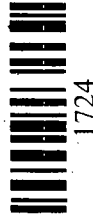


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# Project Correspondence

1724

**Wet Detention Calculations:**

**Given:**

Basin Area = 2.286 ac Grande Champion Pond B  
 Impervious Area = 0.826 ac  
 Water Body Area = 0.41 ac  
 Pervious Area = 1.05 ac  
 % Impervious = 36 %

**Calculate Treatment Volumes:**

**Treatment Volume:**

Volume = 1.0 inches x drainage basin or 0.1905 ac-ft 8,298 CF  
 2.5 inches x impervious area (excluding water bodies) 0.1721 ac-ft 7,496 CF

Volume (Class I, II, III-shellfish, OFW) = 0.1905 ac-ft 0.28575 ac-ft  
 (max F15, F16) 12,447 CF

**Calculate Permanent Pool Volume:**

PPV = (DA\*C\*R\*RT) / (WS\*CF) = 0.316647 ac-ft = 13,793 CF 0.475 ac-ft  
 20,690 CF  
 Non-littoral Zone = 0.474971 ac-ft = 20,690 CF 0.712 ac-ft  
 31,035 CF

DA = Drainage area to pond = 2.286 ac  
 C = Runoff coefficient = 0.606  
 R = Wet season rainfall depth = 30 in  
 RT = Residence Time = 14 days  
 WS = Length of wet season = 153 days  
 (June - October - 153 days)  
 CF = Conversion factor (12 in/ft) 12 in/ft

Runoff coeff	area	c	Cw
imp area	1.236	0.95	0.606
perv area	1.05	0.2	
perv area			
total area	2.286		

**Calculate Orifice Diameter:**

A = Q/(C\*(2\*g\*h)<sup>1/2</sup>)  
 0.0260 sf = 2.19 inches  
 0.0306 sf = 2.37 inches  
 C = Orifice coefficient = 0.6 (0.6 included in equation)  
 D = Orifice Diameter = 2.19 inches  
 g = gravity = 32.2 ft/s  
 h = Depth of water above the center of the orifice 0.33 ft 0.239 ft  
 Q = TV/2\*t\*CF = 0.072031 cfs (Based on 24 hours  
 TV = 12447 cf

Class I, II, III-shellfish, OFW criteria  
 second iteration for orifice sizing

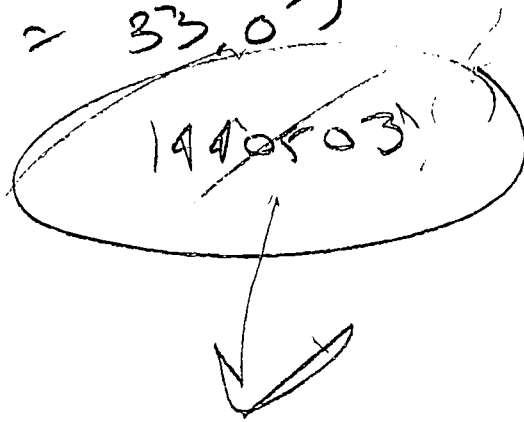
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max strg 115.99

Er  
113  
115.99  
116

Vol  
23  
X  
34.02

$$X = 33.07$$



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