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MACCONNELL
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July 21, 2011

Mr. Jon Risgaard, Unit Supervisor
NCDENR - Division of Water Quality
Aquifer Protection Section
Land Application Unit
1636 Mail Service Center
Raleigh, North Carolina 27699-1636

RE: Sandy Pond Enterprises, LLC
Dogwood Animal Hospital
Wastewater Irrigation System Permit Modification
Permit Number: WQ0030304
MacConnell & Associates Project Number: A21302.00

Dear Mr. Risgaard:

Please find enclosed one original and three copies of the Wastewater Irrigation Systems permit modification package for the above referenced project, which includes the following:

- Permit Application (WWIS 12-06),
- Existing Permit,
- Engineering Plans,
- Building Floor Plans,
- Water Use Data (past 12 months),
- Flow Reduction Calculations.

With this application, we are requesting a flow reduction (minor modification) to permit number WQ0030304 for the surface irrigation system serving Dogwood Animal Hospital in Chatham County. The owner is expanding the business and plans to add a 3,500 ft^2 building referred to as Building #2. This second building will consist of twenty-three (23) kennels and support four (4) employees. The existing building (Building #1) is 7,410 ft^2 and houses seventeen (17) kennels. We do not have access to the original design calculations but are assuming approximately 10 employees serving Building #1 (doctors, assistants, receptionist, bookkeeper, etc). This number accounts for any visitors/customers using the restroom. There are no changes proposed to the existing treatment and irrigation system, only a reallocation in current permitted flows. Actual flows are significantly less than design flows.

In the attached calculations, we approximate the original design flow for Building #1. In addition to the seventeen (17) kennels, three (3) more are included to account for the cat room bringing the total to twenty (20). As stated above the number of employees is approximated at ten (10), which we feel is a conservative number allowing for any visitors who may use the restroom facilities. One hundred and fifty (150) gallons is included for future expansion to reach the design flow of eight hundred (800) gallons per day (gpd).

To estimate the daily water usage for Building #2, a daily average of the last twelve (12) months of water use data was calculated based on weekly meter readings. The average daily flow is 241.6 gallons with a peak daily flow of 379 gallons. These numbers produce a peaking factor of 1.57 (379/241.6). To approximate the average daily flow per kennel in the existing Building #1, the estimated water usage per employee is subtracted from the average daily flow. In our experience with low flow fixtures, an employee uses approximately 6 gallons of water during a typical 8-hour shift. With this number subtracted out, the estimated daily flow per kennel is 9.08 gallons. Using a value of 6 gpd per employee and 9.08 gpd per kennel, the total estimated daily flow for both buildings is 474.44 gallons. Applying the peaking factor generated from the last twelve months of data equates to a design flow of 744.26 gallons per day (474.44 * 1.57).

We feel that the flow data, calculations, and assumptions presented are conservative and show that an increase in allowable flow for the existing wastewater treatment and irrigation system is warranted. With the average daily flow for the existing building equal to less than one-third of the system capacity, the addition of twenty-three kennels in a building half the size of the existing operation will not negatively impact the system in our professional judgment. We feel that this submittal is sufficient for you to complete your review. If you have any questions or require additional information, please contact me or Zachary L. Fuller, PE at (919) 467-1239.

Sincerely,

Gary S. MacConnell, PE
President

enclosures

cc: Will Marshburn – Bobbitt Design Build