



PUBLIC WORKS

PO Box 1110 Tampa, FL 33601-1110
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MEMORANDUM

DATE April 13, 2018

TO: Steve Morgan, Environmental Permitting Manager, FDEP
Maurice Barker, Biosolids Coordinator, FDEP
Lance Kautz, Environmental Specialist I, FDEP

FROM: Larry Ruiz, Section Manager, Public Works, SWMD
Ron Wiesman, Manager, Public Works, SWMD

SUBJECT: Hillsborough County Biosolids Composting Monthly Report: March 2018

**BOARD OF COUNTY
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**CHIEF DEV. & INFRA.
SERVICES ADMINISTRATOR**
Lucia E. Garsys

Biosolids Received (wet tons):	1765.04 tons of biosolids received for the month.
Source of Biosolids:	Hillsborough County Falkenburg AWWTP
Source of Bulking Agent:	Hillsborough County South County Yard Waste Processing Site
General Description of Activities:	All incoming biosolids were mixed with bulking agent and formed into windrows on the same day as received. 8 windrows were formed and in active composting as of 2/28/18. Windrow temperatures were monitored daily. 8 windrows has met temperature and time requirements of the Process to Further Reduce Pathogens (PFRP). 12 windrows have been turned. The previous 7 windrows have been moved to the curing section and combined for a total of 7 curing windrows. Sampling was performed on March 27, 2018. 1302.67 tons of finished compost was picked up by Life Soils.
Attachments:	A-P: Windrow construction and temperature records.

LER/rww
Attachments

CC: Beth Schinella, Division Director, Utility Operations, PUD
Kim Byer, Division Director, Solid Waste Management Division, PWD
Joseph O'Neill, Professional Engineer II, Solid Waste Management Division, PWD

Attachment A

MSAP Process Temperature Chart Windrow# 18-2-1																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	2/2/18	154	151	146	143	145	145	149	140	151	154	138	132	146	140	134	133	149	147.5	141.75	137	
2	2/3/18	150	150	145	140	142	146	150	140	150	151	144	136	145	140	138	132	146.75	146.75	144.25	137	
3	2/4/18																					
4	2/5/18	151	148	145	140	144	147	143	140	150	152	144	138	144	141	138	136	147.25	147	142.5	138.5	
5	2/6/18	150	150	146	140	148	150	144	140	140	154	132	138	138	135	132	136	144	147.25	138.5	138.5	
6	2/7/18	152	152	146	140	158	152	146	140	140	154	134	144	140	139	136	136	147.5	149.25	140.5	140	
7	2/8/18	142	144	143	140	145	142	140	139	158	160	157	155	155	152	146	140	150	149.5	146.5	143.5	
8	2/9/18	145	142	137	142	145	142	139	141	153	150	142	137	148	148	143	136	147.75	145.5	140.25	139	
9	2/10/18	150	148	145	142	150	142	138	142	150	148	142	140	153	148	147	140	150.75	146.5	143	141	
10	2/11/18																					
11	2/12/18	148	150	148	145	148	145	140	141	151	150	144	142	153	150	148	140	150	148.75	145	142	
12	2/13/18	145	148	148	144	145	146	146	144	150	150	146	145	154	152	150	141	148.5	149	147.5	143.5	
13	2/14/18	143	145	143	142	144	150	150	149	148	150	149	148	155	155	151	142	147.5	150	148.25	145.25	
14	2/15/18	148	148	146	143	141	141	139	138	145	145	141	138	140	140	150	142	143.5	143.5	144	140.25	
15	2/16/18	150	148	145	141	145	144	138	136	152	150	148	145	146	142	156	145	148.25	146	146.75	141.75	
16	2/17/18	155	151	149	147	154	151	148	146	158	152	150	151	158	157	158	160	156.25	152.75	151.25	151	Turn
17	2/18/18																					
18	2/19/18	149	158	155	152	152	152	150	147	155	159	160	151	150	154	152	147	151.5	155.75	154.25	149.25	
19	2/20/18	152	160	158	153	155	153	148	143	160	161	158	155	152	158	155	150	154.75	158	154.75	150.25	
20	2/21/18	156	156	149	145	156	161	158	156	146	150	152	153	142	152	154	151	150	154.75	153.25	151.25	
21	2/22/18	148	151	151	145	146	150	149	148	147	149	146	148	146	151	151	148	146.75	150.25	149.25	147.25	
22	2/23/18	144	150	152	148	142	148	152	150	144	150	148	146	141	149	154	150	142.75	149.25	151.5	148.5	
23	2/24/18	156	155	155	148	151	150	148	146	152	150	153	141	150	153	155	150	152.25	152	152.75	146.25	Turn
24	2/25/18																					
25	2/26/18	152	156	155	152	153	153	151	149	144	148	148	146	152	155	153	150	150.25	153	151.75	149.25	
26	2/27/18	144	150	153	153	146	150	153	153	156	158	156	155	156	159	157	154	150.5	154.25	154.75	153.75	
27	2/28/18	148	144	142	138	147	143	140	139	142	142	139	136	151	150	145	142	147	144.75	141.5	138.75	
28	3/1/18	133	139	146	151	132	138	145	150	144	146	151	155	134	139	142	148	135.75	140.5	146	151	
29	3/2/18	136	141	152	160	154	158	154	150	155	150	151	150	160	160	163	165	151.25	152.25	155	156.25	
30	3/3/18	134	143	151	158	156	155	153	151	156	154	153	150	158	160	162	164	151	153	154.75	155.75	
31	3/4/18																					
32	3/5/18	134	141	153	157	151	155	155	158	149	153	157	159	138	144	150	155	143	148.25	153.75	157.25	Turn
33	3/6/18	164	170	171	170	168	171	170	170	170	172	172	172	165	169	169	166	166.75	170.5	170.5	169.5	

Attachment B

MSAP Process Temperature Chart Windrow# 18-2-5																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	2/6/18	148	153	148	143	149	149	142	136	144	141	126	121	133	127	122	120	143.5	142.5	134.5	130	
2	2/7/18	160	155	144	143	153	157	154	136	158	155	132	133	144	142	142	134	153.75	152.25	143	136.5	
3	2/8/18	147	144	141	140	144	142	140	136	158	158	156	133	158	160	157	136	151.75	151	148.5	136.25	
4	2/9/18	159	158	153	148	155	156	153	148	148	145	140	136	143	142	138	138	151.25	150.25	146	142.5	
5	2/10/18	163	160	155	151	161	160	155	148	152	150	148	142	150	148	142	140	156.5	154.5	150	145.25	
6	2/11/18																					
7	2/12/18	160	161	156	150	160	160	153	140	155	150	148	140	159	155	148	140	158.5	156.5	151.25	142.5	
8	2/13/18	156	160	156	154	157	158	154	142	151	152	154	146	158	156	150	148	155.5	156.5	153.5	147.5	
9	2/14/18	144	144	140	144	150	152	147	144	150	155	156	153	157	157	154	149	150.25	152	149.25	147.5	
10	2/15/18	148	148	146	143	141	141	139	138	145	145	141	138	140	140	137	136	143.5	143.5	140.75	138.75	
11	2/16/18	163	165	160	158	158	156	140	138	155	158	151	152	152	150	148	143	157	157.25	149.75	147.75	
12	2/17/18	168	165	161	158	165	163	160	160	160	158	158	152	155	150	148	145	162	159	156.75	153.75	
13	2/18/18																					
14	2/19/18	152	160	162	157	152	156	158	156	149	149	145	140	155	154	150	143	152	154.75	153.75	149	
15	2/20/18	150	161	165	160	155	158	160	163	152	155	153	150	156	158	155	150	153.25	158	158.25	155.75	
16	2/21/18	142	158	160	162	154	158	158	156	148	153	154	153	152	152	150	149	149	155.25	155.5	155	
17	2/22/18	149	158	162	159	155	157	156	154	151	155	153	151	153	153	148	146	152	155.75	154.75	152.5	
18	2/23/18	145	156	162	160	150	154	157	156	150	152	154	155	150	150	152	150	148.75	153	156.25	155.25	
19	2/24/18	152	156	160	158	154	158	158	152	148	154	165	151	145	152	152	150	149.75	155	158.75	152.75	
20	2/25/18																					
21	2/26/18	158	158	163	164	159	162	162	156	145	157	160	160	141	153	159	158	150.75	157.5	161	159.5	
22	2/27/18	144	156	162	162	138	149	156	161	154	155	153	148	155	159	156	152	147.75	154.75	156.75	155.75	
23	2/28/18	152	149	145	144	148	146	145	144	147	144	142	139	141	139	137	135	147	144.5	142.25	140.5	
24	3/1/18	150	150	148	145	152	154	156	160	155	157	159	161	151	154	158	162	152	153.75	155.25	157	
25	3/2/18	160	164	169	172	140	155	161	165	150	158	161	168	150	155	160	165	150	158	162.75	167.5	
26	3/3/18	160	165	167	171	142	158	163	165	152	156	164	168	153	154	157	163	151.75	158.25	162.75	166.75	
27	3/4/18																					
28	3/5/18	159	162	165	171	146	154	158	166	154	154	156	160	147	150	158	165	151.5	155	159.25	165.5	
29	3/6/18	165	171	174	175	167	171	173	174	163	172	175	175	164	170	170	168	164.75	171	173	173	
30	3/7/18	142	150	153	153	147	150	152	144	143	146	150	151	151	154	156	156	145.75	150	152.75	151	
31	3/8/18	144	151	155	154	149	152	154	150	147	149	152	154	153	156	159	162	148.25	152	155	155	
32	3/9/18	150	160	161	164	158	158	161	165	156	140	143	148	138	143	151	155	150.5	150.25	154	158	

Attachment C

MSAP Process Temperature Chart Windrow# 18-2-9																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	2/10/18	138	132	131	128	132	131	128	119	119	115	110	109	119	116	112	108	127	123.5	120.25	116	
2	2/11/18																					
3	2/12/18	141	138	132	131	135	131	121	118	132	126	116	112	131	125	116	114	134.75	130	121.25	118.75	
4	2/13/18	144	142	136	135	140	142	138	134	136	133	130	126	137	134	131	127	139.25	137.75	133.75	130.5	
5	2/14/18	153	154	140	135	145	148	147	143	140	137	132	131	144	147	144	138	145.5	146.5	140.75	136.75	
6	2/15/18	147	146	143	137	152	152	147	144	141	139	137	134	143	143	140	136	145.75	145	141.75	137.75	
7	2/16/18	150	152	148	146	150	153	158	155	150	148	145	140	144	145	140	138	148.5	149.5	147.75	144.75	
8	2/17/18	152	153	150	148	148	150	154	155	152	150	149	147	150	151	148	145	150.5	151	150.25	148.75	
9	2/18/18																					
10	2/19/18	155	156	152	145	152	154	152	147	150	146	140	136	156	160	157	152	153.25	154	150.25	145	
11	2/20/18	158	157	155	150	153	155	155	150	153	150	148	142	158	160	155	152	155.5	155.5	153.25	148.5	
12	2/21/18	146	152	156	156	155	157	154	150	153	148	143	140	146	155	158	153	150	153	152.75	149.75	
13	2/22/18	154	154	149	144	148	148	145	143	154	151	144	140	150	156	156	154	151.5	152.25	148.5	145.25	
14	2/23/18	152	154	151	152	150	154	154	153	144	146	147	148	146	150	152	152	148	151	151	151.25	
15	2/24/18	152	154	154	155	153	156	156	158	140	141	149	153	140	142	146	150	146.25	148.25	151.25	154	
16	2/25/18																					
17	2/26/18	160	162	159	155	156	159	158	154	158	158	154	148	150	158	162	160	156	159.25	158.25	154.25	
18	2/27/18	146	156	159	158	157	159	156	153	159	161	161	159	139	152	153	152	150.25	157	157.25	155.5	
19	2/28/18	156	158	157	155	151	155	155	155	158	158	153	149	148	156	158	156	153.25	156.75	155.75	153.75	Turn
20	3/1/18	138	145	150	154	145	149	152	150	140	144	146	148	140	147	151	154	140.75	146.25	149.75	151.5	
21	3/2/18	147	150	156	157	147	150	150	153	141	145	144	148	135	139	148	151	142.5	146	149.5	152.25	
22	3/3/18	135	139	146	152	140	144	146	149	148	150	152	153	144	156	155	156	141.75	147.25	149.75	152.5	
23	3/4/18																					
24	3/5/18	133	142	148	151	135	144	150	154	143	147	150	156	145	152	155	159	139	146.25	150.75	155	Turn
25	3/6/18	159	162	161	159	148	147	146	146	161	161	157	153	150	158	160	158	154.5	157	156	154	
26	3/7/18	136	141	148	154	136	150	157	159	136	147	149	153	145	151	154	159	138.25	147.25	152	156.25	
27	3/8/18	132	134	138	140	137	141	144	149	132	136	139	142	134	138	142	146	133.75	137.25	140.75	144.25	
28	3/9/18	132	140	144	148	140	147	152	156	138	142	148	150	144	148	154	160	138.5	144.25	149.5	153.5	
29	3/10/18	130	138	145	150	138	146	152	156	136	144	150	151	142	148	156	160	136.5	144	150.75	154.25	Turn
30	3/11/18																					
31	3/12/18	158	163	167	168	164	166	165	164	162	169	173	173	158	163	166	164	160.5	165.25	167.75	167.25	
32	3/13/18	160	162	168	168	164	167	166	164	163	166	171	172	160	164	166	162	161.75	164.75	167.75	166.5	
33	3/14/18	167	168	171	172	165	167	166	163	166	168	170	170	163	168	167	162	165.25	167.75	168.5	166.75	

Attachment D

MSAP Process Temperature Chart Windrow# 18-2-15																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	2/16/18	156	161	158	148	150	148	145	138	152	146	138	131	142	138	131	128	150	148.25	143	136.25	
2	2/17/18	161	162	160	156	160	152	154	152	160	152	142	136	151	146	139	135	158	153	148.75	144.75	
3	2/18/18																					
4	2/19/18	161	163	160	156	158	156	156	155	150	150	144	138	150	150	146	138	154.75	154.75	151.5	146.75	
5	2/20/18	158	162	160	155	153	158	155	142	152	152	150	148	152	150	145	140	153.75	155.5	152.5	146.25	
6	2/21/18	158	162	161	156	158	158	154	148	164	164	159	150	157	154	147	142	159.25	159.5	155.25	149	
7	2/22/18	156	163	160	156	152	156	148	145	156	156	152	152	157	158	154	147	155.25	158.25	153.5	150	
8	2/23/18	156	162	160	156	150	158	148	148	154	154	153	154	154	156	152	150	153.5	157.5	153.25	152	
9	2/24/18	152	160	159	156	147	158	152	152	151	153	155	157	152	154	151	155	150.5	156.25	154.25	155	
10	2/25/18																					
11	2/26/18	153	158	160	159	159	159	154	147	158	161	157	150	156	156	152	149	156.5	158.5	155.75	151.25	
12	2/27/18	154	159	162	160	158	161	160	157	161	164	162	155	156	159	160	156	157.25	160.75	161	157	
13	2/28/18	151	158	162	162	161	162	159	157	140	157	160	159	161	164	162	155	153.25	160.25	160.75	158.25	
14	3/1/18	152	155	157	160	149	152	155	155	147	150	152	157	154	157	159	163	150.5	153.5	155.75	158.75	
15	3/2/18	142	152	157	161	150	152	155	158	150	151	155	160	140	144	151	155	145.5	149.75	154.5	158.5	
16	3/3/18	139	142	150	155	146	149	153	158	149	152	154	157	142	151	156	160	144	148.5	153.25	157.5	
17	3/4/18																					
18	3/5/18	137	140	146	149	150	155	158	162	153	156	158	161	144	147	153	160	146	149.5	153.75	158	
19	3/6/18	149	151	156	160	158	158	155	154	158	159	158	156	150	149	150	154	153.75	154.25	154.75	156	
20	3/7/18	143	148	150	153	155	157	159	161	152	155	159	162	156	159	162	164	151.5	154.75	157.5	160	
21	3/8/18	134	142	147	151	140	143	148	154	135	139	149	154	139	142	145	149	137	141.5	147.25	152	
22	3/9/18	140	144	148	153	150	154	157	160	143	147	151	154	134	139	148	155	141.75	146	151	155.5	
23	3/10/18	138	142	150	154	148	152	158	160	142	146	152	154	133	140	150	156	140.25	145	152.5	156	Turn
24	3/11/18																					
25	3/12/18	144	160	161	158	158	159	158	156	154	160	161	161	144	156	157	157	150	158.75	159.25	158	
26	3/13/18	145	158	161	162	156	160	162	160	155	158	161	162	145	155	158	158	150.25	157.75	160.5	160.5	Turn
27	3/14/18	172	172	174	168	159	159	158	152	160	162	164	164	160	157	151	145	162.75	162.5	161.75	157.25	
28	3/15/18	163	171	168	167	159	157	155	150	161	167	168	165	159	163	162	158	160.5	164.5	163.25	160	
29	3/16/18	160	166	170	168	158	159	160	156	160	162	166	168	157	162	162	160	158.75	162.25	164.5	163	
30	3/17/18	156	162	166	167	158	160	161	160	156	160	164	166	154	161	162	162	156	160.75	163.25	163.75	

Attachment E

MSAP Process Temperature Chart Windrow# 18-2-20																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	2/21/18	160	159	145	140	150	145	138	134	138	133	132	132	146	142	132	130	148.5	144.75	136.75	134	
2	2/22/18	161	158	148	144	152	150	144	140	148	142	137	131	148	144	136	131	152.25	148.5	141.25	136.5	
3	2/23/18	156	156	150	148	156	148	148	146	148	144	140	136	148	148	140	134	152	149	144.5	141	
4	2/24/18	141	158	156	151	158	152	150	153	147	149	149	138	148	150	144	137	148.5	152.25	149.75	144.75	
5	2/25/18																					
6	2/26/18	152	160	158	153	159	162	160	157	148	153	148	140	149	150	147	144	152	156.25	153.25	148.5	
7	2/27/18	156	162	160	153	155	159	161	159	148	148	150	140	142	152	148	146	150.25	155.25	154.75	149.5	
8	2/28/18	151	161	161	158	159	161	160	158	146	148	150	146	142	150	150	146	149.5	155	155.25	152	
9	3/1/18	148	152	147	151	145	148	155	159	142	148	151	154	144	148	149	152	144.75	149	150.5	154	
10	3/2/18	141	147	150	155	141	150	155	161	150	152	157	155	140	148	145	150	143	149.25	151.75	155.25	
11	3/3/18	140	146	148	156	146	154	156	169	148	150	153	156	137	146	143	148	142.75	149	150	157.25	
12	3/4/18																					
13	3/5/18	145	149	154	160	145	153	158	163	145	150	154	160	139	148	155	158	143.5	150	155.25	160.25	
14	3/6/18	156	163	163	158	164	164	162	156	156	153	149	145	158	155	152	150	158.5	158.75	156.5	152.25	
15	3/7/18	133	144	154	157	142	146	150	154	142	146	149	155	145	150	153	154	140.5	146.5	151.5	155	
16	3/8/18	134	146	150	156	144	149	152	157	144	148	151	153	147	152	155	158	142.25	148.75	152	156	
17	3/9/18	137	142	149	156	139	144	150	157	137	145	149	157	140	144	148	154	138.25	143.75	149	156	Turn
18	3/10/18	152	156	156	154	148	152	154	156	150	152	154	152	146	148	154	151	149	152	154.5	153.25	
19	3/11/18																					
20	3/12/18	146	160	163	166	147	159	156	154	156	160	161	162	152	154	155	153	150.25	158.25	158.75	158.75	
21	3/13/18	148	160	162	165	146	158	158	156	157	160	160	162	152	155	156	153	150.75	158.25	159	159	
22	3/14/18	152	160	162	164	144	155	159	160	159	160	160	162	154	156	156	152	152.25	157.75	159.25	159.5	
23	3/15/18	151	157	160	163	145	156	157	160	157	160	161	162	156	157	157	156	152.25	157.5	158.75	160.25	
24	3/16/18	150	157	162	163	148	154	156	160	157	160	162	163	152	154	156	156	151.75	156.25	159	160.5	
25	3/17/18	147	157	163	164	155	153	156	160	157	161	162	164	150	150	156	158	152.25	155.25	159.25	161.5	Turn
26	3/18/18																					
27	3/19/18	150	155	158	160	152	154	158	160	156	158	162	164	152	154	158	158	152.5	155.25	159	160.5	
28	3/20/18	160	158	155	151	160	158	155	155	161	155	152	150	164	161	155	153	161.25	158	154.25	152.25	
29	3/21/18	145	154	157	160	144	150	156	160	146	144	151	160	140	149	150	152	143.75	149.25	153.5	158	Turn
30	3/22/18	168	171	173	173	159	161	164	165	164	166	171	174	163	170	173	176	163.5	167	170.25	172	

Attachment F

MSAP Process Temperature Chart Windrow# 18-2-24																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	2/25/18																					
2	2/26/18	154	152	140	135	154	150	142	135	139	135	129	125	146	145	142	126	148.25	145.5	138.25	130.25	
3	2/27/18	158	155	150	145	160	159	152	146	150	146	139	135	152	145	138	131	155	151.25	144.75	139.25	
4	2/28/18	153	153	145	148	159	159	157	150	155	153	148	140	156	156	154	146	155.75	155.25	151	146	
5	3/1/18	152	154	155	153	160	159	157	153	153	155	157	146	148	150	153	156	153.25	154.5	155.5	152	
6	3/2/18	152	155	160	158	152	157	155	155	144	148	151	150	147	146	146	140	148.75	151.5	153	150.75	
7	3/3/18	155	156	158	157	156	158	156	155	147	151	153	150	145	146	145	143	150.75	152.75	153	151.25	
8	3/4/18																					
9	3/5/18	154	158	159	162	158	159	156	156	156	158	160	163	159	161	160	157	156.75	159	158.75	159.5	
10	3/6/18	157	162	162	159	162	162	160	157	164	164	159	155	165	163	158	155	162	162.75	159.75	156.5	
11	3/7/18	145	149	152	157	143	145	149	153	156	159	161	161	147	152	155	158	147.75	151.25	154.25	157.25	
12	3/8/18	147	150	153	155	146	149	149	155	158	161	162	163	150	153	157	161	150.25	153.25	155.25	158.5	
13	3/9/18	150	155	158	160	149	152	154	154	152	156	160	163	145	150	156	160	149	153.25	157	159.25	
14	3/10/18	150	155	160	161	150	152	156	155	150	155	161	162	148	154	158	160	149.5	154	158.75	159.5	
15	3/11/18																					
16	3/12/18	150	156	162	162	152	156	160	158	148	157	163	162	156	158	160	161	151.5	156.75	161.25	160.75	
17	3/13/18	150	157	162	162	152	156	160	160	148	154	162	162	152	158	161	162	150.5	156.25	161.25	161.5	
18	3/14/18	148	160	162	162	152	156	161	160	146	152	161	162	150	158	162	164	149	156.5	161.5	162	
19	3/15/18	154	160	162	163	153	156	162	162	146	155	161	162	154	162	164	164	151.75	158.25	162.25	162.75	
20	3/16/18	154	160	163	164	154	158	164	162	148	156	161	162	158	164	164	163	153.5	159.5	163	162.75	
21	3/17/18	152	163	164	164	160	162	162	163	158	161	163	161	161	164	166	160	157.75	162.5	163.75	162	
22	3/18/18																					
23	3/19/18	154	162	164	165	156	160	163	165	156	158	160	164	158	160	164	164	156	160	162.75	164.5	
24	3/20/18	154	160	162	164	159	161	165	165	154	158	160	162	158	160	162	162	156.25	159.75	162.25	163.25	
25	3/21/18	154	160	161	162	158	160	163	164	152	158	158	162	158	160	162	161	155.5	159.5	161	162.25	Turn
26	3/22/18	160	165	161	162	160	162	163	163	160	163	163	164	162	163	162	160	160.5	163.25	162.25	162.25	
27	3/23/18	168	170	162	161	162	166	166	166	158	166	170	168	158	162	166	168	161.5	166	166	165.75	
28	3/24/18	162	165	162	160	165	168	170	167	162	166	168	168	165	169	167	167	163.5	167	166.75	165.5	
29	3/25/18																					
30	3/26/18	158	165	168	168	156	162	168	168	154	162	166	168	158	162	167	170	156.5	162.75	167.25	168.5	Turn
31	3/27/18	162	168	170	170	162	166	171	173	158	164	167	170	164	170	172	170	161.5	167	170	170.75	
32	3/28/18	161	168	170	170	161	166	171	173	158	164	168	170	163	170	172	171	160.75	167	170.25	171	
33	3/29/18	161	168	170	170	161	166	171	173	158	164	168	170	163	170	172	171	160.75	167	170.25	171	
34	3/30/18	163	167	168	168	152	160	165	168	142	158	162	165	158	166	166	163	153.75	162.75	165.25	166	
35	3/31/18	158	162	166	168	156	161	166	170	154	159	161	167	160	162	166	170	157	161	164.75	168.75	

Attachment G

MSAP Process Temperature Chart Windrow# 18-2-28																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	3/1/18	121	118	109	107	142	140	136	132	140	139	134	131	143	142	136	130	136.5	134.75	128.75	125	
2	3/2/18	129	126	120	120	144	144	140	136	149	143	140	135	155	149	144	136	144.25	140.5	136	131.75	
3	3/3/18	141	147	145	134	144	142	140	137	148	145	140	138	158	153	149	142	147.75	146.75	143.5	137.75	
4	3/4/18																					
5	3/5/18	142	146	140	136	148	150	147	138	152	154	153	146	156	154	155	150	149.5	151	148.75	142.5	
6	3/6/18	143	148	144	138	150	150	148	142	150	150	152	148	150	152	148	148	148.25	150	148	144	
7	3/7/18	142	147	146	142	150	149	153	148	146	147	151	153	148	148	146	145	146.5	147.75	149	147	
8	3/8/18	144	149	147	143	147	150	155	148	145	149	151	155	148	148	145	147	146	149	149.5	148.25	
9	3/9/18	148	152	148	146	150	152	154	155	146	147	152	154	146	149	144	145	147.5	150	149.5	150	
10	3/10/18	150	154	154	150	151	156	158	158	148	151	154	157	148	152	150	148	149.25	153.25	154	153.25	
11	3/11/18																					
12	3/12/18	152	156	158	154	152	160	162	160	150	156	158	160	148	156	158	156	150.5	157	159	157.5	
13	3/13/18	154	160	162	162	154	161	165	161	152	156	162	163	148	158	159	160	152	158.75	162	161.5	
14	3/14/18	154	160	162	162	154	162	165	162	152	156	162	162	144	156	158	160	151	158.5	161.75	161.5	
15	3/15/18	158	162	164	162	159	163	165	165	158	160	165	162	156	160	162	163	157.75	161.25	164	163	
16	3/16/18	156	166	165	162	161	164	166	165	162	164	166	162	160	164	165	165	159.75	164.5	165.5	163.5	
17	3/17/18	152	168	167	162	163	163	164	165	161	164	167	165	160	164	168	167	159	164.75	166.5	164.75	Turn
18	3/18/18																					
19	3/19/18	162	166	167	164	160	165	164	162	160	163	163	161	156	158	160	163	159.5	163	163.5	162.5	
20	3/20/18	159	164	166	165	163	170	170	167	158	162	164	164	158	160	163	166	159.5	164	165.75	165.5	
21	3/21/18	160	164	165	165	162	169	170	167	159	162	164	164	160	162	163	165	160.25	164.25	165.5	165.25	
22	3/22/18	164	165	165	165	162	165	165	164	161	163	164	163	161	163	163	164	162	164	164.25	164	Turn
23	3/23/18	168	170	158	156	164	168	165	161	162	168	162	161	166	168	163	165	165	168.5	162	160.75	
24	3/24/18	168	170	166	160	168	172	170	166	167	169	167	165	163	166	165	166	166.5	169.25	167	164.25	
25	3/25/18																					
26	3/26/18	164	168	168	165	160	168	172	170	164	166	170	170	158	166	170	170	161.5	167	170	168.75	
27	3/27/18	164	168	168	164	161	169	172	170	168	170	168	168	164	168	168	170	164.25	168.75	169	168	
28	3/28/18	162	168	169	168	160	170	172	172	161	168	171	170	158	168	170	171	160.25	168.5	170.5	170.25	
29	3/29/18	162	165	170	169	160	170	172	172	161	168	171	170	158	168	170	171	160.25	167.75	170.75	170.5	
30	3/30/18	160	165	162	160	165	170	168	168	164	166	166	167	160	164	165	166	162.25	166.25	165.25	165.25	
31	3/31/18	163	166	166	165	163	165	166	164	160	167	166	168	156	164	168	167	160.5	165.5	166.5	166	Turn

Attachment H

Hillsborough County Composting - Monitoring Sheet (MSAP Method)				Windrow # 18-3-5		
Windrow Construction:			Date Commenced: 3-1-18	Date Completed: 3-5-18		
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
3/1/18	Jerry Devoe	21.58	28.05	44	16	
3/1/18	Jerry Devoe	22.72	29.54	44	16	
3/1/18	Mike Bayne	19.29	25.08	44	16	44
3/2/18	Mike Bayne	20.52	26.68	44	16	
3/2/18	Mike Bayne	21.36	27.77	44	16	
3/2/18	Oscar Ochoa	21.59	28.07	44	16	44
3/3/18	Oscar Ochoa	23.08	30.00	44	16	
3/3/18	Oscar Ochoa	22.63	29.42	44	16	
3/3/18	Oscar Ochoa	22.30	28.99	44	16	44
3/5/18	Oscar Ochoa	21.45	27.89	44	16	24
Totals		216.52	281.48	440.00	160.00	156.00
Windrow Construction ratio:		2.69 /1				
Note: Yard waste yards = number of buckets * 4.00						

Attachment I

MSAP Process Temperature Chart Windrow# 18-3-5																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	3/6/18	154	150	148	140	150	146	140	138	148	144	138	132	150	140	136	130	150.5	145	140.5	135	
2	3/7/18	160	162	154	146	156	154	152	141	158	157	152	144	156	156	145	138	157.5	157.25	150.75	142.25	
3	3/8/18	159	161	156	152	158	154	154	148	162	159	154	151	157	158	155	149	159	158	154.75	150	
4	3/9/18	158	160	152	154	157	152	148	148	163	159	156	154	158	155	152	152	159	156.5	152	152	
5	3/10/18	158	160	156	156	152	156	152	150	160	160	158	156	160	158	154	152	157.5	158.5	155	153.5	
6	3/11/18																					
7	3/12/18	159	163	162	159	148	157	156	154	156	162	160	160	162	160	158	156	156.25	160.5	159	157.25	
8	3/13/18	156	160	162	160	148	156	158	158	150	160	160	160	160	160	161	160	153.5	159	160.25	159.5	
9	3/14/18	142	151	155	161	148	152	154	158	142	162	160	163	156	160	160	161	147	156.25	157.25	160.75	
10	3/15/18	158	161	164	164	160	164	158	160	159	160	164	161	156	160	158	160	158.25	161.25	161	161.25	
11	3/16/18	156	158	160	160	158	160	160	161	158	160	162	161	156	159	160	162	157	159.25	160.5	161	
12	3/17/18	149	152	160	162	155	158	160	163	159	158	160	161	158	158	160	162	155.25	156.5	160	162	
13	3/18/18																					
14	3/19/18	156	161	161	162	158	162	160	158	156	160	160	158	154	160	161	160	156	160.75	160.5	159.5	
15	3/20/18	154	160	162	164	158	162	161	160	154	158	160	158	152	158	160	160	154.5	159.5	160.75	160.5	
16	3/21/18	150	158	162	164	162	164	162	160	152	158	160	158	144	156	160	159	152	159	161	160.25	
17	3/22/18	150	157	163	164	161	163	163	160	151	158	161	159	144	155	160	159	151.5	158.25	161.75	160.5	
18	3/23/18	154	159	166	166	160	165	164	160	152	162	160	158	158	156	162	161	156	160.5	163	161.25	Turn
19	3/24/18	158	163	168	166	158	165	166	162	158	163	162	160	155	160	164	164	157.25	162.75	165	163	
20	3/25/18																					
21	3/26/18	162	165	166	167	161	164	166	164	160	163	163	161	158	163	164	163	160.25	163.75	164.75	163.75	
22	3/27/18	159	164	166	167	158	164	166	162	158	160	160	158	159	161	162	164	158.5	162.25	163.5	162.75	
23	3/28/18	159	164	165	166	156	163	165	162	158	160	160	158	158	159	162	164	157.75	161.5	163	162.5	
24	3/29/18	158	163	165	166	154	162	163	162	158	159	161	160	154	156	161	163	156	160	162.5	162.75	
25	3/30/18	158	162	165	165	152	160	162	162	158	159	162	161	150	154	161	161	154.5	158.75	162.5	162.25	
26	3/31/18	158	164	168	164	156	162	164	162	159	162	160	158	156	160	162	160	157.25	162	163.5	161	Turn

Attachment J

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 18-3-8	
Windrow Construction:			Date Commenced: 3-5-18		Date Completed: 3-8-18	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
3/5/18	Jerry Devoe	22.13	28.77	44	16	
3/5/18	Jerry Devoe	22.13	28.77	44	16	36
3/6/18	Mike Bayne	22.75	29.58	44	16	
3/6/18	Mike Bayne	22.10	28.73	44	16	36
3/7/18	Mike Bayne	15.70	20.41	44	16	
3/7/18	Oscar Ochoa	22.94	29.82	44	16	
3/7/18	Oscar Ochoa	22.67	29.47	44	16	44
3/8/18	Oscar Ochoa	21.65	28.15	44	16	
3/8/18	Oscar Ochoa	22.97	29.86	44	16	
3/8/18	Oscar Ochoa	23.45	30.49	44	16	44
Totals		218.49	284.04	440.00	160.00	160.00
Windrow Construction ratio:		2.68 /1				

Note: Yard waste yards = number of buckets * 4.00

MSAP Process Temperature Chart Windrow# 18-3-8																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	3/9/18	152	150	138	136	150	144	128	126	156	150	123	122	156	154	130	112	153.5	149.5	129.75	124	
2	3/10/18	160	158	150	144	156	150	138	134	160	158	144	134	157	158	141	136	158.25	156	143.25	137	
3	3/11/18																					
4	3/12/18	160	160	158	152	152	156	150	146	160	161	157	148	154	159	152	142	156.5	159	154.25	147	
5	3/13/18	158	162	164	158	150	158	160	156	160	162	164	162	150	162	160	154	154.5	161	162	157.5	
6	3/14/18	157	162	164	160	160	162	162	158	158	162	165	160	156	162	164	160	157.75	162	163.75	159.5	
7	3/15/18	154	156	162	164	150	156	160	160	152	158	165	164	152	160	165	162	152	157.5	163	162.5	
8	3/16/18	154	160	162	162	148	154	158	158	152	158	164	162	153	160	164	162	151.75	158	162	161	
9	3/17/18	152	161	162	163	154	159	159	156	156	158	162	162	157	161	162	162	154.75	159.75	161.25	160.75	
10	3/18/18																					
11	3/19/18	154	159	162	163	150	159	160	160	156	158	165	162	157	161	164	162	154.25	159.25	162.75	161.75	
12	3/20/18	150	158	162	164	146	158	161	160	154	158	165	163	157	160	164	163	151.75	158.5	163	162.5	
13	3/21/18	146	156	162	164	143	158	162	160	154	158	165	163	156	160	165	163	149.75	158	163.5	162.5	
14	3/22/18	145	155	162	163	142	157	162	160	154	158	164	163	156	160	164	163	149.25	157.5	163	162.25	
15	3/23/18	152	158	162	164	148	158	164	162	154	159	166	164	155	161	164	164	152.25	159	164	163.5	
16	3/24/18	152	158	161	163	155	160	162	164	155	161	164	164	154	164	166	164	154	160.75	163.25	163.75	Turn
17	3/25/18																					
18	3/26/18	156	163	162	161	162	163	164	164	158	163	164	164	161	164	165	163	159.25	163.25	163.75	163	
19	3/27/18	153	158	161	162	157	162	164	162	157	161	164	163	160	162	166	165	156.75	160.75	163.75	163	
20	3/28/18	154	161	161	162	156	161	162	162	158	162	164	163	158	162	166	165	156.5	161.5	163.25	163	
21	3/29/18	152	161	163	164	156	160	163	162	158	162	165	165	158	160	165	164	156	160.75	164	163.75	
22	3/30/18	154	162	165	165	155	160	163	163	160	163	165	165	156	160	165	163	156.25	161.25	164.5	164	
23	3/31/18	152	160	163	164	156	160	163	162	155	161	164	165	154	158	164	164	154.25	159.75	163.5	163.75	Turn

Attachment K

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 18-3-12	
Windrow Construction:			Date Commenced: 3-9-18		Date Completed: 3-12-18	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
3/9/18	Jerry Devoe	22.23	28.90	44	16	
3/9/18	Jerry Devoe	21.31	27.70	44	16	
3/9/18	Mike Bayne	22.37	29.08	44	16	
3/9/18	Mike Bayne	22.95	29.84	44	16	60
3/10/18	Mike Bayne	21.54	28.00	44	16	
3/10/18	Oscar Ochoa	22.37	29.08	44	16	36
3/12/18	Oscar Ochoa	20.57	26.74	44	16	
3/12/18	Oscar Ochoa	18.63	24.22	44	16	
3/12/18	Oscar Ochoa	22.60	29.38	44	16	
3/12/18	Oscar Ochoa	22.06	28.68	44	16	60
Totals		216.63	281.62	440.00	160.00	156.00
Windrow Construction ratio:		2.68 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 18-3-12																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	3/13/18	144	130	118	114	150	148	116	112	144	130	118	114	132	122	118	116	142.5	132.5	117.5	114	
2	3/14/18	152	142	130	128	155	150	131	126	150	148	132	125	144	138	128	124	150.25	144.5	130.25	125.75	
3	3/15/18	160	153	138	132	158	160	140	132	152	154	138	130	156	144	134	128	156.5	152.75	137.5	130.5	
4	3/16/18	162	160	150	138	162	164	152	140	158	160	158	150	164	162	152	138	161.5	161.5	153	141.5	
5	3/17/18	161	164	154	139	162	162	156	140	156	162	165	156	163	162	156	146	160.5	162.5	157.75	145.25	
6	3/18/18																					
7	3/19/18	162	164	166	142	162	164	156	141	158	162	165	154	162	164	160	156	161	163.5	161.75	148.25	
8	3/20/18	160	162	161	146	160	162	158	144	156	160	166	162	160	162	164	160	159	161.5	162.25	153	
9	3/21/18	158	165	159	148	159	164	157	142	159	162	163	159	160	163	166	158	159	163.5	161.25	151.75	
10	3/22/18	158	162	160	148	157	161	160	146	156	160	164	162	158	161	164	156	157.25	161	162	153	
11	3/23/18	156	160	160	150	156	160	162	148	156	160	164	161	156	160	164	158	156	160	162.5	154.25	
12	3/24/18	154	158	161	154	150	158	163	152	150	160	165	162	152	158	162	158	151.5	158.5	162.75	156.5	
13	3/25/18																					
14	3/26/18	146	156	162	156	146	157	164	156	146	159	165	163	148	156	162	159	146.5	157	163.25	158.5	
15	3/27/18	144	156	162	156	146	157	164	156	146	159	165	163	148	156	162	159	146	157	163.25	158.5	
16	3/28/18	142	154	162	158	140	156	165	160	142	158	166	165	146	156	161	158	142.5	156	163.5	160.25	
17	3/29/18	144	156	161	160	148	157	163	160	148	162	168	166	148	160	163	160	147	158.75	163.75	161.5	
18	3/30/18	146	156	159	160	146	156	160	160	146	158	162	164	148	154	160	160	146.5	156	160.25	161	
19	3/31/18	144	156	160	160	142	152	159	160	142	157	161	162	146	152	160	161	143.5	154.25	160	160.75	

Attachment L

Hillsborough County Composting - Monitoring Sheet (MSAP Method)				Windrow # 18-3-16		
Windrow Construction:		Date Commenced: 3-13-18		Date Completed: 3-16-18		
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
3/13/18	Mike Bayne	19.48	25.32	44	16	
3/13/18	Mike Bayne	23.36	30.37	44	16	
3/13/18	Mike Bayne	21.83	28.38	44	16	44
3/14/18	Mike Bayne	21.76	28.29	44	16	
3/14/18	Mike Bayne	19.58	25.45	44	16	
3/14/18	Oscar Ochoa	10.56	13.73	44	16	44
3/15/18	Oscar Ochoa	22.04	28.65	44	16	
3/15/18	Jerry Devoe	22.39	29.11	44	16	
3/15/18	Jerry Devoe	20.24	26.31	44	16	44
3/16/18	Jerry Devoe	22.60	29.38	44	16	24
Totals		203.84	264.99	440.00	160.00	156.00
Windrow Construction ratio:		2.85 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 18-3-16																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	3/17/18	152	150	141	140	142	135	131	129	141	137	132	130	134	122	122	120	142.25	136	131.5	129.75	
2	3/18/18																					
3	3/19/18	156	163	160	156	162	160	142	136	162	162	140	140	163	156	138	130	160.75	160.25	145	140.5	
4	3/20/18	156	164	162	160	160	161	150	144	162	163	152	148	162	158	141	132	160	161.5	151.25	146	
5	3/21/18	158	164	168	168	152	160	154	148	160	160	161	152	159	156	148	138	157.25	160	157.75	151.5	
6	3/22/18	160	162	166	168	159	162	160	154	160	161	160	152	158	157	150	140	159.25	160.5	159	153.5	
7	3/23/18	160	162	165	165	158	160	159	154	159	160	158	152	158	159	152	142	158.75	160.25	158.5	153.25	
8	3/24/18	158	158	164	165	156	156	158	154	154	158	150	152	156	159	153	144	156	157.75	156.25	153.75	
9	3/25/18																					
10	3/26/18	156	158	165	165	160	160	158	156	150	156	160	160	150	160	156	156	154	158.5	159.75	159.25	
11	3/27/18	156	160	164	165	160	162	159	156	154	162	160	160	154	160	156	156	156	161	159.75	159.25	
12	3/28/18	156	160	162	164	161	162	160	158	158	161	161	161	158	161	156	155	158.25	161	159.75	159.5	
13	3/29/18	156	158	160	163	163	164	160	158	158	160	160	162	162	161	156	154	159.75	160.75	159	159.25	
14	3/30/18	158	160	162	162	161	162	160	160	158	161	162	162	160	161	159	159	159.25	161	160.75	160.75	
15	3/31/18	158	160	160	164	158	162	162	162	159	162	164	164	158	161	163	162	158.25	161.25	162.25	163	

Attachment M

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 18-3-20	
Windrow Construction:			Date Commenced: 3-16-18		Date Completed: 3-20-18	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
3/16/18	Jerry Devoe	20.48	26.62	44	16	
3/16/18	Jerry Devoe	22.12	28.76	44	16	
3/16/18	Jerry Devoe	14.65	19.05	44	16	44
3/17/18	Jerry Devoe	22.73	29.55	44	16	
3/17/18	Jerry Devoe	22.23	28.90	44	16	36
3/19/18	Jerry Devoe	22.24	28.91	44	16	
3/19/18	Jerry Devoe	21.98	28.57	44	16	
3/19/18	Oscar Ochoa	23.87	31.03	44	16	
3/19/18	Oscar Ochoa	20.22	26.29	44	16	60
3/20/18	Oscar Ochoa	18.82	24.47	44	16	24
Totals		209.34	272.14	440.00	160.00	164.00
Windrow Construction ratio:		2.81 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 18-3-20																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	3/21/18	156	158	153	138	152	156	144	150	146	139	130	129	142	128	116	116	149	145.25	135.75	133.25	
2	3/22/18	161	161	153	144	155	158	149	150	149	139	131	129	146	139	129	125	152.75	149.25	140.5	137	
3	3/23/18	160	162	154	150	160	164	160	162	151	148	142	140	160	152	140	138	157.75	156.5	149	147.5	
4	3/24/18	160	162	160	154	160	160	158	158	154	152	154	160	164	158	150	142	159.5	158	155.5	153.5	
5	3/25/18																					
6	3/26/18	158	160	162	152	162	160	158	156	160	158	158	160	160	164	154	144	160	160.5	158	153	
7	3/27/18	156	158	162	154	160	160	158	156	159	158	158	160	162	164	157	150	159.25	160	158.75	155	
8	3/28/18	160	160	161	152	158	160	156	155	158	160	158	160	158	162	162	154	158.5	160.5	159.25	155.25	
9	3/29/18	159	162	162	160	158	161	158	158	150	161	163	165	152	162	164	156	154.75	161.5	161.75	159.75	
10	3/30/18	160	164	160	154	162	162	160	160	162	162	160	162	154	162	163	158	159.5	162.5	160.75	158.5	
11	3/31/18	158	166	160	152	166	164	160	158	166	164	160	160	156	160	161	160	161.5	163.5	160.25	157.5	

Attachment N

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 18-3-23	
Windrow Construction:			Date Commenced: 3-20-18		Date Completed: 3-23-18	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
3/20/18	Jerry Devoe	22.63	29.42	44	16	
3/20/18	Jerry Devoe	20.66	26.86	44	16	28
3/21/18	Jerry Devoe	20.57	26.74	44	16	
3/21/18	Jerry Devoe	19.71	25.62	44	16	
3/21/18	Jerry Devoe	21.87	28.43	44	16	44
3/22/18	Jerry Devoe	23.11	30.04	44	16	
3/22/18	Jerry Devoe	18.11	23.54	44	16	
3/22/18	Oscar Ochoa	22.81	29.65	44	16	44
3/23/18	Oscar Ochoa	21.26	27.64	44	16	20
Totals		190.73	247.95	396.00	144.00	136.00
Windrow Construction ratio:		2.73 /1				

Note: Yard waste yards = number of buckets * 4.00

MSAP Process Temperature Chart Windrow# 18-3-23																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	3/24/18	152	151	150	132	146	148	150	141	141	145	138	127	142	148	151	138	145.25	148	147.25	134.5	
2	3/25/18																					
3	3/26/18	153	150	147	136	158	153	149	142	150	153	148	138	155	150	145	140	154	151.5	147.25	139	
4	3/27/18	158	152	146	138	158	151	144	146	156	150	144	140	157	154	149	144	157.25	151.75	145.75	142	
5	3/28/18	158	156	154	144	158	156	150	148	158	156	150	148	158	156	152	148	158	156	151.5	147	
6	3/29/18	156	160	158	150	158	158	156	158	156	154	157	152	160	158	156	152	157.5	157.5	156.75	153	
7	3/30/18	150	156	148	152	155	160	160	160	150	150	158	160	138	156	145	150	148.25	155.5	152.75	155.5	
8	3/31/18	147	152	151	155	158	160	161	162	143	148	151	155	141	156	148	151	147.25	154	152.75	155.75	

Attachment O

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 18-3-27	
Windrow Construction:			Date Commenced: 3-23-18		Date Completed: 3-27-18	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
3/23/18	Jerry Devoe	21.81	28.35	44	16	
3/23/18	Jerry Devoe	20.71	26.92	44	16	
3/23/18	Jerry Devoe	15.83	20.58	44	16	44
3/24/18	Jerry Devoe	18.43	23.96	44	16	
3/24/18	Jerry Devoe	19.98	25.97	44	16	24
3/26/18	Jerry Devoe	22.47	29.21	44	16	
3/26/18	Jerry Devoe	19.95	25.94	44	16	
3/26/18	Oscar Ochoa	19.18	24.93	44	16	
3/26/18	Oscar Ochoa	23.07	29.99	44	16	56
3/27/18	Oscar Ochoa	23.53	30.59	44	16	20
Totals		204.96	266.45	440.00	160.00	144.00
Windrow Construction ratio:		2.79 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 18-3-27																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	3/28/18	146	140	136	132	148	142	140	135	140	140	136	130	138	136	130	128	143	139.5	135.5	131.25	
2	3/29/18	150	148	140	138	158	160	150	146	158	151	148	140	148	146	143	140	153.5	151.25	145.25	141	
3	3/30/18	160	158	151	148	160	158	155	150	160	157	150	148	160	157	144	141	160	157.5	150	146.75	
4	3/31/18	158	152	150	146	155	153	151	150	162	160	158	153	157	151	148	143	158	154	151.75	148	

Attachment P

Hillsborough County Composting - Monitoring Sheet (MSAP Method)				Windrow # 18-3-30		
Windrow Construction:			Date Commenced: 3-27-18	Date Completed: 3-30-18		
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
3/27/18	Mike Bayne	21.78	28.31	44	16	
3/27/18	Mike Bayne	21.63	28.12	44	16	28
3/28/18	Mike Bayne	24.16	31.41	44	16	
3/28/18	Mike Bayne	22.47	29.21	44	16	
3/28/18	Mike Bayne	21.74	28.26	44	16	44
3/29/18	Mike Bayne	20.30	26.39	44	16	
3/29/18	Mike Bayne	21.20	27.56	44	16	
3/29/18	Jerry Devoe	20.59	26.77	44	16	44
3/30/18	Jerry Devoe	22.52	29.28	44	16	
3/30/18	Jerry Devoe	22.62	29.41	44	16	28
Totals		219.01	284.71	440.00	160.00	144.00
Windrow Construction ratio:		2.61 /1				
Note: Yard waste yards = number of buckets * 4.00						