

From: Rob Gordon
To: [Gareth Avant \(GAvant@mckimcreed.com\)](mailto:GAvant@mckimcreed.com)
Cc: [Jeff Walton](#); [Derek Pielech](#)
Subject: Eng Review - O'Reillys Auto
Date: Thursday, March 07, 2013 4:46:00 PM
Attachments: [DOC030713.pdf](#)
[image002.png](#)

Engineering has reviewed the plans for the proposed O'Reilly's and offers the comments below. It should be noted that the adjacent property (to the West) is under review at the same time as this project. They have elected to keep the existing building and parking areas and are only proposing a small addition. There is drainage between the two properties (described below in comments) that will have to be dealt with. It is recommended that you contact the owner/developer of that project to work out an agreement. His contact information is (Mr. Bostic will be given the McKim & Creed contact info as well):

Croaker, Inc.
Web Bostic
910.251.8051
1.800.277.3797
wbostic@croakeronline.com

Comments on the plan:

1. Surface drainage from the front parking lot & Eastern half of the existing building currently drain toward & on the O'Reilly's property. Per City code section 18-761 (b), you must adequately convey offsite drainage through your property. There are two options to do this: you may collect and convey the runoff through the site (bypassing the BMP's) -or- you may convey the offsite runoff to your BMP system. If you choose to convey the offsite runoff to the BMP, the water quality volume must be sized for all drainage to the BMP, including the offsite drainage per NCAC 2H .1008 (c)(1). The offsite drainage will NOT add to the pre/post requirements. It should also be noted that the adjacent project (Croaker) is required by City code to discharge to an appropriate point of discharge, which in this case would require an easement to continue to discharge across the O'Reilly's property.
2. The drainage easement proposed for the outfall of the wetland system will have to be improved. It is draining not only this project, but the adjacent parcel (unattenuated) and will have to be shown to be of adequate size to accommodate drainage from both properties.
3. Note Only – the private drainage easement will have to be recorded prior to issuance of a certificate of occupancy for the project.
4. The property map recorded at MB 56 P109 shows a discrepancy in the property boundary. There appears to be a jog in the property boundary between lot 1 & lot 2 that is not shown. Please revise & update all site data calcs.
5. The soils are mapped A/D. The soils on-site are clearly in the "drained" condition and the calcs must utilize the CN's for A soils. The CN used was 55, which is reflective of B soils. The CN corresponding to Woods in good condition for A soils is 30. We have found that predeveloped flows calculated using a CN of 30 are difficult to meet (no flow). We are allowing projects to use a CN of 39 when they are composed entirely of A type soils. Please revise the calcs.

6. The rainfall depths used in the model should be from the City technical standards. See attached chart E-5. Since there is no 1-yr value on the chart, you may continue to use the NOAA value currently used in the calcs.
7. I'm not sure the outlets in the infiltration system are set up correctly. The weir should discharge through the culvert as the primary outflow. The outlets on the wetland look correct.
8. There is no offline bypass provided for the infiltration system. If one cannot be provided, the system must satisfy 16.3.9 of the State BMP manual. I could make a case that a vegetated filter is provided considering the outflow will receive additional treatment in the wetland and outflow swale, but either condition 2 or condition 4 (of 16.3.9) must be met. Please note a few things when determining how to satisfy this requirement:
 - a. According to the soils report, the measured infiltration rates in the vicinity of the infiltration area are 5.6 & 6.0 iph. Engineering is fine if the system is modeled at 5.8 iph (full rate). An infiltration rate of 4 iph is currently being used.
 - b. The required volume is listed as 1449 cf, the provided volume is listed as 2416, so additional volume would have to be provided for the system to satisfy condition #2.
 - c. The system does currently infiltrate the 10-yr storm, but the system was not modeled using $\frac{1}{2}$ the measured infiltration rate. Additional modeling would have to be done to satisfy condition #4.
 - d. Note only – BMP's in series are not typically allowed. The only reason this configuration is acceptable is because the infiltration system infiltrates the 10-yr event – so the two systems only operate as an interconnected system above the 10-yr storm.
9. Note Only – the emergency routing (assuming no infiltration) only has to be done for the 10-yr event, not the 100-yr event. The spillway requirements are as follows: pass 50-yr w/ 0.5' freeboard, pass 100-yr (no freeboard requirement), pass 10-yr assuming no infiltration & non-functioning riser.
10. Please include the 1S & 4S hydrographs in the calc packet. We need to be able document/verify the inputs for the inflow hydrograph.
11. The DA for the infiltration trench listed on p4 of the application is not consistent with the DA listed in the calcs & supplement.
12. Please label the total BMP DA for the wetland on the DA map.
13. The number of plants proposed in the shallow water area in the supplement does not match the planting plan.
14. The driving head for the orifice calculation should be $\frac{1}{3}$ of the total head calculation. The supplement shows the driving head as 1 ft. The drawdown should be at least two days for the required volume & less than 5 days for the actual drawdown volume.

Please resubmit one copy of plans, one full set of sealed calcs & one copy of any revised forms for additional review. These comments will be uploaded to protrak. Please call or email if there are any questions.

Robert Gordon, PE
Project Engineer

City of Wilmington, Engineering Division
212 Operations Center Drive
Wilmington, NC 28412
Office: (910) 341-5856 | Fax: (910) 341-5881
Email: rob.gordon@wilmingtonnc.gov
www.wilmingtonnc.gov



Follow us on Facebook or Twitter

[facebook/cityofwilmington](https://www.facebook.com/cityofwilmington)

[@cityofwilm](https://twitter.com/cityofwilm)