

Supplementary Materials for **Engineered feature used to enhance gardening at a 3800-year-old site on the Pacific Northwest Coast**

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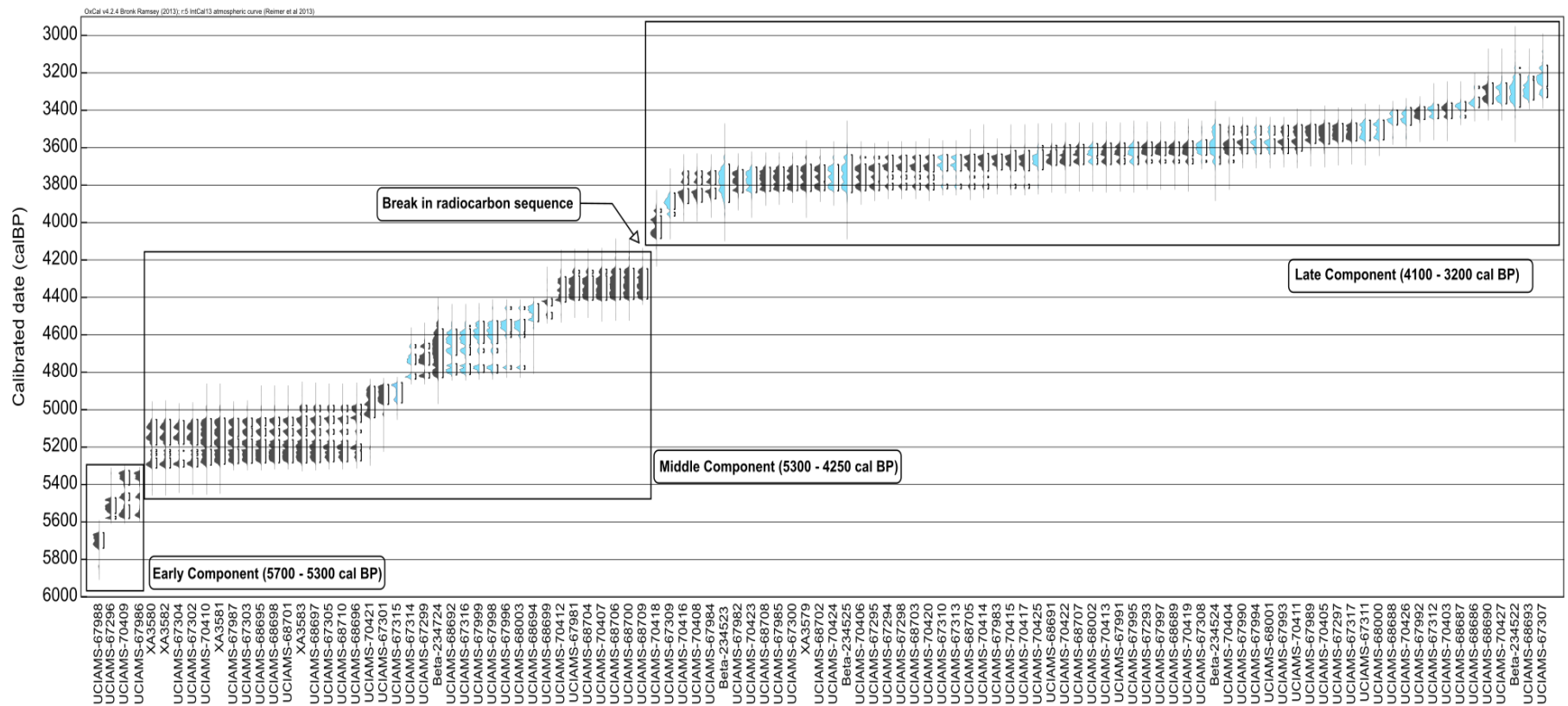


fig. S1. Radiocarbon sequence for DhRp-52. Blue lines indicate dates derived from wet-site samples. See table S1 for sampling provenience of each date.



fig. S2. Plan view of SRP feature from garden area. Pink string indicates boundary of 2 metre by 2 metre excavation unit. Trowel tip oriented north.



fig. S3. Sample of conserved wapato (*S. latifolia*) tubers excavated from DhRp-52 wet-site deposits.

table S1. Radiocarbon dates from DhRp-52. Those dates derived from artifacts or sediments recovered from the wet-site are highlighted in bold type and yellow highlighting. Note Site Area II include wet-site deposits, Site areas I, III, and IV are dry-site deposits.

Lab No.	Trench or Unit	Unit	Depth (cm below datum1)	Site Area	Material	Conventional age BP	Calibrated age BP (2 σ)	Context
XA3579	1	BB13	190-200	III	charcoal	3478 \pm 24	3833 - 3689	Sediment IV and V: dry and wet deposit interface
XA3580	1	Q10	200-205	III	charcoal	4536 \pm 25	5312 - 5053	Rectangular Depression ZH-n: base of pit depression
XA3581	2	B32	180	III	charcoal	4496 \pm 24	5290 - 5046	Rectangular Depression ZH-m: associated with bone
XA3582	3	I20	136-140	III	charcoal	4534 \pm 25	5312 - 5053	Sediment V: base of depression
XA3583	2	C18	160-167	III	charcoal	4472 \pm 24	5285 - 4978	Thermal Feature KC-n
Beta-234522	WS2	2x2	232.1-242.1	II	<i>S. latifolia</i>	3080 \pm 40	3380 - 3210	Ecofact, DhRp-52:29916
Beta-234523	WS1	2x2	239.4	II	wood tool	3510 \pm 40	3890 - 3690	Artifact, DhRp-52:48
Beta-234524	WS1	2x2	234.9	II	wood tool	3350 \pm 40	3690 - 3470	Artifact, DhRp-52:51
Beta-234525	WS2	2x2	250.1	II	wood tool	3470 \pm 40	3840 - 3640	Artifact, DhRp-52:55
Beta-234724	2	D6	154-159	III	charcoal	4150 \pm 40	4829 - 4569	Thermal Feature HP
UCIAMS-67293	2	A8	50-60	III	charcoal	3370 \pm 15	3682 - 3569	Thermal Feature ZH-q: sediment II
UCIAMS-67294	2	A8	100-110	III	charcoal	3450 \pm 15	3824 - 3641	Thermal Feature ZH-q: sediment III
UCIAMS-67295	2	A8	120-130	III	charcoal	3465 \pm 15	3827 - 3648	Thermal Feature ZH-q: interface III and V
UCIAMS-67296	2	A8	140-150	III	charcoal	4765 \pm 15	5584 - 5471	Thermal Feature ZH-q: sediment V near basal level of feature
UCIAMS-67297	2	A36	40-50	III	charcoal	3295 \pm 15	3565 - 3472	Sediment II
UCIAMS-67298	2	A36	68-70	III	charcoal	3450 \pm 15	3824 - 3641	Thermal Matrices feature JO
UCIAMS-	2	A36	87-90	III	charcoal	4185 \pm 15	4831 - 4646	Sediment IV and V: interface

Lab No.	Trench or Unit	Unit	Depth (cm below datum1)	Site Area	Material	Conventional age BP	Calibrated age BP (2σ)	Context
67299 UCIAMS-67300	1	O5	50-60	III	charcoal	3485 ± 15	3829 - 3699	Sediment II
UCIAMS-67301	1	O5	80-90	III	charcoal	4370 ± 15	4971 - 4866	Rectangular Depression ZH-n: top of sediment IV
UCIAMS-67302	1	O5	120-130	III	charcoal	4525 ± 20	5245 - 5053	Rectangular Depression ZH-n: middle of sediment IV
UCIAMS-67303	1	O5	130-135	III	charcoal	4490 ± 15	5285 - 5046	Rectangular Depression ZH-n: middle of sediment IV with ochre
UCIAMS-67304	1	O5	170-175	III	charcoal	4530 ± 15	5306 - 5057	Rectangular Depression ZH-n: basal level of feature
UCIAMS-67305	3	H34	139-144	III	charcoal	4465 ± 15	5278 - 4978	Sediment IVd
UCIAMS-67306	14	3	208.2-228.2	II	wood	1410 ± 15	1339 - 1294	Sediment S2W
UCIAMS-67307	14	2	231.6-241.6	II	charcoal	3020 ± 20	3330 - 3161	Sediment S3W: above the Submerged Rock Pavement feature
UCIAMS-67308	13	4	221.8-231.8	II	wood	3355 ± 15	3676 - 3559	Sediment S3W: between Midden and Submerged Rock Pavement feature
UCIAMS-67309	15	3	238.8-248.8	II	charcoal	3595 ± 15	3965 - 3842	Sediment S3W: below Submerged Rock Pavement
UCIAMS-67310	15	3	228.8-238.8	II	wood	3440 ± 15	3818 - 3639	Submerged Rock Pavement feature
UCIAMS-67311	12	5	205.2-215.2	II	wood	3280 ± 20	3561 - 3453	Sediment S5W: middle of S5W
UCIAMS-67312	15	5	198.5-218.5	II	charcoal	3180 ± 15	3443 - 3372	Sediment S5W
UCIAMS-67313	12	5	235.2-245.2	II	wood	3440 ± 15	3818 - 3639	Sediment S6W: middle of S6W
UCIAMS-67314	12	5	275.2-285.2	II	charcoal	4200 ± 15	4836 - 4653	Sediment S7W: bottom of S7W
UCIAMS-67315	12	5	285.2-295.2	II	charcoal	4345 ± 15	4961 - 4856	Sediment S9W
UCIAMS-67316	15	5	248.5-258.5	II	wood	4125 ± 15	4811 - 4551	Sediment S10W: yellow sand lens
UCIAMS-67317	2	A25	112	III	charcoal	3290 ± 15	3563 - 3469	Thermal Feature FO
UCIAMS-	2	A13	110-120	III	charcoal	3895 ± 15	4414 - 4256	Sediment IV: associated with bottom of

Lab No.	Trench or Unit	Unit	Depth (cm below datum1)	Site Area	Material	Conventional age BP	Calibrated age BP (2σ)	Context
67981 UCIAMS-67982	2	A13	102-110	III	charcoal	3510 ± 15	3840 - 3718	bead concentration Sediment V: associated with middle of bead concentration
UCIAMS-67983	2	A13	70-80	III	charcoal	3425 ± 15	3717 - 3635	Sediment II: associated with top of bead concentration
UCIAMS-67984	2	A34	50-53	III	charcoal	3530 ± 15	3872 - 3724	Sediment II: above Rectangular Depression ZH-m
UCIAMS-67985	2	A34	53-60	III	charcoal	3490 ± 15	3829 - 3704	Rectangular Depression ZH-m: top of sediment IV
UCIAMS-67986	2	A34	97-100	III	charcoal	4715 ± 15	5577 - 5327	Rectangular Depression ZH-m: sediment VI lens
UCIAMS-67987	2	A34	110-118	III	charcoal	4495 ± 15	5287 - 5048	Rectangular Depression ZH-m: bottom of sediment IV
UCIAMS-67988	2	A34	120-130	III	charcoal	4985 ± 15	5740 - 5658	Rectangular Depression ZH-m: below feature
UCIAMS-67989	14	1	235-245	II	charcoal	3310 ± 15	3575 - 3477	Sediment S3W: top of S3W
UCIAMS-67990	14	1	245-255	II	charcoal	3335 ± 15	3632 - 3484	Sediment S3W: middle of S3W
UCIAMS-67991	14	1	255-265	II	charcoal	3380 ± 15	3687 - 3575	Sediment S3W: bottom of S3W
UCIAMS-67992	2	B24	85	III	charcoal	3200 ± 15	3448 - 3383	Sand Concentration Lens A: associated with Large Circular Depression
UCIAMS-67993	2	B24	107	III	charcoal	3330 ± 15	3629 - 3482	Sand Concentration Lens B: associated with Large Circular Depression
UCIAMS-67994	12	5	202.2	II	charcoal	3335 ± 15	3632 - 3484	Sediment S5W: top of S5W
UCIAMS-67995	12	5	218.2	II	wood	3380 ± 20	3688 - 3572	Sediment S5W: bottom of S5W
UCIAMS-67996	12	5	254.2	II	wood	4075 ± 15	4783 - 4451	Sediment S6W: bottom of S6W
UCIAMS-67997	12	5	227.2	II	wood	3370 ± 15	3682 - 3569	Sediment S6W: top of S6W
UCIAMS-67998	12	5	264.2	II	wood	4100 ± 20	4804 - 4526	Sediment S7W: top of S7W
UCIAMS-67999	12	5	268.2	II	wood	4105 ± 15	4801 - 4529	Sediment S7W: middle of S7W
UCIAMS-	15	5	213.5	II	wood	3275 ± 15	3557 - 3454	Sediment S5W

Lab No.	Trench or Unit	Unit	Depth (cm below datum1)	Site Area	Material	Conventional age BP	Calibrated age BP (2σ)	Context
68000 UCIAMS-68001	15	5	218.5	II	wood	3335 ± 15	3632 - 3484	Submerged Rock Pavement feature
UCIAMS-68002	15	5	237.5	II	wood	3385 ± 15	3688 - 3579	Sediment S3W: below the Submerged Rock Pavement feature
UCIAMS-68003	15	5	262.5	II	wood	4075 ± 15	4783 - 4451	Sediment S7W: bottom of S7W
UCIAMS-68686	11	2	201.4-206.4	II	charcoal	3125 ± 15	3385 - 3273	Sediment S2W: top of S2W
UCIAMS-68687	11	2	211.4-215.4	II	charcoal	3155 ± 15	3440 - 3354	Sediment S2W: middle of S2W
UCIAMS-68688	11	2	220.4-225.4	II	charcoal	3235 ± 15	3477 - 3401	Sediment S2W: bottom of S2W
UCIAMS-68689	WS3	2x2	151.8-154.8	I	charcoal	3370 ± 15	3682 - 3569	Sediment S2W
UCIAMS-68690	WS3	2x2	164.8-174.8	I	charcoal	3085 ± 20	3365 - 3255	Sediment S3W
UCIAMS-68691	7	9/10	226.7	I	charcoal	3400 ± 15	3694 - 3589	Sediment S3W: in machine bulk sample
UCIAMS-68692	11	6	237-247	II	S. latifolia	4130 ± 15	4813 - 4571	Ecofact, DhRp-52:30017: from sediment S7W
UCIAMS-68693	14	1	213-233	II	S. latifolia	3060 ± 15	3345 - 3219	Ecofact, DhRp-52:29978: from sediment S2W
UCIAMS-68694	13	5	260.8-270.8	II	worked bark	4030 ± 15	4528 - 4436	Artifact, DhRp-52:15294: from sediment S7W
UCIAMS-68695	3	J12	114-116	III	charcoal	4485 ± 15	5283 - 5044	Rectangular Depression ZH-o
UCIAMS-68696	3	J14	90-100	III	charcoal	4450 ± 15	5273 - 4973	Boiling Stone Cache OH: located in Rectangular Depression ZH-o
UCIAMS-68697	1/3	Q10	200-205	III	charcoal	4470 ± 20	5282 - 4978	Rectangular Depression ZH-n: base of ZH-n within a pit depression
UCIAMS-68698	1/3	M2	139-140	III	charcoal	4480 ± 15	5282 - 5042	Ochre Concentration ZK-c
UCIAMS-68699	1/3	P7	72-75	III	charcoal	3960 ± 15	4513 - 4409	Thermal Feature PA-f: above Rectangular Depression ZH-n
UCIAMS-68700	1/3	P7	91-94	III	charcoal	3880 ± 20	4409 - 4246	Thermal Feature PA-I: above Rectangular Depression ZH-n
UCIAMS-	3	L4	165-170	III	charcoal	4480 ± 15	5282 - 5042	Rectangular Depression ZH-n: basal

Lab No.	Trench or Unit	Unit	Depth (cm below datum1)	Site Area	Material	Conventional age BP	Calibrated age BP (2σ)	Context
68701 UCIAMS-68702	2	A18	46-60	III	charcoal	3475 ± 15	3828 - 3693	sediment IVd Sediment II: associated with top of bead concentration
UCIAMS-68703	2	A18	63-68	III	charcoal	3450 ± 15	3824 - 3641	Sediment II: associated with middle of bead concentration within coarse orange sands and charcoal
UCIAMS-68704	2	A18	66-80	III	charcoal	3895 ± 15	4414 - 4256	Sediment IV: associated with bottom of bead concentration
UCIAMS-68705	2	A19	54-64	III	charcoal	3435 ± 20	3821 - 3635	Sediment II: associated with middle of bead concentration within coarse orange sands and charcoal
UCIAMS-68706	2	H27	81	III	charcoal	3885 ± 20	4411 - 4248	Thermal Feature JL
UCIAMS-68707	2	C1	60-62	III	charcoal	3390 ± 15	3689 - 3584	Sediment II: interface of sediment II and IV
UCIAMS-68708	2	C1	62-70	III	charcoal	3495 ± 15	3832 - 3706	Sediment IV: interface of sediment II and IV
UCIAMS-68709	3	N13	70-77	III	charcoal	3880 ± 15	4408 - 4248	Rectangular Depression ZH-n: sediment II at II/IV interface
UCIAMS-68710	3	N13	77-80	III	charcoal	4465 ± 15	5278 - 4978	Rectangular Depression ZH-n: sediment IV at II/IV interface
UCIAMS-70403	6x6	F4	55.8-65.8	I	charcoal	3170 ± 20	3444 - 3361	Sediment II: located in the 6x6
UCIAMS-70404	6x6	F4	115.8-121.8	I	charcoal	3350 ± 20	3679 - 3485	Sediment II: located in the 6x6
UCIAMS-70405	2	A23	105-110	III	charcoal	3305 ± 20	3581 - 3469	Sediment IV: below Sand Concentration Lens B
UCIAMS-70406	2	B36	87	III	charcoal	3470 ± 20	3830 - 3650	Thermal Matrices JO
UCIAMS-70407	3	M11	75-77	III	charcoal	3895 ± 20	4415 - 4250	Thermal Feature MJ
UCIAMS-70408	2	C32	68	III	charcoal	3540 ± 20	3891 - 3725	Sand Concentration GI: within rectangular depression ZH-m
UCIAMS-70409	2	B34	118	III	charcoal	4720 ± 25	5581 - 5326	Sand Concentration IH: located along the edge of rectangular depression ZH-m
UCIAMS-70410	2	A31	162	III	charcoal	4505 ± 25	5296 - 5049	Rectangular Depression ZH-m: basal level of feature
UCIAMS-	2	H21	63-70	III	charcoal	3325 ± 20	3618 - 3478	Sediment IV

Lab No.	Trench or Unit	Unit	Depth (cm below datum1)	Site Area	Material	Conventional age BP	Calibrated age BP (2σ)	Context
70411 UCIAMS-70412	2	H21	120-130	III	charcoal	3925 ± 20	4425 - 4290	Sediment V
UCIAMS-70413	2	F22	78-82	III	charcoal	3385 ± 20	3690 - 3576	Thermal Matrices KB-e
UCIAMS-70414	2	H7	94	III	charcoal	3430 ± 20	3820 - 3635	Thermal Feature HE
UCIAMS-70415	2	F3	85-88	III	charcoal	3425 ± 20	3817 - 3615	Thermal Feature HO
UCIAMS-70416	3	N19	128	III	charcoal	3545 ± 20	3898 - 3725	Thermal Feature MA: Bottom of feature
UCIAMS-70417	3	K20	92	III	charcoal	3425 ± 20	3817 - 3615	Thermal Feature HS
UCIAMS-70418	3	N19	60-70	III	charcoal	3675 ± 20	4085 - 3928	Thermal Feature MA: Top of feature
UCIAMS-70419	1	BB7	192-196	III	charcoal	3370 ± 20	3687 - 3565	Thermal Feature PC-o: interface of dry and wet deposits
UCIAMS-70420	1	X8	111	III	charcoal	3450 ± 20	3826 - 3640	Sediment IV and V: interface of dry and wet deposits
UCIAMS-70421	2	E36	98	III	charcoal	4405 ± 20	5043 - 4876	Thermal Feature LY
UCIAMS-70422	2	F25	97	III	charcoal	3400 ± 20	3695 - 3585	Thermal Feature FA
UCIAMS-70423	11	5	227-237	II	wood chip	3505 ± 20	3839 - 3704	Artifact, DhRp-52:15397: within sediment S6W
UCIAMS-70424	12	3	272.2-283.2	II	wood chip	3475 ± 20	3830 - 3691	Artifact, DhRp-52:15147: within sediment S7W
UCIAMS-70425	13	8	224.8-234.8	II	wood chip	3415 ± 20	3718 - 3589	Artifact, DhRp-52:15423: within sediment S5W
UCIAMS-70426	16	2	191.5-236.5	IV	S. latifolia	3230 ± 20	3480 - 3386	Ecofact, DhRp-52:85: located in sediment S3W
UCIAMS-70427	13	2	227.7-237.7	II	S. latifolia	3085 ± 20	3365 - 3254	Ecofact, DhRp-52:29956: located in sediment S3W above SRP

table S2. Frequency and distribution of abundant seed taxa in the garden deposits at DhRp-52.

Deposit	Frequency (n)						Deposit	Distribution (%) ¹						NIT ²
	<i>Carex</i> spp. (Sedge)	<i>Eleocharis</i> spp. (Spikerush)	<i>Galium</i> spp. (Bedstraw)	<i>Najas flexilis</i> (Water-nymph)	<i>Potamogeton</i> spp. (Pondweed)	<i>Sagittaria latifolia</i> (Wapato)		<i>Carex</i> spp. (Sedge)	<i>Eleocharis</i> spp. (Spikerush)	<i>Galium</i> spp. (Bedstraw)	<i>Najas flexilis</i> (Water-nymph)	<i>Potamogeton</i> spp. (Pondweed)	<i>Sagittaria latifolia</i> (Wapato)	
S2W	155.5	154.0	264.5	48.0	144.0	20.0	S2W	38.40	33.12	35.34	6.21	33.41	23.53	19
S3W above	6.0	187.0	106.0	319.0	118.0	17.0	S3W above	1.48	40.22	14.16	41.27	27.38	20.0	21
Rock Pavement	196.5	120.0	191.0	359.5	167.0	28.0	Rock Pavement	48.52	25.81	25.52	46.51	38.75	32.94	20
S3W below	41.0	3.0	148.0	36.5	2.0	20.0	S3W below	10.12	0.64	19.77	4.72	0.46	23.53	17
S7W/S9W	6.0	1.0	39.0	10.0	0	0	S7W/S9W	1.48	0.21	5.21	1.29	0	0	9
Total	405.0	465.0	748.5	773.0	431.0	85.0	Total	100.0	100.0	100.0	100.0	100.0	100.0	26

1. Percentages are calculated independently for each taxon.

2. This measure is based on the full set of identified seed data from DhRp-52. In this table we present the 5 most abundant species and wapato.

table S3. Total counts of perishable artifacts from DhRp-52. Area II refers to the wet-site deposits.

Perishable Objects		No. within Area I	No. within Area II	No. within Area IV	Unknown	Total Counts
<i>Artifacts</i>						
Basketry	Tumpline		1			1
Cordage	Cordage Rings		22			22
	Linear Cordage					
	<i>Braided Bark</i>		1			1
	<i>Twisted Multi-Strand Bark</i>		3			3
	<i>Twisted Multi-Strand Wood Fibre</i>		2			2
	Knots		3			3
	Cordage Waste	8	223			231
Worked Wood	Implement Tip Fragments	20	160		4	184
	Implement Shaft Fragments		6			6
	Miscellaneous Wood Artifacts		12			12
	Possible Stakes		12			12
	Woodworking Debitage					
	<i>Wood Chips</i>	185	11,346	5	625	12,161
	<i>Wood Chunks</i>	6	78	2	2	88
Worked Bark	Curled Bark Pieces	133	1	1		135
	Pounded Bark Pieces		27			27
	Stripped Bark Pieces	1	69			70
	Miscellaneous Bark Pieces		3			3
<i>Macro-Botanical Remains</i>						
Economic Ecofacts	<i>Corylus cornuta</i> (Beaked Hazelnut)	214	2,999			3,213
	<i>Sagittaria latifolia</i> (Wapato)	354	3,289	124		3,767

table S4. Species identification of a sample of perishable artifacts excavated from DhRp-52 wet-site (area II) deposits.

Artifact Number DhRp-52:	Artifact Type	Taxon	Common Name	Plant Part	Site Area	Locus	Matrix Code	Cultural Component
166	Implement Tip Fragment	<i>Abies</i> or <i>Tsuga</i> sp.	true fir or hemlock	limb, compression wood	II	Garden Patch	Submerged Rock Pavement feature	Late
257	Implement Tip Fragment	<i>Abies</i> or <i>Tsuga</i> sp.	true fir or hemlock	limb, compression wood	II	Midden	S6W	Late
234	Cordage Ring		conifer	root or possibly bough	II	Transition/Bank	S3W	Late
49	Implement Tip Fragment	<i>Taxus</i> sp.	yew	limb, compression wood	II	Garden Patch	S3W	Late
51	Implement Tip Fragment	<i>Taxus</i> sp.	yew	wood	II	Garden Patch	S3W	Late
76	Implement Shaft Fragment	<i>Taxus</i> sp.	yew	limb, compression wood	II	Garden Patch	S3W	Late
177	Tumpline	<i>Thuja plicata</i> inner bark fibers	red cedar	inner bark	II	Transition/Bank	Submerged Rock Pavement feature	Late
300	Pounded Bark	<i>Thuja plicata</i> inner bark fibers	red cedar	limb, compression wood	II	Transition/Bank	S5W	Late
59	Implement Tip Fragment	<i>Tsuga</i> or <i>Abies</i> sp.	hemlock or true fir	limb, compression wood	I	-	S3W	Late
124	Implement Tip Fragment	<i>Tsuga</i> or <i>Abies</i> sp.	hemlock or true fir	limb, compression wood	II	Midden	S5W	Late
139	Implement Tip Fragment	<i>Tsuga</i> or <i>Abies</i> sp.	hemlock or true fir	limb, compression wood	II	Midden	S6W	Late
293	Implement Tip Fragment	<i>Tsuga</i> or <i>Abies</i> sp.	hemlock or true fir	limb, compression wood	II	Garden Patch	Submerged Rock Pavement feature	Late
15147	Wood Chip	<i>Tsuga</i> or <i>Abies</i> sp.	hemlock or true fir	limb, compression wood	II	Midden	S7W	Middle-Late
15397	Wood Chip	<i>Tsuga</i> or <i>Abies</i> sp.	hemlock or true fir	limb, compression wood	II	Midden	S6W	Late
15423	Wood Chip	<i>Tsuga</i> or <i>Abies</i> sp.	hemlock or true fir	limb, compression wood	II	Midden	S5W	Late
55	Implement Tip Fragment	<i>Tsuga</i> sp.	hemlock	limb, compression wood	II	Garden Patch	S3W	Late
57	Implement Tip Fragment	possible <i>Tsuga</i> sp.	hemlock	limb, compression wood	I	-	S3W	Late
206	Implement Tip Fragment	possible <i>Tsuga</i> sp.	hemlock	limb, compression wood	II	Transition/Bank	S5W	Late