Teresa Barnes /BCEO
11/08/2007 03:48 PM

To "eric smith" <esmith@mccartyassociates.com>
cc Jason Mahaffey/BCEO@BCEO, dirksingdm@butlercountyohio.org
bcc
Subject RE: Ootzie of Ohio

Eric

I have reviewed the calcuations that you sent over, as well as the additional watershed information...and feel that the plan can be approved, with some comments:
1. It should be noted that water quality is not like detention. Although the water quality pond is sized for the entire lot, the front .5 acre is draining toward the cul-du-sac, and never reaches the treatment pond. Unfortunately, you cannot "overtreat" some water and not treat the rest - according to OEPA, all water should be treated. Given that this site is small, I will consider the treed slopes as a vegetated treatment area for this half-acre - however, future sites will be required to treat all water with a quality BMP.
2. Our regulations state that we do not approve slopes greater than 3:1, and the grading plan indicates some areas that are 1:1. We suggest these be increased to a more stable and maintainable slope. An additional concern comes with the HeE2 soils that discuss the possibility of landslides with top loading. Ensure that all slopes are stablized with vegetation. (for further info on this, confir with Doug at soil and water)
3. The maximum driveway width is 36-feet. Please submit a copy of the corrected drawings.

if you have any questions - just let me know
thanks
Teresa

"eric smith"
<esmith@mccartyassociates . com>
11/07/2007 04:17 PM

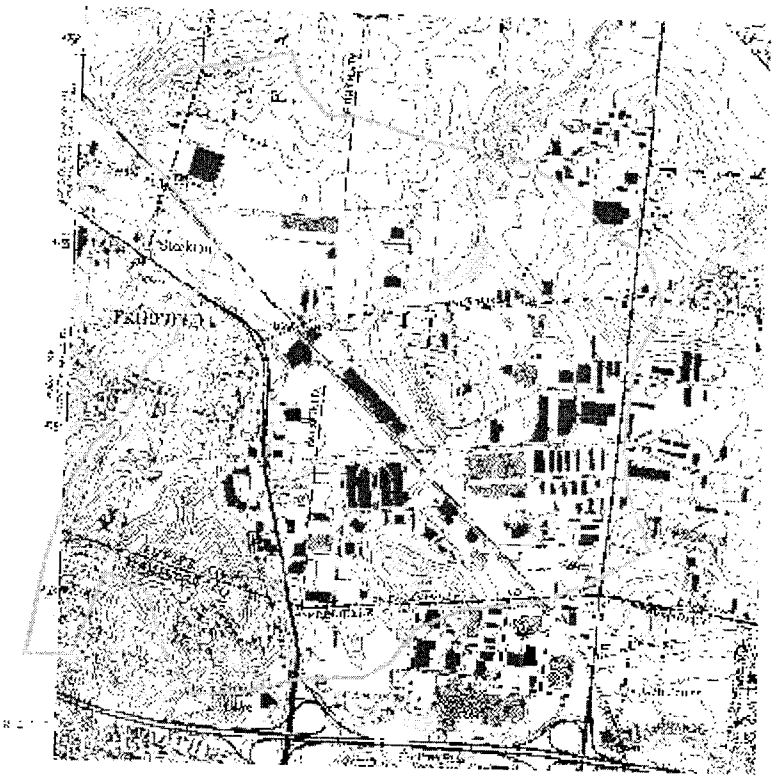
To <barnest@bceo.org>
cc "'Buddy'" <aaiello@xtlonline.com>, "'Michael McCarty'" <mike@mccartyassociates.com>
bcc
Subject Ootzie of Ohio, truck parking lot issues

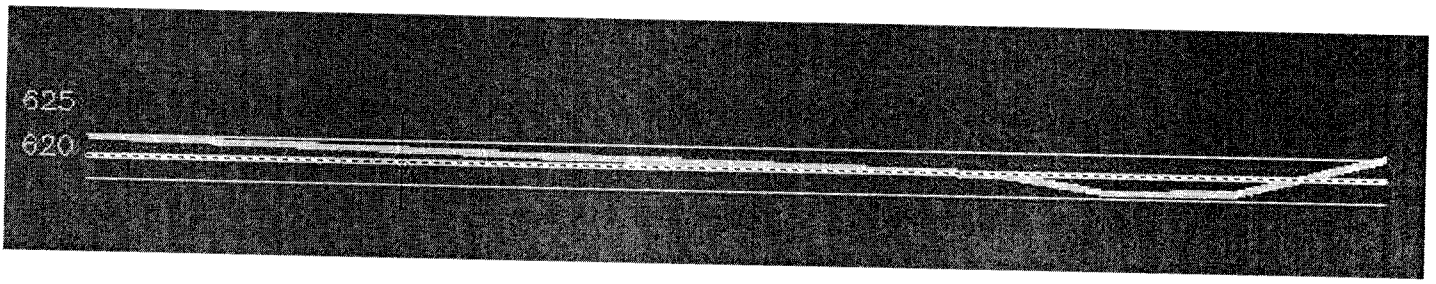
Teresa,
I previously sent the calculation for the water quality volume. To help keep information together the calculation is:

WQv = CxPxA/12=.8x.75x(.9+.4)/12
=.06 AC-FT = 2700 CU FT = 100 CY
Safety factor = 1.2, WQv = 120 CY required

Also...
You wrote: *Dependent on the site location and calculations, detention requirements may be waived in lew of the water quality requirements. However, I need to review the calculations prior to making this determination.*
The site location is on the bank of a tributary stream approximately 5600 feet from its terminus at Mill Creek. The drainage area contributing to the stream at our Water quality pond is estimated to be 3.01 square miles. The area is highly developed. I have shown below the estimated drainage area from the USGS map.
A conservative estimate of peak runoff in the tributary stream is: Q100=(P-Ia)^2 / (P-Ia)+S, S=1000 / CN -10, assume CN = 90 (commercial / industrial), the max length of flow travel is approximately 13,232 feet at 1.1% average shallow concentrated flow v = 1.8 ft / s = 122 min = 2 hr. concentration time.
Peak flow 100 year event, qp=qu x Am x Q x Fp. S=1000/90 -10 = 1.11, P=5.6in, Q=P-.2S)^2/(P+.8S)=4.49 inch, qu=250csm/in for type 2 distribution.
Qp =250*3*4.49*.95 = 3,199 CFS (conservative (high) estimate peak flow 100 year event storm in the tributary stream)
At the elevation of the water quality pond a section of the tributary stream is taken and Manning' s formula produces an estimate of the stream's conveyance capacity.
Q max at elevation 625 feet, Q = 1.49xAxR^.67xS^.5 / N = 1.49x998x2.3x1 / .03 = 114,004 CFS

From this proposed gravel lot site flow is added into this tributary stream. The peak flow from this site through the WQv pond would be = CIA = .9x8x1.3=9.36 CFS if the pond were full at the time of the event.
Our reason for requesting the waiver of the detention requirement in lieu of the water quality pond is that: This site is out of a FEMA mapped flood zone. The area is developed. A 100 year event produces a peak flow in the creek hundreds of times greater than the peak flow that would come from the site's water quality pond. The stream channel's capacity below the water quality pond elevation is far exceeds the amount needed to pass the 100 year event. The slopes of this site make available space very limited and adding a detention pond to the site will create a hardship. The water quality pond will be a useful device for detaining and treating the runoff from common storms.





Also…

After checking the FEMA Firm maps, the creek is not a mapped flood area. However, it is designated as

a blueline stream and therefore, is subject to our flood plain regulations. (which are the regulations/status that I said that I would check into)

Thank you for checking the requirements. I will assist Ootzie in application for this permit from the zoning department.

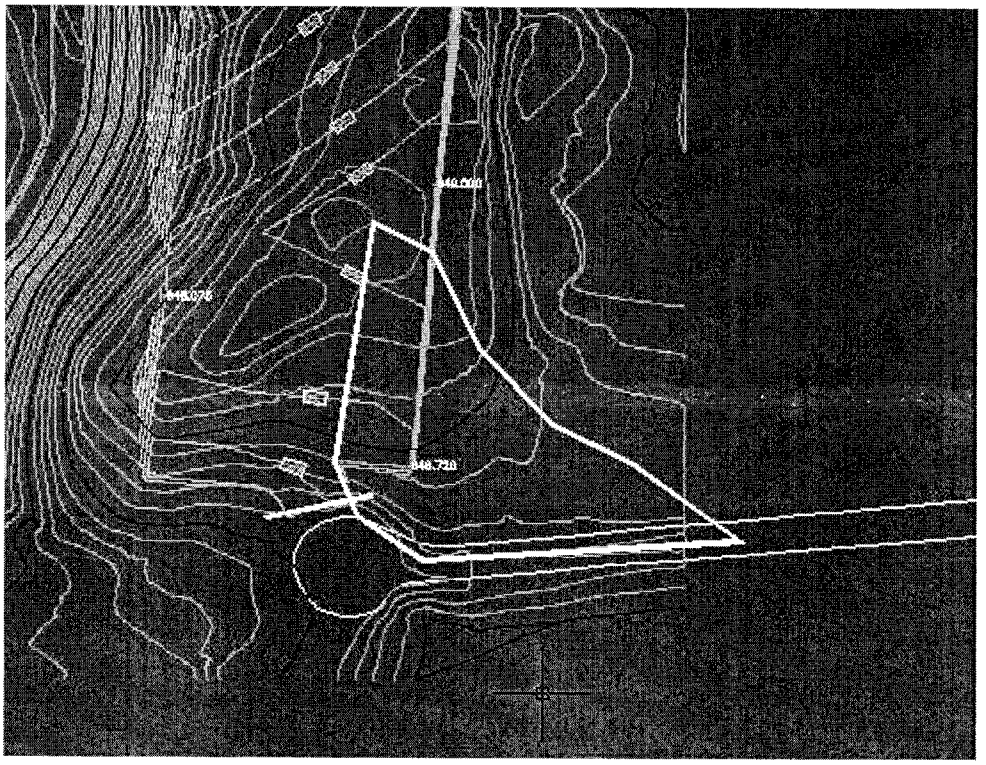
And Also…

The access permit states that we (the engineer's office) will size a pipe for non-commercial applications. Therefore, we require the culvert sizing calculations as well.

The drainage area for the culvert is very small and is shown below.

By the rational method Q=CIA, and the following:
A=.65 Ac by CAD takeoff
C=.8 by OEPA NOI estimate for industrial / commercial zones
I10yr = 5.4 in / hr (assume 10 min travel time)
Q = .8 * 5.4 * .65 = 2.808 CFS

By ODOT 1100-245, a 15" CMP culvert flowing full handles 4 CFS. This size culvert will be specified for safety factor.



I did receive today a copy of our Erosion and Sediment Control Lot Permit. I hope this information meets your needs. I will proceed with the application for the referenced flood plain permit.

Eric R. Smith PE, SI
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