				Geologic Borehole Log/Well Construction						
Maul Foster & Alongi, Inc. Project Number 8128.02.19					Numb	er	Well Number		Sheet	
				8128	.02.19		SED-01		1 of 1	
Project Nam Project Loca Start/End Da Driller/Equip Geologist/En Sample Met	e S tion V nte 1 ment R ngineer C	Siltronic Co Villamette 10/8/2019 to Research S Courtney S Vibracore	orporat River, o 10/8/2 Support Savoie,	tion Portland, Orego 2019 t Services, Inc. RG	on (RSS)/	Vibracore I	TOC Elev Surface E Northing Rosfelder Easting Hole Dep Outer Hol	vation (fee Elevation (th	t) (feet) -15.1 8.8-feet 4-inch	
		lbracore					Outer Hol		4-INCN	
Depth (feet, BGS)	vell etails	Interval Percent Recovery	Collection Method S	nple Data	Blows/6"	Lithologic Column	Soil E	Description	1	
				SED-01-SB-	20		0.0 to 1.3 feet: SILT (ML); ve 5% sand: wet.	ery dark gi	ray; 95% fines, low plasticity;	
1 2 3 4 5 6 7 8				SED-01-SB- SED-01-SB- PID = 0.6 pp SED-01-SB-6 PID = 0.6 pp PID = 1.4 pp	3.5 5.5 5.65 5.65 5.65 5.65		 ^(a) 0.9 feet: minor wood fragi ^(a) 1.9 feet: SILT (ML); vectors sand; wet; trace mici. ^(a) 1.9 feet: minor wood fragi ^(a) 1.9 feet: minor wood fragi ^(a) 1.9 feet: minor wood fragi ^(a) 1.9 feet: SILT (MTH S. ^(a) 1.9 feet: SILT (ML); vectors ^(a) 3.3 feet: brown wood fraging ^(a) 3.3 feet: brown wood fraging ^(a) 3.3 feet: SILT (ML); vectors ^(a) 5.2 feet: approximately 1- fragments, with mild to n test produced moderate ^(a) 5.9 feet: approximately 1- fragments, with mild to n test produced moderate ^(a) 5.9 feet: approximately 0. moderate hydrocarbon-li sheen. ^(a) 7.5 feet: approximately 1- moderate hydrocarbon-li to heavy sheen, with visi 0.3 mm in diameter. ^(a) 8.0 feet: approximately 1- moderate hydrocarbon-li to heavy sheen, with visi 0.3 mm in diameter. ^(a) 8.0 feet: approximately 1- moderate hydrocarbon-li to heavy sheen, with visi 0.3 mm in diameter. ^(a) 8.0 feet: approximately 1- moderate hydrocarbon-li to heavy sheen, with visi 0.3 mm in diameter. 	ments. rry dark gi a. ments. AND (ML) y fine to fi rry dark gi trace mic ments. Ja very dark gi trace mic moderate l sheen. inch of moderate l sheen. inch of bla ike odor. S ible blebs inch of bla ike odor. S	ray; 95% fines, low plasticity; i, very dark gray; 85% fines, low ine; wet; trace mica. ray; 95% fines, low plasticity; a. ar method sheen test produced gray; 95% fines, low plasticity; ica. ottled black and brown wood hydrocarbon-like odor. Sheen ottled black and brown wood hydrocarbon-like odor. of black wood fragments, mild to Sheen test produced moderate of brown NAPL approximately ack wood fragments, mild to we not logged. Field sheet from om conditions to be tan silt with and black staining in shoe.	
VC W/GINT/MPROJECTS&128.02/19-02_SEDIMENT_CORES.GPJ 1/17/20 teef imu imu imu imu imu imu imu imu	epths are rel and 4.65 to ediately aftei llimeter. 8. S	lative to feet 8.65 feet. 4. r opening; re Surface eleva	below n Sedime sults we ation (mu	nudline. 2. RSS Ve ent core was proce ere 0 parts per mill udline) vertical data	essel: Ca ssed on on (ppn um is NC	arolyn Dow. 3 10/9/2019. 5 n), unless oth GVD29. 9. Lo	Sediment core was cut into two A photoionization detector (PID, erwise noted (headspace reading cation of sediment core collectior	sections o) was used 15). 6. NAP n: Latitude	n the boat after collection: 0.0 to 4.65 l over the entire sediment core L = nonaqueous-phase liquid. 7. mm 45.57827170; Longitude	

ſ				Geologic Borehole Log/Well Construction							
	Maul Foster & Alongi, Inc.				Project N	lumb	er	Well Number	Sheet		
					8128.0	02.19		SED-02	1 of 1		
	Proje Proje Start Drille Geol	Project Name Siltronic Corpo Project Location Willamette Rive Start/End Date 10/8/2019 to 10 Driller/Equipment Research Supp Geologist/Engineer Kelly Titkemeie Sample Method Vibracore			land, Oregor vices, Inc. (F	1 RSS)/	Vibracore	TOC Elevation (f Surface Elevation Northing Rosfelder Easting Hole Depth Outer Hole Diam	eet) n (feet) -4.4 8.3-feet 4 inch		
+	Sam	pie Method	VIDracore	<u> </u>				Outer Hole Diam	<u>4-Incn</u>		
	Depth (feet, BGS)	Well Details	Interval Percent Recovery Collection	Sample Numper N	Data Name (Type)	Blows/6"	Lithologic Column		0.0 to 0.5 foot: SILTY SAND (SM): yony dor/ grov (10VP 2/1): 40%		
IGINTWPROJECTS\8128.02\19-02_SEDIMENT_CORES.GPJ_1/17/20				S S S	ED-02-SB-3. ED-02-SB-5. ED-02-SB-6. ED-02-SB-8.	0 0 25 25		 0.0 to 0.5 feet: SILTY SAND (SM); v fines; 60% sand, very fine to fine Soupy at the top of the core. (a) 0.4 feet: one-half of a bivalve she 0.5 to 3.1 feet: SANDY SILT TO SIL 3/1); 60-80% fines, nonplastic to trace mica; wet. Sand and fines (a) 1.0 to 2.0 feet: trace wood fragmo (a) 1.9 feet: one piece of gravel, on 15 5.10% fines; 90-95% sand, very moist. 3.2 to 4.4 feet: SILT (ML); very dark low plasticity; 0-5% sand, very f small wood and plant fragments 4.4 to 4.8 feet: SANDY SILT (ML); v fines; 40% sand, very fine to fine gravel, fine to subangular; moiss (a) 4.7 feet: color change to dark yell 4.8 to 4.9 feet: SAND (SP); very dar white sand grains, coarse sand, wet. 4.9 to 8.25 feet: SILT (ML); very dark plasticity to medium plasticity; 1 becoming firm to stiff with depth fragments; wet, becoming moiss (a) 6.8 to 7.2 feet: approximately 10- 8.25 to 8.3 feet: Material in cutting s Vibracore collection indicates b fine sand; strong odor and shee Length Recovered: 8.3 feet Total Drive Length: 9.7 feet Recovery: 85.6% 	rery dark gray (10YR 3/1); 40% s; very loose; trace mica; wet. II. T (ML); very dark gray (10YR b) low plasticity; 20-40% sand; soft; percentages vary with depth. ents. edium, subrounded. if x 0.1 ft, subangular. P-SM); very dark gray (10YR 3/1); fine to fine; loose; trace mica; gray (10YR 3/1); 95-100% fines, ine; firm; trace mica, rootlets, and t; moist. ery dark gray (10YR 3/1); 60% e; soft; trace wood fragments and t to wet. lowish brown (10YR 4/4); firm. k gray (10YR 3/1); trace mica, and wood fragments; moist to k gray (10YR 3/1); 90% fines, low 0% sand; soft, spongy texture ; trace mica, rootlets, and wood t with depth. 20% wood fragments in sediment. hoe not logged. Field sheet from stom conditions to be tan silt with n in shoe.		
GBLWC W:\GIN	NOTE	S: 1. Depths are feet, and 4.4 immediately a sediment core	e relative to feet bel to 8.25 feet. 4. Sed after opening; result e collection: Latitud	ow mudlir iment con is were 0 e 45.5780	ne. 2. RSS Ves e was processe parts per millio. 05196; Longitud	sel: C ed on n (ppn de -12	arolyn Dow. 10/9/2019. 5 n). 6. ft = fee 2.75303345.	 Sediment core was cut into two sections A photoionization detector (PID) was use t. 7. Surface elevation (mudline) vertical de t. 7. Surface elevation (mudline) vertical de 	s on the boat after collection: 0.0 to 4.4 d over the entire sediment core atum is NGVD29. 8. Location of		

			G	eologic	Borehole Log/Well Construction			
Mau	I Foster &	Alongi, Inc.	Project Numbe	er	Well Number	Sheet		
Proj Proj Star Drill Geo San	ect Name ect Location t/End Date er/Equipment logist/Engineer nple Method	Siltronic Corpor Willamette River 10/8/2019 to 10/8 Research Suppo Courtney Savoie Vibracore	8128.02.19 ation r, Portland, Oregon 3/2019 ort Services, Inc. (RSS)/ e, RG	Vibracore I	SED-03 TOC Elevation (fi Surface Elevation Northing Rosfelder Easting Hole Depth Outer Hole Diam	2 1 of 1 eet) n (feet) -7.3 8.6-feet 4-inch		
6	Well	_ Si	ample Data		Soil Descripti	ion		
Depth (feet, BG)	Details	Interval Percent Recovery Collection Method	Image: Name Type Sector SED-03-SB-2 0	Lithologic Column	0 to 0.5 feet: SILT (ML); very dark g	ray; 90% fines, low plasticity; 10%		
2			SED-03-SB-3,0		0.5 to 1.8 feet: SILT WITH SAND (M plasticity; 20% sand, very fine to 1.8 to 6.6 feet: SILT (ML); very dark	IL); very dark gray; 80% fines, low) fine; wet; trace mica. gray; 95-97% fines, low plasticity;		
3			SED-03-SB-5.0		3-5% sand, very line; moist, trad	e mica.		
6 7			SED-03-SB-6.45 PID = 2.4 ppm PID = 3.0 ppm PID = 2.1 ppm SED-03-SB-8.45 PID = 1.5 ppm		 @ 5.5 feet: approximately 0.5-inch the with minor wood fragments and @ 5.9 feet: approximately 1-inch thic with moderate hydrocarbon-like iridescent sheen. @ 6.3 feet: approximately 1-inch thic 	hick layer of black discoloration moderate hydrocarbon-like odor. ck layer of black discoloration, odor. Sheen test produced heavy		
8			РID = 1.7 ppm		 moderate hydrocarbon-like odor iridescent sheen. 6.6 to 8.45 feet: SIL T (ML); very dan 5% sand, very fine; moist; trace approximately 0.25-inches thick fragments throughout; moderate 7.0 to 7.2 feet: approximately 2-in with slight continuous sheen. Sh iridescent sheen with blebs of bu mm in diameter. 7.7 feet: slight continuous sheen. iridescent sheen with brown NA diameter. 8.45 to 8.6 feet: Material in cutting sh Vibracore collection indicates bo Sheen observed on outside of c and slight sheen in shoe. Length Recovered: 8.6 feet Total Drive Length: 9.5 feet Recovery: 90.5% 	: Sheen test produced heavy k gray; 95% fines, low plasticity; mice; laminations up to of black discoloration and wood hydrocarbon-like odor. hot thick layer of wood fragments, teen test produced heavy rown NAPL approximately 0.5-1 Sheen test produced heavy PL blebs up to 0.5 mm in hoe not logged. Field sheet from ottom conditions to be tan silt. ore and silt with woody fragments		
NOTE	ES: 1. Depths ar feet, and 4.4 immediately = millimeter. -122.751862	e relative to feet below 5 to 8.45 feet. 4. Sedir after opening; results 8. Surface elevation (i 81.	′ mudline. 2. RSS Vessel: Ca nent core was processed on were 0 parts per million (ppr mudline) vertical datum is N(arolyn Dow. 3 10/9/2019. 5 1), unless oth GVD29. 9. Lo	3. Sediment core was cut into two sections 5. A photoionization detector (PID) was us pervise noted (headspace readings). 6. NA pocation of sediment core collection: Latitud	s on the boat after collection: 0.0 to 4.45 ed over the entire sediment core APL = nonaqueous-phase liquid. 7. mm le 45.57760915; Longitude		

				G	eologic	Borehole Log/Well Construction			
Mau	I Foster &	Alongi, In	с.	Project Numb 8128.02.19	er	Well I SE	Number D-04	1	Sheet 1 of 1
Proj Proj Star Drill Geo San	ect Name ect Location t/End Date er/Equipment logist/Engineer nple Method	Siltronic Cor Willamette R 10/7/2019 to Research Su Kelly Titkem Vibracore	poration iver, Port 10/7/2019 pport Se eier, RG	tland, Oregon) rvices, Inc. (RSS)/	Vibracore I	Rosfelder	TOC Elevation (fe Surface Elevation Northing Easting Hole Depth Outer Hole Diam	eet) (feet)	-13.3 8.2-feet 4-inch
Depth (feet, BGS)	Well Details	Interval Percent Recovery	Sample Method Number	Data Name (Type)	Lithologic Column		Soil Descriptie	on	
Q & 1 1 2 3 4 5 6 7 8				SED-04-SB-2.0 PID = 1.7 ppm ED-04-SB-2.75 ED-04-SB-4.75 PID = 1.3 ppm ED-04-SB-5.75 ED-04-SB-7.75		 0.0 to 1.1 feet: SA fines; 40% se water at top C 0.5 to 0.7 feet: 1.1 to 2.0 feet: SA with slightly of 85-90% sand 1.4 feet: jer me discontinuous 2.0 to 2.4 feet: SA fines, nonplas mica; wet. 2.4 to 2.6 feet: SI fines; 70% sa 2.6 to 2.8 feet: one p 2.8 to 3.0 feet: SI fines; 55% sa 3.0 to 3.3 feet: SA fines, nonplas mica; wet. 3.4 to 3.6 feet: SI fines; 70% sa 3.6 to 4.4 feet: SA fines; row fines; row sa 3.6 to 4.4 feet: SI fines; 70% sa fragements; II 3.6 feet: SI fines; 60-70% 4.7 feet: wood 4.9 to 5.0 feet: SI fines; 55-70% fines 6.6 feet: Color 7.75 to 8.2 feet: N Vibracore colo sand; tan sar Length Recovere Total Drive Lengti Recovery: 86.3% 	ANDY SILT (ML); ve and, fine; slight disc of core; wet; soupy. sand lens. slight sheen in sed ND WITH SILT (SI larker, irregular area, , very fine to fine; tr thod sheen test of a (spotty) sheen. NDY SILT (ML); ve stic to low plasticity, LTY SAND (SM); vi id very fine to fine to (ML); very dark iece of gravel, med LTY SAND (SM); vi ond, fine; trace wood NDY SILT (ML); ve stic to low plasticity, NDY SILT (SI); vi stic to low plasticity, NDY SILT (ML); ve stic to low plasticity, NDY SILT (ML); ve stic to low plasticity, NDY SILT (ML); very dark fines; soft, trace to of water in sheen to on water at top of LT (ML); very dark sheen. Trace white to of water in sheen to on water at top of LT (ML); very dark Sand, fine; wet. fragments, including trace fine subroum ANDY SILT (ML); ve daterial in cutting sh daterial in cutting sh daterial in cutting sh daterial in cutting sh daterial in cutting sh sheet. Sand, fine; wet. fragments, including trace fine subroum ANDY SILT (ML); very daterial in cutting sh daterial in cutting sh daterial in cutting sh daterial in shoe; no cut data sit in shoe; no cut sh 9.5 feet	ery dark gray (1) ontinuous (spot liment. P-SM); very dar as of discolorati ace mica; wet. discolored area ery dark gray (1) ; 30% sand, very gray (10YR 3/1) ticky texture; we ium, subrounde ery dark gray (1) d fragments; we ery dark gray (1) ; 40% sand, very for fine; trace mic DY SILT (SM-M d, very fine to fin gments; moist. ery dark gray (1) ; approximately ret. gray (10YR 3/1) mica and very fi ows slight disco ery dark gray (1) mica and very fi ows slight disco ery dark gray (1) gone large frag ded gravel. very dark gray (1) of one large frag ded gravel. very dark gray (1) for on ot logged. too not logged. too not logged. too not logged. too not logged. too not logged. too not logged.	0YR 3/1); 60% (y) sheen on k gray (10YR 3/1) on; 10-15% fines; showed slight 0YR 3/1); 70% y fine to fine; trace 0YR 3/1); 30% 1; 100% fines; et to moist. d. 0YR 3/1); 60% y fine to fine; wet. k gray (10YR 3/1); 60% y fine to fine; wet. k gray (10YR 3/1); 60% y fine to fine; wet. k gray (10YR 3/1); 60% y fine to fine; wet. k gray (10YR 3/1); 30% oYR 3/1); 30% oYR 3/1); 30% oYR 3/1); 30% oYR 3/1); 30% oyre; medium to 0YR 3/1); 30% oyre sand; wet. oyre sand; wet. oyre sand; wet. oyre sand; wet. oyre mica; vet. 0YR 3/1); 30-40% gment 0.3' x 0.15'. 10YR 3/1); oyre mica; wet. oyre sait with
NOTE	S: 1. Depths are	e relative to feet b	elow mudli	ne. 2. RSS Vessel: C	arolyn Dow. 3	3. Sediment core was	cut into two sections	on the boat after	collection: 0.0 to 3.95

ES: 1. Depths are relative to feet below mudline. 2. RSS Vessel: Carolyn Dow. 3. Sediment core was cut into two sections on the boat after collection: 0.0 to 3.95 feet, and 3.95 to 7.75 feet. 4. Sediment core was processed on 10/8/2019. 5. A photoionization detector (PID) was used over the entire sediment core immediately after opening; results were 0 parts per million (ppm), unless otherwise noted (headspace readings). 6. During homogenization of the sample collected from 2.75 to 4.75 feet, a 0.2' nail was found in the sediment. 7. Surface elevation (mudline) vertical datum is NGVD29. 8. Location of sediment core collection: Latitude 45.57721757; Longitude -122.75085545

				G	eologic	Borehole Log/Well Construction			
Mau	I Foster &	Alongi, Ir	າc.	Project Numb 8128.02.19	ber)	Well Number SED-05	Sheet 1 of 1		
Proje Proje Star Drille Geo Sarr	ect Name ect Location t/End Date er/Equipment logist/Engineer nple Method	Siltronic Co Willamette I 10/7/2019 to Research S Kelly Titken Vibracore	rporation River, Port 0 10/7/2019 upport Sen neier, RG	tland, Oregon) rvices, Inc. (RSS)	/Vibracore I	TOC Elevation (fi Surface Elevation Northing Rosfelder Easting Hole Depth Outer Hole Diam	eet) ר (feet) -11.9 7.1-feet 4-inch		
Depth (feet, BGS)	Well Details	Interval Percent Recovery	Collection Method S Number ald	Data	Lithologic Column	Soil Descripti	ion		
				\$ED-05-SB-2 \$ED-05-SB-3 \$ED-05-SB-5 \$ED-05-SB-7		 0.0 to 0.3 feet: SILTY SAND (SM); v fines; 60% sand, very fine to fine top of the core. (a) 0.0 to 0.4 feet: slight sheen on top produced slight discontinuous (s 0.3 to 0.8 feet: SANDY SILT (ML); v fines; 30% sand, very fine; spon (a) 0.6 feet: trace wood fragments up 0.8 to 1.0 feet: SANDY SILT (ML); v fines; 40% sand, very fine to fine and possible plant material; wet (a) to 1.6 feet: SAND (SP); very dar fine; loose to medium; trace mic wet. (b) to 1.6 feet: SANDY SILT (ML); v fines; 40% sand, very fine to fine and possible plant material; wet (c) to 4.6 feet: SANDY SILT (ML); v fines; 30-40% sand, very fine to rootlets, possible plant material, rounded gravel; moist to wet (c) to 4.6 feet: SANDY SILT (ML); v fines; 30-40% sand, very fine to rootlets, possible plant material, rounded gravel; moist. Increasin (c) 2.75 feet: 1/4-inch thick sand lam (c) 5.05 feet: 1/4-inch thick SILT (ML); v fine; medium density; trace mica medium to coarse sand, fine to 1 moist. (c) 5.05 feet: 1/4-inch thick SILT (ML); v fines; 30-40% sand, very fine; fii laminations up to 1/2-inch thick. (c) 5.4 feet: SANDY SILT (ML); v fines; 70% sand, very fine; fii laminations up to 1/2-inch thick. (c) 6.6 feet: wood fragment, approxin subangular gravel; moist. (c) 6.6 feet: wood fragment. (c) 6.8 feet: silt nodules. (d) 6.8 feet: wood fragment. (d) 6.8 feet:	ery dark gray (10YR 3/1); 40% e; trace mica; wet. Soupy at the p of core. Jar method sheen test spotty) sheen. ery dark gray (10YR 3/1); 70% gy texture; soft; trace mica; wet. b to 0.25' x 0.5". k gray (10YR 3/1); 100% sand, a, fines, and white sand grains; ery dark gray (10YR 3/1); 60% e; soft to firm; trace mica, rootlets, k gray (10YR 3/1); 100% sand, a, fines, white sand grains, and ery dark gray (10YR 3/1); 60-70% fine; soft to firm; trace mica, and fine to medium angular to gg sand content with depth. ination. rk gray (10YR 3/1); 100% sand, a, fines, white sand grains, medium subrounded gravel;) lamination; very dark gray ery dark gray (10YR 3/1); 60-70% rm; trace mica; moist. SAND mately 2 mm x 5 mm x 1 mm rery dark gray (10YR 3/1); 30% ium to dense; trace mica and fine Field sheet from Vibracore litions to be sand; Vibracore run al.		

NOTES: 1. Depths are relative to feet below mudline. 2. RSS Vessel: Carolyn Dow. 3. Sediment core was processed on 10/7/2019. 4. A photoionization detector (PID) was used over the entire sediment core immediately after opening; results were 0 parts per million (ppm). 5. mm = millimeter. 6. Surface elevation (mudline) vertical datum is NGVD29. 7. Locations of sediment core collection: Latitude 45.57702222; Longitude -122.75057069.

						Geologic Borehole Log/Well Construction							
Maul Foster & Alongi, Inc			Inc.		Project	Numb	er		Well Number		Sheet		
	Project Name Siltronic Corporation Project Location Willamette River, Portland, Oregon Start/End Date 10/7/2019 to 10/7/2019 Driller/Equipment Research Support Services, Inc. (RSS) Geologist/Engineer Kelly Titkemeier, RG Sample Method Vibracore						n (RSS)/	Vibracore	Rosfelder	TOC Elevation (fr Surface Elevation Northing Easting Hole Depth Outer Hole Diam	ישבו) און (feet)	-7.8 9.0-feet 4-inch	
ł	6	, Well		S	ample	Data				Soil Descripti	on		
	Depth (feet, BGS	Details	Interval Percent Recovery	Collection Method	Number d	Name (Type)	Blows/6"	Lithologic Column					
	1 2 3 4 5 6 7 8 9					ED-06-SB-2 PID = 0.4 pp ED-06-SB-3 PID = 1.6 pp ED-06-SB-5 PID = 0.7 pp ED-06-SB-6 SED-06-SB-8	2 0 m 2 5 m 3 5 3 5		0.0 to 0.7 fines; wood throug was o @ 0.4 feet 0.7 to 1.0 5-10% grains 1.0 to 1.2 plastic wet. @ 1.2 feet 1.2 to 1.6 fines; coarse 1.6 to 1.9 fines; @ 1.6 to 2.9 fines; @ 1.6 to 3.3 fines; @ 3.3 to 3.8 3.3 to 3.8 70-80 wood hydroo discor @ 3.3 to 3.8 5-10% wood 5.3 to 8.6 SILT (sand, very d very fi @ 8.1 feet 8.6 to 9.0 Vibrac depth; Eength Re Total Drive Recovery: Best recov	feet: SANDY SILT (ML); vi fregments; wet/soupy. Shi th core liner prior to openin nly approximately 1/2- to 2 : 0.3-ft long twig. feet: SAND WITH SILT (S ; fines; 90-95% sand, fine; and rootlets; wet. feet: SILT (ML); very dark ; oty soft; trace mica, very to : 0.25-ft long twig. feet: SILTY SAND (SM); v 70% sand, very fine to fine e red sand grains, and wo feet: SANDY SILT (ML); vi 30-40% sand; trace mica; 0 feet: mild hydrocarbon-l test produced slight disco feet: SILT WITH SAND (SM); v 70% sand, very fine to fine e red sand grains, and wo feet: SANDY SILT (ML); v 30-40% sand; trace mica; 0 feet: mild hydrocarbon-l test produced slight disco feet: SILT WITH SAND (M % fines, low plasticity; 20- fragments; moist. SAND k carbon-like odor. Jar meth thinuous (spotty) sheen. 6 feet: 1/4-inch thick verti ents. feet: SAND WITH SILT (S 5 fines; 90-95% sand, fine; fragments; moist. feet: ALTERNATING LAY ML). SAND (SP); very dar fine; medium density; trac ark gray (10YR 3/1); 70% ne to fine; firm; trace mica to ne half of a peanut she feet: Material in cutting she core collection indicates he Vibracore refusal at 13.0 covered: 9.0 feet 69.2% very of three attempts. Hai ntered at 13 feet drive dep	Pry dark gra soft; trace re sen near top 1g. Top 0.6 1 2/3-full. P-SM); very soft/loose; ti gray (10YR ine sand, ar ery dark gra ery dark gra trace mica of fragment. ery dark gra trace mica fragments; we fragments; we fragments; we fragments; we trace mica fragments; we fragments; we fragments	y (10YR 3/1); 55% ootletes, twigs, and o of core observed ft of sediment core dark gray (10YR 3/ trace white sand 3/1); 100% fines, lo nd wood fragments; y (10YR 3/1); 30% a, white sand grains, s; wet. y (10YR 3/1); 50% fines; 95 a, coarse sand, fine et, becoming moist d sheen test produce ngular. k gray (10YR 3/1); very fine to fine; trac Wood fragments ha st produced slight on of small wood d dark gray (10YR 3/ nsity; trace mica an ND (SP) AND SANE (R 3/1); 5% fines; 95 st. SANDY SILT (MI lasticity; 30% sand, d. Field sheet from and encountered at epth.	
	NOTE	S: 1. Depths are feet, and 5.2 immediately a vertical datum	e relative to fee to 8.6 feet. 4. 5 after opening; r n is NGVD29. 8	t below Sedime results v 8. Loca	r mudlir nt core were 0 tion of	ne. 2. RSS Ves was processe parts per millic sediment core	ssel: C d on 1 on (ppn collect	arolyn Dow. 3 0/8/2019. 5. 7 n), unless oth tion: Latitude	3. Sediment of A photoioniza nerwise noteo 45.5767733	core was cut into two sections tion detector (PID) was used I (headspace readings). 6. ft = 3; Longitude -122.75016265.	on the boat a over the entir = feet. 7. Surfa	after collection: 0.0 to s re sediment core ace elevation (mudline	5.2 ;)

					G	eologic	Borehole I	_og/Well Con	struction	
Maul Fo	ster &	Alongi, I	nc.	Project N 8128.0	Jumb)2.1 9	ber 9	Well SE	Number E D-07		Sheet 1 of 1
Project Na Project Lo Start/End Driller/Equ Geologist/ Sample M	me cation Date ipment Engineer ethod	Siltronic Co Willamette 10/7/2019 to Research S Kelly Titkel Vibracore	orporat River, o 10/7/2 Suppor meier, l	tion Portland, Oregor 2019 t Services, Inc. (F RG / Allen Cleme	on Portland, Oregon 019 Services, Inc. (RSS)/Vibracore Ro RG / Allen Clements, GIT			TOC Elevation (fe Surface Elevation Northing Easting Hole Depth Outer Hole Diam	et) (feet)	-15.0 6.4-feet 4-inch
Depth (feet, BGS)	Well Details	Interval Percent Recovery	Collection Method S	nple Data	Blows/6"	Lithologic Column		Soil Descriptic	on	
				SED-07-SB-4.	35		0.0 to 0.5 feet: S 70-80% fine: wet. 0.5 to 0.7 feet: S fines; 60-70% firm; moist to 1.35 to 3.0 feet: S SILT WITH S 3/1); 40% fir trace rootlets (ML); very de sand; soft; tr 3.0 to 5.9 feet: S sand, fine to 5.9 to 6.35 feet: Wibracore co sand. Length Recovere Total Drive Leng Recovery: 74.4% Best recovery of	ILT WITH SAND (MI s; 20-30% sand, very ILTY SAND (SM); ver % sand, very fine to f SILT WITH SAND (N s, low to medium pla to wet. ALTERNATING LAY SAND (ML). SILTY S les, low plasticity; 60 s; up to 50% wood fr ace rootlets; up to 51 AND (SP): very dark medium; loose; trac SILT WITH SAND (N bw plasticity; 20% sa Material in cutting sh illection indicates bol ed: 6.4 feet th: 8.6 feet	L); very dark gr / fine; soft; trac ery dark gray (' fine; loose; trac fine; loose; trac fine; loose; trac fine; loose; trac fine; loose; trac ////////////////////////////////////	ray (10YR 3/1); re wood fragments; a (10YR 3/1); 30-40% re mica; wet. gray (10YR 3/1); s and, very fine; Y SAND (SM) AND ry dark gray (10YR SILT WITH SAND o medium; loose; SILT WITH SAND o plasticity; 20% nents; wet. (1); 5% fines; 95% ents; moist. Field sheet from to be gray fine

NOTES: 1. Depths are relative to feet below mudline. 2. RSS Vessel: Carolyn Dow. 3. Sediment core was cut into two sections on the boat after collection: 0.0 to 3.2 feet, and 3.2 to 6.35 feet. 4. Sediment core was processed on 10/8/2019. 5. A photoionization detector (PID) was used over the entire sediment core immediately after opening; results were 0 parts per million (ppm). 6. Surface elevation (mudline) vertical datum is NGVD29. 7. Location of sediment core collection: Latitude 45.57637168; Longitude -122.74931401.

Geologic						Borehole Log/Well Construction					
Maul	Foster &	Alongi,	Inc.	Project Number 8128.02.19			er	Well I SE	Number E D-08		Sheet 1 of 1
Projec Projec Start/I Driller Geolo Samo	ct Name ct Location End Date /Equipment gist/Engineer le Method	Siltronic C Willamette 10/8/2019 Research Courtney Vibracore	Corpora River to 10/8 Suppo Savoie	ation , Port /2019 ort Ser , RG	land, Orego vices, Inc. (n RSS)/	Vibracore	Rosfelder	TOC Elevation (fe Surface Elevation Northing Easting Hole Depth Outer Hole Diam	set) i (feet)	-21.4 3.7-feet 4-inch
- Samp	Well	VIDIACOLE	Sa	amnle	Data				Soil Descripti	on	4-mcn
Depth (feet, BGS	Details	Interval Percent Recovery	Collection Method	Number d	Name (Type)	Blows/6"	Lithologic Column		Son Descripti		
				S	L	25		0 to 1.2 feet: SAN sand; fine to 2-inches in di 1.2 to 3.25 feet: 3 to coarse; tra @ 1.75 to 3.25 fe white fragem 3.25 to 3.7 feet: N Vibracore co medium sand Length Recovere Total Drive Lengt Recovery: 74.0% Best recovery of	VD (SP); very dark g medium; 10% gravi iameter; wet. SAND (SP); very da ace mica and angula set: color change to lents approximately Material in cutting sl llection indicates bo d. 3.7 feet th: 5.0 feet three attempts.	Jray (10YR 3. Jray (10YR 3. Jray angular; fe rk gray; 5% f ar gravel; mol very dark bro 0.5-2 mm in noe not logge ittom conditio	V1); 5% fines; 85% ew cobbles up to fines; 95% sand, fine ist. pwn; few angular diameter. d. Field sheet from ins to be gray fine to
NOTES	: 1. Depths are was used ove from 0.0 to 2. Surface eleve	e relative to fee er the entire se 0 feet, an appr ation (mudline)	t below diment roximate vertical	mudlir core in ely 0.1- datum	ne. 2. RSS Ves nmediately afte ft x 0.1-ft glass n is NGVD29. S	ssel: Ca er oper s fragm 9. Loca	arolyn Dow. hing; results v hent with sub htion of sedin	3. Sediment core was vere 0 parts per millio rounded edges was f nent core collection: L	s processed on 10/9/2 on (ppm). 5. During ho found in the sediment. Latitude 45.57609380;	2019. 4. A photo omogenization 6. mm = millin ; Longitude -12	oionization detector (PID) of the sample collected neter. 7. ft = feet. 8. 2.74886741.

					Geologic	Borehole Log/Well Construction			
Mau	I Foster &	& Alongi,	Inc.	Project Num	ber	Well Number	Sheet		
				8128.02.1	9	SED-09	1 of 1		
Proj Proj Star Drill Geo San	ect Name ect Location t/End Date er/Equipment logist/Enginee nple Method	Siltronic C Willamette 10/8/2019 Research r Courtney Vibracore	Corpora River to 10/8 Suppo Savoie	ation r, Portland, Oregon 3/2019 ort Services, Inc. (RSS e, RG)/Vibracore I	TOC Elevation (f Surface Elevation Northing Rosfelder Easting Hole Depth Outer Hole Diam	eet) n (feet) -7.8 7.0-feet 4-inch		
(S)	Well		₅ Sa	ample Data	0	Soil Descripti	ion		
Depth (feet, BG	Details	Interval Percent Recovery	Collectior Method	, aquinna Name (Type)	Lithologic Column				
1 2 3 4 5 6 7	ES: 1. Depths a		t below	SED-09-SB-2 0 PID = 1.4 ppm PID = 8.2 ppm SED-09-SB-2.85 PID = 1.4 ppm SED-09-SB-4.85 PID = 1.4 ppm		 0 to 0.4 feet: SILTY SAND (SM); bla medium; trace gravel and mica; 0.4 to 1.2 feet: SILT WITH SAND (M trace mica and wood fragments 0.7 feet: dark black discoloration, discontinuous (spotty) sheen. Ja slight iridescent sheen. 1.1 to 1.2 feet: wood fragments w odor. Sheen test produced sligh 1.2 to 3.15 feet: SILT (ML); black; 91 very fine to fine; trace mica; woo pieces of wood up to 6 inches lo and slight sheen; wet. 2.4 feet: jar method sheen test pr sheen. 3.15 to 4.2 feet: SILTY SAND (SM); sand, very fine to fine; trace mica 3.6 feet: moist. 4.2 to 4.4 feet: SANDY SILT (ML); black; 91 55% sand, very fine to fine; trace and, fine; trace mica; moist. 4.95 to 5.1 feet: SILT (ML); black; 91 5% sand; moist. 5.1 to 6.4 feet: SAND WITH SILT (S sand, very fine to fine; trace mica (@ 5.4 feet: SILT (ML); black; 91 5% sand; moist. 5.1 to 6.4 feet: SAND WITH SILT (S sand, very fine to fine; trace mica (@ 5.5 feet: Jar method sheen test p 6.4 to 6.85 feet: SILT (ML); black; 91 trace mica; moist. 6.85 to 7.0 feet: Material in cutting si Vibracore collection indicates bo sand. Length Recovered: 7.0 feet Recovery: 72.2% Best recovery of three attempts. 	ck; 20% fines; 80% sand, fine to wet. IL); black; 80% fines; 20% sand; ; wet. mild organic-like odor; slight ar method sheen test produced ith moderate hydrocarbon-like t metallic sheen. ^{7%} fines, low plasticity; 3% sand, od fragments throughout, including ng; mild hydrocarbon-like odor oduced slight to moderate metallic black; 25-35% fines; 65-75% a; wet. Iack; 65% fines, low plasticity; e mica; moist. SP-SM); black; 10% fines; 90% ^{5%} fines, low to medium plasticity; P-SM); black; 15% fines; 85% a; no odor observed; moist. wood fragments up to 0.5-inches roduced no sheen. ^{7%} fines, low plasticity; 3% sand; hoe not logged. Field sheet from ottom conditions to be gray silty		
	feet, and 3 immediatel is NGVD29	5 to 6.85 feet. 4. y after opening; r). 7. Location of s	Sedime results v sedimen	ent core was processed or were 0 parts per million (pp nt core collection: Latitude	10/9/2019. 5. m), unless oth 45.57551593;	A photoionization detector (PID) was use erwise noted (headspace readings). 6. SL Longitude -122.74834684.	over the entire sediment core inface elevation (mudline) vertical datum		

			G	eologic	Borehole Log/Well Construction			
Mau	I Foster &	Alongi, Inc.	Project Numbe	er	Well Number	Sheet		
Proj Proj Star Drille Geo Sarr	ect Name ect Location t/End Date er/Equipment logist/Engineer pple Method	Siltronic Corpor Willamette River 10/8/2019 to 10/4 Research Suppor Kelly Titkemeier Vibracore	ration r, Portland, Oregon 8/2019 ort Services, Inc. (RSS)/ r, RG	Vibracore F	TOC Elevation (fe Surface Elevation Northing Rosfelder Easting Hole Depth Outer Hole Diam	7.6-feet 4-inch		
	Well	S	ample Data		Soil Description			
Depth (feet, BGS	Details	Interval Percent Recovery Collection Method c	Name (Type)	Lithologic Column		, , , , , , , , , , , , , , , , , , ,		
1 2 3 4 5 7 7			SED-10-SB-2 0 PID = 4.9 ppm SED-10-SB-3.0 PID = 4.2 ppm PID = 2.7 ppm SED-10-SB-5.2 PID = 1.4 ppm PID = 1.4 ppm SED-10-7.2 PID = 1.5 ppm SED-10-7.2 PID = 1.0 ppm PID = 1.0 ppm		 0.0 to 0.5 feet: WOOD FRAGMENTS to very dark gray (10YR 3/1); models of the second s	s; very dark brown (7.5YR 2.5/3) stily large fragments of wood up et. Layer of water on top of wood. ary dark gray (10YR 3/1); 30-45% trace mica and white sand grains; T (ML); very dark gray (10YR fine to fine; soft; wet. I SILT nodule. 1. ary dark gray (10YR 3/1); 40% ca and rootlets; approximately vdrocarbon-like odor; wet. Jar veral small brown NAPL globules ary dark gray (10YR 3/1); 30% the mica and gravel, fine to the wet. gray (10YR 3/1); 90-95% fines; cd fragments; hydrocarbon-like bduced 1 small brown NAPL test produced 1 large brown mm x 4 mm. top of second core. o 80-90%; increase in sand to P-SM); very dark gray (10YR 3/1) oloration; 15% fines; 85% sand, ents; hydrocarbon-like odor; tanding water in core. Jar method to 4.6 feet produced slight anding water in core. Jar method to 4.6 feet produced slight anding water in core. Jar method to 4.6 feet produced slight anding water in core. Jar method to 4.6 feet produced slight anding water in core. Jar method to 4.6 feet produced slight anding water in core. Jar method to 4.6 feet produced slight anding water in core. Jar method to 4.6 feet produced slight and is coloration. method sheen test produced en. k gray (10YR 3/1); 90% fines; ants up to 0.2-ft in the sediment. ween sediment core and core cluced numerous (approximately be not logged. Field sheet from ttom conditions to be tan hard		
NOTE	feet, and 3.6	e relative to teet below to 7.2 feet. 4. Sedime after opening: results	r mudiine. 2. RSS Vessel: Ca ent core was processed on 10 were 0 parts per million (ppr	aroiyn Dow. 3 0/9/2019. 5. A 1) unless oth	 δ Seurnent core was CUT Into two sections A photoionization detector (PID) was used a envise noted (headspace readings), 6, ΝΔ 	out the boat after collection: 0.0 to 3.6 over the entire sediment core P = nonaqueous-phase liquid 7 mm		

5. 1. Depins are relative to feel below induffine. 2. RSS vessel. Calorin Dow. 3. Sediment core was cut into two sections on the boar after conection. 0.0 is of feet, and 3.6 to 7.2 feet. 4. Sediment core was processed on 10/9/2019. 5. A photoionization detector (PID) was used over the entire sediment core immediately after opening; results were 0 parts per million (ppm), unless otherwise noted (headspace readings). 6. NAPL = nonaqueous-phase liquid. 7. mm = millimeter. 8. ft = feet. 9. Surface elevation (mudline) vertical datum is NGVD29. 10. Location of sediment core collection: Latitude 45.5758604; Longitude -122.74845149.