Exhibit C

USLE LAYOUT AND PRACTICE ALTERNATIVES	
FOR: Quantum Limit Vineyards Precipitation (inches) 1.65 (2)	
FOR:Quantum Limit VineyardsPrecipitation (inches)1.65(2)Block:VExisting0.3acresUSER:ORLatitude:38°19'25"N	
Block: V Existing 0.3 acres USER: OR Latitude: 38°19'25"N	
USER: OR Latitude: 38°19'25''N Image: Constraint of the second se	-
DATE: 25-Oct-19 Longitude: 122°07'57"W Image: Control of the second seco	
Soil Type Bressa_Dibble Complex Image of the formation of the format	
Soil Type Bressa_Dibble Complex Image: Complex state Image: Complex stat	
T Natural Soil Loss Factor (tons/acre) 3 (1) 3 (1) 3 (1) 3 (1) 3 (1) 3 (1) 3 (1) 3 (1) 3 (1) 3 (1) 3 (1) 3 (1) 0.41 (1) 0.41 (1) 0.41 <td></td>	
K Soil Erodibility Factor 0.43 (1) 0.43)
R Boin Erodubility factor 0.45 (1) 0.43 (1) <td><u>/</u></td>	<u>/</u>
Transect 1 (site plan) 2 (site plan) 3 (site plan) FACTOR: DESCRIPTION Image: state sta	/
Transect I Gate planty Z Gate planty J J Gate planty J J J J J J J J J J J J J J </td <td>olan)</td>	olan)
FACTOR: DESCRIPTION Image: Constraint of the second secon	Janj
R Rainfall and Runoff Factor 47.5 (3) 47.5 (3) 47.5 (3) Slope length (ft) 35 (site plan) 13 (site plan) 26 (site plan)	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	0
) plan)
	JIAN)
S Slope Gradient (%) 21 (Site pidit) 20 (Site pidit) 21 (Site pidit)	Jian)
LS Utilitiated LS 3.04 1.77 2.62	<u> </u>
C Crop/vegetation management Factor 0.040 (4) 0.040 (4) 0.040 (4) 0.040 (4)	<u>)</u>
P Support Practice Factor I (5) I (5) I (5) I (5))
Aver	age
A Soli loss, tons/acre 2.48 1.44 2.14 2.14 2.0	12
Soil loss, tons 0.75 0.43 0.64 0.6	<u>)</u>
Equations: A = Average annual soil loss (tons per acre)	
Universal Soil Loss Equation (USLE) R = Rainfall and Runoff Factor	
K = Soil Erodibility Factor	
A = R x K x LS x C x P LS = Slope Length-Gradient Factor	
C = Crop/Vegetation and Management Factor	
P = Support Practice Factor	
for slopes of 9% or flatter	
$LS = ((L/72.6 \times cos(arctan(s))^{m}) \times ((65.41 \times (sin(arctan(s)))^{2}) + 4.56 \times sin(arctan(s)) + 0.065)$	
where: L = length in feet along slope	
s = slope gradient in %/100 m = 0.2 for s<1%	
m= slope exponent m = 0.3 for 1% <s<3.5%< td=""><td></td></s<3.5%<>	
m = 0.4 for 3.6% <s<4.5%< td=""><td></td></s<4.5%<>	
m = 0.5 for s>4.5%	
for slopes steeper than 9%	
$LS = ((L/72.6 \times \cos(\arctan(s)))^{5}) \times ((\sin(\arctan(s))/(\sin5.143 radians))^{1.4}$	
where: L = length in feet along slope	-
s = slope gradient in %/100	
References:	
1) Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm)	
2) NOAA Atlas 14, Volume 6, Version 2 Isopluvials for 2yr - 6hr storm event	
3) Table A-1 "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1996, pg. A-3	
4) Table 10: "Predicting Rainfall Erosion Losses", USDA Handbook No. 537, (50% Tree Cover, 60% Grass Cover).	
5) Table 4: "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1991 pg, 11, (Up/Down Hill),	

NAPA COUNTY F	RESOURCE CONSERVATION DISTRICT								
USLE LAYOUT A	ND PRACTICE ALTERNATIVES								
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)					
Block:	V	Temporary	0.3	acres					
USER:	OR	Latitude:	38°19'25"N						
DATE:	25-Oct-19	Lonaitude:	122°07'57"W						
		g	122 07 07 11						
Soil Type	Bressa Dibble Complex								
т	Natural Soil Loss Eactor (tops/acro)	2	(1)	2	(1)	2	(1)		
I K	Soil Fredibility Factor	0.42	(1)	0.42	(1)	0.42	(1)		
ĸ	Soli Elouidilly Factor	0.43	(1)	0.43	(1)	0.43	(1)		
Tromoset		1	(alta alaa)	2	(eite miem)	2	(alta plan)		
Transect		I	(site plan)	<u> </u>	(site plan)	3	(site plan)		
FACTOR	DECODIDITION								
FACTOR:	DESCRIPTION	47.5	(0)	47.5	(0)	17 F	(0)		
R	Rainfall and Runoff Factor	47.5	(3)	47.5	(3)	47.5	(3)		
	Slope length (ft)	35	(site plan)	13	(site plan)	26	(site plan)		
S	Slope Gradient (%)	27	(site plan)	26	(site plan)	2/	(site plan)		
LS	Calculated LS	3.04		1.77		2.62			
C	Crop/Vegetation Management Factor	0.043	(4)	0.043	(4)	0.043	(4)		
Р	Support Practice Factor	0.9	(5)	0.9	(5)	0.9	(5)		
							Average		
Α	Soil loss, tons/acre	2.40		1.40		2.07	1.96		
	Soil loss, tons	0.72		0.42		0.62	0.59		
Equations:				A = Average annual soil	loss (tons per acre	e)			
Universal Soil Lo	ss Equation (USLE)			R = Rainfall and Runoff	Factor	,			
				K = Soil Erodibility Facto	or				
$A = R \times K \times LS \times$	CXP			LS = Slope Length-Grad	ient Factor				
				C = Crop/Vegetation an	d Management Fac	tor			
				P = Support Practice Fa	ctor				
for slopes of 9%	or flatter								
1S = (1/72.6 x)	$\cos(\arctan(s))$ m) x ((65.41 x (sin(arctan	$(s)))^{2}+456 \times sin(arcta)$	n(s)) + 0.065)						
where:	I = length in feet along slope		1(3)) + 0.0000)						
s – slope gradje	nt in %/100		m – 0.2	for s<1%					
m = slope gradie	ent		m = 0.2	for 1% < s < 3.5%					
пт= зюре скроп			m = 0.3	for 3.6% < s < 1.5%					
			m = 0.4	for s 1 5%					
			111 – 0.5	101 324.378					
for clones steen	or than 0%								
LS = ((L/72.6 x))	cos(arctan(s)))^.5) x ((sin(arctan(s))/(sin	5.143radians))^1.4		1	1				
where:	L = length in feet along slope								
s = slope gradie	nt in %/100								
References:									
1) Web Soil Sur	vey (https://websoilsurvey.sc.egov.usda.g	gov/App/HomePage.htm)							
2) NOAA Atlas	14, Volume 6, Version 2 Isopluvials for 2y	r - 6hr storm event							
3) Table A-1 "G	uides for Erosion and Sediment Control in	California", USDA-SCS, D	avis CA, 1996, pg	j. A-3					
4) Table 8: "Gu	uides for Erosion and Sediment Control in	California", USDA-SCS, Da	vis CA, 1991, pg	. C-9. (75% Cover, All Ro	ows Tilled).				
5) Table 4: "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1991 pg. 11. (Terrace with Tilling).									

NAPA COUNTY I	RESOURCE CONSERVATION DISTRICT							
USLE LAYOUT A	AND PRACTICE ALTERNATIVES							
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)				
Block:	V	Permanent	0.3	acres				
USER:	OR	Latitude:	38°19'25"N					
DATE:	25-Oct-19	Longitude:	122°07'57"W					
Soil Type	Bressa Dibble Complex							
T	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)	
ĸ	Soil Frodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)	
		0110	(.)	0110	(./	0110	(.)	
Transect		1	(site plan)	2	(site plan)	3	(site plan)	
Transcort		-	(one plany				(one plan)	
FACTOR	DESCRIPTION							
R	Rainfall and Runoff Factor	47.5	(3)	47.5	(3)	47.5	(3)	
	Slope length (ft)	35	(site plan)	13	(site plan)	26	(site plan)	
S	Slope Gradient (%)	27	(site plan)	26	(site plan)	23	(site plan)	
15	Calculated LS	3.04	(one plany	1 77	(one plany	2.62	(one plan)	
C	Crop/Vegetation Management Eactor	0.034	(4)	0.034	(4)	0.034	(4)	
P	Support Practice Eactor	0.45	(5)	0.45	(5)	0.45	(5)	
		0.10	(0)	0.10	(0)	0.10		
٨	Soil loss tons/acre	0.95		0.55		0.82	0.77	
	Soil loss, tons	0.29		0.33		0.02	0.77	
		0.27		0.17		0.23	0.23	
Equations				A – Avorago appual soil	loss (tons nor acr	· 0)		
Liquations.	ass Equation (USLE)	A – Average annual soli D – Dainfall and Dunoff	Eactor	c)				
				K = Kalmal and Kurlon K = Soil Erodibility Eactor				
				IS - Slope Length Grad	iont Eactor			
A = K X K X L J J				C = Crop/Vogotation an	d Managomont Fa	ctor		
				P - Support Practico Ea	etor	3101		
for clopes of 0%	(or flattor							
$101 \ sidples \ 01 \ 7/0$	$\cos(\arctan(c)) \land m) \times ((65.41 \times (\sin(\arctan))))$	$(s)) \land 2 \land 4 56 \times sin(arcta)$	2(c)) + 0.045)					
L3 = ((L772.0 x))	L = longth in foot along slope	(3))) 2)+4.50 x sin(alctai	1(3))+0.003)					
s = slopo gradic	L = 16100111111661 along slope		m = 0.2	for $\varepsilon < 1\%$				
s = slope gradie	2001t		m = 0.2	for 1% <5 < 2 5%				
III- Slope expor			m = 0.3	for 2.6% < s < 1.5%				
			m = 0.4	for $s > 4.5\%$				
			111 – 0.5	101 324.370				
for slongs steen	er than 0%							
	(a + a) = (a + a) + (a +	[142madiama)) (1.4						
LS = ((L/72.0 x))	cos(arctan(s))/^.5) x ((sin(arctan(s))/(sin	5.143radians))^1.4					1	
wnere:	L = length in feet along slope							
s = slope gradie	ent in %/100							
Defense								
References:								
1) Web Soil Sui	rvey (nttps://websoilsurvey.sc.egov.usda.	gov/App/HomePage.htm)						
2) NOAA Atlas	14, Volume 6, Version 2 Isopluvials for 2y	r - 6hr storm event						
3) Table A-1 "C	Suides for Erosion and Sediment Control in	California", USDA-SCS, D	avis CA, 1996, po	g. A-3	un			
4) Table 8: "G	uides for Erosion and Sediment Control in	California", USDA-SCS, Da	ivis CA, 1991, pg	. C-9. (75% Cover, No-Ti	II).			
5) Table 4: "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1991 pg. 11. (Terrace No-Tilling).								

NAPA COUNTY I	RESOURCE CONSERVATION DISTRICT									
USLE LAYOUT A	ND PRACTICE ALTERNATIVES									
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)						
Block:	W	Existing	0.1	acres						
USER:	OR	Latitude:	38°19'25"N							
DATE:	25-Oct-19	Longitude:	122°07'57"W							
Soil Type	Bressa_Dibble Complex									
Т	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)			
К	Soil Erodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)			
	,									
Transect		1	(site plan)	2	(site plan)	3	(site plan)			
			(0.10 [0.0.17		(0.00 [0.0.0]	-				
FACTOR:	DESCRIPTION									
R	Rainfall and Runoff Factor	47.5	(3)	47.5	(3)	47.5	(3)			
	Slope length (ft)	50	(site plan)	75	(site plan)	79	(site plan)			
S	Slope Gradient (%)	16	(site plan)	26	(site plan)	30	(site plan)			
IS		1.82		4 24		5 21				
<u> </u>	Cron/Vegetation Management Factor	0.041	(4)	0.041	(4)	0.042	(5)			
P	Support Practice Factor	1	(6)	1	(6)	1	(6)			
			(0)	1	(0)	I				
٨	Soil loss tons/acre	1 53		3 55		<i>A A</i> 7	3 18			
~ ~	Soil loss tons	0.15		0.36		0.45	0.32			
		0.13		0.50		0.45	0.52			
Equations					loss (tons por ocro)					
Lyuations.	Scenation (USLE)			A = Average annual son	Toss (toris per acre)					
Universal Soli LC										
				K = SUII El OUIDIIILY Facto	liant Faster					
A = K X K X LS X	K C X P			LS = Slope Length-Grad	Ient Factor					
				C = Crop/Vegetation and	Management Facto	or				
				P = Support Practice Fac	CTOF					
<u> </u>										
for slopes of 9%	6 or flatter		()) 0.0(5)							
LS = ((L/72.6 x))	cos(arctan(s))^m) x ((65.41 x (sin(arctar	i(s)))^2)+4.56 x sin(arctai	n(s))+0.065)							
where:	L = length in feet along slope									
s = slope gradie	ent in %/100		m = 0.2	2 for s<1%						
m= slope expon	nent		m = 0.3	3 for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>						
			m = 0.4	1 for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>						
			m = 0.5	o for s>4.5%						
for slopes steep	er than 9%									
LS = ((L/72.6 x))	cos(arctan(s)))^.5) x ((sin(arctan(s))/(sir	5.143radians))^1.4								
where:	L = length in feet along slope									
s = slope gradie	ent in %/100									
References:										
1) Web Soil Sur	rvey (https://websoilsurvey.sc.egov.usda.	gov/App/HomePage.htm)								
2) NOAA Atlas	14, Volume 6, Version 2 Isopluvials for 2y	r - 6hr storm event								
3) Table A-1 "G	Guides for Erosion and Sediment Control in	California", USDA-SCS, D	avis CA, 1996, p	g. A-3						
4) Table 10: "F	Predicting Rainfall Erosion Losses", USDA	Handbook No. 537. (25%)	Tree Cover, 60%	Grass Cover).						
5) Table 10: "F	Predicting Rainfall Erosion Losses", USDA	Handbook No. 537. (0% T	ree Cover, 60%	Grass Cover).						
6) Table 4: "G	6) Table 4: "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1991 pg. 11. (Up/Down Hill).									

NAPA COUNTY	RESOURCE CONSERVATION DISTRICT						
USLE LAYOUT A	AND PRACTICE ALTERNATIVES						
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)			
Block:	W	Temporary	0.1	acres			
USER:	OR	Latitude:	38°19'25"N				
DATE:	25-Oct-19	Longitude:	122°07'57"W				
		g.					
Soil Type	Bressa Dibble Complex						
Т	Natural Soil Loss Factor (tops/acre)	3	(1)	3	(1)	3	(1)
r V	Soil Fredibilty Easter	0.42	(1)	0.42	(1)	0.42	(1)
K		0.43	(1)	0.45	(1)	0.45	
Transact		1	(sito plan)	2	(cito plan)	2	(sito plan)
Transect		I	(site pian)	۷.	(site plait)	3	(site plait)
EACTOR	DESCRIPTION						
	Desorte FIUN Dainfall and Dunoff Factor	17 5	(2)	175	(3)	17 5	(2)
к	Slope length (ft)	47.0	(3)	47.0	(3)	47.0	(3)
	Slope Cradient (%)	20	(0)	42	(0)	40	(0) (cito plan)
5		10	(site plan)	20	(site plan)	30	(site plan)
LS	Calculated LS	1.31	(4)	3.17	(4)	3.94	(4)
<u> </u>	Crop/vegetation Management Factor	0.043	(4)	0.043	(4)	0.043	(4)
P	Support Practice Factor	1	(5)	1	(5)	1	(5)
		_					Average
A	Soil loss, tons/acre	1.15		2.79		3.46	2.47
	Soil loss, tons	0.12		0.28		0.35	0.25
Equations:				A = Average annual soil	loss (tons per acre)		
Universal Soil Lo	oss Equation (USLE)			R = Rainfall and Runoff	Factor		
$A = R \times K \times LS \times$	x C x P			LS = Slope Length-Grad	ient Factor		
				C = Crop/Vegetation and	d Management Facto	or	
				P = Support Practice Fac	ctor		
for slopes of 9%	6 or flatter						
LS = ((L/72.6 x))	cos(arctan(s))^m) x ((65.41 x (sin(arctar	n(s)))^2)+4.56 x sin(arcta	n(s))+0.065)				
where:	L = length in feet along slope						
s = slope gradie	ent in %/100		m = 0.2	2 for s<1%			
m= slope expor	nent		m = 0.3	3 for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>			
			m = 0.4	for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>			
			m = 0.5	5 for s>4.5%			
for slopes steep	er than 9%						
LS = ((L/72.6 x))	$\cos(\arctan(s)))^{.5} \times ((\sin(\arctan(s)))/(si)$	15.143radians))^1.4	•	•	· ·		
where:	I = length in feet along slope	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
s – slope gradje	nt in %/100						
s – slope gradie							
References							
1) Web Soil Su	rvev (https://websoilsurvev.sc.egov.usda	aov/App/HomePage.htm)					
2) NOAA $\Delta t lac$	14 Volume 6 Version 2 Isonluvials for 2	r - 6hr storm event					
3) Table Δ_1 "C	Suides for Frosion and Sediment Control in	h California" ΠSDΔ_SCS_D	avis CA 1996 n	η Δ.3			
4) Table 8: "C	uides for Erosion and Sediment Control in	California" USDA-SCS, D	avis CA 1001 no	y = 7 - 3 y = 7 - 9 (75% Cover All De	ws Tilled)		
5) Table 4: "C	uides for Erosion and Sediment Control in	California" USDA-303, Da	avis CA, 1771, py	11 (Un/Down Hill)			
6) Inclusion of	straw roll for first year only and/or name	nont cross clone diversion	avis UM, 1771 PY. c				
U) THURSION OF	scaw roll for first year only and/or perma	ment cross slope diversion	5.				

NAPA COUNTY I	RESOURCE CONSERVATION DISTRICT						
USLE LAYOUT A	ND PRACTICE ALTERNATIVES						
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)			
Block:	W	Permanent	0.1	acres			
USER:	OR	Latitude:	38°19'25"N				
DATE:	25-Oct-19	Lonaitude:	122°07'57"W				
							-
Soil Type	Bressa Dibble Complex						-
Т	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)
K	Soil Frodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)
K		0.43	(1)	0.45	(1)	0.40	(1)
Transact		1	(site plan)	2	(site nlan)	2	(site nlan)
Transcot				<u>L</u>			
FACTOR	DESCRIPTION						-
D	Painfall and Punoff Factor	47.5	(3)	47.5	(3)	47.5	(3)
N	Slope length (ft)	50	(site plan)	75	(site plan)	70	(site plan)
c	Slope Gradiont (%)	16	(site plan)	75	(site plan)	20	(site plan)
		1 92		4.24	(site pian)	5.0	
	Crop/Vagatation Management Easter	0.024	(4)	4.24	(4)	0.024	(4)
	Crop/vegetation Management Factor	0.034	(4)	0.034	(4)	0.034	(4)
P	Support Practice Factor	1	(5)	1	(5)	I	(5)
		1.07		2.05		2 (2	Average
A		1.27		2.95	3.62	2.61	
	Soli Ioss, tons	0.13		0.29		0.36	0.26
A = Average annual soil loss (tons per acre)							
Universal Soil Lo	oss Equation (USLE)			R = Rainfall and Runoff	Factor		
				K = Soil Erodibility Fact	or		
$A = R \times K \times LS \times$	«СхР			LS = Slope Length-Grad	lient Factor		
				C = Crop/Vegetation ar	id Management Fact	or	
				P = Support Practice Fa	ctor		
for slopes of 9%	or flatter						
LS = ((L/72.6 x))	cos(arctan(s))^m) x ((65.41 x (sin(arctan	(s)))^2)+4.56 x sin(arctai	n(s))+0.065)				
where:	L = length in feet along slope						
s = slope gradie	ent in %/100		m = 0.2	for s<1%			
m= slope expor	ient		m = 0.3	for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>			
			m = 0.4	for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>			
			m = 0.5	for s>4.5%			
for slopes steep	er than 9%						
LS = ((L/72.6 x))	cos(arctan(s)))^.5) x ((sin(arctan(s))/(sin	5.143radians))^1.4					
where:	L = length in feet along slope						
s = slope gradie	ent in %/100						-
<u>-</u>							
References:				1	+ +		1
1) Web Soil Su	vev (https://websoilsurvey.sc.egov.usda.c	nov/App/HomePage htm)			+ +		+
2) NOAA Atlas	14 Volume 6. Version 2 Isonluvials for 2vr	- 6hr storm event			+ +		+
 Table A-1 "G 	uides for Frosion and Sediment Control in	California" USDA-SCS D	avis CA 1996 pr	л А-3			+
4) Table 8: "G	uides for Erosion and Sediment Control in	California" USDA-SCS Da	wis CA 1991 ng		ill)		+
5) Table 4: "G	uides for Erosion and Sediment Control in	California", USDA-SCS, Da	wis CA. 1991 ng	11 (Up/Down Hill)			+
-,					1		1

NAPA COUNTY I	RESOURCE CONSERVATION DISTRICT						
USLE LAYOUT A	ND PRACTICE ALTERNATIVES						
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)			
Block:	X2	Existing	0.5	acres			
USER:	OR	Latitude:	38°19'25"N				
DATE:	25-Oct-19	Lonaitude:	122°07'57"W				
			122 07 07 11				
Soil Type	Bressa Dibble Complex						
Т	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)
K	Soil Frodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)
K		0.43	(1)	0.43	(1)	0.43	
Transact		1	(site plan)	2	(site nlan)	2	(site nlan)
Transcot				<u>ــــــــــــــــــــــــــــــــــــ</u>			
FACTOR	DESCRIPTION			1			
D	Painfall and Punoff Factor	47.5	(3)	47.5	(3)	17.5	(3)
N	Slope length (ft)	93	(site plan)	47.5	(site plan)	168	(site nlan)
c	Slope Gradient (%)	10	(site plan)	170	(site plan)	26	(site plan)
		2 01		2.59		6.25	
	Crop/Vagatation Management Easter	2.91	(4)	2.30	(4)	0.30	(4)
	Crop/vegetation Management Factor	0.041	(4)	0.041	(4)	0.041	(4)
P		1	(5)	1	(5)	I	(5)
•		2.44		2.1/		F 22	Average
A		2.44		2.10	5.32	3.31	
	Soli Ioss, tons	1.22		1.08		2.66	1.65
A = Average annual soil loss (tons per acre)							
Universal Soil Lo	oss Equation (USLE)			R = Rainfall and Runoff	Factor		-
				K = Soil Erodibility Fact	or		
$A = R \times K \times LS \times$	кСхР			LS = Slope Length-Grad	dient Factor		
				C = Crop/Vegetation ar	nd Management Fact	tor	
				P = Support Practice Fa	ictor		
for slopes of 9%	6 or flatter						
LS = ((L/72.6 x))	cos(arctan(s))^m) x ((65.41 x (sin(arctan	(s)))^2)+4.56 x sin(arcta)	n(s))+0.065)				
where:	L = length in feet along slope						
s = slope gradie	ent in %/100		m = 0.2	for s<1%			
m= slope expor	nent		m = 0.3	for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>			
			m = 0.4	for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>			
			m = 0.5	for s>4.5%			
for slopes steep	er than 9%						
LS = ((L/72.6 x))	cos(arctan(s)))^.5) x ((sin(arctan(s))/(sin	5.143radians))^1.4					
where:	L = length in feet along slope						
s = slope gradie	ent in %/100						
o olopo gradio							+
References:							+
1) Web Soil Su	rvev (https://websoilsurvev.sc.egov.usda.	nov/App/HomePage htm)					-
2) NOAA Atlas	14. Volume 6. Version 2 Isonluvials for 2v	- 6hr storm event					+
 Table A-1 "G 	Lides for Frosion and Sediment Control in	California" USDA-SCS D	avis CA 1996 pr	а А-3			+
4) Table 10. "	Predicting Rainfall Frosion Losses" USDA	Handbook No. 537 (25%)	Tree Cover 60%	Grass Cover)			-
5) Table 4: "G	uides for Frosion and Sediment Control in	California", USDA-SCS, Da	vis CA. 1991 ng	11 (Up/Down Hill)			+
-,		, , , , , , , , , , , , , , , , , , , ,			1		1

NAPA COUNTY	RESOURCE CONSERVATION DISTRICT						
USLE LAYOUT /	AND PRACTICE ALTERNATIVES						
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)			
Block:	X2	Temporary	0.5	acres			
USER:	OR	Latitude:	38°19'25"N				
DATE:	25-Oct-19	Longitude:	122°07'57"W				
Soil Type	Bressa_Dibble Complex						
T	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)
К	Soil Erodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)
Transect		1	(site plan)	2	(site plan)	3	(site plan)
							, , , , , , , , , , , , , , , , , , ,
FACTOR:	DESCRIPTION						
R	Rainfall and Runoff Factor	47.5	(3)	47.5	(3)	47.5	(3)
	Slope length (ft)	45	(6)	100	(6)	75	(6)
S	Slope Gradient (%)	18	(site plan)	13	(site plan)	26	(site plan)
LS	Calculated LS	2.03		1.94		4.24	
С	Crop/Vegetation Management Factor	0.043	(4)	0.043	(4)	0.043	(4)
Р	Support Practice Factor	1	(5)	1	(5)	1	(5)
							Average
A	Soil loss, tons/acre	1.78		1.71		3.73	2.40
	Soil loss, tons	0.89		0.85		1.86	1.20
Equations:				A = Average annual soil	loss (tons per acre)		
Universal Soil L	oss Equation (USLE)			R = Rainfall and Runoff	Factor		
	K = Soil Erodibility Factor						
$A = R \times K \times LS$	хСхР			LS = Slope Length-Grad	ient Factor		
				C = Crop/Vegetation and	d Management Facto	or	
				P = Support Practice Fac	ctor		
for slopes of 9%	% or flatter						
LS = ((L/72.6 x))	cos(arctan(s))^m) x ((65.41 x (sin(arcta	n(s)))^2)+4.56 x sin(arctar	n(s))+0.065)				
where:	L = length in feet along slope						
s = slope gradi	ent in %/100		m = 0.2	2 for s<1%			
m= slope export	nent		m = 0.3	3 for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>			
			m = 0.4	1 for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>			
			m = 0.5	5 for s>4.5%			
for slopes steer	per than 9%						
LS = ((L/72.6 x))	$(\cos(\arctan(s)))^{.5} \times ((\sin(\arctan(s)))/(si)$	15.143radians))^1.4					
where	I = length in feet along slope						
s = slope gradi	ent in %/100						
o olopo gradi							
References							
1) Web Soil Su	irvey (https://websoilsurvey.sc.egov.usda	gov/App/HomePage htm)					
2) NOAA Atlas	14 Volume 6 Version 2 Isopluvials for 2	r - 6hr storm event					
 Table A-1 "(Guides for Erosion and Sediment Control in	n California", USDA-SCS, D	avis CA. 1996. pr	a. A-3			
4) Table 8: "C	Suides for Erosion and Sediment Control in	California", USDA-SCS, Da	vis CA, 1991, na	I. C-9. (75% Cover. All Ro	ws Tilled).		
5) Table 4: "C	Suides for Erosion and Sediment Control in	California", USDA-SCS, Da	vis CA, 1991 na.	11. (Up/Down Hill)			
 Inclusion of 	straw roll for first year only and/or perma	nent cross slope diversions	and/or perman	ent waterbars.			

NAPA COUNTY	RESOURCE CONSERVATION DISTRICT						
USLE LAYOUT A	AND PRACTICE ALTERNATIVES						
FOR:	Ouantum Limit Vinevards	Precipitation (inches)	1 65	(2)			
Block:	X2	Permanent	0.5	acres			
USER	OB	Latitude:	38°19'25"N	40.00			
DATE	25-Oct-19	Longitude:	122°07'57"W				
DATE.	20 000 17	Longitude:	122 07 37 10				
Soil Type	Bressa Dibble Complex						
T	Netural Soil Less Faster (tens/sors)	2	(1)	2	(1)	n	(1)
I	Natural Soli Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)
K	Soli Erodibility Factor	0.43	(1)	0.43	(1)	0.43	(1)
T		1	(-1)	0	(-1)	2	(alta alaa)
Transect			(site plan)	2	(site plan)	3	(site plan)
FARTOR	DECODUCTION						
FACTOR:	DESCRIPTION		(2)		(2)		(2)
R	Rainfall and Runoff Factor	47.5	(3)	47.5	(3)	47.5	(3)
	Slope length (ft)	93	(6)	1/6	(6)	168	(6)
S	Slope Gradient (%)	18	(site plan)	13	(site plan)	26	(site plan)
LS	Calculated LS	2.91		2.58		6.35	
С	Crop/Vegetation Management Factor	0.034	(4)	0.034	(4)	0.034	(4)
Р	Support Practice Factor	1	(5)	1	(5)	1	(5)
							Average
А	Soil loss, tons/acre	2.02		1.79		4.41	2.74
	Soil loss, tons	1.01		0.90		2.20	1.37
Equations:				A = Average annual soil	loss (tons per acre	e)	
Universal Soil L	oss Equation (USLE)			R = Rainfall and Runoff	Factor	7	
				K = Soil Frodibility Facto	or		
$A = R \times K \times IS$	x C x P			IS = Slope Length-Grad	ient Factor		
				C = Crop/Vegetation an	d Management Fac	tor	
				P = Support Practice Fa	ctor		
for slopes of 9%	6 or flatter						
101 310 pc3 01 77 1S = ((1/72.6 x))	$\cos(\arctan(s))$ m) x ((65.41 x (sin(arctar	$(s)) (2) + 4.56 \times sin(arcta)$	(s)) + 0.065)				
whore:	L = length in feet along slope	(3))) 2) + 4.00 X 3in(arctar	1(3)) + 0.003)				
s = slopo gradi	E = 161g(1111116et along slope)		m = 0.2	for $s < 1\%$			
m = slope gradie			m = 0.2	for $1\% < 5 < 7.5\%$			
III- Slope expoi			m = 0.3	for $2.6\% < s < 4.5\%$			
			m = 0.4	for c> 4 E%			
-			111 = 0.0	101 5>4.376			
for clones stoop	or then 0%						
IOI SIOPES SIEEL							
LS = ((L//2.6 x))	cos(arctan(s)))^.5) x ((sin(arctan(s))/(sin	15.143radians))^1.4	1		,		1
where:	L = length in feet along slope						
s = slope gradie	ent in %/100						
References:							
1) Web Soil Su	rvey (https://websoilsurvey.sc.egov.usda.	gov/App/HomePage.htm)					
2) NOAA Atlas	14, Volume 6, Version 2 Isopluvials for 2y	r - 6hr storm event					
3) Table A-1 "0	Guides for Erosion and Sediment Control ir	California", USDA-SCS, D	avis CA, 1996, po	g. A-3			
4) Table 8: "G	uides for Erosion and Sediment Control in	California", USDA-SCS, Da	ivis CA, 1991, pg	. C-9. (75% Cover, No-Ti	II).		
5) Table 4: "G	uides for Erosion and Sediment Control in	California", USDA-SCS, Da	ivis CA, 1991 pg.	11. (Up/Down Hill).			

NAPA COUNTY F	RESOURCE CONSERVATION DISTRICT									
USLE LAYOUT A	ND PRACTICE ALTERNATIVES									
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)						
Block:	X3	Existing	0.03	acres						
USER:	OR	Latitude:	38°19'25"N							
DATE:	25-Oct-19	Longitude:	122°07'57"W							
			122 07 07 11							
Soil Type	Bressa Dibble Complex									
Т	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)			
ĸ	Soil Frodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)			
K		0.10	(1)	0.10	(1)	0.10	(1)			
Transect		1	(site plan)	2	(site nlan)	3	(site nlan)			
Thanseet				<u> </u>		5	(Site pluit)			
FACTOR	DESCRIPTION			1						
P	Rainfall and Runoff Eactor	47.5	(3)	47.5	(3)	47.5	(3)			
N	Slope length (ft)	15	(site plan)	10	(site plan)	9	(site nlan)			
c	Slope Gradiont (%)	10	(site plan)	24	(site plan)	10	(site plan)			
10		0.52		1.40		0.41				
L3 C	Crop/Vogetation Management Easter	0.040	(4)	0.040	(4)	0.41	(4)			
	Crop/vegetation Management Factor	0.040	(4)	0.040	(4)	0.040	(4)			
٢		1	(5)	1	(5)	1	(3)			
٨	Sail loss tans/sars	0.42		1 1 /		0.22	Average			
A		0.43		1.14		0.33	0.63			
	Soli ioss, tons	0.01		0.03		0.01	0.02			
F						```				
Equations: A = Average annual soil loss (tons per acre)										
Universal Soil Lo	ss Equation (USLE)			R = Rainfall and Runoff	Factor					
				K = Soil Erodibility Facto	Dr					
$A = R \times K \times LS \times$	СхР			LS = Slope Length-Grad	ient Factor	-				
				C = Crop/Vegetation an	d Management Fa	ctor				
				P = Support Practice Fa	ctor					
for slopes of 9%	or flatter									
LS = ((L/72.6 x	cos(arctan(s))^m) x ((65.41 x (sin(arctan	(s)))^2)+4.56 x sin(arctai	n(s))+0.065)							
where:	L = length in feet along slope									
s = slope gradie	ent in %/100		m = 0.2	for s<1%						
m= slope expon	ent		m = 0.3	for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>						
			m = 0.4	for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>						
			m = 0.5	for s>4.5%						
for slopes steep	er than 9%									
LS = ((L/72.6 x))	cos(arctan(s)))^.5) x ((sin(arctan(s))/(sin	5.143radians))^1.4								
where:	L = length in feet along slope									
s = slope gradie	ent in %/100									
References:										
1) Web Soil Sur	vey (https://websoilsurvey.sc.egov.usda.c	ov/App/HomePage.htm)								
2) NOAA Atlas	14. Volume 6. Version 2 Isopluvials for 2vi	- 6hr storm event								
3) Table A-1 "G	uides for Erosion and Sediment Control in	California", USDA-SCS, D	avis CA, 1996. po	a. A-3						
4) Table 10: "F	Predicting Rainfall Erosion Losses". USDA	Handbook No. 537. (50%)	Tree Cover, 60%	Grass Cover).						
5) Table 4: "Gu	5) Table 4: "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1991 pg, 11, (Up/Down Hill).									

NAPA COUNTY F	RESOURCE CONSERVATION DISTRICT							
USLE LAYOUT A	ND PRACTICE ALTERNATIVES							
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)				
Block:	X3	Temporary	0.03	acres				
USER:	OR	Latitude:	38°19'25"N					
DATE:	25-Oct-19	Longitude:	122°07'57"W					
		3						
Soil Type	Bressa Dibble Complex							
T	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)	
ĸ	Soil Frodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)	
		0110	(.)	0110	(.)	0110	(1)	
Transect		1	(site plan)	2	(site plan)	3	(site plan)	
Hanooot			(one plany				(onto plan)	
FACTOR	DESCRIPTION							
R	Rainfall and Runoff Factor	47.5	(3)	47 5	(3)	47 5	(3)	
	Slope length (ft)	15	(site plan)	10	(site plan)	9	(site plan)	
S	Slope Gradient (%)	10	(site plan)	24	(site plan)	10	(site plan)	
15		0.52		1.40		0.41	(Site pluit)	
C LS	Cron/Vegetation Management Factor	0.013	(4)	0.043	(4)	0.41	(4)	
D	Support Practice Factor	0.045	(4)	0.043	(4)	0.045	(4)	
Г		0.7	(3)	0.7	(3)	0.7		
٨	Soil loss tons/acro	0.41		1 10		0.22	Average 0.61	
A		0.41		0.02		0.32	0.01	
		0.01		0.03		0.01	0.02	
Could be a set of the					1	-		
Equations. A = Average annual solutions (UCLE)								
Universal Soli LC				R = Rainiali anu Runon	Factor			
				K = SOII Erodibility Factor)r Komt Footor			
A = R X K X L S X				LS = Slope Length-Grad				
				C = Crop/vegetation an	d Management Fa	clor		
				P = Support Practice Fa	CLOF			
fam	an Oathan							
for slopes of 9%			- (-)) 0.0(5)					
LS = ((L/72.0 X))	cos(arctan(s))^m) x ((65.41 x (sin(arctan	$(s)))^2 + 4.56 \times sin(arctar)$	1(S) + 0.065)					
wnere:	L = length in feet along slope			fan a 10/				
s = slope gradie	ent in %/100		m = 0.2	10F S< 1%				
m= slope expon			m = 0.3	10f 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>				
			m = 0.4	10f 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>				
			m = 0.5	101 \$>4.5%				
6 1 1	and the set OO(
for slopes steep	er than 9%							
LS = ((L/72.6 x))	cos(arctan(s)))^.5) x ((sin(arctan(s))/(sin	5.143radians))^1.4						
where:	L = length in feet along slope							
s = slope gradie	nt in %/100							
References:								
1) Web Soil Sur	vey (https://websoilsurvey.sc.egov.usda.g	jov/App/HomePage.htm)						
2) NOAA Atlas	14, Volume 6, Version 2 Isopluvials for 2yr	- 6hr storm event						
3) Table A-1 "G	uides for Erosion and Sediment Control in	California", USDA-SCS, D	avis CA, 1996, pg	g. A-3				
4) Table 8: "Gu	uides for Erosion and Sediment Control in	California", USDA-SCS, Da	vis CA, 1991, pg	. C-9. (75% Cover, All Ro	ows Tilled).			
5) Table 4: "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1991 pg. 11. (Terrace with Tilling).								

NAPA COUNTY I	RESOURCE CONSERVATION DISTRICT						
USLE LAYOUT A	ND PRACTICE ALTERNATIVES						
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)			
Block:	X3	Permanent	0.03	acres			
USER:	OR	Latitude:	38°19'25"N				
DATE:	25-Oct-19	Lonaitude:	122°07'57"W				
		5					
Soil Type	Bressa Dibble Complex						
Т	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)
K	Soil Frodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)
K		0.43	(1)	0.43	(1)	0.45	(1)
Transact		1	(site plan)	2	(site nlan)	2	(site plan)
Transcer				<u> </u>		5	(Site plan)
FACTOR	DESCRIPTION						
D	Painfall and Punoff Factor	17.5	(3)	47.5	(3)	17.5	(3)
N	Slope length (ft)	15	(site plan)	10	(site plan)	0	(site plan)
c	Slope Gradient (%)	10	(site plan)	24	(site plan)	10	(site plan)
		0.52		1.40		0.41	
	Crop/Vagatation Management Easter	0.32	(4)	0.024	(4)	0.41	(4)
	Crop/vegetation Management Factor	0.034	(4)	0.034	(4)	0.034	(4)
P		0.45	(5)	0.45	(5)	0.45	(5)
•		0.1/		0.44		0.10	Average
A	Soli loss, tons/acre	0.16		0.44	0.13	0.24	
	Soli Ioss, tons	0.00		0.01		0.00	0.01
A = Average annual soil loss (tons per acre)							
Universal Soil Lo	oss Equation (USLE)			R = Rainfall and Runoff	Factor		
				K = Soil Erodibility Factor	or		
$A = R \times K \times LS$	кСхР			LS = Slope Length-Grad	lient Factor		
				C = Crop/Vegetation an	d Management Fact	or	
				P = Support Practice Fa	ctor		
for slopes of 9%	6 or flatter						
LS = ((L/72.6 x))	cos(arctan(s))^m) x ((65.41 x (sin(arctan	n(s)))^2)+4.56 x sin(arctai	n(s))+0.065)				
where:	L = length in feet along slope						
s = slope gradie	ent in %/100		m = 0.2	for s<1%			
m= slope expon	nent		m = 0.3	for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>			
			m = 0.4	for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>			
			m = 0.5	for s>4.5%			
for slopes steep	er than 9%						
LS = ((L/72.6 x))	cos(arctan(s)))^.5) x ((sin(arctan(s))/(sin	15.143radians))^1.4					
where:	L = length in feet along slope						
s = slope gradie	ent in %/100						
References:							
1) Web Soil Sur	rvev (https://websoilsurvev.sc.egov.usda	gov/App/HomePage.htm)					
2) NOAA Atlas	14. Volume 6. Version 2 Isopluvials for 2v	r - 6hr storm event					
3) Table A-1 "G	Guides for Erosion and Sediment Control in	California", USDA-SCS, D	avis CA. 1996. pr	a. A-3			
4) Table 8: "G	uides for Erosion and Sediment Control in	California", USDA-SCS, Da	ivis CA. 1991 no	. C-9. (75% Cover, No-Ti	ID.		
5) Table 4: "G	uides for Erosion and Sediment Control in	California", USDA-SCS. Da	ivis CA, 1991 pa.	11. (Terrace No-Tilling).	ŕ		

NAPA COUN	TY RESOURCE CONSERVATION DISTRICT								
USLE LAYOU	T AND PRACTICE ALTERNATIVES								
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)					
Block:	X1	Existing	3.1	acres					
USER:	OR	Latitude:	38°19'25"N						
DATE:	17-Dec-20	Lonaitude:	122°07'57"W						
Soil Type	Bressa Dibble Complex								
Т	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)	3	(1)
ĸ	Soil Frodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)	0.43	(1)
		0113	(1)	0110	(1)	0115	(1)	0.15	(-)
Transect		1	(site plan)	2	(site nlan)	2	(site nlan)	4	(site nlan)
Transeet		-		<u> </u>		5		!	
FACTOR	DESCRIPTION								
P	Rainfall and Runoff Factor	47 5	(3)	47 5	(3)	47 5	(3)	47 5	(3)
K	Slope length (ft)	158	(site plan)	481	(site plan)	243	(site plan)	70	(site plan)
c	Slope Gradient (%)	130	(site plan)	22	(site plan)	16	(site plan)	75	(site plan)
		2.44		22 9.6E	(site pian)	4.02	(site plan)	<u> </u>	
	Calculated LS	2.44	(4)	0.05	(4)	4.02	(4)	4./0	(4)
	Crop/vegetation Management Factor	0.041	(4)	0.041	(4)	0.041	(4)	0.041	(4)
Р	Support Practice Factor	1	(5)	1	(5)	1	(5)	I	(5)
		2.05		7.04		2 27		4.01	Average
A	Soli loss, tons/acre	2.05		7.24		3.3/		4.01	4.17
	Soil loss, tons	6.34		22.45		10.43		12.42	12.91
						、			
Equations:				A = Average annual so	oil loss (tons per acre)			
Universal Soi	I Loss Equation (USLE)			R = Rainfall and Runof	ff Factor				
				K = Soil Erodibility Fac	tor				
$A = R \times K \times I$	LS x C x P		LS = Slope Length-Gradient Factor						
			C = Crop/Vegetation and Management Factor						
				P = Support Practice F	actor				
for slopes of	9% or flatter								
LS = ((L/72))	6 x cos(arctan(s))^m) x ((65.41 x (sin(arcta	an(s)))^2)+4.56 x sin(arct	an(s))+0.065)						
where:	L = length in feet along slope								
s = slope gra	adient in %/100		m = 0.2	? for s<1%					
m= slope ex	ponent		m = 0.3	8 for 1% <s<3.5%< td=""><td></td><td></td><td></td><td></td><td></td></s<3.5%<>					
			m = 0.4	for 3.6% <s<4.5%< td=""><td></td><td></td><td></td><td></td><td></td></s<4.5%<>					
			m = 0.5	5 for s>4.5%					
for slopes ste	eeper than 9%								
LS = ((L/72.)	6 x cos(arctan(s)))^.5) x ((sin(arctan(s))/(s	sin5.143radians))^1.4							
where:	L = length in feet along slope								
s = slope gra	adient in %/100								
<u>-</u>									
References:									
1) Web Soil	Survey (https://websoilsurvey.sc.egov.usda	a gov/App/HomePage htm)						
2) NOAA AH	as 14. Volume 6. Version 2 Isonluvials for 2	vr - 6hr storm event	·						
3) Table Δ-1	"Guides for Frosion and Sediment Control	in California" USDA-SCS	Davis CA 1996 n	a A-3					
4) Table 10	"Predicting Rainfall Frosion Losses" USDA	Handbook No 537 (25%	Tree Cover 60%	6 Grass Cover)					
5) Table 4	"Guides for Frosion and Sediment Control in	n California". USDA-SCS_F	avis CA. 1991 ng	. 11. (Up/Down Hill)					
	Table 4. Guides for Erosion and Sediment Control in California, USDA-SCS, Davis CA, 1991 pg. 11. (Op/Down Thin).								

NAPA COUNTY	RESOURCE CONSERVATION DISTRICT								
USLE LAYOUT	AND PRACTICE ALTERNATIVES								
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)					
Block:	X1	Temporary	3.1	acres					
USER:	OR	Latitude:	38°19'25"N						
DATE:	17-Dec-20	Longitude:	122°07'57"W						
Soil Type	Bressa_Dibble Complex								
Т	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)	3	(1)
К	Soil Erodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)	0.43	(1)
Transect		1	(site plan)	2	(site plan)	3	(site plan)	4	(site plan)
FACTOR:	DESCRIPTION								
R	Rainfall and Runoff Factor	47.5	(3)	47.5	(3)	47.5	(3)	47.5	(3)
	Slope length (ft)	75	(6)	150	(6)	95	(6)	40	(6)
S	Slope Gradient (%)	13	(site plan)	22	(site plan)	16	(site plan)	28	(site plan)
LS	Calculated LS	1.68		4.83		2.51		3.40	
С	Crop/Vegetation Management Factor	0.043	(4)	0.043	(4)	0.043	(4)	0.043	(4)
Р	Support Practice Factor	1	(5)	1	(5)	1	(5)	1	(5)
									Average
A	Soil loss, tons/acre	1.48		4.24		2.21		2.99	2.73
	Soil loss, tons	4.58		13.15		6.84		9.27	8.46
Equations:				A = Average annual so	il loss (tons per acr	e)			
Universal Soil L	oss Equation (USLE)			R = Rainfall and Runof	f Factor	,			
				K = Soil Erodibility Fac	tor				
$A = R \times K \times LS$	x C x P			LS = Slope Length-Gra	dient Factor				
			C = Crop/Vegetation and Management Factor						
				P = Support Practice Factor					
for slopes of 9%	% or flatter								
$LS = ((L/72.6 \times 10^{-1}))$	<pre>x cos(arctan(s))^m) x ((65.41 x (sin(arcta)))</pre>	an(s)))^2)+4.56 x sin(arc	tan(s))+0.065)						
where:	L = length in feet along slope								
s = slope gradi	ient in %/100		m = 0.2	2 for s<1%					
m= slope expo	nent		m = 0.3	3 for 1% <s<3.5%< td=""><td></td><td></td><td></td><td></td><td></td></s<3.5%<>					
			m = 0.4	4 for 3.6% <s<4.5%< td=""><td></td><td></td><td></td><td></td><td></td></s<4.5%<>					
			m = 0.5	5 for s>4.5%					
for slopes steep	per than 9%								
$LS = ((L/72.6 \times 10^{-5}))$	<pre>x cos(arctan(s)))^.5) x ((sin(arctan(s))/(sin(arctan(s))))</pre>	sin5.143radians))^1.4							
where:	L = length in feet along slope								
s = slope gradi	ient in %/100								
References:									
1) Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm)									
2) NOAA Atlas 14, Volume 6, Version 2 Isophysials for 2yr - for storm event									
3) Table A-1 "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1996, pg, A-3									
4) Table 8: "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1991, pg, C-9, (75% Cover, All Rows Tilled),									
5) Table 4: "G	Guides for Erosion and Sediment Control i	n California", USDA-SCS, I	Davis CA, 1991 p	g. 11. (Up/Down Hill).	,				
6) Inclusion of	f straw roll for first year only and/or perm	anent cross slope diversio	ons and/or perma	anent waterbars.					

NAPA COUN	TY RESOURCE CONSERVATION DISTRICT								
USLE LAYOU	T AND PRACTICE ALTERNATIVES								
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)					
Block:	X1	Permanent	3.1	acres					
USER:	OR	Latitude:	38°19'25"N						
DATE:	17-Dec-20	Longitude:	122°07'57"W						
Soil Type	Bressa Dibble Complex								
т	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)	3	(1)
ĸ	Soil Frodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)	0.43	(1)
K		01.0	(-)	0.10	(-)	0110	(-/		(-/
Transect		1	(site plan)	2	(site plan)	3	(site plan)	4	(site nlan)
Transcee				<u> </u>					
FACTOR	DESCRIPTION								
R	Bainfall and Runoff Factor	47.5	(3)	47 5	(3)	47 5	(3)	47 5	(3)
	Slope length (ft)	158	(site plan)	185	(site plan)	243	(site plan)	79	(site plan)
S	Slope Gradient (%)	13	(site plan)	22	(site plan)	16	(site plan)	28	(site plan)
15		2 44		5 36		4 02		4 78	
C	Cron/Vegetation Management Factor	0.034	(4)	0.034	(4)	0.034	(4)	0.034	(4)
	Support Practice Factor	1	(1)	1	(1)	1	(7)	1	(7)
F		1	(3)	1	(3)	1	(3)	1	(J)
•	Soil loss tons/acre	1 70		3 73		2 70		3 3 3	Average
A		5.26		11 55		2.75		10.30	2.00
	5011055, 10115	5.20		11.55		0.05		10.50	0.94
Fauntionau					il loss (tons por poro	<u>۱</u>			
Equations:	il Loss Equation (USLE)			A = Average annual sc D = Dainfall and Dunot	f Factor)			
Universal Soli Loss Equation (USLE)			K = Kainfall and Kunoff Factor						
	S Y C Y D			K = SOIL ELOUIDIIILY Fac	lui diant Eactor				
A = K X K X			LS = Slope Length-Gradient Factor						
			C = Crop/vegetation and Management Factor						
				P = Support Practice F	actor				
for element of	00/ or flatter								
	9% OF Hatter								
LS = ((L/72))	6 x cos(arctan(s))^m) x ((65.41 x (sin(arcta	in(s)))^2)+4.56 x sin(arct	an(s))+0.065)						
where:	L = length in reet along slope			for a 10/					
s = slope gra	adient in %/100		m = 0.2	101 S< 1%					
III= slope ex	ponent		m = 0.3	0 101 1%<5<3.3%					
			m = 0.4	F 101 3.0%<5<4.3%					
			III = 0.5	0 101 5>4.5%					
for clance et	concr than 00/								
TOT SIOPES SE									
LS = ((L/72))	6 x cos(arctan(s)))^.5) x ((sin(arctan(s))/(s	in5.143radians))^1.4	1						
where:	L = length in feet along slope								
s = slope gra	adient in %/100								
References:									
 Web Soil 	Survey (https://websoilsurvey.sc.egov.usda	.gov/App/HomePage.htm)						
2) NOAA Atl	as 14, Volume 6, Version 2 Isopluvials for 2	yr - 6hr storm event							
Table A-1	"Guides for Erosion and Sediment Control	in California", USDA-SCS, I	Davis CA, 1996, p	g. A-3					
 Table 8: 	"Guides for Erosion and Sediment Control in	n California", USDA-SCS, D	avis CA, 1991, p	g. C-9. (75% Cover, No-	Till).				
5) Table 4:	5) Table 4: "Guides for Erosion and Sediment Control in California", USDA-SCS, Davis CA, 1991 pg. 11. (Up/Down Hill).								

NAPA COUNTY	Y RESOURCE CONSERVATION DISTRICT						
USLE LAYOUT	AND PRACTICE ALTERNATIVES						
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)			
Block:	Y	Existing	0.1	acres			
USER:	OR	Latitude:	38°19'25"N				
DATE:	15-May-20	Longitude:	122°07'57"W				
	· · · ·						
Soil Type	Bressa_Dibble Complex						
Т	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)
K	Soil Erodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)
							, í
Transect		1	(site plan)	2	(site plan)	3	(site plan)
FACTOR:	DESCRIPTION						
R	Rainfall and Runoff Factor	47.5	(3)	47.5	(3)	47.5	(3)
	Slope length (ft)	45	(site plan)	63	(site plan)	28	(site plan)
S	Slope Gradient (%)	30	(site plan)	19	(site plan)	27	(site plan)
LS	Calculated LS	3.94		2.58		2.72	
С	Crop/Vegetation Management Factor	0.042	(4)	0.042	(4)	0.042	(4)
Р	Support Practice Factor	1	(5)	1	(5)	1	(5)
							Average
А	Soil loss, tons/acre	3.38		2.21		2.33	2.64
	Soil loss, tons	0.34		0.22		0.23	0.26
Equations:				A = Average annual so	il loss (tons per acre))	
Universal Soil	Loss Equation (USLE)			R = Rainfall and Runof	f Factor		
				K = Soil Erodibility Factor			
$A = R \times K \times LS$	5 x C x P			LS = Slope Length-Gra			
				C = Crop/Vegetation a	nd Management Fact	or	
				P = Support Practice Fa	actor		
for slopes of 9	9% or flatter						
LS = ((L/72.6)	x cos(arctan(s))^m) x ((65.41 x (sin(arcta	n(s)))^2)+4.56 x sin(arct	an(s))+0.065)				
where:	L = length in feet along slope						
s = slope grad	lient in %/100		m = 0.2	for s<1%			
m= slope exp	onent		m = 0.3	for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>			
			m = 0.4	for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>			
			m = 0.5	for s>4.5%			
for slopes stee	eper than 9%						
LS = ((L/72.6	x cos(arctan(s)))^.5) x ((sin(arctan(s))/(s	in5.143radians))^1.4					
where:	L = length in feet along slope						
s = slope grad	dient in %/100						
5p 5 g							
References:							
1) Web Soil S	Survey (https://websoilsurvey.sc.egov.usda	.gov/App/HomePage.htm)				
2) NOAA Atla	s 14, Volume 6, Version 2 Isopluvials for 2	/r - 6hr storm event					
3) Table A-1	"Guides for Erosion and Sediment Control	n California", USDA-SCS.	Davis CA, 1996. p	q. A-3			
4) Table 10:	"Predicting Rainfall Erosion Losses". USDA	Handbook No. 537. (0%	Tree Cover. 60%	Grass Cover).			
5) Table 4: "	Guides for Erosion and Sediment Control in	California", USDA-SCS, D	avis CA, 1991 pg	. 11. (Up/Down Hill).			

NAPA COUNT	Y RESOURCE CONSERVATION DISTRICT						
USLE LAYOUT	T AND PRACTICE ALTERNATIVES						
FOR:	Quantum Limit Vineyards	Precipitation (inches)	1.65	(2)			
Block:	Y	Temporary	0.1	acres			
USER:	OR	Latitude:	38°19'25"N				
DATE:	15-May-20	Longitude:	122°07'57"W				
Soil Type	Bressa Dibble Complex						
Τ	Natural Soil Loss Factor (tons/acre)	3	(1)	3	(1)	3	(1)
. К	Soil Frodibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)
					(-/		(-/
Transect		1	(site plan)	2	(site plan)	3	(site plan)
FACTOR:	DESCRIPTION						
R	Rainfall and Runoff Factor	47.5	(3)	47.5	(3)	47.5	(3)
	Slope length (ft)	45	(site plan)	63	(site plan)	28	(site plan)
S	Slope Gradient (%)	30	(site plan)	19	(site plan)	27	(site plan)
LS	Calculated LS	3.94		2,58		2.72	
C	Crop/Vegetation Management Factor	0.043	(4)	0.043	(4)	0.043	(4)
P	Support Practice Factor	0.95	(5)	0.95	(5)	0.95	(5)
					(-)		
А	Soil loss, tons/acre	3.28		2.15		2.27	2.57
	Soil loss, tons	0.33		0.22		0.23	0.26
	,,						
Equations:				A = Average annual so	il loss (tons ner acre`)	
Universal Soil	Loss Equation (LISLE)			R = Rainfall and Runof	f Factor	/	
oniversal son				K = Soil Frodibility Fact	or		
$A = R \times K \times I$	SxCxP			IS = Slope Length-Gradient Factor			
				C = Cron/Vegetation a	nd Management Fact	or	
				P = Support Practice Fa	actor		
for slopes of	9% or flatter						
IS = ((1/72.6))	$5 \times \cos(\arctan(s))^{m} \times ((65.41 \times (sin(arcta)))^{m})$	$n(s)))^2)+4.56 \times sin(arct)$	an(s))+0.065)				
where:	I = length in feet along slope						
s = slope grad	dient in %/100		m = 0.2	P for s<1%			
m = slope exp	ponent		m = 0.3	3 for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>			
			m = 0.4	for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>			
			m = 0.5	for s>4.5%			
for slopes ste	eper than 9%						
IS = (1/72)	$x \cos(\arctan(s)))^{5} x ((\sin(\arctan(s)))/(s)$	in5 143radians))^1 4					
where:	I = length in feet along slope						
c = clope aray	dient in %/100						
s – slope gra							
References							
1) Web Soil 9	Survey (https://websoilsurvey.sc.egoy.usda	aov/App/HomePage.htm)				
2) NOAA $A+I=$	as 14 Volume 6 Version 2 Teophysials for 2	r - 6hr storm event	/				
3) Table A-1	"Guides for Frosion and Sediment Control i	n California" LISDA-SCS I	Davis CA 1996 n	α Δ-3			
4) Table 8.	"Guides for Frosion and Sediment Control in	California" ΠΩΠΔ-ΩCC Γ	$\Delta v = C + \frac{1}{2} + \frac{1}$	9.7.5 1 (-9 (75% (0)/2r All C	ows Tilled)		
5) Table 4.	"Guides for Frosion and Sediment Control in	California" HSDA-SCS, D	$\Delta v = C + 1001$	11 (Cross-clone with T	illing)		
					ming/i		

NAPA COUNT	Y RESOURCE CONSERVATION DISTRICT						
USLE LAYOU	T AND PRACTICE ALTERNATIVES						
FOR:	Quantum Limit Vinevards	Precipitation (inches)	1 65	(2)			
Block:	Y	Permanent	0.1	acres			
USER:	OR	Latitude:	38°19'25"N				
DATE	15-May-20	Longitude:	122°07'57"W				
DATE	15 Hay 20	Longitudei	122 07 57 11				
Soil Type	Bressa Dibble Complex						
т	Natural Soil Loss Factor (tons/acre)	2	(1)	3	(1)	3	(1)
I K	Soil Fredibilty Factor	0.43	(1)	0.43	(1)	0.43	(1)
K		0.45	(1)	0.5	(1)	0.45	(1)
Transoct		1	(site plan)	2	(site plan)	2	(cite plan)
Transect				<u> </u>		5	
FACTOR	DESCRIPTION						
FACTOR.	Bainfall and Bunoff Factor	17 5	(2)	17 E	(2)	17 E	(2)
<u> </u>	Slope length (ft)	47.5	(cito plan)	47.5	(cito plan)		(cito plan)
C	Slope Cradient (0()	45	(site plan)	10	(site plan)	20	(site plan)
5	Slope Gradient (%)	30		19	(site plan)	27	(site plan)
LS		3.94	(4)	2.58	(4)	2.72	(4)
C	Crop/vegetation Management Factor	0.034	(4)	0.034	(4)	0.034	(4)
Р	Support Practice Factor	0.77	(5)	0.67	(5)	0.73	(5)
		2.40		4.20		4.20	Average
A	Soll loss, tons/acre	2.10		1.20	_	1.38	1.56
	Soli loss, tons	0.21		0.12		0.14	0.16
Equations:				A = Average annual so	oil loss (tons per acre)		
Universal Soil	Loss Equation (USLE)			R = Rainfall and Runo	ff Factor		
				K = Soil Erodibility Factor LS = Slope Length-Gradient Factor			
$A = R \times K \times L$	SXCXP						
				C = Crop/Vegetation a	and Management Fact	or	
				P = Support Practice F	actor		
for slopes of	9% or flatter						
LS = ((L/72.6))	5 x cos(arctan(s))^m) x ((65.41 x (sin(arcta	n(s)))^2)+4.56 x sin(arct	an(s))+0.065)				
where:	L = length in feet along slope						
s = slope gra	idient in %/100		m = 0.2	! for s<1%			
m= slope exp	ponent		m = 0.3	for 1% <s<3.5%< td=""><td></td><td></td><td></td></s<3.5%<>			
			m = 0.4	for 3.6% <s<4.5%< td=""><td></td><td></td><td></td></s<4.5%<>			
			m = 0.5	for s>4.5%			
-							
for slopes ste	eeper than 9%						
LS = ((L/72.6	5 x cos(arctan(s)))^.5) x ((sin(arctan(s))/(si	in5.143radians))^1.4					
where:	L = length in feet along slope						
s = slope gra	idient in %/100						
References:							
1) Web Soil	Survey (https://websoilsurvey.sc.egov.usda	.gov/App/HomePage.htm)				
2) NOAA Atla	as 14, Volume 6, Version 2 Isopluvials for 2	/r - 6hr storm event					
3) Table A-1	"Guides for Erosion and Sediment Control i	n California", USDA-SCS, I	Davis CA, 1996, p	g. A-3			
4) Table 8:	"Guides for Erosion and Sediment Control ir	California", USDA-SCS, D	avis CA, 1991, po	g. C-9. (75% Cover, No-	Till).		
5) Table 4:	"Guides for Erosion and Sediment Control ir	California", USDA-SCS, D	avis CA, 1991 pg	. 11. (Cross-slope No Ti	lling).		

P Factors for Erosion Control Practices. Source: Table 4	I "Guides for Erosion
and Sediment Control in California", USDA-SCS, Davis C	A, 1991, pg.11

	Vineyard Practices - P factor							
Slope	Up & Down Hill Slope ¹ with tilling		Terrace ² with tilling	Cross- slope, no tilling	Terrace, no tilling			
2 – 7%	1	0.75	0.5	0.37	0.25			
7.1 – 12%	1	0.8	0.6	0.45	0.3			
12.1 – 18%	1	0.9	0.8	0.6	0.4			
18.1 - 24%	1	0.95	0.9	0.67	0.45			

¹ Must be near perpendicular to fall line to qualify. ² Terraces assumed to be cut or graded, not disked.

Slope	Ρ	
(ft/ft)	Factor	
0.25	0.70	For slopes greater than 24%, cross slope no tilling practice factor
0.26	0.71	shall be calculated from the following equation:
0.27	0.73	P = (-1.4462 x s^2) +(2.2994 x s) + (0.2114)
0.28	0.74	where s = slope, in feet per feet
0.29	0.76	
0.30	0.77	
0.31	0.79	
0.32	0.80	
0.33	0.81	
0.34	0.83	
0.35	0.84	
0.36	0.85	
0.37	0.86	
0.38	0.88	
0.39	0.89	
0.40	0.90	
0.41	0.91	
0.42	0.92	
0.43	0.93	
0.44	0.94	
0.45	0.95	
0.46	0.96	
0.47	0.97	
0.48	0.98	
0.49	0.99	
0.50	1.00	