

**LRPLN-2025-00003 Zoning Map Amendment Answers****Describe your proposed amendment.**

The amendment would reinstate the MRO (Mineral Resource Overlay) designation on the property. That designation dated back decades. If any portion of the properties was not previously designated MRO, it should have been.

**Describe the reasons your proposed amendment is needed or important.**

The property has mineral resources in commercially quality and quantity and is located adjacent to an approved surface mine. The property, or at least a large portion of it, was previously designated MRO and that designation was removed without notice to the owner and, we believe, mistakenly.

**Describe why existing Comprehensive Plan map designations should not continue to be in effect or why they no longer apply.**

The current designation (not MRO) is erroneous for all of the reasons it was designated MRO prior to 2005 when a series of amendments were made, one of which removed the designation from the property.

**Describe how the amendment complies with the Comprehensive Plan's community vision statements, goals, objectives, and policy directives.**

The Comprehensive Plan values and policies include preservation and use of mineral resources and protection against loss of resources due to land use conflicts. See also Goal 4D, and various sub-goals that promote preservation of resources and utilizing them so as to minimize land use conflicts. Since the property here is adjacent to an approved mine site, the resource here can extend the life of the mine in a location where compatibility is assured. The site contains materials in quality and quantity to meet requirements for mineral resources of commercial significance.

**Describe the impacts anticipated to be caused by the change, including geographic area affected and issues presented.**

The change, after site specific permitting and environmental review, would allow utilization of the mineral resource by expansion of the permitted Belleville mine. The existing and proposed permitting would assure all applicable standards are met.

**Describe how adopted functional plans and Capital Facilities Plans support the change.**

Since the mining of the resource would rely on the same infrastructure serving the approved Belleville mine, there should be no impact on Capital Facilities or other plans.

**Describe any public review of the request that has already occurred**

Public review of Belleville mining and prior MRO.

**Describe how the map amendment/rezone complies with Comprehensive Plan land use designation criteria in Chapter 2, the Urban, Open Space & Land Use Element; Chapter 3, the Rural Element; or Chapter 4, the Natural Resource Lands Element.**

The property includes mineral resources with a quality and quantity to meet the mineral resource designation criteria in Policy 4D-1.1. Additional site-specific information is available on request. Adjacency to approve Belleville Mine enhances the importance of the resource.

If you are proposing an urban growth area boundary change, describe how it is supported by and dependent on population forecasts and allocated urban population distributions, existing urban densities and infill opportunities, phasing and availability of adequate services, proximity to designated natural resource lands, and the presence of critical areas. OR If you are proposing a rural areas or natural resource land map designation change, describe how it is supported by and dependent on population forecasts and allocated non-urban population distributions, existing rural area and natural resource land densities and infill opportunities.

Does not apply.

**If you are proposing a natural resource land map designation change, describe how the change is necessary based on one or more of the following: (A) A change in circumstances pertaining to the Comprehensive Plan or public policy. (B) A change in circumstances beyond the control of the landowner pertaining to the subject property. (C) An error in initial designation. (D) New information on natural resource land or critical area status.**

All or substantially all of the property was previously designated MRO, and that was correct. The 2005 removal of the MRO was erroneous and without notice to the owner. The ability to mine this property in conjunction with the Belleville Mine is substantial new information.

## **Geologic Summary – Proposed Inclusion of Five Parcels into the Skagit County Mineral Resource Overlay**

**Parcels:** P109100, P109099, P109098, P34222, P34233

**Location:** 17684 Allen Road, Bow, WA 98232

### **Introduction**

This report provides a geologic assessment of five parcels totaling approximately 13.93 acres located north of the Samish River along Allen Road. The parcels are contiguous with an existing mineral extraction facility and were excluded from the Mineral Resource Overlay due to a past mapping error. Site-specific drilling and geologic mapping by the Washington State Department of Natural Resources (DNR), Division of Geology and Earth Resources, confirm that the site is underlain by Pleistocene deltaic outwash deposits (Qgods). These deposits form part of a regionally significant aggregate resource within the Skagit-Samish lowlands.

### **Regional Geologic Setting**

The Skagit-Samish valley floor was shaped during the Fraser Glaciation of the late Pleistocene, approximately 15,000 to 17,000 years ago. Meltwater from the Cordilleran Ice Sheet deposited extensive sand and gravel across the valley in both fluvial and deltaic environments. The Washington Division of Geology and Earth Resources maps the subject parcels within the unit Qgods, identified as Pleistocene glacial deltaic outwash deposits.

The Qgods unit is described as stratified and cross-bedded sand and gravel deposited in deltaic settings where glacial meltwater entered standing water. These sediments are typically well sorted, laterally continuous, and rich in gravel and cobbles with only minor fines. They are recognized as an important aggregate source in western Skagit County due to their thickness, quality, and ease of excavation.

### **Subsurface Conditions**

Borings advanced across the subject parcels confirm materials consistent with the mapped Qgods deposits. The borings encountered:

- Less than 2 feet of surficial topsoil and organic material.
- Continuous sand and gravel units extending to depths of 60 to 80 feet.
- Material composed primarily of medium to coarse sand with 30 to 70 percent gravel and occasional cobble lenses.
- Very low silt and clay content, supporting efficient processing and broad construction applications.
- Groundwater encountered at depths of 15 to 20 feet, consistent with aquifer conditions in the Samish outwash plain.

The consistency of these deposits across the parcels suggests uniform recovery potential and supports long-term production viability.

## **Resource Estimate**

To account for the triangular configuration of the 13.93 acres, a conservative recovery area of approximately 6.97 acres was used in calculations.

- Depth: 60 to 80 feet
- Estimated Volume: 674,000 to 899,000 cubic yards
- Estimated Tonnage: 1,011,000 to 1,348,000 tons (assuming 1.5 tons per cubic yard)

This conservative estimate confirms the presence of a substantial aggregate resource capable of supporting long-term extraction.

## **Site Characteristics and Access**

The 13.93-acre block exceeds the size threshold commonly considered for mineral resource designation. The parcels are directly contiguous with an existing permitted mineral extraction site and are accessed by Allen Road, a route currently used for mineral hauling. This configuration allows integration with existing processing and transportation infrastructure and minimizes the need for new improvements or additional impacts.

## **Supporting Reference**

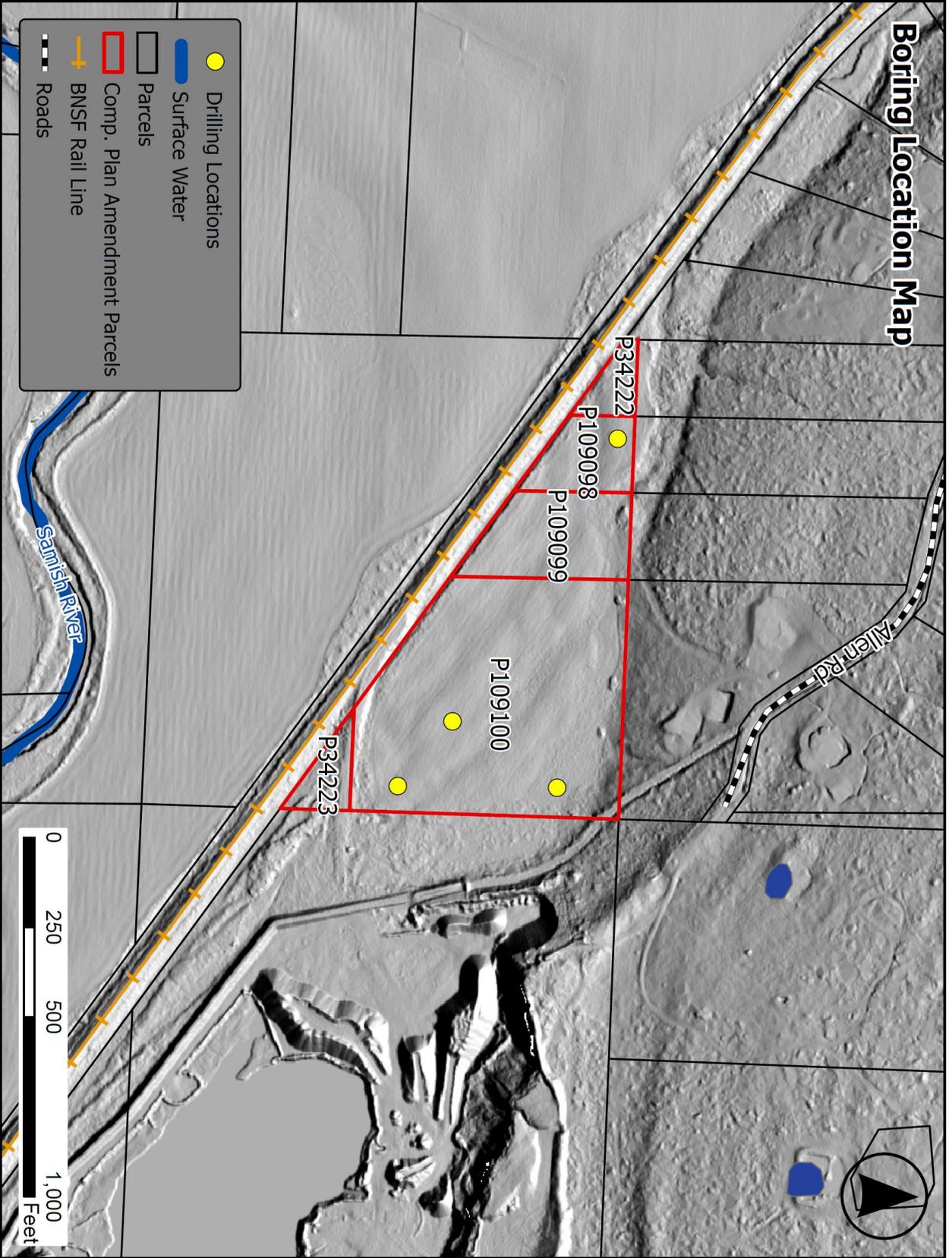
The Washington State Department of Natural Resources describes Qgods in Open File Report 98-05 (*Geologic Map and Interpreted Geologic History of the Bow and Alger 7.5-Minute Quadrangles, Western Skagit County, Washington*) as:

“Stratified and cross-bedded sand and gravel deposited in deltaic settings where meltwater streams entered standing water during the Fraser Glaciation. These deposits are laterally continuous, well sorted, and generally contain abundant gravel and cobbles with limited fines. Thicknesses commonly range from several tens of feet to more than 100 feet locally. The combination of sorting, permeability, and particle size distribution makes these deposits regionally important aggregate resources, supporting a wide range of construction uses.”

## **Conclusion**

The subject parcels are underlain by Pleistocene deltaic outwash deposits (Qgods) as mapped by the Washington State Department of Natural Resources. Subsurface drilling confirms a laterally continuous sand and gravel resource ranging from 60 to 80 feet thick, with minimal overburden and conservative recoverable reserves exceeding one million tons. The parcels’ size, location, and contiguity with an existing mineral extraction operation provide the County with clear technical support as it considers correcting the mapping error and evaluating these parcels in relation to the Mineral Resource Overlay.

# Boring Location Map



**PROJECT:** Raiser

[Boring RB01 Summary]

**BORING LOG**

<b>BORING NO.</b> RB1	<b>PROJECT PHASE</b> Belleville Expo	<b>LATITUDE</b> 48.526343	<b>LONGITUDE</b> 122.36617	<b>SHEET</b> 0	<b>OF</b> 1
<b>TIME START</b> 11:45am 4/9	<b>DRILLING CONTRACTOR</b> Holt Services	<b>DRILLING EQUIPMENT</b> Terra Sonic		<b>DATE</b> 4/10/24	
<b>TIME STOP</b> 11am 4/10	<b>DRILLING CREW</b>	<b>DRILLING METHOD</b> Sonic 4"	<b>SAMPLING METHOD</b> Grab		
<b>TOTAL DEPTH</b> 80ft	<b>BACKFILL MATERIAL</b> Bent	<b>WATER FIRST ENCOUNTERED</b> 15ft	<b>FINAL DEPTH TO WATER</b> 15ft		

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL	
								PT	Topsoil / Alluvium	(GA)
10								SP	Partly graded sand medium-course w/ some gravel	
20										(QUR0)
25								SW	Well graded sand	(QUR0)
30								SP	Partly graded sand	(QUR0)
35								GW	Well graded gravel	(QUR0)
40								SM	Silty sand & gravel	(QUR0)
45								ML	Silt w/ sand & gravel	(QUR0)
50								GW	Well graded gravel w/ some sand & silt	(QUR0)
55								SP	Partly graded sand w/ trace silt / clay	(QUR0)
60									End of boring @ 80ft	
65									QUR0 - Recessional outwash	
70									QURL - Recessional Lake Deposit	
75									QVRM - Recessional Marine/Diamic	
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
155										
160										
165										
170										
175										
180										
185										
190										
195										
200										

# PROJECT: *Rasur*

# BORING LOG

BORING NO. <i>RB1</i>	PROJECT PHASE <i>Belleville Exp.</i>	LATITUDE <i>48.526343</i>	LONGITUDE <i>122.366617</i>	SHEET OF <i>1</i> <i>4</i>
TIME START <i>11:45 am</i>	DRILLING CONTRACTOR <i>Holt Services</i>	DRILLING EQUIPMENT <i>TST Terra Sonic</i>		DATE <i>4/9/24</i>
TIME STOP <i>4:45 am</i>	DRILLING CREW	DRILLING METHOD <i>Sonic</i>	SAMPLING METHOD <i>Grab</i>	
TOTAL DEPTH <i>80ft</i>	BACKFILL MATERIAL <i>Bent</i>	WATER FIRST ENCOUNTERED	FINAL DEPTH TO WATER	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
1				<i>Topsoil</i>	0	40	60	PT	<i>Topsoil; Silt w/ fine sand, moist Brown</i>
2									<i>4 Photos 0-10 ft</i>
3				<i>QA</i>	0	70	30	ML	<i>fine sand w/ silt, homogeneous, moist Brown Grey</i>
4		<i>10/10</i>							
5									<i>(QA)</i>
6					0	90	10	SP	<i>Partly Graded medium sand, clean, grey-tan, moist, homogeneous w/ no gravel</i>
7									
8									
9									
10		<i>X</i>							<i>  </i>
11				<i>QVRO</i>					
12									<i>  </i>
13									
14									
15									<i>   wet</i>
16		<i>10/10</i>							
17									<i>(QVRO) loosish?</i>
18				<i>QVRO</i>	15	70	5	SW	<i>Well Graded - medium - coarse Sand w/ some small to medium Gravel, Rounded to subangular gravel Max clast ~ 1.5 inches</i>
19									

# PROJECT: *Razor*

# BORING LOG

BORING NO. <i>RB1</i>	PROJECT PHASE <i>Belleville Exp.</i>	LATITUDE <i>48.526343</i>	LONGITUDE <i>122.366617</i>	SHEET <i>2</i>	OF <i>4</i>
TIME START <i>11:45 am</i>	DRILLING CONTRACTOR <i>Holt Services</i>	DRILLING EQUIPMENT <i>Terra Sonic</i>		DATE <i>4/9/24</i>	
TIME STOP <i>4 pm</i>	DRILLING CREW	DRILLING METHOD <i>Sonic</i>	SAMPLING METHOD <i>Grab</i>		
TOTAL DEPTH <i>80ft</i>	BACKFILL MATERIAL <i>Bent</i>	WATER FIRST ENCOUNTERED <i>15ft</i>	FINAL DEPTH TO WATER <i>15ft</i>		

DEPTH BELOW SURFACE	H2O LVL	DRIVEN RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
2.1	↑			<i>QVR0</i>	15	70	5	SW	Well graded medium sand - coarse sand w/ some small to medium gravel Clasts rounded to subrounded Max clasts 2.5 inches
2.2									
2.3									
2.4									
2.5	10% ↓			<i>QVR0</i>	20	65	10	SW	(QVR0)
2.6									
2.7				<i>QVR0</i>	45	50	5	SU	Well graded sand with well graded gravel and some to trace silt, wet grey - grey tan, clasts rounded to sub angular.
2.8									
2.9									
3.0	X			<i>QVMS</i>	5	90	5	SP	Partly graded small to medium sand w/ trace gravel & trace fines, wet grey-tan.
3.1									
3.2				<i>QVMS</i>	5	90	5	SP	(Potential home from upper layers)
3.3	↑								
3.4									
3.5									
3.6	7/10 ↓								
3.7									
3.8									
3.9									

LOGGED BY: *Ryan Rensavage*

OFFICE: 253-377-1760

DATE: 4/9/24



# PROJECT: Rosar

# BORING LOG

BORING NO. <b>RS1</b>	PROJECT PHASE <b>Belleville Exp</b>	LATITUDE <b>48.526343</b>	LONGITUDE <b>122.36617</b>	SHEET <b>4</b>
TIME START <b>8 am</b>	DRILLING CONTRACTOR <b>Holt Services</b>	DRILLING EQUIPMENT <b>Terra Sonix</b>	DATE <b>4/10/24</b>	
TIME STOP <b>11:05 am</b>	DRILLING CREW	DRILLING METHOD <b>Sonic</b>	SAMPLING METHOD <b>Grab</b>	
TOTAL DEPTH <b>80ft</b>	BACKFILL MATERIAL <b>Ben 1</b>	WATER FIRST ENCOUNTERED <b>15ft</b>	FINAL DEPTH TO WATER <b>15ft</b>	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
6.1				QURD	10	85	5	SP	Poorly graded sand with some well graded gravel & trace fines, clasts rounded to subrounded, Grey-Blue Grey - wet
6.2									
6.3								SM/GM	Well graded sand & well graded gravel with silt, wet Grey-Blue grey clasts rounded to subangular, Max clast 4"
6.4				QURM					
6.5		10/10							
6.6									
6.7									
6.8				QURD	75	15	10	GW	Well graded gravel with some well graded sand & silt
6.9				PT				PT	Feat, non-woody structure (intertidal)
7.0				QURD	75	15	10	GW	Well graded gravel with some well graded sand & some silt
7.1									
7.2									
7.3								PT	Feat, None woody structure (intertidal)
7.4		10/10		GM	30	40	30	ML	Well graded gravel with well graded sand & silt, Rounded to subangular, wet
7.5									
7.6									
7.7								SP	Poorly graded sand wet grey
7.8									
7.9									end of boring @ 80ft

# PROJECT:

# BORING LOG

BORING NO <b>RB2</b>		PROJECT PHASE <b>Belleville Exp</b>			LATITUDE <b>48.52484</b>		LONGITUDE <b>127.363327</b>		SHEET <b>0</b> OF <b>3</b>		
TIME START <b>1pm</b>		DRILLING CONTRACTOR <b>Holt</b>			DRILLING EQUIPMENT <b>Terra Soniz</b>		DATE <b>4/10/24</b>				
TIME STOP <b>10am</b>		DRILLING CREW <b>Gawn</b>			DRILLING METHOD <b>Soniz 4"</b>		SAMPLING METHOD <b>Grab</b>				
TOTAL DEPTH <b>60ft</b>		BACKFILL MATERIAL <b>Bent</b>			WATER FIRST ENCOUNTERED <b>11.5</b>		FINAL DEPTH TO WATER <b>11.5</b>				
DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL		
1								PT	Peat Topsoil		
								Sm	Silty Sand		
								sw	Well graded Sand w/ Trace fines		
20									(QVRO)		
								Cu	Well graded Sand & Gravel w/ trace fines, grey-tan		
30											
40											
									(QVRO)		
50								ML	Silt w/ Sand & peat (in layers) Blue-Grey		
60											
7											
8											
9									Samples Collected		
0									RB2 10-20 ft		
1									RB 2 20-45 ft		
2											
3											
4											
5											
6											
7											
8											
9											

LOGGED BY: **Ryan Rumsavage**

OFFICE: **Puget**

DATE: **4/10/24**

# PROJECT: *Rasar*

# BORING LOG

BORING NO. <i>BB2</i>	PROJECT PHASE <i>Belleville Exp</i>	LATITUDE <i>48.524864</i>	LONGITUDE <i>122.363322</i>	SHEET OF <i>3</i>
TIME START <i>1pm</i>	DRILLING CONTRACTOR <i>Holt</i>	DRILLING EQUIPMENT <i>Ferra Sonic 2</i>		DATE <i>4/10/24</i>
TIME STOP <i>10am</i>	DRILLING CREW <i>Gravin</i>	DRILLING METHOD <i>Sonic 4"</i>	SAMPLING METHOD <i>Grab</i>	
TOTAL DEPTH <i>60ft</i>	BACKFILL MATERIAL <i>Bent</i>	WATER FIRST ENCOUNTERED <i>11.5ft</i>	FINAL DEPTH TO WATER <i>11.5 ft</i>	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
1				QA	0	70	30	PT	Topsoil, sandy-loam
2				QVRO	0	95	5	SP	Poorly graded medium sand w/ trace silt Grey-tan
3				QVRO	0	50	10	SM	Poorly graded fine-medium silt, silt & sand are not homogeneously mixed, silt forms spirals in material (likely artifacting from Sonic Rig Process), moist
4									
5									
6									
7									
8									
9									
10									
11									▲ Water level @ ~ 11.5ft below surface
12				QVRO				SW	Well graded sand with trace fines Grey tan/wet
13									
14									
15									
16									
17									
18									
19				QVRO	0	5	5	GW	Well graded gravel w/ trace sand & trace silt

# PROJECT: *Razor*

# BORING LOG

BORING NO. <i>RB2</i>		PROJECT PHASE <i>Belleville Exp</i>		LATITUDE <i>48.524864</i>		LONGITUDE <i>122.363322</i>		SHEET <i>2</i> OF <i>3</i>	
TIME START <i>1pm</i>		DRILLING CONTRACTOR <i>Holt</i>		DRILLING EQUIPMENT <i>Terra Sonic</i>				DATE <i>4/10/24</i>	
TIME STOP <i>10am</i>		DRILLING CREW <i>Gunn</i>		DRILLING METHOD <i>Sonic 4"</i>		SAMPLING METHOD <i>Grab</i>			
TOTAL DEPTH <i>65ft</i>		BACKFILL MATERIAL <i>Bent</i>		WATER FIRST ENCOUNTERED <i>11.5 ft</i>		FINAL DEPTH TO WATER <i>11.5 ft</i>			
DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
2.1									
2.2				<i>QVR0</i>	<i>55</i>	<i>50</i>	<i>5</i>	<i>GW/SW</i>	<i>Well graded Sand &amp; Well graded gravel w/ trace silt fines. Grey-tan, max clast 4" Rounded &amp; sub rounded clasts</i>
2.3									
2.4	<i>10/10</i>								
2.5									<i>Material</i>
2.6									<i>(QVR0)</i>
2.7									
2.8									
2.9									<i>  </i>
3.0				<i>QVR0</i>					
3.1									<i>  </i>
3.2									
3.3									
3.4									<i>  </i>
3.5									
3.6									<i>  </i>
3.7									<i>  </i>
3.8									
3.9									

LOGGED BY: *Ryan Rinswage*

OFFICE: *Royal*

DATE: *4/10/24*

# PROJECT: *Rasov*

# BORING LOG

BORING NO. <i>RB2</i>	PROJECT PHASE <i>Belleville Exp</i>	LATITUDE <i>48.524864</i>	LONGITUDE <i>122.36332</i>	SHEET <i>3</i>
TIME START <i>10am</i>	DRILLING CONTRACTOR <i>161t</i>	DRILLING EQUIPMENT <i>Terra Sonic</i>	DATE <i>4/10/24</i>	
TIME STOP <i>10am</i>	DRILLING CREW <i>Gravn</i>	DRILLING METHOD <i>Sonic 4"</i>	SAMPLING METHOD <i>Grab</i>	
TOTAL DEPTH <i>60</i>	BACKFILL MATERIAL <i>Bent</i>	WATER FIRST ENCOUNTERED <i>11.5ft</i>	FINAL DEPTH TO WATER <i>11.5ft</i>	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
41					55	50	5	GW/SW	11
42									(QURD)
43									
44		<i>10/10</i>			10	80	10	SW	Well gradal sand w/ trace gravel & trace fines blue-grey / grey tan (QURD)
45									
46					40	60		ML	Silt & sand grey-blue wet (QURL)
47									
48								PT	Peat, non-woody
49					20	80		ML	Silt w/ <sup>some</sup> sand, w/ peat in small ~1" layers, consolidated
50									
51									
52									
53									
54									
55		<i>10/10</i>							
56									
57									
58									
59									

✓ End of boring @ 60ft

# PROJECT: Rosar

# BORING LOG

BORING NO. RB3	PROJECT PHASE Belleville Exp	LATITUDE 48.525489	LONGITUDE 122.362587	SHEET 0 OF 3
TIME START 8am	DRILLING CONTRACTOR Holt	DRILLING EQUIPMENT Terra Soniz		DATE
TIME STOP 3pm	DRILLING CREW Gruhn	DRILLING METHOD Soniz 4"	SAMPLING METHOD Grab	
TOTAL DEPTH 50ft	BACKFILL MATERIAL Bent	WATER FIRST ENCOUNTERED 5ft	FINAL DEPTH TO WATER 5ft	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL	
0								ML	Topsoil	
1				QURL				SM	Silty Sand	Gravel lenses @ 5ft
2										
3				QURL				GM	Wellgraded (Gravel) w/ well graded Sand v/Silt	
4								ML	Very Silty Sand w/ trace - non gravel Blue gr	
5										
6									↑ end of boring @ 50ft	
7										
8										
9									No Samples Collected	
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

# PROJECT: *RaSar*

# BORING LOG

BORING NO. <i>RBB</i>	PROJECT PHASE <i>Belleville Exp</i>	LATITUDE <i>48.525489</i>	LONGITUDE <i>122.362687</i>	SHEET OF <i>1 3</i>
TIME START <i>8am</i>	DRILLING CONTRACTOR <i>Holt</i>	DRILLING EQUIPMENT <i>Terra Son 12</i>	DATE <i>4/11/24</i>	
TIME STOP <i>3pm</i>	DRILLING CREW <i>Gravn</i>	DRILLING METHOD <i>Son 2 4"</i>	SAMPLING METHOD <i>Grab</i>	
TOTAL DEPTH <i>5ft</i>	BACKFILL MATERIAL <i>Bent</i>	WATER FIRST ENCOUNTERED <i>4ft</i>	FINAL DEPTH TO WATER <i>5 ft</i>	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
0									Topsoil & alluvium
1									
2				<i>QA</i>	<i>0</i>	<i>30</i>	<i>70</i>	<i>ML</i>	
3									
4									
5									
6								<i>SM</i>	Very silty poorly graded fine sand Grey-tan, wet, $\phi$ un consolidated
7									Groundwater @ ~ 5ft below surface
8				<i>QVPL</i>					
9					<i>0</i>	<i>70</i>	<i>30</i>		
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									

# PROJECT: *Ransom*

# BORING LOG

BORING NO.		PROJECT PHASE		LATITUDE		LONGITUDE		SHEET OF	
<i>RB3</i>		<i>Belleville Exp</i>		<i>48.525489</i>		<i>122.362587</i>		<i>2 OF 3</i>	
TIME START		DRILLING CONTRACTOR		DRILLING EQUIPMENT				DATE	
<i>8am</i>		<i>Floft</i>		<i>Terra Sonic</i>				<i>4/11/24</i>	
TIME STOP		DRILLING CREW		DRILLING METHOD		SAMPLING METHOD			
<i>3pm</i>		<i>Grwm</i>		<i>Sonic 4"</i>		<i>Grab</i>			
TOTAL DEPTH		BACKFILL MATERIAL		WATER FIRST ENCOUNTERED		FINAL DEPTH TO WATER			
<i>Soft</i>		<i>Bent</i>		<i>5ft</i>		<i>5ft</i>			
DEPTH BELOW SURFACE	H <sub>2</sub> O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
2.1				<i>QVRL</i>	<i>0</i>	<i>70</i>	<i>30</i>	<i>SM</i>	<i>1)</i>
2.2									<i>(QVRL)</i>
2.3									
2.4		<i>10/10</i>		<i>QVRO</i>	<i>40</i>	<i>40</i>	<i>10</i>	<i>SW/SL</i>	<i>Well graded sand &amp; well graded gravel w/ some silt, interbeds of only sand or only gravel, maximum clast ~ 2", balls of silt (drilling artifact), wet grey tan</i>
2.5									<i>(QVRO)</i>
2.6									<i>Silt w/ poorly graded fine sand, wet tan-tan/grey</i>
2.7				<i>QVRL</i>		<i>40</i>	<i>60</i>	<i>ML</i>	
2.8									
2.9									
3.0									
3.1									<i>Silt w/ some poorly graded fine sand</i>
3.2				<i>QVRL</i>	<i>0</i>	<i>20</i>	<i>80</i>	<i>ML</i>	<i>MOIST blue grey</i>
3.3									
3.4									
3.5		<i>10/10</i>							<i>(Lowton Clay)</i>
3.6									
3.7									
3.8									
3.9									

LOGGED BY: *Ryan Binsavage*

OFFICE:

DATE:

# PROJECT: *Razor*

# BORING LOG

BORING NO. <i>RB3</i>	PROJECT PHASE <i>Belleville Exp</i>	LATITUDE <i>48.525489</i>	LONGITUDE <i>122.362587</i>	SHEET <i>3</i>
TIME START <i>8am</i>	DRILLING CONTRACTOR <i>Holt</i>	DRILLING EQUIPMENT <i>Terra Sonic</i>	DATE <i>4/11/24</i>	
TIME STOP <i>3pm</i>	DRILLING CREW <i>Gravin</i>	DRILLING METHOD <i>Sonic 4"</i>	SAMPLING METHOD <i>Grab</i>	
TOTAL DEPTH <i>50ft</i>	BACKFILL MATERIAL <i>Bent</i>	WATER FIRST ENCOUNTERED <i>5ft</i>	FINAL DEPTH TO WATER <i>5ft</i>	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
4 1		↑							11
4 2									
4 3		10/110		QVRL	0	20	80	ML	Silt w/ some poorly graded fine sand moist blue grey
4 4									
4 5									
4 6									
4 7									
4 8									
4 9									
5 0		↓							
1									↑ End of boring @ 50ft Below surface No Samples Collected
2									
3									
4									
5									
6									
7									
8									
9									

# PROJECT: *Razor*

# BORING LOG

BORING NO. <i>RB4</i>	PROJECT PHASE <i>Belleville Exp</i>	LATITUDE <i>48.324706</i>	LONGITUDE <i>122.362612</i>	SHEET <i>0</i> OF <i>3</i>
TIME START <i>3:15pm</i>	DRILLING CONTRACTOR <i>Holt Services</i>	DRILLING EQUIPMENT <i>Terra Sonic</i>		DATE <i>4/12/24</i>
TIME STOP <i>10am</i>	DRILLING CREW <i>Growth</i>	DRILLING METHOD <i>4"</i>	SAMPLING METHOD <i>Grab</i>	
TOTAL DEPTH <i>60ft</i>	BACKFILL MATERIAL <i>Bent</i>	WATER FIRST ENCOUNTERED <i>5.5ft</i>	FINAL DEPTH TO WATER <i>3.5ft</i>	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
0									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
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88									
89									
90									
91									
92									
93									
94									
95									
96									
97									
98									
99									
100									

*SW/SP*

*GW*

*↑ end of boring @ 60ft*

*Samples*  
*RB4 5-30ft*  
*RB4 30-45ft*

# PROJECT: *Rasar*

# BORING LOG

BORING NO. <i>RBH</i>	PROJECT PHASE <i>Belleville Exp</i>	LATITUDE <i>48.524726</i>	LONGITUDE <i>122.882612</i>	SHEET OF <i>3</i>
TIME START <i>3:15pm</i>	DRILLING CONTRACTOR <i>Holt</i>	DRILLING EQUIPMENT <i>Terra Sonic</i>		DATE <i>4/11/24</i>
TIME STOP <i>10am</i>	DRILLING CREW <i>Gravin</i>	DRILLING METHOD <i>Sonic 4"</i>	SAMPLING METHOD <i>Grab</i>	
TOTAL DEPTH <i>60ft</i>	BACKFILL MATERIAL <i>Bent</i>	WATER FIRST ENCOUNTERED <i>5.5 ft</i>	FINAL DEPTH TO WATER <i>5.5 ft</i>	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
									PT Topsoil
1									
2				<i>QVRL</i>	<i>0</i>	<i>98</i>	<i>5</i>	<i>SP</i>	<i>Poorly Sorted fine-medium sand w/ trace silt, tan-grey/tan</i>
3									
4									<i>  </i>
5									
6	<i>10/10</i>								<i>↑</i> <i>Groundwater @ ~5.5 ft below surface</i>
7									
8								<i>SP</i>	<i>  </i>
9									
10				<i>QVRL</i>	<i>0</i>	<i>85</i>	<i>15</i>	<i>SM</i>	<i>Poorly Sorted Sand - medium fine w/ silt, Grey/Brown, wet</i>
11									
12									
13				<i>QVRL</i>	<i>10</i>	<i>85</i>	<i>5</i>	<i>SW</i>	<i>Well graded Sand w/ trace Gravel &amp; trace silt, wet, Grey tan, max clast size ~1/2 inch, rounded-sub angular,</i>
14	<i>10/10</i>								
15									
16									
17									
18									<i>0</i>
19									

# PROJECT:

# BORING LOG

BORING NO. RB4	PROJECT PHASE Bellewille Exp	LATITUDE 48.524 766	LONGITUDE 122.38 26 12	SHEET 2 OF 3
TIME START 3:15pm	DRILLING CONTRACTOR Holt	DRILLING EQUIPMENT Terra Sonitz		DATE 4/11/24
TIME STOP 10am	DRILLING CREW Grawm	DRILLING METHOD Sonitz 4"	SAMPLING METHOD Grab	
TOTAL DEPTH 60ft	BACKFILL MATERIAL Bent	WATER FIRST ENCOUNTERED 5.5ft	FINAL DEPTH TO WATER 5.5ft	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
2 1	↑			GWRD				SW	
2 2									
2 3									
2 4									
2 5									
2 6									
2 7									
2 8									
2 9									
3 0									↓
3 1	↑								
3 2	↓			GWRD				GW	Well graded gravel & well graded sand w/ trace fines, grey/tan
3 3									
3 4									
3 5									
3 6									
3 7									
3 8									
3 9									
3 0									
3 1									

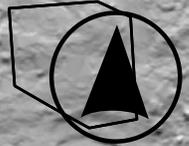
# PROJECT:

# BORING LOG

BORING NO. RB4	PROJECT PHASE Belleville Exp	LATITUDE 48.524706	LONGITUDE 122.362612	SHEET 3 OF 3
TIME START 3:15pm	DRILLING CONTRACTOR Holt	DRILLING EQUIPMENT Terra Sonz		DATE 4/11/24
TIME STOP 10am	DRILLING CREW Gravin	DRILLING METHOD Sonic 4"	SAMPLING METHOD Grab	
TOTAL DEPTH 60ft	BACKFILL MATERIAL Bent	WATER FIRST ENCOUNTERED 5.5ft	FINAL DEPTH TO WATER 5.5ft	

DEPTH BELOW SURFACE	H2O LVL	DRIVEN/RECOVERED	SAMPLE NO.	GEOLOGIC UNIT	Gravel %	Sand %	Fines %	USCS	LOG OF MATERIAL
4.1								GM	
4.2									
4.3								GM	Evenly graded well graded sand & gravel w/ silt, rounded to subrounded clasts, grey
4.4									
4.5				QVRL				ML	Very silty & very clayey bent, brown gray high plasticity, unconsolidated
4.6									
4.7									
4.8									
4.9									
5.0				QVRL					med silt, medium plasticity blue-grey unconsolidated, (Lowton clay)
5.1									
5.2									
5.3									
5.4									
5.5									
5.6									
5.7									
5.8									
5.9									end of boring @ 60ft

# Comprehensive Plan Parcel Map



Allen Rd

P34222

P109098

P109099

P109100

P34223

Samish River

-  Surface Water
-  Parcels
-  Comp. Plan Amendment Parcels
-  BNSF Rail Line
-  Roads

