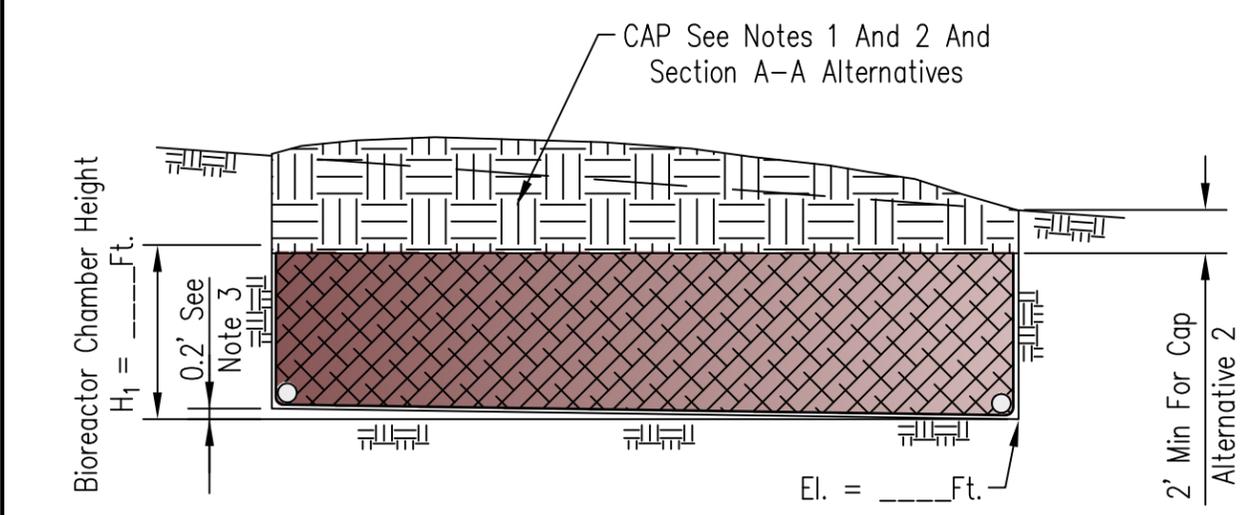
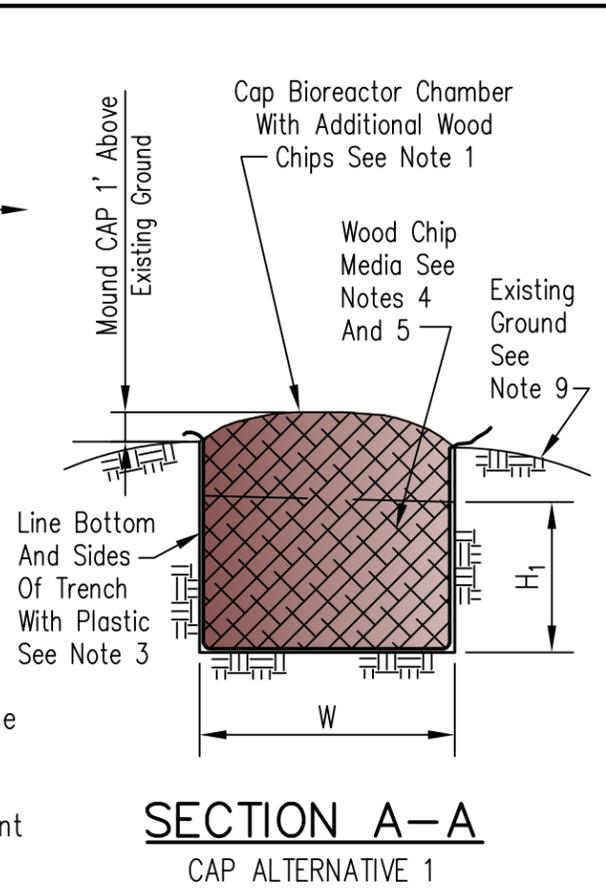


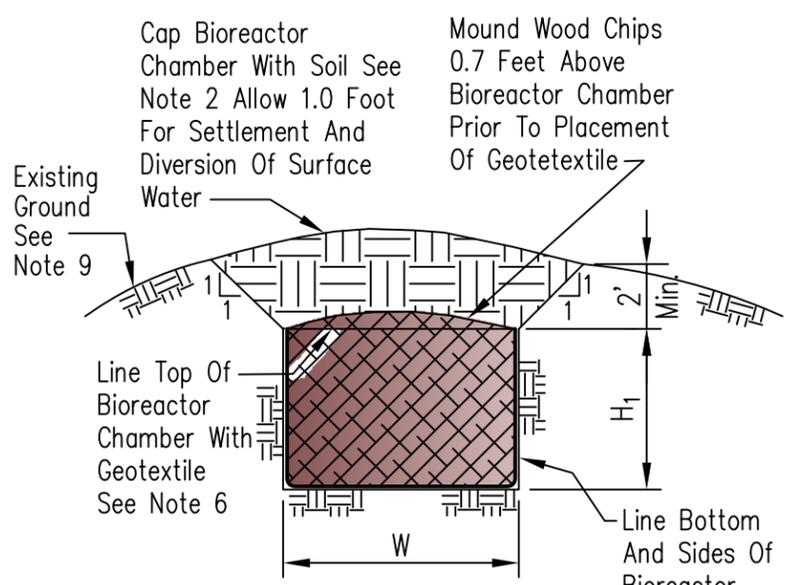
**PLAN**



**ELEVATION**



**SECTION A-A  
CAP ALTERNATIVE 2**



**NOTES:**

1. Utilize CAP ALTERNATIVE 1 for the bioreactor chamber unless traffic over the top is anticipated.
2. For CAP ALTERNATIVE 2, fill the area above the bioreactor chamber with soil, tamped for compaction. Use topsoil for at least the top 6" Vegetate according to Conservation Practice Standard 342 unless the area is to be cropped.
3. Set bottom of bioreactor chamber to drain towards exit end.
4. Line bottom and sides of bioreactor chamber with black plastic, minimum 4 mil thickness. Overlap any splices at least 6 inches. Wrap plastic carefully around tiles that enter/exit the chamber; no need to seal around tiles.
5. Route supply line to centerline of entrance end and return line from centerline of exit end of bioreactor chamber.
6. Wood chip media must be reasonably free from dirt, fines, and other contaminants. Do not use oak, cedar or redwood chips because of their tannin content. Do not use treated wood chips.
7. Obtain approval of engineer on the wood chips prior to installation.
8. Geotextile (non-woven, needle punched)  
Minimum criteria:  
Grab tensile strength (lb) ASTM D 4632 \_\_\_\_\_ 202  
Elongation at failure (%) ASTM D 4632 \_\_\_\_\_ ≥ 50  
Trapezoidal tear strength (lb) ASTM D 4533 \_\_\_\_\_ 79  
Puncture strength (lb) ASTM D 6241 \_\_\_\_\_ 433  
Ultraviolet light (% retained strength) ASTM D 4355 \_\_\_\_\_ min 50  
Apparent opening size (AOS) ASTM D 4751 \_\_\_\_\_ max 0.22 mm (US sieve size 70)  
Permittivity sec<sup>-1</sup> ASTM D 4491 \_\_\_\_\_ min 0.70  
Overlap splices at least 6 inches.
9. Grade site for positive drainage away from the bioreactor chamber. Spread soil in designated location away from bioreactor.

Bench Mark El. \_\_\_\_\_  
Description \_\_\_\_\_

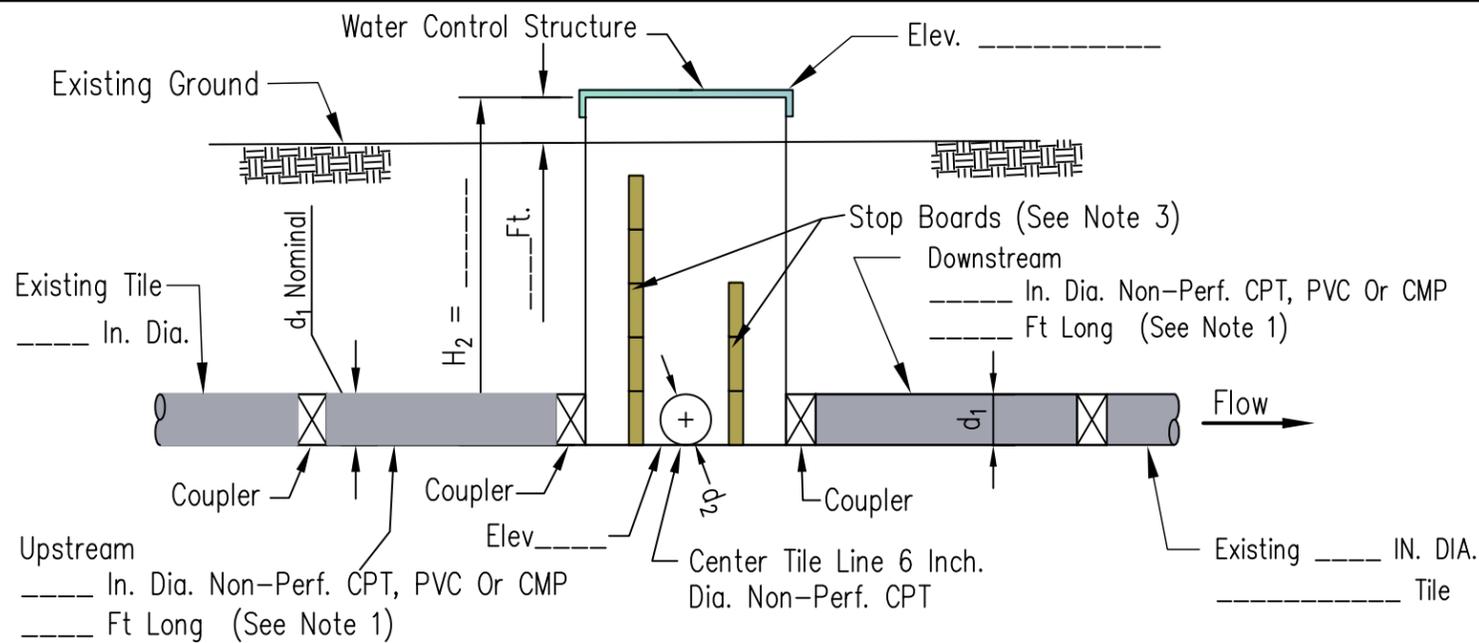
Date	9/15/16
Designed	M. QUINONES
Drawn	
Checked	
Approved	

**DENITRIFYING BIOREACTOR  
TYPE 4 - DOUBLE STRUCTURE  
WITH DWM**

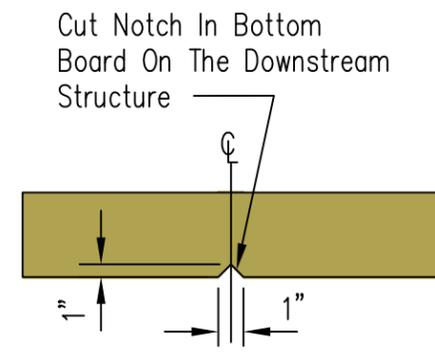


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Page	1 of 2
Sheet	of

Landowner		Location	
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**TYPICAL SECTION  
UPSTREAM STRUCTURE**

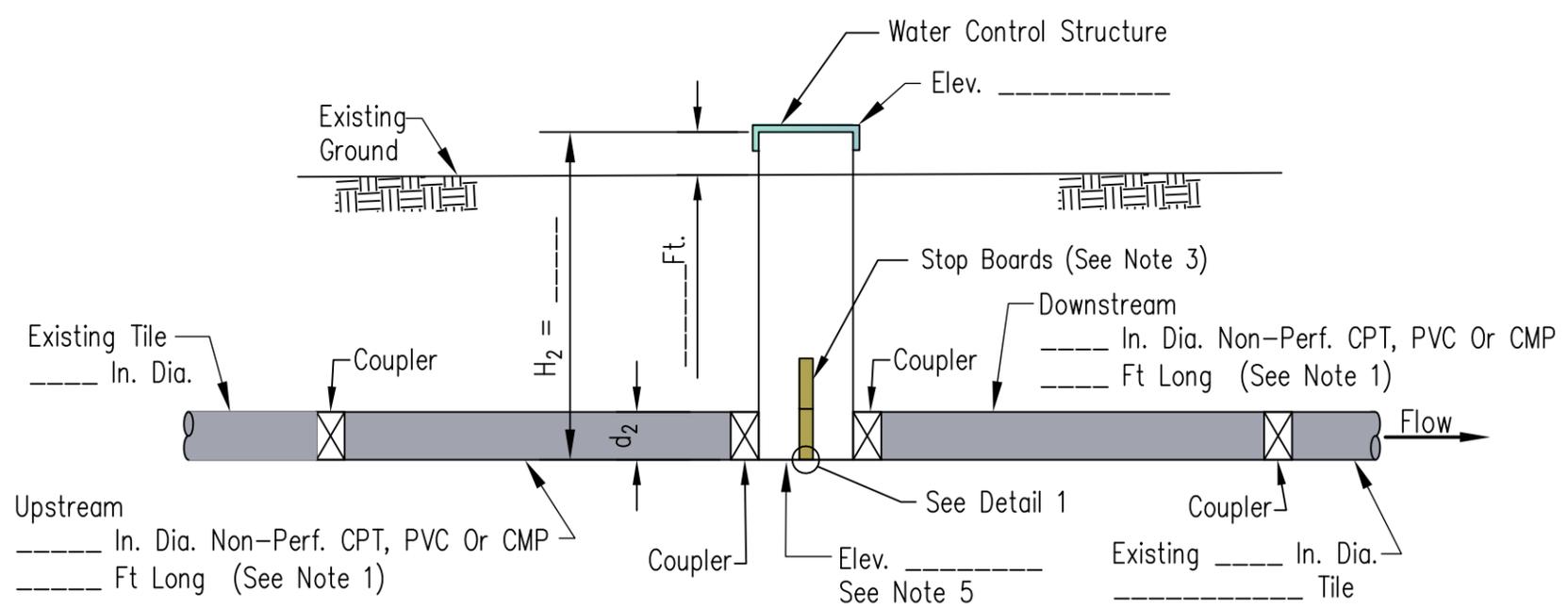


**DETAIL 1**

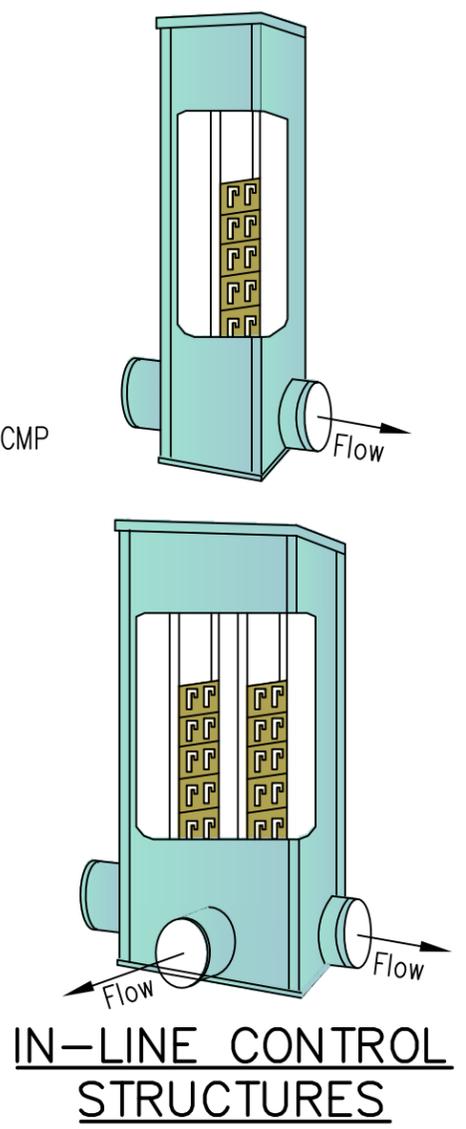
**NOTES:**

1. Install a minimum of 20 feet of non-perforated tile adjacent to the water control structure, on all lines: upstream, downstream and center (as applicable.)
2. Couplings between the water control section and the non-perforated tile must be water tight.
3. Stop boards must provide must tight seals under a minimum of 1 ft. pressure head (except notched board).
4. Mark location of structure using post or manufactured marker flag for safety in the field.
5. Set elevation of bioreactor chamber bottom at least 0.2 feet above downstream structure/tile flow line.

QUANTITIES*	
Water Control Structure 3 - Compartment H <sub>2</sub> = _____ft. d <sub>1</sub> = _____in. d <sub>2</sub> = _____in.	1
Water Control Structure 2 - Compartment H <sub>2</sub> = _____ft. d <sub>2</sub> = _____in.	1
____" Non-perforated Pipe (ft)	
6" Non-perforated Pipe (ft)	
____" Perforated CPT (ft)	
Tee ____" x 6"	1
Tee 6" x 6"	
Elbows 6"	
Wood Chips (cu. yd.)	
4 Mil Black Plastic (sq. yd.)	
Geotextile (sq. yd.)	
Excavation (cu. yd.)	



**TYPICAL SECTION  
DOWNSTREAM STRUCTURE**



**IN-LINE CONTROL  
STRUCTURES**

\* Quantities Do Not Include Tile/Pipe Couplers Or Extra Material For Geotextile/Plastic Overlap

Landowner	Location
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Date	9/15/16
Designed	M. QUINONES
Drawn	
Checked	
Approved	

**TYPE 4 BIOREACTOR IN-LINE  
WATER CONTROL STRUCTURES  
2 & 3 - COMPARTMENT**

