

	Haines Beach Road Landslide – NTP2 Task 5.3 PSA Agreement No. 25213018, IRIS No. SDRER00317	
Subject:	Phase 2 Test Pit and Laboratory Testing Results	
Date:	September 1, 2021	
From:	Ben George, P.E., C.E.G. Landslide Technology	
Memo To:	Aaron Banks, C.P.G. R&M Consultants, Inc.	292

This memo has been prepared to provide results of test pit explorations and associated laboratory testing conducted as part of the Haines Beach Road Landslide project Notice-to-Proceed (NTP) 2 Task 5.3 Subsurface Investigations. We have included some background information, test pit results and summary logs, and laboratory testing results. This is an interim deliverable. These results will be compiled into an updated Findings Report that will be prepared as part of Task 5.5.

BACKGROUND

A Senior Associate Engineer from Landslide Technology (LT) was on-site from June 23 to 29, 2021 to coordinate the second phase (Task 5.3) test pit explorations, log subsurface materials, and collect representative samples. Test pits were completed at locations adjacent to the interim alignment of Beach Road, at locations on the landslide at higher elevations, and at locations east and west of the slide limits. Test pits were conducted by Southeast Road Builders with use of a CAT 320L excavator. They also provided a spotter during all exploration activities. Grab samples were collected from a majority of the test pits and laboratory testing was conducted on a portion of the samples. Laboratory testing was conducted by R&M Consultants, Inc. in their Anchorage, Alaska office.

Note, test pits completed during the first phase (winter reconnaissance, Task 2) are not discussed herein. Details of TP-1 through TP-4 can be found in the *Winter Reconnaissance – Preliminary Findings Report* dated April 8, 2021.

TEST PIT RESULTS

A total of 23 test pits were conducted in June 2021. Seven pits were located adjacent to the upslope (south) side of the interim Beach Road alignment (TP-5 through TP-11) and one pit was located downslope (north) of the road (TP-25). Thirteen pits were located on the slide mass further upslope of Beach Road (TP-12 through TP-24) and two pits were located outside of the slide extents approximately midway up the landslide (TP-26 and TP-27). Test pit locations are shown on Figure 1 and summary logs are provided in Attachment A. A summary of encountered conditions and sampling locations is provided in Table 1. Details of the test pits are provided below.

2925-5.3



Test Pits Adjacent to the Interim Road

The test pits immediately upslope (south) of the road included TP-5 through TP-11. These pits encountered a range of slide debris from 2 to 12 feet in depth with the thicker deposits located near the west central side of the landslide. Slide debris consisted of loose to medium dense, silty (micaceous) sand with varying levels of gravel- to boulder-sized rock fragments and woody debris. Generally loose organic topsoil materials were encountered below the slide debris. At some locations a stiff to very stiff, gray, slightly sandy, slightly clayey silt was encountered below the slide debris and organic topsoil horizon. At other locations a dark gray silty sand was encountered. These materials are interpreted as either glaciolacustrine/marine sediments or weathered in-place ultramafics. Interpreted in-place bedrock was encountered in all of the pits upslope of the interim road. When observable, bedrock was hard (R4), gray to black, slightly weathered ultramafics. Groundwater was encountered in all of the pits upslope except for TP-9 and TP-11. Groundwater varied from a depth of 5 feet below ground surface to surficial flow.

TP-25 was conducted downslope (north) of the road near the middle of the slide. This pit encountered 5 feet of slide debris, 1-foot of dense gravel driveway surfacing material underlain by 4 feet of fill and an old layer of corduroy woody debris.

Landslide Body Test Pits

Test pits TP-12 to TP-24 were conducted on the slide body from elevation 170 to 400 feet. Slide debris thickness generally averaged approximately 5 feet, with several locations on the order of 12 to 16 feet thick. Slide debris materials were consistent with those described above. Interpreted in-place bedrock consisted of hard (R4), moderately weathered ultramafics. Groundwater was encountered in several of the pits from 2 to 9 feet in depth. Surficial water flow was occurring at several locations as well. Table 1 details the locations of groundwater and surficial water flow.

Test Pits East and West of the Landslide

The test pits off of the slide body did not meet refusal, but were excavated to the full reach of the CAT 320L excavator. In general, the two test pits encountered a thin layer (1-2 feet) of organic topsoil underlain by medium dense, brown silty sand with occasional boulders and scattered cobble-sized rock blocks. TP-27 (west of the landslide) encountered an organic clayey silt layer approximately 12 feet below ground surface. This was interpreted to have been a paleo soil horizon.

LABORATORY TESTING RESULTS

Several representative samples were tested for moisture content, Atterberg limits, and gradations including select hydrometers. A summary of the testing results is provided in Table 2. Detailed results are provided in Attachment B. Moisture content testing was conducted in general accordance with ASTM D 2216. Atterberg limits were conducted in general accordance with ASTM D 4318. Gradations including hydrometer testing were conducted in general accordance with ASTM D 422.



Table 1: Summary of Test Pit Observations

Test Pit No.	Depth to Bottom of Slide Debris (ft bgs)	Depth to Refusal / Top of Rock (ft bgs)	Depth to Seep / Water flow (ft bgs)	Flow Rate Estimate (gpm)	Sample Location (ft bgs)
TP-5	8	10	2		0-8, 9
TP-6	12	13	3		
TP-7	12	17	4	< 1	12
TP-8	5	5	5		5
TP-9	3.5	8	-		3, 8
TP-10	2	5	Surface inflow		
TP-11	2	9	-		2
TP-12	1	4	-		2
TP-13	2	3	-		
TP-14	3	9	-		3-9
TP-15	3	9	2	< 1	
TP-16	2	9	9	< 1	6
TP-17	7	12	Surface inflow	10-15	
TP-18	5	8	-		5
TP-19	5	12	-		5-12
TP-20	6	18 (max reach)	Surface inflow	3	
TP-21	16	16 (caving hole)	2	< 1	
TP-22	12	16	5	1-2	0-5
TP-23	3	7	-		5
TP-24	3	12	Surface inflow	2	5
TP-25	5	12 (stopped)	-		
TP-26	Off slide	18 (max reach)	-		7, 12
TP-27	Off slide	18 (max reach)	18	< 1	5, 10, 12-12.5, 13



Table 2: Summary of Laboratory Testing

Test Dit	Sample	Moisture		Gradation	Att	erberg Limits	(%)
No.	No. Depth (ft) Content (%) Gradation		with Hydrometer	LL	PL	PI	
TD 5	0-8	20					
11-5	9	19.1		*	21	16	5
TP-7	12	14.8	*				
TP-8	5	24.1	*				
TD 0	3	14.1		*	21	16	5
1P-9	8	13.8		*	17	16	1
TP-11	2	15.3					
TP-12	2	9.9					
TP-14	3-9	9.5	*				
TP-16	6	8.8	*				
TP-18	5	10.9	*				
TP-19	5-12	9.8	*				
TP-22	0-5	15.9	*				
TP-23	5	11.4	*				
TP-24	5	12.1	*				
TD 26	7	10.4					
11-20	12	12.8	*				
	5	6.0					
TD 27	10	17.7	*				
11-2/	12-12.5	69.7		*	N/A	NP	NP
	13	13.8	*				

* See Attachment B for gradation and hydrometer results.





LIMITATIONS IN THE USE AND INTERPREATATION OF THIS GEOTECHNICAL REPORT

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied.

The geotechnical report was prepared for the use of the Owner in the design of the subject facility and should be made available to potential contractors and/or the Contractor for information on factual data only. This report should not be used for contractual purposes as a warranty of interpreted subsurface conditions such as those indicated by the interpretive boring and test pit logs, cross-sections, or discussion of subsurface conditions contained herein.

The analyses, conclusions and recommendations contained in the report are based on site conditions as they presently exist and assume that the exploratory borings, test pits, and/or probes are representative of the subsurface conditions of the site. If, during construction, subsurface conditions are found which are significantly different from those observed in the exploratory borings and test pits, or assumed to exist in the excavations, we should be advised at once so that we can review these conditions and reconsider our recommendations where necessary. If there is a substantial lapse of time between the submission of this report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, this report should be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

The Summary Boring Logs are our opinion of the subsurface conditions revealed by periodic sampling of the ground as the borings progressed. The soil descriptions and interfaces between strata are interpretive and actual changes may be gradual.

The boring logs and related information depict subsurface conditions only at these specific locations and at the particular time designated on the logs. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change in the soil conditions at these boring locations.

Groundwater levels often vary seasonally. Groundwater levels reported on the boring logs or in the body of the report are factual data only for the dates shown.

Unanticipated soil conditions are commonly encountered on construction sites and cannot be fully anticipated by merely taking soil samples, borings or test pits. Such unexpected conditions frequently require that additional expenditures be made to attain a properly constructed project. It is recommended that the Owner consider providing a contingency fund to accommodate such potential extra costs.

This firm cannot be responsible for any deviation from the intent of this report including, but not restricted to, any changes to the scheduled time of construction, the nature of the project or the specific construction methods or means indicated in this report; nor can our firm be responsible for any construction activity on sites other than the specific site referred to in this report.





ATTACHMENT A Test Pit Summary Logs

Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528 ELEVATION: WEATHER: Slight Rain, 50'sF WATER LEVEL: Seep at 2 feet DATE: 6/24/21	TE: 6/24/21			
PHOTO OF TEST PIT GRAB SAMPLE \[POCKET PENETROMETER \] \[TORVANE \] TORVANE \[DEPTH \] ELEV. IN IN FEET FEET Downed trees intermixed with Slide Debris. \] Surface conditions: Downed trees intermixed with Slide Debris.				
0-8 feet: LOOSE, brown, silty SAND; numerous angular,				
gravel- to boulder-sized rock fragments up to 8 feet, scatte	gravel- to boulder-sized rock fragments up to 8 feet, scattered			
woody debris and roots, wet (SLIDE DEBRIS)				
4 8 - 9 feet: LOOSE, dark brown, ORGANICS; wet (ORIGINA	AL.			
9-10 feet: VERY STIFF, gray, slightly sandy, slightly clayey	to clavev			
SILT; moist (GLASCIOLACUSTRINE/MARINE SEDIMENT	S)			
10-11 feet: HARD (R4), dark gray, moderately weathered, I	Ultramafic			
12 - Notes:				
- Refusal assumed to be on bedrock.	- Refusal assumed to be on bedrock.			
- Water was flowing into the pit at approximately 2 feet.	- Water was flowing into the pit at approximately 2 feet.			
- Water was flowing on the surface approximately 10 feet to	- Water was flowing on the surface approximately 10 feet to the west			
at a flow rate of approximately 20 gpm.	at a flow rate of approximately 20 gpm.			
18 - Sample from 0-8 feet and at 9 feet.				
20 -				
22 -				
A Contraction of the second of				
Photo not to scale				

	LOCATION OF TEST PIT Beach Road, Haines, AK	BY: BAG DA	r <u>e:</u> 6/2 re:	4/21	JOB NO.: 2925 LOCATION: ~Sta. 18+60, 25 ft Right	TEST PIT	NO.: TP-6	
T E C H N O L O G Y 10250 S.W. Greenburg Road, Suite 111	DATUM:	EQUIPMENT & CONTRACT	DR:		SAMPLING METHODS: None	START <u>TIME:</u> 0635	FINISH TIME: 0655	
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	F		WATER LEVEL: Seep at 2 feet	DATE: 6/24/21	DATE: 6/24/21	
		\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:			
PHOTO OF TEST PIT			FEET	FEET	Scattered tree limbs, numerous boulders up to 6 feet max dimension.			
					0-12 feet: LOOSE, brown, silty SAND; n	umerous angu	lar,	
					gravel- to boulder-sized rock fragments up to 8 feet, scattered			
			2		woody debris and roots, wet (SLIDE DE	BRIS)		
					11-12 feet: LOOSE, dark brown, ORGA	NICS; wet (OR	IGINAL	
		States and a state			GROUND)			
			6					
			Ľ		12-13 feet: VERY STIFF, gray, slightly s	andy, slightly c	layey to	
					clayey SILT; moist (GLASCIOLACUSTF	RINE/MARINE	SEDIMENTS)	
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	A PACING	IN CARLER	10-		13 feet: HARD (R4), dark gray, moderat	ely weathered,	Ultramafic	
A Company		al and the same			Rock			
A Carlo Carlos			12					
	and the President			14 —	Notes:			
A LEW HIT PRANE			14		- Refusal assumed to be on bedrock.			
12- 1					- Water was flowing into the pit at approximately 2 feet.			
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Photo not to scale			28					

	LOCATION OF TEST PIT	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925	TEST PIT	NO.: TP-7		
	DATUM:	EQUIPMENT & CONTRACT	<u>1E:</u> OR:		SAMPLING METHODS:	START	FINISH		
10250 S.W. Greenburg Road, Suite 111 Bortland, Oregon 07223		Cat 320L, SE Road Builder	S		Grab	<u>TIME:</u> 0700	<u>TIME:</u> 0722		
Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL: Seep at 4 feet	DATE: 6/24/21	DATE: 6/24/21		
		\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:				
PHOTO OF TEST PIT			FEET	FEET	Scattered tree limbs, numerous boulders up to 3 feet max dimension.				
			0		0-12 feet: LOOSE, brown, silty SAND; numerous angular,				
	1 0 0 1 0 1 0 0	8 0 8 0 8 0		_	gravel- to boulder-sized rock fragments up to 8 feet, scattered				
			2	-	woody debris and roots, wet (SLIDE DE	BRIS)			
				1	12 17 foot: LOOSE dark grov silty SAN		(hiotito) graina		
			4	-	(WEATHERED UI TRAMAFICS)	D, IIICaceous	(Diotite) grains,		
			1000	-					
	and and	1 million	6-	-	17 feet: HARD (R4), dark gray, moderat	ely weathered,	Ultramafic		
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and the set	A PO	(RK) - SEST		-	Notes:				
			14	-	- Refusal assumed to be on bedrock.				
CORE FILE				-	- Water seeping into the pit at approximately 4 feet.				
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	LOCATION OF TEST PIT Beach Road, Haines, AK	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925 LOCATION: ~Sta. 20+30. 32 ft Right TEST PIT NO.: TP				
T E C H N O L O G Y 10250 S.W. Greenburg Road, Suite 111	DATUM:	EQUIPMENT & CONTRACT Cat 320L, SE Road Builder	OR: s		SAMPLING METHODS: Grab	START TIME: 0733	FINISH TIME: 0745		
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL: Seep at 5 feet	DATE: 6/24/21	DATE: 6/24/21		
	GRAB SAMPLE	\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:				
PHOTO OF TEST PIT			FEET	FEET	Numerous boulders up to 3 feet max dimension.				
					0-5 feet: LOOSE, brown, silty SAND; numerous angular,				
				-	gravel- to cobble-sized rock fragments;	scattered			
			2	-	woody debris and roots, moist (SLIDE D	DEBRIS)			
					5 feet: HARD (R4), dark gray, moderate	ly weathered, l	Jltramafic		
			4		Rock; biotite rich	-			
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1.6		and the second s			- Refusal assumed to be on bedrock.				
		17 march and a		-	- Water seeping into the pit at approximately 5 feet.				
A A A			16	-	- Sample at 5 feet.				
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	LOCATION OF TEST PIT	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925		TP-9	
	Beach Road, Haines, AK	CK: DA	TE:		LOCATION: ~Sta. 20+82, 32 ft Right	TESTFILL		
T E C H N O L O G Y 10250 S.W. Greenburg Road, Suite 111	DATUM:	EQUIPMENT & CONTRACT	DR: 3		SAMPLING METHODS: Grab	START TIME: 0750	FINISH <u>TIME: 0803</u>	
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	DATE: 6/24/21	DATE: 6/24/21				
	GRAB SAMPLE	\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:			
PHOTO OF TEST PIT	THIN WALL SAMPLE	\oplus TORVANE	FEET	FEET	Numerous boulders up to 3 feet max dimension.			
					·			
			0		0-3.5 feet: LOOSE, brown, silty SAND; I	numerous angu	ılar,	
			2		gravel- to boulder-sized rock fragments	, scattered		
			2		woody debris and roots, wet (SLIDE DE	BRIS)		
			4		3.5-8 feet: VERY STIFF, gray, slightly sa	andy, slightly c	ayey to clayey	
1	A Charles		6		SILT; moist (GLASCIOLACUSTRINE/M	ARINE SEDIM	ENTS)	
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and the second second	Contraction of the		8		8 feet: HARD (R4), dark gray, moderate	ly weathered, l	Jltramafic	
Frank Frank					Rock			
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A start the second start		Joseph and Market		-	- Samples at 3 and 8 feet.			
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LANDSLIDE	LOCATION OF TEST PIT Beach Road, Haines, AK	BY: BAG DA	TE: 6/2 TE:	4/21	JOB NO.: 2925 LOCATION: ~Sta. 21+55, 34 ft Right		NO.: TP-10	
T E C H N O L O G Y 10250 S.W. Greenburg Road, Suite 111	DATUM.	Cat 320L, SE Road Builder	S		None	<u>TIME: 0810</u>	<u>TIME: 0818</u>	
Portland, Oregon 9/223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50'	sF		WATER LEVEL:	DATE: 6/24/21	DATE: 6/24/21	
		\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:			
PHOTO OF TEST PIT			FEET	FEET	Standing water, silty SAND with scattered gravel- and cobble-sized			
					rock fragments			
					0-2 feet: LOOSE, brown, silty SAND; nu	merous angula	ır,	
			2	-	gravel- to cobble-sized rock fragments,	scattered		
					woody debris and roots, wet (SLIDE DEBRIS)			
			4					
				-	2-4 feet: VERY STIFF, gray, slightly sar	idy, slightly clay	yey to clayey	
	The state of the state	A LAND A LAND A LAND	6-	-	SILT; moist (GLASCIOLACUSTRINE/M	ARINE SEDIM	ENTS)	
	The Arts to		ALC: N	-				
			8-	-	4-5 feet: HARD (R4), dark gray, modera	tely weathered	, Ultramafic	
and a state		a state that the		-	Rock; biotite rich			
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and the second second		Dec -	12-	-	N1. (
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		B Mars Hart		-	- Refusal assumed to be on bedrock.			
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LANDSLIDE	LOCATION OF TEST PIT Beach Road, Haines, AK	BY: BAG DA	TE: 6/2 TE:	4/21	JOB NO.: 2925 LOCATION: ~Sta. 22+67, 27 ft Right	TEST PIT I	NO.: TP-11		
T E C H N O L O G Y 10250 S.W. Greenburg Road, Suite 111	DATUM:	Cat 320L, SE Road Builder	OR: S		Grab	TIME: 0825	TIME: 0836		
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL:	DATE: 6/24/21	DATE: 6/24/21		
			DEPTH IN	ELEV.	SURFACE CONDITIONS:				
PHOTO OF TEST PIT			FEET	FEET	5-6 foot thick layer of 2-3 foot diameter	downed trees,	standing water		
			0	-	in numerous locations				
				-	0-2 feet: LOOSE, brown, silty SAND; nu	merous angula	r,		
			2	-	gravel- to cobble-sized rock fragments,	scattered			
				-	woody debris and roots, wet (SLIDE DE	BRIS)			
			4		2-9 feet: MEDIUM DENSE, gray, silty S	AND; occasion	al gravel- and		
					cobble-sized rock fragments, moist, micaceous				
			6		(GLASCIOLACUSTRINE/MARINE SED	IMENTS)			
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	a start a set of the	States 2 2 1 States	°		9 feet: HARD (R4), gray, moderately we	athered, Ultran	nafic		
			10-		Rock; biotite rich				
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	The second second		12-	-					
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profile and a second		A A A A A A A A A A A A A A A A A A A		-	- Refusal assumed to be on bedrock.				
and the second second		the second of the		-	- Sample at 2 feet.				
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	LOCATION OF TEST PIT	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925			
	Beach Road, Haines, AK	CK: DA	TE:		LOCATION: Slide Mass	1ESI PILI	NO.: 11 12	
T E C H N O L O G Y	DATUM:	EQUIPMENT & CONTRACT	OR:		SAMPLING METHODS:	START	FINISH	
10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223		Cal 320L, SE Road Builder	5			<u>TIME: 0052</u>	TIME: 0900	
Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL:	DATE: 6/24/21	DATE: 6/24/21	
		\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:			
PHOTO OF TEST PIT			FEET	FEET	Numerous woody debris with logs up to	2 foot in diame	ter	
	•							
					0-2 feet: LOOSE, brown, silty SAND; nu	imerous angula	r,	
					gravel- to cobble-sized rock fragments,	moist (SLIDE I	DEBRIS)	
					2-4 feet: LOOSE, brown and gray, silty \$	SAND; micaced	ous	
			4		(WEATHERED TOP OF ROCK)			
1 THAT THE ALL - L	¥		6					
	and the second				4 feet: HARD (R4), gray, moderately we	athered, Ultran	nafic	
			8		Rock; biotite rich			
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	What we want the				- Refusal assumed to be on bedrock.			
	11118月1日日				- Sample at 2 feet.			
Section Production	S Berly A		16					
		C. C. Marthand P. Marthan						
		Martin Contraction	18					
		The states						
CONTRACTOR STREET	at Plant in		20-					
		NOT CONTRACT ON THE						
			22-					
and the second sec		A CARLES AND A CARLES						
			24					
			26					
					F			
			28					
Photo not to scale	· · · · ·		20					

	LOCATION OF TEST PIT	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925			
	Beach Road, Haines, AK	CK: DA	TE:		LOCATION: Slide Mass	IESI FILI	NO 11 10	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	DATUM:	EQUIPMENT & CONTRACT Cat 320L, SE Road Builder	OR: s		SAMPLING METHODS: None	START <u>TIME:</u> 0904	FINISH <u>TIME:</u> 0910	
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50'	sF		WATER LEVEL: Surface	DATE: 6/24/21	DATE: 6/24/21	
	GRAB SAMPLE	\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:			
PHOTO OF TEST PIT	THIN WALL SAMPLE				LOOSE, brown, silty SAND with numerous cobbles (SLIDE DEBRIS)			
						X	,	
			0	-	0-2 feet: LOOSE, brown, silty SAND; numerous angular,			
		* 0 * 0 * 0		1	gravel- to cobble-sized rock fragments,	moist (SLIDE I	DEBRIS)	
				1				
			4		2-5 feet: LOOSE, brown and gray, silty s	SAND; micaced	ous	
					(WEATHERED TOP OF ROCK)			
A Contraction of the second		and the	6-					
AND AND A MAN	ALCONT DE	a sender			5 feet: HARD (R4), gray, moderately we	athered, Ultran	nafic	
	and the set		8-		Rock; biotite rich			
		Park M.		-				
	And the second		10-	-				
	THE REAL PLAN			-				
	C. Chandle Print		12	-	Notos:			
		ALL DEPEND	100	-	- Refusal assumed to be on bedrock			
	Martine .		14	-	- Water running into pit from the surface.			
	A State State							
		A AND A	16-					
IN TRACE	the second second	A CAR	18					
The second is	- Andrews -			-				
NO TO A CON		LANK SU	20	-				
in the second second			-	-				
			22					
and the second sec		State Carlos and	*	-				
			24					
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	0 0 8 0 8 0 0		26-		-			
			\ F	⊨				
Photo not to scale			28	1				

	LOCATION OF TEST PIT	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925		NO.: TP-14		
	DATUM:	EQUIPMENT & CONTRACT	<u>1E:</u> 0R [.]		SAMPLING METHODS	START	FINISH		
10250 S.W. Greenburg Road, Suite 111		Cat 320L, SE Road Builders	S		Grab	TIME: 0911	TIME: 0916		
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL:	DATE: 6/24/21	DATE: 6/24/21		
	GRAB SAMPLE	\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:				
PHOTO OF TEST PIT	THIN WALL SAMPLE	\oplus TORVANE	FEET	FEET	LOOSE, brown, silty SAND with scattered woody debris (SLIDE				
					(DEBRIS)	-	-		
			0						
		8 0 8 0 8 0			0-3 feet: LOOSE, brown, silty SAND; nu	imerous angula	r.		
		* * * * * * *	2		gravel- to cobble-sized rock fragments.	moist (SLIDE I) DEBRIS)		
				-					
			4	-	3-9 feet: DENSE brown and gray silty	SAND: micaceo	ous		
		2 - Lat	-	-	(WEATHERED TOP OF ROCK)	o, (12), modood			
The state of the s		The second second	6-	-					
				-	9 feet: HARD (R4), gray, moderately, we	athered Illtran	nafic		
The state of the second of the		and the second	8-	-	Rock: biotite rich		lano		
1 - the the									
Lat and the fait of		and the second	10	-					
	Ward Port A	A CAL		-					
			12-	-	Notos:				
			-	-	Refuel assumed to be an hadrook				
2 San - 19 14 5 1	1. The mark the		14	-	Sample from 3 to 9 foot				
	The right of the	A Another	-	-	- Sample nom 3 to 9 leet.				
	The Strategy of the		16	-					
at the second		A CARLON	A HERE	-					
	11 And the		18	-					
	Cart Ar			-					
the state of the s	at the second	N COLAR	20	-					
	and the second	Vel Charles	-	1					
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		8 0 8 0 0 8 0	24	-					
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			26						
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Photo not to scale			28-						

	LOCATION OF TEST PIT Beach Road, Haines, AK	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925	TEST PIT	_{VO.:} TP-15
T E C H N O L O G Y 10250 S.W. Greenburg Road. Suite 111	DATUM:	EQUIPMENT & CONTRACT Cat 320L, SE Road Builder	OR: s		SAMPLING METHODS: None	START TIME: 0920	FINISH TIME: 0930
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50'	sF		WATER LEVEL: Seepage at 2 feet.	DATE: 6/24/21	DATE: 6/24/21
		\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:		
PHOTO OF TEST PIT			FEET	FEET	LOOSE, brown, silty SAND (SLIDE DEE	BRIS)	
			0	1	0.3 feet: LOOSE brown silty SAND: nu		r
				-	gravel- to cobble-sized rock fragments,	moist (SLIDE I	DEBRIS)
			2			X	,
			4	-	3-9 feet: DENSE, brown grading into gra	ay, silty SAND;	micaceous
		Section 19		-	(WEATHERED TOP OF ROCK)		
Sec.			6-	-	9 feet; HARD (R4), gray, moderately we	athered. Ultran	nafic
				1	Rock; biotite rich	,	
	e Maria Para		°				
Ser Stat	A A A A A A A A A A A A A A A A A A A	A BR	10	-			
	Contract.		1000	-			
		A TANKA	12-	-	Notes:		
the state of the			14		- Refusal assumed to be on bedrock.		
ALLES , John		the second state		-	- Water flowing < 1 gpm at 2 feet.		
STRACK		and the second	16 -	-			
		and the states	18				
A HAR PERSON	A CONTRACTOR	125-6		-			
All and stand			20	-			
A BOOM OF	The second		22 -	-			
A Star Alas		A State of the second		-			
			24	-			
				-			
			26				
Photo not to scale		UKA	28-		ļ		

	LOCATION OF TEST PIT Beach Road Haines AK	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925	TEST PIT	_{NO.:} TP-16	
T E C H N O L O G Y	DATUM:	EQUIPMENT & CONTRACT	OR:		SAMPLING METHODS:	START	FINISH	
10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503 452 1200 Eax 503 452 1528		WEATHER: Slight Rain 50'	s sF			<u>IIME: 0930</u>	<u>TIME: 0950</u>	
110hc 505-452-1200 1 ax 505-452-1520		∇ POCKET PENETROMETER	DEPTH	ELEV.				
PHOTO OF TEST PIT			IN FFFT	IN FFFT	LOOSE, silty SAND with boulders up to 2 feet (SLIDE DEBRIS)			
					20 foot boulder adjacent to test pit		- /	
			0					
			2		0-2 feet: LOOSE, brown, silty SAND; nu	imerous angula	ır,	
					gravel- to cobble-sized rock fragments,	moist (SLIDE I	DEBRIS)	
			4					
	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		-	-	2-10 feet: DENSE, brown and gray, silty	SAND; micace	eous	
			6-	-	(WEATHERED TOP OF ROCK)			
Maria Maria Maria	1 18 3. 1			-	10 facts LIADD (D4), grady maderately up		mofie	
	7.2 43		8-	-	Rock: biotite rich	eathered, Uitra	imanc	
				-				
		A ANT AND	10-					
	the start			-				
	Carl and and a	the the section in	12		Notes:			
					- Refusal assumed to be on bedrock.			
					- Water inflow at 9 feet at < 1 gpm.			
			16-	-	- Sampled at 6 feet.			
		C. Contraction of the	_	-				
a set in the	the state of	A PARTING	18	-				
Charles and		The The P						
	and the second	Par a state	20 -					
AT A THE A PARTY	A MARKEN AND							
And States - States		AN ACCO	22 –	1				
			24					
		F 0 1 0 0 F 0	26					
					F			
Photo not to scale			28-					

	LOCATION OF TEST PIT	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925 TEST PIT NO.:				
	DATUM	EQUIPMENT & CONTRACT	<u>IE:</u> OR [.]			START	FINISH		
10250 S.W. Greenburg Road, Suite 111		Cat 320L, SE Road Builder	s		None	TIME: 0955	TIME: 1006		
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50'	sF		WATER LEVEL: Flow from the surface	DATE: 6/24/21	DATE: 6/24/21		
		\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:				
PHOTO OF TEST PIT			FEET	FEET	LOOSE, silty SAND with boulders up to	10 feet (SLIDE	DEBRIS)		
					Water flowing on the surface at 10-15 g	pm adjacent to	pit.		
			2		0-7 feet: LOOSE, brown, silty SAND; nu	merous angula	ır,		
					gravel- to cobble-sized rock fragments,	wet (SLIDE DE	EBRIS)		
	1 0 0 0 0 0 0	8 0 8 0 0 8 0	4						
	and a second second			-	7-12 feet: DENSE, brown and gray, silty	SAND; wet, m	icaceous		
CALL LAND	N. Frank		6-		(WEATHERED TOP OF ROCK)				
No. and the second seco	and a second strange		5	-					
	the second		8-	-	12 feet: HARD (R4), gray, moderately w	eathered, Ultra	imafic		
No. 4 Contraction	X			-	Rock; biotite rich				
			10	-					
the state of				-					
		1 / support	12-	-	Nataa				
		MANATE		-	Pofusal assumed to be on bodrock				
			14	-	- Refusal assumed to be on bedrock.				
		The second second		-					
	Star Star		16	-					
	A CHERCE								
		- 12 14 1	18	-					
	and the second sec	THE REAL							
and a state of the			20						
	and the second	A part of the	22						
Self - 2		~ / X >							
			24						
		• <u>• •</u> • <u>•</u> • •	26						
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Photo not to goale			28 -						
FILOCO HOL LO SCATE									

	LOCATION OF TEST PIT Beach Road, Haines, AK	BY: BAG DA	<u>TE:</u> 6/2 TE:	4/21	JOB NO.: 2925 LOCATION: Slide Mass	TEST PIT I	NO.: TP-18	
T E C H N O L O G Y 10250 S.W. Greenburg Road, Suite 111	DATUM:	EQUIPMENT & CONTRACTO Cat 320L, SE Road Builders	DR:		SAMPLING METHODS: Grab	START <u>TIME:</u> 1010	FINISH TIME: 1025	
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	DATE: 6/24/21	DATE: 6/24/21				
PHOTO OF TEST PIT	GRAB SAMPLE THIN WALL SAMPLE	\bigtriangledown pocket penetrometer \oplus torvane	DEPTH IN	PTH ELEV. N IN IN LOOSE sith, SAND with boulders up to 5 feet (SLIDE DEF				
			0		0-5 feet: LOOSE, brown, silty SAND; nu	merous angula	ar,	
			2		gravel- to cobble-sized rock fragments,	wet (SLIDE DE	EBRIS)	
					5-8 feet: DENSE, brown and gray, silty \$	SAND; moist, r	nicaceous	
			4		(WEATHERED TOP OF ROCK)			
and the stand	and the second	1221	6					
the stand of the second	The second second				8 feet: HARD (R4), gray, moderately we	athered, Ultran	nafic	
			8-		Rock; biotite rich			
	Contraction of the second		-					
	WAY AND AND	JANS ALS	10					
	C. TALLY							
CEAL TAI	the second second	A CARA	12-		Notes:			
the state of the s	the state		14		- Refusal assumed to be on bedrock.			
					- Sample at 5 feet.			
A A A A A A A A A A A A A A A A A A A			16					
A THE MAN			18-					
		and the second second						
			20-					
V. G. M. G.			22					
			24					
	0 0 0 0 0 0		26 -					
			∖ ⊧					
Photo not to scale			28					

	LOCATION OF TEST PIT Beach Road Haines AK	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925	TEST PIT I	_{NO.:} TP-19		
T E C H N O L O G Y 10250 S W Greenburg R and Suite 111	DATUM:	EQUIPMENT & CONTRACT Cat 320L, SE Road Builder	OR: s		SAMPLING METHODS: Grab	START TIME: 1030	FINISH TIME: 1040		
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	WEATHER: Slight Rain, 50'sF WATER LEVEL: None DATE: 6/24/21						
		\bigtriangledown pocket penetrometer							
PHOTO OF TEST PIT			FEET	FEET	LOOSE, silty SAND with boulders up to	5 feet (SLIDE	DEBRIS)		
			0	-					
				-	0-5 feet: LOOSE, brown, slity SAND; hu	merous angula			
			2	-	graver to cobble-sized took inaginetits,		JEDINO)		
					5-12 feet: DENSE, brown and gray, silty	SAND; moist,	micaceous		
			4		(WEATHERED TOP OF ROCK)				
	A. A. A.	WHE WE A SERVICE	6-	-					
		to at the		-	12 feet: HARD (R4), gray, moderately w	eathered, Ultra	Imafic		
W CONTRACTOR			8-	-					
	the states of the	1 Jule my the		-					
La Della Carl			10						
P Part - Mark			12						
And style		a series		-	Notes:				
	No Contraction		14	-	- Refusal assumed to be on bedrock.				
		N THE REAL PROPERTY OF							
	12 Parts	President	16						
			18						
	THE REAL OF	the second		-					
A CALLARY AND	STAN	A for the for	20	-					
A PARTY AND A PARTY		a sector	-						
	C CONTRACT	Provide State	22-	-					
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			26						
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Photo not to scale			28-						

	LOCATION OF TEST PIT	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925		NO · TP-20		
	Beach Road, Haines, AK	CK: DA	TE:		LOCATION: Slide Mass		NO · · _ = •		
T E C H N O L O G Y 10250 S.W. Greenburg Road, Suite 111	DATUM:	EQUIPMENT & CONTRACTO Cat 320L, SE Road Builders	OR: s		SAMPLING METHODS: None	START <u>TIME:</u> 1049	FINISH <u>TIME: 1105</u>		
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL: Surface flow	DATE: 6/24/21	DATE: 6/24/21		
	GRAB SAMPLE	\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:				
PHOTO OF TEST PIT	THIN WALL SAMPLE		FEET	FEET	LOOSE, silty SAND with running water on surface (SLIDE DEBRIS)				
							,		
			0	-	0-6 feet: LOOSE, brown, silty SAND; nu	merous angula	ar,		
· · · · · · · · ·		8 0 8 0 0 8 0			gravel- to cobble-sized rock fragments,	wet (SLIDE DI	EBRIS)		
				-	6-18 feet: DENSE, brown and gray, silty	SAND; moist,	micaceous		
			4		(WEATHERED TOP OF ROCK)				
	and the state	TO AR			numerous cobble-sized rock fragmen	ts starting at 10) feet		
	A CONTRACT								
and the set			°						
		AT 1 1 1 2	10						
		ALL CALL							
		Set 1	10						
TO A Press	CA MAN				Notes:				
water to the state	Tand In and				- Maximum reach of excavator at 18 fee	t.			
	A A A A A A A A A A A A A A A A A A A				- Water flowing at ~3 gpm.				
	18 March March		16						
and prove a set									
A	EN EN OR		18-						
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A CHART AND AND	and in the state	A BE ALL	20-						
	and and			_					
	1 and a first	Viel Port	22 -	_					
A CAR STOR			8	_					
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	0 0 8 0 8 0 0		26						
Photo not to scale			28 -						

	LOCATION OF TEST PIT	BY: BAG DA	TE: 6/2	4/21					
LANDSLIDE	Beach Road, Haines, AK	CK: DA	TE:		LOCATION: Slide Mass	TEST FILT	VO · · _ ·		
TECHNOLOGY	DATUM:	EQUIPMENT & CONTRACT	OR:		SAMPLING METHODS:	START	FINISH		
10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223			5			<u>11ME: 1113</u>	<u>11ME: 1131</u>		
Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL: Seep at 2 feet.	DATE: 6/24/21	DATE: 6/24/21		
	GRAB SAMPLE	\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:				
PHOTO OF TEST PIT	THIN WALL SAMPLE	\oplus TORVANE	FEET	FEET	LOOSE, silty SAND with boulders up to 10 feet (SLIDE DEBRIS)				
			0	-	0-16 feet: LOOSE, brown, silty SAND; n	umerous angul	ar,		
	0 0 0 0 0 0	8 0 8 0 8 0		-	gravel- to cobble-sized rock fragments.	wet (SLIDE DE	BRIS)		
			2	-					
				-					
		8 0 4 0 0 8 0	4	-					
			i.	-					
		CONTRACTOR OF	6-	-					
		A CARLE AND	10.0	-					
			8-	-					
A 840	S.A. J. NO			-					
	a start of the		10	_					
and the second second		and it							
A MARK	HANNAR D	1 1 A C EX	12						
A ANDR	and the state				Notes:				
A A A A A A A A A A A A A A A A A A A	CAN'S T		14		- Abandoned hole due to caving.				
]	- Water flow ~ 1 gpm.				
a the stand with the				1					
17	A TOL	A A A A A A A A A A A A A A A A A A A	16						
	Pier	WT/ Contract		-					
And I want to a weather	W IN A		18	-					
The second se		The same por		-					
A PARTICIPAL CONTRACTOR	The state		20 -	-					
Strand R. S. P.	CAR AND CA	the start is		-					
J. Fland C. R. J.C.		and the second	22 -	-					
				-					
	0 0 0 0 0 0 0	8 0 8 0 4 8 0	24	-					
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	0 0 8 0 8 0 0		26						
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Photo not to scale			28-						
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	LOCATION OF TEST PIT	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925		NO · TP-22		
	Beach Road, Haines, AK	CK: DA	TE:		LOCATION: Slide Mass	ILSI FILI	VO · ·		
TECHNOLOGY	DATUM:	EQUIPMENT & CONTRACT	OR:		SAMPLING METHODS:	START	FINISH		
10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223			3			<u>11ME: 1140</u>	<u>11ME: 1207</u>		
Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50	sF		WATER LEVEL: Seepage at 5 feet DATE: 6/24/21 DATE: 6/24/21				
			DEPTH	ELEV.	SURFACE CONDITIONS:				
PHOTO OF TEST PIT			FEET	FEET	LOOSE, silty SAND with boulders up to	15 feet and log	s up to 3 feet		
					(SLIDE DEBRIS)				
				1					
	8 0 0 0 0 0 0	8 0 8 0 8 0			0-5 feet: LOOSE, brown, silty SAND; nu	merous angula	r,		
			2		gravel- to cobble-sized rock fragments,	moist (SLIDE D	EBRIS)		
							- /		
			4		12-16 feet: DENSE, brown and gray, silt	ty SAND; moist	, woody debris		
	N STATE!	Mar Herster	-		at 12 feet, micaceous (WEATHERED T	OP OF ROCK)	, ,		
	A ALC STRAN	1 - State 1	6			,			
	mary 17	100000		-	16 feet: HARD (R4), grav, moderately w	eathered. Ultra	mafic		
CALLER ALL	Le Coll		8-		Rock: biotite rich	,,			
		1 Kath	HILL NO	-					
	and the second with the	in the state	10	-					
				1					
and the second s	in the lite		12-	-	Notes:				
and the state of				-	- Refusal assumed to be on bedrock				
		C AV	14		- Sample at 0-5 feet.				
TEN.				-	- Water flow ~1-2 gpm				
and the second second		A Part of the Contra	16	-					
		Autor		1					
A starting to the starting		And a state that the	18						
And State of the		Sala and at							
ALL		· · ··································	20 -						
Contraction of the second second	Fine Plan	1 1 1 2 1	22 -	1					
		the tensile of the		-					
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				-					
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Photo not to scale			28						

LANDSLIDE	LOCATION OF TEST PIT Beach Road, Haines, AK	BY: BAG DAT	Γ <u>Ε:</u> 6/24 ΓΕ:	4/21	JOB NO.: 2925 LOCATION: Slide Mass		_{VO.:} TP-23
T E C H N O L O G Y 10250 S.W. Greenburg Road, Suite 111	DATUM:	EQUIPMENT & CONTRACTO Cat 320L, SE Road Builders	DR:		SAMPLING METHODS: Grab	START <u>TIME:</u> 1220	FINISH <u>TIME: 1231</u>
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	۶F		WATER LEVEL: None	DATE: 6/24/21	DATE: 6/24/21
		\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:		
PHOTO OF TEST PIT			FEET	FEET	LOOSE, silty SAND with logs up to 3 fee	et (SLIDE DEB	RIS)
			0-				
			2		0-3 feet: LOOSE, brown, silty SAND; nu	merous angula	ir,
					gravel- to cobble-sized rock fragments,	moist (SLIDE D	EBRIS)
			4		2.7 fast: DENSE brown and grove silty (SAND: moint in	
		- COA	-		roots at 3 feet (WEATHERED TOP OF		
A the alternation of	a server		6		TOOLS AT 3 TEET (WEATHERED TOT OF		
	All and the second second				7 feet: HARD (R4), gray, moderately we	athered. Ultrar	nafic
at the tak	4 Maria	CALL BACKER TO	8-		Rock: biotite rich		
	A MARCHER AND AND A						
and the second sec		aller , allow	10				
and the second	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
and the second second		the second second	12		Notes:		
		-h-L			- Refusal assumed to be on bedrock.		
	A Recent of		14		- Sample at 5 feet.		
		The share	16		- Water flow ~1-2 gpm.		
A CALL AND A CALL	MA ENCL	She was					
	Contraction of the second	The states	18-				
	The Alexant	AN AN	20 -				
the state of the s	S. A. S. LAND	AT THE	-				
		in the states	22				
A Star Partie Star	and the second second						
		8 0 8 0 8 0	24				
			26		–		
			∖ ⊧				
Photo not to scale			28		1		

	LOCATION OF TEST PIT Beach Road, Haines, AK	BY: BAG DA	TE: 6/2	4/21	JOB NO.: 2925	TEST PIT I	NO.: TP-24		
T E C H N O L O G Y 10250 S.W. Greenburg Road. Suite 111	DATUM:	EQUIPMENT & CONTRACT Cat 320L, SE Road Builder	OR: s		SAMPLING METHODS: Grab	START TIME: 1240	FINISH TIME: 1250		
Portland, Oregon 97223 Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL: Surface water flow	DATE: 6/24/21	DATE: 6/24/21		
			DEPTH	ELEV.	SURFACE CONDITIONS:				
PHOTO OF TEST PIT			FEET	FEET	LOOSE, silty SAND with boulders up to	6 feet (SLIDE I	DEBRIS)		
			0	-					
				-	0-3 feet: LOOSE brown silty SAND: nu		r		
			2	-	gravel- to cobble-sized rock fragments.	moist (SLIDE D)EBRIS)		
				-	<u></u>				
			4		3-12 feet: DENSE, brown grading to gra	ay, silty SAND; I	moist,		
		and the second	6-	-	micaceous (WEATHERED TOP OF RO	CK)			
				-			6		
	A Go Jacon A	Martin and the	8-	-	12 feet: HARD (R4), gray, moderately w	eathered, Ultra	imafic		
The Contract -				-					
			10	-					
	A stand to a	A State of the							
					Notes:				
14 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	bin pro		14	-	- Refusal assumed to be on bedrock.				
A CARLENT AND AL	A Contract	My Laborer	_	-	- Sample at 5 feet.				
a the second second			16	-	- Water flow ~2 gpm.				
Com The State			-	-					
		the second	18-	-					
a part of the part of the	an real and	No. a second	- 20						
292.	Street A.M.								
a the second of	A. C. S. S.	and the second	22	-					
ALL PRESS				-					
	0 0 0 0 0 0 0		24	-					
				-					
			26		F				
Photo not to scale			28	1					

LANDSLIDE	LOCATION OF TEST PIT Beach Road, Haines, AK DATUM:	BY: BAG DA CK: DA EQUIPMENT & CONTRACT	<u>TE:</u> 6/2- TE: OR:	4/21	JOB NO.: 2925 LOCATION: Sta. 19+55, 28 feet Left SAMPLING METHODS:	TEST PIT I	TEST PIT NO.: TP-25 START FINISH			
10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223		Cat 320L, SE Road Builders	S			TIME: 1330	TIME: 1340			
Phone 503-452-1200 Fax 503-452-1528		∇ POCKET PENETROMETER	DEPTH	ELEV.	WATER LEVEL: None DATE: 6/24/21 DATE: 6/24/21					
PHOTO OF TEST PIT			IN FEET	IN FEET	LOOSE, silty SAND with boulders up to 2 feet (SLIDE DEBRIS)					
							·			
			2		0-5 feet: LOOSE, brown, silty SAND; nu	merous angula	ir,			
					gravel- to cobble-sized fock fragments,	ary (SLIDE DE	вкіз)			
			4		5-6 feet: DENSE, gray, sandy, GRAVEL	; moist (DRIVE	WAY			
1 Set Incl.			6		SURFACING MATERIAL)	·				
the second second										
J	A Start Mary	MARCH C	8-		6-10 feet: DENSE, brown, silty, SAND A	ND GRAVEL;	moist (FILL)			
Chine Litte	A CARLEY				10-12 feet: Woody debris (CORDUROY	·)				
	A CONT		10			/				
	- A Contract		12							
		A A A A A A A A A A A A A A A A A A A			Notes:					
A THE THE		MAN Surger	14		- Halted excavation at 12 feet.					
	1	A deta	-		- Exposed utilities at 10 leet.					
	A Company and		16							
* all and			18-							
	the second		-							
State State State	Stor Barris		20							
			24							
			26		-					
				-						
Photo not to scale	· · · · · · ·		28-							

LANDSLIDE	LOCATION OF TEST PIT Beach Road, Haines, AK	BY: BAG DA	TE: 6/2	26/21	JOB NO.: 2925 LOCATION: East of the Slide	TEST PIT	NO.: TP-26
T E C H N O L O G Y 10250 S.W. Greenburg Road, Suite 111	DATUM:	EQUIPMENT & CONTRACTO	DR: 3		SAMPLING METHODS: Grab	START TIME: 0700	FINISH <u>TIME:</u> 0737
Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL: Seep at 9 feet and 18 feet	DATE: 6/26/21	DATE: 6/26/21
	GRAB SAMPLE	\bigtriangledown pocket penetrometer	DEPTH	ELEV.	SURFACE CONDITIONS:		
PHOTO OF TEST PIT	THIN WALL SAMPLE		FEET	FEET	Thick vegetation (ferns and devil's club)	, trees up to 6 f	oot diameter
	1						
				1	0-1 feet: SOFT, brown, sandy, SILT; mo	oist, numerous i	oots (TOP
				1	SOIL)		
		* * * * * * *		1			
		* * * * * * *		1	1-18 feet: MEDIUM DENSE, brown, silty	/ SAND; moist,	scattered
	0 0 0 0 0 0 0		4	1	angular cobbles and boulders up to 3 fe	et (COLLUVIU	N)
	11 11	19569		1	at 9 feet becomes wet		
A STATE AND A STATE AND A		A State	0-	1	at 12 feet becomes silty, gravely, SAI	ND	
	100	States]	at 15 feet boulders decrease to occas	sional	
	Mr. Comment		°]			
	ant	CAR AND	10				
	HE WE	12.4					
			12				
		15.07			Notes:		
			11		- 20 foot boulder adjacent to test pit.		
	E AN A LAND	S. Carl	14		- Maximum reach of excavator.		
2		13-2-51	16		- Samples at 7 and 12 feet.		
Part and a la		and the se					
11- Carlos Carlos			18-				
		Alex Alexander					
			20-				
19. 19. 1.	the set and a			-			
		224	22-				
States -	And a state of the	Construction of		-			
			24	4			
				-			
	0 0 8 0 8 0 0		26				
					F		
Photo not to scale			28 -				

LANDSLIDE	LOCATION OF TEST PIT Beach Road, Haines, AK DATUM:	BY: BAG DA CK: DA EQUIPMENT & CONTRACTO	TE: 6/2 TE: OR:	6/21	JOB NO.: 2925 LOCATION: East of the Slide SAMPLING METHODS:		NO.: TP-27
10250 S.W. Greenburg Road, Suite 111		Cat 320L, SE Road Builder	S		Grab	TIME: 0800	TIME: 0840
Phone 503-452-1200 Fax 503-452-1528	ELEVATION:	WEATHER: Slight Rain, 50's	sF		WATER LEVEL: Seep at 14 feet	DATE: 6/26/21	DATE: 6/26/21
			DEPTH	ELEV.	SURFACE CONDITIONS:		
PHOTO OF TEST PIT			FEET	FEET	Thick vegetation (ferns and devil's club)	, trees up to 6 f	oot diameter
			0	-			
				-	0-1.5 feet: SOFT, brown, slightly clayey,	, sandy, SILT; r	noist,
			2	-	numerous roots (TOP SOIL)		
				-	1.5-12 feet: MEDIUM DENSE, brown, si	iltv SAND: mois	t. occasional
			4	-	boulders up to 2 feet, scattered cobbles	(COLLUVIUM)	
	A A A A A A A A A A A A A A A A A A A	Antonia Cana		1	•	. ,	
		all and a	6		12-12.5 feet: STIFF to VERY STIFF, bla	ack, clayey, SIL	T; organic
		A AND P	8		ordor, moist (PALEO TOP SOIL)		
the fight in	and a state	All seke		-			
AN WAR			10-	-	12.5-18 feet: MEDIUM DENSE, gray, sil	Ity, SAND; mois	st becoming
18 Area L	CHARLE M	3 RA IN	-	-	wet, scattered cobbles to coarse gravel	sized angular r	ock fragments
	N. C. Start	1102=	12-	-			
	1. 1. 1. 1.	* A A A A A A A A A A A A A A A A A A A	-	-	Notes:		
	A Charles and a second	to The sale	14 –	-	- 8 foot diameter spruce adjacent to test	pit.	
and the second second			16		- Maximum reach of excavator.		
and the second second					- Seepage < 1 gpm.		
			18-	_	- Samples at 5, 10, 12-12.5, and 13 feet	i.	
		and the second second		-			
			20				
States -	145 142		22-				
		and the second		-			
	0 0 0 0 0 0	8 0 4 0 4 8 0	24	-			
				-			
			26		-		
			∖ F	⊨			
Photo not to scale			28-				



ATTACHMENT B Laboratory Testing Results



Material Test Report	Report No: MAT:ANC-W1815-S1 Issue No: 1 This report replaces all previous issues of report no 'MAT:ANC-W1815-S1'.
Client: Alaska DOT&PF, Southcoast Region CC:	Accreditation is granted by AAP and this accreditation is limited to the laboratory and the standards for which the laboratory is accredited. The results within this report relate only to the items inspected or tested. This report shall not be reproduced, except in full, without the prior written approval of the agency. The results within this report are in compiance with approved project plans and specifications.
Project: DOT_SC Haines Beach Road Landslide	Reviewed By: Ryan McCormick (Supervising Laboratory Technician) Date of Issue: 7/22/2021
Sample Details	Particle Size Distribution
Sample IDANC-W1815-S1Field Sample IDTP-5Date Sampled7/1/2021SourceR&M Earth Sciences Field WorkMaterialDrilling SamplesSpecificationProject SpecificSampling MethodR&M Earth Sciences SamplingSampling LocationSee Boring LogsBore HoleTP-5Depth0-8	
Other Test Results	
Description Method Result Limits Water Content (%) ASTM D 2216 20.0 Method B Date Tested 7/12/2021	Chart
Comments	
N/A	



Material Test Report				Report No: MAT:ANC-W1815-S2 Issue No: 1		
•			This report replace	es all previous issues of report no	o 'MAT:ANC-W1815-S2'.	
Client: Alaska DOT&PF, Southo	oast Region CC:		AASHTO R18	Accreditation is granted by AAP and laboratory and the standards for whic The results within this report relate or tested. This report shall not be reproduced, ewritten approval of the agency. The results within this report are in co plans and specifications.	this accreditation is limited to the h the laboratory is accredited. Inly to the items inspected or except in full, without the prior ompiance with approved project	
Project: DOT_SC Haines Beach	Road Landslide		Reviewed By: Ryan Date of Issue: 7	McCormick (Supervising Labora /22/2021	atory Technician)	
Sample Details			Particle S	ize Distribution		
Sample IDANC-W1Field Sample IDTP-5Date Sampled7/1/2021SamplesPSM Factor	815-S2		Method: Date Tested:	ASTM D 422 7/12/2021		
SourceRain EarMaterialDrilling SSpecificationENG SievSampling MethodR&M EarSampling LocationSee BorinBore HoleTP-5Depth9	amples ves with Hydro th Sciences Sampling ng Logs		Sieve Size 1in ¾in 1∕₂in	% Passing 100 99 97	Limits 0≤α≤100 0≤α≤100 0≤α≤100	
			3/8in No.4	96 94	0≤α≤100 0≤α≤100	
Other Test Results			No.10	89 84	$0 \le \alpha \le 100$	
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min)	Method Result ASTM D 2216 19.1 B 7/12/2021 ASTM D 422 mechanical 1 1	Limits	No.40 No.60 No.140 No.200 26.8 µm 17.7 µm	79 74 64 61 54.4 49.7	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$	
Shape Hardness Fm Cu Cc CuS CcS	N/A N/A N/A N/A 3.46 0.78		10.8 μm 7.8 μm 5.7 μm 4.1 μm 2.9 μm 1.3 μm	43.7 40.2 36.6 33.1 28.3 21.1		
Dm (mm)	N/A		Chart			
U-Number D50S (mm) D50G (mm)	45 0.282 4.741		% Passing			
Approximate maximum grain size Material retained on 425µm (No. 40) (%) Method of Removal Grooving Tool Type Specimen preparation method Drying Method Special selection process Rolling Method for PL As Received Water Content (%)	ASTM D 4318 N/A 20.6 N/A Metal Wet Air N/A Hand 19.1		90 80 70 60 50 40 30 22			
Liquid Limit Device Type Liquid Limit Plastic Limit Plasticity Index Liquid Limit Procedure	Manual 21 16 5 Multipoint (A)			Sieve	288 m 137 m 188 m 28 m 29 m 29 m 13 m	
Comments						

Percent Finer than .02mm interpolated to be 50.9% based on Hydrometer calculations Percent Finer than .002mm interpolated to be 24.3% based on Hydrometer calculations



Report No: MAT:ANC-W1815-S2 Issue No: 1 This report replaces all previous issues of report no 'MAT:ANC-W1815-S2'.			
ASHTO R18 Acreditation is granted by AAP and this accreditation is lim laboratory and the standards for which the laboratory is acc tested. This report shall not be reproduced, except in full, without the written approval of the agency. The results within this report are in complance with approve plans and specifications.	limited to the accredited. vected or ut the prior oved project		
ved By: Ryan McCormick (Supervising Laboratory Technician) f Issue: 7/22/2021	an)		
ticle Size Distribution			
od: ASTM D 422 Tested: 7/12/2021 e Size % Passing Limits 100 0≤α≤100 99 0≤α≤100 97 0≤α≤100 06 0 ≤ α≤100	5 10 10 10		
$\begin{array}{ccc} 96 & 0 \le \alpha \le 100 \\ 94 & 0 \le \alpha \le 100 \end{array}$	10 10		
$\begin{array}{cccc} 0 & 89 & 0 \le \alpha \le 100 \\ 0 & 84 & 0 \le \alpha \le 100 \end{array}$	0		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	10 10 10		
art			
% Passing	13 Jan + 14		
	A constraint of the second of		

Percent Finer than .02mm interpolated to be 50.9% based on Hydrometer calculations Percent Finer than .002mm interpolated to be 24.3% based on Hydrometer calculations



Material Test Report				Report No: MAT:ANC-W1815-S		
Client: Alaska DOT&	&PF, Southcoast Region	CC:		This report replaces al	I previous issues of report no Accreditation is granted by AAP and I laboratory and the standards for whic The results within this report relate or tested. This report shall not be reproduced, e written approval of the agency. The results within this report are in c clans and specifications	MAT:ANC-W1815-S3' his accreditation is limited to the the laboratory is accredited. ly to the items inspected or xcept in full, without the prior mpiance with approved project
Project: DOT_SC Hai	ines Beach Road Landslide			Reviewed By: Ryan Mc Date of Issue: 7/22/2	Cormick (Supervising Labora	tory Technician)
Sample Details				Particle Siz	e Distribution	
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1815-S3 TP-7 7/1/2021 R&M Earth Sciences Field V Drilling Samples ENG Sieves R&M Earth Sciences Sampl See Boring Logs TP-7 12	Vork ing		Method: A Date Tested: 7 Sieve Size 1½in 1in ¾in 1/in	STM D 422 7/12/2021 % Passing 100 98 95	Limits 0≤α≤100 0≤α≤100 0≤α≤100
Other Test Resul	ts			^{1/2} IN 3/8in No.4	85 79 65	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Description	Method	Result	Limits	No.10 No.20	53 43	0≤α≤100 0≤α≤100
Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc Cu Cc CuS CcS Dm (mm) U-Number D50S (mm) D50G (mm)	ASTM D 2216 ASTM D 422	14.8 B 7/12/2021 N/A N/A N/A N/A 39.55 0.51 5.39 0.97 4.199 41 0.387 8.448		No.40 No.60 No.140 No.200 Chart	32 23 15 7.7	0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
					High Sieve	No. 40



Client: Alaska DOT&PF, Southcoast Region CC: Project: DOT_SC Haines Beach Road Landslide Image: Content of the second se	Material Te	st Report			F	Report No: MAT:AN	IC-W1815-S4 Issue No:
Project: DOT_SC Haines Beach Road Landslide Project: DOT_SC Haines Beach Road Landslide Reviewed By Ryan McContak (Supervising Laboratory Technika Sample Details Sample D ANC-W1815-S4 Field Sample D TP-8 Date Sample D TP-8 Date Sample D Sampling Location See Boring Logs Sampling Location See Boring Logs Bore Hole TP-3 Depth 5 Cherr Test Results Description Method Result Limits No.10 Shape Method Shape NA Fin Cherr Sample D SoG (mm) Sample S Sampling Samplin	Client: Alaska DOT&	₽F, Southcoast Region	CC:		This report replaces	all previous issues of report no 'N Accreditation is granted by AAP and this is laboratory and the standards for which the results within this report relate only to tested. This report shall not be reproduced, exce	IAT:ANC-W1815-S4'. accreditation is limited to the e laboratory is accredited. o the items inspected or pt in full, without the prior
Date of taxing in 7220201 Sample Details Sample ID ANC-W1815-S4 Field Sample ID TP-8 Date Sample ID FRAM Earth Sciences Field Work Material Drilling Samples Sampling Method R&M Earth Sciences Sampling Sampling Location See Boring Logs Bore Hole TP-8 Depth 5 Other Test Results Imits Date Tested 7/12/2021 No.4 65 Dispersion device ASTM D 422 NA NA Method ASTM D 422 NA NA Particle Size Size Size Size Size Size Size Siz	Project: DOT_SC Hai	ines Beach Road Landslide			AASHTO R18 Reviewed By: Rvan M	 written approval or the agency. The results within this report are in compi plans and specifications. 	ance with approved project
Sample DetailsParticle Size DistributionSample IDANC-W1815-54Field Sample IDTP-8Date Sample ID7/1/2021SourceR&M Earth Sciences Field WorkMaterialDrilling SamplesSampling MethodR&M Earth Sciences SamplingBore HoleTP-8Depth5Other Test ResultsDescriptionMethodMethodASTM D 422No.465Desperion deviceASTM D 422NapeN/AHardnessN/AFinN/AMateriasN/AFinN/AMateriasN/AFinN/AMateriasN/AFinN/AMateriasN/AFinN/AMaterias					Date of Issue: 7/2	2/2021	,
Sample ID ANC-W1815-S4 Field Sample ID TP-8 Date Sample ID TP-8 Source R&M Earth Sciences Field Work Material Drilling Samples Specification EINC Sleves Sampling Method R&M Earth Sciences Sampling Sampling Location See Boring Logs Bore Hole TP-8 Depth 5 Other Test Results No.4 Description Method Result Limits Water Content (%) ASTM D 2216 24.1 Method B Date Tested 77/12/2021 No.60 200 477 0645100 No.4 65 0545100 No.4 0 13 0545100 No.2 0 6.5 0545100 No.2 0 0 6.5 05451000 No.2 0 0 6.5 05451000 No.2 0 0 6.5 05451000 No.2 0 0 6.5 054510	Sample Details				Particle Si	ze Distribution	
Sampling Method Sampling Location Depth R&M Earth Sciences Sampling See Boring Logs Sieve Size 2in % Passing 100 Limits Depth 5 11/ain 74 05000100 Depth 5 11/ain 74 05000100 Other Test Results 00 0500000 05000000 0500000000000000000000000000000000000	Sample ID Field Sample ID Date Sampled Source Material Specification	ANC-W1815-S4 TP-8 7/1/2021 R&M Earth Sciences Field \ Drilling Samples ENG Sieves	Work		Method: Date Tested:	ASTM D 422 7/12/2021	
Other Test Results No.4 00 <td>Sampling Method Sampling Location Bore Hole Depth</td> <td>R&M Earth Sciences Sampl See Boring Logs TP-8 5</td> <td>ling</td> <td></td> <td>Sieve Size 2in 1½in 1in ¾in ½in 2/0ir</td> <td>% Passing 100 79 74 70 70</td> <td>Limits $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$</td>	Sampling Method Sampling Location Bore Hole Depth	R&M Earth Sciences Sampl See Boring Logs TP-8 5	ling		Sieve Size 2in 1½in 1in ¾in ½in 2/0ir	% Passing 100 79 74 70 70	Limits $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Description Method Result Limits No.10 58 05ac100 Water Content (%) ASTM D 2216 24.1 No.20 47 05ac100 Date Tested 7/12/2021 No.40 31 05ac100 Dispersion device ASTM D 422 N/A No.60 20 05ac100 Dispersion time (min) N/A No.200 6.5 05ac100 Shape N/A NA No.200 6.5 05ac100 Cu 27.53 Cc 0.700 0.200 6.5 05ac100 Cus 27.53 Cc 0.700 0.449 0505 (mm) 0.449 0505 (mm) 0.449 0505 (mm) 37.709 9 </td <td>Other Test Resul</td> <td>ts</td> <td></td> <td></td> <td>3/8in No.4</td> <td>68 65</td> <td>$0 \le \alpha \le 100$ $0 \le \alpha \le 100$</td>	Other Test Resul	ts			3/8in No.4	68 65	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Dispersion time (min) N/A Shape N/A Hardness N/A Fm N/A Cu 27.53 Cc 0.70 CuS 5.60 CcS 1.29 Dm (mm) 11.618 U-Number 36 D50S (mm) 37.709 	Description Water Content (%) Method Date Tested Dispersion device	Method ASTM D 2216 ASTM D 422	Result 24.1 B 7/12/2021 N/A	Limits	_ No.10 No.20 No.40 _ No.60 No.140	58 47 31 20 13	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
U-Number D50S (mm) D50G (mm) 37.709 Chart Chart Sensor	Dispersion time (min) Shape Hardness Fm Cu Cc CuS CcS Dm (mm)		N/A N/A N/A 27.53 0.70 5.60 1.29 11.618		No.200	6.5	0≤α≤100
	U-Number D50S (mm) D50G (mm)		36 0.449 37.709		% Passing	ند. د.	<u>.</u>
						event and the second se	
Comments	Comments						
N/A	N/A						



Material Test Report	Report No: MAT:ANC-W1815-S5 Issue No: 1 This report replaces all previous issues of report no 'MAT:ANC-W1815-S5'
Client: Alaska DOT&PF, Southcoast Region CC:	Accreditation is granted by AAP and this accreditation is limited to the laboratory and the standards for which the laboratory is accredited. The results within this report relate only to the items inspected or tested. This report shall not be reproduced, except in full, without the prior written approval of the agency. The results within this report are in compiance with approved project plans and specifications.
Project: DOT_SC Haines Beach Road Landslide	Reviewed By: Ryan McCormick (Supervising Laboratory Technician) Date of Issue: 7/22/2021
Sample Details	Particle Size Distribution
Sample IDANC-W1815-S5Field Sample IDTP-9Date Sampled7/1/2021SourceR&M Earth Sciences Field WorkMaterialDrilling SamplesSpecificationENG Sieves with HydroSampling MethodR&M Earth Sciences SamplingSampling LocationSee Boring LogsBore HoleTP-9	Method:ASTM D 422Date Tested: $7/12/2021$ Sieve Size% PassingLimits1in100 $0 \le \alpha \le 100$ $\frac{3}{4}$ in99 $0 \le \alpha \le 100$
Depth 3	$1/2$ in94 $0 \le \alpha \le 100$ $3/8$ in92 $0 \le \alpha \le 100$ No.489 $0 \le \alpha \le 100$ No.1078 $0 \le \alpha \le 100$
	No.20 74 0≤α≤100
DescriptionMethodResultWater Content (%)ASTM D 221614.1MethodBDate Tested7/12/2021Dispersion deviceASTM D 422Dispersion time (min)1ShapeN/AHardnessN/AFmN/A	LimitsNo.4070 $0 \le \alpha \le 100$ No.6066 $0 \le \alpha \le 100$ No.14060 $0 \le \alpha \le 100$ No.20058 $0 \le \alpha \le 100$ 27.9 µm52.618.7 µm46.311.1 µm41.28.1 µm37.65.8 µm33.8
Cu N/A Cc N/A CuS 3.88 CcS 0.83	4.2 μm 31.2 3.0 μm 27.5 1.3 μm 19.9
Dm (mm) N/A U-Number 40 D50S (mm) 0.339 D50G (mm) 5.091	Chart % Passing
Approximate maximum grain sizeASTM D 4318N/AMaterial retained on 425µm (No. 40) (%)29.8Method of RemovalN/AGrooving Tool TypeMetalSpecimen preparation methodWetDrying MethodAirSpecial selection processN/ARolling Method for PLHandAs Received Water Content (%)14.1Liquid Limit21Plastic Limit16Plastic Limit5Liquid Limit DevageMulting (A)	100 90 90 90 90 90 90 90 90 90 90 90 90 9

Comments

Percent Finer than .02mm interpolated to be 47.2% based on Hydrometer Percent Finer than .002mm interpolated to be 23.0% based on Hydrometer



Material Test Report				Report No: MAT:ANC-W1815-S5 Issue No: 1		
Client: Alaska DOT&PF	F, Southcoast Region	CC:		This report replaces	all previous issues of report not Accreditation is granted by AAP and laboratory and the standards for whice The results within this report relate or tested. This report shall not be reproduced, written approval of the agency. The results within this report are in co	MAT:ANC-W1815-S5'. This accreditation is limited to the h the laboratory is accredited. In the laboratory is accredited. In the terms inspected or except in full, without the prior ompiance with approved project
Project: DOT_SC Haine	s Beach Road Landslide			Reviewed By: Ryan M Date of Issue: 7/2	plans and specifications. AcCormick (Supervising Labora 2/2021	atory Technician)
Sample Details				Particle Si	ze Distribution	
Sample ID A Field Sample ID T Date Sampled T Source F Material I	ANC-W1815-S5 IP-9 7/1/2021 R&M Earth Sciences Fiel Drilling Samples	d Work		Method: Date Tested:	ASTM D 422 7/12/2021	
Sampling Method Sampling Location Bore Hole Depth	R&M Earth Sciences Sar See Boring Logs IP-9	npling		Sieve Size 1in ∛₄in ½in 3/8in No.4	% Passing 100 99 94 92 89 78	Limits $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Other Test Results Description Date Tested	Method	Result 7/12/2021	Limits	No.20 No.40 No.60 No.140 No.200 27.9 μm 18.7 μm 11.1 μm 8.1 μm 5.8 μm 4.2 μm 3.0 μm 1.3 μm	74 70 66 60 58 52.6 46.3 41.2 37.6 33.8 31.2 27.5 19.9	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Commonto				Chart % Passing 100 90 90 90 90 90 90 90 90 90 90 90 90 9	t of the second se	22 9 mm 22 9 mm 11 1 mm 3 mm 13 mm 14 mm 15 mm 16 mm 17 mm 17 mm 18 mm 1

Percent Finer than .02mm interpolated to be 47.2% based on Hydrometer Percent Finer than .002mm interpolated to be 23.0% based on Hydrometer



Material Test Repo	This report replaces	Report No: MAT:ANC-V	V1815-S6 ssue No: 1		
Client: Alaska DOT&PF, Southcoast	Region CC:			Accreditation is granted by AAP and this accredita laboratory and the standards for which the laboratory results within this report relate only to the item tested. This report shall not be reproduced, except in full, written approval of the agency. The results within this report are in compiance with plans and specifications.	tion is limited to the ory is accredited. Is inspected or without the prior n approved project
Project: DOT_SC Haines Beach Road	Landslide		Reviewed By: Ryan M Date of Issue: 7/22	IcCormick (Supervising Laboratory Tech 2/2021	nnician)
Sample Details			Particle Siz	ze Distribution	
Sample ID ANC-W1815-S	56		Method:	ASTM D 422	
Field Sample IDTP-9Date Sampled7/1/2021SourceR&M Earth ScMaterialDrilling SampleSpecificationENG Sieves w	iences Field Work es vith Hydro		Date Tested:	7/12/2021	
Sampling Method R&M Earth So Sampling Location See Boring Loc Bore Hole TP-9 Depth 8	iences Sampling gs		Sieve Size 1½in 1in ¾in ½in 3/8in	% Passing Lin 100 $0 \le \alpha$ 98 $0 \le \alpha$ 98 $0 \le \alpha$ 94 $0 \le \alpha$ 91 $0 \le \alpha$ 81 $0 \le \alpha$	nits ≤100 ≤100 ≤100 ≤100 ≤100
Other Test Results			No.10	68 0<α	≤100 <100
DescriptionMaterWater Content (%)ASMethodDate TestedDispersion deviceASDispersion time (min)ShapeHardnessFmCuCcCuSCcS	ethod Result STM D 2216 13.8 B 7/12/2021 STM D 422 Mechanical 1 N/A N/A N/A N/A N/A N/A N/A N/A	Limits	No.20 No.40 No.60 No.140 No.200 29.3 μm 19.2 μm 11.6 μm 8.3 μm 6.0 μm 4.3 μm 3.0 μm 1.3 μm	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	≤100 ≤100 ≤100 ≤100 ≤100 ≤100
Dm (mm)	N/A		Chart		
D50S (mm) D50G (mm) Approximate maximum grain size AS Material retained on 425µm (No. 40) (%) Method of Removal Grooving Tool Type Specimen preparation method Drying Method Special selection process Rolling Method for PL As Received Water Content (%) Liquid Limit Device Type Liquid Limit Plastic Limit Plastic Limit	0.197 5.908 STM D 4318 N/A 32.4 N/A Metal Wet Air N/A Hand 13.8 Manual 17 16		% Passing	Neve Neve	3 Jm 3 Jm 13 Jm
Liquid Limit Procedure	Multipoint (A)				

Percent Finer than .02mm interpolated to be 31.6% based on Hydrometer Percent Finer than .002mm interpolated to be 15.6% based on Hydrometer



Material Test Report				Report No: MAT:ANC-W1815-S6 Issue No: 1 This report replaces all previous issues of report no 'MAT:ANC-W1815-S6'.		
Client: Alaska DOT	&PF, Southcoast Region	CC:			Accreditation is granted by AAP and i laboratory and the standards for whice The results within this report relate or tested. This report shall not be reproduced, written approval of the agency. The results within this report are in co class and results.	his accreditation is limited to the the laboratory is accredited. Iy to the items inspected or xcept in full, without the prior mpiance with approved project
Project: DOT_SC Ha	ines Beach Road Landslide			Reviewed By: Ryan M Date of Issue: 7/22	cCormick (Supervising Labora /2021	atory Technician)
Sample Details				Particle Siz	e Distribution	
Sample ID Field Sample ID Date Sampled Source Material Specification	ANC-W1815-S6 TP-9 7/1/2021 R&M Earth Sciences Fiel Drilling Samples ENG Sieves with Hydro	d Work		Method:	ASTM D 422 7/12/2021	
Sampling Method Sampling Location Bore Hole Depth	R&M Earth Sciences Sar See Boring Logs TP-9 8	npling		Sieve Size 1½in 1in ¾in ½in 3/8in	% Passing 100 98 98 94 91 81	Limits $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Other Test Resul	ts			No.10	68	0≤α≤100 0≤α≤100
Date Tested		7/12/2021		No.40 No.60 No.140 No.200 29.3 μm 19.2 μm 11.6 μm 8.3 μm 6.0 μm 4.3 μm 3.0 μm	63 58 45 41 35.3 31.3 27.4 25.4 22.5 19.5 18.5 13.6	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
				Chart		
				% Passing	seve	

Percent Finer than .02mm interpolated to be 31.6% based on Hydrometer Percent Finer than .002mm interpolated to be 15.6% based on Hydrometer



Material Te	st Report		Report No: MAT:ANC-W1815-S7 Issue No: 1 This report replaces all previous issues of report no 'MAT:ANC-W1815-S7'.
Client: Alaska DOT	≩PF, Southcoast Region C	C:	Accreditation is granted by AAP and this accreditation is limited to the laboratory and the standards for which the laboratory is accredited. The results within this report relate only to the items inspected or tested. This report shall not be reproduced, except in full, without the prior written approval of the agency. The results within this report are in complance with approved project plans and specifications.
Project: DOT_SC Ha	ines Beach Road Landslide		Reviewed By: Ryan McCormick (Supervising Laboratory Technician) Date of Issue: 7/22/2021
Sample Details			Particle Size Distribution
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1815-S7 TP-11 7/1/2021 R&M Earth Sciences Field Wor Drilling Samples Project Specific R&M Earth Sciences Sampling See Boring Logs TP-11 2	rk	
Other Test Resul	ts		
Description Water Content (%) Method Date Tested	Method ASTM D 2216 7/1	Result Limits 15.3 B 2/2021	Chart
Comments N/A			



Material Test Report	Report No: MAT:ANC-W1815-S8 Issue No: 1 This report replaces all previous issues of report no 'MAT:ANC-W1815-S8'.
Client: Alaska DOT&PF, Southcoast Region CC:	Accreditation is granted by AAP and this accreditation is limited to the laboratory and the standards for which the laboratory is accredited. The results within this report relate only to the items inspected or tested. This report shall not be reproduced, except in full, without the prior written approval of the agency. The results within this report are in compiance with approved project plans and specifications.
Project: DOT_SC Haines Beach Road Landslide	Reviewed By: Ryan McCormick (Supervising Laboratory Technician) Date of Issue: 7/22/2021
Sample Details	Particle Size Distribution
Sample IDANC-W1815-S8Field Sample IDTP-12Date Sampled7/1/2021SourceR&M Earth Sciences Field WorkMaterialDrilling SamplesSpecificationProject SpecificSampling MethodR&M Earth Sciences SamplingSampling LocationSee Boring LogsBore HoleTP-12Depth2	
Other Test Results	
Description Method Result Limits	
Water Content (%)ASTM D 22169.9MethodBDate Tested7/12/2021	
	Chart
Comments	
N/A	



Material Test Report						Issue No:
Client: Alaska DOT&	&PF, Southcoast Region	CC:		This report replaces all	previous issues of report no Accreditation is granted by AAP and the aboratory and the standards for which The results within this report relate on ested. This report shall not be reproduced, e written approval of the agency. The results within this report are in co Jans and specifications.	MAT:ANC-W1815-S9 his accreditation is limited to th the laboratory is accredited. ly to the items inspected or xcept in full, without the prior mpiance with approved project
Project: DOT_SC Ha	ines Beach Road Landslide			Reviewed By: Ryan Mc0 Date of Issue: 7/22/2	Cormick (Supervising Labora	atory Technician)
Sample Details				Particle Size	e Distribution	
Sample ID Field Sample ID Date Sampled Source Material	ANC-W1815-S9 TP-14 7/1/2021 R&M Earth Sciences Field V Drilling Samples	Work		Method: A Date Tested: 7	STM D 422 /12/2021	
Sampling Method Sampling Location Bore Hole Depth	R&M Earth Sciences Sampl See Boring Logs TP-14 3-9	ling		Sieve Size 1½in 1in ¾in ½in 3/8in	% Passing 100 98 96 90 85	Limits 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
Other Test Resul	ts			No.4 No.10	71 52	0≤α≤100 0≤α≤100
Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc CuS CcS Dm (mm) U-Number D50S (mm) D50G (mm)	ASTM D 2216 ASTM D 422	9.5 B 7/12/2021 N/A N/A N/A 20.27 1.10 5.88 1.35 3.480 28 0.616 6.038		No.40 No.60 No.140 No.200	21 13 8 5.0	0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
Comments N/A					LL C C Q Q Q Q Q Seve	No. 140



Material Test Report			Report No: MAT:ANC-W1816-S1 Issue No: 1 This report replaces all previous issues of report no 'MAT:ANC-W1816-S1'.			
Client: Alaska DOT8	PF, Southcoast Region CC:		AASHTO R18	Accreditation is granted by AAP and the laboratory and the standards for which laboratory and the standards for which tested. This report shall not be reproduced, exwritten approval of the agency. The results within this report are in couplans and specifications.	his accreditation is limited to the the laboratory is accredited. If the items inspected or kcept in full, without the prior mpiance with approved project	
Project: DOT_SC Hai	nes Beach Road Landslide		Reviewed By: Ryan I Date of Issue: 7/2	McCormick (Supervising Labora 22/2021	tory Technician)	
Sample Details			Particle Si	ze Distribution		
Sample ID Field Sample ID Date Sampled Source Material Specification	ANC-W1816-S1 TP-16 7/12/2021 R&M Earth Sciences Field Work Drilling Samples ENG Sieves		Method: Date Tested:	ASTM D 422 7/12/2021		
Sampling Method Sampling Location Bore Hole Depth	R&M Earth Sciences Sampling See Boring Logs TP-16 6		Sieve Size 1½in 1¼in ¾in ½in 3/8in	% Passing 100 97 93 88 84 77	Limits 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100	
Other Test Resul	ts		No.10	66	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$	
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc CuS CcS Dm (mm) U-Number DESC (Method Result ASTM D 2216 8.8 B 7/12/2021 ASTM D 422 N/A N/A N/A N/A N/A N/A 11.76 1.07 4.45 1.11 3.049 27 2.57	Limits	No.20 No.40 No.60 No.140 No.200	48 29 17 8 6.3	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$	
D50G (mm) D50G (mm) Comments	0.561 8.490		% Passing 100 90 80 70 60 60 40 40 40 40 40 40 40 40 40 40 40 40 40	Sieve	No. a00	



Material Te	st Report				Report No: MAT:A	NC-W1816-S2 Issue No: 1
Client: Alaska DOT	&PF, Southcoast Region	CC:			Accreditation is granted by AAP and I laboratory and the standards for whici The results within this report relate on tested. This report shall not be reproduced, e written approval of the agency. The results within this report are in co plans and specifications.	his accreditation is limited to the h the laboratory is accredited. If to the items inspected or xcept in full, without the prior mpiance with approved project
Project: DOT_SC Ha	ines Beach Road Landslide			Reviewed By: Ryan M Date of Issue: 7/22	cCormick (Supervising Labora 2/2021	atory Technician)
Sample Details				Particle Siz	ze Distribution	
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1816-S2 TP-18 7/12/2021 R&M Earth Sciences Field V Drilling Samples ENG Sieves R&M Earth Sciences Sampl See Boring Logs TP-18 5	Vork ing		Method: Date Tested: Sieve Size 1½in 1in ¾in ½in 3/8in	ASTM D 422 7/12/2021 % Passing 100 93 88 78 74	Limits 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
Other Test Resul	ts			No.4	62	0≤α≤100
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc Cu Cc Cu Cc Cu Cc Cu Cc Cu Cc Cu Cc Cu Cc Co Cu Co Co Co Co Co Co Co Co Co Co Co Co Co	Method ASTM D 2216 ASTM D 422	Result 10.9 B 7/12/2021 N/A N/A N/A N/A N/A N/A 5.65 0.88 N/A 32 0.516 9.974	Limits	No.20 No.40 No.60 No.140 No.200	37 29 22 15 13	0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
Comments _{N/A}						



st Report	Report No: MAI:ANC-W1 Iss This report replaces all previous issues of report no 'MAT:ANC-V	816-S3 ue No: 1 ^{W1816-S3'.}
&PF, Southcoast Region CC:	Accreditation is granted by AAP and this accreditation i laboratory and the standards for which the laboratory The results within this report relate only to the items ins tested. This report shall not be reproduced, except in full, withor written approval of the agency. The results within this report are in compiance with app plans and specifications.	is limited to the s accredited. spected or out the prior proved project
aines Beach Road Landslide	Reviewed By: Ryan McCormick (Supervising Laboratory Technic Date of Issue: 7/22/2021	xian)
	Particle Size Distribution	
ANC-W1816-S3 TP-19 7/12/2021 R&M Earth Sciences Field Work Drilling Samples ENG Sieves R&M Earth Sciences Sampling See Boring Logs	Method:ASTM D 422Date Tested: $7/12/2021$ Sieve Size% Passing1in100 $3/10$ $0 \le \alpha \le 1$	ts 00
TP-19 5-12	$\frac{3}{4}$ in 99 $0 \le \alpha \le 1$ $\frac{1}{2}$ in 98 $0 \le \alpha \le 1$ $3/8$ in 96 $0 \le \alpha \le 1$ No.4 86 $0 \le \alpha \le 1$ No.10 57 $0 \le \alpha \le 1$	00 00 00 00 00
Method Result I	imits No.20 33 $0 \le \alpha \le 1$.00
ASTM D 2216 9.8 B 7/12/2021 ASTM D 422 N/A N/A N/A N/A N/A 15.10 1.61 5.84	No.60 14 0≤α≤1 No.140 8 0≤α≤1 No.200 6.0 0≤α≤1	00 00 00
1.19		
2.129 24 0.776 3.807	Chart % Passing	
	Sieve Sieve	
	ANC-W1816-S3 TP-19 7/12/2021 R&M Earth Sciences Field Work Drilling Samples ENG Sieves R&M Earth Sciences Sampling See Boring Logs TP-19 5-12 Its Method Result L ASTM D 2216 9.8 B 7/12/2021 ASTM D 422 N/A N/A N/A N/A N/A N/A N/A 15.10 1.61 5.84 1.19 2.129 24 0.776 3.807	Striceport Issue &PF, Southcoast Region CC: American Strike Stri



Material Te	st Report			This report replace	Report No: MAT:	NC-W1816-S4 Issue No: 1 o 'MAT:ANC-W1816-S4'.
Client: Alaska DOT&	&PF, Southcoast Region	CC:		AASHTO R18	Accreditation is granted by AAP and laboratory and the standards for whi "The results within this report relate or tested. This report shall not be reproduced, written approval of the agency. The results within this report are in or plans and specifications.	this accreditation is limited to the ch the laboratory is accredited. nly to the items inspected or except in full, without the prior ompiance with approved project
Project: DOT_SC Ha	ines Beach Road Landslide			Reviewed By: Ryar Date of Issue: 7	n McCormick (Supervising Labor 1/22/2021	atory Technician)
Sample Details				Particle S	Size Distribution	ו
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1816-S4 TP-22 7/12/2021 R&M Earth Sciences Field V Drilling Samples ENG Sieves R&M Earth Sciences Samp See Boring Logs TP-22 0-5	Work ling		Method: Date Tested: Sieve Size 1½in 1in ¾in ½in 3%in	ASTM D 422 7/12/2021 % Passing 100 93 92 85 81	Limits $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Other Test Resul	ts			No.4 No.10	73 63	$0 \le \alpha \le 100$
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc Cu Cc Cu Cc Cu Cc Cu Cc Cc Dm (mm) U-Number DE05 (mm)	Method ASTM D 2216 ASTM D 422	Result 15.9 B 7/12/2021 N/A N/A N/A N/A 28.11 0.95 4.86 0.93 3.673 33 0.464	Limits	No.20 No.40 No.60 No.140 No.200	49 36 26 15 12	0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
D50G (mm)		9.744		% Passing 100 90 90 90 90 90 90 90 90 90	by the second se	Na add



Material Te	st Report			This report replaces		NC-W1816-S5 Issue No: 1
Client: Alaska DOT&	≩PF, Southcoast Region	CC:			Accreditation is granted by AAP and laboratory and the standards for whice The results within this report relate or tested. This report shall not be reproduced, e written approval of the agency. The results within this report are in co plans and specifications.	this accreditation is limited to the h the laboratory is accredited. If the times inspected or except in full, without the prior oppiance with approved project
Project: DOT_SC Ha	ines Beach Road Landslide			Reviewed By: Ryan Date of Issue: 7/2	McCormick (Supervising Labor 22/2021	atory Technician)
Sample Details				Particle Si	ize Distributior	
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1816-S5 TP-23 7/12/2021 R&M Earth Sciences Field V Drilling Samples ENG Sieves R&M Earth Sciences Samp See Boring Logs TP-23 5	Work ling		Method: Date Tested: Sieve Size 3in 2in 1½in 11/2in 1in 3⁄1 in	ASTM D 422 7/12/2021 % Passing 100 92 87 78 78	Limits 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
Other Test Resul	ts			%₄in 1½in	76 73	0≤α≤100 0≤α≤100
Description	Method	Result	Limits	3/8in	72 68	$0 \le \alpha \le 100$
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc Cc CuS CcS Dm (mm)	ASTM D 2216	Result 11.4 B 7/12/2021 N/A N/A N/A N/A N/A 14.37 1.23 5.37 1.58 9.320	Limits	- No.4 No.10 No.20 No.40 No.60 No.140 No.200	68 62 44 23 14 9 4.6	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$
U-Number D50S (mm)		28 0.595		Onart		
<u>D50G (mm)</u>		28.342			end end end end end end end end	Na 200
Comments						
N/A						



· · · · · · · · · · · · · · · · · · ·						
Material Te	st Renart			R	eport No: MAT:A	NC-W1816-S6
	Strepon			This report replaces al	I previous issues of report no	Issue No: 1
Client: Alaska DOT	&PF, Southcoast Region	CC:		ASHTO R18	Accreditation is granted by AAP and i laboratory and the standards for whice The results within this report relate or tested. This report shall not be reproduced, e written approval of the agency. The results within this report are in cc plans and specifications.	this accreditation is limited to the th the laboratory is accredited. hly to the items inspected or except in full, without the prior ompiance with approved project
Project: DOT_SC Ha	aines Beach Road Landslide			Reviewed By: Ryan Mc Date of Issue: 7/22/:	Cormick (Supervising Labora	atory Technician)
Sample Details				Particle Siz	e Distribution	1
Sample ID	ANC-W1816-S6			Method: A	STM D 422	
Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	TP-24 7/12/2021 R&M Earth Sciences Field V Drilling Samples ENG Sieves R&M Earth Sciences Sampl See Boring Logs TP-24 5	Vork ing		Date Tested: 7 Sieve Size 1½in 1in ¾in ½in 3/8in	7/12/2021 % Passing 100 96 94 89 85	Limits 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
Other Test Resul	lts			No.4	77	<u>0≤α≤100</u>
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc Cu Cc CuS CcS Dm (mm) U-Number	Method ASTM D 2216 ASTM D 422	Result 12.1 B 7/12/2021 N/A N/A N/A N/A N/A N/A A N/A 4.63 0.86 N/A 35	Limits	No.10 No.20 No.40 No.60 No.140 No.200	53 42 33 21 18	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
D50S (mm) D50G (mm) Comments N/A		0.412 7.415		% Passing	900 10 10 10 10 10 10 10 10 10 10 10 10 10 1	No.100



Report No: MAT:ANC-W1816-S7

Material Test Report

Client: Alaska DOT&	PF, Southcoast Region	CC:		The laboratory is not accredited for the test indicated. Contact the laboratory for more information.
Project: DOT_SC Hai	nes Beach Road Landslide			
Sample Details				Particle Size Distribution
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1816-S7 TP-26 7/12/2021 R&M Earth Sciences Field V Drilling Samples ENG Sieves R&M Earth Sciences Sampl See Boring Logs TP-26 7	Work ling		
Other Test Resul	ts			
Description Water Content (%) Method Date Tested	Method ASTM D 2216	Result 10.4 B 7/12/2021	Limits	- Chart
Comments N/A				



Material Te	st Report			This report replaced	Report No: MAT:A	NC-W1816-S8 Issue No: 1
Client: Alaska DOT	&PF, Southcoast Region	CC:		AASHTO R18	Accreditation is granted by AAP and laboratory and the standards for whice The results within this report relate or tested. This report shall not be reproduced, e written approval of the agency. The results within this report are in co plans and specifications.	his accreditation is limited to the h the laboratory is accredited. ly to the items inspected or xcept in full, without the prior mpiance with approved project
Project: DOT_SC Ha	aines Beach Road Landslide			Reviewed By: Ryan I Date of Issue: 7/2	McCormick (Supervising Labora	atory Technician)
Sample Details				Particle Si	ze Distribution	
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1816-S8 TP-26 7/12/2021 R&M Earth Sciences Field V Drilling Samples ENG Sieves R&M Earth Sciences Samp See Boring Logs TP-26 12	Work ling		Method: Date Tested: Sieve Size 2in 1½in 1in ¾in ½in	ASTM D 422 7/12/2021 % Passing 100 88 85 82 78	Limits 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
Other Test Resu	Its			3/8in	74	0≤α≤100
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc Cu Cc Cu Cc Cu S Cc S Dm (mm)	Method ASTM D 2216 ASTM D 422	Result 12.8 B 7/12/2021 N/A N/A N/A N/A 36.74 1.31 7.23 1.40 7.802	Limits	No.10 No.20 No.40 No.60 No.140 No.200	48 33 22 15 11 6.4	0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
U-Number D50S (mm) D50G (mm)		30 0.600 9.452		Chart	5. 00 00 00 00 00 00 00 00 00 00 00 00 00	No 200



Material Test Report			Report No: MAT:ANC-W1817-S1 Issue No: 1 This report replaces all previous issues of report no 'MAT:ANC-W1817-S1'.	
Client: Alaska DOT&F	[•] F, Southcoast Region	CC:		Accreditation is granted by AAP and this accreditation is limited to the laboratory and the standards for which the laboratory is accredited. The results within this report relate only to the items inspected or tested. This report shall not be reproduced, except in full, without the prior within approval of the agency. The results within this report are in complance with approved project plans and specifications.
Project: DOT_SC Hain	es Beach Road Landslide			Reviewed By: Ryan McCormick (Supervising Laboratory Technician) Date of Issue: 7/22/2021
Sample Details				Particle Size Distribution
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1817-S1 TP-27 7/12/2021 R&M Earth Sciences Field W Drilling Samples Project Specific R&M Earth Sciences Samplin See Boring Logs TP-27 5	/ork ng		
Other Test Results	5			
Description Water Content (%) Method Date Tested	Method ASTM D 2216 7	Result 6.0 B //12/2021	Limits	- Chart
Comments				
N/A				



Material Te	st Report			This report replace	Report No: MAT: A	NC-W1817-S2 Issue No: 1 o 'MAT:ANC-W1817-S2'.
Client: Alaska DOT	&PF, Southcoast Region	CC:		AASHTO R18	Accreditation is granted by AAP and laboratory and the standards for which The results within this report relate oo tested. This report shall not be reproduced, written approval of the agency. The results within this report are in c plans and specifications.	this accreditation is limited to the the laboratory is accredited. hy to the items inspected or except in full, without the prior ompiance with approved project
Project: DOT_SC Ha	aines Beach Road Landslide			Reviewed By: Ryan Date of Issue: 7/	McCormick (Supervising Labor 22/2021	atory Technician)
Sample Details				Particle S	ize Distributior	
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1817-S2 TP-27 7/12/2021 R&M Earth Sciences Field V Drilling Samples ENG Sieves R&M Earth Sciences Samp See Boring Logs TP-27 10	Work ling		Method: Date Tested: Sieve Size 2in 1½in 1in ¾in ¼in	ASTM D 422 7/12/2021 % Passing 100 93 80 72	Limits 0≤α≤100 0≤α≤100 0≤α≤100 0≤α≤100
Other Test Resu	Its			l⁄₂in 3/8in	66 63	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc Cu Cc Cu Cc Cu Cc Cu Cc Cu Cc Dm (mm) U-Number D50S (mm) D50G (mm)	Method ASTM D 2216 ASTM D 422	Result 17.7 B 7/12/2021 N/A N/A N/A N/A N/A 44.68 0.50 5.14 0.92 9.915 31 0.512 19.429	Limits	- No.10 No.20 No.40 No.60 No.140 No.200 - Chart % Passing	45 32 22 14 6 4.1	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$
					Man Mash Mash Mash Mash Mash Mash Mash Mash	



Material Test Report			Report No: MAT:ANC-W1817-S3 Issue No: 1		
Client: Alaska DOT&PF, Southcoast Region CC:			Accreditation is granted by AAP and this accreditation is limited to the laboratory and the standards for which the laboratory is accredited. The results within this report relate only to the items inspected or tested. The results within this report relate only to the item support of the agency. The results within this report are in complance with approved project plans and specifications.		
Project: DOT_SC Haines Beach	Road Landslide	1	Reviewed By: Ryan N Date of Issue: 7/2	AcCormick (Supervising Labor 2/2021	atory Technician)
Sample Details			Particle Si	ze Distributior	ו
Sample ID ANC-W1	317-83	N	Method:	ASTM D 422	
Sample IDANC-WithField Sample IDTP-27Date Sampled7/12/2021SourceR&M EarMaterialDrilling Sample Sampl	h Sciences Field Work	[Date Tested:	7/12/2021	
SpecificationENG SievenSampling MethodR&M EarenSampling LocationSee BorinBore HoleTP-27Depth12-12.5	ves with Hydro th Sciences Sampling ng Logs	5 3 7 7 7	Sieve Size 3/8in No.4 No.10 No.20 No.40	% Passing 100 100 94 81 61	Limits $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Other Test Results		ſ	NO.60 No.140	47	$0 \le \alpha \le 100$
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc Cc CuS CcS Dm (mm)	Method Result ASTM D 2216 69.7 B 7/12/2021 ASTM D 422 Machanical 1 N/A N/A N/A S3.88 4.19 4.33 0.91 0.435 0.435	Limits 22 1 5 6 4 3 1	No.200 33.3 μm 22.0 μm 13.0 μm 3.3 μm 5.6 μm 4.7 μm 3.3 μm 1.4 μm	23 25.0 15.6 12.9 11.7 9.0 7.7 7.7 6.3	0≤α≤100 0≤α≤100
U-Number	0.435	(Chart		
D50S (mm) D50G (mm) Approximate maximum grain size Material retained on 425µm (No. 40) (%) Method of Removal Grooving Tool Type Specimen preparation method Drying Method Special selection process Rolling Method for PL As Received Water Content (%) Liquid Limit Device Type Liquid Limit Plastic Limit Plastic Limit Plasticity Index Liquid Limit Procedure	0.388 3.158 ASTM D 4318 N/A 38.6 N/A Metal Wet Air N/A Hand 69.7 Manual N/A NP NP NP Multipoint (A)		% Passing	Beve Sieve	13 Jun

Comments

NP = Non Plastic Percent Finer than .02mm interpolated to be 13.9% based on Hydrometer Percent Finer than .002mm interpolated to be 6.7% based on Hydrometer



Material Test Report			Report No: MAT:ANC-W1817-S3 Issue No: 1			
Client: Alaska DOT&PF, Southcoast Region CC:			This report replaces all previous issues of report no 'MAT:ANC-W1817-S3'. Accreditation is granted by AAP and this accreditation is limited to the laboratory and the standards for which the laboratory is accredited. The results within this report relate only to the items inspected or tested. This report shall not be reproduced, except in full, without the prior written approval of the agency. The results within this report are in complance with approved project plans and specifications.			
Project: DOT_SC Hair	nes Beach Road Landslide			Reviewed By: Ryan Mo Date of Issue: 7/22	Cormick (Supervising Labora /2021	atory Technician)
Sample Details				Particle Siz	e Distribution	1
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location	ANC-W1817-S3 TP-27 7/12/2021 R&M Earth Sciences Fiel Drilling Samples ENG Sieves with Hydro R&M Earth Sciences Sar See Boring Logs	ld Work npling		Method: // Date Tested: 7 Sieve Size 3/8in	ASTM D 422 7/12/2021 % Passing 100	Limits 0≤α≤100
Other Test Result	12-12.5 S	Result	Limits	No.4 No.10 No.20 No.40 No.60 No.140 No.200	100 94 81 61 47 29 23	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$
Date Tested		7/12/2021		33.3 μm 22.0 μm 13.0 μm 9.3 μm 6.6 μm 4.7 μm 3.3 μm 1.4 μm	25.0 15.6 12.9 11.7 9.0 7.7 7.7 6.3	
Comments				% Passing 100 90 80 70 60 60 60 60 90 70 60 60 90 90 70 90 90 90 90 90 90 90 90 90 90 90 90 90	Reve Sieve	15 mm

NP = Non Plastic Percent Finer than .02mm interpolated to be 13.9% based on Hydrometer Percent Finer than .002mm interpolated to be 6.7% based on Hydrometer



Material Test Report				Report No: MAT:ANC-W1817-S4 Issue No: 1 This report replaces all previous issues of report no 'MAT:ANC-W1817-S4'.			
Client: Alaska DOT&PF, Southcoast Region CC:			ASHTO R18				
Project: DOT_SC Ha	ines Beach Road Landslide			Reviewed By: Ryan M Date of Issue: 7/2	AcCormick (Supervising Labor 2/2021	atory Technician)	
Sample Details				Particle Size Distribution			
Sample ID Field Sample ID Date Sampled Source Material Specification Sampling Method Sampling Location Bore Hole Depth	ANC-W1817-S4 TP-27 7/12/2021 R&M Earth Sciences Field V Drilling Samples ENG Sieves R&M Earth Sciences Samp See Boring Logs TP-27 13	Work ling		Method: Date Tested: Sieve Size 3in 2in 1½in 11½in 1in ¾in	ASTM D 422 7/12/2021 % Passing 100 71 71 71 69	Limits $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$ $0 \le \alpha \le 100$	
Other Test Resul	ts			1⁄₂in 3/8in	68 67	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$	
Description Water Content (%) Method Date Tested Dispersion device Dispersion time (min) Shape Hardness Fm Cu Cc CuS CcS Dm (mm) U-Number D502 (mm)	ASTM D 2216 ASTM D 422	Result 13.8 B 7/12/2021 N/A N/A N/A N/A N/A 30.56 0.84 5.91 1.46 16.605 30 0.552	Limits	- No.4 No.10 No.20 No.40 No.60 No.140 No.200	63 56 41 24 16 10 5.6	$0 \le \alpha \le 100$ $0 \le \alpha \le 100$	
D50G (mm) D50G (mm) Comments		55.042		% Passing	university of the second	Ma 100	