WASHINGTON STATE DEPARTMENT OF
Natural Resources
Jennifer M. Belcher - Commissioner of Public Lands

WASHINGTON DIVISION OF GEOLOGY AND EARTH RESOURCES
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Plate 3
Open File Report 97-4
Quaternary Stratigraphy and Cross Sections, Nooksack, Columbia, and Saar Creek Valleys, Kendall and Deming 7.5-minute Quadrangles, Western Whatcom County, Washington

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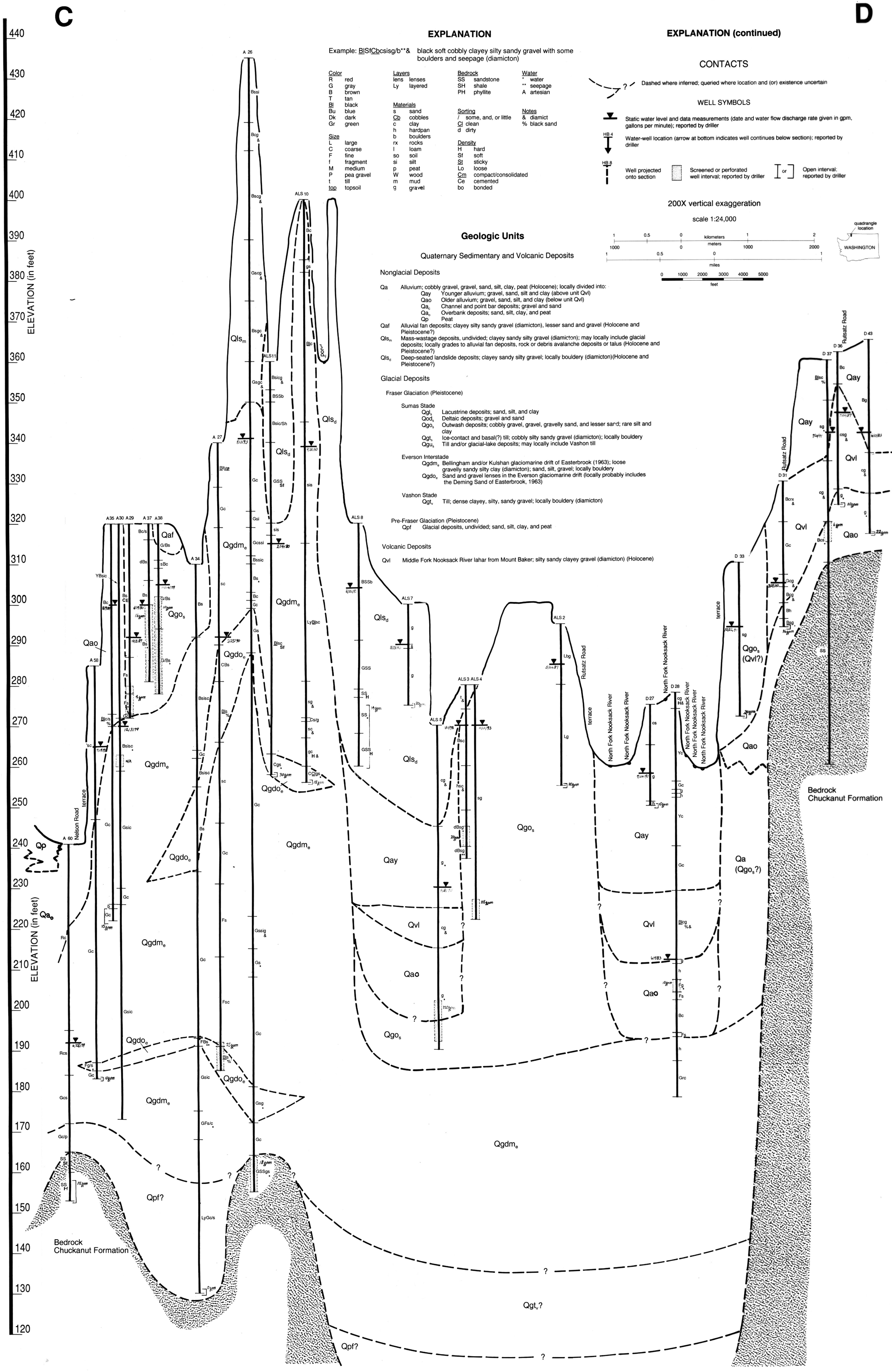

EXPLANATION

Example: BlSfCbcsisg/b**& black soft cobbly clayey silty sandy gravel with some boulders and seepage (diamicton)

Color		Layers		Bedrock		Water	
R	red	lens	lenses	SS	sandstone	*	water
G	gray	Ly	layered	SH	shale	**	seepage
B	brown			PH	phyllite	A	artesian
T	tan						
Bl	black	**Materials**					
Bu	blue	s	sand	**Sorting**		**Notes**	
Dk	dark	Cb	cobbles	/	some, and, or little	&	diamict
Gr	green	c	clay	Cl	clean	%	black sand
		h	hardpan	d	dirty		
Size		b	boulders				
L	large	rx	rocks	**Density**			
C	coarse	l	loam	H	hard		
F	fine	so	soil	Sf	soft		
f	fragment	si	silt	St	sticky		
M	medium	p	peat	Lo	loose		
P	pea gravel	W	wood	Cm	compact/consolidated		
t	till	m	mud	Ce	cemented		
top	topsoil	g	gravel	bo	bonded		

Geologic Units

Quaternary Sedimentary and Volcanic Deposits

Nonglacial Deposits

Qa Alluvium; cobbly gravel, gravel, sand, silt, clay, peat (Holocene); locally divided into:
- Qay Younger alluvium; gravel, sand, silt and clay (above unit Qvl)
- Qao Older alluvium; gravel, sand, silt, and clay (below unit Qvl)
- Qa$_c$ Channel and point bar deposits; gravel and sand
- Qa$_o$ Overbank deposits; sand, silt, clay, and peat
- Qp Peat

Qaf Alluvial fan deposits; clayey silty sandy gravel (diamicton), lesser sand and gravel (Holocene and Pleistocene?)

Qls$_m$ Mass-wastage deposits, undivided; clayey sandy silty gravel (diamicton); may locally include glacial deposits; locally grades to alluvial fan deposits, rock or debris avalanche deposits or talus (Holocene and Pleistocene?)

Qls$_d$ Deep-seated landslide deposits; clayey sandy silty gravel; locally bouldery (diamicton)(Holocene and Pleistocene?)

Glacial Deposits

Fraser Glaciation (Pleistocene)

Sumas Stade
- Qgl$_s$ Lacustrine deposits; sand, silt, and clay
- Qod$_s$ Deltaic deposits; gravel and sand
- Qgo$_s$ Outwash deposits; cobbly gravel, gravel, gravelly sand, and lesser sand; rare silt and clay
- Qgt$_s$ Ice-contact and basal(?) till; cobbly silty sandy gravel (diamicton); locally bouldery
- Qgu$_s$ Till and/or glacial-lake deposits; may locally include Vashon till

Everson Interstade
- Qgdm$_e$ Bellingham and/or Kulshan glaciomarine drift of Easterbrook (1963); loose gravelly sandy silty clay (diamicton); sand, silt, gravel; locally bouldery
- Qgdo$_e$ Sand and gravel lenses in the Everson glaciomarine drift (locally probably includes the Deming Sand of Easterbrook, 1963)

Vashon Stade
- Qgt$_v$ Till; dense clayey, silty, sandy gravel; locally bouldery (diamicton)

Pre-Fraser Glaciation (Pleistocene)
- Qpf Glacial deposits, undivided; sand, silt, clay, and peat

Volcanic Deposits

Qvl Middle Fork Nooksack River lahar from Mount Baker; silty sandy clayey gravel (diamicton) (Holocene)

EXPLANATION (continued)

CONTACTS

Dashed where inferred; queried where location and (or) existence uncertain

WELL SYMBOLS

Static water level and data measurements (date and water flow discharge rate given in gpm, gallons per minute); reported by driller

HB 4 Water-well location (arrow at bottom indicates well continues below section); reported by driller

HB 8 Well projected onto section

Screened or perforated well interval; reported by driller

[or] Open interval; reported by driller

200X vertical exaggeration

scale 1:24,000

1 0.5 0 kilometers 1 2
1000 0 meters 1000 2000
1 0.5 0 1 miles
0 1000 2000 3000 4000 5000 feet

quadrangle location
WASHINGTON