

In Support of
**LICENSURE
Of
GEOLOGISTS**

Bill S6455



Magnolia Bluff, Seattle, 1997. Photo By Len Palmer

The use of qualified geologic investigations in areas of development risk is a cost effective and needed public safety tool.



New homes at risk from inadequate setback and existing landslides on Puget Sound Coastal Bluff, Kitsap Peninsula, (north of Kingston)
Photo, Len Palmer

In Support of S6455
Why License geologists in Washington State?
And Why Now?

Because:

1. ***Washington State growth is expanding into active geologic areas with increasing land use and development risk.***¹
2. ***Losses to life and property increase especially in high risk areas.***²
3. ***Cost effective loss reduction is documented with geologic input.***
Geologic specialties applied to land use development are shown to provide high reduction of damage costs, a **cost reduction of 95% or more.**^{3, 4}
4. ***Development hazard and losses increase due to climate changes.***
Global climate change increase precipitation intensity and land instability.
5. ***Habitat and environmental preservation require increased geologic technical data.*** Geologic input in development can mitigate impacts.
6. ***Liability is increasing for governments, professionals and developers.*** Improved geologic documentation of potential risks from adverse conditions reduces liability exposure.
7. ***Geologic practice in Washington is increasing.*** Government and private use of geologic input to land use and development is expanding in Washington, but without the regulation of geologists as is present in most other western states.
8. ***Recognition of qualified geologists in Washington is difficult.***
Government agencies, industries and private individuals have difficulty in identifying qualified geologic practitioners in Washington without licensure.
9. ***Substandard practice of geology in Washington occurs without adequate recourse.*** Substandard practice of geology is now a problem in Washington without adequate regulation. Without regulation of qualification standards, guidelines to practice, and peer review processes, incompetence and malpractice are not easily substantiated and corrected.

Who Benefits from and Supports Geology Regulation? Private homeowners, communities, insurance, banks, government planning and permitting, developers, industry, real estate, investors, geologists, engineers, architects, (see page 3).

Who Pays for Geology Regulation? NO NET TAX COSTS OCCUR. Professional fees cover all ongoing costs. Initial implementation and administration of the act would be paid by a onetime loan from state government and reimbursed quickly by licensing fees.

¹ University of Washington and US Geological Survey, 1999, "Seattle Urban Geologic Hazards Workshop", 34p.

² FEMA, 1997, "Hazard Mitigation Survey Team Report", 123p.

³ Slosson, 1969; "The Role of Engineering Geology in Urban Planning"

⁴ Yelverton, 1969, "- - Damage Sustained by Private Property During the Storms of Jan. - Feb. 1969".



Landsliding of the coastal Bluff on Rolling Bay, Bainbridge Island destroyed two homes and caused the death of a family of four.
Photo, Len Palmer

Who Benefits from and Supports Geology Licensure?

Homeowners

Losses to homeowners from landslides and earthquake are not covered by most insurance, the owner must bear the loss of their largest investment alone. Reduction of risk by a program of geologic investigation and design can reduce these risks by over 95% .

Neighborhoods

Losses often extend over a neighborhood area. Even one loss can generate damage to adjacent properties or can cause devaluation of neighboring properties.

Banks

Losses beyond the ability of owners to bear can be left to a lending institution to bear. This loss may spread to the whole community as increased banking costs.

Insurance

Losses from developments which have not been designed to accommodate geological processes can generate major costs to insurance providers.

Government Planning and Permitting

Geologic planning maps and site specific data can greatly reduce problems and liability to permitting agencies.

Developers

Provision for geologic conditions can save costly surprises for site development. Liability can be reduced by avoidance of problems to development caused by geologic conditions.

Industry

Time lost to earthquake or other disaster damage and employee disaster absenteeism are a major economic loss to industry. The "CREW" affiliations including Boeing, Hewlett Packard, Bank, and others, attest to the concern for mitigation and avoidance of geologic process risks.

Real Estate

Full information to clients and liability protection are of value to responsible property marketing.

Investors

Avoidance of costly losses in investment properties can be provided by good geologic information.

Geologists

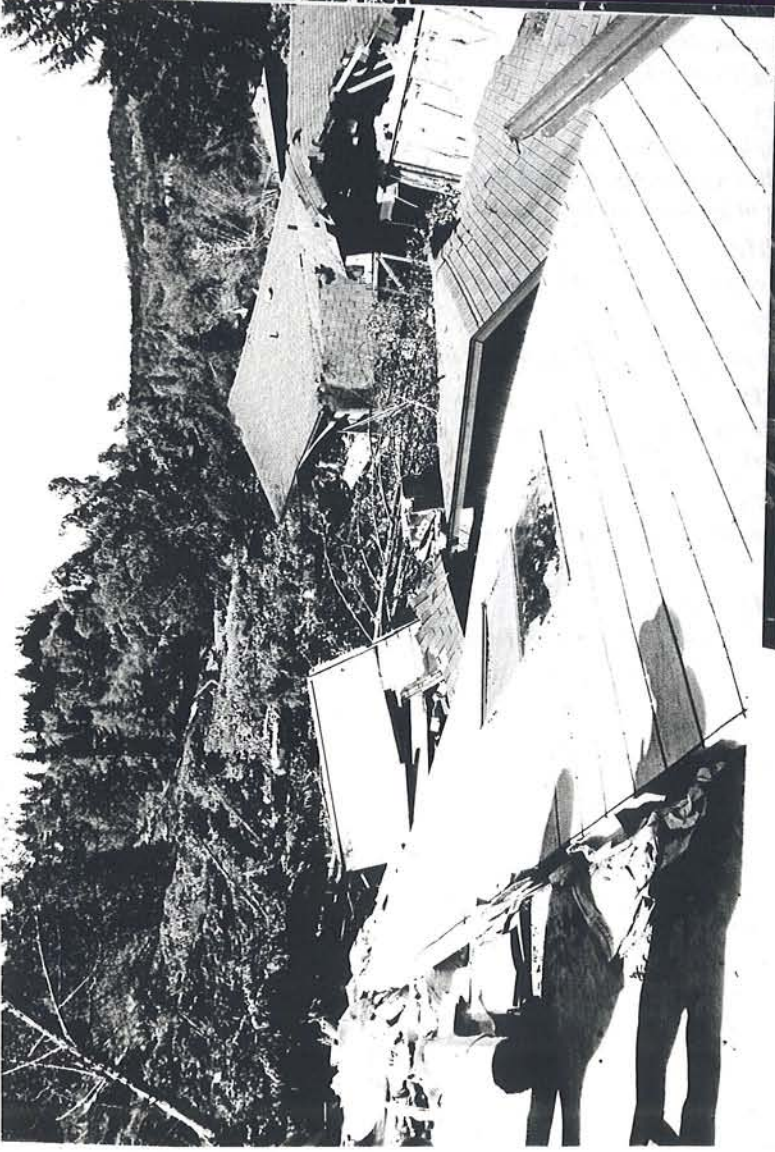
Qualified geologists want to meet high professional standards. Licensure can provide assurance of reliable levels of service and reduction of substandard work.

Engineers

Engineers and geologists work together to provide complete site evaluations. The inclusion of geologic input can enhance technical quality and reduce liability.

Architects

Provision of geologic site characteristics enable architects to design with natural conditions and minimize risks and costly surprises.



The ongoing (1999) damage of the Kelso landslide has affected over 60 homes.
Photo, Len Palmer

Statements in Support of Washington State Geology Licensure

Bill S6455

Federal and State Government and Regional Code:

Washington State Emergency Management & FEMA

“Certification or Licensing should be required for professionals performing geotechnical evaluations and recommendations. Efforts ... to require certification ... for... engineering geologists ... with the state “ (of Washington) “...should be actively encouraged by the state, local jurisdictions, and geotechnically related professional organizations.” [p. 28, Hazard Mitigation Survey Team Report for the 1996 – 1997 Washington Winter Storms. Washington State Emergency Management Division and FEMA Region 10]

USGS

“Increasingly, procedures to require geologic studies are becoming standard practice of local governments in California and in other states as well. ... natural processes can sometimes be controlled, but the best approach is to focus on controlling their effects. This means avoiding construction in hazardous areas or engineering structures to withstand effects of hazards. No form of control is possible without recognition of the hazard and its likely consequences.”
(emphasis added) [p. 10, Look Before You Build, USGS Circular 1130]

Washington, Oregon, and FEMA

“Serious problems require specialized professional expertise of registered civil engineers with geotechnical specialty and registered engineering geologists.” [p.7, Homeowner’s Landslide Guide. Washington Emergency Management, Oregon Emergency Management, and FEMA Region 10.]

Uniform Building Code

The provisions of Chapter 70 of the Uniform Building Code provides “...the authority for building officials to require preliminary investigations by qualified soil engineers and engineering geologists ...” and included the basic principle, “...require use of qualified experts to investigate and evaluate sites prior to recommending safe minimum standards for avoiding or overcoming existing unfavorable and hazardous conditions, or those that may be created by construction...” [p. 22, , Excavation and Grading Code Administration, Inspection, and Enforcement. International Conference of Building Officials]

Statements in Support of Washington State Geology

Licensure



**Washington
Mutual**

Senate Bill 6455

To the Honorable Senators & Representatives,
Washington State legislature

Improved quality of geologic professional practice can benefit the banking industry by improved recognition and mitigation of geology related risks.

I have both a personal and an economic concern for safety and risk reduction for persons and properties of our customers. Damage and risk to buildings and properties from geological events such as landslides, earthquake, settlement, erosion, and other geological processes is a serious safety problem both for property of the bank and for property of our customer borrower/owners. Such geologic risk is obviously a financial concern for the bank which carries loans on such properties.

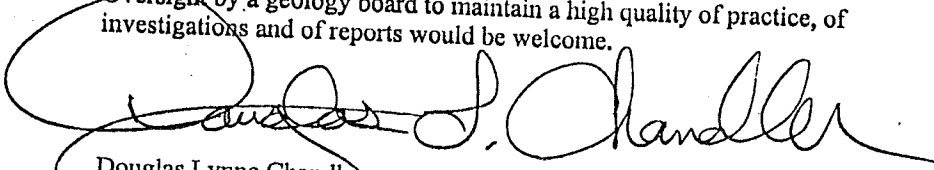
It is in our interest (as citizens of this state) to mitigate and minimize the business down time and employee work time losses related to geologic related events. Good geologic information can be a beneficial tool in avoiding or minimizing risks and losses from events such as earthquake and tsunami, landslides, volcanism, settlement and erosion.

We endeavor to assure reasonable safety and low risk for our own properties and for properties on which we are financially involved. Any reduction of risk from development in areas of such geological conditions or processes would be a benefit to property owners, especially to individual homeowners, and thus be a benefit also to our bank business.

The regulation of geology by the state could provide a valuable capability for improved assurance of quality geologic data on suitability and limitations of land use and building sites, and provide reduced risk from geologic

I support legislation which would provide recognition of qualified geologists and engineering geologists by licensing, and would provide guidelines to geologic investigations and provide options for professional peer review.

Oversight by a geology board to maintain a high quality of practice, of investigations and of reports would be welcome.



Douglas Lynne Chandler
Vice President & Manager
Business Contingency Planning
Washington Mutual Bank
1201 3rd Avenue WMT 1901
Seattle, Washington 98101-3000
206 461-2002
dlchandler@compuserve.com

February 3 2000

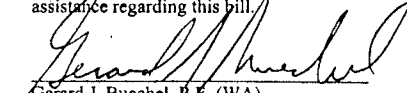
Senator Margarita Prentice
219 John A. Cherberg Building
P.O. Box 40411
Olympia, WA 98504-0411

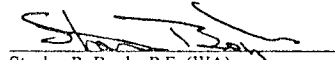
RE: IN SUPPORT OF HB 3053 AND SB 6455

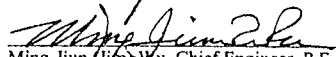
Dear Ms. Prentice:

Shannon & Wilson, Inc., is the largest, oldest, privately held geotechnical/environmental engineering firm serving the State of Washington. Our Seattle (home) office is comprised of 49 registered professional engineers (P.E.) and registered professional geologists (in Oregon), and 80 engineers or geologists in training, scientists, and support personnel. Our company is comprised of geologists and engineers who work closely together to design structures, landfills, and tunnels, and to remediate landslides and contaminated sites. Registration provides the public confidence that the services and recommendations they receive will meet minimum qualifications and will be in accordance with the canons and guidelines for professional practice. Oversight by a geology board to maintain a high quality of practice, of investigations, and of reports would be welcome.

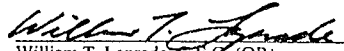
We urge you to support professional registration of geologists who are performing work that affects the public welfare. Please feel free to call any of the undersigned if we can provide any input, information, or assistance regarding this bill.

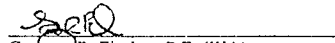

Gerard J. Buechel, P.E. (WA)

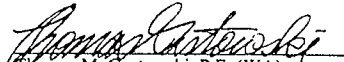

Stanley R. Boyle, P.E. (WA)

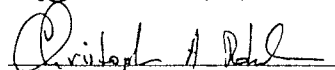

Ming-Jiun (Jim) Wu, Chief Engineer, P.E.

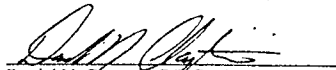

Scott F. Bender, C.G.W.P., R.P.G. (OR)

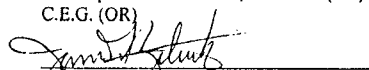

William T. Laprade, C.E.G. (OR)


Gregory R. Fischer, P.E. (WA)



Thomas M. Gurtowski, P.E. (WA)

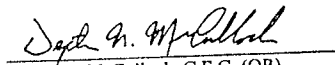

Christopher A. Robertson, P.E. G.E. (CA)
C.E.G. (OR)

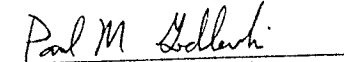

Daniel N. Clayton, C.E.G. (OR, CA)

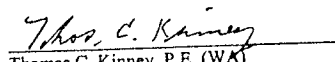

James F. Zitnik, P.E. (UT)


400 NORTH 34TH STREET • SUITE 100
P.O. BOX 300303
SEATTLE, WASHINGTON 98103
206-632-6020 FAX 206-633-6777
TDD: 1-800-833-6368

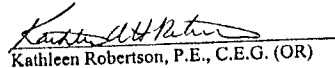

Robert A. Robinson, C.E.G. (OR)

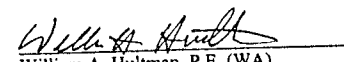

Dexter N. McCulloch, C.E.G. (OR)

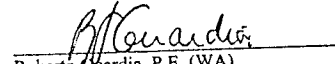

Paul M. Godlewski, P.E. (WA)

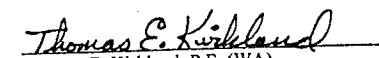

Thomas C. Kinney, P.E. (WA)


Michael S. Kucker, P.E. (WA)


Kathleen Robertson, P.E., C.E.G. (OR)


William A. Hultman, P.E. (WA)


Roberto Guardia, P.E. (WA)


Thomas E. Kirkland, P.E. (WA)

G. W. Thorsen, Consulting Geologist
1926 Lincoln Street, Port Townsend, WA 98368

(360) 385-6002 (also fax)
thorcogw@olypen.com

Jan. 26, 1999

Senate Commerce Committee:

The comments that follow are in support of a Bill to License Geologists, Senate Bill 6455.

This case history illustrates an example of one of the ways geologists are cut "out of the loop" in Washington State. This can increase home costs and, in places, risk, especially along the hundreds of miles of steep shoreline and river bluffs.

An Arlington homebuilder frantically calls the developer to say that his construction was shut down by the City due to adjacent steep slopes.

The developer asks me to confirm that his lots are stable.

He is in luck. I point out that published mapping shows his lots to be stable, and that the mapper lives less than 10 miles away.

The developer contacts the geologic mapper, who revisits the site and makes additional reconnaissance, confirming that his map is complete and correct.

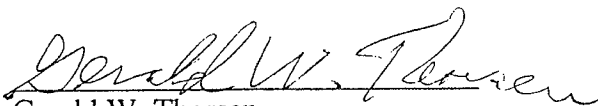
The geologic mapper delivers his findings and a copy of the published map to the City inspector, who is by now convinced that there is no danger.

The part-time City engineer looks over the inspector's shoulder and says, "We can't accept that. It doesn't have an engineer's stamp."

To pass this new hurdle, the developer resorts to hiring an engineer from Bellevue, who looks down at the homeowner's bank and says, "It's OK."

End result? Such stifling of geologic input can cause days of delay, wasted fees, and thousand of dollars added to the home costs.

The Washington State Senate's 1974 ad hoc Committee on Geologic Hazards concluded that "County and city governments should have on staff or at least have ready access to consultants for professional geologic and hydrologic advice in the same manner as is now common for engineering assistance." I served on that committee, and little has changed in this regard since 1974. Many states have by now addressed this problem through legal recognition of geologists. Senate Bill 6455 could do the same for Washington.


Gerald W. Thorsen



FORREST ALDRICH,
INC.

29131 SIMS WAY
PORT TOWNSEND, WA 98368
HQB. (360) 385-4111
(800) 448-9414
FAX (360) 385-3640

January 26, 2000

Honorable Senators/Representatives:

In the real estate business we have a concern for the quality and safety of properties that we represent on behalf of and to our clients.

Over the years we have experienced problems with properties which were at risk due to damage from geologic processes. Bluff properties in the area of Quimper Peninsula as well as the areas around Port Ludlow and South of the Hood Canal bridge are generally in need of geologic evaluation to assist both buyers and sellers in the property evaluation process. Accurate and timely information is of the utmost importance in these areas in order to assess suitability for building.

It has been our practice to recommend and use geologists to perform site evaluations on these bluff sensitive properties where bluff stability, erosion, sub-surface and surface drainage, and other risks are a potential concern.

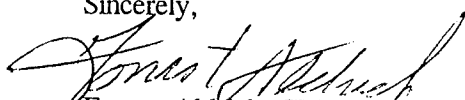
We have found that good information about geologic risks such as landslide, earthquake, flooding, settlement, erosion, etc. can be a valuable tool for evaluating properties and for providing credible information to our clients.

I believe improved professional geologic practice through state licensing would benefit our industry by providing improved reliability of geologic information sources.

State licensing of geologic professionals would be of value to the real estate brokerage business in providing improved quality of information about geologic conditions of properties, and in greater recognition of site characteristics which affect the safety and value of a property.

Thank you for your consideration of this important issue.

Sincerely,


Forrest Aldrich, CRB
Broker

FOR OVER 90 YEARS. ♦ MAKING REAL ESTATE REAL EASY.™

Each Office Is Independently Owned And Operated.



Leonard Palmer, PhD., Emeritus Professor of Geology, Consulting Engineering Geology
Landslides, Rivers, Shorelines, Beaches, Groundwater, Land-use Planning, Development
PO Box 63333 Port Ludlow Washington 98365-0333 (360) 437-9300 Cell (206) 999-4566 e-mail lempall@aol.com

Honorable Senators and Congressmen , Washington State Legislature

In support of SB6455 & HB3053, Licensing of Geologists

Over 95% gain in public safety to property and lives by geologic input has been demonstrated for over 40 years, and is now implemented in all other Pacific coastal western states and in British Columbia. Recent and current disasters in Washington State emphasize the urgent need to license geologists now.

Please notice that SB6455/HB3053 is in direct response to recommendations of the Washington State Emergency Management Division and FEMA Region 10.
[page 28, "Hazard Mitigation Survey Team Report for the 1996-1997 Washington Winter Storms"]

Licensing of geologists and the engineering geology specialty **will provide the ability of government officials to specify site investigations in risk areas to satisfy procedures as provided for in existing codes and ordinances.** Licensed geologists have long been expected in the established procedures and practices present in the Uniform Building Code (see Chapter 33) and in manuals for implementation and training as provided by the ICBO (International Conference of Building Officials, "Excavation and Grading Code Administration, Inspection, and Enforcement", 1983)

I support SB6455/HB3053 for licensing geologists because:

- 1/ It satisfies a need for public safety of expanding population and development pressure into high risk areas in Washington State.***
- 2/ It provides the ability of government agencies to follow existing codes and ordinances including the uniform building code.***
- 3/ It will define guidelines for practice and for technical peer review to verify and upgrade practice in investigations and reports.***
- 4/ It protects the public from substandard practice.***

Leonard Palmer, PhD.
27 January 2000

Support for SB 6455 Licensure of Geologists

Jefferson County

Strong verbal support given for SB6455 due to serious landslide and other geologic damage experienced now and in the past few years, and the need for improved reliability of engineering geologic investigation and reporting. [Al Scalf, Planning Director, Mike Ajax, Chief Building Inspector]

Real Estate

“I believe improved professional geologic practice through state licensing would benefit our industry by providing improved reliability of geologic information sources.” [see letter, Forrest Aldrich, Forest Aldrich, Inc., Caldwell Banker]

“Just as here are newly imposed assumptions of responsibility for engineers, geologists, and developers/builders, there are similar responsibilities of disclosure to clients about known geologic hazards imposed on realtors.” [p 5, Excavation and Grading Code Administration, Inspection, and Enforcement. ICBO, International Conference of Building Officials]

Banks

“Such geologic risk is obviously a financial concern for the bank which carries loans on such properties.” . . . ”I support legislation which would provide recognition of qualified geologists and engineering geologists by licensing, and would provide guidelines to geologic investigations and provide options for professional peer review.” [see letter, Douglas Chandler, Vice President and Manager, Washington Mutual Bank]

Engineering Firms

“Shannon and Wilson, Inc. is the largest, oldest . . . geotechnical/environmental engineering firm serving the State of Washington. . . . We urge you to support professional registration of geologists who are performing work that affects the public welfare.” [See letter with multiple signatures]



Multiple homes at risk from inadequate set back from landsliding coastal bluff, Cape George, Jefferson County (west of Poer Townsend)
Photo, Len Palmer

What Washington State Geologic Processes Have Land use and Development Risks?

Landslides

Seattle, businesses and hundreds of homes

Puget Sound Coastal Bluffs, thousands of homes

Kelso Residential Development, dozens of homes

Columbia River Gorge Giant Landslides, 50 square miles of landslides, Boneville Dam, Vancouver risk

Thurston County, residential developments, dozens of homes

Earthquake, Fault, and Tsunami

Cascadia Subduction Zone, Ocean lowlands, towns and thousands of coastal homes

Seattle Fault, Bainbridge – King Dome – Lake Sammamish, rare but violent

Whidbey Island Fault, Port Townsend risk

Volcano, Lahar, and Ash

Mount St. Helens, Longview and Kelso – Toutle, Cowlets & Lewis Rivers, Dams and Reservoirs

Mount Adams, rural risk, hundreds of homes

Mount Rainier, Puyallup & White River Vallys, businesses, schools, thousands of homes, high risk

Glacier Peak, ash, rural risk, hundreds of homes

Mount Baker, rural risk, hundreds of homes

Regional ashfall, eastern Washington, thousands of homes, farms, industry

Flood, Erosion and Deposition

Puget Sound River Floodplains, towns and thousands of homes

Most all rivers of Washington State including Yakima, Methow, etc.

Coastal Erosion and Deposition

Puget Sound Coastal Bluffs, Thousands of homes

Ocean Shores, hundreds of homes,

Willipaw Bay, Erosion of many homes

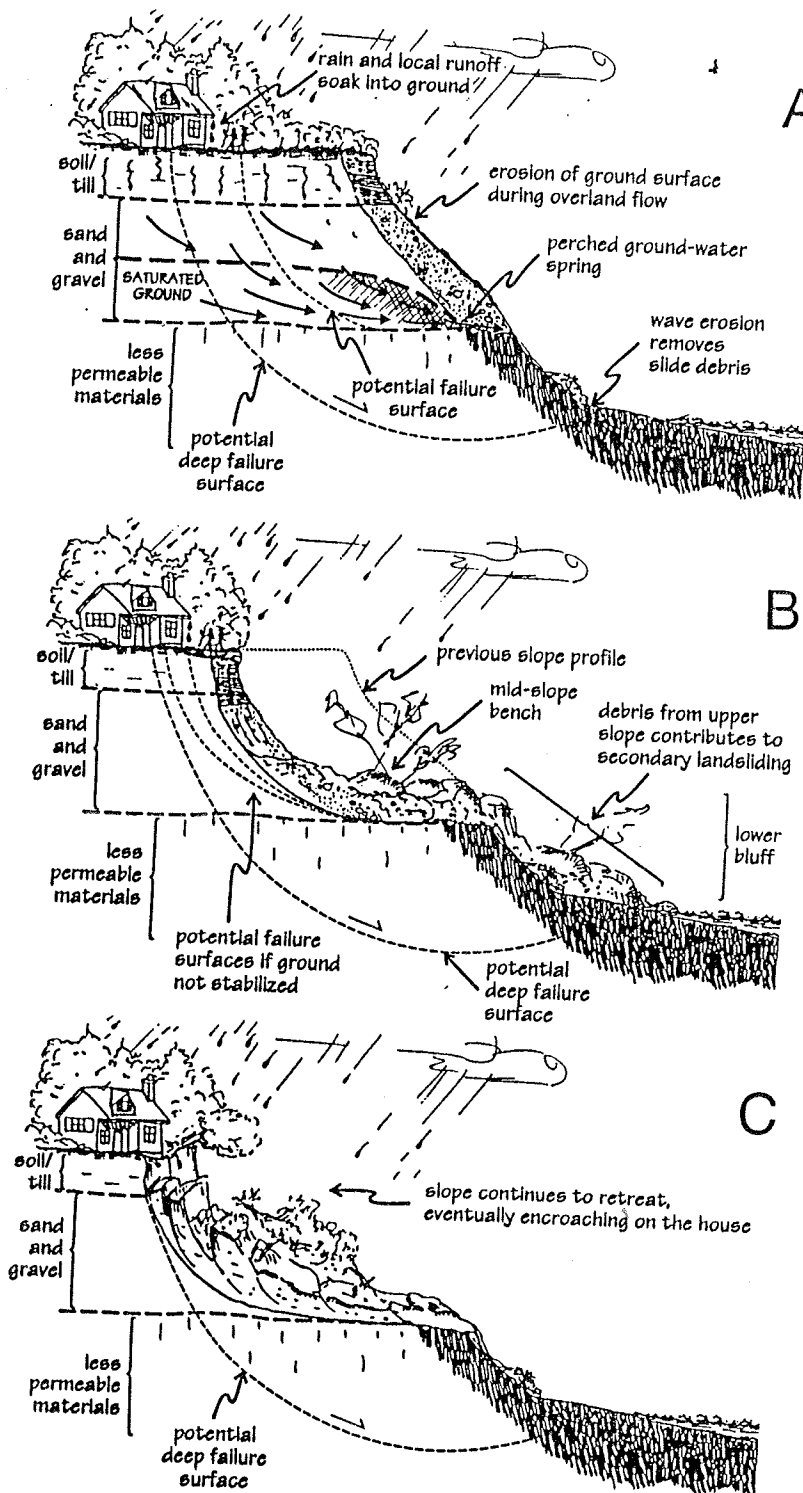
Ground Water Supply and Contamination

Rural Homes, Both Eastern & Western Washington, thousands depend upon well water

Hanford Reservation, World Class Hazardous Nuclear Waste Site, Poor Site, Columbia River Risk

Buried Fuel Tanks, many sites, ground water contamination risks

Sole source aquifer risks, City of Spokane, Renton, etc.



A

At the beginning of an idealized cycle, the bluff has a uniform slope. Water infiltrates the surface soils and perches above the relatively impermeable materials at the base of this sandy sequence. Saturation creates pore-water pressures that reduce the effective strength of these materials.

B

Runoff and precipitation introduced by the sources shown in A have infiltrated and weakened the sediments, causing failure of the unconsolidated upper sand unit. Once mobilized, the sand moves (sometimes episodically, sometimes continuously) along the contact with the underlying less permeable unit on the mid-slope bench, often cascading as a secondary landslide off the bluff formed by the lower unit. This migration of material across the bench decreases the buttressing of the upper bluff. Failure surfaces can be deep (those that project into the lower, less permeable materials) as well as shallow.

C

Benched bluff retreat continues. Movement of slide debris toward the lower bluff further destabilizes the upper bluff, causing continued sloughing onto the bench. Either failure of the upper bluff onto the bench or failure of the slide debris off the lower bluff can trigger a cycle of movement. Movement along a deep-seated surface can reset this sequence of events.

Figure 21. This sequence of sketches shows the idealized, potentially cyclical process by which bluffs in the northern Puget Sound area are forming and retreating.

Geologic Site Investigations define conditions and processes which affect slope stability and risk to land use and development.

The use of qualified geologic investigations in areas of development risk is a cost effective and needed public safety tool.

What do geologists do?

Identify, document, analyze and interpret geologic conditions.

Geologic site conditions involve complex combinations of terrains formed by processes including:

Volcanism, Fluvial (river), Lacustrine (lakes), Littoral (shoreline), Marine, Glacial, Tectonic (faults and earthquakes), Karst (limestone), Landslide, Flooding, Stratigraphy (formation of bedding), Structural (bedding deformation), Eolian (wind and dune processes) Erosion and Sedimentation, etc..

Geologists observe, test and measure soils, rocks, water, landforms and vegetation. They recognize, collect, examine, analyze, interpret, measure, test, map, illustrate, and report.

Geologists are trained to recognize a geologic site origin and reconstruct past, present and future conditions and processes by observing landforms, site materials, processes, and rates of recurrence.

What do geology specialties do?

Specialty geologists (such as engineering geologists, hydrogeologists) determine basic geologic origins, conditions and changes in site history, and in addition, predict relevant concerns for various land uses.

Complex combinations of geologic conditions, processes and historical changes are determined, analyzed and interpreted by specialty geologists to **define the suitability and limitations of a site for intended uses**. Report conclusions and recommendations based upon relevant findings of fact and analysis provide guidance to plan and design with appropriate consideration and mitigation to accommodate existing site conditions.

Geology plus specialty knowledge: Combining basic geologic knowledge, ability and experience with an understanding of special land use applications (such as engineering, hydrology, waste disposal, etc.) is necessary for qualified professional practice of a geology specialty.

Specialty findings include assessment of land stability, foundation conditions, rates of erosion, hydrologic conditions, water supply and contamination, ground water migration and flow, faulting and earthquake risk, active coastal sedimentation and erosion, volcanic process and risk, relative excavation effort, suitability of earth materials for construction use, volcanic risk and probable recurrence interval of the various risks. . . . etc..

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geotechnical report and the recommendation are very often much too narrow in scope, as these are generally dictated by the amount of financing of the project proponent or home owner, rather than the severity of the hazard. If these three problems are resolved, the cost of geotechnical analysis and review will increase considerably.

The major steps to solve landslide problems in Washington State include:

- *Map delineation of landslide risk areas*
- *Registration of qualified experts (geotechnical engineers and engineering geologists)*
- *Require expert site investigation in landslide risk areas*
- *Provide peer review of site investigation reports to comply with established guidelines*

Where these elements are established in codes and ordinances and rigorously applied, landslide losses have been shown to be substantially reduced. The least expensive and most effective loss reduction is by avoidance; the next most economical solution is by mitigation using qualified expertise with an investigation report review process. The most costly is repair of landslide damaged properties. The cost of proper mitigation is about 1 percent of the costs otherwise incurred through losses and litigation.

Mapping of risk areas requiring expert site investigations, legislation to provide licensing and review of investigation reports can be expected to reduce most future landslide damage.

Licensing for Geotechnical Professionals

No requirements currently exist in Washington for licensing of professionals who analyze landslide potential areas and recommend the remedial measures to minimize future damage. Generally, such work is performed either by geologists or geotechnical engineers (licensed civil engineers with education in geotechnical engineering). However, there is no requirement that the reports be performed by geologists or geotechnical engineers. Often, quality of analysis and ability of analysis and ability to recognize landslide potential is inconsistent between professionals with these specialized backgrounds, to say nothing of the reports prepared by non-professionals. Although licensing will not solve the immediate problems of inadequate or inconsistent geotechnical reports, it will give local jurisdictions on method for judging the competence of individuals preparing the reports.

Expertise for Review of Geotechnical Reports by Local Jurisdictions

A similar problem voiced by local jurisdictions was a general lack of expertise to review the quality of geotechnical reports. Typically, local staff does not have the qualifications or expertise to judge the adequacy of such reports. Of

National Association of State Boards of Geology

GEOLOGY REGISTRATION STANDARDS (OCTOBER 1998)

STATE	REQUIREMENTS										AUTHORITY				EXEMPTIONS				
	BS/BA Geoscience	BS/BA Engineering	Minimum Credit Hours (Sem)	Work Experience (years post B.A./B.S.)	Specialty Available/Required	Geophysics	Fundamentals Exam	Practice Exam	Continuing Education Requirements	Cooperative Licensure **	Temporary Registration	Practice Agreement (PE's)	Waiver of Examination	State/Municipal Employees	Subordinates	Engineers	Teaching/Research	Other Professionals	Exploration/Non-Public
REMARKS	X - Exempt; Y - Required for registration; AS - ASBOG Exam; P - Petroleum BLANK = NOT required or unspecified for registration * - Optional Registration; ** - Cooperative Licensure = Comity/Reciprocity																		
* - Optional Registration; ** - Cooperative Licensure = Comity/Reciprocity																			
Alabama	Y	Y	30	5	Y		AS	AS		Y	Y	Y	Y	X	X	X	X	P	X
Arizona			30	5			AS	AS		Y		Y							X
Arkansas	Y	Y	30	7	Y		AS	AS		Y	Y		Y		X	X	X	X	X
California	Y		30	7	Y	Y	Y	Y		Y	Y	Y	Y		X	X			X
Florida	Y		30	5			Y	Y		Y	Y	Y	Y		X			Y	X
Georgia	Y		30	7			AS	AS		Y	Y	Y	Y		X			Y	X
Illinois	Y		30	4			AS	AS		Y			Y		X	X	Y	X	X
Indiana	Y	Y	30	5											X	X	Y	X	X
Kansas	Y	Y	30	4			AS	AS					Y		Y			X	
Kentucky	Y	Y	30	5			AS	AS		Y	Y			X	X	X	X		
Maine	Y		30	7			AS	AS		Y	Y		Y	Y	X	Y			
Minnesota	Y	Y	35	5	Y	Y	AS	AS		Y	Y		Y					X	Y
Mississippi	Y		30	4	Y		AS	AS	Y									X	
Missouri	Y	Y	30	3	Y		AS	AS		Y	Y		Y		Y			X	X
North Carolina	Y	Y	30	5			AS	AS		Y	Y	Y	Y	X	Y	Y		X	X
Oregon	Y		30	7	Y		AS	AS		Y	Y	Y			Y			X	X
Pennsylvania	Y		30	5			AS	AS		Y	Y	Y	Y		Y			X	X
Puerto Rico	Y		30	4			AS	AS		Y			Y		Y			Y	
South Carolina	Y		30	5			AS	AS	Y	Y	Y		Y					X	
Virginia *	Y		12	7			AS	AS		Y			Y					X	X
Wisconsin	Y	Y	30	5			AS	AS		Y	Y		Y					X	X
Wyoming	Y		30	4			AS	AS	Y	Y	Y	Y	Y					X	X
* - Optional Registration; ** - Cooperative Licensure = Comity/Reciprocity																			
Alaska (AIPG)	Y	Y	36	5		Y							Y					Y	X
Delaware	Y		30	5			AS	AS	Y		Y	Y						Y	X
Idaho			30	5															
Nebraska																			
Tennessee	Y		30	5										X	X	X	X		
* - Optional Registration; ** - Cooperative Licensure = Comity/Reciprocity																			
AIPG	Y	Y	36	5						Y									
AAPG, DPA	Y	Y	30	8						Y									
SIPEL	Y	Y		12						Y									
* - Optional Registration; ** - Cooperative Licensure = Comity/Reciprocity																			
SGPA	Y		30	4	Y	Y	Y	Y		Y	Y		Y		X	Y	X	X	X

