsung MX292 Tracked Excavator

Project: 134011

Date Measured: Oct-25-2001

WAV File: 130011-1.WAV

Msmt.Distance: 50 ft to center of excavator/rock hammer head

Description: Rock breaker head mounted on tracked excavator used to break rock at Corbett Quarry. Measured at 50 ft to side of line between excavator and head. This spectrum represents individual impacts (L₁₀ SPL)
Derived from spectra of individual impacts scaled to L₁₀ SPL

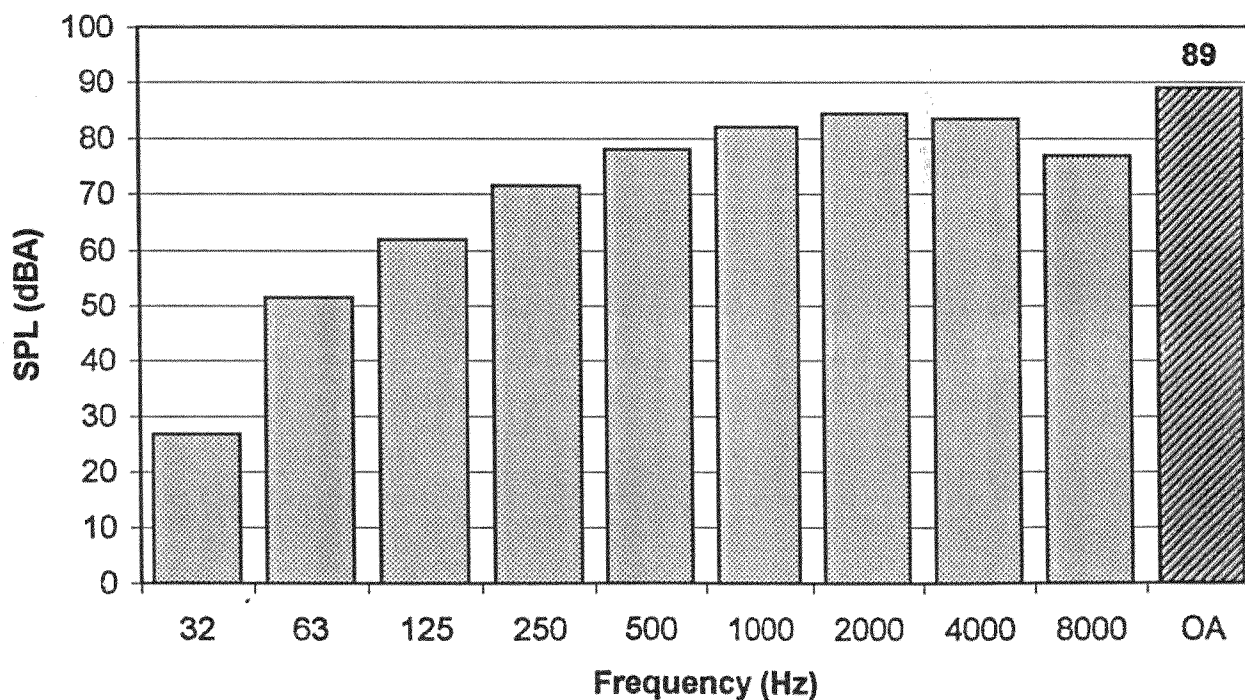
Averaging Type: Linear

Freq. Weighting: A

Octave Band SPL Data

Frequency (Hz)	32	63	125	250	500	1000	2000	4000	8000	OA
SPL @ 50 ft (dBA)	26.8	51.4	61.9	71.5	78.1	82.0	84.5	83.5	76.9	89.0
SPL @ 50 ft (dB-Lin)	66.2	77.6	78.0	80.1	81.3	82.0	83.3	82.5	78.0	89.9

SPL Spectrum at 50 ft



Summary of Statistical SPL Data Measured at Corbett Quarry @ 50 ft distance						
Rammer 10X Rock Breaker on Samsung MX292 Tracked Excavator						
	Statistical SPL (dBA)					
Measurement Details	L_{50}	L_{75}	L_{95}			
Measured 10/25/2001	77.5	89.0	93.0			
Measured 03/02/2002	77.0	86.0	90.5			

L_{50} 77
 L_{75} 88
 L_{95} 90
255

Summary of SPL Spectra from Jackhammers Measured at Corbett Quarry @ 50 ft distance												
	Freq. (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	OA	
Newer unit (#1) 03/02/2002	SPL (dB)	34.9	48.1	59.8	75.6	72.0	74.6	73.5	76.3	77.2	83.0	
Older unit (#2) 03/02/2002	SPL (dB)	44.5	54.1	63.1	78.3	75.6	77.0	77.9	81.5	81.6	87.0	
Unit Measured 06/29/2001	SPL (dB)	37.8	49.5	67.0	81.1	70.8	78.6	78.9	79.7	80.6	87.0	
Energy Average		40.9	51.4	64.3	78.9	73.3	77.0	77.3	79.6	80.1	86.0	

APPENDIX

A-1

JAW CRUSHER NOISE DATA

SOURCE	FEET	dBA	31	63	125	250	500	1000	2000	4000	8000	16000
Riverbend S & G ;3- 97	50	82	82	80	80	77	80	92	84	82	77	65
Warm Springs 4- 91	50	82		81	81	83	84	89	85	81	62	
Bayview Transit 5- 88	50	89	80	84	86	82	84	84	83	78	70	57
Brock Pit Scio 6-95	50	87	78	82	85	85	85	82	80	74	68	58
Johnson & Sons- Seaside 9- 92	50	90	84	78	79	77	77	79	84	85	83	75
Energy Average	50	87	81	81	83	82	83	85	83	87	77	69

ROCK DRILL NOISE DATA - PNEUMATIC

SOURCE	FEET	dBA	31	63	125	250	500	1000	2000	4000	8000	16000
Ingersol- Rand 1- 90	50	91	84	78	79	77	77	79	84	85	83	75
G & G Rock- Scio 1-89	50	91		912	90	82	86	85	83	84	82	
Starr Quarry- Amity 6- 94	50	89	80	84	85	83	83	84	84	79	70	56
Johnson & Sons Seaside 9-92	50	93	85	81	90	87	88	90	86	80	69	59
Energy Average	50	91	83	92	88	84	85	86	84	83	80	70

HYDRAULIC ROCK DRILL NOISE DATA

Frequency:	31.5	63	125	250	500	1000	2000	4000	8000	dBA
Noise Level Decibels	73	79	84	80	81	83	80	72	68	89

Appendix E

PHS Biological Assessment

BIOLOGICAL ASSESSMENT

Assessing Impacts to Chinook Salmon, Cutthroat Trout and Steelhead Trout

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July 24, 2002

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1.0 INTRODUCTION

This Biological Assessment (BA) addresses the potential effects of expanding the existing Howard Canyon Quarry currently operating in rural east Multnomah County on species currently listed or candidates proposed for listing under the federal Endangered Species Act (ESA) and the State of Oregon's ESA. The quarry is within an approximately 33-acre property on the border of the watersheds of Howard Canyon Creek and Knieriem Creek/Ross. The property is south of Knieriem Road, east of Littlepage Road, and north of Loudon Road and is illustrated on Figure 1.

Knieriem Creek and Howard Canyon Creek converge east of Littlepage Road to form Big Creek. Big Creek continues to flow to the west for approximately 4,000 feet where it plunges over an approximately 80-foot high water fall and joins the Sandy River. The drainage area of all of three creeks, which are designated by the Oregon Department of Fish and Wildlife (ODFW) as Class 1 streams, is approximately 4,134 acres.

A list of the species potentially affected by the quarry expansion is included in Table 1.

Table 1. Federal ESA Status of Species Found in the vicinity of the proposed Howard Canyon Expansion area

Species*	Scientific Name	Evolutionary Significant Unit (ESU)	ESA Listing Status**	Listing Decision Date
Steelhead Trout	<i>Oncorhynchus mykiss</i>	Lower Columbia River	Threatened	March 13, 1998
Coastal Cutthroat Trout	<i>Oncorhynchus clarki clarki</i>	Southwest WA/Columbia River	None***	
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	Lower Columbia River	Threatened	March 16, 1999
Coho Salmon	<i>Oncorhynchus kisutch</i>	Lower Columbia River/Southwest WA	Candidate to Propose as Threatened	July, 1995

* Steelhead and coho salmon are under the jurisdiction of the NMFS. Coastal cutthroat trout are under the jurisdiction of the US Fish and Wildlife Service (USFWS).

** The state of Oregon has classified steelhead trout stocks, coastal cutthroat trout, and lower Columbia River coho salmon as Sensitive Species of Critical Concern under the Oregon ESA.

*** On June 26, 2002, the US Fish and Wildlife Service determined that the southwestern Washington/Columbia River population of coastal cutthroat trout does not need ESA protection. This determination was based on a review of population data that showed that in a large portion of the southwestern Washington/Columbia River area cutthroat trout populations are relatively robust and the offspring of freshwater populations are likely able to become anadromous. Consequently, the US Fish and Wildlife Service concluded that coastal cutthroat trout in this population segment are not likely to become endangered in the foreseeable future.

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The 80-foot high waterfall in Big Creek precludes passage by Chinook salmon and steelhead trout from the Sandy River. As such, these species do not inhabit Big Creek, Howard Canyon Creek or Knieriem Creek. However, these creeks do provide habitat for resident cutthroat trout.

Although the waterfall restricts anadromous fish from entering the three creeks, the quality of water in the creeks still influences the quality of anadromous salmonid habitat in the Sandy River. For example, downstream of the confluence of the Sandy River and Big Creek are spawning gravels. These gravels could be negatively effected by changes in water quality stemming from riparian degradation or instream impacts to the three creeks. If the degradation of spawning gravels is directly associated with activities stemming from the operation of the quarry, the NMFS could view the action as a "take," as defined within the ESA. The impacts to the spawning gravels may be perceived as significantly modifying or impairing essential behavioral patterns (e.g. spawning). Section 9 of the ESA makes it unlawful to "take" a protected species.

Although no specific mining plan was reviewed for this BA, an assessment of the potential effects of mining within the watersheds was conducted. This report includes an assessment of the current quality and quantity of riparian habitat along the three creeks and an assessment of the in-stream habitat and fish presence within the three creeks. This information was used to determine the environmental baseline of the watershed. Potential impacts from expanding the proposed quarry were weighed against how the environmental baseline could be affected by the mining operation. Proposed conservation measures to ensure that the environmental baseline is not adversely affected are included.

2.0 PROJECT BACKGROUND

In 1996, Multnomah County completed the Howard Canyon Reconciliation Report (HCRR), which addressed natural resource, residential farm, and transportation impacts of a mining operation in the Howard Canyon Quarry. The HCRR assessed and evaluated the Economic, Social, Environmental and Energy consequences (ESEE analysis) of a small-scale aggregate rock mining operation in the quarry. Based on the best available information at the time, the County's ESEE analysis concluded that the impacts from such a mining operation were acceptable and that the quarry should be designated as a protected resource for extraction.

The HCRR assesses three natural streams that surround and drain the Howard Canyon Quarry site: Big Creek, Knieriem Creek and Howard Canyon Creek. Knieriem Creek and Howard Canyon are the closest streams to the mine and join to form Big Creek, which flows into the Sandy River. All three streams have been designated by Oregon Department of Fish and Wildlife as Class 1 "significant" streams. Multnomah County has designated these streams as significant Goal 5 resources. The final conclusion of the HCRR was that all three streams were or could be adequately protected from impacts from the proposed quarry operations.

In 1998, the National Marine Fisheries Service (NMFS) declared the Lower Columbia River Steelhead as a threatened species under the federal Endangered Species Act (ESA). The listing included populations inhabiting east Multnomah County living in the Sandy River.

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In 1999, NMFS listed as threatened eight additional salmon populations under the ESA, including fall run Chinook Salmon, which inhabits east Multnomah County including the Sandy River. Soon thereafter, NMFS identified and officially designated the critical habitat that was required for the long-term survival for these species. In early 2002, the NMFS withdrew the critical habitat designation for 19 salmon and steelhead populations (including those in the Sandy River) pending a review of the economic impacts on affected businesses, communities, and individuals. However, salmon and steelhead trout habitat remains protected by the essential fish habitat provisions of the Magnusson-Stevens Act. The designation of the designation of fish stocks under the ESA and through the Magnusson-Stevens Act gives federal protection to these species and the habitat upon which they depend to live, feed and reproduce. The Sandy River basin, consisting of the Sandy River mainstem and its larger, fish-bearing tributaries, were included in this critical habitat designation for the endangered Steelhead and fall Chinook Salmon.

In response to changes in the assumption about the size and methods of the quarry operations and to the ESA listing for the Sandy River, Multnomah County is up-dating the HCRR. This update will result in an amendment to the County's Comprehensive Plan policies as they apply to this site.

3.0 EVALUATION METHODS

The information presented in this BA is based on site visits, a review of the proposed mining concept, discussions with the ODFW, the County, and a literature review.

Factors considered in the preparation of this BA include the species' dependence on specific habitat components that could possibly be removed or modified, the abundance and distribution of habitat and habitat components in the vicinity of the quarry, distribution and population levels of the species (if known), the degree of current impact to habitat, and the potential to mitigate or avoid any adverse effects of the mining operation.

The methods outlined in *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996) were used to analyze the potential for quarry expansion on water quality and instream and riparian habitat quality. The strategy outlined in this document is to determine the environmental baseline for the watershed, discuss how the proposed action (i.e. quarry expansion) would affect the environmental baseline, and then use that information to determine the potential effect of the expansion on listed species.

4.0 FISH PRESENCE WITHIN THE SANDY RIVER AND ITS TRIBUTARIES

The quarry falls within the boundaries of the Lower Columbia ESUs (Evolutionary Significant Units) for Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon, chum salmon and steelhead trout (*Oncorhynchus mykiss*) and the SW Washington/Columbia River ESU for coastal cutthroat trout (*Oncorhynchus clarki clarki*). Chinook salmon, coho salmon, chum salmon, and steelhead trout are under the jurisdiction of NMFS. Coastal cutthroat trout is

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under the jurisdiction of USFWS. Since chum habitat is not considered available in the Sandy River (NMFS, Federal Register), they will not be considered in this report. The state of Oregon has classified steelhead trout stocks, coastal cutthroat trout, and the lower Columbia River runs of Chinook and coho salmon as Sensitive Species of Critical Concern.

4.1 Documented fish within the Sandy River and its tributaries

The Sandy River mainstem and its fish-bearing tributaries are known to provide habitat for Lower Columbia River (LCR) Evolutionarily Significant Unit (ESU) of steelhead trout and Chinook salmon, both listed as threatened by the NMFS (FR 63(53):13347, FR 64(56):14308), the LCR/Southwest Washington (LCR/SW) ESU of coho salmon (candidate species since 1995, FR 60(142): 38011), and the Southwestern Washington/Columbia River (SWCR) ESU of the coastal cutthroat trout, which has been proposed for listing as threatened since March, 1999 (FR 64(64):16397).

The LCR steelhead and Chinook ESUs include the Sandy and Hood River basins and the Lower Willamette (to Willamette Falls). LCR/SW coho salmon range from the Deschutes basin and the Lower Willamette (to Willamette Falls) to Pt. Grenville on the Washington Coast. The SWCR coastal cutthroat trout ESU encompasses the Columbia River and its tributaries downstream from Fifteenmile Creek, and the Willamette River downstream of the Willamette River Falls.

Previous surveys for fish by the ODFW indicate that resident rainbow trout (*Oncorhynchus mykiss*) and mountain whitefish (*Prosopium williamsoni*) presently also occur in the Sandy River mainstem (Murtagh, 1997). Other fish found in the lower mainstem include the American shad (*Alosa sapidissima*), and Eulachon (*Thaleichthys pacificus*).

4.2 Results of fish survey within the Howard Canyon Creek, Knieriem Creek and Big Creek

Where property access was granted, a backpack electroshocker (Permit No. OR2002-400 issued by the ODFW) was used to assess the presence of fish in Knieriem Creek, Howard Canyon Creek, and Big Creek. The survey was conducted in a downstream direction. The upper reaches of Knieriem Creek and Howard Canyon Creek were assessed first. Big Creek near Littlepage Road was surveyed last. The survey was conducted in February 2002, in cool weather (approximately 50°F) between the hours of approximately 9am to 3pm. The survey determined that only two fish taxa: cutthroat trout and a sculpin species tentatively identified as the reticulate sculpin (*Cottus perplexus*), reside in the three creeks. A Pacific Giant salamander (*Dicamptodon tenebrosus*) was also collected.

Multiage classes (based upon length relationships) of both cutthroat trout and sculpins were found in Howard Canyon Creek and Big Creek. Only sculpins were found in lower Knieriem Creek. The numbers of fish found through the survey were relatively low. All fish appeared in good health with no obvious anomalies including sores, fin rot, or parasites. Collected fish were revived in buckets, identified, enumerated, measured and returned to the streams.

5.0 SALMONID LIFE HISTORIES

5.1 Coho Salmon

Coho naturally exist along the Pacific Coast from Monterey Bay, California northward to Point Hope, Alaska. (Scott and Crossman, 1973). Historically, coho were probably found in most coastal streams. The species is also found in northeast Asia from the Anadyr River south to Hokkaido, Japan.

Coho salmon, like other Pacific salmon, spawn in freshwater, migrate to the ocean as juveniles, and feed until reaching sexual maturity. The fish then return to their natal stream to spawn and die. Adults typically initiate their freshwater spawning migration in late summer to early fall, and spawn by midwinter. Spawning adults die soon afterward. Specific upriver migration and spawning times vary by river and stock (groups of fish that are genetically self-sustaining and reproductively isolated either geographically or temporarily). Incubation of the eggs in redds (nests made in gravel that consist of a depression dug by the spawning adult fish for egg deposition and then filled to take on a hummocky appearance) takes 1.5 to 4 months depending upon stream temperature. Hatched out alevins, with yolk sac still present, remain in the interstitial gravel space until the yolk sac is absorbed. These juveniles emerge from the gravel and begin to feed for the next 15 months. As juveniles begin the physiological transformation of smolting in preparation for existence in saltwater, they migrate downstream to the ocean. They spend two growing seasons in the ocean before returning as adults to spawn. A small number of early maturing males, (jacks), return after a single season (six months) at sea.

Coho stocks returning to the Sandy River and its tributaries form two runs in the basin. There is an early run hatchery stock and a wild run of coho salmon. Sandy River early run hatchery coho are developed from native Sandy River stock and are released into the river from the Sandy hatchery near river mile (RM) 22. The wild fish, a late returning stock, historically migrated into the Sandy River from October to February with spawning occurring from November to February. However, hatchery influences appear to have influenced run timing and fish now return primarily in September and October. After analysis of coho run size, migration timing at Marmot dam (RM 30), which is upstream of the project site, and spawning ground surveys and scale analysis, ODFW biologists determined that a stable but depressed wild coho population still exists that continues to reproduce naturally in the basin (Murtagh, 1997).

5.2 Chinook Salmon

Chinook salmon have much more diverse life histories than do coho salmon (Groot and Margolis, 1991). The fish are divided into two races, including spring and fall run races, also called runs or stocks, which are distinguished by river entry time. Stocks heading far upstream tend to arrive earlier than coastal run stocks. Within a race, further life history variation occurs, which spreads the risk of an environmental event threatening the existence of the species. For example, juveniles of a given year class may smolt immediately and go to the ocean, while other juveniles may spend 2 to 3 years living in freshwater before smolting.

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In Oregon, fry generally spend a few weeks before heading to the ocean though a small percentage is known to overwinter before heading to the ocean. Sub-adults may spend 6 months to 5 years maturing in the ocean before returning to their natal river to spawn. If a catastrophic flood were to dislodge and destroy all eggs of a particular stock one year, the spreading of risk through life history variation would allow fish of that stock born in previous years to continue the existence of that stock.

Both spring and fall run Chinook salmon exist in the Sandy River. Spring run fish enter the river in the spring, while fall run Chinook enter the river during the late summer. Egg incubation typically occurs from November through February. During the spring, fry emerge from the gravel. Historically, between 8,000 to 10,000 wild spring Chinook may have once returned to the Sandy basin (Mattson 1955 in Murtagh 1997). Presently, management goals are to maintain an escapement of 2000 fish, including a minimum of 300 wild fish (Murtagh 1997), at Marmot dam which is upstream of the project site.

Indigenous fall Chinook can be divided into two groups (early maturing and later maturing Sandy stock). The later maturing stock, returns from December to early February, but in recent years the run has all but disappeared. The early-run fall Chinook return to the river from August until November.

Most fall Chinook juveniles emerge from the gravel in the spring and soon begin their gradual migration to the ocean, feeding in side channels and other food rich areas along the way. A very small percentage are thought to have a life history of overwintering like coho before heading to the ocean. Those that do overwinter utilize backwater habitats off the mainstem river during the winter to avoid the current of flood flows. Spring Chinook juveniles typically overwinter and migrate as 1+ (one year plus) individuals.

5.3 Cutthroat Trout

Coastal cutthroat trout (*O. clarki clarki*) are found within the entire Sandy River basin, and are the most common trout species in the basin (Murtagh, 1997). They have a generalized life history similar to other salmonids. Spawning occurs in the late winter to early spring. They are typically predacious, have long life spans (up to 10 years), and like cutthroat trout in general, are vulnerable to overexploitation by angling (Behnke, 1992). The species is also considered to be highly vulnerable to the consequences of logging activities (Behnke, 1992). Thus, increased sedimentation, reduced cover, and greater maximum water temperatures are all factors that may depress cutthroat trout populations. Both anadromous and resident forms exist in the Sandy River basin. Anadromous runs numbers are presently very low (Murtagh, 1997) just as they are for other lower Columbia River tributaries.

5.3.1 Coastal Cutthroat Trout

Coastal cutthroat trout (both migratory and resident forms) in the Big Creek/Howard Canyon watershed are part of the Southwest Washington/Lower Columbia River ESU. This ESU was proposed for listing as threatened under the Federal Endangered Species Act in April 1999 (64 FR 16397). A final listing decision was due in April 2000 but was postponed for 6 months

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to allow the USFWS time to obtain and review new scientific data to resolve disagreement about the status of the population (65 FR 20123). The USFWS planned to issue a decision on the proposed listing in October 2000; however, no ruling on the proposed listing has yet been made.

Coastal cutthroat populations exhibit four life history types. These various types represent the most complex life histories of any salmonid in Oregon. Resident (non-migratory) cutthroat trout occur in small headwater streams and exhibit little instream movement. Fluvial populations undergo in-river migrations between small spawning tributaries and mainstem rivers sections downstream, similar to ocean migrations of sea-run cutthroat trout. Adfluvial populations migrate between spawning tributaries and lakes. Anadromous or sea-run populations generally migrate to the ocean (or estuary) for less than a year before returning to freshwater. The migratory form does not typically over-winter in the ocean, and forays to the sea appear only rarely to include traversing long distances. Most cutthroat remain within 10 kilometers (6 miles) of the coast. A few have been found up to 80 kilometers (50 miles) offshore (64 FR 16397). Anadromous cutthroat trout either spawn during the first winter or spring after their return, or they undergo a second migration before maturing and spawning in freshwater.

ODFW and Washington Department of Fish and Wildlife have presented evidence that non-migratory forms of this species can produce migratory offspring (64 FR 16397). However, while the occurrence of this recruitment may buffer declines in migratory populations, it has not demonstrated the ability to offset them. Reductions in migratory populations threaten to isolate genetic stocks and increase the extinction potential of the species.

5.4 Steelhead Trout

Steelhead (*Oncorhynchus mykiss*) in the Sandy River watershed are part of the Lower Columbia River ESU that was listed as threatened in March (63 FR 13347). Adult winter steelhead in this ESU typically enter the river systems starting in November through the end of March; peak entry is January and February. The adults spawn soon after entering. The fry emerge from April through July, and then rear in fresh water for one to three years (Busby et al. 1996). The fish smolt in the spring and emigrate downstream from March through June during high spring flows.

Steelhead trout, *Oncorhynchus mykiss*, have two distinct life histories, anadromous (steelhead) and freshwater resident (rainbow or redband trout). Anadromous juveniles rear in freshwater and then migrate to marine waters for a period of growth after which they return to freshwater to spawn. Resident life history types spend their entire lives in freshwater. The following life history description focuses on the anadromous life history form. Freshwater habitat requirements are similar for both anadromous and resident life history types.

Anadromous steelhead can be divided into two reproductive ecotypes, based on the adults' levels of sexual maturity at the time of freshwater entry and duration of their spawning migration. These two ecotypes are termed "stream maturing" or "summer" steelhead and "ocean maturing" or "winter" steelhead. Summer steelhead enter freshwater as sexual immatures during the summer months and require several months of maturation prior to

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spawning. Winter steelhead enter freshwater ready to spawn in late winter or early spring (NMFS 1996). In the Sandy, winter fish are native and summer steelhead have been introduced from Skamania River stock (Murtagh 1997). It is debated that there may have been a small native summer run present.

Winter steelhead begin migrating to the Columbia River and their natal tributary streams in December and January. Summer steelhead begin their migration and entry into freshwater during June or July, overwintering in freshwater until they spawn in late winter to early spring. In the lower Columbia River ESU, most steelhead spawning occurs from March through May (WDF *et al.* 1993).

Unlike most species of *Oncorhynchus*, steelhead are capable of spawning multiple times (NMFS 1996). Preferable spawning habitat includes streams with cool, clear, and well oxygenated water. Water depths typically range from 10 to 137 cm (4 to 54 in); with water velocities ranging from 5 to 13 cm/s (2 to 5 ft) per second. Optimal gravel sizes range from 0.6 to 23 cm (0.25 to 5 in) in diameter (Barnhart 1991). After spawning, spent steelhead (kelts) that have survived the process outmigrate back to ocean waters. For steelhead populations north of Oregon, repeat spawning is relatively uncommon, and more than two spawning migrations are rare. In Oregon and California, the frequency of two spawning migrations is higher (up to 10%), but more than two spawning migrations is unusual (NMFS 1996).

Steelhead eggs hatch in about four to seven weeks depending on the water temperature (Scott and Crossman 1973). The young alevins remain in the gravel until their yolk sac is depleted (usually from two to five weeks). Upon emergence from the gravel, steelhead fry form schools and inhabit the margins of the stream until they become stronger swimmers (Barnhart 1991). Natural rearing of steelhead typically lasts two years prior to ocean migration, although some juveniles smolt after only one year or as much as seven years (Busby *et al.* 1996). Summer rearing is typically spent within riffle habitat, whereas pools are preferred during winter months. (Wydoski and Whitney 1979).

Steelhead smolts begin their outmigration in late April through June, typically with spring "runoff". In the Sandy river, smolt outmigration occurs from April through June with a peak in May (Murtagh *et al.* 1997) Outmigrants typically measure between 120-180 mm in length and can take as long as two to three months to move downstream to the estuary (Wydoski and Whitney 1979).

Not much is known about the saltwater phase of steelhead development. Due to their extensive freshwater residence, steelhead smolts do not spend an appreciable amount of time in the estuarine areas, but rather move directly into deeper, open water. In the ocean, steelhead feed heavily on a variety of organisms, especially juvenile greenling, squids, and amphipods. They are in turn preyed upon by other fish and marine mammals (Barnhart 1991). Steelhead predominantly spend 2 years at sea before returning to spawn in fresh water but may spend anywhere from 1-5 years at sea before returning to spawn (Emmett *et al.* 1991, Behnke 1992, Busby *et al.* 1996.) During surveys for salmon, Washington and Oregon steelhead have been scattered westward as far north as 160° W to the Gulf of Alaska, and westward along the Aleutians to 175° W (Wydoski and Whitney 1979).

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6.0 ENVIRONMENTAL BASELINE

6.1 Geologic Setting

The quarry is located on a Boring high-alumina olivine basalt flow underlain by sediments of the Troutdale Formation. The facies of Troutdale in this area is a vitric sandstone consisting largely of yellowish variously hydrated basaltic glass grains (Tolan and Beeson 1984). The principal bedload for Howard Canyon Creek, in addition to colluvial cobbles of the Boring basalt, are reworked sediments of the Troutdale Formation. Stream morphology is determined in large part by the structural properties of these sedimentary deposits underlain by older tholeiitic basalt flows. Structural properties of these older basalts probably determine the morphology of the stream channels. Uplift through the last several million years has undoubtedly caused some fracturing of the Troutdale sediments which determines the drainage patterns.

The headwaters of Howard Canyon Creek and Knieriem Creek lie in the Troutdale Formation and form a series of small steep tributaries draining south from the quarry area. The northern slope from the quarry area into Knieriem Creek is relatively undissected by drainages; suggesting that most of the surface and ground water from the quarry area goes south to Howard Canyon Creek. Howard Canyon Creek, which lies approximately 1300 feet south of the quarry area, has a gradient of approximately 2%. Tributary drainages to the creek from the quarry area have a variable spacing and strike with an average spacing of 370 feet. The gradient of these small tributary channels varies from 15% to 25% (6.66:1 to 4:1).

The moderately well drained haplumbrept soils mapped for the slope south of the quarry by the Natural Resources Conservation Service are developed on loess and old alluvium. Mershon silt loam (fine-silty, mixed, superactive, mesic Aquic Humic Dystrudept) typically has a very hard and very firm 2C horizon at 40 to 60 inches depth. This horizon may keep a significant portion of the surface water above this depth. The runoff curve number class C for this soil is the result of moderately easy infiltration into the surface horizons of the soil. The permeability is 0.6 – 2.0 inches/hour above 15 inches and 0.2 – 0.6 inches/hour below 15 inches. The top 3 feet of these soils typically contain 2% pebbles and deeper parts of the soil profile contain 15% gravel and cobbles.

6.2 Instream Habitat

A common feature of the creeks within the vicinity of the quarry is the general lack of complex instream habitat, which primarily stems from the lack of large woody debris (LWD) within the streams. Logging, agricultural activities, and other local land use practices have reduced LWD recruitment in the watersheds. It also appears that several landowners within the area keep their streams and banks "clean". One landowner offered that he thought he was helping the stream and fish by removing LWD.

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A general pattern for the creeks is the change from canopied streams, with better quality riparian habitat, stable banks and better LWD recruitment, to less complex, increasingly channelized and exposed streams lower in the watershed. This was demonstrated when the width to depth (W/D) ratio of the streams was estimated. Streams are generally considered properly functioning if the W/D ratio is 10 or less.

Upstream of the pastures and the existing quarry on Howard Canyon Creek, the W/D ratio at two survey locations was 10.67 and 7.69, indicating the stream was close to properly functioning for this condition. Downstream near the confluence with Big Creek, the ratio had increased to an average of 20, indicating the decrease in quality of the stream lower in the watershed. In this area, stream structure was poor, banks were eroding, woody debris was absent, substrate was mostly embedded and not diverse, riparian vegetation was virtually nonexistent and the stream was almost entirely glide/run versus defined pools and riffles.

The range of W/D ratios were similar on Knieriem Creek. Upstream, where the riparian areas are more intact, the W/D ratio was 7. In this portion of the channel, the creek flows primarily with minimal human influence. This was apparent in the quality of the substrate and instream habitat. Large woody debris was present in and over the channel and large riparian trees, such as western red cedar, are stabilizing banks and creating overhanging banks and pools. This section of the stream was significantly different than the downstream sections of stream influenced by yards and pastures. In this downstream area, the W/D ratio was 37.

The W/D ratios for Big Creek ranged from 6.5 to 11.9. However, these results were not representative of stream conditions and were skewed by property access. Observations made from adjacent roads and properties appeared to indicate that W/D ratios were averaged higher than those measured.

6.3 Water Quality

Water quality was not directly measured during field visits. Therefore, the environmental baseline for water quality can only be indirectly addressed. Water temperature averaged 42.5°F in the streams during the February field visits.

Upstream of the quarry where human influence is minimal, the water quality of Howard Canyon Creek, Knieriem Creek and its small tributary Ross Creek appeared very good. Canopy cover is good which maintains lower temperatures during the summer. Chemical influences and sedimentation are likely not a problem. Though it was raining during one site visit, all streams ran clear. Downstream, where the streams run through yards and pastures, it is likely that nutrients and fecal coliform from livestock and septic tanks enter the streams. Chemicals leaching into the stream systems likely occurs where there are insufficient buffers from roads (hydrocarbons) and when the creeks flow through pastures or yards (herbicides, fertilizers). Additionally, the streams probably become slightly more turbid due to the unstable and failing banks.

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Although the quality of the water degrades in all of the streams lower in the watershed, the quality does not appear to be sufficiently poor to inhibit populations of cutthroat trout and sculpin from persisting along the entire stream network even during the summer. Indirect evidence for this stems from the presence of multi-age class fish populations.

6.4 Riparian Habitat

Existing riparian conditions were assessed within the Howard Canyon, Knieriem Creek and Big Creek watersheds. The assessment included determining actual and potential riparian area widths and assessing the existing functions of riparian reaches within the watersheds in order to establish a baseline condition.

6.4.1 Riparian Assessment Methodology

Riparian Width

The Urban Riparian Inventory and Assessment Guide (Riparian Guide) (Pacific Habitat Services 1996) was used for establishing the baseline riparian conditions. The Riparian Guide depends on a combination of best available knowledge, field observations, and best professional judgment. The first step in the riparian inventory is to divide the study area into watersheds and then into riparian reaches. Land use and/or vegetation communities typically distinguish reaches. A Riparian Characterization Form and riparian assessment is then completed for each reach. The forms provide information on the physical and biological characteristics of the riparian area, such as vegetation, slope, adjacent land uses, and degree of disturbance. The dominant riparian tree species within 100 feet of the water resource is determined, which establishes the potential riparian width, based on potential tree height (PTH). PTH is used as the potential riparian width because it represents a distance in which a tree can still affect the water resource (e.g. shade, organic material).

The riparian width is measured from the edge of the water resource, typically either the top of a streambank or the outer edge of an adjacent wetland, lake, or pond. Riparian areas on both sides of a stream channel are assigned separate widths. Right and left widths are not combined and do not include the channel.

Where riparian area trees have been eliminated by land-use activities or natural causes, such as development, land slides, or logging, it may be necessary to extrapolate tree heights from a reference site. The reference site should be similar in character and landscape position and should be located as close as possible to the riparian reach. If a reference site is used, it is noted on the Width Determination Form. If a reference site cannot be located, field observations and reference materials must be used to establish PTH.

Although the riparian width will never exceed the PTH, it may be less than the PTH if impervious surfaces or permanent structures (e.g. buildings or roads) are inventoried within the riparian area. Therefore, on the Riparian Width Determination form, the first width represents the PTH and the second width represents the actual width as determined in the field and during review of aerial photographs.

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Riparian Functional Assessment

Riparian areas provide numerous and complex functions that affect both aquatic and terrestrial systems. Many ecological functions of riparian areas are also provided by wetlands, floodplains, and vegetated upland areas.

The Riparian Function Assessment evaluates the ability of the riparian area to provide water quality, flood management, thermal regulation, and wildlife habitat functions. The results indicate whether the functions of each reach are intact, degraded, or severely impacted. The assessment is completed by answering a series of questions. Most of the questions are intended to be answered using data from the Riparian Characterization Form.

Because certain elements or characteristics of a riparian area are more critical to its function, the answers are "weighted." The points are then totaled for each side and for each function. Based on the score, the riparian function will be assessed as high, medium or low.

The results of the Riparian Function Assessment for all of the riparian areas within the inventory study area are then transferred to a Riparian Function Assessment Summary Table.

Riparian Functions

Water Quality

Riparian areas can enhance water quality in many ways. Undisturbed densely vegetated riparian areas trap sediments, inhibit erosion and filter runoff originating from impervious surfaces, lawns, golf courses, etc. Sedimentation and erosion, although natural processes, are accelerated in urban areas by increased impervious surfaces. Impervious surfaces also inhibit infiltration. Sediment within a riparian area can be from erosion of poorly vegetated uplands, runoff from impervious surfaces, or floods from an adjacent water resource. Sediments often carry nutrients (e.g. phosphates and nitrates) and pollutants (e.g. heavy metals, hydrocarbons) to water resources, altering water chemistry, burying spawning gravels and impacting fish and wildlife habitat. Excessive concentration of nutrients in the water can trigger algal blooms, depleting the water of oxygen required by fish and other aquatic organisms.

The ability of a riparian area to resist erosion is related to slope, soil type, type of vegetation, vegetation cover, landscape position, and degree of human disturbance.

Flood Management

Riparian areas and associated wetlands and floodplains provide a valuable flood management function by reducing the force and volume of floodwaters. Floodwaters flowing into a vegetated flood prone riparian area can be slowed or temporarily stored, reducing peak flows and flooding downstream. Woody vegetation, in particular, resists floodwaters and reduces its velocity. Topographic features, such as swales and depressions, can enhance a riparian area's ability to manage flood flows. Reducing the velocity of floodwaters in the riparian area allows infiltration of water into the soil. Water entering the soil is slowly released into the main channel, delaying its movement downstream.

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Thermal Regulation

Water temperature affects the ability of a stream to support viable populations of certain aquatic organisms. Riparian shade, especially forest canopy, moderates temperature within and adjacent to a water resource. Although stream temperatures are important throughout the year, summer temperature is generally more critical for fish species such as salmonids. High water temperatures and sunlight are factors that can promote algal blooms, reducing dissolved oxygen required by anadromous fish and other cold-water dependent organisms.

The aspect or orientation of the water resource and the height of the adjacent riparian vegetation play important roles in how effective riparian vegetation is in providing shade.

Wildlife Habitat

Riparian areas provide valuable habitat for wildlife and influence fish habitat. The highest quality wildlife habitat in urban areas has a variety of plant species and layers, a perennial water source, and some degree of protection or buffering from disturbance.

Riparian areas are particularly important migration corridors between upland and aquatic systems for a wide variety of species. It has been reported that the majority of Oregon's major wildlife species, including amphibians and reptiles, use wetlands or riparian areas during some portion of their life cycle.

6.4.2 Riparian Area and Distribution

Seven (7) riparian reaches were assessed as representative of the existing riparian conditions in the watersheds. Each riparian area was assigned a code and a modifier for right or left side, and a watershed code (e.g. R-HC-2L, R-HC-2R). A data sheet was compiled which documents the existing riparian characteristics and establishes the riparian width based on potential tree height (PTH) and actual site conditions (Appendix A). The majority of the assessments were based on on-site observations from private properties where permission to access was granted. Off-site assessments were based on observation from an off-site vantage point or review of maps and aerial photos.

Potential tree heights were generally based on either Douglas fir (120-foot PTH), western red cedar (120-foot PTH), or red alder (65-foot PTH). Riparian areas on steep slopes were generally forested or potentially forested with coniferous trees. Early successional trees such as red alder generally dominated riparian areas in flatter topographic areas. Figures 3A-3E show the location of the riparian assessments, the riparian reaches, and the width of the riparian areas. The following table summarizes the riparian area widths, lengths and potential tree heights.

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Table 2. Riparian Corridors and Their Widths for the Howard Canyon Project

RIPARIAN AREA CODE	Potential Tree Height (PTH) (ft)	Actual Riparian width (ft)	Riparian Area length (ft)
HC-1	120	120	
HC-2	65	65	
HC-3 (L)	120	120	
HC-3 (R)	65	20-65	
BC-1	65	65	
BC-2	120	50-120	
KC-1	65	20-65	
KC-2	65	65	

As the table shows, the majority of riparian widths are based on the PTH of Douglas fir, western red cedar, or red alder. In addition, many existing riparian areas are narrower than the PTH, indicating that development and land use practices have encroached on many of the riparian areas.

6.4.3 Riparian Assessment Results

An assessment of four riparian functions, water quality, flood management, thermal regulation, and wildlife habitat, was conducted for each of the riparian areas. The questions and answer sheets for the riparian assessment are included in Appendix B.

Answering a series of questions relating to the riparian functions completes the riparian assessment. Each answer is assigned a score that reflects its overall importance to the function. Questions that were answered "a" received a higher score than "c" answers. After the score was totaled for each function, it was assigned a rating of high (H), medium (M), or low (L) according to the results. Table 3 summarizes the results of the riparian functional assessment.

Table 3. Summary of Riparian Functional Assessments

Riparian Code	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
HC-1	H	H	H	H
HC-2	H	H	M	M
HC-3	H	M	M	M
BC-1	H	H	H	H
BC-2	H	H	H	M
KC-1	H	M	H	H
KC-2	H	H	H	M

H = High M = Medium L = Low

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In general, the riparian areas were relatively intact. All of the riparian areas received at least one high score and all received high rankings for water quality function due to a dominance of woody trees and shrubs in the riparian areas and minimal impervious surfaces. Thermal regulation and flood management functions were also generally assessed with a high functional integrity due to an east-west stream orientation and woody vegetation near the edge of the stream. The wildlife habitat category had more reaches receiving a medium ranking due to lack of a variety of vegetation strata in some reaches and lack of large woody debris in others.

6.4.4 Riparian Discussion

Riparian areas within the Howard Canyon Creek, Knieriem Creek, and Big Creek watersheds have been affected by logging, residential development, grazing, and roads. Although the results of the riparian assessment indicate that many of the riparian functions area high, these results likely reflect the rural nature of the area and the fact that the Riparian Guide is intended for more urban areas where impervious surfaces are high. In the watersheds assessed for this study, the riparian areas of the creeks have been impacted by grazing, agricultural activities, rural road construction, and landscaped areas associated with residential construction.

In general, and as discussed in the sections above, the upper reaches of Howard Canyon Creek and Knieriem Creek both have undisturbed sections of riparian vegetation and human influences are minimal. The lower ends of the drainages have already been altered. There are significant impacts to riparian widths and conditions from roads, development of rural residential houses and yards, and livestock access to the stream. Near the confluence of Knieriem Creek and Big Creek, tree cover is entirely lacking from the riparian areas.

In general, Big Creek's riparian areas have been impacted by adjacent roads, culverts, clearing and residential development. However, areas below Hurlburt Road appear to have an undisturbed riparian cover extending through Oxbow Park and to the Sandy River.

Except through the indirect impact of road construction and maintenance, riparian areas have not been impacted by the existing quarry operation.

6.5 Wetlands

In general, wetlands in the watersheds are generally directly associated with the three creeks. Overflow channels and low flood-prone benches are present. The National Wetlands Inventory (NWI) has mapped both riverine and palustrine wetlands within the watersheds. With the exception of a small pond, all the mapped wetlands are coincidental with the streams. Howard Canyon Creek, Knieriem Creek, and Big Creek are all mapped as riverine, upper perennial, unconsolidated bottom, permanently flooded (R3UBH) bodies of water. A small stretch of palustrine scrub shrub, seasonally flooded wetland (PSSC) is mapped along Knieriem Creek.

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6.6 Fish Passage

There is no anadromous fish passage from the Sandy River into Big Creek, Howard Canyon, Creek and Knieriem Creek. A large natural 80 foot waterfall exists on Big Creek just above the confluence with the Sandy River (Shapiro 1994). PHS was unable to gain property access to view this barrier. The cutthroat trout that exist upstream of the barrier are not prevented from travelling downstream and may add to the genetic diversity of cutthroat trout in the Sandy River. No steelhead trout, coho or Chinook salmon or other fish can ascend the barrier. Upstream of this natural barrier, a number of culverts provide difficult or impossible barriers to upstream migration of juvenile and adult cutthroat on Big Creek, Howard Canyon Creek, and Knieriem Creek. The barriers result from the long length of several culverts, the steep slope of several culverts, and eroded outfalls creating jump barriers greater than 6 inches high.

7.0 PROPOSED MINING PLAN

The current mining operation extracts approximately 5,000 cubic yards of aggregate from the quarry annually. The proposed expansion would increase this amount up to approximately 75,000 cubic yards, though less may be extracted. The mining area would affect an approximately 24-acre area, though the specific footprint of the site has not yet been determined. Within the 24-acres, five acres is proposed to be impacted at any one time.

The information reviewed for this BA indicates that if the quarry continues with its limited extraction of up to 5,000 cubic yards per year, the quarry operator will not install erosion control devices, provide buffers from adjacent creeks, or implement other conservation measures that would ensure protection of natural resources and the quality of water in the Sandy River downstream.

If, however, the extraction is increased, the quarry operator would be required to implement additional conservation measures. A summary of the measures proposed by the quarry operator is included in Table 4.

Table 4. Proposed extraction quantities per year and conservation measures currently offered by the quarry operator.

Proposed Conservation Measures	Extraction Quantity Per Year (cubic yards)		
	5,000	35,000	75,000
Buffers	No	Yes	Yes
Sediment control	Yes	Yes	Yes
Truck washdown	No	Yes	Yes
Quantity (runoff) control	No	Yes	Yes
Maintain stream flows	No	Yes	Yes
Erosion control in disturbed areas	Yes	Yes	Yes

No description of off-site construction activity associated with the quarry expansion has been provided. Off-site construction could include the construction of new roads, improvements to existing roads, or the construction and siting of new utilities to serve the quarry.

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8.0 POTENTIAL EFFECTS OF EXPANDING THE QUARRY ON THE ENVIRONMENTAL BASELINE

Expanding the quarry from 5,000 cubic yards per year to a maximum of 75,000 cubic yards per year may have an effect on the environmental baseline of the watersheds. However, whether the effect is sufficient to adversely affect the continued survival and recovery of salmonid populations within the watersheds and within the Sandy River is dependent on numerous parameters of watershed health. This section discusses the possible effects of expanding the quarry on these parameters.

The list of functional parameters is taken from *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). These parameters include: temperature, turbidity, chemical contaminants/nutrients, physical barriers, substrate, large woody material, percent pool area, pool quality, pool frequency, off-channel habitat, refugia, width/depth ratio, streambank condition, floodplain connectivity, peak/base flows, drainage network increase, road density/location, disturbance history, and riparian reserves.

As no specific mining plan is available, impacts to the environmental baseline of the watersheds from the expansion of the quarry must be inferred from the likely location and type of mining.

Water Quality

Temperature: Water temperatures in Howard Canyon Creek and Knieriem Creek are considered **functioning properly, but at risk**.

An elevation of water temperatures could occur if the current riparian cover surrounding the creeks is impacted by the quarry expansion or if runoff from future on-site water quality facilities is not sufficiently moderated before flowing into the surrounding creeks.

It is unlikely that the expansion of the quarry will impact riparian vegetation along the creeks, though vegetation at stream crossings may be impacted if surrounding roads are required to be improved.

It is also unlikely that runoff from the expansion site will adversely impact water temperatures of the surrounding streams. This is based on the fact that much of the water draining from the site will be during the wettest portions of the year when ambient temperatures are cooler. During the summer when ambient temperatures are warmer, off-site flow will be severely reduced, or more likely, virtually absent, and should not influence the water temperatures of Howard Canyon Creek and consequently the Sandy River. The lack of adverse impact can be facilitated by ensuring that runoff from future on-site water quality facilities flows through a dense canopy before flowing into Howard Canyon Creek. This is currently the situation with the existing water quality pond (**maintain**).

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Turbidity: Based upon field data determinations, fine sediment bedload in the system appears to be high. In the lower sections of all the creeks embeddedness was generally higher than 50%. Percent embeddedness increased in each of the creeks going downstream. The sediment parameter is considered **not functioning properly**.

The existing pastures and other human disturbance (e.g. riparian vegetation removal) along Knieriem Creek, Big Creek and lower Howard Canyon Creek will continue to keep banks unstable and result in the delivery of large amounts of fine sediment within the system.

The quarry expansion could also become a very large sediment source if removed overburden is stockpiled onsite where it could be washed downhill and into Howard Canyon Creek. Conservation measures must require the overburden be stockpiled away from drainage areas and sufficiently protected from being deposited off-site.

Sufficient control of water quality leaving the site is also imperative. With the implementation of conservation measures and proper use and maintenance of sediment retention/detention facilities, the impact of the quarry expansion is not expected to alter the present status of sediment delivery to Howard Canyon Creek, Big Creek, and consequently the Sandy River. Since the project site is situated away from the creeks, attention to sediment retention before it enters Howard Canyon Creek will greatly diminish the potential for fine sediment transport.

Increased truck traffic on adjacent roads may also contribute to sediment entering the system. However, road improvements will likely be required and proper measures to control stormwater runoff from new impervious surfaces must be required. With the implementation of strict conservation measures, impacts from increased sediment are not expected to occur (**maintain**).

Chemical /Nutrients.

The current condition for this parameter is **not properly functioning**. The large number of pastures and residences abutting the creeks results in this parameter being at risk for the watersheds. Manicured lawns down to the creek banks, grazed pastures and nearby septic tanks result in chemical additions to the creeks. Livestock is allowed into the creek in many locations for watering, and a barn with adjacent stockyard is located immediately adjacent to Howard Canyon Creek. Though algae growth was not apparent during the winter sampling period and water temperatures were good, it is expected that there are elevated nutrient and other detectable chemicals in all three creeks.

Expansion of the quarry will require conservation measures to control vehicle refueling, water quality treatment, and accidental chemical spills. As such, the expansion of the quarry is not expected to adversely change the environmental baseline (**maintain**).

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Habitat Access

Physical Barriers: Presently there is no passage for listed anadromous salmonids from the Sandy River up Big Creek toward the project site. An approximately 80-foot high waterfall/barrier exists just upstream of the Big Creek confluence with Sandy River. A number of other culverts on Howard Canyon Creek, Knieriem Creek, and Big Creeks prevent unrestricted upstream migration for cutthroat trout adults and juveniles. Passage, therefore, is considered **not properly functioning**.

All road improvements that affect stream crossings should be constructed following the ODFW recommended designs to ensure fish passage for juvenile salmonids. No other impacts to fish passage is expected from the expansion of the quarry. Therefore, there is no change to the environmental baseline (**maintain**).

Habitat Elements

Substrate: This indicator is considered to be **at risk** due to the fine sediments entering the creeks. Better than adequate gravels exists in portions of Howard Canyon, Ross Creek (tributary to Knieriem Creek) and Big Creek for successful spawning by cutthroat trout. Due to the geology of the basin, gravels appear plentiful. The quarry will be mining a basalt bedrock lens. Bedload does not appear to be dominated by this material and other geologic formations appear to be providing the gravel to the creeks. In Knieriem Creek, the bedload consists entirely of fines, except for an area immediately adjacent with the confluence to Ross Creek.

The quarry will not influence the recruitment of gravel and thus will not alter the environmental baseline (**maintain**).

Large Woody Material: The LWM indicator is **not properly functioning**. Except for a few sections of a Howard Canyon Creek, virtually no LWM was found in the streams. It is apparent that humans are clearing the streams along their properties and that fallen trees are being dragged out rather than being left in the streams (likely a way to alleviate the threat of flooding). Even in areas of good LWM recruitment potential, the habitat was distinguished by the lack of LWM providing instream structure.

The existing environmental baseline for LWM for the watershed will be maintained since the project will have no direct effects upon LWM recruitment. (**maintain**).

Pool frequency: Pool frequency in Big Creek and it's tributaries is considered **not properly functioning** due to human caused channel straightening and the lack of LWM. An upper reach of Howard Canyon creek just above the small unnamed tributary that drains the existing water quality facility has the best pool forming features. A complex channel exists due to large woody debris in the channel, and a large cedar on the bank has created a lateral scour pool. Exposed bedrock was only observed once and is not a dominant channel structure feature. There will likely be no impact to this parameter from expansion of the quarry (**maintain**).

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Pool Quality: Pools are infrequent except for the upper portions of Ross Creek and Howard Canyon Creek. Large pool forming features are rare. Since so little large woody debris is present, and banks are generally unstable, few quality pools exist. This parameter is considered to be **at risk**.

The quarry project will not likely influence the quality of existing pools unless heavy sedimentation occurs and fills the few existing pools downstream. As mentioned before, conservation measures will ensure that future degradation of pool quality does not occur (**maintain**).

Off-Channel Habitat: Very little off channel habitat was observed on any of the creeks. Howard Canyon Creek had a side channel just above the confluence with the tributary draining the existing quarry. Due to the simplified channel structure, little complex habitat exists in these streams either in-channel or off-channel. This indicator is **not properly functioning**.

Placement of the LWM in the channel could create additional off-channel habitat, though the proposed project is not altering riparian habitat. It is recommended that ODFW work with the quarry operators to obtain some of the trees removed with the overburden and place them in the creeks. The quarry project will not alter the existing off channel habitat (**maintain**).

Refugia: Due to the lack of LWM, off channel habitat, undercut banks and other backwater types of habitat, there is little refugia along much of the creeks for fish. Only the upper portions of Ross Creek and Howard Canyon Creek contain structure in the stream offering refugia from predators and high flows. Consequently, this indicator is considered **not properly functioning**.

As there will be no direct impacts to the creeks, refugia will not be decreased by the proposed action (**maintain**).

Channel Condition and Dynamics

Width/Depth Ratio: this parameter is considered **not properly functioning** for the watershed as a whole. W/D ratios increase in a downstream direction due to bank disturbance by landowners and from past land use practices. With well-maintained conservation measures, sediment delivery to Howard Canyon Creek and Big Creek will not increase. The proposed project should not alter existing width to depth ratios (**maintain**).

Streambank Condition: The current streambank condition along all the streams except Ross creek is poor. Riparian vegetation has been removed and many banks are eroding. There are few trees or shrubs to provide stabilizing root structure in many of the reaches observed. In several of the reaches, disturbance and the open canopy has allowed the invasive Himalayan blackberry (*Rubus discolor*) to establish. This woody vine does little to stabilize banks. This parameter is **not properly functioning**.

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The proposed project will not alter existing conditions since it is not directly in contact with the streams. In addition, flows to Howard Canyon Creek should not increase to a point that will influence streambank condition if strict conservation measures are imposed (**maintain**).

Floodplain Connectivity: The floodplain of the watersheds has been directly and indirectly affected by channelizing and riparian management practices. The resultant incision along the downstream portions of the creeks has disconnected the floodplain from the creeks in many places. Floodplain connectivity is considered **not properly functioning**.

The proposed expansion will occur well away from the creeks and will not alter floodplain connectivity. (**maintain**).

Flow/Hydrology

Peak/Base Flows: Actively eroding banks and W/D ratios indicate that peak/base flows are **not properly functioning**.

The increased exposure of impervious surface in the expanded quarry has the potential to exacerbate peak/base flows. Some local impact to the groundwater table due to excavation will occur. However, the impact should be minor, as the quarry is located on a ridge and any existing ground water flow will become surface water as the pit is expanded. The collected water will flow into the natural tributary running south from the site and into Howard Canyon Creek. Methods to detain water on-site should be implemented (**maintain**).

Drainage Network Increase: No data on the drainage network were obtained; however, given the generally low amount of urban development in the watershed, this parameter is determined to be **properly functioning** but at risk.

The environmental baseline for the watershed will not be altered; though increased truck traffic may require the widening of roads. There will be a minor, localized increase in the drainage network within the quarry. It is unlikely that new roads will be built and that all new roads will control stormwater runoff (**maintain**).

Watershed Conditions

Road Density and Location: The watershed is rural residential with valley bottom roads paralleling portions of the creeks. Road density is a parameter considered placing the streams **at risk**.

As new roads will likely not be constructed to facilitate truck traffic, the existing environmental baseline of the watershed will not be changed (**maintain**).

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Disturbance History: Disturbances within the Howard Canyon Creek, Knieriem Creek and Big Creek watersheds include minor commercial, moderate residential, and moderate agricultural "pasture" development. Portions of Howard Canyon Creek, Ross Creek and Knieriem Creeks have been logged recently. The degree of riparian disturbance from the pastures along much of the creek banks forces a **not properly functioning** determination.

The expansion of the quarry will impact approximately 24 acres. In addition, there may be disturbance related to the improvement of local roads. However, the expansion area is relatively small from a watershed perspective and should not significantly influence the existing watershed disturbance history (**maintain**).

Riparian Reserves: There is no riparian reserve system for the area. Riparian reserves are determined to be **not properly functioning** since much of the riparian areas have been significantly modified.

The proposed quarry expansion is on a ridge above the creeks and will not decrease riparian reserves (**maintain**).

9.0 SUGGESTED CONSERVATION MEASURES

Expanding the quarry will have to be accomplished in an environmentally sensitive manner to ensure that it will not adversely affect the environmental baseline of the watersheds and impact salmonid populations or their habitat. To ensure that impacts are avoided and where necessary minimized and even mitigated, a series of conservation measures will need to be implemented. A description of each of these conservation measures is included below.

Erosion Control Functional Parameter(s): *Turbidity, Chemical Contaminants/
Nutrients;*

- Strict erosion control measures should be instituted throughout the life of the quarry. It is imperative that extraction activities do not increase the sediment load within the surrounding creeks. Increasing the sediment load decreases the viability of the cutthroat trout populations, many of which are isolated to certain reaches of the creeks by substandard culverts that do not allow fish passage and, therefore, escape from impaired water quality conditions. Impacts to water quality can have a detrimental effect on fish populations within the Sandy River. Pro-active implementation of an Erosion Control Plan (ECP) should be a priority. At a minimum erosion control measures should be designed to keep turbidity below 10% ambient (background) conditions, 30 m (100 ft) downstream from the quarry at all times. The largest source of sediment could originate from haul roads, processing areas at the site, and stockpiles of overburden. Specific measures that could be implemented to reduce erosion include:
 - Weed-free straw bales and silt fences at the bottom of newly constructed slopes. Whenever straw bales are used, they should be staked and dug into the ground at least 12 cm (5 in);

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- Construction of sediment settling basins, where appropriate. Berms should be constructed where appropriate, to divert runoff into these basins;
- Temporary plastic sheeting for immediate protection of open areas (where seeding/mulching are not appropriate);
- Erosion control blankets or heavy duty matting (e.g., jute) can be used on steep unstable slopes;
- Sills or barriers may be placed in drainage ditches along cut slopes and on steep grades to trap sediment and prevent scouring of the ditches. The barriers should be constructed from rock and straw bales and be regularly maintained. Sills or barriers will be necessary in roadside ditches if water bars or cross-ditches are constructed within the haul roads to intercept and direct runoff from a road;
- On the pit or quarry floor, establish a slope that directs turbid water to flow to a low point where it can be collected in a detention pond;
- Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls should be used on all exposed slopes that could potentially create sediment-laden runoff into the creeks;
- On cut slopes steeper than 1:2 (v:h) where runoff may impact the creeks, a tackified seed mulch should be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch should be applied at 1.5 times the rate;
- Material removed during excavation should only be placed in locations where it cannot enter the surrounding creeks or their riparian areas;
- Stockpiles of overburden should be completely protected to ensure that sediment-laden runoff does not enter the adjacent creeks;
- Coir mats and coir logs or filter berms built of porous materials, such as sand and gravel that contains no 200-mesh or smaller material, should be used where appropriate to control erosion;
- Erosion control devices that are failing should be immediately repaired to ensure that sediment-laden water does not leave the project site and discharge into the surrounding creeks;
- A permanent truck wash or wheel wash facility should be constructed to ensure that excess dirt and mud is washed off of all truck tires. The design could incorporate a series of railroad rails spaced approximately 2 to 8 inches apart to shake off the excess dirt while the truck is driving through the wheel wash. All water used to clean the trucks should be treated to remove sediment;

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- Regular inspections should be made to inspect all erosion control devices; needed repairs and/or replacement should be identified; quarry staff should be provided with written directives to replace and/or update the devices, as needed; field inspections shall be made to ensure repairs and/or replacement of devices has occurred within specific timelines, and;
- Regular inspections with County staff should be made to review all erosion control devices and identify needed corrections and/or enhancements.

Water Quality / Hazardous material

Functional Parameter(s)

*Turbidity, Chemical Contaminants/
Nutrients, Substrate, Off-channel
habitat*

- A Pollution Control Plan (PCP) should be prepared by the quarry operator to prevent point and non-point-source pollution.
- No pollutants of any kind (petroleum products, fresh concrete, silt, blasting material, etc.) shall come in contact with an active flowing stream or its riparian area;
- Vehicle maintenance, refueling of vehicles and storage of fuel should be conducted at designated refueling areas located at least 150 feet from the creeks. The refueling areas should only be used if they are sufficiently contained and present no possibility for contamination;
- No toxicant (including petroleum products) should be stored within 150 feet of the creeks. Fuel and lubricant storage areas should be regularly monitored for leakage. A spill control kit should be maintained onsite at all times, and;
- Flocculants used to clean stormwater discharges or water recycled from rock-washing operations must be non-toxic and not harmful to fish or aquatic organisms. At least two ponds should be used to remove suspended solids. Settling time should be at least eight hours. The ponds should be easily accessible and maintained on a regular basis. Material removed from the ponds should be disposed of in an upland location.

Clearing, grubbing and reclamation

Functional Parameter(s)

*Turbidity; Temperature, Large Woody
Material*

- No clearing and grubbing within the 100-feet of the creeks should be allowed unless mitigation is provided;
- Overburden should be removed from limited areas; concurrent or segmental reclamation should be encouraged to limit the disturbed areas within the quarry¹.

¹ Concurrent (progressive or continuous) reclamation occurs as minerals are removed; overburden and soil are immediately replaced. Segmental reclamation occurs following depletion of minerals in a sector of the mine (Washington Department of Natural Resources, 1997).

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10.0 FINDINGS OF EFFECT

Four salmonid species with distributions potentially overlapping the expanded quarry project area have been listed or are proposed for listing under the federal and state Endangered Species Acts. An evaluation of the potential affect of the project on each species has been conducted.

10.1 Federally-Listed Species

National Marine Fisheries Service

The expansion of the quarry described herein will likely result in a more than negligible probability of adverse effects to **Chinook salmon** in the **Lower Columbia River ESU** listed as threatened under the federal ESA. Chinook salmon do not occur in the Big Creek watershed and are not within in the project area; nevertheless, the determination of **may affect, not likely to adversely affect** with regard to this ESU is appropriate given the fact that a spawning gravel bar is located just downstream of the mouth of Big Creek. This gravel bar could be detrimentally influenced by an increase in sediment deposition resulting from the proposed quarry expansion. The potential for direct impact to Chinook salmon is extremely low unless a large-scale failure occurs in the storage of overburden. With a large scale failure, sediment movement downstream would end up influencing any spawning beds in the mainstem Sandy River below the confluence with Big Creek.

The proposed action described herein will result in more than a negligible probability of adverse effects to **steelhead trout** in the **Lower Columbia River ESU**. Therefore, we make a determination of **may affect, likely to adversely affect** with regard to this ESU. Both summer and winter steelhead exist in the Sandy River and both juveniles and adults are present in sections of the river nearly all year long. If steelhead also spawn in the gravel bar just downstream of Big Creek on the Sandy River, there is the potential for sedimentation impacts upon juvenile to fry stages of the species.

The proposed action **may affect, but is not likely to adversely modify** the critical habitat of **Chinook salmon** or **steelhead trout** in the **Lower Columbia River ESU**. As stated above, NMFS has recently withdrawn this designation pending a review of its economic effects. The determination of the project's effects on critical habitat in this report is based on the possibility of this designation being reinstated. It is anticipated that conservation measures will be implemented during the life of the quarry to contain any project-related effects to critical habitat. All impacts associated with the project are not expected to degrade existing baseline conditions. The quarry expansion should not directly affect the riparian areas of Knieriem Creek and Howard Canyon Creek. Changes in water delivery to Howard Canyon Creek are expected to be insignificant as the project site rests on a ridge rather than intercepting ground water farther down the slope. Increases in impervious surfaces will be minimal and will be addressed by treating and detaining runoff. Conservation measures will likely include sediment fencing, straw bales, no touch zones, grass seeding, jute mats, log check dams, and coir.

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U. S. Fish and Wildlife Service

The proposed action described herein will result in more than a negligible probability of adverse effects to **coastal cutthroat trout** in the **Southwest Washington/Columbia River ESU**. Therefore, we make a determination of **may affect, not likely to adversely affect** with regard to this ESU. As stated above, the US Fish and Wildlife Service has decided to not designate cutthroat trout under the ESA at this time. However, the population within the project site remains very vulnerable to water quality impacts from adjacent landuses. The ability of the population to withstand a catastrophic event (e.g. fuel spill) or longterm water quality degradation (e.g. increased sediment levels that could decrease egg to fry survival) is limited by the fact that the population is isolated from the Sandy River and that our data collection appears to indicate the population is small. As such, although presently there is no ESA status afforded to cutthroat trout, the population is likely to be negatively impacted unless conservation measures are closely followed.

No determination has been made on the affect of the project on critical habitat for coastal cutthroat trout because USFWS has not designated critical habitat for coastal cutthroat trout in the Southwest Washington/Columbia River ESU. Nevertheless, the affect of the project on cutthroat trout habitat is likely to be similar to that expected for Chinook salmon and steelhead trout habitat.

10.2 State-Listed Species

The proposed action described herein will result in a negligible probability of adverse effects to **coho salmon** listed as endangered under Oregon's Endangered Species Act. Therefore, we make a determination of **not likely to adversely affect** with regard to this species. Coho salmon are within the Sandy River watershed and some juveniles may rear for short periods of time during spring outmigration in the lower portion of Big Creek below the falls. During the winter high flows, juveniles washed downstream may also escape the Sandy River and retreat up Big Creek. It is not expected that any increases in sediment transport that may result from the expanded quarry would adversely affect coho spawning and juvenile survival.

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Appendix F

Farm and Forest Impact Assessment



MEMORANDUM

To: Kim Peoples, Multnomah County
From: Tom Armstrong
Date: July 7, 2002
Re: **Howard Canyon Reconciliation Report
Farm and Forest Impact Assessment**

PURPOSE

The purpose of this report is to establish the nature and extent of farm and forest impacts on surrounding lands within the impact area of the Howard Canyon rock quarry per Multnomah County Framework Plan Policy 16 – B (Mineral and Aggregate Resources), Strategies I and J:

- I. To approve a surface mining at a site zone Exclusive Farm Use (EFU) the County shall find, as part of the conditional use approval criteria, that the proposed activity:
 1. Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and
 2. Will not significantly increase the cost of accepted farm or forest practices on lands devoted to farm or forest use.
- J. To approve a surface mining at a site zone Commercial Forest Use (CFU) the County shall find, as part of the conditional use approval criteria, that:
 1. The proposed mining will not force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agriculture or forest lands;

The Howard Canyon Quarry is located on land zoned EFU and CFU.

Although the Framework Plan policies require findings as part of conditional use approval, this impact assessment was conducted to incorporate the findings as part of the conflicting use analysis for the ESEE analysis and to ensure the program to achieve the goal includes clear and objective conditions of approval.

ASSESSMENT METHODS

Farm and forest uses are allowed uses in all zoning districts in Multnomah County. Therefore, the quarry impact area was defined as

1. All parcels within 1,200 feet of the aggregate resource area

2. All parcels along the proposed truck route.

A windshield survey of the impact area and truck route was conducted to observe and note different farm and forest practices.

An impact survey was mailed to all property owners within the impact area and along the truck route to identify potential conflicts between the quarry operations and existing farm and forest practices. (The cover letter and impact survey are attached.) A few weeks after the impact survey was sent out, a reminder postcard was sent asking property owners to return the surveys.

48 surveys were returned. Not all survey returns were from farm or forest property owners. Some were from rural residential owners with no farm or forest activity. Some addressed traffic and other quality of life impacts unrelated to farm or forest impacts. The survey results are summarized in an attached memo and form the basis for the following farm and forest impact findings.

FINDINGS

Current Farm and Forest Practices

In general, agricultural practices within the impact area and along the truck routes are a mix of small-scale farms, primarily raising livestock (horses, cattle, sheep, goats, llamas, and alpacas) with pastures for grazing or growing hay. There are a few farms that grow crops (vegetables and berries) or nursery stock.

Commercial forest lands are located primarily to the east of the quarry site. There are few small-scale wood lots located along the truck route.

Potential Changes to Farm and Forest Practices

Many of the survey respondents did not identify any impacts from the existing quarry or potential changes from an expansion.

Some respondents identified negative impacts to livestock related to blasting and truck traffic. These noise impacts scare animals, causing them to panic, breakdown fences and get loose. These respondents indicated a need to be more cautious with handling livestock, such as creating buffer zones and keeping them away from the edge of the road.

A few respondents indicated breeding problems such as miscarriages or animals too nervous to breed.

One respondent indicated negative impacts, especially from truck traffic, on their show horse. The trucks distract and otherwise make the show horse too nervous to training properly. They said increased operating hours and truck traffic would limit their training time.

One respondent indicated the need to wear masks and other protective measures to mitigate dust impacts while cutting and bailing hay.

A few respondents indicated that it might be necessary to change hauling hours during harvest time to avoid heavy truck traffic.

None of the forest property owners indicated a potential impact to their practices from the proposed quarry operations.

Potential Cost Increases to Farm and Forest Practices

A couple of respondents indicated increased feed costs due to the loss of pasture land as they try to create a buffer zone by moving livestock away from the truck traffic.

A few respondents indicated added costs for fence improvements including adding additional rails or hot wires. One cost estimate was \$1,500 to \$2,000.

One respondent indicated they would have added costs to plant additional landscaping (trees and shrubs) along truck route to mitigate noise and dust. They estimated costs at \$4,600.

One respondent indicated they would have increased hauling and handling costs if they changed their harvesting and hauling times to off peak hours to avoid truck traffic.

In the case of the show horse, the respondent indicated that there would be additional costs to transport the horse to an alternative training grounds or added lighting costs to be able to train at night. These costs were estimated at \$600 per month.

CONCLUSION

Impacts identified through the survey are primarily related to noise and dust. To a great extent, these impacts are addressed by mitigation measures proposed under the stream assessment (dust) or noise impact study. For example, measures to limit dust and potential sediment into the streams, such as truck washes or covered loads, will also reduce the impact to adjacent farms.

A majority of the survey respondents did not indicate any conflicts with the quarry operations. For those that did identify impacts, the largest impacts are caused by blasting and truck traffic.

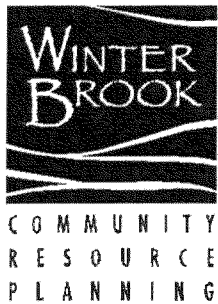
The noise impact study identifies measures to reduce blasting impacts, such as advanced notification and monitoring to adjust charge weights to comply with noise standards. Advance notification would allow livestock owners the opportunity to move animals into barns or to other locations or to otherwise prepare for any adverse impacts. These measures should be sufficient to ensure blasting does not cause a significant change in farming practices or increased costs.

Truck traffic impacts are more difficult to address. Existing traffic on area roads includes a mix of gravel trucks from the existing operations, logging trucks from commercial timber operations, and farm trucks and equipments. There is evidence that the existing level of truck traffic does cause problems for some (6 out 20 responses) farms, but it is difficult to directly relate those impacts to the quarry operations as opposed to other types of trucks. It also is not clear that such problems are causing a significant change in farming practices or significant increases in costs at

this time. It is reasonable to assume that a small increase (10-20%) in truck traffic could be accommodated without triggering a significant change in farming practices or increased costs.

With respect to fencing costs, all livestock owners must maintain their fences as part of their ongoing farm practices. Upgrades such as adding rails or electrified fences do not appear to be a significant change or added cost.

Therefore, with the proposed mitigation measures, the proposed quarry operations should not cause a significant change to or significantly increase costs for farm and forest practices in the impact area and along the truck route.



MEMORANDUM

To: Kim Peoples
From: Tom Armstrong
Date: July 7, 2002
Re: **Howard Canyon – Farm and Forest Impact Survey Results**

As part of the farm and forest impact analysis, a farm and forest impact survey was mailed out to all property owners within the quarry impact area (within 1,200 feet of aggregate resource area) and along the proposed truck route.

To date, 48 surveys have been returned. The following table summarizes the comments from the surveys.

No. of Comments	Type of Comment
FARMS	
14	No impact to livestock (horses, cattle, sheep, goats, llamas)
6	Negative impact to livestock Scare/startle/panic animals with blasting or trucks Unable to use pastures (buffer zone), breeding/birthing problems
1	Increased dust in growing/cutting hay
3	No impact to growing crops
2	Positive benefit with local supply of gravel
FOREST	
10	No impact to forest practices

A number of surveys addressed issues unrelated to farm and forest impacts, including:

TRUCKS	
12	Concerns about safety – speed, road design, narrow shoulders
12	Concerns about noise and negative impact to rural quality of life
5	Comments about deteriorating roads and maintenance issues
OTHER	
1	Elk herd spotted in Howard Canyon
1	Difficulty enforcing conditions of approval
1	Steep slopes on western end of geologic resource area



MULTNOMAH COUNTY
LAND USE PLANNING DIVISION
1600 SE 190TH Avenue, Portland, OR 97233
503- 988-3043 FAX: 503- 988 -3389
<http://www.co.multnomah.or.us/dscd/landuse>

SUBJECT: Howard Canyon Farm Impact Analysis

Dear Property Owner:

Multnomah County is updating the Howard Canyon Quarry Reconciliation Report. The Board of Commissioners has directed County staff to take a closer look at impacts from the quarry on surrounding farms.

The farm impact survey is part of a larger study to assess the impact of the Howard Canyon Quarry. Multnomah County also is conducting a noise study and a stream assessment of Howard, Knieriem and Big Creeks. All of this information will be presented to the community later this spring. An updated Howard Canyon Reconciliation Report will be the subject of public hearings before the County Planning Commission and Board of Commissioners this summer.

The farm impact analysis will look at existing and potential impacts of the quarry operations on surrounding farms, including noise, dust, and truck traffic. The analysis will be used to determine if expanded quarry operations will force a significant change or significantly increase costs for surrounding farms. In order to make this determination, we need information about farms in the area.

The enclosed survey is designed to get basic information about the different farming activities and practices in the area and to identify impacts from the existing quarry operations and any potential impacts if the quarry operations were to expand. The County will use this information to document potential impacts and identify possible mitigation measures to lessen the impacts. The mitigation measures might include restrictions on the hours of operation, restrictions on blasting, requiring advance notice of blasting, sound walls or berms, or washing trucks and watering roads to control dust.

The following table describes the quarry operations for the current use (5,000 cubic yards per year) and possible quarry expansion alternatives. Please use this information to consider potential impacts to your farm. For example, would increased truck traffic have an impact on your farm? The attached map identifies the proposed truck route between the site and the Columbia River Highway.

	Quarry Alternatives		
	5,000 cubic yards/yr	35,000 cubic yards/yr	75,000 cubic yards/yr
Hours of Operation	7am – 5pm	7am – 5pm	7am – 5pm
Average Number of Trucks Per Day	2	14	30
Number of Blasts per Year	1	4	8
Rock Splitting per Year	50 days	75 days	75 days
Rock Crushing per Year	10 days	30 days	100 days

Please help us gather complete and accurate information on farm impacts by completing the enclosed survey form as soon as possible.

Please include your name and telephone number so we can conduct follow-up interviews if we need more details about impacts to your farm practices. Please return the survey in the enclosed pre-paid self-addressed envelop within 7 days to Multnomah County, Land Use Planning. If you have any questions or concerns about this survey or the project, please contact me at 503-988-3043.

Thank you for your time, cooperation and assistance.

Sincerely,

Kim Peoples
Multnomah County

Name: _____
Phone: _____

**Multnomah County
Howard Canyon Rock Quarry
Farm/Forest Impact Survey**

The purpose of this survey is to identify farm and forest land that may be impacted by the Howard Canyon Rock Quarry. These impacts may include changes in farming and forest practices or increases in costs. Please take the time to fill out the survey and return in the enclosed envelope or fax it to:

Kim Peoples, Land Use Planning Division, Fax: (503) 988-3389.

General Description of Your Farm/Forest

Which parcel or parcels do you farm or manage as forest land in the area?

Give site address or tax lot number.

How many acres are in farm or forest use?

If multiple parcels, please note the size for each parcel.

If a farm, what do you grow or raise?

Please describe specific crops or livestock. If you rotate crops, please include the rotation cycle to identify the different types of crops.

Describe your farm or forest practices.

Please include details about the time of year for key events (e.g. planting, harvesting, calving); time of day for operations; trucks and other equipment.

Impact of the Howard Canyon Rock Quarry

Does the existing rock quarry affect your farm or forest?

Describe impacts such as noise, dust, truck traffic. Please be as detailed and specific as possible.

How would an expansion of the rock quarry would this affect your farm or forest?

For example, increased operating hours, number of blasts per year, number of trucks per day. Please be as detailed as possible.

With a possible expansion, would you have to change any of your farm or forest practices? If so, how?

With a possible expansion, would your operating costs significantly increase? If so, why?

Please return the survey to:

Kim Peoples
Land Use Planning Division
Multnomah County
1600 SE 190th Avenue
Portland, OR 97233
Fax: (503) 988-3389

Appendix G

Public Comments, May 16, 2002 Open House



DEPARTMENT OF BUSINESS AND COMMUNITY SERVICES

Land Use Planning Division

1600 SE 190TH Avenue, Portland, OR 97233

503- 988-3043 FAX: 503- 988 -3389

<http://www.co.multnomah.or.us/dscd/landuse>

Howard Canyon Quarry Open House Public Comments

Open House - May 16, 2002

Corbett School

Attendance: 32

The format for the meeting was an informal open house with five stations on various topics, including: aggregate resources, stream corridor assessment, noise impacts, farm and forest impacts, and transportation. Each station presented preliminary findings with opportunities to discuss the issues with County staff and consultants. Comments were recorded on flip charts at each station in addition to written feedback questionnaires.

Aggregate Resources

- Howard Canyon Reconciliation Report was based on aggregate mining vs. decorative rock extraction
- Question as to significance under state law and whether decorative rock is a protected resource under Goal 5.
- Aggregate is not exported from the quarry
- Dust impact will harm allergies
 - Can mitigate by watering the crushed rock, tarp the load, and water the road
- Aggregate is sometimes exported by a local independent contractor depending on variable circumstances
- Don't mine the hogback-
 - Very little volume of rock.
 - Tax lot 16 - this area is EFU land. Forty to fifty head of cattle grazing on that land
 - Impact is lessened if hogback is not mined
 - Unstable slopes
 - Noise
- How will reclamation plan impact creek, ground water flows, and surface water runoff especially if there is a failure of any sediment pond?
- How can County monitor and enforce activity?
- Quarry has exceeded it's exemption parameters
- This review must deal with fundamental concept of resource protection under Goal 5. All discussions of significance must based on the rock crushed as aggregate. Decorative rock violates the concept of protection under the intent of Goal 5 and should be prohibited.

Stream Corridor Assessment

- How do impacts from the quarry on water quality during low activity affect assessment?
- Has efforts to protect Sandy River been figured into the impact from quarry?
- Mitigation- They should re-forest the surrounding parts of the property
- Need to mitigate offsite – Quarry could lead / organize voluntary rehab of area streams
- How to implement assessment of stream conditions over time & monitoring
- Will runoff increase as operation continues? Need to take into account water quality.
- Haul Roads run to close to creek in some places.
- Mitigation – monitoring – enforcement critical issue. Trustworthiness of operator is questionable.
- Improve the entire watershed.
 - Re-forest quarry property not planned for mining.
 - Larger culverts at stream crossings.
 - Fence livestock out of streams and reforest.
- No impact as long as there is adequate sediment ponds.
- Trucks throw of a great deal of debris which gets into the streams
- Pave the haul roads

Noise Impacts

- Problem w/study because little quarry activity at the time of the sampling
 - How can “actual” noise be measured accurately?
- Noise levels seem low
 - When dropping rocks into trucks sounds like an explosion or gunshots
 - Jackhammer noise sounds as if in back yard of Noise receptor site #4
- Noise is worse in the summer when demand is higher
- Since the quarry is on a low ridge and sound travels, mitigate by high berms
- Mitigate by restricting hours of operation
 - Now quarry activity begins @ 6:30 a.m. Starting at 8:30 would be better
 - In winter activity stops @ 4:30 – Summer activity continues to 6:30 pm but should not
 - Should not operate on Saturday
- Resale value would be negatively affected
- Amphitheatre effect if due south
- Peaks are more important than ambient
- Back up beeping noise is very noticeable
- Eliminate use of air brakes on trucks – often used unnecessarily
 - Fines
 - Use must be justified e.g. steep slopes
- Monitoring and enforcement must be linked
- There was no noise receptor site to the east toward Loudon – Very audible now in that direction

- Is 5 trucks per hour one way or two way?
- One person bought a house farther away because of noise in this area - rather than one for sale on Howard Rd.
- Was the crushing of gravel adequately accounted for in noise study?
- Did the study model accurately reflect the equipment that will be used?
- Did the test for truck noise measure difference when stopping and starting at stop signs and lights? (Hurlburt/Evans – Hurlburt/Scenic highway)
- Truck noise will occur all along truck route not just at mine site
- Noise and safety issues could be reduced with a lower speed limit
- Primary noise heard now is the “hammer”, adding a crusher would be much worse
- Noise from independent trucks is more problematic than state operated trucks
- Springdale will be impacted
 - Houses along the road
 - Culvert near Big Market – already vibrates
 - If road is widened, houses along the road will lose front yards
- Mining the western ridge will reduce the natural berm thereby causing increased noise levels to those areas
- Were the strong winds factored in to the study – noise is carried even further
- Home occupation is noise sensitive – testing of microphones
- Now no other major truck traffic
 - Logging is short term
 - Mining is long term, persistent, day in and day out
- Long term cumulative impacts
 - Depression – psychological effects
 - Interruption of nature
 - Frustration & Stress
 - Its there when one wakes up in the morning and it's there at the end of the day
- Profanities can be heard from the quarry site - sound travels
- Effective notification is needed for blasting
- Wildlife impacts
 - Sensitive to low frequency
 - Blue Heron rookery on Howard Rd.
- Truck noise and vibration on roads.
- Noise study is questionable
 - Less than full cooperation of the operator
 - Estimates from file data and references
- Use smaller trucks with no trailers
- How will notice of blasting be implemented?
 - One evening several neighbors called 911 regarding gunshots, which turned out to be quarry blasting at 7:30 p.m.
- The study is quite weak. Comparables to other sites assume production for aggregate. Also, some of the more disturbing noises are short-duration spikes, such as dumping a larger boulder into an empty truck.

- Restricted hours are necessary to protect the residential quality of life in the area. Sound-reducing mitigation measures should be required to demonstrate actual noise reductions, not just theoretical reductions.
- The noise study does measure the noise levels that continue day after day, month after month, year after year. Homeowners are subjected to the noise on a continuing basis. Noise study was limited when the quarry was not operating at a peak production time.
- Noise impacts decrease property values.
- No noise levels were measured east on Loudon Road, where most of the noise complaints have been made.
- Need restricted hours. Late spring and summer are when residents are outside the most. No mining before 9 a.m. and ending at 3:30 p.m. and NO Saturdays or Sundays. Citizens who live in Corbett have moved specifically to Corbett for the peace and quite of rural living.
- 20 ft. berms around the drilling and mining site are not sufficient when residents are located at a much higher elevation. Sound mitigation measures need to make the noise almost non-existent to surrounding neighbors – or do not mine!
- The Hurlburt Road truck route will impact a large number of residential properties. Several sections of the route are fairly dense. It is hilly and when truck climb grades they change gears and apply power.
- The intersection of Hurlburt and Evans is a four-way stop. A west-bound truck (loaded) will have to accelerate from 0 mph while climbing a grade. There are several residences at this location.
- The noise report should include data on noise levels from a loaded truck starting from a stop and accelerating to 25 mph.
- Limit the noise level allowed.
- Limit the size of load. No trailers.
- Blasting should be regulated to cause the least amount of community disturbance. Blasting only from 1:00 to 3:00 p.m. on 1 or 2 days per week.

Farm and Forest Impacts

- Dust from trucks on hay
 - Control blast to keep dust down
 - Tarp the loads
- Dust from crushers
- Allergies from dust
- Maps not large enough
- Increased number of trucks due to landscape rocks not aggregate
- Limit number of trucks not the tonnage
- If limit number of trucks then trucks will be overloaded
 - Safety
 - Road weight impact
- How to monitor & enforce weight limit?

- Farm equipment on road – smaller acreages tend to use the road more often to move equipment around.
- Trucks damage the road causing damage to farm equipment due to pot holes
- Staging of livestock moving from field to field incompatible with truck traffic creates a risk assessment
- Along the haul route there are mainly sheep, horses and cattle. All are skittish when large fast vehicles whipping by. One neighbor claimed her llama miscarried because of gravel trucks.
- Howard Road has blind corners. Widening shoulders is not an option with the canyon walls on one side and the creek on the other. Can the trucks slow down?

Transportation

- Put cost burden of road improvements & maintenance on operator
- Dangerous intersection @ Hurlburt & Historical Columbia Highway
- Sight distance problems along entire route
- Traffic studies should be done in tourist season – summer
 - Make note of camps e.g. Gordon Creek, Numanu, Outdoor School
- Don't allow quarry to operate during summer
- Intersection at Evans and Hurlburt: non-compliance w/ flashing light are already a problem – accident history
- Concern about enforcement:
 - How to keep them to the proposed route?
 - How to keep them to the single truckloads?
 - How to keep them to the weight limit?
- Put scale on site to weigh all loads
- Roads are not currently wide enough to handle trucks with other uses safely
- Hurlburt and local roads are used by have bicycles, children, horses and riders, walkers (both from the area & from outside) during the week and weekends.
 - Mitigate by adding shoulders (accessible to horses)
 - Problem: Wider roads or shoulders entices people to drive faster & may affect the rural character of the area
- Blind corners at Hurlburt and Kimberley
- Recreational groups/tours – Including motorcycle traffic on weekends
- Non-compliance with speed limits along entire route and crossing centerline
- Historic Columbia River Highway – trucks will conflict with special events – car rallies, bicycle groups etc.
- Safety of proposed haul road; too steep, a truck has overturned on it
- Burden of proof should be on operator
- Volume of truck traffic is too high already
- Two to five trucks equates to 5 to 10 trips per day
- Springdale already has hazardous conditions; store parking requires backing out onto roadway, pedestrian traffic along the road and other businesses, speeding along straight stretches

- Mitigate by moving parking away from the road
- Culverts in the area can't handle the weight of the trucks
- Corbett water supply & phone lines in the right-of-way are not deep – concern about disruption
- Back entrance to Oxbow park is used by horseback riders (Hurlburt to Gordon Creek) could cause conflicts
- Make sure trucks can use the route without breaking the law (crossing center line) before a permit is issued
- Bike path should be required along route (Hurlburt / Historic Columbia River Highway to address safety concerns
- Reynolds High School students walk along Hwy. To the Natural Resource School
- Truck traffic causes vibrations
- Must protect the quality of life – rural values including property values
- Is truck staging is currently allowed at Lewis and Clark allowed?
- Curve on HCRH were built by the Job Corp and are too narrow now for two cars.
- Widening would be too difficult; creek on one side, rock face on the other, but it would nevertheless be needed for a truck route
- School buses from Corbett and Reynolds school district operate on proposed truck route
- Proposal is too much for road structure and safety issues
- Sharp turns to ingress and egress quarry already cause safety issues
- Should give property owners early notice if roads are going to be blocked
- Increased truck traffic will add to traffic, noise, and risks to safety throughout the community.
- Springdale is the most hazardous area. ¾ of travelers from Corbett go through Springdale. Market does not have adequate parking with cars backing out onto the highway. Increased truck traffic will increase hazardous conditions.
- Enforcement is the issue. If there isn't monitoring and enforcement, then the public process is meaningless and a waste of taxpayers time and money.
- The truck route on Hurlburt will concentrate impact, especially if two trucks and a bicycle or horse all try to pass at once.
- Local roads are heavily used by pedestrians, horse riders, and bicycle riders and do not have adequate shoulders or are minimal when present.
- For Corbett residents, the access to horse trails on the north side of Oxbow Park is via Littlepage and/or Hurlburt.
- The Historic Columbia River Highway is heavily traveled by those unfamiliar with the road and its sharp turns. The safety risks associated with the projected truck volume are substantial and frightening.
- No truck activity should be allowed on weekends.
- The roads on the truck route are usually paved yearly, due to the influence of the quarry. That is a lot of tar and asphalt. It must certainly affect the environment.
- Trucks should be limited to 4 per hour and restricted to 8:00 a.m. to 4:30 p.m.
- Road maintenance and improvement costs should be on the quarry operator, not the taxpayer.

- Greatest concern is truck traffic on roads frequented by bike riders, joggers, horse riders, walkers. Shoulders are inadequate. Some areas along Hurlburt and the Scenic Highway beg the questions of compatibility of these uses.
- 8 foot shoulder, unpaved, on Hurlburt is needed for bicycles, horses, joggers and walkers.

Howard Canyon Reconciliation Report

Appendix H County Staff Recommendation

April 2004

On May 3, 2004, the Planning Commission held a public hearing in Corbett to review the proposed revisions to this report. The County staff recommendation was to protect the resource and limit mining to current levels under the Grant of Total Exemption (5,000 cubic yards per year) with mitigation measures. After lengthy public testimony, the Planning Commission deliberated and reached a tentative decision to recommend not to protect the resource and prohibit mining on the site. The HCRR has been revised to reflect that recommendation. This appendix archives the County staff recommendation.

Program To Achieve Goal Recommendations

The Howard Canyon site is to be protected under the provisions of OAR 660-16-010(3), Limit Conflicting Uses (also referred to a 3C designation) and will continue to be included on Multnomah County's list of *Protected Sites*.

Determination of Significance

The Howard Canyon site is a significant Goal 5 mineral and aggregate resource, based on the following findings:

- Quantity - The resource site represents a large quantity of basalt material, in excess of 5 million tons.
- Quality - Laboratory testing confirms the basalt meets ODOT standards for air degradation and abrasion and is suitable for aggregate use. In addition, the columnar basalt formations in Howard Canyon are suitable for riprap in road construction as well as decorative rock in landscaping and building construction.
- Location - There are a limited number of mineral and aggregate resource sites in east Multnomah County and adjacent portions of Clackamas County. There are no other basalt quarries in the region that actively mine columnar basalt.

Level of Protection

The recommendation for the Howard Canyon site is protection under the provisions of OAR 660-16-010(3), Limit Conflicting Uses (also referred to a 3C designation).

The Howard Canyon site will continue to be included on Multnomah County's list of *Protected Sites*.

Protected Site

The Protected Site is limited to the proposed quarry (extraction area) as identified in Figure 8. In order to limit conflicts identified in the ESEE analysis, the hogback ridge and the areas east of the existing haul road are not protected under this Goal 5 decision and are prohibited from future mining activities. The reasons for limiting the protected area include:

- The hogback ridge has social and environmental impacts that are difficult to mitigate, and which outweigh the small economic benefits (that would result from mining).
- The area east of the existing haul road has steep, south facing slopes. Noise impacts from mining on Loudon Road residents would be difficult to mitigate, and the potential for soil erosion on steep slopes would be severe. The economic benefit resulting from mining in the East Area is outweighed by potential adverse social and environmental impacts.

Protected Aggregate and Mineral Resources (PAM) Overlay Subdistrict

Based on the ESEE analysis, the PAM Overlay will apply to land within 1,500 feet of the protected resource as shown on Figure 8. Within this impact area, conflicting uses allowed by underlying are likely to have the greatest adverse impact on mining. The PAM overlay will not be applied to the entire resource site impact area (as shown on Figure 5), so that restrictions to neighboring property owners are limited to the minimum necessary to protect the Goal 5 resource. Thus, the smaller PAM Overlay will not impose undue restrictions on parcels that lie farther away from the proposed quarry, such as the Loudon Road rural residential area, for which it is already possible to comply with applicable DEQ noise control standards.

Primary Uses, Uses Permitted Outright, Uses Permitted Under Prescribed Conditions, and Conditional Uses allowed in the underlying district may be permitted subject to the underlying district provisions and criteria of approval, except that the use must meet the following criteria:

- (1) The proposed use will not interfere with or cause an adverse impact on lawfully established and lawfully operating mining operations;
- (2) The proposed use will not cause or threaten to cause the mining operation to violate any applicable standards of this chapter, or the terms of a state agency permit. The applicant for a new noise sensitive use shall submit an analysis prepared by an engineer or other qualified person, showing that applicable DEQ noise control standards are met or can be met by a specified date by the nearby mining operation; and

- (3) Along the truck route, any new habitable structures shall be setback 50 feet from the edge of the roadway pavement.

The proposed use shall be conditioned upon execution of a restrictive covenant in favor of the mining operator. The restrictive covenant shall incorporate all approval conditions, and an agreement not to object to the conduct of lawful operations conducted at the Howard Canyon quarry.

Mitigation Measures

The following mitigation measures are adopted as part of this Goal 5 process as conditions of approval for any Conditional Use Permit to authorize the quarry activities.

Limits on Extraction Volumes and Truck Traffic

The recommendation is to limit the amount of material and associated truck traffic to the current DOGAMI GTE levels or 5,000 cubic yards per year. When DOGAMI determines that the quarry has exceeded the total area limits, then the quarry owner and operator will be required to apply for a Conditional Use Permit demonstrating compliance with the mitigation measures described below. Table 12 outlines the restrictions on extraction volumes and truck traffic.

Table 12. Limits on Extraction Volumes and Truck Traffic

	Baseline (Is this the current status or the proposed limit/) GTE
Rate of Extraction	5,000cy/yr
Avg. No. of Trucks Per Day	2* (4 trips)
Max. No. of Trucks Per Day	4* (8 trips)
Max. No. of Trucks Per Hour	2* (4 trips)
Number of Blasts per Year L = Low Yield H= High Yield	1H

Each truck represents two trips – one inbound (empty) and one outbound (full).

- Average Number of Trucks Per Day – this standard is based on 250 operating days per year (5 days per week, 50 weeks per year).
- Maximum Number of Trucks Per Day – this standard recognized the quarry will not operate at full capacity, all year round. The maximum number of trucks is designed to ensure the local area is not overwhelmed by a large increase in truck traffic in order for the quarry to fully utilize its annual volume allocation.
- Maximum Number of Trucks Per Hour – this standard is designed to ensure the local area is not overwhelmed by a concentrated flow of truck traffic.

The haul road entrance onto Howard Road shall have a permanent truck counter that will track the time of each truck entering and leaving the site. Operator shall submit quarterly

compliance reports to the County. More frequent reports may be required by the County in response to complaints filed by neighbors.

Noise

The stricter DEQ standard for New Sources on Previously Unused Sites (Ambient plus 10dBA) will be the baseline standard. The noise impacts will include all noises generated or attributable to the quarry, including the off-site impacts of truck traffic.

The Duple Noise Study recommends several modifications to normal quarry operations to lower noise levels.¹ These mitigation measures have been modified in response to comments submitted on behalf of the quarry owner and operator.² The noise mitigation measures include:

- Rock drilling shall be conducted with a hydraulic rock drill (or quieter substitute). Rock drilling shall not have a direct line of sight to any surrounding residential uses. A noise barrier shall be erected between the rock drill and the residential uses. The noise barrier can be a rock wall, a vinyl plastic 1-psf noise barrier, or a straw bale barrier around the rock drill to achieve an insertion loss of 10dB at the residential site.
- One week advance notice of blast events shall be sent to the County and all property owners and residents of the quarry impact area. A qualified registered acoustical engineer shall monitor noise at least six sites during the first blast event. Adjustments to blasting parameters, such as total charge weight, number of holes and stemming, shall be made as necessary to meet the DEQ blast noise standard or reduce annoyance.
- A 25 to 30 foot rock wall shall be maintained to enclose the processing area on at least three sides. The excavation depth should be maximized as much as possible.
- Overburden shall be used to establish a 10 foot high berm at the crest of the ridge at each new excavation location.
- Excavation vehicles, such as front loaders and bulldozers, shall be fitted with "residential" quality mufflers. This type of muffler shall yield an 8dBA reduction for the low frequency exhaust.
- Internal haul roads used to convey excavated rock to the processing area shall be constructed with a noise barrier to screen residential sites to the south and southeast.
- Use of engine "jake" brakes shall be prohibited along the truck route, except in case of emergency to avoid accidents. If these brakes must be used due the

¹ Page 12, Duple Noise Study (Appendix D)

² Letter submitted by Joseph Begin, Daly-Standlee Associates, dated December 30, 2002.

extreme down grade of the haul road, the installation of special mufflers to reduce "jake" brake noise will be required.

- Noise studies shall be conducted by a qualified registered acoustical engineer at the expense of the quarry owner and/or operator. The noise studies shall be conducted at three of the closest sites to current quarry operations. Noise studies shall be conducted two times during the first year of operation. After the first year, annual measurements at the same three sites.
- If a crusher is used, then measures (berms, rock walls, vinyl walls) shall be undertaken to achieve a noise reduction equivalent to adding a close-in barrier that extends at least 2 feet over the highest point of the crusher.
- The quarry operating hours shall be limited to 9 a.m. to 4 p.m. Trucks and employee vehicles may arrive or depart between 8 a.m. and 5 p.m.
- The quarry shall not operate on Saturdays or Sundays.

Stream Protection Measures

A more effective approach to mitigating potential adverse water quality impacts is required to ensure that quarry activities do not increase the sediment load in the surrounding creeks. The largest source of sediment could originate from haul roads, processing areas, and overburden stockpiles.

An erosion control plan shall include measures designed to keep turbidity below ambient plus 10 percent conditions, 100 feet downstream from the quarry during a 10-year storm event. An erosion control plan shall include the following measures:

- Weed-free straw bales and silt fences at the bottom of newly constructed slopes. Whenever straw bales are used, they should be staked and dug into the ground at least 12 cm (5 in);
- Construction of sediment settling basins, where appropriate. Berms shall be constructed where appropriate, to divert runoff into these basins;
- Temporary plastic sheeting for immediate protection of open areas (where seeding/ mulching are not appropriate);
- Erosion control blankets or heavy duty matting (e.g., jute) can be used on steep unstable slopes;
- Sills or barriers may be placed in drainage ditches along cut slopes and on steep grades to trap sediment and prevent scouring of the ditches. The barriers should be constructed from rock and straw bales and be regularly maintained. Sills or barriers

will be necessary in roadside ditches if water bars or cross-ditches are constructed within the haul roads to intercept and direct runoff from a road;

- On the pit or quarry floor, establish a slope that directs turbid water to flow to a low point where it can be collected in a detention pond;
- Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls should be used on all exposed slopes that could potentially create sediment-laden runoff into the creeks;
- On cut slopes steeper than 1:2 (v:h) where runoff may impact the creeks, a tackified seed mulch should be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch will be applied at 1.5 times the rate;
- No clearing within 100-feet of Howard Canyon Creek shall be allowed.
- No clearing within 100-feet of drainage channels into Howard Canyon Creek shall be allowed, unless mitigation is provided.
- Total disturbance area of the quarry not exceed 5 acres at any time. Concurrent or segmental reclamation is required to limit disturbed areas within the quarry.
- Material removed during excavation shall only be placed in locations where it cannot enter the surrounding creeks or their riparian areas;
- Stockpiles of overburden shall be completely protected to ensure that sediment-laden runoff does not enter the adjacent creeks;
- Coir mats and coir logs or filter berms built of porous materials, such as sand and gravel that contains no 200-mesh or smaller material, should be used where appropriate to control erosion;
- Haul roads shall have impervious surfaces with adequate erosion control best management practices to prevent sedimentation into adjacent creeks;
- All creek crossings and culvert improvements shall be fish passage friendly and constructed with open bottomed arched culverts or bridges with sufficient water passage capacity to withstand 100-year flood events;
- Erosion control devices that are failing shall be immediately repaired to ensure that sediment-laden water does not leave the project site and discharge into the surrounding creeks;
- A permanent truck or wheel wash facility shall be constructed to ensure that excess dirt and mud is washed off of all truck tires. All water used to clean the trucks should be treated to remove sediment;

- The County shall be allowed to make regular inspections of all erosion control devices. The inspection shall identify needed repairs and/or replacement of erosion control devices. Follow-up field inspections shall be made to ensure repairs and/or replacement of devices has occurred within specific timelines.
- From October to April, the quarry operator shall submit monthly monitoring reports to the County, which shall include water quality samples from Howard Canyon Creek taken 100-feet downstream from the quarry.

Also, water quality is susceptible to chemical contamination from pollutants such as vehicle fuels and maintenance or accidental chemical spills. A pollution control plan shall be prepared to prevent point and non-point source pollution, and will include the following measures:

- No pollutants of any kind (petroleum products, fresh concrete, silt, blasting material, etc.) shall come in contact with an active flowing stream or its riparian area;
- Vehicle maintenance, refueling of vehicles and storage of fuel shall be conducted at designated refueling areas located at least 150 feet from drainage channels to Howard Canyon Creek. The refueling areas shall be sufficiently contained and present no possibility for contamination;
- No toxicant (including petroleum products) will be stored within 150 feet of drainage channels to Howard Canyon Creek. Fuel and lubricant storage areas shall be regularly monitored for leakage. A spill control kit shall be maintained onsite at all times, and;
- Flocculants used to clean stormwater discharges or water recycled from rock-washing operations must be non-toxic and not harmful to fish or aquatic organisms. At least two ponds should be used to remove suspended solids. Settling time should be at least eight hours. The ponds should be easily accessible and maintained on a regular basis. Material removed from the ponds should be disposed of in an upland location.

Big Game Wintering Habitat

The Oregon Department of Fish and Wildlife has proposed the following conditions to minimize impact to wintering deer and elk:³

- Crushing and hauling of rock limited to daylight hours only. (Note: this measure has been implemented as part of the quality of life mitigation to restrict quarry activities to 9 a.m. to 4 p.m.)
- No rock crushing from November 1 to March 31.

³ Email from Gregory Hobart, Habitat Biologist, ODFW to Virginia Bowers, Multnomah County, dated March 29, 2001

Transportation

The 1996 HCRR required a traffic management plan as a condition of approval in recognition of the inadequacy of Howard Road, Littlepage Road, and possibly other nearby roads to handle increased levels of heavy truck traffic.⁴ The traffic management plan should identify improvements to address the following issues:

- Bridge Load Capacities – demonstrate the structural strength of bridge crossings are adequate to handle the expected truck traffic or make structural improvements to bridges and culverts or agree to weight limits for trucks crossing certain bridges.
- Roadway Design – all local roads, rural collectors, and intersections along the truck route between the site and Interstate 84 shall be improved to handle the expected quarry truck traffic. These standards include road width (including shoulders), curve radii, and structural integrity.
- Bikeways – designated bikeway routes along Littlepage Road and Hurlburt Road shall be improved by paving and striping an adequate shoulder area to mitigate the impacts of truck traffic on the bikeway routes.
- Historic Columbia River Highway – identify any conflicts with HCRH and propose possible solutions. Any proposals to change the current configuration of the HCRH shall not have adverse effects and shall be reviewed by the HCRH Advisory Committee.⁵

Based on the results of the traffic management plan, the County Engineer will stipulate a schedule for necessary improvements and/or payments for road improvements to ensure adequate public safety and maintenance of public roads.

Monitoring and Enforcement

A monitoring program will be critical to the implementation of the mitigation measures. The monitoring program will be undertaken by the quarry owner and/or operator with regular reports submitted to the County for review. Enforcement of the mitigation measures will be through the Conditional Use Permit, consistent with the provisions set forth in MCC 35.0190. The monitoring program will include:

Noise Studies

Noise studies shall be performed by a qualified registered acoustical engineer. The noise studies shall be conducted at three of the closest sites to current quarry operations. Noise studies shall be conducted two times during the first year of operation for any phase (as identified in Table 10). After the first year, annual measurements at the same three sites.

⁴ Page IV-25, 1996 HCRR

⁵ Letter from Michael Ray, ODOT Region 1, dated September 30, 2002.

Water Quality Studies

From October to April, the quarry operator shall submit monthly monitoring reports, which shall include water quality samples from Howard Canyon Creek taken 100-feet upstream and downstream from the quarry. The County shall be allowed to make regular inspections of all erosion control devices. The inspection shall identify needed repairs and/or replacement of erosion control devices. Follow-up field inspections shall be made to ensure repairs and/or replacement of devices has occurred within specific timelines.

Truck Counter

Truck traffic is a function of the level of quarry activity, which has been limited to reduce quality of life and public safety impacts to the impact area. The quarry owner and/or operator shall install and maintain a permanent truck counter that will track the time of each truck entering and leaving the site at the haul road entrance onto Howard Road. The operator shall submit quarterly compliance reports to the County. More frequent reports may be required by the County in response to complaints filed by neighbors.

BEFORE THE BOARD OF COUNTY COMMISSIONERS
FOR MULTNOMAH COUNTY, OREGON

ORDINANCE NO. 1050

Amending the Howard Canyon Reconciliation Report of June 1996, a Part of the Comprehensive Framework Plan Findings, by Updating the Chapter Sections on the Aggregate Resource and Making the Decision to "Allow Conflicting Uses Fully" and Prohibit Expansion of Mining

(Language ~~stricken~~ is deleted; double-underlined language is new.)

The Multnomah County Board of Commissioners Finds:

- a. Multnomah County exercises land use planning and permitting authority over land within the jurisdiction of Multnomah County lying outside the Portland Metropolitan Urban Growth Boundary. The County has adopted Comprehensive Framework Plans, Rural Area Plans, and implementing Codes that have been acknowledged by the State Land Conservation and Development Commission as being consistent with all of the State-wide Planning Goals, including Statewide Planning Goal 5.
- b. The Howard Canyon Quarry site is located in unincorporated Multnomah County and is an active rock quarry that is currently producing less than 5,000 cubic yards of rock per year under a permit from the Oregon Department of Geology and Mineral Industries. While evaluating the Howard Canyon Quarry under the Statewide Planning Goal 5 process in 1994, the Department of Land Conservation and Development directed the County, through a revised Periodic Review Work Program, to reconcile stream, wildlife, scenic view and aggregate resource issues in a "reconciliation report" that reconciled all the different Goal 5 resources and conflicting uses in the area of the Howard Canyon Quarry.
- c. Multnomah County adopted the Howard Canyon Reconciliation Report (HCRR) in 1996 that addressed the information known at that time about natural resources and residential and farm areas that could be impacted by a mining operation in the Howard Canyon Quarry. The HCRR assessed and evaluated the Economic, Social, Environmental and Energy consequences (ESEE analysis) of a particular type and level of aggregate rock mining operation in the Quarry. The particular type of mining operation proposed by the property owner and analyzed by Multnomah County in the HCRR was a construction concrete aggregate operation with a crusher and with a particular mix of machinery which generated a particular level of noise, and based on this noise generation, the surrounding "impact zone" analyzed in the HCRR was limited to 1,200 feet and did not include any analysis of impacts to recognized farm uses under state law or the county code.
- d. Based on the particular nature of the mining operation proposed by the Quarry owner at that time, the County's ESEE analysis concluded that the impacts from such a mining operation were acceptable and that the Quarry should be designated for resource extraction and protected from near-by conflicting uses. The HCRR then became an acknowledged part of Multnomah County's Comprehensive Plan and compliance program for complying with Statewide Planning Goal 5.
- e. Despite the specific assumptions and recommendations of the HCRR and the State's acknowledgment of the Report, neither the County nor the Quarry owner acted on the HCRR and neither sought to

apply the recommended zoning for Protected Aggregate Mineral (PAM) sites as provided by the County's land use regulations.

- f. In 1998, the National Marine Fisheries Service (NMFS) declared Lower Columbia River Steelhead, which is native to and still survives in east Multnomah County, as threatened under the Federal Endangered Species Act (ESA), and in 1999, NMFS listed 8 additional salmon populations in Oregon as threatened under the ESA. In February 2000, NMFS designated the critical habitat necessary for the survival of the species previously listed as threatened under the ESA, and declared the 300 feet on either side of the Sandy River and several of its tributaries to be critical habitat for the survival of these species, most notably Steelhead. The Sandy River lies approximately 1000 feet from the Howard Canyon Quarry property and three tributaries of the Sandy River, *i.e.*, Big Creek, Knieriem Creek and Howard Canyon Creek, either pass through or adjacent to the Howard Canyon Quarry property and stand to be severely impacted by mining operations in the Quarry. In response to the ESA listings of Lower Columbia River Steelhead and 8 other salmonid species and the designation of critical habitat for these species in east Multnomah County, both Metro and Multnomah County adopted extensive measures to protect these species and their critical habitat from incompatible development.
- g. In 2000, the County, acting on behalf of the Quarry owner, applied to change the zoning of the Howard Canyon Quarry and of the private property surrounding the Howard Canyon Quarry and by applying the County's Protected Aggregate Mining (PAM) overlay zoning district that has the purpose to protect aggregate and mineral sites and restrict conflicting uses on surrounding properties.
- h. On June 13, 2000, the Board of County Commissioners tabled indefinitely that zone change request and directed staff to reopen and revise the HCRR and the County's Goal 5 process regarding the Howard Canyon Quarry and "focus on several issues that would include the Endangered Species Act and the need for improved stream protections, the change in mining method and use of rock, associated noises and farm impact, and the lack of evidence for westerly one thousand foot extent of the resource."
- i. On June 7, 2004, the Planning Commission, based upon the following findings, that allowing conflicting uses fully and prohibiting mining under Goal 5 would resolve many of the negative impacts on the surrounding community while understanding that the Comprehensive Framework Plan polices will continue to allow the quarry to operate at existing levels of extraction under their DOGAMI Grant of Total Exemption:
 - The quarry has a significant negative impact on farms, primarily due to conflicts between truck noise and livestock despite noise mitigation measures and limiting the numbers of trucks including advance notification of blasting which would require change of accepted farming practices.
 - Potential quarry impacts to streams can be mitigated with erosion control and pollution plans so that the quarry is not likely to adversely impact water quality or ESA listed salmonid species in local streams.
 - The quarry will have no or minimal impact on the cost of mineral and aggregate rock products in the region or the county, because it represents less than one percent of the estimated regional demand for aggregate and therefore the quarry is expected to have minimal influence on the regional price of aggregate.

- The quarry will have minimal impact on the local market area because the demand for aggregate is expected to be low given the surrounding area is rural in character and outside the Urban Growth Boundary with the vast majority of land designated as resource land.
 - A decision to prohibit larger extraction operations at the quarry may have an adverse impact on the quarry owners by lost income from future extraction opportunities. However, mitigation costs associated with a larger scale extraction operation would be significant and might not result in a net benefit to the owner. In addition, a County determination to allow conflicting uses fully under Goal 5 does not prevent the quarry from continuing to operate under the terms of the Department of Geologic and Mineral Industries (DOGAMI) Grant of Total Exemption for a small scale quarry.
 - The quarry has been found to have a negative impact on surrounding property values due to noise impacts and application of the Protected Aggregate and Mineral overlay zoning.
 - Truck Traffic from the quarry adversely impacts Springdale, a rural center, where many dwellings are closer to the road and the associated setback used for truck noise calculations causes increased noise levels and adverse noise impacts, which in turn can decrease property values and decrease the attractiveness of Springdale for commercial development. A result that may threaten the viability of existing businesses or discourage new businesses from locating in Springdale.
 - DEQ noise standards do not fully account for the extended duration and long term effects of the quarry activity and truck traffic despite noise mitigation measures, including speed restrictions, time and days of operation, prohibiting the use of "Jake" brakes, and limits on the number of trucks, are all designed to meet the DEQ noise standard. That noise standard is an hourly standard that does not adequately account for the continuous operation and long-term effects of the quarry activity and truck traffic which subsequently impacts the quality of life to surrounding property owners.
 - The Hogback Ridge is comprised of similar aggregate material as that previously found to meet Goal 5 significance yet is relatively small and will have marginal loss of economic value for the region. The ridge also has the steepest and potentially unstable slopes that make erosion control difficult and results in increased risk of slope failure that would create environmental impacts that cannot be resolved. The ridge is nearest to residences and farm uses and yet has the most potential for adverse impacts from noise.
- j. The Board of County Commissioners agrees with the findings of the Planning Commission and with the need to amend the June 1996 Howard Canyon Reconciliation Report to "Allowing Conflicting Uses Fully" and prohibit all mining except as permitted under a Department of Geologic and Mineral Industries (DOGAMI) Grant of Total Exemption for a small scale quarry.

Multnomah County Ordains as follows:

Section 1. The Howard Canyon Reconciliation Report, June, 1996, a part of the County Comprehensive Plan Findings, is amended as follows:

- a. On page I-5, after the last paragraph in the Introduction add the following:

In 2004, the Planning Commission and Board of County Commissioners concluded that due to change in circumstances and new information that an amended decision was necessary in regard to the aggregate resource in this report. The decision was made to "Allow Conflicting Uses Fully" and prohibit expansion of mining except as allowed currently under a Department of Geology and Mineral Industries Grant of Total Exemption. See the history and documentation for this 2004 decision in the revised Chapter III of this report.

- b. Chapter III, Howard Canyon Aggregate Resource, Mineral and Aggregate Inventory Site #8, (pages III-1 through III-48), is replaced in its entirety by Exhibit A, Howard Canyon Reconciliation Report, Revised 2004.
- c. Pages IV-17 through IV-28 of Chapter IV, Conflict Resolution and Protection Program for Howard Canyon Area Goal 5 Resources, are deleted and replaced by the following:

2. AGGREGATE RESOURCE

Based upon the findings in Chapter III, particularly the ESEE Consequences parts of the chapter, the decision has been made to not protect the aggregate resource, allow conflicting uses fully (also referred to as a "3B" designation), and prohibit all mining except as permitted under a Department of Geology and Mineral Industries Grant of Total Exemption.

- d. Page IV-29 of Chapter IV is amended to delete paragraphs 3.a. and 3.c. and replace paragraph 3.a. with the following:

3. CONCLUSION

- a. The aggregate resource at the Howard Canyon site is being designated to not be protected, to allow conflicting uses fully (also known as a "3B" designation, and to prohibit all mining that is not done under a Department of Geology and Mineral Industries Grant of Total Exemption with its limitations.

Section 2. The East of Sandy River Rural Area Plan, adopted July 10, 1997, a part of the County Comprehensive Plan, is amended as follows:

- a. Policy 35, page 23 is amended to read:

Mineral and Aggregate Resource Policies

35. ~~Allow~~ Prohibit mining on the Howard Canyon quarry site under the conditions set forth in the Howard Canyon Reconciliation Report, part of the County Comprehensive Plan.

~~STRATEGY: Multnomah County shall implement this policy when reviewing a conditional use permit proposing a quarry at the Howard Canyon mineral and aggregate site.~~

b. The findings on page 19 are amended to read:

"One of the Goal 5 resources ~~to be protected~~ is mineral and aggregate materials. The Howard Canyon quarry is a small operation located between Howard and Knieriem Roads which currently operates under an "exempt" permit. Under state law, any quarry which produces less than 5,000 cubic yards of material and disturbs less than five acres per year is exempt from state and county mining statutes. The owner of the Howard Canyon quarry has applied several times since the 1960's to expand the quarry beyond this level, always unsuccessfully. In 1990, the Multnomah County Board of Commissioners decided not to designate the Howard Canyon quarry site as a significant and protected Goal 5 aggregate resource. However, in 1993, the Oregon Land Conservation and Development Commission remanded this decision back to Multnomah County because the County's rationale for denying protection was not acceptable. In response, the Board of Commissioners granted protection of the aggregate resource for most of the site in 1994, but with significant conditions related to air quality and traffic mitigation (see Howard Canyon Reconciliation Report). The quarry owner objected to these conditions, and in response the matter was once again returned to Multnomah County by the state for more work. In 1995, the Board of Commissioners once again adopted protection for the quarry site, with some modifications in the conditions. On March 7, 1996, the Oregon Land Conservation and Development Commission (LCDC) approved the County's work, but with two exceptions, and ordered the County to make specific changes which would protect all of the site for mineral & aggregate mining and would also not allow the County to independently monitor ongoing air quality issues associated with quarry operations. Multnomah County adopted these changes in June, 1996.

~~The result of this complicated story is that the Howard Canyon quarry is now a protected mineral and aggregate site. In order to actually mine the site further, an applicant must receive approval from Multnomah County of a conditional use permit and receive approval from the Oregon Department of Geology and Mineral Industries for a reclamation plan to be implemented once mining is complete. The conditional use permit must meet all of the requirements set forth in the Howard Canyon Reconciliation Report.~~

In 1999, a conditional use permit application for mining this resource site was submitted to the County. This application proposed a level of mining activity that was dramatically different from the base assumptions in the Howard Canyon Reconciliation Report. Therefore, Multnomah County decided it necessary to revisit the HCRR and re-analyze the impacts of increased production levels and future quarry operations on the site and the surrounding community.

The results of the preliminary impact reports were reviewed in a public meeting on May 16, 2002 at the Corbett School. Based on public comments received at the meeting, the impact reports were finalized and a draft of the updated HCRR was prepared. A draft Howard Canyon Reconciliation Report was reviewed by the Planning Commission in 2002 and early 2003. In March, 2003, all parties agreed to try to resolve the conflicts through mediation. The mediation broke down because agreement between all parties would have required a higher level of trust than was likely to evolve in the requisite time.

In 2004, the Planning Commission held public hearings on proposed revisions to the Howard Canyon Reconciliation Report. The Planning Commission deliberated and recommended to not protect the resource and prohibit mining on the site. The Howard Canyon Reconciliation Report has been revised to reflect that recommendation.

FIRST READING:

September 9, 2004

CONTINUED FIRST READING:

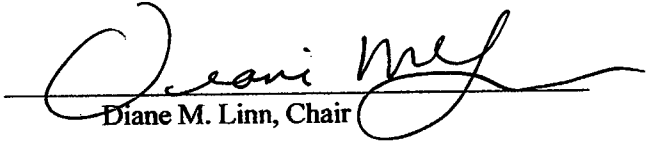
September 30, 2004

SECOND READING:

October 7, 2004

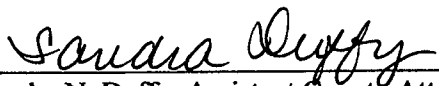


BOARD OF COUNTY COMMISSIONERS
FOR MULTNOMAH COUNTY, OREGON


Diane M. Linn, Chair

REVIEWED:

AGNES SOWLE, COUNTY ATTORNEY
FOR MULTNOMAH COUNTY, OREGON

By 
Sandra N. Duffy, Assistant County Attorney

AGENDA PLACEMENT REQUEST

BUD MOD #:

Board Clerk Use Only:

Meeting Date: October 7, 2004

Agenda Item #: E-1

Est. Start Time: 10:00 AM

Date Submitted: 08/03/04

Requested Date: October 7, 2004

Time Requested: 30 mins

Department: Non-Departmental

Division: County Attorney

Contact/s: Agnes Sowle

Phone: 503 988-3138

Ext.: 83138

I/O Address: 503/500

Presenters: Agnes Sowle

Agenda Title: The Multnomah County Board of Commissioners Will Meet in Executive Session Pursuant to ORS 192.660(1)(h). Only Representatives of the News Media and Designated Staff are allowed to Attend. Representatives of the News Media and All Other Attendees are Specifically Directed Not to Disclose Information that is the Subject of the Executive Session. No Final Decision will be made in the Executive Session.

**NOTE: If Ordinance, Resolution, Order or Proclamation, provide exact title.
For all other submissions, provide clearly written title.**

- 1. What action are you requesting from the Board? What is the department/agency recommendation?**
- 2. Please provide sufficient background information for the Board and the public to understand this issue.**
- 3. Explain the fiscal impact (current year and ongoing).**

NOTE: If a Budget Modification or a Contingency Request attach a Budget Modification Expense & Revenues Worksheet and/or a Budget Modification Personnel Worksheet.

If a budget modification, explain:

- ❖ **What revenue is being changed and why?**

- ❖ What budgets are increased/decreased?
- ❖ What do the changes accomplish?
- ❖ Do any personnel actions result from this budget modification? Explain.
- ❖ Is the revenue one-time-only in nature?
- ❖ If a grant, what period does the grant cover?
- ❖ When the grant expires, what are funding plans?

NOTE: Attach Bud Mod spreadsheet (FORM FROM BUDGET)

If a contingency request, explain:

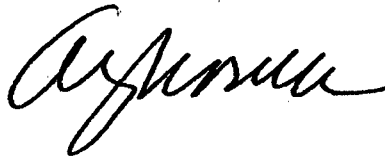
- ❖ Why was the expenditure not included in the annual budget process?
- ❖ What efforts have been made to identify funds from other sources within the Department/Agency to cover this expenditure?
- ❖ Why are no other department/agency fund sources available?
- ❖ Describe any new revenue this expenditure will produce, any cost savings that will result, and any anticipated payback to the contingency account.
- ❖ Has this request been made before? When? What was the outcome?

If grant application/notice of intent, explain:

- ❖ Who is the granting agency?
- ❖ Specify grant requirements and goals.
- ❖ Explain grant funding detail – is this a one time only or long term commitment?
- ❖ What are the estimated filing timelines?
- ❖ If a grant, what period does the grant cover?
- ❖ When the grant expires, what are funding plans?
- ❖ How will the county indirect and departmental overhead costs be covered?

4. Explain any legal and/or policy issues involved.
5. Explain any citizen and/or other government participation that has or will take place.

Required Signatures:



Department/Agency Director: _____

Date: 09/29/04

Budget Analyst

By: _____

Date:

Dept/Countywide HR

By: _____

Date: