

416A-A-1

989100-003

852 Ocean Ave.

Ocean Ridge Condos

Marjem Mortgage Corp.

add to Spreadsheet

TYPE III 24-HOUR RAINFALL= 4.70 IN

Prepared by SEBAGO TECHNICS INC.

10 Jul 01

HydroCAD 5.01 000643 (c) 1986-1998 Applied Microcomputer Systems

SUBCATCHMENT 302

BASIN 302

PEAK= 2.78 CFS @ 12.11 HRS, VOLUME= .22 AF

ACRES	CN		SCS TR-20 METHOD
.49	98	IMPERVIOUS	TYPE III 24-HOUR
.05	77	WOODS D	RAINFALL= 4.70 IN
.30	80	LAWN D	SPAN= 10-20 HRS, dt=.1 HRS
.84	90		

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	11.3
Grass: Dense n=.24 L=80' P2=3 in s=.025 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	BC	.2
Grassed Waterway Kv=15 L=40' s=.05 '/' V=3.35 fps		
Total Length= 120 ft		Total Tc= 11.5

SUBCATCHMENT 303

BASIN 303

PEAK= 1.99 CFS @ 12.00 HRS, VOLUME= .13 AF

ACRES	CN		SCS TR-20 METHOD
.25	98	IMPERVIOUS	TYPE III 24-HOUR
.24	80	LAWN D	RAINFALL= 4.70 IN
.49	89		SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	AB	.5
Smooth surfaces n=.011 L=30' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	BC	1.8
Grassed Waterway Kv=15 L=200' s=.015 '/' V=1.84 fps		
Total Length= 230 ft		Total Tc= 2.3

SUBCATCHMENT 401

BASIN 401

PEAK= 2.20 CFS @ 12.09 HRS, VOLUME= .17 AF

ACRES	CN		SCS TR-20 METHOD
.35	98	IMPERVIOUS	TYPE III 24-HOUR
.29	80	LAWN D	RAINFALL= 4.70 IN
.64	90		SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	8.5
Grass: Dense n=.24 L=50' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	.7
Short Grass Pasture Kv=7 L=70' s=.057 '/' V=1.67 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	.4
Grassed Waterway Kv=15 L=70' s=.04 '/' V=3 fps		
Total Length= 190 ft		Total Tc= 9.6

TYPE III 24-HOUR RAINFALL= 4.70 IN

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SUBCATCHMENT 402

BASIN 402

PEAK= .66 CFS @ 12.06 HRS, VOLUME= .05 AF

ACRES	CN	
.04	98	IMPERVIOUS
.19	80	LAWN D
.23	83	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	7.1
Grass: Dense	n=.24 L=40' P2=3 in s=.02 '/'	

SUBCATCHMENT 501

BASIN 501

PEAK= 1.42 CFS @ 11.99 HRS, VOLUME= .09 AF

ACRES	CN	
.20	80	LAWN D
.16	98	IMPERVIOUS
.36	88	

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
DIRECT ENTRY	Segment ID:	2.0

TYPE III 24-HOUR RAINFALL= 4.70 IN

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REACH 2

Not described

Qin = 1.79 CFS @ 12.01 HRS, VOLUME= .25 AF
 Qout= 1.79 CFS @ 12.01 HRS, VOLUME= .25 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

REACH 3

VEGETATED SWALE 1

Qin = 2.78 CFS @ 12.11 HRS, VOLUME= .22 AF
 Qout= 2.44 CFS @ 12.25 HRS, VOLUME= .22 AF, ATTEN= 13%, LAG= 8.4 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

6' x 2' CHANNEL
 SIDE SLOPE= .33 '/'
 n= .15
 LENGTH= 170 FT
 SLOPE= .012 FT/FT

STOR-IND+TRANS METHOD

PEAK DEPTH= .52 FT
 PEAK VELOCITY= .6 FPS
 TRAVEL TIME = 4.5 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

0.0	0.0	0.00
.2	1.3	.46
.4	2.9	1.52
.6	4.7	3.11
.9	7.4	5.99
1.2	11.6	11.23
1.6	17.4	19.71
2.0	24.1	30.95

REACH 4

LEVEL SPREADER

Qin = 2.53 CFS @ 12.21 HRS, VOLUME= .22 AF
 Qout= 2.37 CFS @ 12.28 HRS, VOLUME= .22 AF, ATTEN= 6%, LAG= 3.9 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

25' x 1' CHANNEL
 SIDE SLOPE= .1 '/'
 n= .15
 LENGTH= 100 FT
 SLOPE= .14 FT/FT

STOR-IND+TRANS METHOD

PEAK DEPTH= .11 FT
 PEAK VELOCITY= .9 FPS
 TRAVEL TIME = 2.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

0.0	0.0	0.00
.1	2.6	2.02
.2	5.4	6.52
.3	8.4	13.03
.4	12.6	24.26
.6	18.6	43.54
.8	26.4	72.88
1.0	35.0	109.56

TYPE III 24-HOUR RAINFALL= 4.70 IN

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REACH 31

Not described

Qin = 1.99 CFS @ 12.00 HRS, VOLUME= .13 AF
 Qout= 1.99 CFS @ 12.00 HRS, VOLUME= .13 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
---------------	---------------------	----------------

- METHOD

PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

REACH 32

VEGETATED SWALE 2

Qin = 2.70 CFS @ 12.09 HRS, VOLUME= .21 AF
 Qout= 2.40 CFS @ 12.19 HRS, VOLUME= .21 AF, ATTEN= 11%, LAG= 5.6 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
---------------	---------------------	----------------

6' x 2' CHANNEL
 SIDE SLOPE= .33 '/'
 n= .15
 LENGTH= 115 FT
 SLOPE= .013 FT/FT

STOR-IND+TRANS METHOD

PEAK DEPTH= .51 FT
 PEAK VELOCITY= .6 FPS
 TRAVEL TIME = 3.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

0.0	0.0	0.00
.2	1.3	.48
.4	2.9	1.58
.6	4.7	3.24
.9	7.4	6.24
1.2	11.6	11.69
1.6	17.4	20.52
2.0	24.1	32.21

REACH 41

VEGETATED SWALE 3

Qin = .66 CFS @ 12.06 HRS, VOLUME= .05 AF
 Qout= .60 CFS @ 12.20 HRS, VOLUME= .05 AF, ATTEN= 9%, LAG= 8.4 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
---------------	---------------------	----------------

6' x 2' CHANNEL
 SIDE SLOPE= .33 '/'
 n= .15
 LENGTH= 100 FT
 SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD

PEAK DEPTH= .24 FT
 PEAK VELOCITY= .4 FPS
 TRAVEL TIME = 4.4 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

0.0	0.0	0.00
.2	1.3	.42
.4	2.9	1.38
.6	4.7	2.84
.9	7.4	5.47
1.2	11.6	10.25
1.6	17.4	18.00
2.0	24.1	28.25

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REACH 42

VEGETATED SWALE 4

Qin = 2.20 CFS @ 12.09 HRS, VOLUME= .17 AF
 Qout= 1.93 CFS @ 12.21 HRS, VOLUME= .17 AF, ATTEN= 12%, LAG= 7.2 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)	6' x 2' CHANNEL SIDE SLOPE= .33 '/' n= .15 LENGTH= 150 FT SLOPE= .015 FT/FT	STOR-IND+TRANS METHOD PEAK DEPTH= .43 FT PEAK VELOCITY= .6 FPS TRAVEL TIME = 4.0 MIN SPAN= 10-20 HRS, dt=.1 HRS
0.0	0.0	0.00		
.2	1.3	.51		
.4	2.9	1.70		
.6	4.7	3.48		
.9	7.4	6.70		
1.2	11.6	12.56		
1.6	17.4	22.04		
2.0	24.1	34.60		

REACH 43

Not described

Qin = 2.43 CFS @ 12.15 HRS, VOLUME= .36 AF
 Qout= 2.43 CFS @ 12.15 HRS, VOLUME= .36 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)	- METHOD PEAK DEPTH= 0.00 FT PEAK VELOCITY= 0.0 FPS TRAVEL TIME = 0.0 MIN SPAN= 10-20 HRS, dt=.1 HRS

TYPE III 24-HOUR RAINFALL= 4.70 IN

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POND 2

POND 2

Qin = 1.09 CFS @ 12.17 HRS, VOLUME= .10 AF
 Qout= .67 CFS @ 12.40 HRS, VOLUME= .09 AF, ATTEN= 38%, LAG= 13.9 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
162.0	1353	0	0	PEAK STORAGE = 1081 CF
164.0	2452	3805	3805	PEAK ELEVATION= 162.6 FT
165.0	3113	2783	6588	FLOOD ELEVATION= 165.0 FT
				START ELEVATION= 162.0 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= 42.9 MIN (.09 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	162.0'	7" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
2	P	163.3'	8.5" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
3	P	164.6'	164.6' BROAD-CRESTED RECTANGULAR WEIR X 1.81 Q=C L H ^{1.5} C=1.6, 1.8, 1.9, 0, 0, 0, 0, 0

POND 3

POND 3

Qin = 6.86 CFS @ 12.16 HRS, VOLUME= .70 AF
 Qout= 1.82 CFS @ 12.70 HRS, VOLUME= .64 AF, ATTEN= 74%, LAG= 32.7 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
158.0	2113	0	0	PEAK STORAGE = 14218 CF
160.0	4304	6417	6417	PEAK ELEVATION= 161.4 FT
162.0	6739	11043	17460	FLOOD ELEVATION= 162.6 FT
162.6	7772	4353	21813	START ELEVATION= 158.0 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= 131.3 MIN (.64 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	158.0'	4.4" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
2	P	160.3'	6" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
3	P	161.3'	3" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
4	P	161.9'	20' BROAD-CRESTED RECTANGULAR WEIR X 1.81 Q=C L H ^{1.5} C=1.6, 1.8, 1.9, 0, 0, 0, 0, 0

TYPE III 24-HOUR RAINFALL= 4.70 IN

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POND 4

POND 4

Qin = 2.37 CFS @ 12.28 HRS, VOLUME= .22 AF
 Qout= 1.11 CFS @ 12.60 HRS, VOLUME= .21 AF, ATTEN= 53%, LAG= 19.5 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
150.0	671	0	0	PEAK STORAGE = 2764 CF
154.0	2850	7042	7042	PEAK ELEVATION= 151.6 FT
155.0	3450	3150	10192	FLOOD ELEVATION= 155.0 FT
				START ELEVATION= 150.0 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				5 x FINER ROUTING
				Tdet= 39.8 MIN (.21 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	150.0'	6" ORIFICE/GRATE Q=.6 PI r^2 SQR(2g) SQR(H-r)
2	P	151.5'	6.5" ORIFICE/GRATE Q=.6 PI r^2 SQR(2g) SQR(H-r)
3	P	152.8'	4.5" ORIFICE/GRATE Q=.6 PI r^2 SQR(2g) SQR(H-r)
4	P	153.5'	20' BROAD-CRESTED RECTANGULAR WEIR X 1.81 Q=C L H^1.5 C=1.6, 1.8, 1.9, 0, 0, 0, 0, 0

POND 5

POND 5

Qin = .92 CFS @ 12.10 HRS, VOLUME= .07 AF
 Qout= .43 CFS @ 12.36 HRS, VOLUME= .07 AF, ATTEN= 53%, LAG= 15.5 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
162.0	2221	0	0	PEAK STORAGE = 967 CF
164.0	4163	6384	6384	PEAK ELEVATION= 162.3 FT
				FLOOD ELEVATION= 164.0 FT
				START ELEVATION= 162.0 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= 63.1 MIN (.07 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	162.0'	15" CULVERT n=.012 L=100' S=.01'/' Ke=.5 Cc=.9 Cd=.6

TYPE III 24-HOUR RAINFALL= 4.70 IN

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POND 6

VORTECHNICS UNIT

Q_{in} = 8.69 CFS @ 12.10 HRS, VOLUME= .67 AF
 Q_{out} = 8.54 CFS @ 12.11 HRS, VOLUME= .67 AF, ATTEN= 2%, LAG= .6 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
107.3	84	0	0	PEAK STORAGE = 228 CF
111.0	84	311	311	PEAK ELEVATION= 110.0 FT
				FLOOD ELEVATION= 111.0 FT
				START ELEVATION= 107.3 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= .7 MIN (.67 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	107.3'	15" CULVERT n=.012 L=50' S=.01'/' Ke=.5 Cc=.9 Cd=.6

POND 30

VORTECHNICS UNIT

Q_{in} = 4.77 CFS @ 12.22 HRS, VOLUME= .43 AF
 Q_{out} = 4.76 CFS @ 12.22 HRS, VOLUME= .43 AF, ATTEN= 0%, LAG= .4 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
160.5	84	0	0	PEAK STORAGE = 106 CF
164.0	84	294	294	PEAK ELEVATION= 161.8 FT
				FLOOD ELEVATION= 164.0 FT
				START ELEVATION= 160.5 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= .8 MIN (.43 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	160.5'	15" CULVERT n=.012 L=50' S=.01'/' Ke=.5 Cc=.9 Cd=.6

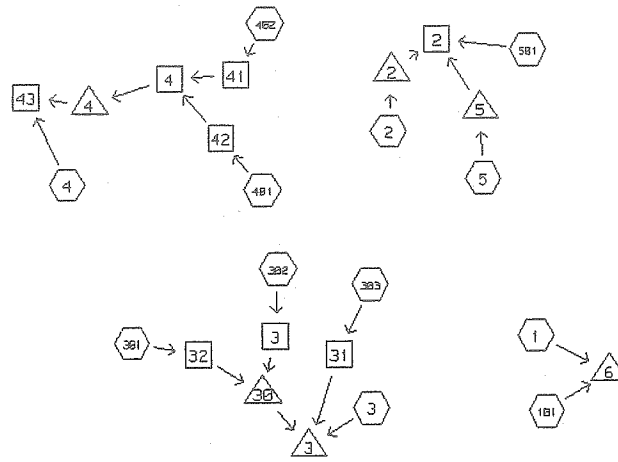
TYPE III 24-HOUR RAINFALL= 5.50 IN

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WATERSHED ROUTING =====



SUBCATCHMENT 1	= BASIN 1	-> POND 6
SUBCATCHMENT 2	= BASIN 2	-> POND 2
SUBCATCHMENT 3	= BASIN 3	-> POND 3
SUBCATCHMENT 4	= BASIN 4	-> REACH 43
SUBCATCHMENT 5	= BASIN 5	-> POND 5
SUBCATCHMENT 101	= BASIN 101	-> POND 6
SUBCATCHMENT 301	= BASIN 301	-> REACH 32
SUBCATCHMENT 302	= BASIN 302	-> REACH 3
SUBCATCHMENT 303	= BASIN 303	-> REACH 31
SUBCATCHMENT 401	= BASIN 401	-> REACH 42
SUBCATCHMENT 402	= BASIN 402	-> REACH 41
SUBCATCHMENT 501	= BASIN 501	-> REACH 2
REACH 2	=	->
REACH 3	= VEGETATED SWALE 1	-> POND 30
REACH 4	= LEVEL SPREADER	-> POND 4

TYPE III 24-HOUR RAINFALL= 5.50 IN

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REACH 31	=	->	POND 3
REACH 32	= VEGETATED SWALE 2	->	POND 30
REACH 41	= VEGETATED SWALE 3	->	REACH 4
REACH 42	= VEGETATED SWALE 4	->	REACH 4
REACH 43	=	->	
POND 2	= POND 2	->	REACH 2
POND 3	= POND 3	->	
POND 4	= POND 4	->	REACH 43
POND 5	= POND 5	->	REACH 2
POND 6	= VORTECHNICS UNIT	->	
POND 30	= VORTECHNICS UNIT	->	POND 3

TYPE III 24-HOUR RAINFALL= 5.50 IN

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SUBCATCHMENT 1

BASIN 1

PEAK= 9.89 CFS @ 12.10 HRS, VOLUME= .76 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.90	98	IMPERVIOUS	TYPE III 24-HOUR
.38	77	WOODS D	RAINFALL= 5.50 IN
<u>1.32</u>	<u>80</u>	LAWN D	SPAN= 10-20 HRS, dt=.1 HRS
2.60	86		

<u>Method</u>	<u>Comment</u>	<u>Tc (min)</u>
TR-55 SHEET FLOW	OVERLAND FLOW	8.5
Grass: Dense n=.24 L=50' P2=3 in s=.02 '/'		
RECT/VEE/TRAP CHANNEL	Segment ID: riprap road ditch	.4
W=2' D=2' SS= .5 '/' a=12 sq-ft Pw=10.9' r=1.096'		
s=.043 '/' n=.06 V=5.46 fps L=140' Capacity=65.5 cfs		
RECT/VEE/TRAP CHANNEL	Segment ID: riprap road ditch	.2
W=2' D=2' SS= .5 '/' a=12 sq-ft Pw=10.9' r=1.096'		
s=.055 '/' n=.06 V=6.18 fps L=90' Capacity=74.1 cfs		
RECT/VEE/TRAP CHANNEL	Segment ID: riprap road ditch	.9
W=2' D=2' SS= .5 & 4 '/' a=8.5 sq-ft Pw=8.5' r=.996'		
s=.09 '/' n=.06 V=7.41 fps L=380' Capacity=63 cfs		
Total Length= 660 ft		Total Tc= 10.0

SUBCATCHMENT 2

BASIN 2

PEAK= 1.37 CFS @ 12.17 HRS, VOLUME= .12 AF

<u>ACRES</u>	<u>CN</u>		SCS TR-20 METHOD
.06	98	IMPERVIOUS	TYPE III 24-HOUR
.18	77	WOODS D	RAINFALL= 5.50 IN
<u>.23</u>	<u>80</u>	LAWN D	SPAN= 10-20 HRS, dt=.1 HRS
.47	81		

<u>Method</u>	<u>Comment</u>	<u>Tc (min)</u>
TR-55 SHEET FLOW	Segment ID: AB, woods	14.1
Woods: Light underbrush n=.4 L=40' P2=3 in s=.01 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC, wooded	.9
Woodland Kv=5 L=60' s=.05 '/' V=1.12 fps		
Total Length= 100 ft		Total Tc= 15.0

TYPE III 24-HOUR RAINFALL= 5.50 IN

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SUBCATCHMENT 3

BASIN 3

PEAK= 2.37 CFS @ 12.08 HRS, VOLUME= .18 AF

ACRES	CN		SCS TR-20 METHOD
.30	98	IMPERVIOUS	TYPE III 24-HOUR
.08	77	WOODS D	RAINFALL= 5.50 IN
.20	80	LAWN D	SPAN= 10-20 HRS, dt=.1 HRS
.58	89		

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	7.2
Woods: Light underbrush	n=.4 L=30' P2=3 in s=.03 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	.9
Grassed Waterway	Kv=15 L=120' s=.02 '/' V=2.12 fps	
Total Length= 150 ft		Total Tc= 8.1

SUBCATCHMENT 4

BASIN 4

PEAK= 2.28 CFS @ 12.13 HRS, VOLUME= .19 AF

ACRES	CN		SCS TR-20 METHOD
.04	77	WOODS D	TYPE III 24-HOUR
.70	80	LAWN D	RAINFALL= 5.50 IN
.74	80		SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	11.9
Grass: Short	n=.15 L=150' P2=3 in s=.03 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID:	.5
Grassed Waterway	Kv=15 L=110' s=.055 '/' V=3.52 fps	
Total Length= 260 ft		Total Tc= 12.4

SUBCATCHMENT 5

BASIN 5

PEAK= 1.19 CFS @ 12.10 HRS, VOLUME= .09 AF

ACRES	CN		SCS TR-20 METHOD
0.00	98	IMPERVIOUS	TYPE III 24-HOUR
.39	77	WOODS D	RAINFALL= 5.50 IN
0.00	80	LAWN D	SPAN= 10-20 HRS, dt=.1 HRS
.39	77		

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	8.3
Woods: Light underbrush	n=.4 L=60' P2=3 in s=.083 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BC	.8
Grassed Waterway	Kv=15 L=80' s=.012 '/' V=1.64 fps	
Total Length= 140 ft		Total Tc= 9.1

TYPE III 24-HOUR RAINFALL= 5.50 IN

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SUBCATCHMENT 101

BASIN 101

PEAK= .82 CFS @ 12.04 HRS, VOLUME= .06 AF

ACRES	CN
.11	98
.08	80
.19	90

IMPERVIOUS
LAWN D

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB, Lawn	5.6
Grass: Dense n=.24 L=30' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC, Driveway	.1
Paved Kv=20.3282 L=25' s=.02 '/' V=2.87 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: grass slope	.7
Short Grass Pasture Kv=7 L=100' s=.12 '/' V=2.42 fps		
Total Length= 155 ft		Total Tc= 6.4

SUBCATCHMENT 301

BASIN 301

PEAK= 3.28 CFS @ 12.09 HRS, VOLUME= .25 AF

ACRES	CN
.37	98
.45	80
.82	88

IMPERVIOUS
LAWN D

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	8.3
Grass: Dense n=.24 L=60' P2=3 in s=.03 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	.4
Grassed Waterway Kv=15 L=50' s=.02 '/' V=2.12 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	.6
Grassed Waterway Kv=15 L=80' s=.02 '/' V=2.12 fps		
Total Length= 190 ft		Total Tc= 9.3

TYPE III 24-HOUR RAINFALL= 5.50 IN

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SUBCATCHMENT 302

BASIN 302

PEAK= 3.35 CFS @ 12.11 HRS, VOLUME= .27 AF

ACRES	CN
.49	98
.05	77
.30	80
.84	90

IMPERVIOUS
WOODS D
LAWN D

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	11.3
Grass: Dense n=.24 L=80' P2=3 in s=.025 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	BC	.2
Grassed Waterway Kv=15 L=40' s=.05 '/' V=3.35 fps		
Total Length= 120 ft		Total Tc= 11.5

SUBCATCHMENT 303

BASIN 303

PEAK= 2.40 CFS @ 11.99 HRS, VOLUME= .15 AF

ACRES	CN
.25	98
.24	80
.49	89

IMPERVIOUS
LAWN D

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	AB	.5
Smooth surfaces n=.011 L=30' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	BC	1.8
Grassed Waterway Kv=15 L=200' s=.015 '/' V=1.84 fps		
Total Length= 230 ft		Total Tc= 2.3

SUBCATCHMENT 401

BASIN 401

PEAK= 2.65 CFS @ 12.09 HRS, VOLUME= .20 AF

ACRES	CN
.35	98
.29	80
.64	90

IMPERVIOUS
LAWN D

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	8.5
Grass: Dense n=.24 L=50' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	.7
Short Grass Pasture Kv=7 L=70' s=.057 '/' V=1.67 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	.4
Grassed Waterway Kv=15 L=70' s=.04 '/' V=3 fps		
Total Length= 190 ft		Total Tc= 9.6

TYPE III 24-HOUR RAINFALL= 5.50 IN

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SUBCATCHMENT 402

BASIN 402

PEAK= .83 CFS @ 12.06 HRS, VOLUME= .06 AF

ACRES	CN
.04	98
.19	80
.23	83

IMPERVIOUS
LAWN D

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	7.1
Grass: Dense	n=.24 L=40' P2=3 in s=.02 '/'	

SUBCATCHMENT 501

BASIN 501

PEAK= 1.73 CFS @ 11.99 HRS, VOLUME= .11 AF

ACRES	CN
.20	80
.16	98
.36	88

LAWN D
IMPERVIOUS

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
DIRECT ENTRY	Segment ID:	2.0

TYPE III 24-HOUR RAINFALL= 5.50 IN

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REACH 2

Not described

Qin = 2.28 CFS @ 12.01 HRS, VOLUME= .31 AF
 Qout= 2.28 CFS @ 12.01 HRS, VOLUME= .31 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
 (FT) (SQ-FT) (CFS)

- METHOD
 PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

REACH 3

VEGETATED SWALE 1

Qin = 3.35 CFS @ 12.11 HRS, VOLUME= .27 AF
 Qout= 2.94 CFS @ 12.25 HRS, VOLUME= .27 AF, ATTEN= 12%, LAG= 8.1 MIN

DEPTH END AREA DISCH
 (FT) (SQ-FT) (CFS)

6' x 2' CHANNEL
 SIDE SLOPE= .33 '/'
 n= .15
 LENGTH= 170 FT
 SLOPE= .012 FT/FT

STOR-IND+TRANS METHOD
 PEAK DEPTH= .59 FT
 PEAK VELOCITY= .7 FPS
 TRAVEL TIME = 4.3 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

0.0	0.0	0.00
.2	1.3	.46
.4	2.9	1.52
.6	4.7	3.11
.9	7.4	5.99
1.2	11.6	11.23
1.6	17.4	19.71
2.0	24.1	30.95

REACH 4

LEVEL SPREADER

Qin = 3.09 CFS @ 12.20 HRS, VOLUME= .27 AF
 Qout= 2.93 CFS @ 12.25 HRS, VOLUME= .26 AF, ATTEN= 5%, LAG= 2.7 MIN

DEPTH END AREA DISCH
 (FT) (SQ-FT) (CFS)

25' x 1' CHANNEL
 SIDE SLOPE= .1 '/'
 n= .15
 LENGTH= 100 FT
 SLOPE= .14 FT/FT

STOR-IND+TRANS METHOD
 PEAK DEPTH= .12 FT
 PEAK VELOCITY= .9 FPS
 TRAVEL TIME = 1.8 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

0.0	0.0	0.00
.1	2.6	2.02
.2	5.4	6.52
.3	8.4	13.03
.4	12.6	24.26
.6	18.6	43.54
.8	26.4	72.88
1.0	35.0	109.56

TYPE III 24-HOUR RAINFALL= 5.50 IN

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REACH 31

Not described

Qin = 2.40 CFS @ 11.99 HRS, VOLUME= .15 AF
 Qout= 2.40 CFS @ 11.99 HRS, VOLUME= .15 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
---------------	---------------------	----------------

- METHOD
 PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

REACH 32

VEGETATED SWALE 2

Qin = 3.28 CFS @ 12.09 HRS, VOLUME= .25 AF
 Qout= 2.91 CFS @ 12.18 HRS, VOLUME= .25 AF, ATTEN= 11%, LAG= 5.3 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.3	.48
.4	2.9	1.58
.6	4.7	3.24
.9	7.4	6.24
1.2	11.6	11.69
1.6	17.4	20.52
2.0	24.1	32.21

6' x 2' CHANNEL
 SIDE SLOPE= .33 '/'
 n= .15
 LENGTH= 115 FT
 SLOPE= .013 FT/FT

STOR-IND+TRANS METHOD
 PEAK DEPTH= .58 FT
 PEAK VELOCITY= .7 FPS
 TRAVEL TIME = 2.8 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

REACH 41

VEGETATED SWALE 3

Qin = .83 CFS @ 12.06 HRS, VOLUME= .06 AF
 Qout= .75 CFS @ 12.19 HRS, VOLUME= .06 AF, ATTEN= 9%, LAG= 7.8 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.3	.42
.4	2.9	1.38
.6	4.7	2.84
.9	7.4	5.47
1.2	11.6	10.25
1.6	17.4	18.00
2.0	24.1	28.25

6' x 2' CHANNEL
 SIDE SLOPE= .33 '/'
 n= .15
 LENGTH= 100 FT
 SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
 PEAK DEPTH= .28 FT
 PEAK VELOCITY= .4 FPS
 TRAVEL TIME = 4.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

TYPE III 24-HOUR RAINFALL= 5.50 IN

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REACH 42

VEGETATED SWALE 4

Qin = 2.65 CFS @ 12.09 HRS, VOLUME= .20 AF
 Qout= 2.34 CFS @ 12.21 HRS, VOLUME= .20 AF, ATTEN= 12%, LAG= 6.8 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)		STOR-IND+TRANS METHOD
0.0	0.0	0.00	6' x 2' CHANNEL	PEAK DEPTH= .48 FT
.2	1.3	.51	SIDE SLOPE= .33 '/'	PEAK VELOCITY= .7 FPS
.4	2.9	1.70	n= .15	TRAVEL TIME = 3.8 MIN
.6	4.7	3.48	LENGTH= 150 FT	SPAN= 10-20 HRS, dt=.1 HRS
.9	7.4	6.70	SLOPE= .015 FT/FT	
1.2	11.6	12.56		
1.6	17.4	22.04		
2.0	24.1	34.60		

REACH 43

Not described

Qin = 3.03 CFS @ 12.14 HRS, VOLUME= .45 AF
 Qout= 3.03 CFS @ 12.14 HRS, VOLUME= .45 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)		- METHOD
				PEAK DEPTH= 0.00 FT
				PEAK VELOCITY= 0.0 FPS
				TRAVEL TIME = 0.0 MIN
				SPAN= 10-20 HRS, dt=.1 HRS

TYPE III 24-HOUR RAINFALL= 5.50 IN

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POND 2

POND 2

Qin = 1.37 CFS @ 12.17 HRS, VOLUME= .12 AF
 Qout= .82 CFS @ 12.41 HRS, VOLUME= .12 AF, ATTEN= 40%, LAG= 14.4 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
162.0	1353	0	0	PEAK STORAGE = 1336 CF
164.0	2452	3805	3805	PEAK ELEVATION= 162.7 FT
165.0	3113	2783	6588	FLOOD ELEVATION= 165.0 FT
				START ELEVATION= 162.0 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= 39.8 MIN (.12 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	162.0'	7" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
2	P	163.3'	8.5" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
3	P	164.6'	164.6' BROAD-CRESTED RECTANGULAR WEIR X 1.81 Q=C L H ^{1.5} C=1.6, 1.8, 1.9, 0, 0, 0, 0, 0

POND 3

POND 3

Qin = 8.30 CFS @ 12.14 HRS, VOLUME= .85 AF
 Qout= 2.71 CFS @ 12.62 HRS, VOLUME= .77 AF, ATTEN= 67%, LAG= 28.7 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
158.0	2113	0	0	PEAK STORAGE = 17040 CF
160.0	4304	6417	6417	PEAK ELEVATION= 161.9 FT
162.0	6739	11043	17460	FLOOD ELEVATION= 162.6 FT
162.6	7772	4353	21813	START ELEVATION= 158.0 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= 126.1 MIN (.76 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	158.0'	4.4" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
2	P	160.3'	6" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
3	P	161.3'	3" ORIFICE/GRATE Q=.6 PI r ² SQR(2g) SQR(H-r)
4	P	161.9'	20' BROAD-CRESTED RECTANGULAR WEIR X 1.81 Q=C L H ^{1.5} C=1.6, 1.8, 1.9, 0, 0, 0, 0, 0

TYPE III 24-HOUR RAINFALL= 5.50 IN

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POND 4

POND 4

Qin = 2.93 CFS @ 12.25 HRS, VOLUME= .26 AF
 Qout= 1.54 CFS @ 12.54 HRS, VOLUME= .26 AF, ATTEN= 47%, LAG= 17.4 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
150.0	671	0	0	PEAK STORAGE = 3269 CF
154.0	2850	7042	7042	PEAK ELEVATION= 151.9 FT
155.0	3450	3150	10192	FLOOD ELEVATION= 155.0 FT
				START ELEVATION= 150.0 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				5 x FINER ROUTING
				Tdet= 38.8 MIN (.26 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	150.0'	6" ORIFICE/GRATE Q=.6 PI r^2 SQR(2g) SQR(H-r)
2	P	151.5'	6.5" ORIFICE/GRATE Q=.6 PI r^2 SQR(2g) SQR(H-r)
3	P	152.8'	4.5" ORIFICE/GRATE Q=.6 PI r^2 SQR(2g) SQR(H-r)
4	P	153.5'	20' BROAD-CRESTED RECTANGULAR WEIR X 1.81 Q=C L H^1.5 C=1.6, 1.8, 1.9, 0, 0, 0, 0, 0

POND 5

POND 5

Qin = 1.19 CFS @ 12.10 HRS, VOLUME= .09 AF
 Qout= .63 CFS @ 12.32 HRS, VOLUME= .09 AF, ATTEN= 47%, LAG= 13.2 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
162.0	2221	0	0	PEAK STORAGE = 1172 CF
164.0	4163	6384	6384	PEAK ELEVATION= 162.4 FT
				FLOOD ELEVATION= 164.0 FT
				START ELEVATION= 162.0 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= 57.2 MIN (.09 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	162.0'	15" CULVERT n=.012 L=100' S=.01'/' Ke=.5 Cc=.9 Cd=.6

POND 6 VORTECHNICS UNIT

Qin = 10.63 CFS @ 12.10 HRS, VOLUME= .82 AF
 Qout= 10.42 CFS @ 12.11 HRS, VOLUME= .82 AF, ATTEN= 2%, LAG= .7 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
107.3	84	0	0	PEAK STORAGE = 313 CF
111.0	84	311	311	PEAK ELEVATION= 111.0 FT
				FLOOD ELEVATION= 111.0 FT
				START ELEVATION= 107.3 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= .6 MIN (.81 AF)

#	ROUTE	INVERT	OUTLET DEVICES			
1	P	107.3'	15" CULVERT			
			n=.012	L=50'	S=.01'/'	Ke=.5 Cc=.9 Cd=.6

POND 30 VORTECHNICS UNIT

Qin = 5.76 CFS @ 12.21 HRS, VOLUME= .52 AF
 Qout= 5.72 CFS @ 12.22 HRS, VOLUME= .52 AF, ATTEN= 1%, LAG= .5 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)	STOR-IND METHOD
160.5	84	0	0	PEAK STORAGE = 131 CF
164.0	84	294	294	PEAK ELEVATION= 162.1 FT
				FLOOD ELEVATION= 164.0 FT
				START ELEVATION= 160.5 FT
				SPAN= 10-20 HRS, dt=.1 HRS
				Tdet= .7 MIN (.51 AF)

#	ROUTE	INVERT	OUTLET DEVICES			
1	P	160.5'	15" CULVERT			
			n=.012	L=50'	S=.01'/'	Ke=.5 Cc=.9 Cd=.6

STORMWATER MANAGEMENT/ EROSION AND SEDIMENTATION CONTROL PLAN

Ocean Ridge Condominiums Portland, Maine

General

The following stormwater runoff evaluation has been prepared for Marjem Development Company to evaluate stormwater runoff and erosion control for the proposed Ocean Ridge Condominiums in Portland, Maine. The Ocean Ridge Condominiums will be a 46 unit development. The entire development will encompass a land area of approximately 10 acres. Access to the development will be from Ocean Avenue approximately one mile northwesterly of the intersection of Ocean Avenue and Washington Avenue.

Site Characteristics

The project area is predominately wooded, consisting of hardwood tree growth covering the majority of the land with some open rock outcropping areas located throughout the property. The surrounding area includes Dragon Products Company to the north, mostly undeveloped residential land to the south, City of Portland property to the west and northwest, and Ocean Avenue to the east. Terrain in the development area varies from moderate to steep slopes at the easterly end.

The enclosed pre-development watershed map and USGS topographic map depict the general drainage patterns and infrastructure in the project area. The site comprises a ridge oriented east to west (lengthwise through the property) which drains overland to the Presumpscot River. No areas of erosion or ponding were observed in the pre-development condition at the site.

Soils

Soil classifications within the project area were referenced from the Cumberland County Medium Intensity Soil Survey. The majority of the site is comprised of Hollis fine sandy loam soils. A copy of this map, delineating the project site, is included with this report.

The Hollis soil series consists of dark brown to yellowish brown, fine sandy loam. The soils are somewhat excessively drained and are generally shallow and gentle to steep sloped. Permeability for the Hollis soil series is very low and the soil is noted for its many bedrock outcrops. The soil is classified as a hydrologic Group C/D. The Hollis soils are predominately glacial till soils located in northern, central and coastal upland areas.

Stormwater Management

In order to evaluate drainage characteristics in pre and post-development conditions, a quantitative analysis was performed to determine peak rates of runoff for the 2, 10 and 25-year storm events. Runoff calculations were performed following the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds, Technical Release #55" and HydroCAD Stormwater Management Systems.

As described below, four watersheds were analyzed in the pre-development condition, and four watersheds in the post-developed condition. A common discharge point was selected for each of the watersheds for both the pre and post-developed conditions. The site is located on the top portion of a large hill. All four watersheds drain away from the proposed development to the north, south, east and west respectively.

There are no off-site watersheds associated with this project.

Watersheds 1 through 4 contain the site proposed in the undeveloped condition as follows:

BASIN 1: Contains the area adjacent to Ocean Avenue. Basin 1 contains steep slopes, several rock outcrops and is primarily wooded, totaling approximately 2.8 acres.

BASIN 2: A moderately sloped wooded area of approximately 2.0 acres which drains to the north.

BASIN 3: Comprised of 1.2 acres of wooded areas with rock outcrops. This area drains into a small wetland that straddles the south property line. Basin 3 and Basin 2 are the more gently sloped regions of the site.

BASIN 4: This area of 1.9 acres comprises the rear portion of the property. It slopes to the west, is forested and contains rock outcroppings.

BASIN 20: Comprised of approximately 1.0 acres of moderately sloped land that drains to the north property line.

BASIN 31: Contains approximately 0.8 acres that drain to the south property line

In the developed condition, the site was also mapped as four separate watersheds to analyze the effects of the proposed development. The proposed drainage basins and their outlet locations generally correspond to the existing watersheds.

Stormwater Runoff Summary					
Watershed	Area (Acres)	Wgt'd Cn	2-Year Peak Runoff (cfs)	10-Year Peak Runoff (cfs)	25-year Peak Runoff (cfs)
Pre-Development					
1	2.79	77	2.8	6.4	8.3
2	1.95	77	0.8	1.8	2.3
3	1.93	77	0.8	1.9	2.5
4	1.89	77	1.2	2.8	3.6

Stormwater Runoff Summary					
Watershed	Area (Acres)	Wgt'd Cn	2-Year Peak Runoff (cfs)	10-Year Peak Runoff (cfs)	25-year Peak Runoff (cfs)
Post-Development					
1 & 101	2.79	86	4.6	8.5	10.4
2, 5 & 501	1.22	82	0.9	1.7	2.3
3, 301, 302 & 303	2.73	89	0.7	1.8	2.7
4, 401 & 402	1.61	84	1.2	2.4	3.0

Stormwater runoff modeling suggests that the peak rates of runoff in the developed condition, with detention, will be less than the pre-developed runoff rate for watersheds 2, 3 and 4, except Watershed 3 shows a slight increase during the 25 year 24 hour storm event and Watershed 2 shows a slight increase in the 2 year 24 hour storm event. These are minor increases and we believe that it will not have an adverse affect on the downstream condition. Watershed 1 will be directed to a new storm drain extension located on Ocean Avenue. See attached study for complete details.

The Stormwater Management Plan for the Ocean Ridge Condominium project will also include an Erosion and Sedimentation Control Plan placing emphasis on the installation of sedimentation barriers and revegetation to minimize erosion potential from development activities during and after construction. The Erosion Control Plan has been placed directly on the design plans to include locations of erosion control provisions (i.e., silt fence, hay bale barriers, riprap aprons, embankment), along with a narrative and construction details for reference by the contractor during construction. The erosion control measures are to be monitored throughout construction by the contractor, with maintenance and repairs performed on a regular basis as directed by the erosion control plan.

The project is required to meet the 40% TSS removal standard. This is met through the use of vegetated swales, wooded buffers, detention ponds and two Vortecnic Units. Approximately

43% of the suspended solids are removed in the post developed condition. The calculations are included as an attachment to this submittal.

Summary

The preceding stormwater runoff evaluation has been prepared to evaluate pre and post-development conditions of the proposed Ocean Ridge Condominium development project in Portland. The analysis reviewed pre and post-development watersheds and compared peak rates of runoff at common discharge points to assess stormwater infrastructure needs. Based upon the analysis and review of the site, we make the following recommendations:

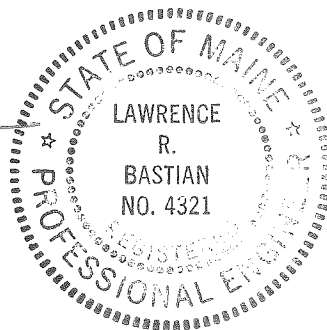
1. Implementation of a site-specific erosion and sedimentation control plan placing emphasis on times of disturbance and, during construction, installation of appropriate erosion control measures and revegetation of the site. A specific erosion control plan with notations has been placed directly on the plans along with supporting details. The selected contractor should follow these measures throughout project construction.
2. A pre-construction meeting should be held between the owner, contractor and City representative to review scheduling and critical components of the stormwater management and erosion control plan. The contractor should provide the owner and City with a construction schedule outlining the sequence of events.
3. After development, runoff from Basin 1 will be routed through a Vortecnic Unit and into a proposed storm drain extension to be constructed in Ocean Avenue as part of the development. Design of the storm drain extension will be coordinated with the City's proposed drainage improvements on Ocean Avenue. This will reduce the existing surface runoff that presently flows onto Ocean Avenue from the site.

Prepared by:

SEBAGO TECHNICS, INC.

Lawrence Bastian

Lawrence Bastian, P.E.
Project Manager



OCEAN RIDGE CONDOMINIUMS
3/27/2001, revised 7/9/2001

Subarea ID	Total Area (Ac.)	House Imp.	Drive Imp.	Road Imp.	Total Imp. Area (Ac.)	% of Tot. Imp.
Basin 1	2.6	0.26	0.2	0.44	0.9	29.70
Basin 101	0.19	0.08	0.02	0.01	0.11	3.63
Basin 2	0.47	0.06	0	0	0.06	1.98
Basin 3	0.58	0.08	0.04	0.18	0.3	9.90
Basin 301	0.82	0.12	0.04	0.21	0.37	12.21
Basin 302	0.84	0.15	0.12	0.22	0.49	16.17
Basin 303	0.49	0.06	0.03	0.16	0.25	8.25
Basin 4	0.74	0	0	0	0	0.00
Basin 401	0.64	0.12	0.03	0.2	0.35	11.55
Basin 402	0.23	0.01	0	0.03	0.04	1.32
Basin 5	0.39	0	0	0	0	0.00
Basin 501	0.36	0.04	0	0.12	0.16	5.28
TOTALS =	8.35				3.03	100.00

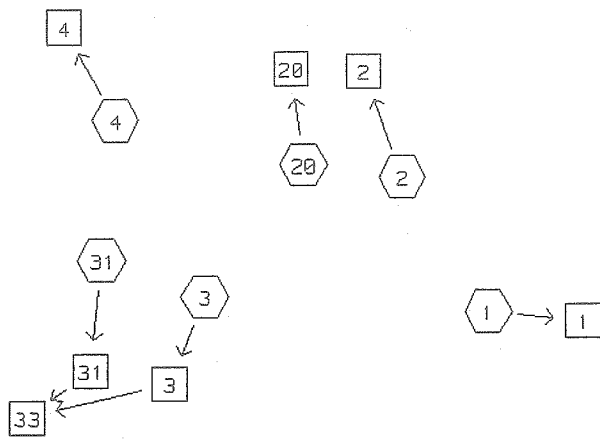
Wooded Buffer #1	Wooded Buffer #2	Det. Basins	Det. Basins	Vortechmics Unit	NET BMP % TSS REMOVAL	NET WEIGHTED % TSS REMOVAL
				0.5	50	14.85
0.46				0.5	73	2.65
		0.1			10	0.20
		0.1			10	0.99
		0.1		0.5	55	6.72
		0.1		0.5	55	8.89
		0.1			10	0.83
	0.54	0.1			58.6	0.00
	0.54	0.1			58.6	6.77
	0.54	0.1			58.6	0.77
					0	0.00
					0	0.00
WEIGHTED % TSS REMOVAL					=	42.67

**40% Removal required

BMP Notes:

Wooded Buffer #1 Length = 75' / Slope = .140 / Hydrologic soil group = D
 Wooded Buffer #2 Length = 75' / Slope = .07 / Hydrologic soil group = D

WATERSHED ROUTING =====



SUBCATCHMENT 1	=	BASIN 1	->	REACH 1
SUBCATCHMENT 2	=	BASIN 2	->	REACH 2
SUBCATCHMENT 3	=	BASIN 3	->	REACH 3
SUBCATCHMENT 4	=	BASIN 4	->	REACH 4
SUBCATCHMENT 20	=	BASIN 20	->	REACH 20
SUBCATCHMENT 31	=	BASIN 31	->	REACH 31
REACH 1	=		->	
REACH 2	=		->	
REACH 3	=		->	REACH 33
REACH 4	=		->	
REACH 20	=		->	
REACH 31	=		->	REACH 33
REACH 33	=		->	

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SUBCATCHMENT 1 BASIN 1

PEAK= 2.80 CFS @ 12.12 HRS, VOLUME= .23 AF

ACRES	CN
2.79	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	BASIN 1 OVERLAND FLOW	5.6
Woods: Light underbrush	n=.4 L=40' P2=3 in s=.1 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 1 CHANNEL FLOW	5.1
Woodland	Kv=5 L=500' s=.108 '/' V=1.64 fps	
Total Length= 540 ft		Total Tc= 10.7

SUBCATCHMENT 2 BASIN 2

PEAK= .77 CFS @ 12.31 HRS, VOLUME= .08 AF

ACRES	CN
1.02	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	OVERLAND BASIN 2	17.0
Woods: Light underbrush	n=.4 L=80' P2=3 in s=.025 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 2 CHANNEL	6.4
Woodland	Kv=5 L=222' s=.0132 '/' V=.57 fps	
Total Length= 302 ft		Total Tc= 23.4

SUBCATCHMENT 3 BASIN 3

PEAK= .83 CFS @ 12.33 HRS, VOLUME= .09 AF

ACRES	CN
1.14	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	BASIN 3 OVERLAND FLOW	22.2
Woods: Light underbrush	n=.4 L=100' P2=3 in s=.02 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 3 CONCENTRATED FLOW	3.3
Woodland	Kv=5 L=202' s=.042 '/' V=1.02 fps	
Total Length= 302 ft		Total Tc= 25.5

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SUBCATCHMENT 4 BASIN 4

PEAK= 1.20 CFS @ 12.47 HRS, VOLUME= .15 AF

ACRES	CN
1.89	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	27.4
Woods: Light underbrush	n=.4 L=120' P2=3 in s=.017 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 4 CHANNEL FLOW	7.1
Woodland	Kv=5 L=462' s=.047 '/' V=1.08 fps	
Total Length= 582 ft		Total Tc= 34.5

SUBCATCHMENT 20 BASIN 20

PEAK= .79 CFS @ 12.21 HRS, VOLUME= .07 AF

ACRES	CN
.91	77

WOODS D

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	AB	9.7
Woods: Light underbrush	n=.4 L=80' P2=3 in s=.1 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BC	6.7
Woodland	Kv=5 L=200' s=.01 '/' V=.5 fps	
Total Length= 280 ft		Total Tc= 16.4

SUBCATCHMENT 31 BASIN 31

PEAK= .52 CFS @ 12.45 HRS, VOLUME= .06 AF

ACRES	CN
.80	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 3.00 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	AB	32.0
Woods: Light underbrush	n=.4 L=140' P2=3 in s=.0157 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BC	1.3
Woodland	Kv=5 L=90' s=.055 '/' V=1.17 fps	
Total Length= 230 ft		Total Tc= 33.3

REACH 1

Not described

Qin = 2.80 CFS @ 12.12 HRS, VOLUME= .23 AF
Qout= 2.80 CFS @ 12.12 HRS, VOLUME= .23 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 2

Not described

Qin = .77 CFS @ 12.31 HRS, VOLUME= .08 AF
Qout= .77 CFS @ 12.31 HRS, VOLUME= .08 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 3

Not described

Qin = .83 CFS @ 12.33 HRS, VOLUME= .09 AF
Qout= .83 CFS @ 12.33 HRS, VOLUME= .09 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 4

Not described

Qin = 1.20 CFS @ 12.47 HRS, VOLUME= .15 AF
Qout= 1.20 CFS @ 12.47 HRS, VOLUME= .15 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

TYPE III 24-HOUR RAINFALL= 3.00 IN

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REACH 20

Not described

Qin = .79 CFS @ 12.21 HRS, VOLUME= .07 AF
 Qout= .79 CFS @ 12.21 HRS, VOLUME= .07 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

REACH 31

Not described

Qin = .52 CFS @ 12.45 HRS, VOLUME= .06 AF
 Qout= .52 CFS @ 12.45 HRS, VOLUME= .06 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

REACH 33

Not described

Qin = 1.32 CFS @ 12.38 HRS, VOLUME= .16 AF
 Qout= 1.32 CFS @ 12.38 HRS, VOLUME= .16 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

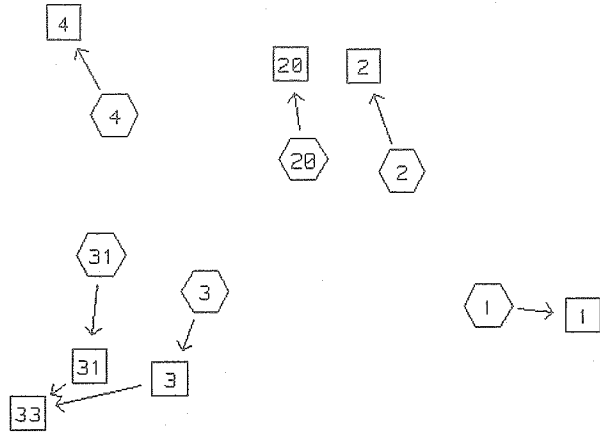
TYPE III 24-HOUR RAINFALL= 4.70 IN

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WATERSHED ROUTING =====



SUBCATCHMENT 1	=	BASIN 1	->	REACH 1
SUBCATCHMENT 2	=	BASIN 2	->	REACH 2
SUBCATCHMENT 3	=	BASIN 3	->	REACH 3
SUBCATCHMENT 4	=	BASIN 4	->	REACH 4
SUBCATCHMENT 20	=	BASIN 20	->	REACH 20
SUBCATCHMENT 31	=	BASIN 31	->	REACH 31
REACH 1	=		->	
REACH 2	=		->	
REACH 3	=		->	REACH 33
REACH 4	=		->	
REACH 20	=		->	
REACH 31	=		->	REACH 33
REACH 33	=		->	

TYPE III 24-HOUR RAINFALL= 4.70 IN

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SUBCATCHMENT 1 BASIN 1

PEAK= 6.42 CFS @ 12.11 HRS, VOLUME= .51 AF

ACRES	CN
2.79	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	BASIN 1 OVERLAND FLOW	5.6
Woods: Light underbrush	n=.4 L=40' P2=3 in s=.1 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 1 CHANNEL FLOW	5.1
Woodland	Kv=5 L=500' s=.108 '/' V=1.64 fps	
Total Length= 540 ft		Total Tc= 10.7

SUBCATCHMENT 2 BASIN 2

PEAK= 1.77 CFS @ 12.29 HRS, VOLUME= .19 AF

ACRES	CN
1.02	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	OVERLAND BASIN 2	17.0
Woods: Light underbrush	n=.4 L=80' P2=3 in s=.025 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 2 CHANNEL	6.4
Woodland	Kv=5 L=222' s=.0132 '/' V=.57 fps	
Total Length= 302 ft		Total Tc= 23.4

SUBCATCHMENT 3 BASIN 3

PEAK= 1.91 CFS @ 12.32 HRS, VOLUME= .21 AF

ACRES	CN
1.14	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	BASIN 3 OVERLAND FLOW	22.2
Woods: Light underbrush	n=.4 L=100' P2=3 in s=.02 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 3 CONCENTRATED FLOW	3.3
Woodland	Kv=5 L=202' s=.042 '/' V=1.02 fps	
Total Length= 302 ft		Total Tc= 25.5

TYPE III 24-HOUR RAINFALL= 4.70 IN

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SUBCATCHMENT 4

BASIN 4

PEAK= 2.77 CFS @ 12.44 HRS, VOLUME= .34 AF

ACRES	CN
1.89	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	27.4
Woods: Light underbrush n=.4 L=120' P2=3 in s=.017 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 4 CHANNEL FLOW	7.1
Woodland Kv=5 L=462' s=.047 '/' V=1.08 fps		
Total Length= 582 ft		Total Tc= 34.5

SUBCATCHMENT 20

BASIN 20

PEAK= 1.80 CFS @ 12.19 HRS, VOLUME= .17 AF

ACRES	CN
.91	77

WOODS D

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	AB	9.7
Woods: Light underbrush n=.4 L=80' P2=3 in s=.1 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	BC	6.7
Woodland Kv=5 L=200' s=.01 '/' V=.5 fps		
Total Length= 280 ft		Total Tc= 16.4

SUBCATCHMENT 31

BASIN 31

PEAK= 1.19 CFS @ 12.43 HRS, VOLUME= .15 AF

ACRES	CN
.80	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 4.70 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	AB	32.0
Woods: Light underbrush n=.4 L=140' P2=3 in s=.0157 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	BC	1.3
Woodland Kv=5 L=90' s=.055 '/' V=1.17 fps		
Total Length= 230 ft		Total Tc= 33.3

TYPE III 24-HOUR RAINFALL= 4.70 IN

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REACH 1

Not described

Qin = 6.42 CFS @ 12.11 HRS, VOLUME= .51 AF
Qout= 6.42 CFS @ 12.11 HRS, VOLUME= .51 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 2

Not described

Qin = 1.77 CFS @ 12.29 HRS, VOLUME= .19 AF
Qout= 1.77 CFS @ 12.29 HRS, VOLUME= .19 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 3

Not described

Qin = 1.91 CFS @ 12.32 HRS, VOLUME= .21 AF
Qout= 1.91 CFS @ 12.32 HRS, VOLUME= .21 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 4

Not described

Qin = 2.77 CFS @ 12.44 HRS, VOLUME= .34 AF
Qout= 2.77 CFS @ 12.44 HRS, VOLUME= .34 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

TYPE III 24-HOUR RAINFALL= 4.70 IN

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REACH 20

Not described

Qin = 1.80 CFS @ 12.19 HRS, VOLUME= .17 AF
Qout= 1.80 CFS @ 12.19 HRS, VOLUME= .17 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 31

Not described

Qin = 1.19 CFS @ 12.43 HRS, VOLUME= .15 AF
Qout= 1.19 CFS @ 12.43 HRS, VOLUME= .15 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 33

Not described

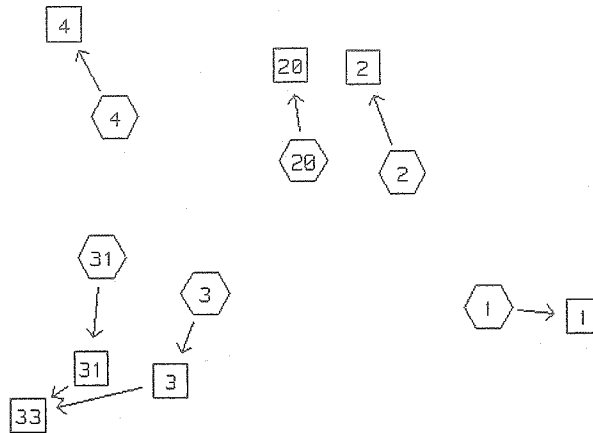
Qin = 3.04 CFS @ 12.35 HRS, VOLUME= .35 AF
Qout= 3.04 CFS @ 12.35 HRS, VOLUME= .35 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

WATERSHED ROUTING =====



SUBCATCHMENT 1	=	BASIN 1	->	REACH 1
SUBCATCHMENT 2	=	BASIN 2	->	REACH 2
SUBCATCHMENT 3	=	BASIN 3	->	REACH 3
SUBCATCHMENT 4	=	BASIN 4	->	REACH 4
SUBCATCHMENT 20	=	BASIN 20	->	REACH 20
SUBCATCHMENT 31	=	BASIN 31	->	REACH 31
REACH 1	=		->	
REACH 2	=		->	
REACH 3	=		->	REACH 33
REACH 4	=		->	
REACH 20	=		->	
REACH 31	=		->	REACH 33
REACH 33	=		->	

TYPE III 24-HOUR RAINFALL= 5.50 IN

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SUBCATCHMENT 1 BASIN 1

PEAK= 8.26 CFS @ 12.11 HRS, VOLUME= .65 AF

ACRES	CN
2.79	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	BASIN 1 OVERLAND FLOW	5.6
Woods: Light underbrush	n=.4 L=40' P2=3 in s=.1 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 1 CHANNEL FLOW	5.1
Woodland	Kv=5 L=500' s=.108 '/' V=1.64 fps	
Total Length= 540 ft		Total Tc= 10.7

SUBCATCHMENT 2 BASIN 2

PEAK= 2.27 CFS @ 12.29 HRS, VOLUME= .24 AF

ACRES	CN
1.02	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	OVERLAND BASIN 2	17.0
Woods: Light underbrush	n=.4 L=80' P2=3 in s=.025 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 2 CHANNEL	6.4
Woodland	Kv=5 L=222' s=.0132 '/' V=.57 fps	
Total Length= 302 ft		Total Tc= 23.4

SUBCATCHMENT 3 BASIN 3

PEAK= 2.46 CFS @ 12.31 HRS, VOLUME= .27 AF

ACRES	CN
1.14	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	BASIN 3 OVERLAND FLOW	22.2
Woods: Light underbrush	n=.4 L=100' P2=3 in s=.02 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 3 CONCENTRATED FLOW	3.3
Woodland	Kv=5 L=202' s=.042 '/' V=1.02 fps	
Total Length= 302 ft		Total Tc= 25.5

TYPE III 24-HOUR RAINFALL= 5.50 IN

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SUBCATCHMENT 4

BASIN 4

PEAK= 3.56 CFS @ 12.43 HRS, VOLUME= .44 AF

ACRES	CN
1.89	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID:	27.4
Woods: Light underbrush	n=.4 L=120' P2=3 in s=.017 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BASIN 4 CHANNEL FLOW	7.1
Woodland	Kv=5 L=462' s=.047 '/' V=1.08 fps	
Total Length= 582 ft		Total Tc= 34.5

SUBCATCHMENT 20

BASIN 20

PEAK= 2.32 CFS @ 12.19 HRS, VOLUME= .21 AF

ACRES	CN
.91	77

WOODS D

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	AB	9.7
Woods: Light underbrush	n=.4 L=80' P2=3 in s=.1 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BC	6.7
Woodland	Kv=5 L=200' s=.01 '/' V=.5 fps	
Total Length= 280 ft		Total Tc= 16.4

SUBCATCHMENT 31

BASIN 31

PEAK= 1.53 CFS @ 12.42 HRS, VOLUME= .19 AF

ACRES	CN
.80	77

SCS TR-20 METHOD
 TYPE III 24-HOUR
 RAINFALL= 5.50 IN
 SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	AB	32.0
Woods: Light underbrush	n=.4 L=140' P2=3 in s=.0157 '/'	
SHALLOW CONCENTRATED/UPLAND FLOW	BC	1.3
Woodland	Kv=5 L=90' s=.055 '/' V=1.17 fps	
Total Length= 230 ft		Total Tc= 33.3

REACH 1

Not described

Qin = 8.26 CFS @ 12.11 HRS, VOLUME= .65 AF
Qout= 8.26 CFS @ 12.11 HRS, VOLUME= .65 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 2

Not described

Qin = 2.27 CFS @ 12.29 HRS, VOLUME= .24 AF
Qout= 2.27 CFS @ 12.29 HRS, VOLUME= .24 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 3

Not described

Qin = 2.46 CFS @ 12.31 HRS, VOLUME= .27 AF
Qout= 2.46 CFS @ 12.31 HRS, VOLUME= .27 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

REACH 4

Not described

Qin = 3.56 CFS @ 12.43 HRS, VOLUME= .44 AF
Qout= 3.56 CFS @ 12.43 HRS, VOLUME= .44 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
(FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

TYPE III 24-HOUR RAINFALL= 5.50 IN

Prepared by SEBAGO TECHNICS INC.

10 Jul 01

HydroCAD 5.01 000643 (c) 1986-1998 Applied Microcomputer Systems

REACH 20

Not described

Qin = 2.32 CFS @ 12.19 HRS, VOLUME= .21 AF
 Qout= 2.32 CFS @ 12.19 HRS, VOLUME= .21 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
 (FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

REACH 31

Not described

Qin = 1.53 CFS @ 12.42 HRS, VOLUME= .19 AF
 Qout= 1.53 CFS @ 12.42 HRS, VOLUME= .19 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
 (FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

REACH 33

Not described

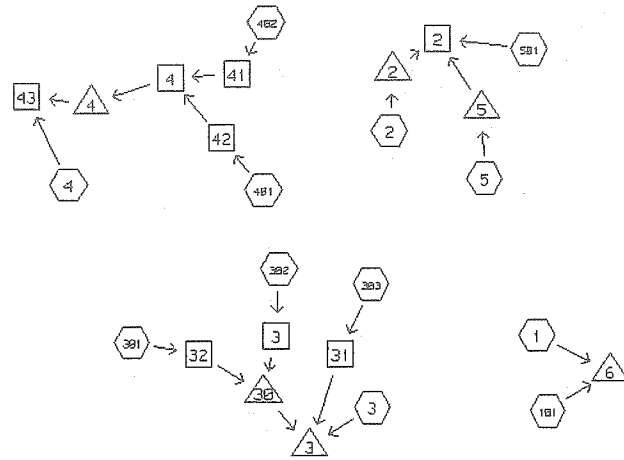
Qin = 3.92 CFS @ 12.34 HRS, VOLUME= .45 AF
 Qout= 3.92 CFS @ 12.34 HRS, VOLUME= .45 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH END AREA DISCH
 (FT) (SQ-FT) (CFS)

- METHOD

PEAK DEPTH= 0.00 FT
 PEAK VELOCITY= 0.0 FPS
 TRAVEL TIME = 0.0 MIN
 SPAN= 10-20 HRS, dt=.1 HRS

WATERSHED ROUTING =====



SUBCATCHMENT 1	= BASIN 1	-> POND 6
SUBCATCHMENT 2	= BASIN 2	-> POND 2
SUBCATCHMENT 3	= BASIN 3	-> POND 3
SUBCATCHMENT 4	= BASIN 4	-> REACH 43
SUBCATCHMENT 5	= BASIN 5	-> POND 5
SUBCATCHMENT 101	= BASIN 101	-> POND 6
SUBCATCHMENT 301	= BASIN 301	-> REACH 32
SUBCATCHMENT 302	= BASIN 302	-> REACH 3
SUBCATCHMENT 303	= BASIN 303	-> REACH 31
SUBCATCHMENT 401	= BASIN 401	-> REACH 42
SUBCATCHMENT 402	= BASIN 402	-> REACH 41
SUBCATCHMENT 501	= BASIN 501	-> REACH 2
REACH 2	=	->
REACH 3	= VEGETATED SWALE 1	-> POND 30
REACH 4	= LEVEL SPREADER	-> POND 4

***** -IND. XMT JOURNAL- ***** DATE JUL-29-2008 ***** TIME 15:50 *****

DATE/TIME = JUL-29-2008 15:47
JOURNAL No. = 25
COMM. RESULT = OK
PAGE(S) = 011/011
DURATION = 00:02:31
FILE No. = 227
MODE = MEMORY TRANSMISSION
DESTINATION = 98746705
RECEIVED ID = / 207 874 6705
RESOLUTION = STD

-CITY OF PORTLAND -

***** -LEGAL DEPARTMENT- ***** 2078748497- *****

Fax

To: Larry Clay From: Peggy Little
Fax: _____ Pages: 11
Phone: _____ Date: 7-29-08
Re: _____ CC: _____

Urgent For Review Please Comment Please Reply Please Recycle

This facsimile transmission is confidential, and may be privileged and is intended for the use of the addressee only. If you are not the addressee (or a person responsible for delivering this transmission to the addressee), DO NOT use this transmission in any way, but promptly contact the sender by telephone. Thank You.

● Comments:

I have also put a hard copy in
~~copy~~ in the mail to you.

office file



PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Director of Planning and Urban Development
Penny St. Louis Littell

Planning Division, Director
Alexander Jaegerman

July 29, 2008

Lawrence Clough, Esq.
Tompkins, Clough, Hirshon & Langer, P.A.
Three Canal Plaza
P.O. Box 15060
Portland, ME 04112-5060

Dear Larry:

The City has decided to utilize the services of Les Wilson and Sons for the work designed to correct the effects at Ocean Ridge. Attached you will find the two quotes we received. Please be advised that the Wilson quote will be supplemented with an expense for loaming and seeding around the driveway aprons in Phase II as this work was not included in the quote. We have asked that the quote be updated in this regard.

As promised, I am also forwarding to you the engineered plan to correct the effects at the site.

As a final matter, at our on-site meeting, your client represented that he would provide to the City the as-builts for the project, which he stated were back at his office. We have no received these documents and expect to get them from you as promised.

Thank you for your attention to this matter.

Sincerely,

Penny St. Louis Littell
Director of Planning and Urban Development.

Cc: Phil DiPierro

O:\OFFICE\PENNY\Letters2008\Clough0732908.doc

P.O. Box 1028
Westbrook, ME 04098



Tel: 207.854.4583
Fax: 207.854.0967

Excavating Contractors · Petroleum Services

City of Portland
Planning and Development
389 Congress Street
Portland, ME 04101
Attn: Philip DiPierro

July 24, 2008

Les Wilson & Sons submits the following proposal to Philip DiPierro for drainage work at Ocean Ridge Condominiums.

We shall do the following:

1. Furnish and install (6) plastic drain boxes as per print.
2. Furnish and install approx. 600' of 6" perforated drain pipe wrapped in filter fabric.
3. Furnish and install approx. 400' of 4" solid pipe with 22 downspout adaptors as per print.
4. Bed all new pipe in ¾" crushed stone.
5. Saw-cut necessary driveways and restore.
6. Core drill catch basin in front of unit 23 for pipe penetration.
7. Haul off all excavated material.
8. Install 3" of screened loam over all disturbed areas.
9. Seed, fertilize and hay all new loam.
10. Furnish and install (7) 6' tall white pine trees.
11. Furnish and install (9) 5' tall arborvitae shrubs.
12. Furnish and install 4' diameter manhole and 24" F style catch basin as per print. Furnish and install 24" grated frames and covers on same.
13. Re-shape ditch by unit 46 and install rip rap over filter fabric.
14. Mark out for DIG SAFE and call same.

Price for the above work: \$39,980.00

Payment to be made at completion of work.

Excavation quotations are based on normal soil conditions. In the event that any underground structures, cables, conduits, debris, rock, ledge, frost, water, marine clay, running sand, cobblestones or railroad tracks are encountered or piping or underground utilities are damaged during the performance of any work, or if proper depth is not attainable to install piping or structures, extra charges to repair or remove will be handled on a time and material basis.

The above price does not include the following:

1. Ledge removal
2. Watering of new lawn areas
3. Night, weekend or winter work

ALL MATERIAL IS GUARANTEED TO BE AS SPECIFIED. ALL WORK IS TO BE COMPLETED IN A WORKMANLIKE MANNER ACCORDING TO STANDARD PRACTICES. ANY ALTERATION OR DEVIATION FROM SPECIFICATIONS ABOVE INVOLVING EXTRA COSTS WILL BECOME AN EXTRA CHARGE OVER AND ABOVE THE ESTIMATE. ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS OR DELAYS BEYOND OUR CONTROL. OWNER TO CARRY FIRE, TORNADO AND OTHER NECESSARY INSURANCE. OUR WORKERS ARE FULLY COVERED BY WORKMAN'S COMPENSATION INSURANCE. CUSTOMER IS RESPONSIBLE FOR ANY AND ALL COLLECTION FEES INCLUDING, BUT NOT LIMITED TO, ATTORNEY FEES AND COURT COSTS.

Please note, this proposal may be withdrawn by us if not accepted within 30 days.

If this is acceptable to you, please sign and return one copy to us. Thank you.

Les Wilson & Sons



Chris Wilson
C.O.O.

ACCEPTANCE OF PROPOSAL: The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Date of Acceptance: _____

Signature: _____

6. SITE LIGHTING	_____	_____	_____	_____	_____	_____
7. EROSION CONTROL	_____	_____	_____	_____	_____	_____
Silt Fence	_____	_____	_____	_____	_____	_____
Check Dams	_____	_____	_____	_____	_____	_____
Pipe Inlet/Outlet Protection	_____	_____	_____	_____	_____	_____
Level Lip Spreader	_____	_____	_____	_____	_____	_____
Slope Stabilization	_____	_____	_____	_____	_____	_____
Geotextile	_____	_____	_____	_____	_____	_____
Hay Bale Barriers	_____	_____	_____	_____	_____	_____
Catch Basin Inlet Protection	_____	_____	_____	_____	_____	_____
8. RECREATION AND OPEN SPACE AMENITIES	_____	_____	_____	_____	_____	_____
9. LANDSCAPING (Attach breakdown of plant materials, quantities, and unit costs)	_____	_____	_____	_____	_____	6,000
<i>loaming, seed, hay trees & shrubs</i>						
10. MISCELLANEOUS	_____	_____	_____	_____	_____	_____
TOTAL:	_____	_____	_____	_____	_____	_____
GRAND TOTAL:	_____	_____	_____	_____	_____	<u>\$ 39,980 -</u>

INSPECTION FEE (to be filled out by the City)

	<u>PUBLIC</u>	<u>PRIVATE</u>	<u>TOTAL</u>
A: 2.0% of totals:	_____	_____	_____
<u>or</u>			
B: Alternative Assessment:	_____	_____	_____
Assessed by:	_____	_____	_____
	(name)	(name)	

LITTLEFIELD & HALL EXCAVATION, INC.
17 Flag Pond Road Unit #69
Saco, Maine 04072
PROPOSAL

Submitted to: Phil Deperrio
Department of Planning and Development
Planning Division
389 Congress St., 4th floor
Portland, Maine 04101

Date: July 24, 2008
Project Name: Ocean Ridge Condominiums
Project Location: 852 Ocean Avenue
Portland, Maine

We propose to install a new under drainage system and site improvements for the above referenced project, in accordance with the Site and grading plans supplied by City of Portland Planning and Development Planning Division (Phil Deperrio) Dated July,2008 and the following scope of work for the sum of: **SEVENTY NINE THOUSAND, EIGHT HUNDRED, FOURTEEN DOLLARS AND EIGHTY CENTS (79,814.80)**

Scope of Work: Provide and install approximately 680 linear feet of 6 inch Ads corrugated smooth bore piping wrapped in fabric and 3/4" stone and provide and install approximately 360 feet of 4 inch Ads corrugated smooth bore piping wrapped in fabric and 3/4" stone for roof leaders off from existing buildings, provide and install 6 plastic field inlet boxes and grates, provide and install 2 cast iron frames and covers for main line cleanouts, saw cutting driveways, paving, provide and install 1- four foot round catch basin and 1- two foot by two foot square catch basin, provide and install 6 rhododendrons (2-1/2" cal.), 6 white pines 4-5 feet tall, 6 arborvidies 4-5 feet tall, dark bark mulch for around these new plantings and water bags for starting good growth, provide and install loam and seed for all disturbed areas.

Exclusions: Site or construction permits, impact fee's, ledge or rock excavation, adjusting or relocating existing utilities, landscaping any other tree's or shrubs beyond the scope of work listed above.

Special conditions: Littlefield and Hall Excavation, Inc do not guarantee that any tree's or shrubs that have to be removed and placed back do to new excavation for drainage will survive.

We guarantee all work and materials to comply with specifications and standards as noted. Any changes to plans or scope of work will require a written change order.

Authorized signature: Edward Littlefield Date: 7-24-08
This proposal is valid for 30 days from the signature date.

Planning and Development Department
SUBDIVISION/SITE DEVELOPMENT

COST ESTIMATE OF IMPROVEMENTS TO BE COVERED BY PERFORMANCE GUARANTEE

Date: 7-24-08

Name of Project: Ocean Ridge Condominiums

Address/Location: 852 Ocean Avenue

Developer: Excavation Company, Littlefield & Hall Exc, Inc

Form of Performance Guarantee: _____

Type of Development: Subdivision Condominium Site Plan (Major/Minor) _____

TO BE FILLED OUT BY THE APPLICANT:

Item	PUBLIC			PRIVATE		
	Quantity	Unit Cost	Subtotal	Quantity	Unit Cost	Subtotal
1. STREET/SIDEWALK						
Road/Parking Areas						
Excavation Saw Cutting	<u>Lump</u>	<u>\$1,000.00</u>	<u>\$1,000.00</u>	<u>Lump</u>	<u>\$1,000.00</u>	<u>\$1,000.00</u>
Sidewalks						
Esplanades						
Monuments						
Street Lighting						
Street Opening Repairs						
Other Driveway's	<u>250 sq.ft.</u>	<u>\$7.60</u>	<u>\$1,900.00</u>	<u>250 sq.ft.</u>	<u>\$7.60</u>	<u>\$1,900.00</u>
2. EARTH WORK						
Cut	<u>Approx. 600yds</u>	<u>\$14.00</u>	<u>\$8,400.00</u>	<u>600yds</u>	<u>\$14.00</u>	<u>\$8,400.00</u>
Fill						
3. SANITARY SEWER						
Manholes						
Piping						
Connections						
Main Line Piping						
House Sewer Service Piping						
Pump Stations						
Other						
4. WATER MAINS						
5. STORM DRAINAGE						
Manholes						
Catchbasins	<u>2</u>	<u>\$4700.00</u>	<u>\$9,400.00</u>	<u>2</u>	<u>\$4700.00</u>	<u>\$9,400.00</u>
Piping						
Detention Basin						
Stormwater Quality Units						
Other Cast Iron Frames and covers for cleanouts	<u>2</u>	<u>\$285.00</u>	<u>\$570.00</u>	<u>2</u>	<u>\$285.00</u>	<u>\$570.00</u>
6-1'x1'x18" Deep Inlet Boxes with Grates	<u>6</u>	<u>\$320.00</u>	<u>\$1,920.00</u>	<u>6</u>	<u>\$320.00</u>	<u>\$1,920.00</u>
6" ADS main line underdrain	<u>680'</u>	<u>\$30.32</u>	<u>\$20,617.60</u>	<u>680'</u>	<u>\$30.32</u>	<u>\$20,617.60</u>
4" ADS Service Roof Leaders	<u>360'</u>	<u>\$35.02</u>	<u>\$12,607.20</u>	<u>360'</u>	<u>\$35.02</u>	<u>\$12,607.20</u>

6. SITE LIGHTING

7. EROSION CONTROL

- Silt Fence
- Check Dams
- Pipe Inlet/Outlet Protection
- Level Lip Spreader
- Slope Stabilization
- Geotextile
- Hay Bale Barriers
- Catch Basin Inlet Protection

8. RECREATION AND OPEN SPACE AMENITIES

9. LANDSCAPING

(Attach breakdown of plant materials, quantities, and unit costs)

10. MISCELLANEOUS

Loaming & Seeding

Approx

Lump \$ 8,200.00 \$ 8,200.00

Lump \$ 8,200.00 \$ 8,200.00

20,000 Sq. ft. @ 76 cents \$ 15,200.00

20,000 Sq. ft. @ 76 cents \$ 15,200.00

TOTAL:

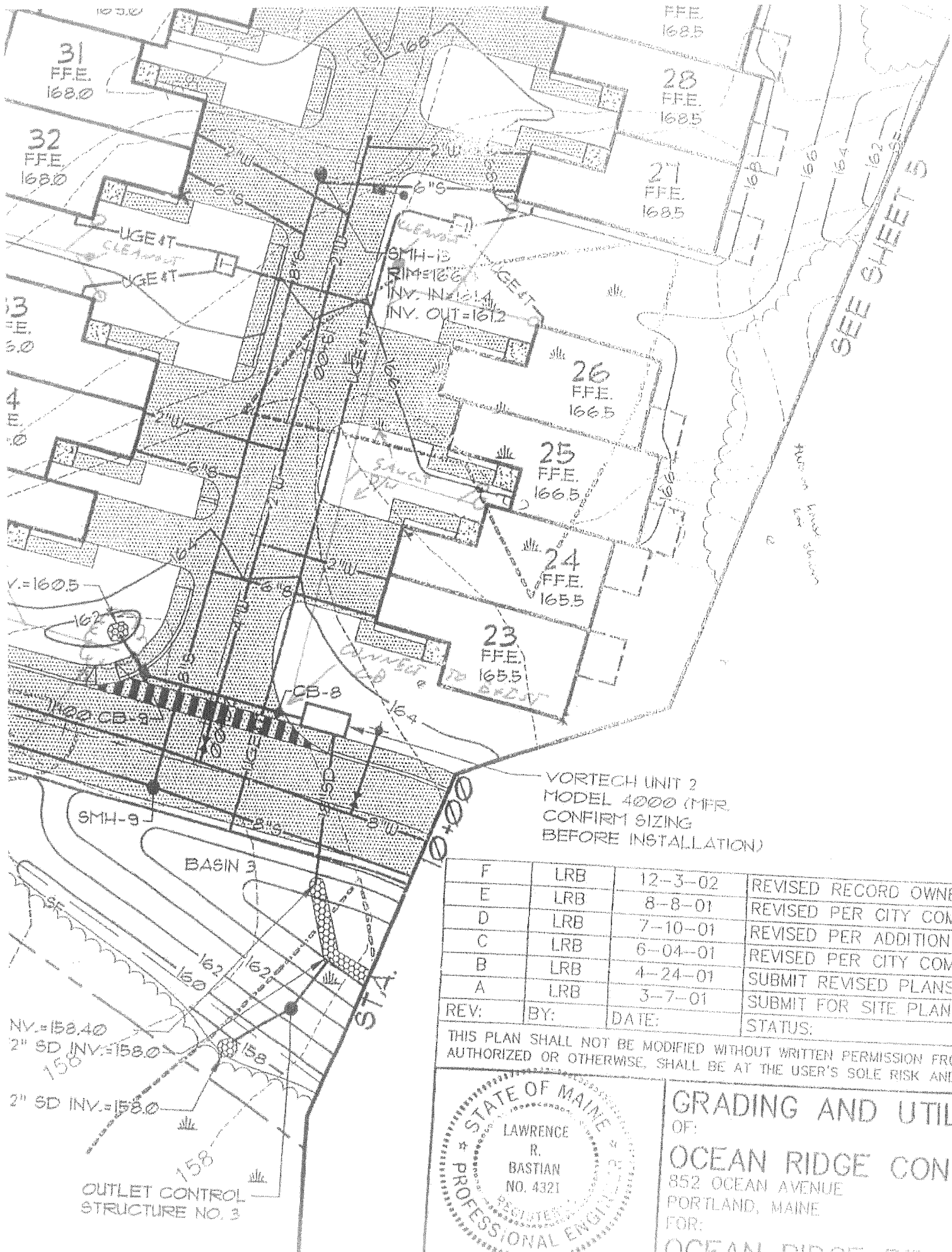
GRAND TOTAL:

\$ 79,814.80

\$ 79,814.80

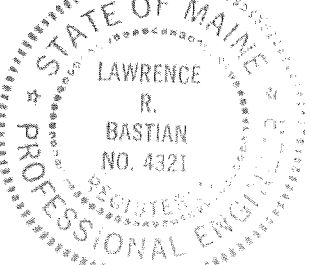
INSPECTION FEE (to be filled out by the City)

	<u>PUBLIC</u>	<u>PRIVATE</u>	<u>TOTAL</u>
A: 2.0% of totals:	_____	_____	_____
or			
B: Alternative Assessment:	_____	_____	_____
Assessed by:	_____	_____	_____
	(name)	(name)	



F	LRB	12-3-02	REVISED RECORD OWNE
E	LRB	8-8-01	REVISED PER CITY COM
D	LRB	7-10-01	REVISED PER ADDITION/
C	LRB	6-04-01	REVISED PER CITY COM
B	LRB	4-24-01	SUBMIT REVISED PLANS
A	LRB	3-7-01	SUBMIT FOR SITE PLAN
REV:	BY:	DATE:	STATUS:

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND



GRADING AND UTIL
 OF:
 OCEAN RIDGE CONI
 852 OCEAN AVENUE
 PORTLAND, MAINE
 FOR:
 OCEAN RIDGE

P.O. Box 1028
Westbrook, ME 04098



939 Wood
Tel: 207.854.4583
Fax: 207.854.0967

City of Portland
Planning and Development
389 Congress Street
Portland, ME 04101
Attn: Philip DiPierro

6 Rhodys
1 load loam & spread

July 24, 2008

Les Wilson & Sons submits the following proposal to Philip DiPierro for drainage work at Ocean Ridge Condominiums.

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4. Bed all new pipe in 3/4" crushed stone.
5. Saw-cut necessary driveways and restore.
6. Core drill catch basin in front of unit 23 for pipe penetration.
7. Haul off all excavated material.
8. Install 3" of screened loam over all disturbed areas.
9. Seed, fertilize and hay all new loam.
10. Furnish and install (7) 6' tall white pine trees.
11. Furnish and install (9) 5' tall arborvitae shrubs.
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Please note, this proposal may be withdrawn by us if not accepted within 30 days.

If this is acceptable to you, please sign and return one copy to us. Thank you.

Les Wilson & Sons



Chris Wilson
C.O.O.

ACCEPTANCE OF PROPOSAL: The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Date of Acceptance: 9-16-08

Signature: Joseph E. Long J

6. SITE LIGHTING	_____	_____	_____	_____	_____	_____
7. EROSION CONTROL						
Silt Fence	_____	_____	_____	_____	_____	_____
Check Dams	_____	_____	_____	_____	_____	_____
Pipe Inlet/Outlet Protection	_____	_____	_____	_____	_____	_____
Level Lip Spreader	_____	_____	_____	_____	_____	_____
Slope Stabilization	_____	_____	_____	_____	_____	_____
Geotextile	_____	_____	_____	_____	_____	_____
Hay Bale Barriers	_____	_____	_____	_____	_____	_____
Catch Basin Inlet Protection	_____	_____	_____	_____	_____	_____
8. RECREATION AND OPEN SPACE AMENITIES	_____	_____	_____	_____	_____	_____
9. LANDSCAPING (Attach breakdown of plant materials, quantities, and unit costs)	_____	_____	_____	_____	_____	<u>6,000</u>
	<i>loaming, seed, hay trees & shrubs</i>					
10. MISCELLANEOUS	_____	_____	_____	_____	_____	_____
TOTAL:	_____	_____	_____	_____	_____	_____
GRAND TOTAL:	_____	_____	_____	_____	_____	<u>\$ 39,980 -</u>

INSPECTION FEE (to be filled out by the City)

	<u>PUBLIC</u>	<u>PRIVATE</u>	<u>TOTAL</u>
A: 2.0% of totals:	_____	_____	_____
<u>or</u>			
B: Alternative Assessment:	_____	_____	_____
Assessed by:	_____	_____	_____
	(name)	(name)	

Philip DiPierro - Ocean Ridge Condos

From: <ChrisDigsdirt@aol.com>
To: <PD@portlandmaine.gov>
Date: 8/18/2008 4:20 PM
Subject: Ocean Ridge Condos

Hi Phil. To furnish, spread, fine rake and seed 12 yards of screened loam. Furnish and install (6) Rod. shrubs with a 18" to 24" spread. = \$2,985.00 Talk to you soon.

Chris Wilson
Les Wilson & Sons

www.LesWilsonandSons.com

Looking for a car that's sporty, fun and fits in your budget? [Read reviews on AOL Autos.](#)

Blasting Plan

This Blasting Plan is provided at the request of the City of Portland as a general description of the blasting program for excavation of bedrock at the proposed Ocean Ridge Condominiums located off of Ocean Avenue. This document includes a description of existing conditions and anticipated rock removal requirements, and a general summary of blasting procedures. Detailed blasting procedures, monitoring and other requirements are contained in the construction specifications for the project (Section 02200, Earthwork), included as Attachment A.

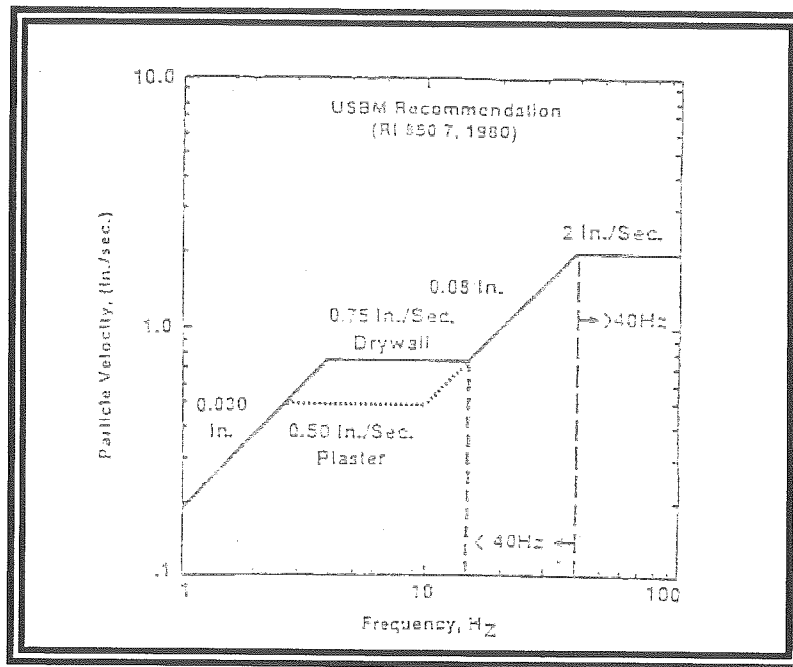
General Project Description

There are some outcrops of bedrock visible throughout the project area. Blasting is expected for the road, building and utility construction. The roadway profile has been designed to reduce potential blasting requirements as much as possible. Necessary utilities within the roadway are primarily underground power, telephone and cable lines. Water mains and gravity sewer lines do not follow the roadway layout and will require separate blasting. If the bedrock cannot feasibly be removed by the use of rippers or other mechanical means, blasting may become necessary. If blasting does become necessary, it would include primarily contour blasting. A Report on Subsurface and Foundation Investigation prepared for the project by Haley & Aldrich, Inc. (June 2002) includes test pits that indicate bedrock at typical depths of 1 to 2 feet (Attachment B). The cut depth from finish grade has been assumed at approximately 4 feet to allow for the road section (21 inches) and depth to underground power and telephone lines (3 feet). The blasting depth will be highly variable, potentially up to 18 feet.

The attached figure shows the expected areas where shallow bedrock may be encountered, and indicates the general areas of contour rock and trench rock removal. The approximate areas of contour rock removal greater than 5 feet deep are also noted. This figure also shows the region within 1,000' of the potential blast areas (from tax map records). There are areas where the 1,000' radius overlaps onto neighboring properties. Existing dwellings within this 1,000' radius area are noted on the Plan. The nearest residence lies approximately 40' from the anticipated blast area. This residence is located on the northwest side of Ocean Avenue, nearest to the proposed entrance.

A professional (licensed in the State of Maine) blasting contractor will be employed to conduct any blasting work in accordance with applicable State and local laws. At a minimum, the blasting contractor shall conduct his work in accordance with the criteria stated in the specifications, Section 02200, Part 3.02A.

The blasting contractor will be required to prepare and submit a blasting plan as detailed in Section 02200, 3.02.F prior to construction. At a minimum, the plan shall outline his proposal for monitoring of blasts, sequencing of blasts, sketches of proposed drill patterns, and specified field procedures, including the hours of operation, use of blasting mats, safety procedures, security measures in the work zone, and warning sequences. Blasting mats or earth cover shall be used to limit peak air overpressures and to protect against uncontrolled blast rock. Blasting vibrations, frequencies and overpressures shall not exceed the limits established by State or local codes. The maximum Peak Particle Velocity (PPV) shall be based on the following figure from the U.S. Bureau of Mines RI 8507:



The Contractor shall design his charges using the Scaled Distance Equation as follows:

$$W = (D/D_s)^2$$

Where:

- W = Maximum allowable weight of explosives per delay of 8 milliseconds or greater.
- D = The shortest distance between the blast area and any inhabitable structure not owned or controlled by the developer.
- D_s = 70 ft./lb^{1/2}

The maximum PPV of ground vibrations for non-residential structures and underground utilities will not be allowed to exceed 2.0 in/s. Deteriorated structures or utilities that are sensitive to vibrations may require lower PPV limits than those indicated above. If information obtained from the pre-blast surveys indicates lower limits are required at certain structures, the independent seismologist or blasting consultant will identify the lower limits applicable to a specific structure, and the blasting contractor will incorporate such provisions in the features of the blasting plan applicable to this site area.

As stated in the project specifications (Section 02200, 3.02.A and B) the contractor will be required to meet local and State blasting criteria to conduct and submit a pre-blast survey prior to initiating any blasting work. The pre-blast survey will document the conditions of existing dwellings and structures within a minimum of 1,000 feet from the limit of blasting work. With appropriate notice and permission, the contractor's qualified inspector shall examine the interior and exterior of structures within the study area. Conditions shall be documented using photos, videotapes and written descriptions. The pre-blast survey shall also include and assessment of water supply wells in the study area. The pre-blast survey shall be completed by a Maine licensed professional engineer or licensed specialized consultant. During blasting, operation monitoring shall be conducted to evaluate compliance with respect to vibration and over-pressures. Copies of the pre-blast survey and monitoring reports will be provided to the City.

If a nearby property owner submits a complaint regarding alleged blasting-related damages during construction, the independent seismologist or blasting consultant shall conduct a second survey of the property within 48 hours of receiving the complaint to identify any changes in the property conditions. A condition report summary shall be submitted to the Engineer, and copied to the City, within two weeks after the second survey is conducted.

As stated in the specifications (Section 02200, 3.02.G) the contractor shall prepare and submit a blasting schedule which shall be presented to the owner and the City prior to blasting. This schedule shall, at a minimum, include the following:

- Name, address and phone number of blaster;
- Identification of specific blasting areas;
- Dates and times of blasts;
- Methods to restrict access in the blast area and warning whistle announcements;
- All blasting work shall be the responsibility of the blasting contractor.

As stated in the specifications (Section 02200, 3.02.M) the blasting contractor shall maintain accurate and current blasting records which shall be submitted to the owner the City on a weekly basis during blasting operations. These records shall contain, at a minimum:

- General location of the blast
- Depth and number of drill holes
- Type and quantity of explosives used
(including sizing calculations based on the scaled distance equation)
- Time of blast
- Seismographic record of each blast taken within 300' of the blast area

As stated in the specifications (Section 02200, 3.02.K) the blasting contractor shall retain an independent firm to conduct blast monitoring. Seismographs shall have a Seismic Frequency Range of 2 to 150 Hertz and a sound frequency range of 1-500 Hz. Seismographs shall be capable of recording longitudinal, transverse, and vertical peak particle motion and frequency. The following information shall be printed out for each blast:

- Instrument Type
- Instrument Calibration Date
- Date and Time of Blast
- Instrument Location
- Distance to Blast
- Resultant Peak Particle Velocity (in/sec)
- Longitudinal, Vertical and Transverse Peak Particle Velocity (in/sec)
- Frequency (Hz)
- Seismograph Operator
- Airblast (dB)
- Stratum Directly Beneath Geophone

The seismographs shall be used to determine the air blast and peak particle velocity of each shot in the area where the seismograph is set. Peak particle velocities recorded with a 300' radius which exceed the Frequency-Peak Particle Velocity Curve (Figure B from Appendix B of the U.S. Bureau of Mines RI 8507) shall be documented and reported by the blaster to the Owner's representative and a copy forwarded to the City within 7 days of the record becoming available.

Vibration and Airblast control requirements are stated in the specifications (Section 02200, 3.02.N).

Condition surveys will be conducted during construction as stated in the specifications (Section 02200, 3.02.O).

Site observation and geotechnical evaluation of blasted rock slopes will be conducted if conditions of the blasted rock face deviate from design, or if unexpected conditions are encountered during construction (see Specifications, Section 02200, 3.02.P).

All persons within 500 feet of the site shall be notified of "Warning" and "All-Clear" signals through notices left in mailboxes and signs posted in the area. During the blasting operation, the blasting contractor shall be responsible for control of access in and around the general blast area. Equipment and traffic shall be stopped far enough away to ensure work area safety and shall not be released until the blast foreman issues the "all clear signal". Warning signals shall be issued prior to every shot as follows:

- 3 whistles at 5 minutes prior to blast
- 2 whistles at 1 minute prior to blast
- once the shot has been checked for any misfires, one whistle will issue the "all clear"

Blasting shall only occur as needed during the hours of 9:00 A.M. to 4:00 P.M. daily, Monday through Friday. Explosives shall be delivered to the job site on a daily basis. Only that amount necessary for the day's work shall be brought to the site. Explosives shall be transported and stored in approved magazines when not in use. No overnight storage of explosives on the site shall be permitted.

Prepared by:

SEBAGO TECHNICS, INC.

A handwritten signature in black ink, appearing to read "Lawrence Bastian". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Lawrence Bastian, P.E.

LRB:lrb/dlf/jc

PART 1 - GENERAL

1.01 RELATED DOCUMENTS: The general provisions of the Contract, including General and Supplementary Conditions and General Requirements (if any) apply to the work specified in this Section.

1.02 SUMMARY OF WORK:

A. Work included: All excavating, filling, backfilling and removal of materials.

1.03 PROTECTION:

A. Paved surfaces: Do not operate equipment on paved surfaces which will damage these surfaces.

B. Maintain excavations with approved barricades, lights and signs to protect life and property until excavation is filled and graded to a condition acceptable to the Engineer.

C. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

1.04 QUALITY ASSURANCE:

A. Standards:

"Standard Specification for Highways and Bridges" revision of April 1995, Maine Department of Transportation (abbreviated as MDOT "Standard Specification").

B. Testing and Inspection: See General Conditions and Division 01400 for general requirements.

1.05 SUBMITTALS:

A. Test Reports: Submit the following:

1. Reports on material gradations.

B. Blasting Records: See Part 3 - Execution for requirements.

1.06 JOB CONDITIONS:

- A. Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data are made available for the convenience of Contractor.

Additional test borings and other exploratory operations may be made by Contractor at no cost to Owner.

- B. Use of Explosives: Permitted, see Part 3 - Execution for requirements.

PART 2 - MATERIALS

2.01 MATERIALS:

A. General

1. Suitable materials: As shown on the Drawings or as specified.
2. Unsuitable materials: Material containing excessive plastic clay, vegetation, organic matter, debris, pavement, stones or boulders over 6 inches in greatest dimension, and frozen material. Material which, in the opinion of the Engineer, will not provide a suitable foundation or subgrade.
3. On-Site Material: Any suitable material from on-site excavation.
4. Material for embankments and general fills may contain pieces of excavated ledge having a greatest dimension of up to 12 inches if approved by the Engineer.
5. Testing: The Engineer may inspect off-site sources of materials and order tests of these materials to verify compliance with these specifications. Provide a gradation analysis on any imported material or material processed on site.

B. Base and Subbase:

1. Aggregate Subbase Material: Shall meet the requirements of Maine Department of Transportation Standard Specifications Section 703.06(b), Type D.
2. Aggregate Base Materials: Shall meet the requirements of MDOT Standard Specifications Section 703.06(a), Type A.

C. Sand: Sieve analysis by weight:

<u>Sieve Size</u>	<u>Max % Passing by Weight</u>
3/8"	100
No. 4	95 - 100
No. 16	50 - 85
No. 100	2 - 10

D. Crushed Stone: Durable, clean angular rock fragments obtained by breaking and crushing rock material. Crushed stone for underdrain shall be durable, washed angular rock fragments. Sieve analysis by weight.

<u>Sieve Size</u>	<u>Max % Passing by Weight</u>
2"	100
1½"	95 - 100
¾"	35 - 70
3/8"	10 - 30
No. 4	0 - 5

E. Refill Material: Crushed stone for refilling excavation below grade or rock excavation unless otherwise directed by the Engineer.

F. Common Borrow: Earth suitable for embankment construction free from frozen material, perishable rubble, peat and other unsuitable material.

G. Select fill: Use aggregate material for fill operations. Sieve analysis by weight:

<u>Sieve Size</u>	<u>Max % Passing by Weight</u>
4"	100
3"	90 - 100
¼"	25 - 90
No. 40	0 - 30
No. 200	0 - 5

H. Granular Fill: Well-graded material for fill operations. Sieve analysis by weight.

<u>Sieve Size</u>	<u>Max % Passing by Weight</u>
6"	100
3"	80 - 100
No. 200	0 - 40

- I. Structural Fill: Hard, durable gravel containing only particles passing the 3" sieve. Sieve analysis by weight.

<u>Sieve Size</u>	<u>Max % Passing by Weight</u>
3"	0 - 100
No. 4	30 - 90
No. 40	10 - 50
No. 200	0 - 8

- J. Underdrain Filter Sand:

Granular material for underdrain shall be free from organic matter and shall conform to the MDOT "Standard Specifications" Section 703.22 for underdrain Type B. Sieve analysis by weight:

<u>Sieve Size</u>	<u>Max % Passing by Weight</u>
1"	95 - 100
½"	75 - 100
No. 4	50 - 100
No. 20	15 - 80
No. 50	0 - 15
No. 200	0 - 5

PART 3 - EXECUTION

3.01 EXCAVATION:

- A. General: Remove all materials encountered to the limits shown on the drawings, or designated in the Specifications.
- B. Classifications:
1. The following classifications of excavation may be made which will be paid for on a unit cost basis:
 - a. Excavation and backfill with excavated material – per cubic yard (in place) – open.
 - b. Excavation of material and removal from site – per cubic yard – open.
 - c. Excavation and backfill with excavated material – per cubic yard (in place) – trench.
 - d. Excavation of material and removal from site – per cubic yard – trench.
 - e. Rock excavation – per cubic yard – open.

- f. Rock excavation - trench.
 - g. Common borrow fill and backfill - in place per cubic yard.
 - h. Aggregate base, in place - per cubic yard.
 - i. Aggregate subbase, in place - per cubic yard.
 - j. Crushed stone, in place - per cubic yard.
2. Do not perform excavation of unsuitable materials until material to be excavated has been cross-sectioned and classified by Engineer.
- C. Earth Excavation: Removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, and other materials encountered that are not classified as unauthorized excavation.
- D. Excavation for Structures:
1. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
 2. In excavating for footings and foundations, take care not to disturb bottom of excavation. Final excavation to subgrade level in the silty clay shall be made with excavation equipment fitted with smooth edged bucket. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work. Any loose, softened or disturbed material due to construction traffic or replacement of reinforcement shall be removed prior to placement of concrete.
- E. Rock Excavation:
1. Removal and disposal of materials that cannot be excavated without drilling and blasting, or requiring use of special equipment, except such materials that are classed as earth excavation.
 2. Typical materials classified as rock are solid rock, rock in ledges, and rock-hard cementitious aggregate deposits two cubic yards or more in volume.
 3. Intermittent drilling or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

4. Rock excavation does not include:
 - a. Removal of material which can be removed with a hand pick or power shovel.
 - b. Loose or previously blasted rock or broken stone in rock fills or elsewhere.

F. Rock Payment Lines:

Two feet outside of concrete work for which forms are required, except footings and base slabs.

One foot outside perimeter of footing, base slabs, and precast concrete.

Pipe trenches: 3' minimum width and 6" under pipe, or as indicated on Drawings.

Neat outside dimensions of concrete work where no forms are required.

Under slab on grade: 6-inch below bottom of concrete slab or as shown on drawings.

G. Excavation in Paved Areas:

1. Saw cut pavement prior to excavation to provide a clean, uniform edge. Minimize disturbance of remaining pavement. Cut and remove the minimum amount of pavement required to do the work.
2. Use shoring and bracing where sides of excavation will not stand without undermining pavement.

H. Excavation for Trenches:

1. Excavate to widths shown on the Drawings.
2. Produce an evenly graded flat trench bottom at the subgrade elevation required for installation of pipe and bedding material.
3. Load excavated material directly into trucks unless otherwise permitted by the Engineer.
4. Place backfill material directly into trench or excavation. Do not stockpile material to be used as backfill in roadways.

- I. Unauthorized Excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer including refilling, is at Contractor's expense.

- J. Refilling Unauthorized Excavation:
 - 1. Trenches: Use crushed stone or gravel as directed by Engineer.
 - 2. Below Building Footings: Use crushed stone fill.
 - 3. Elsewhere: Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.

- K. Excavation of Unsuitable Materials:
 - 1. When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions. If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper as directed by Engineer and replace excavated material with gravel or crushed stone.
 - 2. Removal of unsuitable material and its replacement as directed will be paid for as detailed in the Contract.

- L. Material Storage:
 - 1. Stockpile and maintain suitable surplus excavated materials for re-use as backfill anywhere within the project limits as directed by the Engineer. Place, grade and shape stockpiles for proper drainage.
 - 2. Locate and retain soil materials away from edge of excavations.

3.02 BLASTING

- A. General: Obtain approval of Owner before blasting. Conform to all provisions of the "Blasting Plan" for Ocean Ridge Condominiums.

Perform blasting in accordance with the following:

- 1. "Manual of Accident Prevention in Construction" issued by Associated General Contractors of America, Inc.
- 2. "Blasting Guidance Manual" (Rosenthal, et al., 1987).
- 3. "Construction Safety Rules and Regulations" as adopted by the State Board of Construction Safety, Augusta, Maine.

4. Section 107.12 of the "Standard Specifications", Maine Department of Transportation.
5. National Fire Protection Association's (NFPA) "495 Code for the Manufacture, Transportation, Storage and Use of Explosive Materials".
6. The Contractor shall comply with all applicable laws, rules, ordinances, and regulations of the federal government, the State of Maine, and the City of Portland, governing the transportation, storage, handling and use of explosives.
7. In case of conflict between regulations or between regulations and this Specification, the Contractor shall comply with the strictest applicable codes, regulations or Specifications.
8. The Blasting Subcontractor for the project shall carry liability insurance (XCU) coverage in an amount no less than \$2,000,000. A certificate of insurance documenting the coverage shall be provided prior to the start of construction. The insurance shall be in force for the duration of blasting at the site.

B. Qualifications

1. The Blasting Contractor shall be a company specializing in explosives for disintegration of rock, with at least five years documented experience in controlled blasting techniques.
2. Seismologist or Blasting Consultant: The Contractor will be required to retain an independent seismologist or blasting consultant to perform condition surveys prior to and during blasting operations, and to monitor, record, analyze, and report the seismic vibrations and airblast pressures being caused by blasting activities. The seismologist or blasting consultant shall have at least five years of documented experience conducting condition surveys for blasting operations, and shall be experienced in the subject of vibrations emanating from construction activities. The seismologist or blasting consultant shall not be an employee of the Contractor, subcontractor, explosives manufacturer, or explosives distributor.

The seismologist or blasting consultant shall be present at the site of the blasting during all blasts. The seismologist or blasting consultant shall provide and use all necessary equipment to observe and record vibrations to ascertain that acceptable levels of vibrations are not exceeded. The seismologist or blasting consultant shall monitor report findings and submit recommendations to the Engineer in accordance with the requirements of this Specification.

- C. Contractor shall comply with the terms of the Agreement between the Owner as Developer and the City of Portland regarding blasting and Contractor acknowledges the terms of the said agreement reading as follows:

"In the event that the blasting contractor fails to comply with the Plan, as it may be amended from time to time, DEVELOPER shall be subject to the following penalties:

1 st Offense	\$250.00
2 nd Offense	\$500.00
Subsequent Offenses	\$500.00

In the event that there are more than three documented violations of the Plan, City shall have the right to issue a stop work order on the Development. Developer shall then be required to obtain City approval of a revised Blasting Plan. Work shall not be allowed to continue on Development until the revised Plan is approved."

Contractor shall indemnify and hold Owner harmless from such penalties and shall pay such amounts directly to the City.

In the event that the City of Portland issues a stop work order which results in an amendment to the Blasting Plan, then Contractor agrees to comply with such amendment at no cost to Owner

- D. Notification of Pre-Blast Surveys and Blasting Schedule. Prior to commencement of pre-blast surveys, the contractor shall provide documentation to the City listing building owners within 1,000 feet of blasting limits (from Tax Map records) that the subject building owners were notified of the pre-blast survey work and the blasting schedule, and that the offer to conduct a pre-blast survey was either accepted or rejected by each building owner. The Contractor shall submit the notification document for review by the City of Portland before mailing or distributing the notice.
- E. Prior to the start of blasting work, pre-blast condition surveys shall be conducted by the Site Contractor of all existing structures and conditions on the site, adjacent to the site, or in the vicinity of the site. These surveys shall extend to such structures or items that may be affected by the Contractor's blasting operations. As a minimum, condition surveys shall be performed on all structures within 1,000 feet of anticipated blasting areas.

With appropriate notice and permission, the contractor's qualified inspector shall examine the interior and exterior of structures within the study area. The existing cosmetic, plumbing and electrical conditions shall be documented using photos, videotapes and written descriptions. The pre-blast survey shall be completed by a Maine licensed professional engineer experienced in performing pre-blast surveys.

Submit pre-blast survey report to Engineer and City at least two weeks prior to commencing drilling and blasting operations. The report shall present observation notes and photographs or video records for each building. The report shall also include a listing of all existing drinking water wells located within 500 feet of the site. The listing shall indicate the well owner, distance from the site, and well type (dug well in overburden or drilled well in rock).

F. Blasting Plan

At least two weeks prior to commencing drilling and blasting operations, the Contractor shall submit for review a blasting plan containing details of proposed blasting and construction operations including:

1. Sequence and schedule of blasting rounds including the general sequence of drilling and blasting, and the general method of developing the excavation(s), lift heights, etc.
2. Specifics of typical trench blast rounds and open cut blast rounds in deepest rock cut areas and areas closest to existing structures, and specifics of all controlled blasting at the perimeter of the excavation, including:
 - a. Diameter, spacing burden, depth, and orientation of each drill hole.
 - b. Type and nomenclature of detonators and delay pattern.
 - c. Type, nomenclature and weight per cartridge of explosives to be used, and weight and distribution of charge to be used within each hole, as well as total weight of explosive charge on each delay, and the total weight for the blast round.
 - d. Type and distribution of stemming to be used in each hole.
 - e. Estimation of vibration levels at nearest adjacent structures.
3. Methods of matting or covering of the blast area if required to prevent fly rock and excessive airblast overpressure.
4. Name, qualifications and experience of the licensed blaster who will be on site at all times directly supervising the loading and detonation of each blast round.

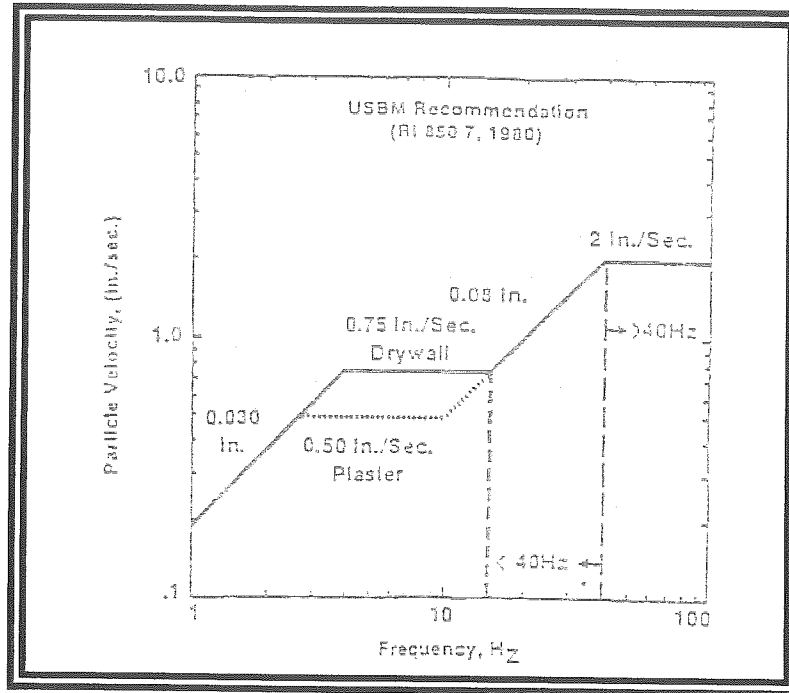
5. Details of an audible advance signal system to be employed at the job site as a means of informing workers, Engineer, Engineer, Owner, and the general public that a blast is about to occur.
6. Listing of instrumentation that the Contractor and/or the independent blast monitoring firm proposes to use to monitor vibrations and airblast overpressure levels complete with performance specifications and user's manuals supplied by the manufacturer, and a recent calibration (within the previous six months).
7. A plan showing the proposed locations of blast monitoring instrumentation.

G. Blasting Schedule:

The contractor shall prepare and submit a blasting schedule to the Engineer and the City (fire, police and emergency agencies) at least one week prior to commencing blasting operations. This schedule shall, at a minimum, include the following:

- Name, address and phone number of blaster;
- Identification of specific blasting areas;
- Dates and times of blasts;
- Methods to restrict access in the blast area and warning whistle announcements;

- H. The Contractor shall conduct all blasting activity in such a manner that the peak particle velocity of ground vibration measured at the locations of the nearest structures to the blast does not exceed the "safe limits" recommended by the U.S. Bureau of Mines in Appendix B of BUMINES RI 8507, as indicated in the following figure:



- I. **Test Blast(s):** Prior to the commencement of production blasting, the Contractor shall, using small charges and the required monitoring instruments, establish a site specific relationship between charge weight, distance and response. The Contractor shall develop site specific scaled distance relationships from the test blast rounds to determine the allowable charge weight of explosives to be detonated per delay which will result in a minimum of overbreak, a minimum of shattering or loosening of rock beyond the excavation limits, and which will produce sound and reasonably uniform surfaces in the completed excavations. The scaled distance (D_s) shall be the distance from the charge to the recording seismograph (D), divide by the square root of the explosive charge ($W^{0.5}$).
- J. The Contractor shall conduct all blasting activity in such a manner that the peak airblast overpressure measured at the location of the nearest above ground occupied structures to the blast (considering wind direction) does not exceed 129 decibels peak when measured by an instrument having a flat response (± 3 dB) over the range of 5 to 200 hertz. The equivalent maximum allowable airblast overpressure is 0.013 pounds per square inch (psi).
- K. Blast monitoring shall be conducted by an independent, qualified professional Engineer or seismologist trained in the use of a seismograph, and records shall be analyzed and results reported by persons familiar with analyzing and reporting the frequency content of a seismograph record. A minimum of three (3) Engineering seismographs shall be used for each blast, one adjacent to the nearest off site structure from the blast, the other two at locations mutually

agreed upon by the Engineer and Contractor. Each seismograph shall have a Seismic Frequency Range of 2 to 150 Hertz and a sound frequency range of 1-500 Hz. It shall be capable to recording longitudinal, transverse, and vertical peak particle motion and frequency. The following information shall be printed out for each blast:

- Instrument Type
- Instrument Calibration Date
- Date and Time of Blast
- Instrument Location
- Distance to Blast
- Resultant Peak Particle Velocity (in/sec)
- Longitudinal, Vertical and Transverse Peak Particle Velocity (in/sec)
- Frequency (Hz)
- Seismograph Operator
- Airblast (dB)
- Stratum Directly Beneath Geophone

The seismograph shall be used to determine the air blast and peak particle velocity of each shot in the area where the seismograph is set. Peak particle velocities recorded with a 300' radius which exceed the Frequency-Peak Particle Velocity Curve (Figure B from Appendix B of the U.S. Bureau of Mines RI 8507) shall be documented and reported by the blaster to the Owner's representative within 24 hours and a copy forwarded to the City within 7 days of the record becoming available.

L. Blast Monitoring Instrumentation: All instrumentation proposed for use on the project shall have been calibrated within the previous six (6) months to a standard which is traceable to the National Bureau of Standards. Characteristics of required instrumentation are listed below:

1. Measure the three (3) mutually perpendicular components of particle velocity in directions vertical, radial, and perpendicular to the vibration source.
2. Measure and display the maximum peak particle velocity component and airblast overpressure. These readings must be displayed and be able to be read in the field, immediately after each blast.
3. Furnish a permanent time history record of particle velocity waveforms and airblast overpressure waveforms, so that frequency and time of maximum peak particle velocity or airblast overpressure can be determined.

- M. Blast Monitoring Reports: The Contractor shall maintain a record of each blast, including seismographic data, available for inspection at the site. Blasting reports shall be submitted to the Engineer within 24 hours following each blast, and to the city on a weekly basis. One engineering seismograph shall be used for each blast adjacent to the nearest off-site structure from the blast. The Contractor, at their option, may elect to accept the independent monitoring results (3.02 H) in lieu of their own monitoring. Each blast monitoring report shall include all of the following applicable items:
1. Blast round design data, depth and number of drill holes, time of blast, *and maximum amount of explosives used per delay of 8 milliseconds, or greater.*
 2. Blast Monitoring Location Plan, indicating the location of each blast round, the monitoring instrument locations and elevations, and the distances from the blast to monitoring locations.
 3. Vibration and airblast overpressure data from each seismograph, including a copy of the strip chart (or other permanent record of velocity/time waveform) with calibration and monitoring record marked with the date, time and location of the blast, including: resultant peak particle velocity (in/sec); longitudinal, vertical and transverse peak particle velocity (in/sec); frequency (Hz); and peak airblast overpressure (dB).
- N. Vibration and Airblast Control. If the Contractor exceeds the ground vibration control limit for any single axis of any blast, or airblast overpressure control limit, he shall cease all blasting activities and submit an additional written report to the Engineer, and copied to the City. This report shall give the blast parameter data and include any necessary proposed corrective action for the next shot to ensure that the specified limit will not be exceeded. The next shot shall not be loaded until the Engineer acknowledges, in writing, that a design change is being attempted.
- O. Condition Surveys During Construction. If an adjoining or nearby property owner submits a complaint, or claims that blasting related damages have occurred, during or after the completion of blasting operations, the Contractor shall quickly respond by conducting a second survey of the subject property to identify any changes in the property conditions. The second survey shall be completed within 48 hours after the Contractor is notified of the complaint or claim, and shall be performed by the same firm and to the same standards and level of detail as the pre-blast survey. A written condition report shall be submitted to the Engineer, and copied to the city, within two weeks after the second survey is conducted.

- P. Site Observations of Blasted Rock Slopes (required only if rock cut slopes deviate from design or if unexpected conditions are encountered). During the course of the construction, or at the completion of blasting, for deep (greater than 4 ft.) permanent rock cut slopes, the rock slopes shall be inspected by a qualified geotechnical engineer concerning the long-term stability of the slopes. Written documentation shall be submitted by the geotechnical engineer to the Engineer, and copied to the City, regarding the long-term stability of the rock cut slopes, including, if appropriate, any remedial actions considered necessary to provide slopes with a suitable factor of safety against post-construction movements.
- Q. All persons within 500 feet of the site shall be notified of "Warning" and "All-Clear" signals through notices left in mailboxes and signs posted in the area. During the blasting operation, the blasting contractor shall be responsible for control of access in and around the general blast area. Equipment and traffic shall be stopped far enough away to ensure work area safety and shall not be released until the blast foreman issues the "all clear signal". Warning signals shall be issued prior to every shot as follows:
- 3 whistles at 5 minutes prior to blast
 - 2 whistles at 1 minute prior to blast
 - once the shot has been checked for any misfires, one whistle will issue the "all clear"
- R. Review by the Engineer of blast designs and techniques shall not relieve the Contractor of his responsibility for the accuracy, adequacy and safety of the blasting, exercising proper supervision and field judgment and producing the results within the blasting limits required by these Specifications.
- S. Blasting shall be limited to between the hours of 9:00 AM and 4:00 PM, Monday through Friday. Explosives shall be delivered to the job site on a daily basis. Only that amount necessary for the day's work shall be brought to the site. Explosives shall be transported and stored in approved magazines when not in use. No overnight storage of explosives on the site shall be permitted.
- T. Blasting mats shall be utilized for all blast rounds detonated to prevent the throw of flyrock from the blasting area, unless the Contractor's Independent Seismologist determines that the overburden is sufficient to prevent flyrock.
- U. Where over excavation occurs below building areas or paved areas, replace void areas with crushed stone as required to achieve a uniform subgrade.

3.03 STABILITY OF EXCAVATIONS

- A. General: Slope sides of excavations to comply with OSHA regulations and local codes. Shore and brace where sloping is not possible because of space restrictions or stability to material excavated.

Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

- B. Refer to Section 02150 for shoring and bracing requirements.

3.04 DEWATERING:

General: Perform all work in the dry. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Control water levels to at least one foot below subgrade elevation. Provide and maintain pumps, dewatering system components necessary to convey water away from excavations.

Convey water removed from excavations and rain water to collecting or runoff areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches. Any material removed off site must have erosion control measures approved by the Engineer.

3.05 BACKFILL AND FILL:

- A. General: Place acceptable soil material in layers to required subgrade elevations as shown on the Drawings and as listed below such that required density is achieved throughout each lift.

Fill, backfill and compact to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material. Place material in approximately horizontal layers of beginning at lowest area to be filled. Do not impair drainage.

- B. Re-Use of On-Site Soils and Excavated Bedrock

Based on observations at similar sites, the bedrock appears to fracture into workable pieces when blasted. Some of the blast spoils can likely be utilized as embankment fill below paved areas (below subbase material). The blast spoils shall be screened to remove pieces larger than 12 inches. The spoils shall be placed in 12-inch maximum lifts and compacted. Sufficient passes shall be

made to consolidate the material to minimize voids. The top 6 inches of blast spoil fill shall be choked with a well-graded granular material to fill void space prior to placing the subbase material or other compacted fills. Because the blast spoil fill cannot reasonably be tested for density, the Contractor shall arrange for the Owner's materials technician to observe placement of the blast spoil fill. Each lift of the blast spoil fill shall be tracked in two directions with a bulldozer and then compacted with a vibratory roller compactor weighing at least 10 tons working in two directions.

- C. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions and deleterious materials from ground surface prior to placement of fills. Scarify surfaces so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

- D. Placement: Place backfill and fill materials in layers not more than 12" in loose depth for material compacted by heavy compaction equipment and not more than 6" in loose depth for material compacted by hand-operated tampers. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice. Place backfill and fill materials evenly adjacent to structures to required elevations. Take care to prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift. Do not allow heavy machinery within 5 feet of structure during backfilling and compacting.

- E. Backfill: Backfill excavations as promptly as work permits, but not until completion of the following:

1. Acceptance of construction below finish grade including, dampproofing, waterproofing, and perimeter insulation.
2. Inspection and recording locations of underground utilities.
3. Removal of concrete formwork.
4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.
5. Removal of trash and debris.

6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.
 7. Backfill cast-in-place concrete structures when the concrete has developed adequate strength as determined by the Engineer.
 8. Use care in backfilling to avoid damage or displacement of underground structures and pipe.
 9. Backfill under all existing utility pipes crossed during construction operations with 3/4" crushed stone. The crushed stone backfill will extend continuously from the bedding of new utility pipes to the utility pipe crossed, including a 6" thick envelope of crushed stone all around the existing utility pipes.
 10. The 3/4" crushed stone backfill shall stand at its own angle of repose. No "haunching" or "forming" with common fill will be allowed.
- F. Backfilling Trenches: Bed pipe in crushed stone. Limits of bedding and requirements for remaining trench backfill are shown on the Drawings. Trenches in cross-country runs: Restore surface to that existing prior to construction. Mound the trench 6 inches above existing grade if required by the Engineer
- G. Replacement of unsuitable materials: Below normal grade: See paragraph 3.01K. Above normal grade: Replace unsuitable material with suitable on-site material. If additional material is required, use Select Backfill.

3.06 COMPACTION:

- A. Methods: Use methods which produce the required degree of compaction throughout the entire depth of material placed without damage to new or existing facilities and which are approved by the Engineer. Adjust moisture content of soil as required to achieve specified compaction. Remove and replace material which is too wet to compact to required density. Compact each layer of till and slopes as work progresses.
- B. Degree of Compaction: Compact to the following minimum densities:

<u>FILL AND BACKFILL LOCATION</u>	<u>DENSITY</u>
Under structure foundations	95 % of max.
Crushed stone fill	100 %
Select fill below slab areas and sidewalks	95 %
Top 2 feet under pavement	95 %

Below top 2 feet under pavement	92%
Trenches through unpaved areas	90%
Embankments	90%
Pipe Bedding	92%
Beside structure foundation walls, tank walls, and retaining walls	92 - 95%
Under pipes through structural fills	90%
Underdrain filter sand	92%

Maximum density: ASTM D1557, modified.

Field density tests: ASTM D1556 (sand cone), ASTM D2167 (rubber balloon), or ASTM D2922 (nuclear methods). ASTM C-29 (dry rodded unit weight) for crushed stone fill.

C. Testing:

1. Determine actual in place densities using field tests as directed by the Engineer. Testing shall be done by an independent laboratory and paid for by the Owner.

D. Minimum Number of Tests:

1. Paved Areas and Building Subgrade: Make at least one field density test of subgrade for every 2000 sq. ft. of paved area or building slab.

3.07 GRADING:

A. Grading: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

B. Grading Outside Structure Lines: Grade areas adjacent to structure lines to drain away from structures and to prevent ponding.

C. Finish surfaces free from irregular surface changes, and as follows:

1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10' above or below the required subgrade elevations.
2. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than one-half (1/2) inch above or below the required subgrade elevation.

3. Fill Under Slabs: Grade smooth and even, free of voids, compacted as specified and to required elevation. Provide final grades within a tolerance of 1/2 inch when tested with a 10' straightedge.
- D. Compaction: After grading, compact subgrade surfaces to the percentage of maximum density for each area classification.

3.08 MAINTENANCE:

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.\
- B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

3.09 DISPOSAL OF EXCESS MATERIALS:

- A. Removal from Owner's Property:

Remove excess excavated material, including surplus loam, and dispose of it off Owner's property.

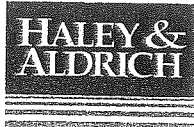
Grade material to the satisfaction of the Owner of the property on which the material is deposited. Keep roads free of debris. Use suitable watertight vehicles for hauling wet materials over roads and streets. Clean up materials dropped from or spread by vehicles promptly or when directed by the Engineer.

END OF SECTION

ATTACHMENT B TO BLASTING PLAN

UNDERGROUND
ENGINEERING &
ENVIRONMENTAL
SOLUTIONS

Haley & Aldrich, Inc.
500 SouthBorough Drive
Suite 10
South Portland, ME 04106-6935
Tel: 207.772.5439
Fax: 207.871.5999
www.HaleyAldrich.com



5 June 2001
File No. 27787-000

Marjem Mortgage Corporation
6 Huron Drive
P.O. Box 2219
Natick, Massachusetts 01760-2219

Attention: Mr. Murray G. Shocket

Subject: Proposed Ocean Ridge Condominiums
Ocean Avenue
Portland, Maine

Ladies and Gentlemen:

This report presents the results of our subsurface and foundation investigation for the proposed Ocean Ridge Condominiums located in Portland, Maine. This work was undertaken in accordance with our proposal dated 23 May 2001.

In summary, we recommend that the proposed buildings be founded on conventional spread footings bearing on naturally deposited soil or rock, or on compacted structural fill. In addition, earth-supported slabs-on-grade may be used for the ground floors. Specific recommendations regarding foundation design and construction considerations are presented below.

INTRODUCTION

The site for the Ocean Ridge Condominiums is located at 852 Ocean Avenue as shown on Figure 1, Project Locus. The parcel is located on the west side of Ocean Avenue to the south of the Dragon Cement quarry. The site is presently moderately wooded with several woods roads and walking trails traversing portions of the site. Ground surface elevations at the site vary from approximately El. 110 at Ocean Avenue to El. 170 at the interior. Numerous bedrock outcrops are located throughout the site. Elevations in this report are in feet and are referenced to National Geodetic Vertical Datum (NGVD).

PROPOSED CONSTRUCTION

The proposed construction consists of 46 Condominiums in 12 buildings. The lowest floor levels will be slabs-at-grade but some units will have walkout basements depending on site topography. Site development will include access roads, detention basins and underground

OFFICES

Boston
Massachusetts
Charles Town
West Virginia
Cleveland
Ohio
Denver
Colorado
Detroit
Michigan
Hartford
Connecticut
Los Angeles
California
Manchester
New Hampshire
Newark
New Jersey
Rochester
New York
San Diego
California
San Francisco
California
Washington
District of Columbia

utilities. Roadway and utility construction will require excavations of up to 15 ft. below existing grade.

SUBSURFACE EXPLORATIONS

W.H. Lavigne of Standish, Maine, excavated nineteen test pits, TP1 to TP12 and TP14 to TP20, at the site on 31 May and 1 June 2001. The location for test pit TP13 could not be determined and the test pit was deleted from the program. The test pits were excavated using a Link-Belt 2700 excavator at locations shown on Figure 2, Site and Subsurface Exploration Plan, to depths below the ground surface varying from 0.1 ft. to 5.9 ft. All test pits were terminated on bedrock and backfilled with the excavated material. Haley & Aldrich monitored the test pits and prepared the logs included in Appendix A. Table I summarizes the results of test pits.

Haley & Aldrich, Inc determined the locations of test pits by pacing from roadway centerline established by Sebago Technics, Inc.

The test pit logs and related information depict subsurface conditions and water levels at their specific locations at the time of the exploration. Soil conditions at other locations may differ from conditions at these locations. Also, the passage of time may result in a change in groundwater conditions at the boring and test pit locations.

SUBSURFACE CONDITIONS

The explorations encountered three principal soil units, forest mat, silt and sand overlying bedrock at the site. The soil units are discussed below in order of increasing depth below ground surface.

Forest Mat – Forest mat was encountered in all test pits and consisted of leaves, pine needles, roots and other organic forest materials. Oversized pieces of cobbles and boulders were present at the surface and within the forest mat in many test pits. The thickness of forest mat ranged from approximately 0.1 to 1.8 ft.

Silt – Silt was encountered in most test pits. Silt consists of dark brown to red brown SILT (ML) with roots. Oversized pieces up to 18 in. in size were observed in the silt layer. Encountered thickness varied from 0.2 ft. to 2.3 ft.

Sand – A sand layer was encountered in a few test pits. The layer consists of gray brown SAND (SP-SM) with oversized pieces up to 12 in. Encountered thickness varied from 0.23 ft. to 3.4 ft.

Bedrock was encountered in all test pits. The bedrock was generally sound and intact except that the excavator was able to remove the upper 6 in. to 12 in. of weathered bedrock in several locations.

Water was only encountered in test pit TP14 at a depth below ground surface of 2.9 ft. Observations of water were made over a relatively short period of time may not represent the stabilized groundwater level. In addition, groundwater levels will fluctuate with season, precipitation, temperature and construction activities in the area. Therefore, groundwater levels during and following construction may vary from that indicated in the explorations.

RECOMMENDATIONS FOR FOUNDATION DESIGN

Recommended Foundation Type and Design Criteria

The forest mat and silt with roots are not considered suitable for support of the buildings and floor slabs. All forest mat and silt should be removed from within the limits of the buildings. It is our opinion that the buildings may be supported on the undisturbed, naturally deposited sand, weathered bedrock and sound bedrock or on compacted structural fill after removal of unsuitable soil (forest mat and silt).

We recommend that for uniformity the footings be proportioned for an allowable bearing pressure, in lbs. per sq. ft., equal to 1,500 multiplied by the least lateral dimension of the footing in feet, up to a maximum of 4,500 lbs. per sq. ft. All footings should be at least 1.5 ft. wide. In some areas, bedrock may be above, at or near proposed bottom of footing. For footings bearing on bedrock, the maximum slope of the bedrock surface should not be steeper than 4 horizontal to 1 vertical. Steeper slopes should be benched or tapered to the above criteria. Individual footings should bear either on soil or bedrock. Continuous footings may span both soil and rock provided a transition from soil to rock is provided. Tapering the bedrock to a slope of 4 horizontal to 1 vertical and backfilling with soil to a minimum depth of 1 ft. would be acceptable.

Foundation construction may require excavation of bedrock in some building locations. Based on our observation of the character of the bedrock as revealed in outcrops and test pits, we anticipate that rock excavation will require systematic drilling and blasting. Rock should be identified as "any material that is geologically classified as rock and requires systematic drilling and blasting to excavate." Boulders and cobbles should not be classified as bedrock.

Exterior footings should be founded at least 4.5 ft. below the lowest adjacent ground surface exposed to freezing. Interior footings should be founded a minimum of 1.5 ft. below the ground floor slab. Exterior footings bearing on sound, intact bedrock may be founded at least 2.0 ft. below the lowest adjacent ground surface exposed to freezing.

Compacted structural fill supporting footings should extend laterally from the footings to at least the limits defined by 1 horizontal to 1 vertical lines sloped outward and downward from points located at least 2 ft. horizontally beyond the bottom edges of the footings.

Ground Floor Slabs

We recommend that the lowest level floor slabs be designed as earth-supported slabs-on-grade bearing on a minimum of 6 in. of compacted structural fill. All forest mat and silt should be removed from within the building limits prior to placing fill. All raises-in-grade below the buildings should be completed with compacted structural fill. We recommend perimeter foundation drains consisting of perforated or porous wall pipes surrounded by free-draining fill be constructed on the outside of any foundation walls where the floor level is below the final exterior grade. Normal dampproofing and vapor barriers should be provided below the slabs and backfilled walls.

Seismic Design Considerations

We recommend that the facilities be designed in accordance with the seismic requirements of the latest edition of the BOCA National Building Code. The site coefficient, S , is 1.0; the effective peak velocity-related acceleration coefficient, A_v , is 0.1; the effective peak acceleration coefficient, A_a , is 0.1 and the subsurface soils are not liquefaction susceptible.

Lateral Foundation Loads

We recommend that lateral loads be resisted by bottom friction on the foundations. We recommend that a coefficient of friction equal to 0.35 be used for foundations bearing on soil and structural fill, and 0.70 on sound rock.

Backfill Materials

Structural fill used below floor slabs and for backfill adjacent to foundations should consist of sandy gravel to gravelly sand. It should be free of organic material, loam, trash, snow, ice, frozen soil and other objectionable material, and should conform to the following gradation:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
6 in.	100
No. 4	30 to 90
No. 40	10 to 50
No. 200	0 to 8

Compacted structural fill should be placed in layers not exceeding 8 in. in loose measure and compacted by self-propelled vibratory equipment at the approximate optimum moisture content to a dry density of at least 95 percent of the maximum dry density, as determined in

accordance with ASTM Test Designation D1557. In confined areas, the maximum particle size should be reduced to 3 in. and the loose layer thickness should be reduced to 6 in. and compaction performed by hand-guided equipment.

Compacted structural fill on the outside of the foundation walls should extend laterally a minimum of 2 ft. from the wall. Backfill beyond this limit on the outside of the building may consist of common fill. The top 12-in. of fill on the exterior of the building should consist of low permeability material to minimize water infiltration next to the building. Grading should provide for runoff away from the building.

Common fill may consist of inorganic mineral soil that can be placed in layers not exceeding 12 in. in thickness and compacted with a minimum of two systematic passes of the equipment placing the fill.

SITE DEVELOPMENT CONSIDERATIONS

Roadways and Parking

The recommended pavement sections for roads and parking areas are as follows:

Roads

- 3-1/2-in. bituminous concrete, placed in two layers
- 3 in. screened or crushed gravel base course
- 15 in. sand or gravel subbase course

Automobile Parking Areas

- 3 in. bituminous concrete, placed in two layers
- 12 in. sand or gravel subbase course

Subbase course materials should conform to the following gradations:

Screened or Crushed Gravel (Maine DOT Standard Specification, Highways and Bridges, Section 703.06a, Type A)

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
2 in.	100
1/2 in.	45-70
1/4 in.	30-55
No. 40	0-20
No. 200	0-5

Sand or Gravel (Maine DOT Standard Specification, Highways and Bridges; Section 703.06b, Type D)

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
6 in.	100
¼ in.	25-70
No. 40	0-30
No. 200	0-7

(Note: Compacted structural fill may be substituted for gravel subbase course)

All forest mat and silt should be removed from within the limits of pavement. Fill required below the pavement section may consist of common fill. Common fill should be placed in layers not exceeding 12 in. in thickness and compacted to a dry density of at least 92 percent of maximum dry density, as determined in accordance with ASTM Test Designation D1557.

Subbase course material should be placed in maximum 8-in. thick loose lifts and compacted at approximately optimum moisture content to a dry density of at least 95 percent of maximum dry density, as determined in accordance with ASTM Test Designation D1557. Base course material should be placed in one lift and compacted with a minimum of 2 coverages with self propelled vibratory compaction equipment.

It should be noted that some subgrade soils are considered frost-susceptible. Therefore, pavement roughness due to non-uniform frost movement may occur. To eliminate such non-uniform frost movement would require approximately 4.5 ft. of structural fill subbase. However, it is common practice to tolerate seasonal movement to avoid the high cost of the added thickness of subbase.

Bedrock was encountered from 1 to 2 ft. below ground surface in most areas. Proposed roadway grades from approximately Sta. 1+00 to Sta. 6+00 are up to 12 ft. below existing grades. Therefore, rock cuts as much as 10 to 12 ft. will be required. Based on our observation of the character of the bedrock as revealed in outcrops and test pits, we anticipate that rock excavation will require systematic drilling and blasting. Rock should be identified as "any material that is geologically classified as rock and requires systematic drilling and blasting to excavate." Boulders and cobbles should not be classified as bedrock. We recommend that final rock slopes be excavated no steeper than 1 horizontal to 4 vertical.

The required volume of rock may be estimated from the existing ground surface contours assuming an average of 1 ft. of soil cover overlying bedrock.

Utilities

We anticipate that construction of water and sewer lines will require excavating trenches up to 10 ft. or more below the top of bedrock. Rock excavation will require systematic drilling and blasting for removal.

We recommend that dams of low permeable material such as clay or Portland cement be constructed in the bedding and backfill material at intervals of 300 ft. to prevent groundwater flow through the bedding and backfill.

CONSTRUCTION CONSIDERATIONS

General

The primary purpose of this section of the report is to comment on items related to excavation, earthwork and related geotechnical aspects of proposed construction. It is written primarily for the engineer having responsibility for preparation of plans and specifications. Since it identifies potential construction problems related to foundations and earthwork, it will also aid personnel who monitor the construction activity.

Excavation

As discussed, rock excavation of as much as 12 ft. or more will be required for roadway and utility construction. The rock may tend to overbreak unless presplitting, line drilling or other controlled blasting techniques are used.

In order to accommodate variations from the rock estimated from ground surface contours, we suggest that the specifications require the contractor to remove the overburden soil and loose rock to a surface requiring drilling and blasting for excavation and that a topographic survey of the top of rock be made. Measurements of the volume of rock excavated would then be based on the volume calculated from the topographic information and the design excavation pay limits.

We suggest that the payment for rock excavation be based on a unit price per cu. yd. with the quantity measured from the actual field contour elevations and design pay lines. Bids should be obtained based on the quantities calculated from the ground surface contours. However, the contract should provide for adjustments (either add or deduct) to the actual field quantity using a single unit price which is the same unit price applied to the base quantity. The specifications should further instruct the contractor that he is to account for any overbreak beyond these pay lines in the bid unit prices.

Normally specifications require that the contractor is completely responsible for all damages resulting from blasting operations. In addition, specifications should require the contractor to


Marjem Mortgage Corporation
5 June 2001
Page 9

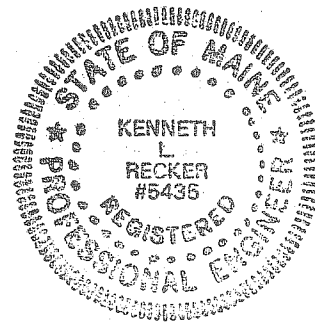
The recommendations presented herein are based in part on the data obtained from the referenced test pits. The nature and extent of variations between the explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

We request that we be provided the opportunity for a general review of final design and specifications in order to determine that our earthwork and foundation recommendations have been interpreted and implemented in the design and specifications as they were intended.

It has been a pleasure to work with you on this project. Please do not hesitate to contact us if you have any questions or require additional information.

Sincerely yours,
HALEY & ALDRICH, INC.


Kenneth L. Recker, P.E.
Vice President



Enclosures:

- Figure 1 - Project Locus
- Figure 2 - Site and Subsurface Exploration Plan
- Appendix A - Logs of Test Pits

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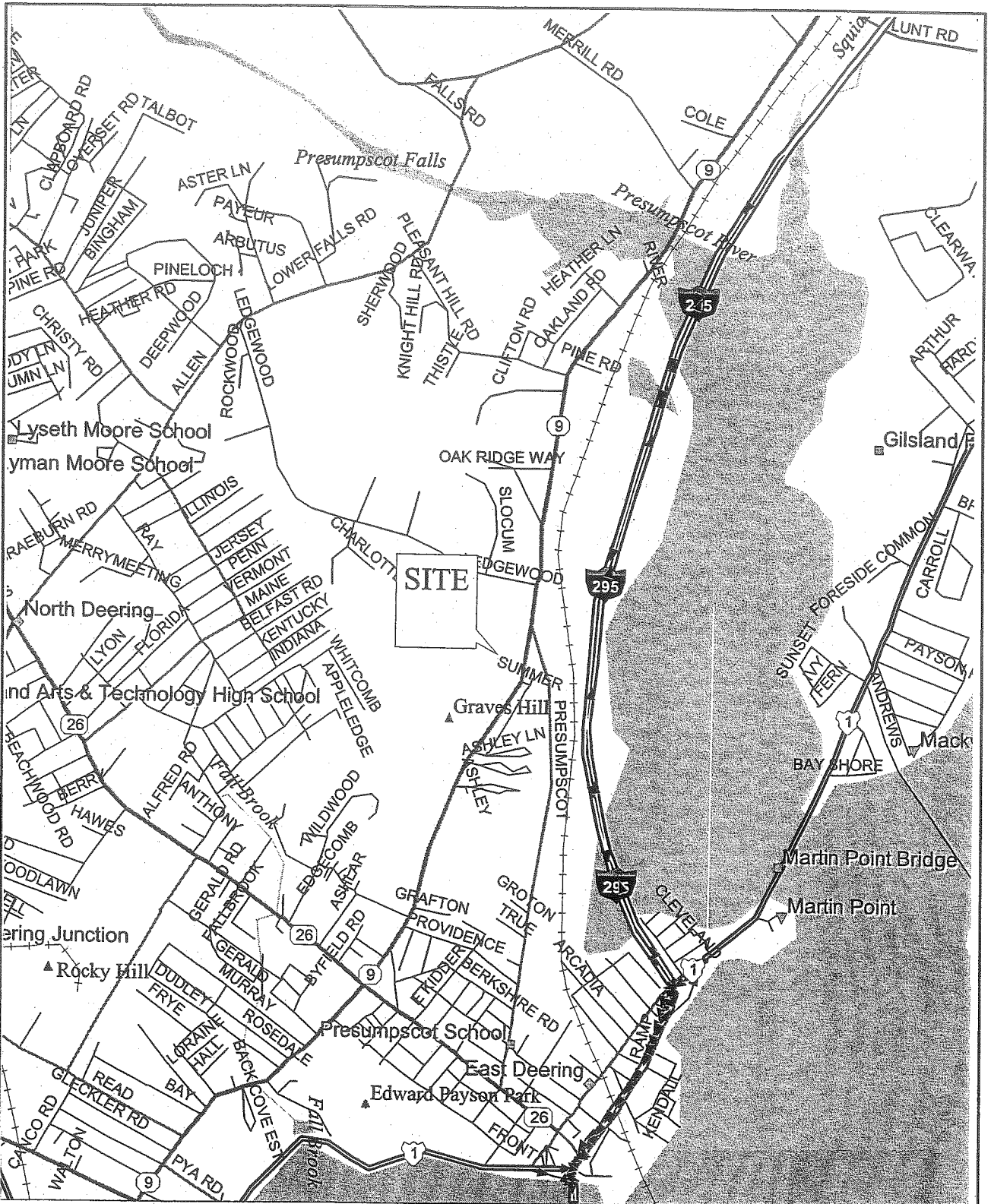
**TABLE I
SUMMARY OF TEST PITS
OCEAN RIDGE CONDOMINIUMS
PORTLAND, MAINE**

TEST PIT NO.	DEPTH (FT)	EPTH TO WATER (FT)	STRATA THICKNESS (FT)			
			FOREST MAT/FILL	SILT	SAND	BEDROCK
TP1	2.8	NE	0.2	1.5	1.1	0.0*
TP2	3.3	NE	0.2/2.0	1.1	--	0.0*
TP3	2.0	NE	0.1	1.9	--	0.0*
TP4	1.4	NE	0.3	1.1	--	0.0*
TP5	1.5	NE	0.2	1.3	--	0.0*
TP6	1.2	NE	0.2	1.0	--	0.0*
TP7	2.0	NE	0.2	1.8	--	0.0*
TP8	0.9	NE	0.2	0.7	--	0.0*
TP9	0.4	NE	0.1	0.3	--	0.0*
TP10	0.1	NE	0.1	--	--	0.0*
TP11	0.4	NE	0.2	0.2	--	0.0*
TP12	0.2	NE	0.2	--	--	0.0*
TP14	5.9	2.9	0.2	2.3	3.4	0.0*
TP15	2.0	NE	1.8	1.8	--	0.0*
TP16	2.0	NE	0.2	--	1.8	0.0*
TP17	1.7	NE	0.2	--	1.5	0.0*
TP18	0.6	NE	0.4	--	0.2	0.0*
TP19	0.2	NE	0.2	--	--	0.0*
TP20	0.2	NE	0.2	--	--	0.0*

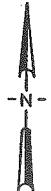
NOTES:

1. NE Indicates water not encountered within depth of test pit
2. -- Indicates stratum not encountered within depth of test pit
3. * Indicates depth of penetration into stratum.





FILE NO. 27787-000



SITE COORDINATES: N43°41'55", W70°15'42"

*MAP FROM DELORME'S STREET ATLAS USA, 2000
FREEPORT, MAINE*



UNDERGROUND
ENGINEERING &
ENVIRONMENTAL
SOLUTIONS

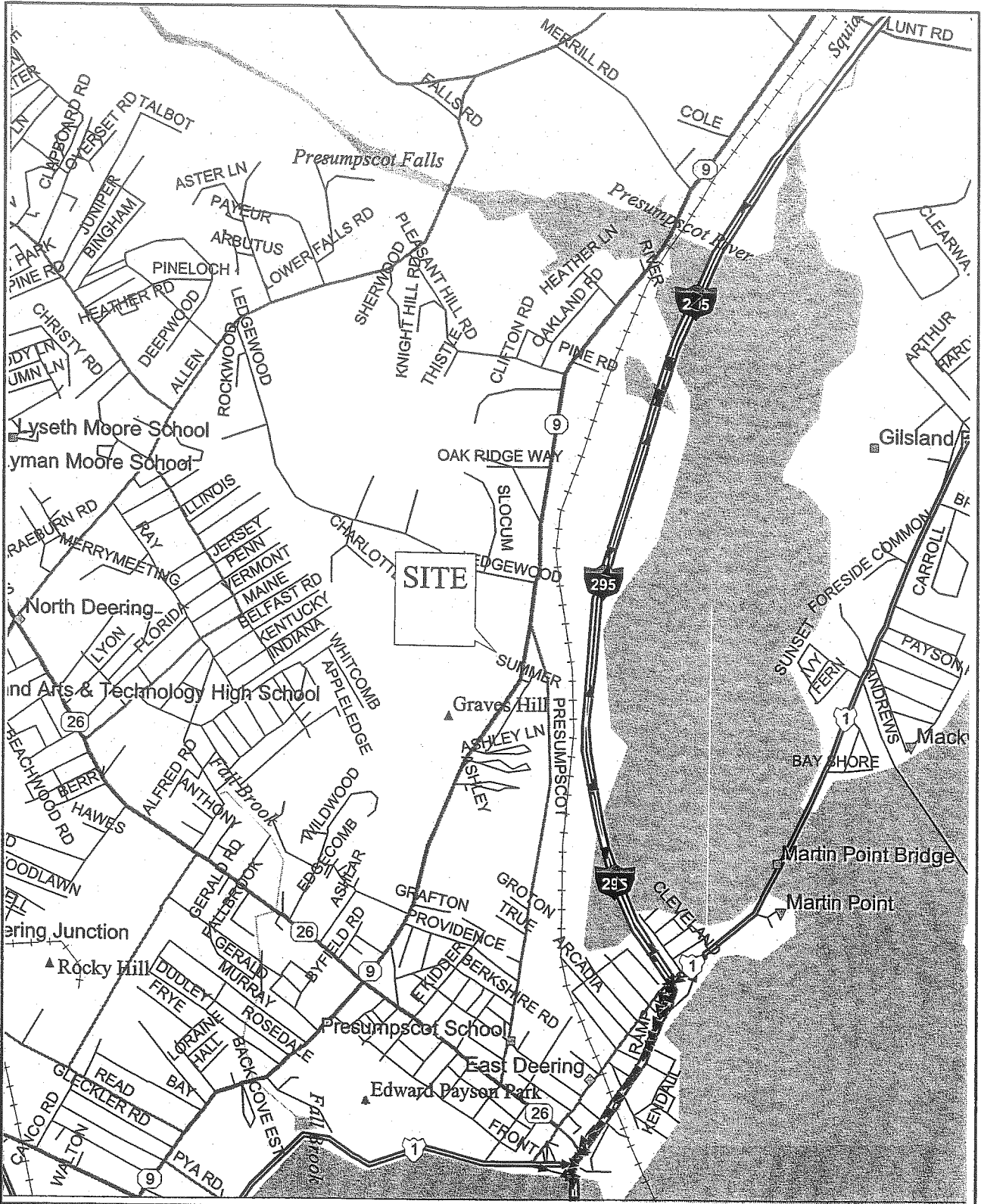
PROPOSED OCEAN RIDGE CONDOMINIUMS
PORTLAND, MAINE

PROJECT LOCUS

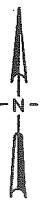
APPROX. SCALE: 1:25,000

JUNE 2001

FIGURE 1



FILE NO. 27787-000



SITE COORDINATES: N43°41'55", W70°15'42"

"MAP FROM DELORME'S STREET ATLAS USA, 2000
FREEPORT, MAINE"



UNDERGROUND
ENGINEERING &
ENVIRONMENTAL
SOLUTIONS

PROPOSED OCEAN RIDGE CONDOMINIUMS
PORTLAND, MAINE

PROJECT LOCUS

APPROX. SCALE: 1:25,000

JUNE 2001

FIGURE 1

APPENDIX A

Logs of Test Pits





TEST PIT LOG

Test Pit No. TP1

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel			Sand			Field Test							
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength				
0		0.2		-FOREST MAT-														
		0.7	ML	Dark brown loamy SILT with roots -TOPSOIL-														
			ML	Brown SILT					10	90								
2		1.7	SP- SM	Gray-brown SAND, 15% oversized, mps 8in., damp Note: tree roots to 2.0 ft.														
		2.8		-GLACIAL TILL- Refusal on Bedrock at 2.8 ft. Bottom of Exploration														

Obstructions:	Remarks:	Field Tests	
		Dilatancy	R - Rapid S - Slow N - None
		Toughness	L - Low M - Medium H - High
		Plasticity	N - Nonplastic L - Low M - Medium H - High
		Dry Strength	N - None L - Low M - Medium H - High V - Very High
Standing Water in Completed Pit		Boulders	
at depth	ft	Diameter (in.)	Number Approx. Vol. (cu.ft)
measured after	hours elapsed	12" to 24"	=
		over 24"	=
		Test Pit Dimensions (ft)	
		Pit Depth	2.8
		Pit Length x Width	10.0 x 3.5

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. TP2

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel		Sand			Field Test				
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength
0		0.1	ML	-FOREST MAT- Dark brown SILT with roots, bricks and cobbles, with gray-brown SAND (Reworked Glacial Till)					10	90				
2		2.2		-ORIGINAL TOPSOIL-										
		3.3		Refusal on Bedrock at 3.3 ft. Bottom of Exploration Note: Old remnants of house debris and Fill										

Obstructions:	Remarks:	Field Tests
		Dilatancy R - Rapid S - Slow N - None Toughness L - Low M - Medium H - High Plasticity N - Nonplastic L - Low M - Medium H - High Dry Strength N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit	Boulders	Test Pit Dimensions (ft)
at depth ft	<u>Diameter (in.)</u> <u>Number</u> <u>Approx. Vol. (cu.ft)</u>	Pit Depth 3.3
measured after hours elapsed	12" to 24" =	Pit Length x Width 10.0 x 3.5
	over 24" =	

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. **TP3**

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel					Sand			Field Test			
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength		
0		0.1	ML	-FOREST MAT- Brown SILT with roots							10	90				
2		2.0		Refusal on Bedrock at 2.0 ft. Bottom of Exploration Note: Bedrock surface sloping southeast at depths of 0.7-2.0 ft. Able to excavate weathered bedrock to 2.0 ft. Maximum particle size 30", oversized 70 %												

Obstructions:	Remarks:	Field Tests
		Dilatancy R - Rapid S - Slow N - None Toughness L - Low M - Medium H - High Plasticity N - Nonplastic L - Low M - Medium H - High Dry Strength N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit	Boulders	Test Pit Dimensions (ft)
at depth ft	<u>Diameter (in.)</u> <u>Number</u> <u>Approx. Vol. (cu.ft)</u>	Pit Depth 2.0
measured after hours elapsed	12" to 24" =	Pit Length x Width 10.0 x 3.5
	over 24" =	

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. TP4

Project Proposed Ocean Ridge Condominiums
 Location Portland, Maine
 Client Marjem Mortgage Corporation
 Contractor W. H. Lavigne, Inc.
 Equipment Used 2700 Link Belt

File No. 27787-000
 Date 31 May 2001
 Weather Clear
 H&A Rep HNM/KBS

Ground El.: ft Location: See Plan Groundwater depths/entry rates (in./min.):
 El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel					Sand					Field Test					
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength						
0		0.1	ML	-FOREST MAT- Brown to red-brown SILT with roots, mps 12in., 25% oversized																
2		1.4		Refusal on Bedrock at 1.4 ft. Bottom of Exploration Note: Able to excavate to 2.4 ft. on southeast end of test pit.																

Obstructions:	Remarks:	Field Tests
		Dilatancy R - Rapid S - Slow N - None Toughness L - Low M - Medium H - High Plasticity N - Nonplastic L - Low M - Medium H - High Dry Strength N - None L - Low M - Medium H - High V - Very High

<u>Standing Water in Completed Pit</u>		<u>Boulders</u>		<u>Test Pit Dimensions (ft)</u>	
at depth	ft	Diameter (in.)	Number	Approx. Vol. (cu.ft)	Pit Depth
measured after	hours elapsed	12" to 24"	=		2.4
		over 24"	=		Pit Length x Width
					8.0 x 3.5

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. **TP5**

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel					Sand					Field Test				
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength					
0		0.2	ML	-FOREST MAT- Brown SILT with roots, mps 24in., 50% oversized															
		1.5		Refusal on Bedrock at 1.5 ft. Bottom of Exploration															

Obstructions:	Remarks:	Field Tests
		Dilatancy R - Rapid S - Slow N - None Toughness L - Low M - Medium H - High Plasticity N - Nonplastic L - Low M - Medium H - High Dry Strength N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit		Boulders		Test Pit Dimensions (ft)	
at depth	ft	Diameter (in.)	Number	Approx. Vol. (cu.ft)	Pit Depth
measured after	hours elapsed	12" to 24"	=		1.5
		over 24"	=		Pit Length x Width
					10.0 x 3.5

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. **TP6**

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel		Sand			Field Test										
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength						
0		0.2	ML	-FOREST MAT-																
		1.2		Red-brown SILT with roots, mps 14in., 5% oversized						10	90									
				Refusal on Bedrock at 1.2 ft. Bottom of Exploration																

Obstructions:	Remarks:	Field Tests									
		Dilatancy R - Rapid S - Slow N - None Toughness L - Low M - Medium H - High Plasticity N - Nonplastic L - Low M - Medium H - High Dry Strength N - None L - Low M - Medium H - High V - Very High									
Standing Water in Completed Pit at depth ft measured after hours elapsed		Boulders <table style="width: 100%;"> <tr> <th>Diameter (in.)</th> <th>Number</th> <th>Approx. Vol. (cu.ft)</th> </tr> <tr> <td>12" to 24"</td> <td style="text-align: center;">=</td> <td></td> </tr> <tr> <td>over 24"</td> <td style="text-align: center;">=</td> <td></td> </tr> </table>	Diameter (in.)	Number	Approx. Vol. (cu.ft)	12" to 24"	=		over 24"	=	
Diameter (in.)	Number	Approx. Vol. (cu.ft)									
12" to 24"	=										
over 24"	=										
		Test Pit Dimensions (ft) Pit Depth 1.2 Pit Length x Width 10.0 x 3.5									
NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.											

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TEST PIT LOG

Test Pit No. TP8

Project Proposed Ocean Ridge Condominiums
 Location Portland, Maine
 Client Marjem Mortgage Corporation
 Contractor W. H. Lavigne, Inc.
 Equipment Used 2700 Link Belt

File No. 27787-000
 Date 31 May 2001
 Weather Clear
 H&A Rep HNM/KBS

Ground El.: ft Location: See Plan Groundwater depths/entry rates (in./min.):
 El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel					Sand					Field Test			
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength				
0		0.2		-FOREST MAT-														
		0.9	ML	Red-brown SILT with roots, mps 24in., 10% oversized								10	90					
				Refusal on Bedrock at 0.9 ft. Bottom of Exploration														

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Obstructions:	Remarks:	Field Tests					
		Dilatancy	R - Rapid	S - Slow	N - None		
		Toughness	L - Low	M - Medium	H - High		
		Plasticity	N - Nonplastic	L - Low	M - Medium	H - High	
		Dry Strength	N - None	L - Low	M - Medium	H - High	V - Very High
Standing Water in Completed Pit		Boulders			Test Pit Dimensions (ft)		
at depth	ft	Diameter (in.)	Number	Approx. Vol. (cu.ft)	Pit Depth	0.9	
measured after	hours elapsed	12" to 24"	=		Pit Length x Width	10.0 x 3.5	
		over 24"	=				

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.



TEST PIT LOG

Test Pit No. TP9

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel		Sand			Field Test					
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength	
0		0.1 0.4	ML	<p align="center">-FOREST MAT-</p> <p>Brown SILT with sand and roots Refusal on Bedrock at 0.4 ft. Bottom of Exploration at 0.4 ft.</p> <p>Note: Bedrock slopes from 0-0.4 ft. Excavated by hand shovel.</p>						10	90				

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Obstructions:	Remarks:	Field Tests	
		Dilatancy	R - Rapid S - Slow N - None
		Toughness	L - Low M - Medium H - High
		Plasticity	N - Nonplastic L - Low M - Medium H - High
		Dry Strength	N - None L - Low M - Medium H - High V - Very High
Standing Water in Completed Pit		Boulders	
at depth	ft	Diameter (in.)	Number
measured after	hours elapsed	12" to 24"	=
		over 24"	=
		Approx. Vol. (cu.ft)	
		Test Pit Dimensions (ft)	
		Pit Depth	0.4
		Pit Length x Width	2.0 x 2.0

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.



TEST PIT LOG

Test Pit No. **TP10**

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel		Sand			Field Test								
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength				
0		0.1		-FOREST MAT- Refusal on Bedrock at 0.1 ft. Bottom of Exploration														

Obstructions:	Remarks:	Field Tests					
		Dilatancy	R - Rapid	S - Slow	N - None		
		Toughness	L - Low	M - Medium	H - High		
		Plasticity	N - Nonplastic	L - Low	M - Medium	H - High	
		Dry Strength	N - None	L - Low	M - Medium	H - High	V - Very High

Standing Water in Completed Pit		Boulders			Test Pit Dimensions (ft)	
at depth	ft	Diameter (in.)	Number	Approx. Vol. (cu.ft)	Pit Depth	0.1
measured after	hours elapsed	12" to 24"	=		Pit Length x Width	4.0 x 3.5
		over 24"	=			

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. TP11

Project Proposed Ocean Ridge Condominiums
 Location Portland, Maine
 Client Marjem Mortgage Corporation
 Contractor W. H. Lavigne, Inc.
 Equipment Used 2700 Link Belt

File No. 27787-000
 Date 31 May 2001
 Weather Clear
 H&A Rep HNM/KBS

Ground El.: ft Location: See Plan Groundwater depths/entry rates (in./min.):
 El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel						Sand			Field Test					
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength					
0		0.2		-FOREST MAT-															
		0.4	ML	Red-brown SILT with roots, mps 12in., 10% oversized Refusal on Bedrock at 0.4 ft. Bottom of Exploration								10	90						

Obstructions:	Remarks:	Field Tests					
		Dilatancy	R - Rapid	S - Slow	N - None		
		Toughness	L - Low	M - Medium	H - High		
		Plasticity	N - Nonplastic	L - Low	M - Medium	H - High	
		Dry Strength	N - None	L - Low	M - Medium	H - High	V - Very High

<u>Standing Water in Completed Pit</u>		<u>Boulders</u>		<u>Test Pit Dimensions (ft)</u>	
at depth	ft	Diameter (in.)	Number	Approx. Vol. (cu.ft)	Pit Depth
measured after	hours elapsed	12" to 24"	=		0.4
		over 24"	=		Pit Length x Width
					10.0 x 3.5

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. TP12

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel		Sand			Field Test									
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength					
0		0.2		-FOREST MAT- Refusal on Bedrock at 0.2 ft. Bottom of Exploration															

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Obstructions:	Remarks:	Field Tests
		Dilatancy R - Rapid S - Slow N - None Toughness L - Low M - Medium H - High Plasticity N - Nonplastic L - Low M - Medium H - High Dry Strength N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit	Boulders	Test Pit Dimensions (ft)
at depth ft	Diameter (in.) Number Approx. Vol. (cu.ft)	Pit Depth 0.2
measured after hours elapsed	12" to 24" =	Pit Length x Width 10.0 x 3.5
	over 24" =	

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.



TEST PIT LOG

Test Pit No. **TP14**

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel		Sand			Field Test								
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength				
0		0.2	ML	-FOREST MAT- Brown SILT with roots						10	90							
2		2.5	SP- SM	Gray-brown SAND, mps 3.5ft., 40% oversized	20	15	10	5	40	10								
4		5.9		Refusal on Bedrock at 5.9ft. Bottom of Exploration														

Obstructions:	Remarks:	Field Tests
		Dilatancy R - Rapid S - Slow N - None Toughness L - Low M - Medium H - High Plasticity N - Nonplastic L - Low M - Medium H - High Dry Strength N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit	Boulders	Test Pit Dimensions (ft)
at depth ft	Diameter (in.) Number Approx. Vol. (cu.ft)	Pit Depth 5.9
measured after hours elapsed	12" to 24" 12 =	Pit Length x Width 12.0 x 3.5
	over 24" 3 =	

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. TP15

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel					Sand					Field Test		
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength			
0		0.2	ML	-FOREST MAT- Dark brown SILT with roots							10	5	85				
		1.1	ML	Orange-brown SILT with roots and occasional cobbles, damp		5					5	80					
2		2.0		Refusal on Bedrock at 2.0 ft. Bottom of Exploration Note: Bedrock slopes from 1.1 ft.- 2.0 ft.													

Obstructions:	Remarks:	Field Tests					
		Dilatancy	R - Rapid	S - Slow	N - None		
		Toughness	L - Low	M - Medium	H - High		
		Plasticity	N - Nonplastic	L - Low	M - Medium	H - High	
		Dry Strength	N - None	L - Low	M - Medium	H - High	V - Very High

Standing Water in Completed Pit		Boulders			Test Pit Dimensions (ft)	
at depth	ft	Diameter (in.)	Number	Approx. Vol. (cu.ft)	Pit Depth	2.0
measured after	hours elapsed	12" to 24"	1	=	Pit Length x Width	8.0 x 3.5
		over 24"		=		

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. TP16

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
EI. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel					Sand					Field Test			
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength				
0		0.2	ML	-FOREST MAT- Red-brown SAND with silt, dry, mps 18in., 20% oversized -GLACIAL TILL-	25	10	10	40	15									
2		2.0		Refusal on Bedrock at 2.0 ft. Bottom of Exploration														

Obstructions:

Remarks:

Field Tests

Dilatancy R - Rapid S - Slow N - None
Toughness L - Low M - Medium H - High
Plasticity N - Nonplastic L - Low M - Medium H - High
Dry Strength N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit

at depth ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12" to 24"	=	
over 24"	=	

Test Pit Dimensions (ft)

Pit Depth 2.0
Pit Length x Width 8.0 x 3.5

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. TP17

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description <small>(Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)</small>	Gravel					Sand					Field Test				
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength					
0		0.2	SP- SM	-FOREST MAT- Red-brown poorly graded SAND with silt, cobbles, tree roots, 15% oversized, mps 12in., dry			10	5	5	70	10								
		1.7		-GLACIAL TILL- Refusal on Bedrock at 1.7ft. Bottom of Exploration Note: Bedrock surface slopes from 1.7-2.0 ft.															

Obstructions:	Remarks:	Field Tests Dilatancy R - Rapid S - Slow N - None Toughness L - Low M - Medium H - High Plasticity N - Nonplastic L - Low M - Medium H - High Dry Strength N - None L - Low M - Medium H - High V - Very High
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Standing Water in Completed Pit	Boulders	Test Pit Dimensions (ft)
at depth ft	Diameter (in.) Number Approx. Vol. (cu.ft)	Pit Depth 1.7
measured after hours elapsed	12" to 24" =	Pit Length x Width 7.0 x 3.5
	over 24" =	

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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TEST PIT LOG

Test Pit No. TP18

Project Proposed Ocean Ridge Condominiums
Location Portland, Maine
Client Marjem Mortgage Corporation
Contractor W. H. Lavigne, Inc.
Equipment Used 2700 Link Belt

File No. 27787-000
Date 31 May 2001
Weather Clear
H&A Rep HNM/KBS

Ground El.: ft **Location:** See Plan **Groundwater depths/entry rates (in./min.):**
El. Datum:

Depth (ft)	Sample ID	Stratum Change Depth (ft)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel		Sand			Field Test									
					% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength					
0		0.4		-FOREST MAT-															
		0.6		Gray SAND with silt, dry Refusal on Bedrock at 0.6 ft. Bottom of Exploration Note: Bedrock slopes from 0.2-0.6 ft.					85	15									

Obstructions:	Remarks:	Field Tests					
		Dilatancy	R - Rapid	S - Slow	N - None		
		Toughness	L - Low	M - Medium	H - High		
		Plasticity	N - Nonplastic	L - Low	M - Medium	H - High	
		Dry Strength	N - None	L - Low	M - Medium	H - High	V - Very High

Standing Water in Completed Pit		Boulders			Test Pit Dimensions (ft)	
at depth	ft	Diameter (in.)	Number	Approx. Vol. (cu.ft)	Pit Depth	0.6
measured after	hours elapsed	12" to 24"	=	=	Pit Length x Width	7.0 x 3.5
		over 24"	=	=		

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

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From: "Lawrence R. Clough" <lrclough@tchl.com>
To: "Larry Bastian" <lbastian@sebagotechnics.com>, "Pe...
Date: 12/9/02 9:10AM
Subject: RE: Ocean Ridge

The original 1991 plan for Ocean Ridge was recorded in Plan Book 202, Page 725.

Lawrence R. Clough, Esq.

Tompkins, Clough, Hirshon & Langer P.A.

Three Canal Plaza, P. O. Box 15060

Portland, Maine 04112-5060

Tel 207-874-6700, fax 207-874-6705

-----Original Message-----

From: Larry Bastian [mailto:lbastian@sebagotechnics.com]
Sent: Monday, December 09, 2002 8:34 AM
To: 'lrclough@tchl.com'
Cc: 84180 (E-mail)
Subject: RE: Ocean Ridge

Please send me the book & page when you have it.

-----Original Message-----

From: Lawrence R. Clough [mailto:lrclough@tchl.com]
Sent: Friday, December 06, 2002 2:34 PM
To: lbastian@sebagotechnics.com
Subject: Ocean Ridge

The approved 2001 plan is on its way to the Registry for recording.

Lawrence R. Clough, Esq.

Tompkins, Clough, Hirshon & Langer P.A.

Three Canal Plaza, P. O. Box 15060

Portland, Maine 04112-5060

Tel 207-874-6700, fax 207-874-6705

CC: "84180 (E-mail)" <84180@sebagotechnics.com>

Department of Planning & Development
Lee D. Urban, Director



CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

August 16, 2002

Mr. Murray G. Shocket
Chairman
Marjem Mortgage Corporation
6 Huron Drive
P.O. Box 2219
Natick, MA 01760

RE: Ocean Ridge Condominium Development, 852 Ocean Avenue
Job #2001-0002, CBL#416A-A-001

Dear Mr. Shocket:

Thank you for your recent letter requesting an extension to your site plan approval for the 46-unit condominium development located in the vicinity of 852 Ocean Avenue.

In my capacity as Planning Division Director for the City of Portland, I am granting your request to extend your site plan approval to August 17, 2003.

If you have any questions, please contact Kandice Talbot at 874-8901, who worked on your project.

Sincerely,

Alexander Jaegerman
Planning Division Director

O:\PLANDEVREV\OCEAN852\EXTENSIONLETTER.DOC

cc: Lee D. Urban, Planning and Development Department Director
Sarah Hopkins, Development Review Program Manager
Kandice Talbot, Planner
Jay Reynolds, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Jodine Adams, Inspections
William Bray, Director of Public Works
Larry Ash, Traffic Engineer
Tony Lombardo, Project Engineer
Eric Labelle, City Engineer
Jeff Tarling, City Arborist
Penny Littell, Associate Corporation Counsel
Lt. Gaylen McDougall, Fire Prevention
Don Hall, Appraiser, Assessor's Office
Susan Doughty, Assessor's Office
Approval Letter File
Correspondence File

MARJEM
MORTGAGE

CORPORATION

August 12, 2002

Via Federal Express

Mr. Lee Urban
Planning Director
Planning and Urban Development Department
City of Portland
389 Congress Street
Portland, Maine, 04101

Re: Ocean Ridge Condominium Development, 852 Ocean Avenue
Job #2001-0002, CBL #416A-A-001

Dear Sir:

On behalf of Marjem Mortgage Corporation, owner of the property located at 852 Ocean Avenue, Portland, Maine, request is hereby made for a one year extension for commencement of work on the development, as provided under Paragraph 2 on Page 2 of the Approval Letter, dated August 17, 2001, from Jaimey Caron, Chairman of the Portland Planning Board.

Thank you for your anticipated prompt attention to this request.

Very truly yours,

MARJEM MORTGAGE CORPORATION.

BY: 

Murray G. Shocket, Chairman

MGS:sjf

u12PortlandPlanning BordUrbanLtr

DEED OF TRAIL EASEMENT

In consideration of the payment of one dollar, OCEAN RIDGE REALTY LLC, a Maine limited liability company with a place of business in Portland, Maine ("Grantor"), hereby grants to PORTLAND TRAILS, a Maine not-for-profit corporation with a place of business at 1 India Street, Portland, Maine 04101 ("Grantee") a perpetual nonexclusive easement over a strip of land (the "Easement Area") at the northwesterly corner of Grantor's property, which Easement Area and property are more particularly described in Exhibit A attached hereto. This easement is for the purpose of constructing a trail and for conserving the Easement Area as provided herein.

Together with and hereby granting to Grantee the right to construct, maintain, replace, relocate and repair within the Easement Area a trail (paved or unpaved) up to twelve (12) feet in width (the "Trail") together with foot bridges, guard rails, bollards, retaining walls, signage with a face area not to exceed 1 foot by two feet in dimensions exclusive of posts or mounting devices, and other similar appurtenances for purposes of pedestrian, bicycle and similar non-motorized (other than wheelchairs and any emergency vehicles operated by public authorities, which shall be permitted) recreational uses by the public during daylight hours, which uses may include without limit picnicking, nature observation, cross country skiers and such other recreational uses as may now or in the future arise, subject, however, to such rules which Grantee may adopt from time to time in the interests of public safety and/or to protect the Easement Area.

Grantor further covenants and agrees on behalf of itself, its successors and assigns, that the land which lies within the Easement Area shall, except for the construction, maintenance, repair, relocation and/or replacement of the Trail and any appurtenances by Grantee, its successors or assigns shall, as provided and permitted herein, be maintained in its natural and wooded state and Grantor and Grantee shall not use or permit any use which would be contrary to such condition.

Together with and hereby granting to Grantee an easement across the Grantor's property in such locations as may be reasonably acceptable to Grantor during the daylight hours for purposes of bringing in workers, vehicles and equipment for the aforesaid construction, maintenance, replacement, relocation and repair of the Trail and appurtenances upon reasonable advance notice to the Grantor, its successors and assigns.

Both Grantor and Grantee acknowledge that this easement is being provided to Grantee for purposes of public recreation without charge. It is understood that the use herein granted is non-exclusive and that the primary use which Grantor makes of its land (of which the Easement Area is a part) is non-recreational.

Together with and hereby granting to Grantee the right within the Easement Area to periodically trim trees and to remove dead, diseased or fallen trees (including "leaners") and to selectively clear undergrowth and make plantings to (1) prevent erosion, (2) preserve existing views and (3) provide for public safety, all in accordance with good forestry and landscaping

management practices, it being the intent hereof that this easement shall also be a conservation easement pursuant to 33 M.R.S.A. § 476 et seq.

Together with and hereby granting to Grantee the right to enter upon the Grantor's property during the daylight hours on foot and at reasonable times in order to ensure compliance with the terms hereof.

Notwithstanding any other provisions of this Easement, no alcoholic beverages may be brought onto the Easement Area, nor shall any fires be kindled, nor is any parking permitted on the Easement Area or elsewhere on the Grantor's property. Subject to any rights of Central Maine Power Company and/or New England Telephone Company in the Easement Area.

Grantee acknowledges that Grantor shall have no responsibility for the safety of any persons entering upon the Easement Area and that Grantor claims the rights and protections against liability for injury to the public to the fullest extent of the law under Title 14 M.R.S.A. Section 159-A, et seq. as amended and successor provision thereof (The Maine Recreational Use Statute), the Maine Tort Claims Act, and under any other applicable provision of law and equity.

To have and to hold the said Easement and all rights granted hereunder to the said Grantee and its successors and assigns forever.

IN WITNESS WHEREOF, Grantor has caused this easement to be executed this 26th day of November 26, 2002.

OCEAN RIDGE REALTY, LLC

J-R. Clough
Witness

By: Patrick Tinsman
Its: MANAGER
Print Name: PATRICK TINSMAN

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

November 26, 2002

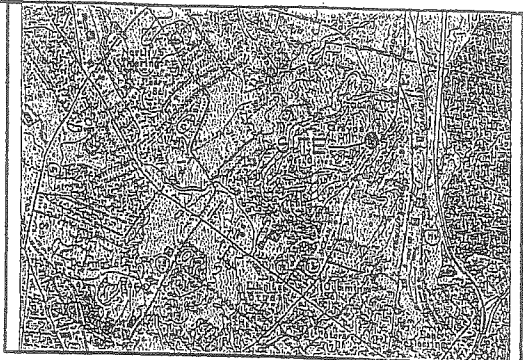
Personally appeared the above-named Patrick Tinsman, manager as aforesaid, who acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me
J-R. Clough
Lawrence R. Clough
Notary Public/Attorney-at-Law



CENTERLINE DATA		
LINE	BEARING	LENGTH
L1	S82°30'46"E	26.38'
L2	S08°04'02"W	84.28'
L3	N38°05'00"E	103.50'
L4	S41°20'33"E	118.65'
L5	S11°20'43"E	130.08'
L6	S51°04'32"E	170.76'
L7	S06°01'02"W	95.70'
L8	S51°05'50"W	46.84'
L9	N68°56'50"W	136.46'
L10	N12°39'47"E	204.73'
L11	S48°41'21"W	130.01'
L12	N21°03'10"E	92.68'

CENTERLINE CURVE DATA				
CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C0	16.30'	100.00'	S22°13'22"E	110.96'
C1	287.95'	100.00'	N66°58'39"W	212.50'
C2	256.83'	150.00'	N87°08'23"E	226.59'
C3	63.26'	100.00'	N63°30'06"W	62.39'
C4	38.21'	100.00'	S6°12'31"E	38.01'
C5	58.06'	50.00'	S28°31'48"E	57.37'
C6	79.13'	100.00'	S28°41'18"W	77.09'
C7	52.37'	50.00'	S81°04'30"W	49.97'
C8	71.21'	50.00'	N28°08'47"W	69.34'
C9	110.07'	250.00'	N34°53'18"E	119.84'
C10	110.07'	250.00'	N34°53'18"E	119.84'
C11	40.52'	71.00'	S08°17'46"W	36.83'
C12	101.52'	38.00'	N36°41'06"E	73.86'
C13	38.55'	71.00'	S16°59'18"W	33.36'

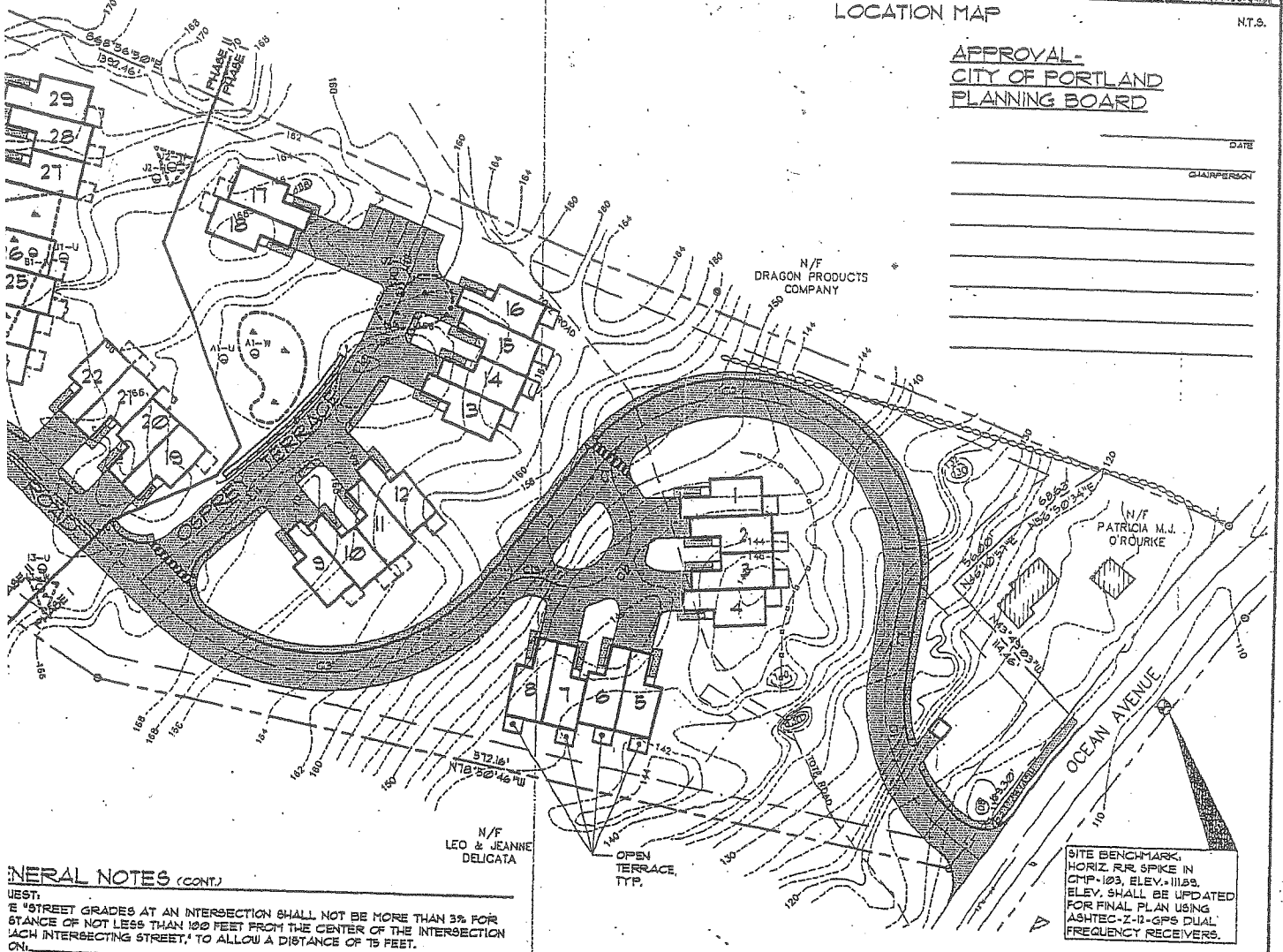


LOCATION MAP NT.S.

APPROVAL -
CITY OF PORTLAND
PLANNING BOARD

DATE _____

CHAIRPERSON _____



GENERAL NOTES (CONT.)

1. STREET GRADES AT AN INTERSECTION SHALL NOT BE MORE THAN 3% FOR STANCE OF NOT LESS THAN 100 FEET FROM THE CENTER OF THE INTERSECTION EACH INTERSECTING STREET, TO ALLOW A DISTANCE OF 15 FEET.

2. SOLID WASTE REMOVAL SHALL BE CURB SIDE PICK-UP BY PRIVATE TRACTOR.

3. ALL UNITS SHOULD BE PROVIDED WITH AN APPROVED SPRINKLER SYSTEM DESIGNED IN ACCORDANCE NFPA 13D.

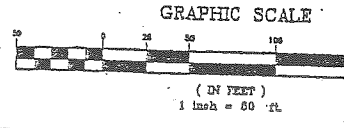
4. ENGINEERING DESIGNS FOR SITE IMPROVEMENTS SHOWN ON THIS PLAN ARE CONTAINED AND TITLED 'OCEAN RIDGE CONDOMINIUMS,' SHEETS 1 THROUGH 18, DATED 3-6-01, AND 7-10-01 AND 8-5-01.

5. PRIOR TO CONSTRUCTION, A PRE CONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT WITH THE CONTRACTOR, DEVELOPMENT REVIEW COORDINATOR, PUBLIC WORKS REPRESENTATIVE AND OWNER TO REVIEW THE CONSTRUCTION SCHEDULE AND CRITICAL ASPECTS OF THE SITE WORK. AT THAT TIME, THE SITE/BUILDING CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A DETAILED CONSTRUCTION SCHEDULE TO THE ATTENDING CITY REPRESENTATIVE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A MUTUALLY AGREEABLE TIME FOR THE PRE CONSTRUCTION MEETING.

6. CREATE WALKING TRAIL AT APPROXIMATE CENTERLINE OF PROPOSED ROAD AND WALKWAY CREATION AREA. ADJUST LOCATION AS REQUIRED TO COMPLEMENT EXISTING TOPOGRAPHY FEATURES. WITHIN TRAIL LIMITS, CUT EXISTING VEGETATION AT GROUND LEVEL AND PLACE 4" x 4" x 2 OF WOOD CHIPS.

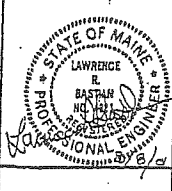
7. PARKING IS TO BE LIMITED TO ONE SIDE OF THE STREET ONLY. ON RIDGE ROAD AND OSPREY DRIVE PARKING SHALL BE ON THE LEFT SIDE. THE DEVELOPER WILL INSTALL "NO PARKING" PER CITY REQUIREMENTS.

MAINE
NOTARY PUBLIC REGISTER OF DEEDS
NO. 20
PAGE _____ AND RECORDED IN
PAGE _____ REGISTER



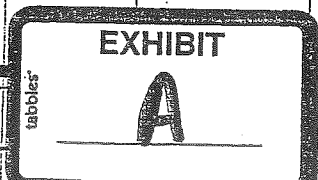
REV.	BY:	DATE:	STATUS:
E	LRB	8-8-01	PHASE I CONSTRUCTION
D	LRB	7-10-01	REVISED PER ADDITIONAL CITY COMMENTS
C	LRB	6-04-01	REVISED PER CITY COMMENTS
B	LRB	4-24-01	SUBMIT REVISED PLANS PER CITY REVIEW
A	LRB	3-7-01	SUBMIT FOR SITE PLAN REVIEW

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHNICS, INC.



SUBDIVISION PLAN
OF:
OCEAN RIDGE CONDOMINIUMS
852 OCEAN AVENUE
PORTLAND, MAINE
FOR RECORD OWNER:
MARJEM MORTGAGE CORPORATION
P.O. BOX 2219
NATICK, MA 01760

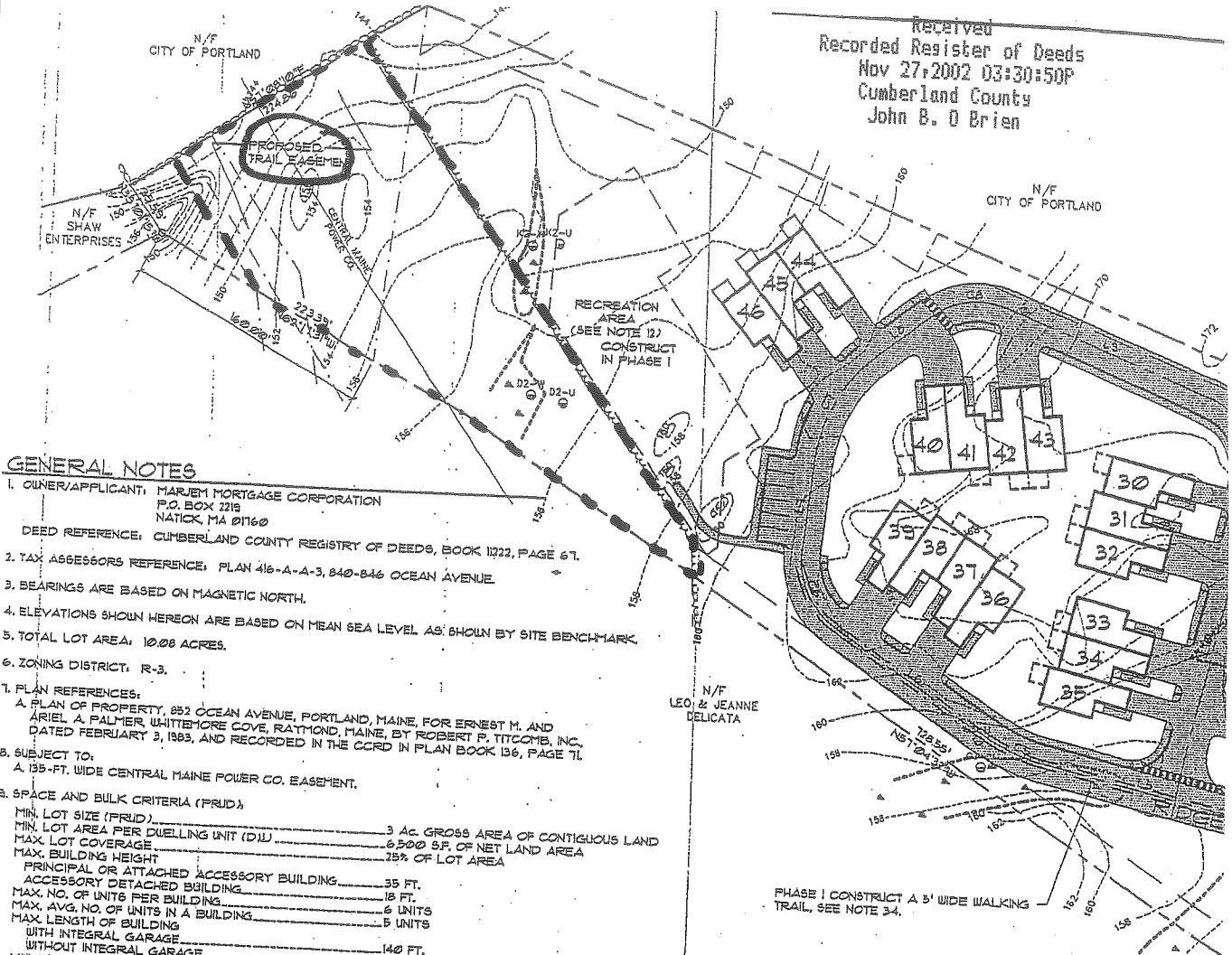
DESIGN BY:	JDA
DRAWN BY:	MAL
CHECKED BY:	LRB
DATE:	3-6-01
SCALE:	1"=50'
FIELD BK:	54
PROJ. NO:	84180
DRAWING:	84180SB



Sebago Technics
Engineering & Planning for the Future
One Chobet Street
Westbrook, Me 04098-1339
Tel (207) 856-0277

Doc# 97952 BK#18466 Pg# 310

Received
 Recorded Register of Deeds
 Nov 27, 2002 03:30:50P
 Cumberland County
 John B. O'Brien



GENERAL NOTES

1. OWNER/APPLICANT: MARJEM MORTGAGE CORPORATION
 P.O. BOX 2218
 NATICK, MA 01160
- DEED REFERENCE: CUMBERLAND COUNTY REGISTRY OF DEEDS, BOOK 1322, PAGE 67.
2. TAX ASSESSORS REFERENCE: PLAN 416-A-A-3, 840-846 OCEAN AVENUE.
3. BEARINGS ARE BASED ON MAGNETIC NORTH.
4. ELEVATIONS SHOWN HEREON ARE BASED ON MEAN SEA LEVEL AS SHOWN BY SITE BENCHMARK.
5. TOTAL LOT AREA: 10.08 ACRES.
6. ZONING DISTRICT: R-3.
7. PLAN REFERENCES:
 A. PLAN OF PROPERTY, 852 OCEAN AVENUE, PORTLAND, MAINE, FOR ERNEST M. AND ARIEL A. PALMER, WHITTEMORE COVE, RAYMOND, MAINE, BY ROBERT P. TITCOMB, INC. DATED FEBRUARY 3, 1983, AND RECORDED IN THE CORD IN PLAN BOOK 136, PAGE 71.
8. SUBJECT TO:
 A. 135-FT. WIDE CENTRAL MAINE POWER CO. EASEMENT.

9. SPACE AND BULK CRITERIA (PRUD)

MIN. LOT SIZE (PRUD)	3 AC. GROSS AREA OF CONTIGUOUS LAND
MIN. LOT AREA PER DWELLING UNIT (DIU)	6,500 SF. OF NET LAND AREA
MAX. LOT COVERAGE	25% OF LOT AREA
MAX. BUILDING HEIGHT	
PRINCIPAL OR ATTACHED ACCESSORY BUILDING	35 FT.
ACCESSORY DETACHED BUILDING	18 FT.
MAX. NO. OF UNITS PER BUILDING	6 UNITS
MAX. AVGS. NO. OF UNITS IN A BUILDING	5 UNITS
MAX. LENGTH OF BUILDING WITH INTEGRAL GARAGE	140 FT.
WITHOUT INTEGRAL GARAGE	100 FT.
MIN. BLDG. SETBACK FROM EXTERNAL SUB. IE	LESS THAN 3 UNITS PER BUILDING 25 FT.
MORE THAN 4 UNITS PER BUILDING	35 FT.
MIN. DISTANCE BETWEEN DETACHED BUILDINGS	16 FT.

10. NET LAND AREA CALCULATIONS:

GROSS AREA	439,285 SF.
STORM-WATER RETENTION AREA	0 SF.
STORM-WATER DETENTION AREA	12,854 SF.
EXISTING WATERCOURSES	0 SF.
INACCESSIBLE AREAS	6,400 SF.
WETLANDS	15,430 SF.
EXISTING EASEMENTS	33,500 SF.
SLOPES OF 25% OR GREATER	0 SF.
SUBTOTAL	312,800 SF.
20% OF SUBTOTAL	14,560 SF.
NET LAND AREA	298,241 SF.
X 1 DWELLING UNIT/6,500 SF. OF NET LAND AREA	46
TOTAL NO. OF DWELLING UNITS REQUIRED	46
TOTAL NO. OF DWELLING UNITS PROPOSED	46

11. MAXIMUM LOT COVERAGE CALCULATION:
 MAX. LOT COVERAGE = 25% OF NET LAND AREA = 25% x 298,241 SF. = 74,560 SF.
 PROPOSED LOT COVERAGE = 46 DIU x 1,600 SF./DIU = 73,600 SF.

12. MINIMUM RECREATION OPEN SPACE REQUIREMENTS:
 300 SF. PER DWELLING UNIT x 46 DWELLING UNITS = 13,800 SF. (OF WHICH A MINIMUM OF 16,000 SF. MUST BE A MULTI-PURPOSE OPEN FIELD).
 TOTAL OPEN PROVIDED = 13,800 SF.

13. THE BOUNDARY AND TOPOGRAPHIC SURVEYS WERE PERFORMED BY SEBAGO TECHNICS, INC.

14. WETLANDS SHOWN AS DELINEATED BY SEBAGO TECHNICS, INC. ON AUGUST 14, 2000 IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS DELINEATION MANUAL (WETLANDS REPORT DATED APRIL 3, 2000).

15. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATIONS TO OR DEVIATIONS FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION, TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS SIZE, LOCATION AND SURFACING OF PARKING AREAS, AND LOCATION AND SIZE OF BUILDINGS.

16. ALL ROADS TO INCLUDE BASE AND PAVEMENT, CURBS, SEWER AND STORM DRAIN INFRASTRUCTURE, SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES AND/OR UNDER THE SUPERVISION AND APPROVALS OF THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT, SUBJECT TO WAIVERS AS APPROVED BY PLANNING AUTHORITY.

17. ALL CURBS SHALL BE DESIGNED AND BUILT WITH TIP-DOWNS AT ALL STREET CORNERS, CROSSWALKS, TURN-AROUNDS, AND DRIVEWAYS IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL STANDARDS AND GUIDELINES.

18. ALL ELECTRIC, TELEPHONE AND CABLE T.V. SERVICES SHALL BE UNDERGROUND AND IN CONFORMANCE WITH CENTRAL MAINE POWER CO., BELL ATLANTIC TELEPHONE CO. AND TIME WARNER CABLE T.V. CO. STANDARDS.

19. ALL WATER MAINS, SERVICES AND ASSOCIATED APPURTENANCES SHALL BE IN CONFORMANCE WITH PORTLAND WATER DISTRICT STANDARDS.

GENERAL NOTES (CONT.)

20. A MINIMUM OF TWO TREES PER UNIT SHALL BE CONSERVED OR PLANTED IN THE FRONT YARD OF EACH UNIT MEETING THE CITY OF PORTLAND'S ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE DESIGN BUT SHALL REMAIN LIABLE TO THE CITY OF PORTLAND FOR FINANCIAL OBLIGATION FOR COMPLIANCE WITH CITY ORDINANCES AND APPROVALS. SUCH FINANCIAL OBLIGATION SHALL BE NEITHER TRANSFERABLE NOR WAIVABLE BY THE DEVELOPER.

21. LANDSCAPING SHALL MEET THE "ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.

22. EXISTING VEGETATION SHALL BE CONSERVED IN AREAS SHOWN ON THIS SITE. FENCING OR OTHER PROTECTIVE BARRIERS SHALL BE ERRECTED OUTSIDE THE DRIP-LINE OF INDIVIDUAL TREES DESIGNATED FOR PRESERVATION PRIOR TO THE ONSET OF CONSTRUCTION. PRESERVATION NO STORAGE OR CONSTRUCTION MATERIALS SHALL BE PERMITTED WITHIN DRIP-LINE OF TREES TO BE PRESERVED.

23. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH MAINE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES* PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 1991 OR LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSES A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.

24. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING.

25. ALL DISTURBED AREAS ON THE SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED OR OTHER METHODS AS REQUIRED BY BEST MANAGEMENT PRACTICES.

26. THE DRAINAGE EASEMENTS SHOWN ON THIS PLAN SHALL BE RECORDED IN THE CONDOMINIUM DEEDS. EACH DRAINAGE EASEMENT SHALL BE FOR THE PURPOSES OF MAINTENANCE REPAIR OR CLEANING OF DITCHES, CHANNELS AND/OR PIPES ASSOCIATED WITH SURFACE DRAINAGE SHARED BY LOTS CONTRIBUTING RUN-OFF TO THE SPECIFIC DRAINAGE COURSE DEPICTED ON THIS PLAN.

27. THIS PLAN IS BASED UPON A STANDARD BOUNDARY SURVEY PERFORMED BY SEBAGO TECHNICS, INC. IN ACCORDANCE WITH THE MINIMUM STANDARDS ADOPTED BY THE STATE BOARD OF LICENSURE FOR LAND SURVEYORS, CATEGORY I, CONDITION II, WITH THE FOLLOWING EXCEPTIONS:

- A. THE WRITTEN REPORT IS LIMITED TO THE NOTES ON THE PLAN.
- B. MONUMENTATION WAS NOT SET AT THE ISSUANCE OF THIS PLAN.
- C. DEED DESCRIPTIONS WERE NOT PREPARED AT THIS TIME.

28. OCEAN RIDGE CONDOMINIUMS IS A PRIVATE DEVELOPMENT. LIGHTING, TRASH REMOVAL, SNOW-CLEARING AND STREET MAINTENANCE WILL BE THE RESPONSIBILITY OF THE CONDOMINIUM ASSOCIATION.

29. THE FOLLOWING IS A LIST OF WAIVERS BEING REQUESTED FOR THIS PROJECT AND THE SPECIFIC ACTIONS TAKEN ON EACH REQUEST.

REQUEST:
 WAIVER THE MAXIMUM GRADE FOR THE CENTERLINE OF ALL STREETS SHALL NOT BE 8% TO ALLOW MAXIMUM 10% GRADE ACTION.

GENERAL NOTES (CONT)

10. A THIRTIETH OF TWO TREES PER UNIT SHALL BE CONSERVED OR PLANTED IN THE FRONT YARD OF EACH UNIT MEETING THE CITY OF PORTLAND'S AEROSOL/TECHNICAL SPECIFICATION AND STANDARDS OF PRACTICE AND ADJACENT LANDSCAPES. LANDSCAPE DEVELOPMENT TO THE CITY OF PORTLAND FOR FINANCIAL, ENVIRONMENTAL AND EROSION CONTROL. HEADGAGES SHALL BE INSTALLED IN ACCORDANCE WITH "TRADE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION BEST MANAGEMENT PRACTICES" PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER DISTRICT AND PLAINS DEPARTMENT OF ENVIRONMENTAL PROTECTION PARAGRAPH 350 OR BEST PRACTICES AS SET FORTH IN THE EROSION CONTROL PLAN AT ALL TIMES.

11. LANDSCAPING SHALL MEET THE "AEROSOL/TECHNICAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND AND DESIGN STANDARDS AND GUIDELINES.

12. EXISTING VEGETATION SHALL BE CONSERVED IN AREAS SHOWN ON THIS SITE DESIGN OR THEREAFTER. VEGETATION SHALL BE PRESERVED PRIOR TO THE ONSET OF CONSTRUCTION. VEGETATION SHALL NOT TAKE PLACE WITHIN THE DRAINAGE LINE OF INDIVIDUAL PLOTS. NO STORAGE OR CONSTRUCTION MATERIALS SHALL BE PERMITTED WITHIN THE DRAINAGE LINE OF TREES TO BE PRESERVED.

13. ALL SEDIMENT AND EROSION CONTROL HEADGAGES SHALL BE INSTALLED IN ACCORDANCE WITH "TRADE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION BEST MANAGEMENT PRACTICES" PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER DISTRICT AND PLAINS DEPARTMENT OF ENVIRONMENTAL PROTECTION PARAGRAPH 350 OR BEST PRACTICES AS SET FORTH IN THE EROSION CONTROL PLAN AT ALL TIMES.

GENERAL NOTES (CONT)

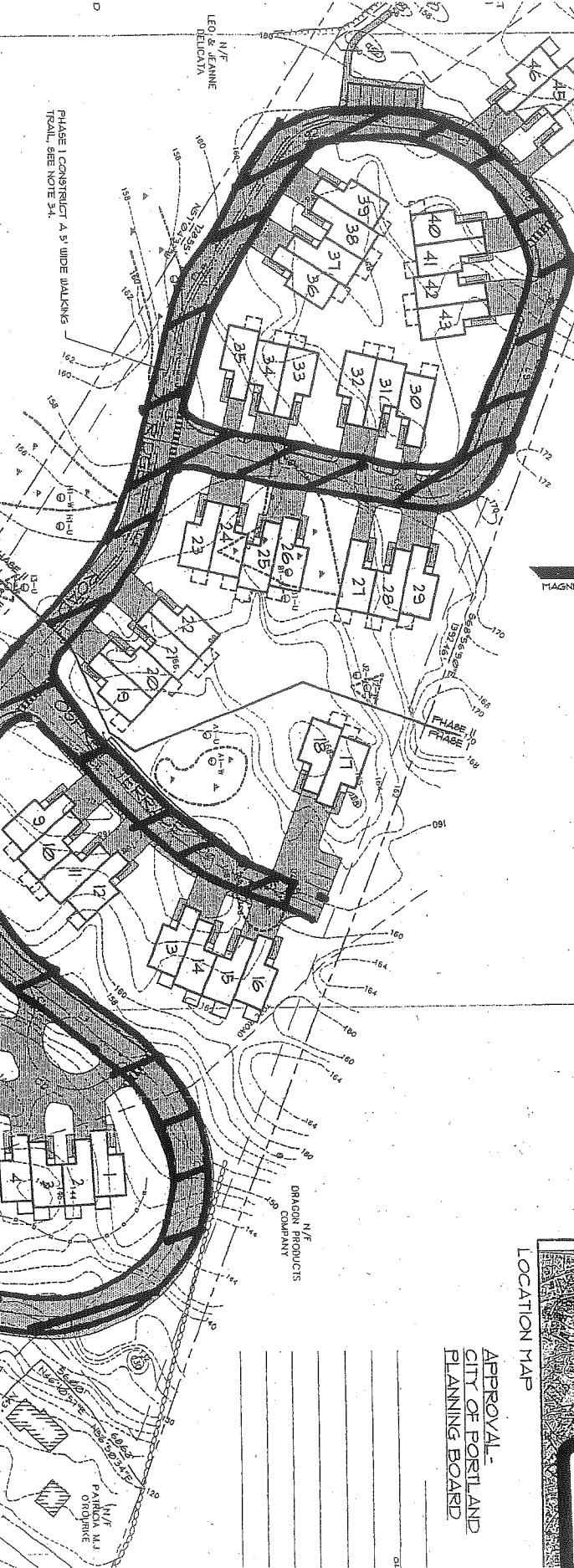
14. ALL SEDIMENT AND EROSION CONTROL HEADGAGES SHALL BE INSTALLED IN ACCORDANCE WITH "TRADE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION BEST MANAGEMENT PRACTICES" PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER DISTRICT AND PLAINS DEPARTMENT OF ENVIRONMENTAL PROTECTION PARAGRAPH 350 OR BEST PRACTICES AS SET FORTH IN THE EROSION CONTROL PLAN AT ALL TIMES.

15. ALL SEDIMENT AND EROSION CONTROL HEADGAGES SHALL BE INSTALLED IN ACCORDANCE WITH "TRADE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION BEST MANAGEMENT PRACTICES" PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER DISTRICT AND PLAINS DEPARTMENT OF ENVIRONMENTAL PROTECTION PARAGRAPH 350 OR BEST PRACTICES AS SET FORTH IN THE EROSION CONTROL PLAN AT ALL TIMES.

GENERAL NOTES (CONT)

16. ALL SEDIMENT AND EROSION CONTROL HEADGAGES SHALL BE INSTALLED IN ACCORDANCE WITH "TRADE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION BEST MANAGEMENT PRACTICES" PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER DISTRICT AND PLAINS DEPARTMENT OF ENVIRONMENTAL PROTECTION PARAGRAPH 350 OR BEST PRACTICES AS SET FORTH IN THE EROSION CONTROL PLAN AT ALL TIMES.

17. ALL SEDIMENT AND EROSION CONTROL HEADGAGES SHALL BE INSTALLED IN ACCORDANCE WITH "TRADE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION BEST MANAGEMENT PRACTICES" PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER DISTRICT AND PLAINS DEPARTMENT OF ENVIRONMENTAL PROTECTION PARAGRAPH 350 OR BEST PRACTICES AS SET FORTH IN THE EROSION CONTROL PLAN AT ALL TIMES.



CENTERLINE DATA

LINE	BEARING	LENGTH
L1	S87.340°46'E	26.58'
L2	S98.641°01'W	5.418'
L3	N88.052°00'E	10.350'
L4	S41.013°3'E	18.635'
L5	S11.720°43'E	130.000'
L6	S91.043°31'E	120.716'
L7	S06.010°27'W	55.160'
L8	S51.255°52'W	46.834'
L9	N66.756°52'W	135.436'
L10	N42.391°11'W	262.413'
L11	S48.412°11'W	150.021'
L12	N10.031°02'E	51.620'

CENTERLINE CURVE DATA

CURVE	LENGTH	RADIUS	CHD. BEARING	CHD. DIST.
C1	16.300'	100.000'	S27.152°27'E	102.516'
C2	29.7135'	100.000'	N56.593°23'W	215.340'
C3	256.833'	150.000'	N81.025°03'E	226.575'
C4	63.336'	100.000'	N63.362°06'W	62.235'
C5	38.211'	100.000'	S6.718°31'E	39.921'
C6	58.026'	50.000'	S22.514°15'E	27.024'
C7	78.193'	100.000'	S10.043°20'W	42.921'
C8	51.232'	50.000'	N18.025°12'W	63.924'
C9	111.211'	250.000'	N14.551°16'E	118.824'
C10	402.571'	212.000'	S02.114°16'W	346.823'
C11	101.251'	380.000'	N58.410°26'E	113.866'
C12	35.255'	212.000'	S16.551°16'W	333.316'

APPROVAL -
 CITY OF PORTLAND
 PLANNING BOARD

LOCATION MAP

EXHIBIT
A

abbies

Department of Planning & Development
Lee D. Urban, Director



CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

January 15, 2003

Wayne Flagg
Eastern Division Manager
Maine Drilling & Blasting, Inc.
P.O. Box 1140
Brunswick Road
Gardiner, ME 04345

RE: Ocean Ridge Blasting Plan
Ocean Ridge Condominium Development, 852 Ocean Avenue
Job #2001-0002, CBL#416A-A-001

Dear Mr. Flagg:

We are in receipt of the recently submitted letter/amendment dated January 13, 2003 for the Ocean Ridge Condominiums at 852 Ocean Avenue. In reviewing the submittal, the City has the following concerns:

- Blast monitoring shall be conducted by an independent qualified professional engineer or seismologist (page 12, Sebago Technics Earthwork). Based on your submittal, it does not appear that Mr. Skehan is an independent representative. Although Mr. Blaisdell of your company has stated Mr. Skehan is not an employee of Maine Drilling and Blasting, the City needs to be satisfied that Mr. Skehan provides truly independent analysis to individuals receiving a pre-blast survey. Please provide to the City an affidavit detailing the relationship of Mr. Skehan to Maine Drilling and Blasting and any documents to support your position.
- Since the notification letters have already been distributed to properties, it appears that the requested language was not added. When additional letters are sent to property owners, please amend the language to include the required language.
- Your letter does not state that copies of the blast reports will be forwarded to the City within 7 days.

Please do not hesitate to call if you have any questions.

Sincerely,

A handwritten signature in cursive script, appearing to read "Sarah Hopkins".

Sarah Hopkins
Development Review Services Manager

CITY OF PORTLAND, MAINE

PLANNING BOARD

Jaimy Caron, Chair
Deborah Krichels, Vice Chair
Kenneth M. Cole III
Cyrus Y. Hagge
Erin Rodriguez
Mark Malone
Orlando E. Delogu

August 17, 2001

Mr. Murray Shocket
Marjem Mortgage Corp.
6 Huron Drive
P.O. Box 2219
Natick, MA 01760

RE: Ocean Ridge Condominium Development, 852 Ocean Avenue
Job #2001-0002, CBL #416A-A-001

Dear Mr. Shocket:

On August 14, 2001, the Portland Planning Board voted 6-0 (Caron absent) to approve your application for a 46-unit PRUD located at 852 Ocean Avenue. The Board found that the application was in conformance with the Site Location of Development Act. The Board also found that the application met the standards of the Subdivision and Site Plan ordinance of the Land Use Code and that the proposed Sectional Recording of two phase does meet the requirements of Section 14-495(h) of the subdivision ordinance.

The approval was granted for the project with the following conditions:

Subdivision

- i. that the applicant provide an Emergency Access Agreement to allow the City to plow Ridge Road if emergency vehicles cannot make it into the Ocean Ridge development.
- ii. the design engineer of record, Sebago Technics, Inc., shall provide a certification upon completion of construction that the work is in substantial conformance to the approved plans and that all conditions of approval have been satisfied. The applicant shall retain the design engineer to provide construction phase services including but not limited to, periodic site inspection for adherence to all required erosion and sedimentation control measures and to address any changes in field conditions which require modifications to the design.

Site Plan

- i. that Peterson-Rabasco Geoengineers review and approve the August 8, 2001 submittal by the applicant regarding the blasting plan and pre-blast survey.

The Planning Board also waived the Technical Standards "the maximum grade for the centerline of all streets shall not exceed 8%" and "street grades at an intersection shall not be more than 3% for a distance of not less than 100 feet from the center of the intersection on each intersecting street"

The approval is based on the submitted site plan and the findings related to subdivision and site plan review standards as contained in Planning Report #35-01, which is attached.

Please note the following provisions and requirements for all site plan approvals:

1. A performance guarantee covering the site improvements as well as an inspection fee payment of 2.0% of the guarantee amount and 7 final sets of plans must be submitted to and approved by the Planning Division and Public Works prior to the release of the building permit. If you need to make any modifications to the approved site plan, you must submit a revised site plan for staff review and approval.
2. The site plan approval will be deemed to have expired unless work in the development has commenced within one (1) year of the approval or within a time period agreed upon in writing by the City and the applicant. Requests to extend approvals must be received before the expiration date.
3. A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.
4. Prior to construction, a preconstruction meeting shall be held at the project site with the contractor, development review coordinator, Public Work's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the preconstruction meeting.
5. If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)
6. The Development Review Coordinator must be notified five (5) working days prior to date required for final site inspection. Please make allowances for completion of site plan requirements determined to be incomplete or defective during the inspection. This is essential as all site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact the Planning Staff.

Sincerely,


Jamey Caron, Chair
Portland Planning Board

COST ESTIMATE OF IMPROVEMENTS TO BE COVERED BY PERFORMANCE GUARANTEE

Date: 10/29/02

Name of Project: OCEAN RIDGE CONDOMINIUMS

Address/Location: OCEAN AVENUE CONDOMINIUM, OCEAN AVENUE, PORTLAND, MAINE

Developer: OCEAN AVENUE REALTY LLC

Form of Performance Guarantee: PIONEER CAPITAL

Type of Development: 46 Unit PRUD

Site Plan (Major/Minor) _____

TO BE FILLED OUT BY APPLICATION:

Item	PUBLIC			PRIVATE		
	Quantity	Unit Cost	Subtotal	Quantity	Unit Cost	Subtotal
1. STREET/SIDEWALK						
Road				8935	\$10.50	\$93,817.50
Granite Curbing	160	\$25.00	\$4,000.00			\$0.00
Sidewalks	72	\$25.00	\$1,800.00	919	\$20.00	\$18,380.00
Esplanades	51	\$5.00	\$255.00			\$0.00
Monuments	2	\$750.00	\$1,500.00			\$0.00
Street Lighting			\$0.00	16	\$1,000.00	\$16,000.00
Street Opening Repairs	1295	\$18.50	\$23,957.50			\$0.00
Other			\$0.00			\$0.00
2. EARTH WORK						
Cut			\$0.00	14000	\$10.00	\$140,000.00
Fill			\$0.00	11,800	\$3.00	\$35,400.00
3. SANITARY SEWER						
Manholes	1	\$1,850.00	\$1,850.00	14	\$1,850.00	\$25,900.00
Piping	260	\$30.00	\$7,800.00			\$0.00
Connections	1	\$500.00	\$500.00			\$0.00
Main Line Piping			\$0.00	1770	\$25.00	\$44,250.00
House Sewer Service Piping			\$0.00	670	\$20.00	\$13,400.00
Pump Stations			\$0.00			\$0.00
Other			\$0.00			\$0.00
4. WATER MAINS						
			\$0.00	1480	\$30.00	\$44,400.00
5. STORM DRAINAGE						
Manholes	2	\$2,000.00	\$4,000.00	0		\$0.00
Catchbasins	3	\$1,500.00	\$4,500.00	9	\$1,500.00	\$13,500.00
Piping	1092	\$45.00	\$49,140.00	584	\$30.00	\$17,520.00
Detention Basin			\$0.00	3	\$3,500.00	\$10,500.00

Stormwater Quality Units	\$0.00	2	\$20,000.00	\$40,000.00
Other	\$0.00			\$0.00
6. SITE LIGHTING	\$0.00			\$0.00
7. EROSION CONTROL				
Silt Fence	\$0.00	1900	\$2.00	\$3,800.00
Check Dams	\$0.00	10	\$100.00	\$1,000.00
Pipe Inlet/Outlet Protection	\$0.00	275	\$30.00	\$8,250.00
Level Lip Spreader	\$0.00			\$0.00
Slope Stabilization	\$0.00	2895	\$1.00	\$2,895.00
Geotextile	\$0.00			\$0.00
Hay Bale Barriers	\$0.00			\$0.00
Catch Basin Inlet Protection	\$0.00	9	\$100.00	\$900.00
8. RECREATION AND OPEN SPACE AMENITIES	\$0.00			\$0.00
9. LANDSCAPING (Attach breakdown of plant materials, quantities, and unit costs)	\$0.00			\$123,596.00
10. MISCELLANEOUS	\$0.00			\$0.00
TOTAL:	\$99,302.50			\$653,508.50
GRAND TOTAL:				\$752,811.00

*OK 10-29-02
A.R.*

INSPECTION FEE (to be filled out by City)

A: 2.0% of totals:

OR

B: Alternative Assessment:

Assessed by:

PRIVATE	PUBLIC	TOTAL
\$1,986.05	\$13,070.17	\$15,056.22

J.R.

(name)

J.R.

(name)

J.R.

\$767,867.22

389 Congress Street, 4th Floor
Portland, ME 04101
(207)874-8721 or (207)874-8719
Fax: (207)756-8258

**City of Portland
Planning and Development Department
Planning Division**

Fax

To: Larry Church Company: _____
Fax: 874-6705 Date: 11-13-02
From: Jay Reynolds

Comments: Approved Cost Estimate Form
Attached
* Total is \$ 752,811.00
for the Performance Guarantee.
(Jay)
* The \$15,056.22 is the
Inspection fee, i.e., not
Included in the L.O.C.

You should receive _____ page(s), including this cover sheet. If you do not receive all of the pages, please call (207)874-8721.

Tompkins, Clough, Hirshon & Langer, P.A.

Three Canal Plaza
Post Office Box 15060
Portland, Maine 04112

FAX COVER SHEET

October 29, 2002

To: Jay Reynolds, Planning

756-8258

cc Pat Tinsman

767-1216

Scott Lalumiere

775-6275

From: Lawrence R. Clough, Esq.

Tel: 207-874-6700

Fax: 207-874-6705

E-Mail lrclough@tchl.com

Total Number of Pages: _____

Message: Ocean Ridge Condominium, Ocean Ave, Portland

Here is an updated schedule for the letter of credit, based on information received this morning from Maietta Construction.

The new letter of credit amount is **\$767,867.22**

ATTENTION: This facsimile is confidential and may be attorney/client privileged. It contains confidential information intended for the person(s) above-named. The distribution, copying, or disclosure of the information contained in this facsimile is strictly prohibited. Please notify us immediately if you have received this facsimile by mistake and return the original facsimile to this office by U.S. Mail without making a copy of it in such case.

Document2
10/29/02 2:16 PM

MODE = MEMORY TRANSMISSION

START=NOV-13 14:06

END=NOV-13 14:06

FILE NO.=866

STN NO.	COMM.	ABBR NO.	STATION NAME/TEL NO.	PAGES	DURATION
001	OK		98746705	003/003	00:00:28

-CITY OF PORTLAND -

***** -PLANNING DEPT. - ***** 2077568258-*****

389 Congress Street, 4th Floor
Portland, ME 04101
(207)874-8721 or (207)874-8719
Fax: (207)756-8258



Fax

To: Larry Church Company: _____
 Fax: 874-6705 Date: 11-13-02
 From: Jay Reynolds

Comments: Approved Cost Estimate Form
 Attached
 * Total is \$ 752,811.00
 for the Performance Guarantee.
 (Jay)
 * The \$15,056.22 is the
 Inspection fee, i.e., not
 included in the L.O.C.

AGREEMENT BETWEEN
CITY OF PORTLAND
AND
OCEAN RIDGE REALTY LLC
RE: BLASTING

THIS AGREEMENT is made this 7 day of November by and between the CITY OF PORTLAND, a body politic and corporate with a mailing address of 389 Congress Street, Portland, Maine (hereinafter "CITY") and Ocean Ridge Realty, LLC, a corporation with a mailing address of 91 Old Ocean House Rd
Cape Elizabeth, Maine, hereinafter "DEVELOPER".

WITNESSETH:

WHEREAS, DEVELOPER has obtained approval from CITY's Planning Board for the construction of a forty six (46) unit condominium development in the vicinity of 852 Ocean Avenue (hereinafter "Development"); and

WHEREAS, said Development requires blasting; and

WHEREAS, CITY is presently reviewing its blasting policies and may enact an ordinance regulating such activity which could affect Development; and

WHEREAS, DEVELOPER desires to begin Development of its project prior to the promulgation of the blasting policy and ordinance;

NOW, THEREFORE, in consideration of the CITY allowing DEVELOPER to commence its project immediately, and other consideration which is hereby acknowledged, CITY and DEVELOPER agree as follows:

1. DEVELOPER shall conduct all blasting activity related to Development in accordance with the blasting plan submitted by DEVELOPER to CITY, revised as of November 4, 2002 (hereinafter "Plan"). A copy of said Plan is attached hereto as Exhibit A and incorporated herein by reference.

2. DEVELOPER acknowledges that said Plan may need to be amended from time to time, at request of CITY. Requests for amendments to the Plan shall be made in the event the City is required to stop work on development.

In the event that CITY enact a n ordinance that regulates blasting activity, this agreement shall be amended to conform with such ordinance.

3. (a) Prior to commencement of full scale blasting, the blasting contractor will demonstrate the adequacy of the proposed blasting plan by drilling, blasting and excavating short test sections using small charges and the required monitoring instruments. The blasting contractor will develop site-specific scaled distance relationships from the test blast rounds to determine the allowable charge weight of explosives detonated per delay.

(b) During construction the blasting contractor will coordinate the blasting schedule with the independent engineer and CITY (fire, police, emergency agencies and code enforcement personnel) when requested. A minimum of 24 hours in advance, the blasting contractor will notify engineer and CITY by telephone the start of blasting in any new area, at least 24 hours prior to any blast, the blasting contractor shall inform by telephone all property owners who have requested to be so informed of the pending blast.

4. In the event that the blasting contractor fails to comply with the Plan, as it may be amended from time to time, DEVELOPER shall be subject to the following penalties:

1 st Offense	\$250.00
2 nd Offense	\$500.00
Subsequent Offenses	\$500.00

In the event that there are more than three documented violations of the Plan, CITY shall have the right to issue a stop work order on the Development. DEVELOPER shall then be required to obtain CITY approval of a revised Blasting Plan. Work shall not be allowed to continue on Development until the revised Plan is approved.

5. For the purpose of this Agreement, CITY's representative is:

Larry Mead, Assistant City Manager
City of Portland
Portland City Hall
389 Congress Street
Portland ME 04101

6. For the purpose of this Agreement DEVELOPER's representative is:

Pat Tinsman
91 Old Ocean House Road
Cape Elizabeth ME 04107

IN WITNESS WHEREOF, the parties have caused this Agreement to be signed the day
and date above written.

WITNESS

CITY OF PORTLAND

Sonia Brown

Joseph E. Gray, Jr.
By: Joseph E. Gray, Jr.
Its: City Manager

WITNESS

OCEAN RIDGE REALTY, LLC

J.R. Clark

Patrick Tinsman
By: PATRICK TINSMAN
Its: MANAGER

Rec'd 11-27-02
18466-306
3:29 pm

EASEMENT DEED
[Emergency Access]

In consideration of the payment of one dollar, **OCEAN RIDGE REALTY LLC**, a Maine limited liability company with a place of business in Portland, Maine ("Grantor"), hereby grants to **CITY OF PORTLAND**, a body politic and corporate with a place of business at 389 Congress Street, Portland, Maine 04101 ("Grantee") a perpetual easement over a certain strips of land known as "Ridge Road" and "Osprey Terrance" as outlined and shown on the Subdivision Plan of Ocean Ridge Condominiums prepared for Marjem Mortgage Corporation by Sebago Technics dated March 6, 2001 as amended (the "Easement Area") located northwesterly of Ocean Avenue which Easement Area and property are more particularly described in **Exhibit A**, attached hereto and incorporated herein by reference for the purpose of emergency access (fire, police, etc.) purposes to the Ocean Ridge development, effective upon the initial occupancy of the first dwelling unit in the Ocean Ridge development, including without limitation the right in the discretion of the Grantee to plow snow, sand and salt as may be needed to gain emergency access.

Both Grantor and Grantee acknowledge that this easement is being granted without claim for damages and provided to Grantee for use by municipal vehicles without charge.

To have and to hold the said Easement and all rights granted hereunder to the said Grantee and their successors and assigns forever.

IN WITNESS WHEREOF, Grantor has caused this easement to be executed by Patrick Tinsman, its duly authorized Manager this 26th day of November, 2002.

OCEAN RIDGE REALTY LLC

J.R. Clough
Witness

By: Patrick Tinsman
Patrick Tinsman, its Manager

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

November 26, 2002

Personally appeared the above-named Patrick Tinsman, Manager as aforesaid, who acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me:
J.R. Clough
Lawrence R. Clough
Attorney at Law

DEED OF TRAIL EASEMENT

In consideration of the payment of one dollar, OCEAN RIDGE REALTY LLC, a Maine limited liability company with a place of business in Portland, Maine ("Grantor"), hereby grants to PORTLAND TRAILS, a Maine not-for-profit corporation with a place of business at 1 India Street, Portland, Maine 04101 ("Grantee") a perpetual nonexclusive easement over a strip of land (the "Easement Area") at the northwesterly corner of Grantor's property, which Easement Area and property are more particularly described in Exhibit A attached hereto. This easement is for the purpose of constructing a trail and for conserving the Easement Area as provided herein.

Together with and hereby granting to Grantee the right to construct, maintain, replace, relocate and repair within the Easement Area a trail (paved or unpaved) up to twelve (12) feet in width (the "Trail") together with foot bridges, guard rails, bollards, retaining walls, signage with a face area not to exceed 1 foot by two feet in dimensions exclusive of posts or mounting devices, and other similar appurtenances for purposes of pedestrian, bicycle and similar non-motorized (other than wheelchairs and any emergency vehicles operated by public authorities, which shall be permitted) recreational uses by the public during daylight hours, which uses may include without limit picnicking, nature observation, cross country skiers and such other recreational uses as may now or in the future arise, subject, however, to such rules which Grantee may adopt from time to time in the interests of public safety and/or to protect the Easement Area.

Grantor further covenants and agrees on behalf of itself, its successors and assigns, that the land which lies within the Easement Area shall, except for the construction, maintenance, repair, relocation and/or replacement of the Trail and any appurtenances by Grantee, its successors or assigns shall, as provided and permitted herein, be maintained in its natural and wooded state and Grantor and Grantee shall not use or permit any use which would be contrary to such condition.

Together with and hereby granting to Grantee an easement across the Grantor's property in such locations as may be reasonably acceptable to Grantor during the daylight hours for purposes of bringing in workers, vehicles and equipment for the aforesaid construction, maintenance, replacement, relocation and repair of the Trail and appurtenances upon reasonable advance notice to the Grantor, its successors and assigns.

Both Grantor and Grantee acknowledge that this easement is being provided to Grantee for purposes of public recreation without charge. It is understood that the use herein granted is non-exclusive and that the primary use which Grantor makes of its land (of which the Easement Area is a part) is non-recreational.

Together with and hereby granting to Grantee the right within the Easement Area to periodically trim trees and to remove dead, diseased or fallen trees (including "leaners") and to selectively clear undergrowth and make plantings to (1) prevent erosion, (2) preserve existing views and (3) provide for public safety, all in accordance with good forestry and landscaping

management practices, it being the intent hereof that this easement shall also be a conservation easement pursuant to 33 M.R.S.A. § 476 et seq.

Together with and hereby granting to Grantee the right to enter upon the Grantor's property during the daylight hours on foot and at reasonable times in order to ensure compliance with the terms hereof.

Notwithstanding any other provisions of this Easement, no alcoholic beverages may be brought onto the Easement Area, nor shall any fires be kindled, nor is any parking permitted on the Easement Area or elsewhere on the Grantor's property. Subject to any rights of Central Maine Power Company and/or New England Telephone Company in the Easement Area.

Grantee acknowledges that Grantor shall have no responsibility for the safety of any persons entering upon the Easement Area and that Grantor claims the rights and protections against liability for injury to the public to the fullest extent of the law under Title 14 M.R.S.A. Section 159-A, et seq. as amended and successor provision thereof (The Maine Recreational Use Statute), the Maine Tort Claims Act, and under any other applicable provision of law and equity.

To have and to hold the said Easement and all rights granted hereunder to the said Grantee and its successors and assigns forever.

IN WITNESS WHEREOF, Grantor has caused this easement to be executed this 26th day of November 26, 2002.

OCEAN RIDGE REALTY, LLC

J-R. Clough
Witness

By: Patrick Tinsman
Its: MANAGER
Print Name: PATRICK TINSMAN

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

November 26, 2002

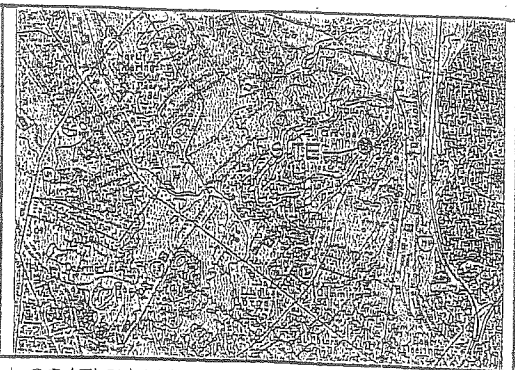
Personally appeared the above-named Patrick Tinsman, manager as aforesaid, who acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me
J-R. Clough
Lawrence R. Clough
Notary Public/Attorney-at-Law



LINE	BEARING	LENGTH
L1	S57°30'46"E	76.58'
L2	S08°04'01"W	54.28'
L3	N38°05'02"E	109.50'
L4	S41°01'33"E	118.65'
L5	S71°20'43"E	130.25'
L6	S51°04'32"E	120.76'
L7	S06°01'02"W	85.70'
L8	S51°05'05"W	46.34'
L9	N68°55'50"W	136.46'
L10	N12°39'11"E	704.73'
L11	S48°41'21"W	130.01'
L12	N71°23'10"E	372.65'

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C1	16.30'	100.00'	S22°13'27"E	110.96'
C2	187.55'	100.00'	N66°55'25"W	212.50'
C3	236.33'	150.00'	N87°08'23"E	226.53'
C4	232.6'	100.00'	N63°20'06"W	67.39'
C5	38.21'	100.00'	S67°12'31"E	38.01'
C6	55.06'	50.00'	S25°31'45"E	57.37'
C7	75.13'	100.00'	S28°41'51"W	77.29'
C8	52.32'	50.00'	S81°24'30"W	48.97'
C9	71.21'	50.00'	N25°08'47"W	65.34'
C10	11.02'	250.00'	N34°55'18"E	118.84'
C11	40.53'	77.00'	S05°17'46"W	36.83'
C12	10.32'	38.00'	N35°41'06"E	13.86'
C13	35.55'	77.00'	S16°35'15"W	33.36'



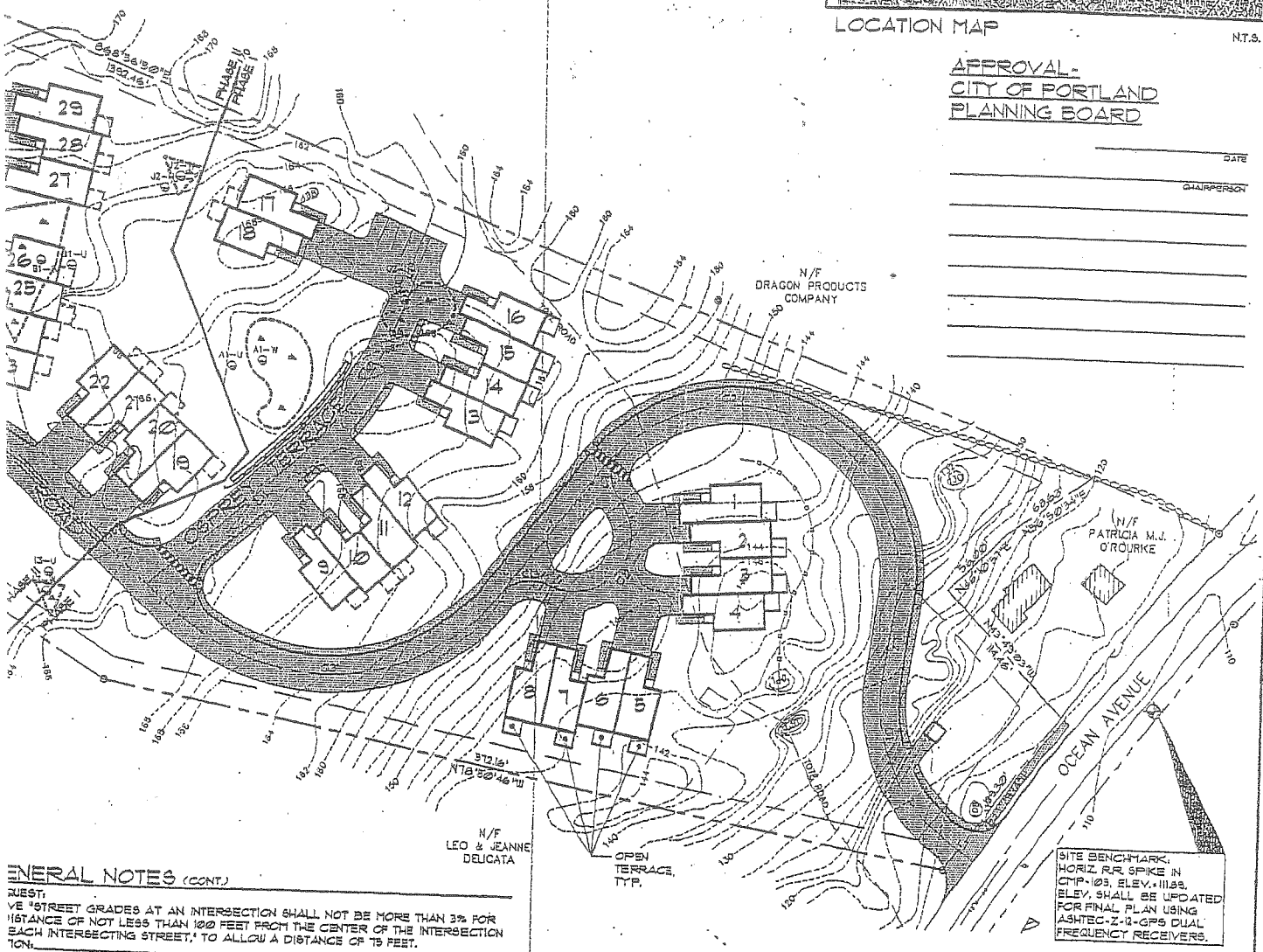
LOCATION MAP

N.T.S.

APPROVAL:
CITY OF PORTLAND
PLANNING BOARD

DATE _____

CHAIRPERSON _____



GENERAL NOTES (CONT.)

QUEST: VE STREET GRADES AT AN INTERSECTION SHALL NOT BE MORE THAN 3% FOR A DISTANCE OF NOT LESS THAN 100 FEET FROM THE CENTER OF THE INTERSECTION TO EACH INTERSECTING STREET, TO ALLOW A DISTANCE OF 75 FEET.

SOLID WASTE REMOVAL SHALL BE CURB SIDE PICK-UP BY PRIVATE TRACTOR.

ALL UNITS SHOULD BE PROVIDED WITH AN APPROVED SPRINKLER SYSTEM DESIGNED IN ACCORDANCE NFPA 13D.

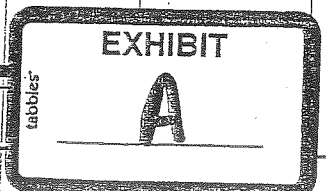
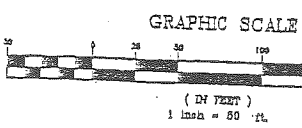
ENGINEERING DESIGNS FOR SITE IMPROVEMENTS SHOWN ON THIS PLAN ARE CONTAINED IN PLANS TITLED 'OCEAN RIDGE CONDOMINIUMS', SHEETS 1 THROUGH 18, DATED 3-8-01, 15-2-01 AND 8-8-01.

PRIOR TO CONSTRUCTION, A PRE CONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT WITH THE CONTRACTOR, DEVELOPMENT REVIEW COORDINATOR, PUBLIC WORKS REPRESENTATIVE AND OWNER TO REVIEW THE CONSTRUCTION SCHEDULE AND CRITICAL ASPECTS OF THE SITE WORK AT THAT TIME. THE SITE/BUILDING CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A DETAILED CONSTRUCTION SCHEDULE TO THE ATTENDING CITY REPRESENTATIVE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A MUTUALLY AGREEABLE TIME FOR THE PRE CONSTRUCTION MEETING.

LOCATE WALKING TRAIL AT APPROXIMATE CENTERLINE OF PROPOSED ROAD AND WALKWAY RECREATION AREA. ADJUST LOCATION AS REQUIRED TO COMPLEMENT EXISTING TOPOGRAPHY, TREES, WITHIN TRAIL LIMITS, CUT EXISTING VEGETATION AT GROUND LEVEL AND PLACE 4" OR OF WOOD CHIPS.

PARKING IS TO BE LIMITED TO ONE SIDE OF THE STREET ONLY, ON RIDGE ROAD AND OSPREY PLACE PARKING SHALL BE ON THE LEFT SIDE. THE DEVELOPER WILL INSTALL "NO PARKING" PER CITY REQUIREMENTS.

MAINE
COUNTY DEEDS
REGISTERED IN
PAGE _____ REGISTER

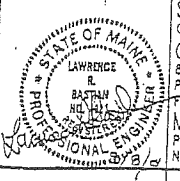


E	LRB	8-8-01	PHASE I CONSTRUCTION
D	LRB	7-10-01	REVISED PER ADDITIONAL CITY COMMENTS
C	LRB	6-04-01	REVISED PER CITY COMMENTS
B	LRB	4-24-01	SUBMIT REVISED PLANS PER CITY REVIEW
A	LRB	3-7-01	SUBMIT FOR SITE PLAN REVIEW

REV: BY: DATE: STATUS:

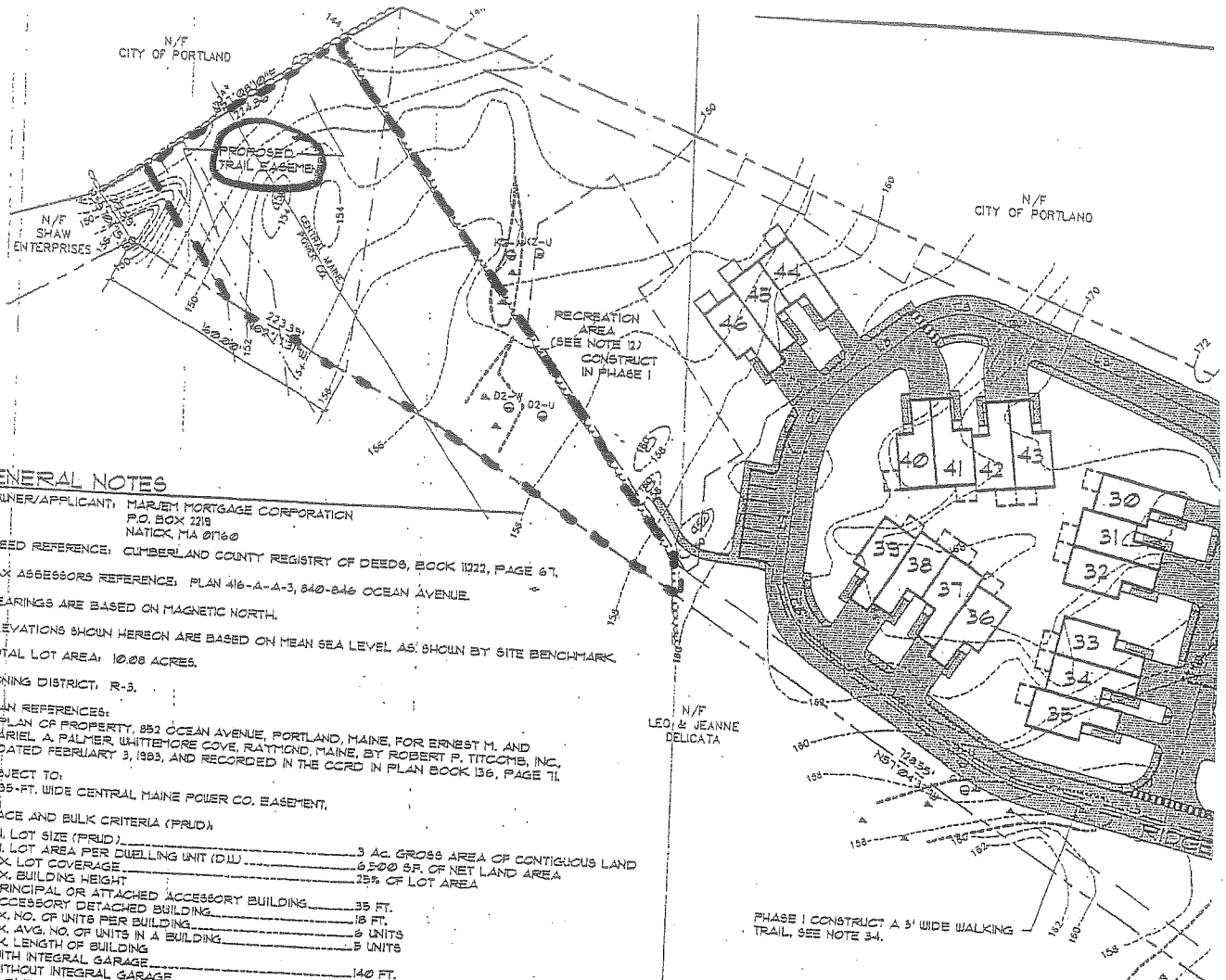
THIS PLAN SHALL NOT BE COPIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHNICS, INC.

SUBDIVISION PLAN
OF:
OCEAN RIDGE CONDOMINIUMS
852 OCEAN AVENUE
PORTLAND, MAINE
FOR RECORD OWNER:
MARJEM MORTGAGE CORPORATION
P.O. BOX 2219
NATICK, MA 01780



Sebago Technics
Engineering & Planning for the Future
One Cabot Street
Westbrook, Me 04098-1339
Tel (207) 856-0277

DESIGN BY:	JDA
DRAWN BY:	MAL
CHECKED BY:	LRB
DATE:	3-6-01
SCALE:	1"=50'
FIELD BK:	54
PROJ. NO.:	84180
DRAWING:	8418058



GENERAL NOTES

1. OWNER/APPLICANT: MARJEM MORTGAGE CORPORATION
P.O. BOX 2219
NATICK, MA 01760
- DEED REFERENCE: CUMBERLAND COUNTY REGISTRY OF DEEDS, BOOK 10221, PAGE 67.
2. TAX ASSESSORS REFERENCE: PLAN 416-A-A-3, 840-846 OCEAN AVENUE.
3. BEARINGS ARE BASED ON MAGNETIC NORTH.
4. ELEVATIONS SHOWN HEREON ARE BASED ON MEAN SEA LEVEL AS SHOWN BY SITE BENCHMARK.
5. TOTAL LOT AREA: 10.08 ACRES.
6. ZONING DISTRICT: R-3.
7. PLAN REFERENCES:
A. PLAN OF PROPERTY, 857 OCEAN AVENUE, PORTLAND, MAINE, FOR ERNEST M. AND ARIEL A. PALMER, WHITTEMORE COVE, RAYMOND, MAINE, BY ROBERT F. TITCOMB, INC., DATED FEBRUARY 3, 1985, AND RECORDED IN THE CCRD IN PLAN BOOK 136, PAGE 71.
8. SUBJECT TO:
A. 135-FT. WIDE CENTRAL MAINE POWER CO. EASEMENT.

9. SPACE AND BULK CRITERIA (PRUDA)

MIN. LOT SIZE (FRUD)	3 AC. GROSS AREA OF CONTIGUOUS LAND
MIN. LOT AREA PER DWELLING UNIT (DW)	1254 SF. OF NET LAND AREA
MAX. LOT COVERAGE	25% OF LOT AREA
MAX. BUILDING HEIGHT	35 FT.
PRINCIPAL OR ATTACHED ACCESSORY BUILDING	18 FT.
ACCESSORY DETACHED BUILDING	18 FT.
MAX. NO. OF UNITS PER BUILDING	5 UNITS
MAX. AVG. NO. OF UNITS IN A BUILDING	5 UNITS
MAX. LENGTH OF BUILDING	140 FT.
WITH INTEGRAL GARAGE	100 FT.
WITHOUT INTEGRAL GARAGE	100 FT.
MIN. BLDG. SETBACK FROM EXTERNAL SUB. #2	25 FT.
LESS THAN 3 UNITS PER BUILDING	35 FT.
MORE THAN 4 UNITS PER BUILDING	35 FT.
MIN. DISTANCE BETWEEN DETACHED BUILDINGS	16 FT.

10. NET LAND AREA CALCULATIONS:

GROSS AREA	439,285 SF.
STORMWATER RETENTION AREA	0 SF.
STORMWATER DETENTION AREA	1254 SF.
EXISTING WATERCOURSES	0 SF.
INACCESSIBLE AREAS	6,400 SF.
WETLANDS	13,430 SF.
EXISTING EASEMENTS	33,600 SF.
SLOPES OF 25% OR GREATER	0 SF.
SUBTOTAL	372,200 SF.
20% OF SUBTOTAL	74,440 SF.
NET LAND AREA	297,760 SF.
X 1 DWELLING UNIT/6,500 SF. OF NET LAND AREA	46 UNITS
TOTAL NO. OF DWELLING UNITS REQUIRED	46
TOTAL NO. OF DWELLING UNITS PROPOSED	46

11. MAXIMUM LOT COVERAGE CALCULATION:
MAX. LOT COVERAGE = 25% OF NET LAND AREA = 25% x 297,761 SF. = 74,440 SF.
PROPOSED LOT COVERAGE = 46 DW x 1,600 SF./DW. = 73,600 SF.

12. MINIMUM RECREATION OPEN SPACE REQUIREMENTS:
300 SF. PER DWELLING UNIT x 46 DWELLING UNITS = 13,800 SF. (OF WHICH A MINIMUM OF 6,200 SF. MUST BE A MULTI-PURPOSE OPEN FIELD).
TOTAL OPEN PROVIDED = 13,200 SF.

13. THE BOUNDARY AND TOPOGRAPHIC SURVEYS WERE PERFORMED BY SEBAGO TECHNICS, INC.
14. WETLANDS SHOWN AS DELINEATED BY SEBAGO TECHNICS, INC. ON AUGUST 14, 2000 IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS DELINEATION MANUAL (WETLANDS REPORT DATED APRIL 3, 2000)

15. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATIONS TO OR DEVIATIONS FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION, TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS SIZE, LOCATION AND SURFACING OF PARKING AREAS, AND LOCATION AND SIZE OF BUILDINGS.

16. ALL ROADS, TO INCLUDE BASE AND PAVEMENT, CURBING, SEWER, AND STORM DRAIN INFRASTRUCTURE, SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES AND/OR UNDER THE SUPERVISION AND APPROVALS OF THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT, SUBJECT TO WAIVERS AS APPROVED BY PLANNING AUTHORITY AT THIS TIME.

17. ALL CURBING SHALL BE DESIGNED AND BUILT WITH TIP-DOWNS AT ALL STREET CORNERS, CROSSWALKS, TURN-AROUNDS, AND DRIVEWAYS IN ACCORDANCE WITH THE CITY OF PORTLAND, TECHNICAL STANDARDS AND GUIDELINES.

18. ALL ELECTRIC, TELEPHONE AND CABLE TV. SERVICES SHALL BE UNDERGROUND AND IN CONFORMANCE WITH CENTRAL MAINE POWER CO., BELL ATLANTIC TELEPHONE CO. AND TIME WARNER CABLE TV. CO. STANDARDS.

19. ALL WATER MAINS, SERVICES AND ASSOCIATED APPURTENANCES SHALL BE IN CONFORMANCE WITH PORTLAND WATER DISTRICT STANDARDS.

PHASE I CONSTRUCT A 3' WIDE WALKING TRAIL. SEE NOTE 34.

GENERAL NOTES (CONT.)

20. A MINIMUM OF TWO TREES PER UNIT SHALL BE CONSERVED OR PLANTED IN THE FRONT YARD OF EACH UNIT MEETING THE CITY OF PORTLAND'S ARBORICULTURAL SPECIFICATION AND STANDARDS OF PRACTICE AND LANDSCAPE DESIGN GUIDELINES. DEVELOPER MAY CONTRACT FOR THE PLACEMENT OF LANDSCAPING, BUT SHALL REMAIN LIABLE TO THE CITY OF PORTLAND FOR FINANCIAL OBLIGATION FOR COMPLIANCE WITH CITY ORDINANCES AND APPROVALS. SUCH FINANCIAL OBLIGATION SHALL BE NEITHER TRANSFERABLE NOR WAIVABLE BY THE DEVELOPER.

21. LANDSCAPING SHALL MEET THE "ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.

22. EXISTING VEGETATION SHALL BE CONSERVED IN AREAS SHOWN ON THIS SITE. FENCING OR OTHER PROTECTIVE BARRIERS SHALL BE ERRECTED OUTSIDE THE DRIP-LINE OF INDIVIDUAL GROUPINGS OF TREES DESIGNATED FOR PRESERVATION PRIOR TO THE ONSET OF CONSTRUCTION. REGRADING SHALL NOT TAKE PLACE WITHIN THE DRIP-LINE OF TREES DESIGNATED FOR PRESERVATION. NO STORAGE OR CONSTRUCTION MATERIALS SHALL BE PERMITTED WITHIN DRIP-LINE OF TREES TO BE PRESERVED.

23. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENTATION CONTROL HANDBOOK, CUMBERLAND COUNTY SOIL AND WATER DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 1991 OR LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.

24. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING.

25. ALL DISTURBED AREAS ON THE SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED OR OTHER METHODS AS REQUIRED BY BEST MANAGEMENT PRACTICES.

26. THE DRAINAGE EASEMENTS SHOWN ON THIS PLAN SHALL BE RECORDED IN THE CONDOMINIUM DEEDS. EACH DRAINAGE EASEMENT SHALL BE FOR THE PURPOSES OF MAINTENANCE REPAIR, OR CLEANING OF DITCHES, CHANNELS AND/OR PIPES ASSOCIATED WITH SURFACE DRAINAGE SHARED BY LOTS CONTRIBUTING RUN-OFF TO THE SPECIFIC DRAINAGE COURSE DEPICTED ON THIS PLAN.

27. THIS PLAN IS BASED UPON A STANDARD BOUNDARY SURVEY PERFORMED BY SEBAGO TECHNICS, INC. IN ACCORDANCE WITH THE MINIMUM STANDARDS ADOPTED BY THE STATE BOARD OF LICENSURE FOR LAND SURVEYORS, CATEGORY I, CONDITION II, WITH THE FOLLOWING EXCEPTIONS:
A. THE WRITTEN REPORT IS LIMITED TO THE NOTES ON THE PLAN.
B. MONUMENTATION WAS NOT SET AT THE ISSUANCE OF THIS PLAN.
C. DEED DESCRIPTIONS WERE NOT PREPARED AT THIS TIME.

28. OCEAN RIDGE CONDOMINIUMS IS A PRIVATE DEVELOPMENT. LIGHTING, TRASH REMOVAL, SNOUPLACING AND STREET MAINTENANCE WILL BE THE RESPONSIBILITY OF THE CONDOMINIUM ASSOCIATION.

29. THE FOLLOWING IS A LIST OF WAIVERS BEING REQUESTED FOR THIS PROJECT AND THE SPECIFIC ACTIONS TAKEN ON EACH REQUEST:

REQUEST:
WAIVE THE MAXIMUM GRADE FOR THE CENTERLINE OF ALL STREETS SHALL NOT EXCEED 8% TO ALLOW MAXIMUM 10% GRADE.

AGREEMENT BETWEEN
CITY OF PORTLAND
AND
OCEAN RIDGE REALTY LLC
RE: BLASTING

THIS AGREEMENT is made this 7 day of November by and between the CITY OF PORTLAND, a body politic and corporate with a mailing address of 389 Congress Street, Portland, Maine (hereinafter "CITY") and Ocean Ridge Realty, LLC, a corporation with a mailing address of 91 Old Ocean House Rd
Cape Elizabeth, Maine, hereinafter "DEVELOPER".

WITNESSETH:

WHEREAS, DEVELOPER has obtained approval from CITY's Planning Board for the construction of a forty six (46) unit condominium development in the vicinity of 852 Ocean Avenue (hereinafter "Development"); and

WHEREAS, said Development requires blasting; and

WHEREAS, CITY is presently reviewing its blasting policies and may enact an ordinance regulating such activity which could affect Development; and

WHEREAS, DEVELOPER desires to begin Development of its project prior to the promulgation of the blasting policy and ordinance;

NOW, THEREFORE, in consideration of the CITY allowing DEVELOPER to commence its project immediately, and other consideration which is hereby acknowledged, CITY and DEVELOPER agree as follows:

1. DEVELOPER shall conduct all blasting activity related to Development in accordance with the blasting plan submitted by DEVELOPER to CITY, revised as of November 4, 2002 (hereinafter "Plan"). A copy of said Plan is attached hereto as Exhibit A and incorporated herein by reference.

2. DEVELOPER acknowledges that said Plan may need to be amended from time to time, at request of CITY. Requests for amendments to the Plan shall be made in the event the City is required to stop work on development.

In the event that CITY enact an ordinance that regulates blasting activity, this agreement shall be amended to conform with such ordinance.

3. (a) Prior to commencement of full scale blasting, the blasting contractor will demonstrate the adequacy of the proposed blasting plan by drilling, blasting and excavating short test sections using small charges and the required monitoring instruments. The blasting contractor will develop site-specific scaled distance relationships from the test blast rounds to determine the allowable charge weight of explosives detonated per delay.

(b) During construction the blasting contractor will coordinate the blasting schedule with the independent engineer and CITY (fire, police, emergency agencies and code enforcement personnel) when requested. A minimum of 24 hours in advance, the blasting contractor will notify engineer and CITY by telephone the start of blasting in any new area, at least 24 hours prior to any blast, the blasting contractor shall inform by telephone all property owners who have requested to be so informed of the pending blast.

4. In the event that the blasting contractor fails to comply with the Plan, as it may be amended from time to time, DEVELOPER shall be subject to the following penalties:

1 st Offense	\$250.00
2 nd Offense	\$500.00
Subsequent Offenses	\$500.00

In the event that there are more than three documented violations of the Plan, CITY shall have the right to issue a stop work order on the Development. DEVELOPER shall then be required to obtain CITY approval of a revised Blasting Plan. Work shall not be allowed to continue on Development until the revised Plan is approved.

5. For the purpose of this Agreement, CITY's representative is:

Larry Mead, Assistant City Manager
City of Portland
Portland City Hall
389 Congress Street
Portland ME 04101

6. For the purpose of this Agreement DEVELOPER's representative is:

Pat Tinsman
91 Old Ocean House Road
Cape Elizabeth ME 04107

IN WITNESS WHEREOF, the parties have caused this Agreement to be signed the day
and date above written.

WITNESS

CITY OF PORTLAND

Sonia Brown

Joseph E. Gray, Jr.
By: Joseph E. Gray, Jr.
Its: City Manager

WITNESS

OCEAN RIDGE REALTY, LLC

J.R. Clark

Pat Tinsman
By: PATRICK TINSMAN
Its: MANAGER

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AND
OCEAN RIDGE REALTY LLC
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Larry Mead, Assistant City Manager
City of Portland
Portland City Hall
389 Congress Street
Portland ME 04101

6. For the purpose of this Agreement DEVELOPER's representative is:

Pat Tinsman
91 Old Ocean House Road
Cape Elizabeth ME 04107

IN WITNESS WHEREOF, the parties have caused this Agreement to be signed the day
and date above written.

WITNESS

CITY OF PORTLAND

Sonia Bean

Joseph E. Gray, Jr.
By: Joseph E. Gray, Jr.
Its: City Manager

WITNESS

OCEAN RIDGE REALTY, LLC

J.R. Clark

Patrick Tinsman
By: PATRICK TINSMAN
Its: MANAGER

Rec'd 11-27-02
18466-306
3:29 pm

EASEMENT DEED
[Emergency Access]

In consideration of the payment of one dollar, **OCEAN RIDGE REALTY LLC**, a Maine limited liability company with a place of business in Portland, Maine ("Grantor"), hereby grants to **CITY OF PORTLAND**, a body politic and corporate with a place of business at 389 Congress Street, Portland, Maine 04101 ("Grantee") a perpetual easement over a certain strips of land known as "Ridge Road" and "Osprey Terrance" as outlined and shown on the Subdivision Plan of Ocean Ridge Condominiums prepared for Marjem Mortgage Corporation by Sebago Technics dated March 6, 2001 as amended (the "Easement Area") located northwesterly of Ocean Avenue which Easement Area and property are more particularly described in **Exhibit A**, attached hereto and incorporated herein by reference for the purpose of emergency access (fire, police, etc.) purposes to the Ocean Ridge development, effective upon the initial occupancy of the first dwelling unit in the Ocean Ridge development, including without limitation the right in the discretion of the Grantee to plow snow, sand and salt as may be needed to gain emergency access:

Both Grantor and Grantee acknowledge that this easement is being granted without claim for damages and provided to Grantee for use by municipal vehicles without charge.

To have and to hold the said Easement and all rights granted hereunder to the said Grantee and their successors and assigns forever.

IN WITNESS WHEREOF, Grantor has caused this easement to be executed by Patrick Tinsman, its duly authorized Manager this 26th day of November, 2002.

OCEAN RIDGE REALTY LLC

J.R. Clough
Witness

By: Patrick Tinsman
Patrick Tinsman, its Manager

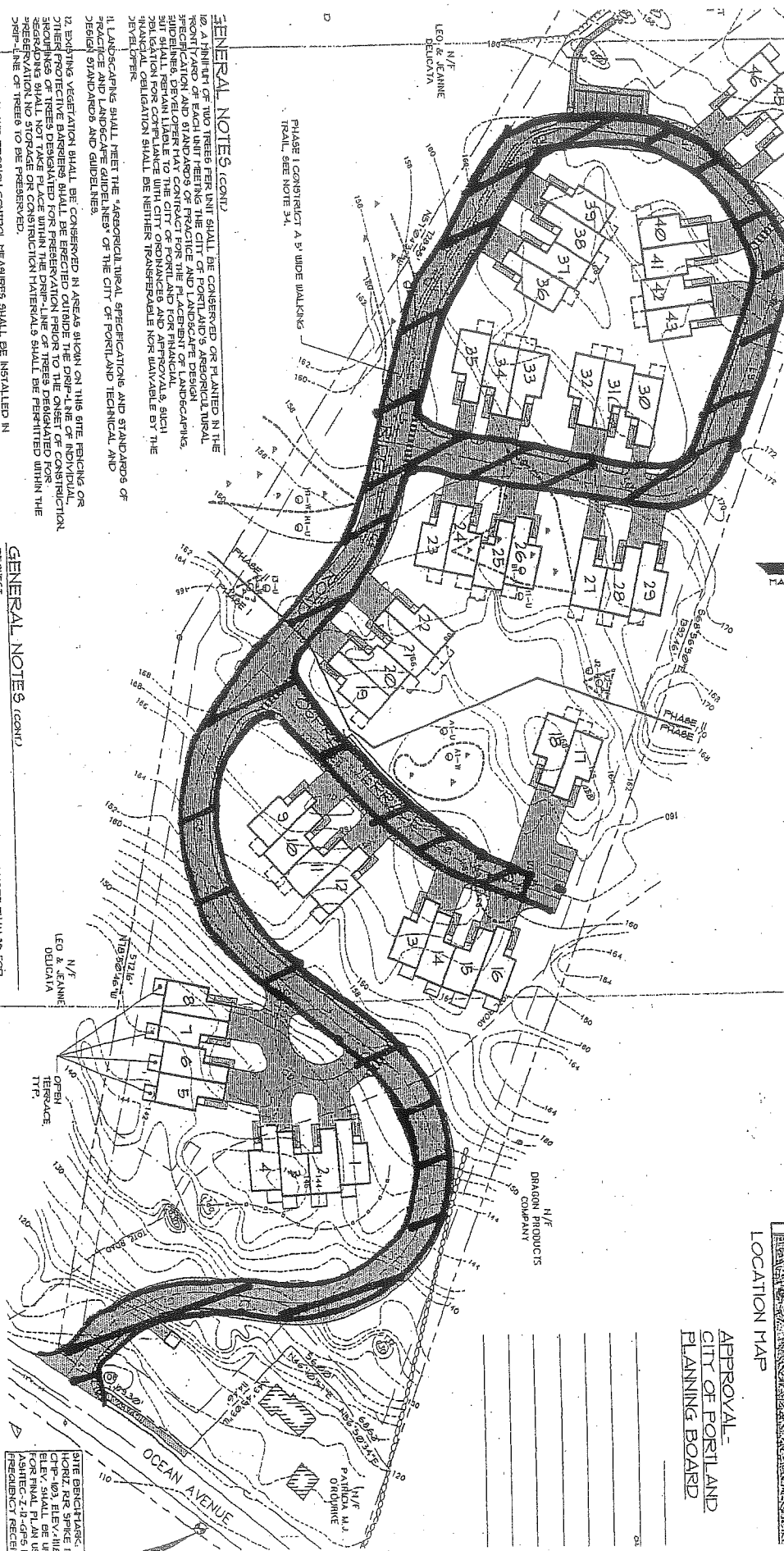
STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

November 26, 2002

Personally appeared the above-named Patrick Tinsman, Manager as aforesaid, who acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me:
J.R. Clough
Lawrence R. Clough
Attorney at Law

18466/306



GENERAL NOTES (CONT)

12. A MINIMUM OF TWO TREES PER UNIT SHALL BE CONSERVED OR PLANTED IN THE FRONT YARD OF EACH UNIT FEETING THE CITY OF PORTLAND LANDSCAPE SPECIFICATION AND STANDARDS OF PRODUCTION. THE PLACEMENT OF LANDSCAPING, INCLUDING DEVELOPMENT OF THE CITY OF PORTLAND AND APPROVAL BY THE CITY OF PORTLAND, SHALL BE NEITHER TRANSFERABLE NOR ASSIGNABLE BY THE DEVELOPER.

13. LANDSCAPING SHALL MEET THE "AGRICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.

14. EXISTING VEGETATION SHALL BE CONSERVED IN AREAS SHOWN ON THIS SITE PLAN OR THE CITY OF PORTLAND LANDSCAPE SPECIFICATION AND STANDARDS OF PRODUCTION. THE CITY OF PORTLAND LANDSCAPE SPECIFICATION AND STANDARDS OF PRODUCTION SHALL TAKE PLACE WITHIN THE DEVELOPER'S OBLIGATION FOR PRESERVATION OF TREES TO BE PRESERVED.

15. ALL STREET AND REGION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "TRAFFIC ENGINEERING AND DESIGN HANDBOOK FOR CONSTRUCTION, BEST MANAGEMENT PRACTICES AND TRAFFIC DEPARTMENT OF CLATSOP COUNTY SOIL AND WATER CONSERVATION DIVISION" OR LATEST EDITION. IT SHALL BE THE OBLIGATION OF THE DEVELOPER TO MAINTAIN TRAFFIC SIGNALS OR LATEST EDITION. IT SHALL BE THE OBLIGATION OF THE DEVELOPER.

GENERAL NOTES (CONT)

16. PREDEVELOPERS SHALL MAINTAIN A DISTANCE OF NOT MORE THAN 3% FOR EACH INTERSECTION STREET TO ALLOW A DISTANCE OF 15 FEET.

CENTERLINE DATA

LINE	BEARING	LENGTH
L1	S91.30°46'E	26.58'
L2	S08.04°10'W	5.415'
L3	N38.05°20'E	102.92'
L4	S41.0°39'E	102.55'
L5	S11.00°49'E	150.00'
L6	S51.0°13'21"E	150.00'
L7	S05.0°10'27"W	416.84'
L8	S50.0°50'20"W	136.46'
L9	N10.0°28'17"E	130.413'
L10	S40.47°12'W	130.00'
L11	N10.0°10'0"E	51.65'

CENTERLINE CURVE DATA

CURVE	LENGTH	RADIUS	CORD BEARING	CORD DIST
C1	38.155'	100.00'	N66.95°23'W	212.50'
C2	116.483'	100.00'	N81.00°03'E	226.53'
C3	63.161'	100.00'	N63.50°06'W	62.35'
C4	98.31'	100.00'	S6.11°21'E	98.01'
C5	55.000'	50.000'	S25.71°45'E	32.32'
C6	19.18'	100.000'	S20.41°0'W	11.05'
C7	53.531'	50.000'	S88.04°30'W	43.91'
C8	11.21'	250.000'	N28.00°41'W	65.34'
C9	11.071'	250.000'	S25.11°36'W	10.54'
C10	40.531'	71.000'	N83.11°36'W	36.02'
C11	0.131'	38.000'	N83.11°36'W	33.36'
C12	35.55'	71.000'	S16.55°15'W	33.36'



LOCATION MAP

APPROVAL - CITY OF PORTLAND AND PLANNING BOARD

EXHIBIT **A**

tables

SITE BENCHMARKS:
 HORZ. REF. SPIKE 3
 ELEV. SHALL BE IN FEET
 SHANTZ 210-0951
 PREDEVELOPER RECEIVED

PARCEN M.A. OUTCROP
 N/E
 OCEAN AVENUE

DRAGON PRODUCTS
 N/E
 OCEAN AVENUE

LEO & JEANNE DEUCALIA
 N/E
 OCEAN AVENUE

OPERA TERRACE
 T/P
 OCEAN AVENUE