



August 8, 2008

Butler County Administration Bldg.  
Butler County Planning Dept.  
Attn. David Fehr  
130 High Street  
Hamilton, Ohio 45011

Re: Application PLN-JP08-00595  
The Fountains of Fairfield Township

Dear David:

This office has reviewed the construction drawings for the above referenced subdivision and feels the following items should be considered for revision.

### **Mass Grading Plan**

1. We understand the developers desire to keep the cross access easement to the McQueen property flexible however; the current grading plan does not make this possible. There is no temporary or planned profile for shared access.
2. Prior to excavation, the adjoining property (in the location of the west cross access) had good grade for a future shared access. Now the plan is to create a twelve-foot grade difference. How is this planned cross access going to work? The proposed grading plan is in direct conflict with the planned zoning requirements of the PUD. Since work is being performed on the adjacent property, a profile for a shared access needs to be constructed.
3. The sidewalk plan adjacent to the future Menards intersection is different than the construction documents (2/12 & 3/12).
4. Grading within the Easement for Highway Purposes may require a permit or permission of either ODOT or TID. Please provide the source (OR, DB & PG) for the easement.
5. Proposed grading adjacent to the highway signs will eliminate the current access drive. What is the plan for maintaining & relocating this access?
6. Overland flood routing a culvert is always necessary, especially when debris can be expected in storm water runoff. Identify an overland flood route path near the culvert and retention pond.
7. With sidewalk along Street A and a large fill slope (south end of Street A, in the curve), a two-foot flat area is needed between the sidewalk and slope break. Also due to the height of the slope a barrier maybe necessary, such as a fence or railing.
8. Provide a profile of the culvert under Street 2A and headwall details.

### Water Quality Pond

9. A large portion of the post-developed flow is being treated per OEPA's permit requirements but what about the remaining areas that by-pass the water quality pond? What is the plan to be in compliance with the permit?
10. Provide computations supporting the permanent pool (below base WSE) is 0.5 WQ<sub>v</sub> per OEPA's permit requirements.
11. The outlet of the water quality pond (42" CMP) needs to be skewed so it directs flow downstream

versus across the channel. Bank erosion opposite this structure is a concern.

12. Is blocking needed for the PVC C900 pipe? Even though it's a high pressure pipe, we're not sure it's self-supporting. Also, is the tee fitting using mechanical restraints? How will the steel plate be bolted to the PVC pipe, to the restraint? Also note the top of the tee should be capped off or plate bolted.
13. Note that the flexible boot is to be a watertight seal.
14. What is supporting the headwall, the pond bottom? Show this in the detail.
15. How will one gain access into the outlet structure? If entering from the top grate, there isn't anything for steps to be mounted to. Is entry planned thru the window?
16. What will the 8" x 8" risers be, block? Is this sufficient to support the weight of the top slab?
17. To alleviate potential bank erosion around the outlet structure, we recommend placing rock on the side slope, adjacent to the outlet structure.
18. Since the spillway will be utilized for all storms over the twenty-five year event, we strongly recommend a concrete spillway with rock protection from the spillway towards the creek for at least ten feet.
19. Provide velocity calculations for the 42" CMP outlet. Using the twenty-five year storm the velocity is just over 12.5 fps. This is a significant increase over the existing channel velocity that was calculated at the one-hundred year. Provide appropriate energy dissipation at the outlet and provide channel protection.

#### Retention Pond

20. Provide velocity calculations for the 54" CMP outlet. Using the outflow data for the fifty and one-hundred year storms the velocity is nearly  $V_{50} = 11.5$  fps and  $V_{100} = 12$  fps. Provide appropriate energy dissipation at the outlet and provide channel protection.
21. To alleviate potential bank erosion around the outlet structure, we recommend placing rock on the side slope, adjacent to the outlet structure.
22. Since the existing channel will be diverted into the retention pond near the pond embankment, what are your plans for potential slope and embankment erosion? During heavy flows the main channel velocity is directed towards the pond embankment, a potential erosion problem.

#### Street 2A Culvert

23. The culvert velocity is extremely high. An alternative structure needs to be evaluated.
24. From the flood study, the culvert nearly matches up with Section #2. In the tailwater data the bottom of the channel is five-feet compared to nine-feet in the flood study. The channel slope is also unclear. Tailwater data slope is 0.026 while the flood study is 0.014. Please clarify these discrepancies.
25. Flowrate information data is also of concern. See Detention Report within this letter for additional comments that may affect the ultimate design.

### **Detention Report**

#### Pre-Developed Map

1. Show Winford Drive and Birdy Lane on the map. Wal Mart detention accounts for the area between Birdy and Winford. This will reduce the Off-Site #2 drainage area by approximately 3.2 acres.
2. The commercial development west of Gilmore, north of SR 129, should be removed from Off-Site #2 drainage area. As shown in the construction documents, the site drains into the existing pond and not the creek channel. Only a small portion of the site and two residential structures drain into the creek. This area should be evaluated separately from Off-Site #2 drainage area since it is disconnected by Gilmore Road.
3. Nearly 6.5 acres of the Hunters Trace subdivision is shown to be within Off-Site #3 drainage area. This area has been directed towards their detention basin with storm sewers, please remove this area.
4. Show your travel time segments and your analysis point on the map.

### Detention Analysis

5. Off-Site #2 is shown to be 95% row crops and 5% woods. The area north of SR 129 has not been farmed in several years and has become overgrown and should be analyzed as brush in fair hydrologic condition. Travel time for the channel within the watershed is very short with high channel velocities. Please provide rationale for the high channel velocities.
6. Off-Site #3 is shown to be 91% row crops and 9% residential. The area south of SR 129 and west of Gilmore is not row crops; this area is heavily wooded in good hydrologic condition. Again, travel time within the watershed seems excessively short.
7. Page 8 & 9 seem to be the same information, was something else supposed to be on page 9 (Pre-Developed) or is it a duplicate?
8. Provide routing calculations for the water quality pond, developed fifty and one-hundred year storms. Is all 233.35 cfs going thru the spillway? How much does the 42" CMP convey and at what velocity?
9. The release rate for the allowable and post-developed hydrographs (pond routing hydrograph #15) is not the same. Why are these different? Nothing changed in Off-Site #1 to justify different numbers. Also, when finding the allowable and post-developed off-site flows, Off-Site #1 and Off-Site #2 hydrographs should be combined prior to adding the site affects. In essence, On-Site, Off-Site #3 and Gilmore east (Off-Site #1 & #2) would be your final hydrograph. This should have a slight effect on peak discharge and time. Do this for the existing & post-developed (50-yr & 100-yr) analysis.
10. On page 25, hydrograph #10 is not included in the report. This adds hydrographs #4 & #5.
11. Page 47, hydrograph #8 does not match the results given on page 24. These results should be the same.

### **Construction Drawings**

1. Street 1 intersection with Menards entrance, eliminate the incoming left lane. This should be a free-flow, left-right movement in one lane. Since we understand trucks will need to use a portion of the lane, mark with transverse lines. You may also want to consider depressing the curb and concreting the nose of the Menards
2. Provide a stop sign exiting Menards.
3. Per our discussions, modify the driveways on Street 2A.
4. Since Street 3 is also a free-flow movement, mark out the left turn lane and relocate the crosswalk north to Street 2A. A small portion of sidewalk will be needed across the frontage of Menards to tie the walk together.
5. Enclosed is a sketch that provides Outlots 6 & 7 with full movement. Please review and discuss if this is a viable option.

When these items have been corrected, please submit the revised drainage maps, detention calculations and construction drawings.

Sincerely,



Eric J. Pottenger  
Development / Storm Water Manager

cc: file

