4625-69-2189

Public Health
HEALTH AND HUMAN SERVICES

RICHARD O. BRAJER
Secretary

DANIEL STALEY
Director, Division of Public Health

September 22, 2016

Mr. Heath Snow
Iredell County Health Dept.
318 Turnersburg Hwy
Statesville, NC 28625

Subject: Approval of The Harbour Subdivision Amenity Area Flow Reduction
130 Bay Port Lane, Mooresville, Iredell County, NC
Project Number 2016-36

Dear Mr. Snow:

We have reviewed a submittal for a flow reduction for The Harbour Subdivision Amenity Area in Mooresville, NC, from Donald Munday, PE, Piedmont Design Associates, PA.

After reviewing the submittal we concur with the adjusted design daily flow of 558 gallons/day for the existing clubhouse.

The proposal is requesting a reduction in the amount of land required to be reserved for the repair area. N changes are proposed to the existing clubhouse or amenity area.

Please contact me if you have any questions pertaining to this letter or if I may be of further assistance with this project. I can be contacted at 919-707-5878 or by email at trish.angoli@dhhs.nc.gov.

Sincerely,

Tricia Angoli, PE
On-Site Wastewater Engineering

cc: Donald Munday, PE, Piedmont Design Associates, PA

APPROVED SEP 10 2016

DELIVERED APR 7 4 RECD

Nothing Compares

Department of Health and Human Services | Division of Public Health
5605 Six Forks Road | 1642 Mail Service Center | Raleigh, North Carolina 27699-1642
919 707-5874 T | 919 845 3973 F

PIEDMONT DESIGN ASSOCIATES, P.A.
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Email: dmunday@pdapa.com

Engineering
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September 6, 2016

RECEIVED
SEP 0 9 2016
DHHS
ON-SITE WASTEWATER

Tricia Angoli
NC DHHS/Division of Public Health
Environmental Health Section
On-Site Water Protection Branch
1642 Mail Service Center
Raleigh, NC 27699-1642

Re: Flow Reduction Request for The Harbour Subdivision Amenity Area
130 Bay Port Lane, Mooresville, Iredell County, NC

Dear Ms. Angoli:

This letter is to request a flow reduction at The Harbour Subdivision Amenity Area located at 130 Bay Port Lane off Brawley School Road in Mooresville, Iredell County, NC. The septic system currently serves a pool house with amenities including community pool and tennis courts. The existing septic system is currently operated by Tim Bannister with TCW Wastewater. There have been no issues with the current system. The Owners', The Harbour HOA, would like to reduce the size of the repair area and sell two lots for use as single family residences.

In early spring, Tim Bannister, David DeCaron with Piedmont Design Associates, PA and Brian Allensbach with The Harbour HOA met onsite to discuss necessary modifications to the current water supply system that would allow collection of water usage readings for the just the clubhouse. A separate flow meter was installed on the water supply line serving the pool fill/treatment system. We asked that both the master meter and the pool meter be read simultaneously to get more accurate data for the use of the clubhouse water fixtures.

Our client, The Harbour HOA, has provided us 60 months of water bills/usage documenting water consumption for the period of August 2011 to June 2016 (see attached). Unfortunately, our client noticed that the master meter was broken earlier this year and had to be replaced. The peak monthly water usage during this period was September 2013 with a total of 63,390 gallons used over a period of 27 days (includes pool usage data) with an average daily flow of 2,348 G/D.

From July 8, 2016 to August 7, 2016 daily readings were taken at both the master meter and pool filling/treatment meter. The sum of the 30 consecutive daily readings was 48,890 gallons of which 45,900 gallons was used in the pool or 93.88% of the total.

A peaking factor was derived by dividing the highest total monthly flow (including pool usage) as indicated from the 60 monthly readings (pool usage dates only) by the sum of the 30 consecutive daily water consumption readings from July 8, 2016 to August 7, 2016. The peak month used in the calculations was September 2013 with a gross monthly flow of 63,390 gallons (2,347.77 gallon daily average) and the total sum of the 30 daily gross flow readings of 48,890 gallons. This resulted in a calculated peaking factor of 1.30.

The adjusted design daily sewage flow was then determined by taking the numerical average of the greatest ten percent of the daily readings and multiplying by the peaking factor. The average of the highest ten percent daily flow readings (clubhouse only based on total flow at 6.12%, 430.33 gallons (3 days, 7/14/16, 7/26/16 & 7/29/16) used to calculate the adjusted design daily sewage flow of 557.96 gallons per day for the clubhouse.

Please review the attached calculations and flow data and contact us if you have any questions or need any additional information in order to approve this request.

The following pages contain the monthly water usage records from Carolina Water Systems, 30 consecutive daily readings for The Harbour Subdivision Amenity Area master meter and pool room meter and calculations for the flow reduction for the existing facility.

Thank you in advance for your prompt review and approval.

Sincerely,

Piedmont Design Associates, PA

Donald L. Munday, P.E.
NC Registration No. 17327
President



09/06/2016

Cc.: Tim Bannister, TCW Wastewater, Inc.
Brian Allenspach, The Harbour HOA
Iredell County Health Department

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Engineering
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Job No.: 2016-00-10
Project: The Harbour Amenity Area Septic System Flow Reduction
Mooresville, Iredell County, North Carolina

Date: 8/15/2016
Revised Date: 9/6/2016

Daily Water Meter Readings (Master Meter & Pool House Meter)

Date	Club House Water Meter at Street	Pool Fill Water Meter (Pump Room)	Pool Water Used	Club House Water Used	Percent Used for Pool
Friday, July 08, 2016	216,410	41,390			
Saturday, July 09, 2016	219,030	43,810	2,420.00	200.00	92.4%
Sunday, July 10, 2016	220,100	44,818	1,008.00	62.00	94.2%
Monday, July 11, 2016	222,700	47,371	2,553.00	47.00	98.2%
Tuesday, July 12, 2016	222,860	47,529	158.00	2.00	98.8%
Wednesday, July 13, 2016	223,230	47,872	343.00	27.00	92.7%
Thursday, July 14, 2016	229,530	53,661	5,789.00	511.00	91.9%
Friday, July 15, 2016	231,240	55,257	1,596.00	114.00	93.3%
Saturday, July 16, 2016	231,360	55,368	111.00	9.00	92.5%
Sunday, July 17, 2016	231,710	55,693	325.00	25.00	92.9%
Monday, July 18, 2016	231,770	55,751	58.00	2.00	96.7%
Tuesday, July 19, 2016	231,830	55,807	56.00	4.00	93.3%
Wednesday, July 20, 2016	234,640	58,518	2,711.00	99.00	96.5%
Thursday, July 21, 2016	234,930	58,801	283.00	7.00	97.6%
Friday, July 22, 2016	235,100	58,957	156.00	14.00	91.8%
Saturday, July 23, 2016	240,150	63,778	4,821.00	229.00	95.5%
Sunday, July 24, 2016	240,640	64,265	487.00	3.00	99.4%
Monday, July 25, 2016	243,710	67,085	2,820.00	250.00	91.9%
Tuesday, July 26, 2016	244,950	68,045	960.00	280.00	77.4%
Wednesday, July 27, 2016	245,040	68,134	89.00	1.00	98.9%
Thursday, July 28, 2016	246,810	69,744	1,610.00	160.00	91.0%
Friday, July 29, 2016	250,610	73,044	3,300.00	500.00	86.8%
Saturday, July 30, 2016	252,980	75,344	2,300.00	70.00	97.0%
Sunday, July 31, 2016	255,400	77,733	2,389.00	31.00	98.7%
Monday, August 01, 2016	257,190	79,413	1,680.00	110.00	93.9%
Tuesday, August 02, 2016	257,220	79,436	23.00	90.00	76.7%
Wednesday, August 03, 2016	257,270	79,483	47.00	3.00	94.0%
Thursday, August 04, 2016	261,860	83,939	4,456.00	134.00	97.1%
Friday, August 05, 2016	261,910	83,988	49.00	1.00	98.0%
Saturday, August 06, 2016	265,210	87,214	3,226.00	74.00	97.8%
Sunday, August 07, 2016	265,300	87,290	76.00	14.00	84.4%
30	***48,890.00***	***45,900.00***	***45,900.00***	***3,073.00***	
		93.88%			

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Monthly Master Water Meter Readings

From Date	To Date	Days	Total Usage	Avg. Total Usage per Day		Pool Water Usage	Monthly Clubhouse Usage Based on 93.88%	Avg. Daily Clubhouse Usage	Comments
7/29/2011	8/31/2011	33	33,510.00	1,015.45	*Pool Usage Month*	31,460.61	2,049.39	62.10	
8/31/2011	10/2/2011	32	5,870.00	183.44	*Pool Usage Month*	5,511.00	359.00	11.22	
10/2/2011	10/31/2011	29	180.00	6.21	*No Pool Water Usage*		180.00	6.21	
10/31/2011	11/30/2011	30	230.00	7.67	*No Pool Water Usage*		230.00	7.67	
11/30/2011	12/31/2011	31	6,860.00	221.29	*No Pool Water Usage*		63,390.00	2,044.84	*Broken Waterline*
12/31/2011	2/1/2012	32	130.00	4.06	*No Pool Water Usage*		130.00	4.06	
2/1/2012	2/26/2012	25	280.00	11.20	*No Pool Water Usage*		280.00	11.20	
2/26/2012	3/25/2012	28	570.00	20.36	*No Pool Water Usage*		570.00	20.36	
3/25/2012	4/29/2012	35	18,250.00	521.43	*No Pool Water Usage*		18,250.00	521.43	
4/29/2012	5/27/2012	28	19,240.00	687.14	*Pool Usage Month*	18,063.33	1,176.67	42.02	
5/27/2012	6/24/2012	28	19,970.00	713.21	*Pool Usage Month*	18,748.68	1,221.32	43.62	
6/24/2012	7/29/2012	35	41,140.00	1,175.43	*Pool Usage Month*	38,623.97	2,516.03	71.89	
7/29/2012	9/1/2012	34	20,290.00	596.76	*Pool Usage Month*	19,049.11	1,240.89	36.50	
9/1/2012	9/30/2012	29	3,120.00	107.59	*Pool Usage Month*	2,929.19	190.81	6.58	
9/30/2012	10/30/2012	30	340.00	11.33	*No Pool Water Usage*		340.00	11.33	
10/30/2012	12/2/2012	33	340.00	10.30	*No Pool Water Usage*		340.00	10.30	
12/2/2012	1/1/2013	30	400.00	13.33	*No Pool Water Usage*		400.00	13.33	
1/1/2013	2/3/2013	33	230.00	6.97	*No Pool Water Usage*		230.00	6.97	
2/3/2013	3/3/2013	28	64,950.00	2,319.64	*No Pool Water Usage*		64,950.00	2,319.64	*Broken Waterline*
3/3/2013	4/1/2013	29	38,880.00	1,340.69	*No Pool Water Usage*		38,880.00	1,340.69	*Stuck Toilet*
4/1/2013	5/1/2013	30	22,920.00	764.00	*No Pool Water Usage*		22,920.00	764.00	*Stuck Toilet (Fixed)*
5/1/2013	6/2/2013	32	12,580.00	393.13	*Pool Usage Month*	11,810.64	769.36	24.04	
6/2/2013	6/30/2013	28	29,250.00	1,044.64	*Pool Usage Month*	27,461.14	1,788.86	63.89	
6/30/2013	8/1/2013	32	33,210.00	1,037.81	*Pool Usage Month*	31,178.95	2,031.05	63.47	
8/1/2013	9/2/2013	32	32,740.00	1,023.13	*Pool Usage Month*	30,737.70	2,002.30	62.57	
9/2/2013	9/29/2013	27	63,390.00	2,347.78	*Pool Usage Month*	59,513.21	3,876.79	143.58	
9/29/2013	11/4/2013	36	5,140.00	142.78	*No Pool Water Usage*		5,140.00	142.78	
11/4/2013	11/30/2013	26	30.00	1.15	*No Pool Water Usage*		30.00	1.15	
11/30/2013	1/1/2014	32	520.00	16.25	*No Pool Water Usage*		520.00	16.25	
1/1/2014	2/2/2014	32	150.00	4.69	*No Pool Water Usage*		150.00	4.69	
2/2/2014	3/4/2014	30	100.00	3.33	*No Pool Water Usage*		100.00	3.33	
3/4/2014	4/1/2014	28	430.00	15.36	*No Pool Water Usage*		430.00	15.36	
4/1/2014	5/1/2014	30	2,660.00	88.67	*No Pool Water Usage*		2,660.00	88.67	
5/1/2014	6/1/2014	31	30.00	0.97	*Pool Usage Month*	28.17	1.83	0.06	
6/1/2014	6/30/2014	29	30.00	1.03	*Pool Usage Month*	28.17	1.83	0.06	
6/30/2014	8/4/2014	35	30.00	0.86	*Pool Usage Month*	28.17	1.83	0.05	
8/4/2014	8/29/2014	25	90.00	3.60	*Pool Usage Month*	84.50	5.50	0.22	
8/29/2014	9/29/2014	31	-	-	*Pool Usage Month*	-			*Broken Meter*
9/29/2014	10/28/2014	29	3,940.00	135.86	*No Pool Water Usage*		3,940.00		
10/28/2014	11/25/2014	28	3,804.00	135.86	*No Pool Water Usage*		3,804.00		
11/25/2014	12/30/2014	35	426.00	12.17	*No Pool Water Usage*		426.00		
12/30/2014	1/31/2015	32	-	-	*No Pool Water Usage*		-		*Broken Meter*
1/31/2015	2/28/2015	28	-	-	*No Pool Water Usage*		-		*Broken Meter*
2/28/2015	3/26/2015	26	-	-	*No Pool Water Usage*		-		*Broken Meter*
3/26/2015	4/21/2015	26		-	*No Pool Water Usage*		-		*Broken Meter*
4/21/2015	5/25/2015	34	20.00	0.59	*Pool Usage Month*	18.78	1.22		*Broken Meter*
5/25/2015	6/26/2015	32	30.00	0.94	*Pool Usage Month*	28.17	1.83		*Broken Meter*
6/26/2015	7/23/2015	27	-	-	*Pool Usage Month*	-	-		*Broken Meter*
7/23/2015	8/28/2015	36	-	-	*Pool Usage Month*	-			*Broken Meter*
8/28/2015	9/28/2015	31		-	*Pool Usage Month*	-			*Broken Meter*
9/28/2015	10/29/2015	31	490.00	15.81	*No Pool Water Usage*		490.00		*Broken Meter*
10/29/2015	11/28/2015	30	210.00	7.00	*No Pool Water Usage*		210.00		*Broken Meter*
11/28/2015	12/24/2015	26	-	-	*No Pool Water Usage*		-		*Broken Meter*
12/24/2015	1/28/2016	35	-	-	*No Pool Water Usage*		-		*Broken Meter*
1/28/2016	2/12/2016	15	-	-	*No Pool Water Usage*		-		*Broken Meter*
2/12/2016	2/27/2016	15	-	-	*No Pool Water Usage*		-		*Broken Meter (Replaced)*
2/27/2016	3/29/2016	31	59,360.00	1,914.84	*No Pool Water Usage*		59,360.00		
3/29/2016	4/27/2016	29	38,160.00	1,315.86	*No Pool Water Usage*		38,160.00		
4/27/2016	5/23/2016	26	33,290.00	1,280.38	*Pool Usage Month*	31,254.06	2,035.94	78.31	
5/23/2016	6/22/2016	30	59,380.00	1,979.33	*Pool Usage Month*	55,748.46	3,631.54	121.05	
6/22/2016	7/28/2016	36	59,100.00	1,641.67	*Pool Usage Month*	55,485.58	3,614.42	100.40	

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Flow Reduction Calculations

Flow Reduction / Peaking Factor Calculation	
63,390.00	September 2013 Highest Monthly flow
48,890.00	Sum of 30 Days Consecutive (7/8/2016 to 8/7/2016)
1.30	Peaking Factor
430.33	Avg of 3 Highest Daily Average Readings (7/14/2016, 7/26/2016 & 7/29/2016)
557.96	G/D for System (With 1.30 Peaking Factor)

15A NCAC 18A .1949 SEWAGE FLOW RATES FOR DESIGN UNITS

(c) An adjusted design daily sewage flow may be granted by the local health department upon a showing as specified in Subparagraphs (c)(1) through (c)(2) that a sewage system is adequate to meet actual daily water consumption from a facility included in Paragraph (b) of this Rule.

(1) Documented data from that facility or a comparable facility justifying a flow rate reduction shall be submitted to the local health department and the State. The submitted data shall consist of at least 12 previous consecutive monthly total water consumption readings and at least 30 consecutive daily water consumption readings. The daily readings shall be taken during a projected normal or above normal sewage flow month. A peaking factor shall be derived by dividing the highest monthly flow as indicated from the 12 monthly readings by the sum of the 30 consecutive daily water consumption readings. The adjusted design daily sewage flow shall be determined by taking the numerical average of the greatest ten percent of the daily readings and multiplying by the peaking factor. Further adjustments shall be made in design sewage flow rate used for sizing nitrification fields and pretreatment systems when the sampled or projected wastewater characteristics exceed those of domestic sewage, such as wastewater from restaurants or meat markets.