



MEMORANDUM

TO: Jonathon D. Idman, Chief Regulatory Officer, Cape Cod Commission

FROM: Joe Henderson, P.E.

DATE: January 6, 2016

RE: Atlantic Subaru – Bourne, MA
Existing and Proposed Wastewater Flows

CC: Eliza Z. Cox, Brian Kuchar, P.E., RLA

Horsley Witten Group, Inc. (HW) is pleased to provide this memo summarizing the existing and proposed wastewater flow calculations for the Atlantic Subaru property, located at 124 Waterhouse Road, Bourne. The existing wastewater design flow calculation was permitted by the Bourne Board of Health (BOH) at 740 gallons per day, and is shown on the design plan prepared by Consulting Engineers & Scientists, Inc., titled Onsite Wastewater Disposal System, dated March 19, 1997. A summary of the design flow calculation provided on the approved design plan is included as Table 1 attached. This design flow of 740 gallons per day was also approved by the Cape Cod Commission and referenced in Finding WR3 of the April 13, 2000 Cape Cod Commission decision (Project No. TR99025) (the “CCC Decision”). Pursuant to the CCC Decision, the subject property has already mitigated nitrogen impacts for a design flow of up 740 gallons per day.

The existing permitted design flow is based on retail area, office area and the number of employees working in the service bays (Industrial use). Please note, it appears that there was a mathematic error in the office area flow calculation that was submitted to and approved by the BOH and in the CCC Decision. The correct office flow calculation is 166.5 gallons per day (gpd) (2220 sf x75 gpd/1000 sf) instead of 251 gpd and as shown in Table 1 . Therefore, the permitted system was oversized for 740 gpd and includes an additional flow of 84.5 gpd. The system sizing, design, and all mitigation required by the CCC Decision was likewise based on the permitted flow of 740 gpd. The correct Title 5 design flow based on the uses shown in Table 1 is 656 gpd.

The proposed changes to retail, office and industrial uses are summarized in Table 2. Based on the proposed breakdown of uses, the design flow is 657 gpd. As indicated in the attached table, the proposed design flow is well below the previously approved and mitigated flows of 740 gpd.

TABLE 1

EXISTING WASTEWATER DESIGN FLOW CALCULATION (BASED ON TITLE 5)			
DESCRIPTION	AREA (SF) / NO. SEATS	DESIGN CRITERIA	DESIGN FLOW (GPD)
RETAIL	1,980	50 gpd/1,000 s.f.	99
OFFICE	2,220	75 gpd/1,000 s.f.	251
INDUSTRIAL	26	15 gpd/person	390
PERMITTED DEISGN FLOW			740
<i>NOTE: EXISTING DESIGN FLOW CALCULATIONS WERE TAKEN FROM THE PLAN ENTITLED "ONSITE WASTEWATER DISPOSAL SYSTEM" PREPARED BY CONSULTING ENGINEERS & SCIENTISTS, INC, DATED MARCH 19, 1997.</i>			

TABLE 2

WASTEWATER DESIGN FLOW CALCULATION (BASED ON TITLE 5)			
	PROPOSED FLOWS		
DESCRIPTION	AREA (SF) / NO. SEATS/PEOPLE	DESIGN CRITERIA	DESIGN FLOW (GPD)
SHOW ROOM (RETAIL)	3,353	50 gpd/1,000 s.f.	168
SALES CONFERENCE ROOM (RETAIL)	325	50 gpd/1,000 s.f.	17
PARTS (RETAIL)	828	50 gpd/1,000 s.f.	42
RETAIL DISPLAY/WAITING (RETAIL)	2,209	50 gpd/1,000 s.f.	111
RETAIL/SALES	6,715	50 gpd/1,000 s.f.	338
MANAGERS OFFICE (OFFICE)	105	75 gpd/1,000 s.f.	8
DEALERS OFFICE (OFFICE)	127	75 gpd/1,000 s.f.	10
OFFICE MANAGER (OFFICE)	109	75 gpd/1,000 s.f.	9
ACCOUNTING (OFFICE)	189	75 gpd/1,000 s.f.	15
PARTS MANAGER (OFFICE)	85	75 gpd/1,000 s.f.	7
SERVICE MANAGER (OFFICE)	86	75 gpd/1,000 s.f.	7
SECOND FLOOR OFFICES (OFFICE)	900	75 gpd/1,000 s.f.	68
OFFICE	1,600	75 gpd/1,000 s.f.	124
SERVICE (INDUSTRIAL)	13	15 gpd/person	195
		PROPOSED DESIGN FLOW	657
		PERMITTED FLOW	740

NOTES:

1. ACTUAL RETAIL AREA, OFFICE AREA, AND SERVICE AREA EMPLOYEES ARE BASED UPON PLANS AND DATA PROVIDED BY THE PROPERTY OWNER.
2. FLOOR DRAINS ARE NOT CONNECTED TO THE SEPTIC SYSTEM, THEY DISCHARGE TO A SEPARATE TIGHT TANK AND ARE DISPOSED OF OFFSITE.
3. THE PERMITTED DESIGN FLOW IS BASED ON THE PLAN ENTITLED "ONSITE WASTEWATER DISPOSAL SYSTEM" PREPARED BY CONSULTING ENGINEERS & SCIENTISTS, INC, DATED MARCH 19, 1997.